

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| superior conj    | 8100 May 08 10:36 | 21°♄10'58 | -1°58'07   | morning set         | 8101 Apr 03 13:36 | 6°♄27'31  |            |
| minimum elong    | 8100 May 08 15:59 | 21°♄34'23 | 1°57'51    | max. Earth dist.    | 8101 Apr 13 04:43 | 21°♄37'03 | 1.43726 AU |
|                  | 8100 May 13 10:19 | 0°♄       |            |                     | 8101 Apr 18 08:35 | 0°♄       |            |
| evening rise     | 8100 May 19 10:42 | 10°♄55'53 |            |                     |                   |           |            |
| asc. node        | 8100 May 24 10:42 | 20°♄00'03 |            | superior conj       | 8101 Apr 19 07:27 | 1°♄34'13  | -2°11'03   |
|                  | 8100 May 30 10:29 | 0°♄       |            | minimum elong       | 8101 Apr 19 09:10 | 1°♄41'17  | 2°11'05    |
| evening max el   | 8100 Jun 04 17:48 | 6°♄43'48  | 18°09'47   | evening rise        | 8101 May 01 22:38 | 23°♄04'12 |            |
| retrograde       | 8100 Jun 11 14:57 | 10°♄12'39 |            |                     | 8101 May 05 22:15 | 0°♄       |            |
| evening set      | 8100 Jun 14 01:29 | 9°♄46'57  |            | asc. node           | 8101 May 11 07:45 | 9°♄05'52  |            |
| inferior conj    | 8100 Jun 20 23:59 | 4°♄57'55  | 1°59'52    | evening max el      | 8101 May 19 06:46 | 19°♄55'03 | 18°06'25   |
| minimum elong    | 8100 Jun 21 03:02 | 4°♄50'59  | 1°58'50    | retrograde          | 8101 May 25 17:16 | 23°♄15'40 |            |
| min. Earth dist. | 8100 Jun 24 08:11 | 1°♄57'31  | 0.59944 AU | evening set         | 8101 May 28 11:15 | 22°♄38'03 |            |
|                  | 8100 Jun 26 19:41 | 30°♄      |            | inferior conj       | 8101 Jun 03 18:48 | 17°♄29'23 | 2°49'11    |
| morning rise     | 8100 Jun 28 01:43 | 29°♄10'30 |            | minimum elong       | 8101 Jun 03 21:26 | 17°♄22'32 | 2°48'30    |
| desc. node       | 8100 Jun 28 06:42 | 29°♄03'03 |            | min. Earth dist.    | 8101 Jun 06 17:20 | 14°♄27'40 | 0.62182 AU |
| direct           | 8100 Jul 04 13:03 | 27°♄11'03 |            | morning rise        | 8101 Jun 10 05:46 | 11°♄24'12 |            |
|                  | 8100 Jul 12 17:36 | 0°♄       |            | desc. node          | 8101 Jun 15 03:43 | 9°♄08'32  |            |
| morning max el   | 8100 Jul 18 21:25 | 5°♄05'29  | 27°41'46   | direct              | 8101 Jun 16 23:54 | 8°♄57'58  |            |
|                  | 8100 Aug 06 09:35 | 0°♄       |            | morning max el      | 8101 Jul 01 02:55 | 16°♄59'40 | 27°55'03   |
| morning set      | 8100 Aug 19 21:29 | 25°♄19'12 |            |                     | 8101 Jul 11 21:19 | 0°♄       |            |
| asc. node        | 8100 Aug 20 10:05 | 26°♄25'07 |            |                     | 8101 Jul 30 03:00 | 0°♄       |            |
|                  | 8100 Aug 22 02:36 | 0°♄       |            | morning set         | 8101 Aug 03 22:17 | 9°♄27'42  |            |
| max. Earth dist. | 8100 Aug 26 03:58 | 8°♄50'42  | 1.31704 AU | asc. node           | 8101 Aug 07 07:03 | 16°♄27'39 |            |
|                  |                   |           |            | max. Earth dist.    | 8101 Aug 09 10:47 | 21°♄04'30 | 1.32145 AU |
| superior conj    | 8100 Aug 27 01:32 | 10°♄49'53 | 1°03'20    |                     |                   |           |            |
| minimum elong    | 8100 Aug 26 23:19 | 10°♄37'38 | 1°02'53    | superior conj       | 8101 Aug 11 10:58 | 25°♄26'29 | 0°41'23    |
| evening rise     | 8100 Sep 02 19:31 | 25°♄38'08 |            | minimum elong       | 8101 Aug 11 09:13 | 25°♄16'54 | 0°40'57    |
|                  | 8100 Sep 04 21:09 | 0°♄       |            |                     | 8101 Aug 13 12:52 | 0°♄       |            |
|                  | 8100 Sep 22 03:21 | 0°♄       |            | evening rise        | 8101 Aug 18 06:55 | 10°♄20'49 |            |
| desc. node       | 8100 Sep 24 05:38 | 2°♄45'47  |            |                     | 8101 Aug 28 06:31 | 0°♄       |            |
| evening max el   | 8100 Sep 30 14:35 | 9°♄51'40  | 25°46'46   | desc. node          | 8101 Sep 11 02:43 | 19°♄22'48 |            |
| retrograde       | 8100 Oct 14 13:01 | 16°♄55'04 |            | evening max el      | 8101 Sep 12 03:54 | 20°♄25'17 | 24°16'39   |
| evening set      | 8100 Oct 20 17:50 | 15°♄24'44 |            | retrograde          | 8101 Sep 25 21:51 | 27°♄19'03 |            |
| min. Earth dist. | 8100 Oct 25 03:08 | 12°♄48'40 | 0.58153 AU | evening set         | 8101 Sep 30 21:20 | 26°♄24'22 |            |
| inferior conj    | 8100 Oct 28 05:25 | 10°♄36'36 | -5°06'34   | min. Earth dist.    | 8101 Oct 06 14:45 | 23°♄31'38 | 0.56342 AU |
| minimum elong    | 8100 Oct 28 11:32 | 10°♄25'41 | 5°05'27    | inferior conj       | 8101 Oct 09 01:38 | 22°♄00'05 | -5°33'38   |
| morning rise     | 8100 Nov 05 07:34 | 6°♄15'04  |            | minimum elong       | 8101 Oct 09 02:34 | 21°♄58'38 | 5°33'34    |
| direct           | 8100 Nov 07 15:32 | 5°♄57'49  |            | morning rise        | 8101 Oct 17 09:56 | 17°♄59'36 |            |
| morning max el   | 8100 Nov 16 03:10 | 10°♄03'19 | 18°43'26   | direct              | 8101 Oct 20 02:02 | 17°♄40'44 |            |
| asc. node        | 8100 Nov 16 09:37 | 10°♄19'03 |            | morning max el      | 8101 Oct 29 22:12 | 22°♄19'10 | 19°42'55   |
|                  | 8100 Nov 29 05:21 | 0°♄       |            | asc. node           | 8101 Nov 03 06:37 | 27°♄17'47 |            |
| morning set      | 8100 Dec 02 09:44 | 6°♄08'18  |            |                     | 8101 Nov 05 04:31 | 0°♄       |            |
|                  |                   |           |            | morning set         | 8101 Nov 16 13:11 | 20°♄39'35 |            |
| superior conj    | 8100 Dec 11 01:08 | 22°♄50'37 | 1°10'45    |                     | 8101 Nov 21 03:46 | 0°♄       |            |
| minimum elong    | 8100 Dec 11 04:30 | 23°♄06'30 | 1°10'28    |                     |                   |           |            |
|                  | 8100 Dec 14 21:52 | 0°♄       |            | superior conj       | 8101 Nov 24 09:53 | 6°♄31'01  | 1°28'52    |
| max. Earth dist. | 8100 Dec 18 06:02 | 5°♄58'27  | 1.39637 AU | minimum elong       | 8101 Nov 24 12:23 | 6°♄43'23  | 1°28'47    |
| desc. node       | 8100 Dec 21 04:37 | 11°♄04'10 |            | max. Earth dist.    | 8101 Nov 30 11:54 | 18°♄12'42 | 1.37485 AU |
| evening rise     | 8100 Dec 22 06:39 | 12°♄54'41 |            | evening rise        | 8101 Dec 04 05:36 | 25°♄01'05 |            |
|                  | 8101 Jan 01 22:10 | 0°♄       |            |                     | 8101 Dec 07 01:51 | 0°♄       |            |
|                  | 8101 Jan 24 06:07 | 0°♄       |            | desc. node          | 8101 Dec 08 01:39 | 1°♄41'55  |            |
| evening max el   | 8101 Jan 26 07:10 | 2°♄07'20  | 24°07'39   |                     | 8101 Dec 26 13:16 | 0°♄       |            |
| retrograde       | 8101 Feb 06 11:14 | 8°♄40'49  |            | evening max el      | 8102 Jan 08 20:21 | 15°♄54'43 | 25°23'04   |
| evening set      | 8101 Feb 11 18:39 | 6°♄28'06  |            | retrograde          | 8102 Jan 20 23:30 | 22°♄54'14 |            |
| asc. node        | 8101 Feb 12 08:47 | 5°♄56'28  |            | evening set         | 8102 Jan 26 19:47 | 20°♄29'16 |            |
| min. Earth dist. | 8101 Feb 16 11:45 | 1°♄02'30  | 0.68140 AU | asc. node           | 8102 Jan 30 05:50 | 16°♄52'55 |            |
| inferior conj    | 8101 Feb 17 06:15 | 29°♄59'57 | 1°33'03    | min. Earth dist.    | 8102 Jan 31 05:35 | 15°♄38'22 | 0.67489 AU |
| minimum elong    | 8101 Feb 17 04:20 | 0°♄06'27  | 1°32'26    | inferior conj       | 8102 Feb 01 11:28 | 14°♄01'58 | 0°44'05    |
|                  | 8101 Feb 17 06:14 | 30°♄      |            | minimum elong       | 8102 Feb 01 10:24 | 14°♄05'25 | 0°43'45    |
| morning rise     | 8101 Feb 22 14:03 | 23°♄57'39 |            | morning rise        | 8102 Feb 07 01:21 | 8°♄07'40  |            |
| direct           | 8101 Feb 26 13:01 | 22°♄28'35 |            | direct              | 8102 Feb 10 12:09 | 6°♄59'13  |            |
| morning max el   | 8101 Mar 06 08:37 | 26°♄54'29 | 20°19'22   | morning max el      | 8102 Feb 17 13:03 | 10°♄52'26 | 19°17'00   |
|                  | 8101 Mar 09 04:47 | 0°♄       |            | greatest brilliancy | 8102 Mar 02 15:36 | 28°♄16'45 | -0.7m      |
| desc. node       | 8101 Mar 19 04:10 | 13°♄20'31 |            |                     | 8102 Mar 03 19:05 | 0°♄       |            |
|                  | 8101 Mar 30 08:40 | 0°♄       |            | desc. node          | 8102 Mar 06 01:08 | 3°♄24'48  |            |

|                  |                   |                                  |            |                     |                   |                                  |            |
|------------------|-------------------|----------------------------------|------------|---------------------|-------------------|----------------------------------|------------|
| morning set      | 8102 Mar 13 13:28 | 14° $\text{H}$ 57'21             |            | transit begin       | 8103 Jan 16 10:29 | 28° $\text{Z}$ 03'54             |            |
|                  | 8102 Mar 23 05:45 | 0° $\text{Y}$                    |            | transit end         | 8103 Jan 16 14:15 | 27° $\text{Z}$ 52'29             |            |
| max. Earth dist. | 8102 Mar 26 19:24 | 5° $\text{Y}$ 36'22              | 1.44961 AU | asc. node           | 8103 Jan 17 02:54 | 27° $\text{Z}$ 14'30             |            |
|                  |                   |                                  |            | morning rise        | 8103 Jan 22 10:17 | 22° $\text{Z}$ 15'07             |            |
| superior conj    | 8102 Mar 30 04:14 | 10° $\text{Y}$ 56'16             | -2°06'30   | direct              | 8103 Jan 25 10:28 | 21° $\text{Z}$ 24'16             |            |
| minimum elong    | 8102 Mar 29 23:04 | 10° $\text{Y}$ 35'44             | 2°06'19    | morning max el      | 8103 Feb 01 00:23 | 24° $\text{Z}$ 57'20             | 18°30'33   |
|                  | 8102 Apr 10 23:01 | 0° $\text{Z}$                    |            |                     | 8103 Feb 05 07:29 | 0° $\approx$                     |            |
| evening rise     | 8102 Apr 13 13:12 | 4° $\text{Z}$ 16'42              |            | desc. node          | 8103 Feb 20 22:04 | 23° $\approx$ 45'48              |            |
| asc. node        | 8102 Apr 28 04:47 | 27° $\text{Z}$ 41'54             |            | morning set         | 8103 Feb 21 10:24 | 24° $\approx$ 34'39              |            |
|                  | 8102 Apr 29 21:55 | 0° $\text{II}$                   |            |                     | 8103 Feb 24 20:36 | 0° $\text{H}$                    |            |
| evening max el   | 8102 May 02 19:51 | 3° $\text{II}$ 20'54             | 18°21'38   |                     |                   |                                  |            |
| retrograde       | 8102 May 09 05:46 | 6° $\text{II}$ 47'43             |            | superior conj       | 8103 Mar 09 09:58 | 19° $\text{H}$ 43'46             | -1°41'47   |
| evening set      | 8102 May 12 06:55 | 5° $\text{II}$ 56'46             |            | minimum elong       | 8103 Mar 09 00:24 | 19° $\text{H}$ 06'21             | 1°40'53    |
| inferior conj    | 8102 May 18 03:32 | 0° $\text{II}$ 29'58             | 3°15'36    | max. Earth dist.    | 8103 Mar 09 14:04 | 19° $\text{H}$ 59'52             | 1.45492 AU |
| minimum elong    | 8102 May 18 04:57 | 0° $\text{II}$ 25'53             | 3°15'19    |                     | 8103 Mar 15 23:15 | 0° $\text{Y}$                    |            |
|                  | 8102 May 18 13:51 | 30° $\text{R}$ 8                 |            | evening rise        | 8103 Mar 25 04:11 | 14° $\text{Y}$ 31'26             |            |
| min. Earth dist. | 8102 May 20 11:48 | 27° $\text{Z}$ 47'48             | 0.64221 AU | greatest brilliancy | 8103 Apr 03 07:39 | 28° $\text{Y}$ 59'02             | -0.8m      |
| morning rise     | 8102 May 24 01:58 | 24° $\text{Z}$ 15'33             |            |                     | 8103 Apr 03 23:17 | 0° $\text{Z}$                    |            |
| direct           | 8102 May 30 19:11 | 21° $\text{Z}$ 33'02             |            | asc. node           | 8103 Apr 15 01:51 | 15° $\text{Z}$ 38'07             |            |
| desc. node       | 8102 Jun 02 00:43 | 21° $\text{Z}$ 49'02             |            | evening max el      | 8103 Apr 16 06:21 | 16° $\text{Z}$ 54'12             | 18°54'41   |
| morning max el   | 8102 Jun 13 12:17 | 29° $\text{Z}$ 32'26             | 27°31'41   | retrograde          | 8103 Apr 23 00:29 | 20° $\text{Z}$ 39'59             |            |
|                  | 8102 Jun 13 23:07 | 0° $\text{II}$                   |            | evening set         | 8103 Apr 26 09:00 | 19° $\text{Z}$ 34'55             |            |
|                  | 8102 Jul 05 19:48 | 0° $\text{Z}$                    |            | inferior conj       | 8103 May 01 22:22 | 13° $\text{Z}$ 51'44             | 3°24'02    |
| morning set      | 8102 Jul 18 15:08 | 23° $\text{Z}$ 10'32             |            | minimum elong       | 8103 May 01 22:25 | 13° $\text{Z}$ 51'33             | 3°23'55    |
|                  | 8102 Jul 22 00:31 | 0° $\Omega$                      |            | min. Earth dist.    | 8103 May 03 15:15 | 11° $\text{Z}$ 43'16             | 0.65908 AU |
| max. Earth dist. | 8102 Jul 23 10:38 | 2° $\Omega$ 56'26                | 1.33062 AU | morning rise        | 8103 May 07 11:20 | 7° $\text{Z}$ 33'54              |            |
| asc. node        | 8102 Jul 25 04:02 | 6° $\Omega$ 33'45                |            | direct              | 8103 May 13 21:41 | 4° $\text{Z}$ 47'05              |            |
|                  |                   |                                  |            | desc. node          | 8103 May 19 21:43 | 6° $\text{Z}$ 43'03              |            |
| superior conj    | 8102 Jul 26 16:25 | 9° $\Omega$ 47'15                | 0°15'22    | morning max el      | 8103 May 26 22:52 | 12° $\text{Z}$ 32'01             | 26°37'35   |
| minimum elong    | 8102 Jul 26 15:40 | 9° $\Omega$ 43'14                | 0°15'05    |                     | 8103 Jun 09 23:13 | 0° $\text{II}$                   |            |
| behind sun begin | 8102 Jul 26 13:51 | 9° $\Omega$ 33'30                |            |                     | 8103 Jun 28 11:10 | 0° $\text{Z}$                    |            |
| behind sun end   | 8102 Jul 26 17:29 | 9° $\Omega$ 52'58                |            | morning set         | 8103 Jul 01 20:48 | 6° $\text{Z}$ 18'18              |            |
| evening rise     | 8102 Aug 02 18:23 | 25° $\Omega$ 00'20               |            | max. Earth dist.    | 8103 Jul 06 00:16 | 14° $\text{Z}$ 20'18             | 1.34458 AU |
|                  | 8102 Aug 05 03:38 | 0° $\text{H}$                    |            |                     |                   |                                  |            |
|                  | 8102 Aug 24 00:28 | 0° $\underline{\text{Z}}$        |            | superior conj       | 8103 Jul 10 15:36 | 23° $\text{Z}$ 45'11             | -0°14'01   |
| evening max el   | 8102 Aug 24 15:45 | 0° $\underline{\text{Z}}$ 38'08  | 22°37'18   | minimum elong       | 8103 Jul 10 16:23 | 23° $\text{Z}$ 49'14             | 0°13'59    |
| desc. node       | 8102 Aug 28 23:47 | 4° $\underline{\text{Z}}$ 12'45  |            | behind sun begin    | 8103 Jul 10 13:30 | 23° $\text{Z}$ 34'18             |            |
| retrograde       | 8102 Sep 06 18:19 | 7° $\underline{\text{Z}}$ 10'30  |            | behind sun end      | 8103 Jul 10 19:17 | 24° $\text{Z}$ 04'11             |            |
| evening set      | 8102 Sep 10 05:30 | 6° $\underline{\text{Z}}$ 44'07  |            | asc. node           | 8103 Jul 12 01:01 | 26° $\text{Z}$ 38'55             |            |
| min. Earth dist. | 8102 Sep 17 23:07 | 3° $\underline{\text{Z}}$ 18'11  | 0.55098 AU |                     | 8103 Jul 13 15:24 | 0° $\Omega$                      |            |
| inferior conj    | 8102 Sep 19 03:30 | 2° $\underline{\text{Z}}$ 37'52  | -5°13'45   | evening rise        | 8103 Jul 18 03:56 | 9° $\Omega$ 30'06                |            |
| minimum elong    | 8102 Sep 18 21:01 | 2° $\underline{\text{Z}}$ 47'06  | 5°12'48    |                     | 8103 Jul 28 23:33 | 0° $\text{H}$                    |            |
|                  | 8102 Sep 24 04:23 | 30° $\text{R}$ $\text{H}$        |            | evening max el      | 8103 Aug 06 11:11 | 11° $\text{H}$ 06'17             | 21°04'56   |
| morning rise     | 8102 Sep 27 14:27 | 28° $\text{H}$ 49'39             |            | desc. node          | 8103 Aug 15 20:51 | 16° $\text{H}$ 43'29             |            |
| direct           | 8102 Sep 30 18:42 | 28° $\text{H}$ 26'35             |            | retrograde          | 8103 Aug 18 07:13 | 16° $\text{H}$ 58'03             |            |
|                  | 8102 Oct 06 22:48 | 0° $\underline{\text{Z}}$        |            | evening set         | 8103 Aug 20 14:05 | 16° $\text{H}$ 45'46             |            |
| morning max el   | 8102 Oct 12 04:21 | 3° $\underline{\text{Z}}$ 46'52  | 21°04'30   | inferior conj       | 8103 Aug 29 20:09 | 12° $\text{H}$ 48'37             | -3°59'07   |
| asc. node        | 8102 Oct 21 03:36 | 15° $\underline{\text{Z}}$ 12'00 |            | minimum elong       | 8103 Aug 29 10:40 | 13° $\text{H}$ 02'00             | 3°56'25    |
|                  | 8102 Oct 29 06:14 | 0° $\text{H}$                    |            | min. Earth dist.    | 8103 Aug 30 08:04 | 12° $\text{H}$ 31'47             | 0.54690 AU |
| morning set      | 8102 Oct 31 21:24 | 5° $\text{H}$ 22'49              |            | morning rise        | 8103 Sep 07 07:41 | 8° $\text{H}$ 53'43              |            |
|                  |                   |                                  |            | direct              | 8103 Sep 11 02:42 | 8° $\text{H}$ 22'51              |            |
| superior conj    | 8102 Nov 08 05:40 | 20° $\text{H}$ 42'36             | 1°38'47    | morning max el      | 8103 Sep 23 23:08 | 14° $\text{H}$ 30'17             | 22°43'44   |
| minimum elong    | 8102 Nov 08 06:51 | 20° $\text{H}$ 48'45             | 1°38'51    |                     | 8103 Oct 05 19:33 | 0° $\underline{\text{Z}}$        |            |
|                  | 8102 Nov 12 19:59 | 0° $\text{Z}$                    |            | asc. node           | 8103 Oct 08 00:36 | 3° $\underline{\text{Z}}$ 48'41  |            |
| max. Earth dist. | 8102 Nov 12 21:25 | 0° $\text{Z}$ 07'06              | 1.35513 AU | morning set         | 8103 Oct 16 08:17 | 20° $\underline{\text{Z}}$ 12'03 |            |
| evening rise     | 8102 Nov 16 22:52 | 7° $\text{Z}$ 55'55              |            |                     | 8103 Oct 20 22:12 | 0° $\text{H}$                    |            |
| desc. node       | 8102 Nov 24 22:40 | 22° $\text{Z}$ 09'15             |            |                     |                   |                                  |            |
|                  | 8102 Nov 29 18:04 | 0° $\text{Z}$                    |            | superior conj       | 8103 Oct 23 09:04 | 5° $\text{H}$ 15'27              | 1°41'29    |
| evening max el   | 8102 Dec 22 09:28 | 29° $\text{Z}$ 39'13             | 26°26'33   | minimum elong       | 8103 Oct 23 08:57 | 5° $\text{H}$ 14'50              | 1°41'35    |
|                  | 8102 Dec 22 18:07 | 0° $\approx$                     |            | max. Earth dist.    | 8103 Oct 26 14:24 | 12° $\text{H}$ 02'47             | 1.33887 AU |
| retrograde       | 8103 Jan 04 06:37 | 6° $\approx$ 54'14               |            | evening rise        | 8103 Oct 31 06:36 | 21° $\text{H}$ 29'49             |            |
| evening set      | 8103 Jan 10 15:15 | 4° $\approx$ 20'30               |            |                     | 8103 Nov 04 17:54 | 0° $\text{Z}$                    |            |
|                  | 8103 Jan 14 20:03 | 30° $\text{R}$ $\text{Z}$        |            | desc. node          | 8103 Nov 11 19:43 | 12° $\text{Z}$ 20'57             |            |
| min. Earth dist. | 8103 Jan 14 18:33 | 0° $\approx$ 04'27               | 0.66462 AU |                     | 8103 Nov 23 14:15 | 0° $\text{Z}$                    |            |
| inferior conj    | 8103 Jan 16 12:02 | 27° $\text{Z}$ 59'13             | -0°12'27   | evening max el      | 8103 Dec 04 22:23 | 13° $\text{Z}$ 12'57             | 27°10'49   |
| minimum elong    | 8103 Jan 16 12:22 | 27° $\text{Z}$ 58'11             | 0°12'11    | retrograde          | 8103 Dec 18 08:02 | 20° $\text{Z}$ 33'36             |            |
| transit middle   | 8103 Jan 16 12:22 | 27° $\text{Z}$ 58'11             | 0°12'11    | evening set         | 8103 Dec 25 03:01 | 17° $\text{Z}$ 56'59             |            |

|                     |                   |                           |            |                  |                   |                           |            |
|---------------------|-------------------|---------------------------|------------|------------------|-------------------|---------------------------|------------|
| min. Earth dist.    | 8103 Dec 29 00:36 | 14° $\text{Z}$ 14'54      | 0.65080 AU | evening set      | 8104 Dec 07 04:20 | 1° $\text{Z}$ 11'25       |            |
| inferior conj       | 8103 Dec 31 05:46 | 11° $\text{Z}$ 47'25      | -1°15'40   |                  | 8104 Dec 08 17:07 | 30° $\text{R}$ $\text{Z}$ |            |
| minimum elong       | 8103 Dec 31 08:02 | 11° $\text{Z}$ 41'09      | 1°14'35    | min. Earth dist. | 8104 Dec 10 21:42 | 28° $\text{Z}$ 00'18      | 0.63378 AU |
| asc. node           | 8104 Jan 03 23:57 | 7° $\text{Z}$ 59'28       |            | inferior conj    | 8104 Dec 13 14:00 | 25° $\text{Z}$ 19'35      | -2°23'50   |
| morning rise        | 8104 Jan 06 14:26 | 6° $\text{Z}$ 16'02       |            | minimum elong    | 8104 Dec 13 18:31 | 25° $\text{Z}$ 08'16      | 2°21'54    |
| direct              | 8104 Jan 09 05:50 | 5° $\text{Z}$ 39'02       |            | morning rise     | 8104 Dec 20 10:35 | 20° $\text{Z}$ 03'48      |            |
| morning max el      | 8104 Jan 15 16:15 | 9° $\text{Z}$ 03'00       | 18°00'47   | asc. node        | 8104 Dec 20 21:02 | 19° $\text{Z}$ 54'52      |            |
|                     | 8104 Jan 30 02:28 | 0° $\approx$              |            | direct           | 8104 Dec 22 19:35 | 19° $\text{Z}$ 36'41      |            |
| morning set         | 8104 Feb 02 12:57 | 5° $\approx$ 40'38        |            | morning max el   | 8104 Dec 29 09:36 | 23° $\text{Z}$ 00'56      | 17°48'15   |
| desc. node          | 8104 Feb 07 19:02 | 14° $\approx$ 18'51       |            |                  | 8105 Jan 03 21:52 | 0° $\text{Z}$             |            |
|                     |                   |                           |            | morning set      | 8105 Jan 14 17:39 | 18° $\text{Z}$ 02'19      |            |
| superior conj       | 8104 Feb 16 19:16 | 28° $\approx$ 48'47       | -1°01'52   |                  | 8105 Jan 21 16:46 | 0° $\approx$              |            |
| minimum elong       | 8104 Feb 16 12:06 | 28° $\approx$ 20'21       | 1°00'51    | desc. node       | 8105 Jan 24 16:00 | 4° $\approx$ 59'18        |            |
|                     | 8104 Feb 17 13:14 | 0° $\text{X}$             |            |                  |                   |                           |            |
| max. Earth dist.    | 8104 Feb 20 09:34 | 4° $\text{X}$ 29'28       | 1.45280 AU | superior conj    | 8105 Jan 27 00:26 | 8° $\approx$ 53'08        | -0°17'04   |
| evening rise        | 8104 Mar 03 23:22 | 24° $\text{X}$ 02'33      |            | minimum elong    | 8105 Jan 26 22:37 | 8° $\approx$ 45'40        | 0°16'40    |
|                     | 8104 Mar 07 20:15 | 0° $\text{Y}$             |            | max. Earth dist. | 8105 Feb 02 03:24 | 18° $\approx$ 48'43       | 1.44360 AU |
| greatest brilliancy | 8104 Mar 17 19:11 | 15° $\text{Y}$ 05'16      | -0.7m      |                  | 8105 Feb 09 06:13 | 0° $\text{X}$             |            |
|                     | 8104 Mar 29 00:24 | 0° $\text{B}$             |            | evening rise     | 8105 Feb 11 10:22 | 3° $\text{X}$ 21'17       |            |
| evening max el      | 8104 Mar 29 12:28 | 0° $\text{B}$ 31'21       | 19°44'15   |                  | 8105 Mar 01 08:29 | 0° $\text{Y}$             |            |
| asc. node           | 8104 Mar 31 22:56 | 2° $\text{B}$ 42'56       |            | evening max el   | 8105 Mar 12 13:12 | 14° $\text{Y}$ 09'56      | 20°48'01   |
| retrograde          | 8104 Apr 05 22:20 | 4° $\text{B}$ 46'47       |            | asc. node        | 8105 Mar 18 20:02 | 18° $\text{Y}$ 41'40      |            |
| evening set         | 8104 Apr 09 15:00 | 3° $\text{B}$ 27'04       |            | retrograde       | 8105 Mar 20 20:50 | 19° $\text{Y}$ 02'50      |            |
|                     | 8104 Apr 13 01:40 | 30° $\text{R}$ $\text{Y}$ |            | evening set      | 8105 Mar 24 22:50 | 17° $\text{Y}$ 27'58      |            |
| inferior conj       | 8104 Apr 15 00:10 | 27° $\text{Y}$ 29'22      | 3°18'16    | inferior conj    | 8105 Mar 30 06:18 | 11° $\text{Y}$ 17'52      | 3°00'56    |
| minimum elong       | 8104 Apr 14 23:05 | 27° $\text{Y}$ 32'58      | 3°18'06    | minimum elong    | 8105 Mar 30 04:26 | 11° $\text{Y}$ 24'18      | 3°00'35    |
| min. Earth dist.    | 8104 Apr 16 02:16 | 26° $\text{Y}$ 02'21      | 0.67172 AU | min. Earth dist. | 8105 Mar 30 18:43 | 10° $\text{Y}$ 35'02      | 0.67991 AU |
| morning rise        | 8104 Apr 20 06:53 | 21° $\text{Y}$ 11'47      |            | morning rise     | 8105 Apr 04 09:49 | 5° $\text{Y}$ 02'51       |            |
| direct              | 8104 Apr 26 06:27 | 18° $\text{Y}$ 31'43      |            | direct           | 8105 Apr 09 20:17 | 2° $\text{Y}$ 38'05       |            |
| desc. node          | 8104 May 05 18:43 | 23° $\text{Y}$ 19'26      |            | morning max el   | 8105 Apr 20 17:33 | 9° $\text{Y}$ 08'21       | 23°54'06   |
| morning max el      | 8104 May 08 08:37 | 25° $\text{Y}$ 46'35      | 25°21'39   | desc. node       | 8105 Apr 22 15:41 | 11° $\text{Y}$ 10'06      |            |
|                     | 8104 May 12 05:22 | 0° $\text{B}$             |            |                  | 8105 May 07 03:38 | 0° $\text{B}$             |            |
|                     | 8104 Jun 02 12:03 | 0° $\text{II}$            |            | morning set      | 8105 May 26 04:44 | 0° $\text{II}$ 01'07      |            |
| morning set         | 8104 Jun 13 11:07 | 18° $\text{II}$ 39'56     |            |                  | 8105 May 26 04:28 | 0° $\text{II}$            |            |
| max. Earth dist.    | 8104 Jun 17 03:00 | 25° $\text{II}$ 24'07     | 1.36300 AU | max. Earth dist. | 8105 May 29 23:20 | 6° $\text{II}$ 36'05      | 1.38460 AU |
|                     | 8104 Jun 19 13:06 | 0° $\text{E}$             |            |                  |                   |                           |            |
| superior conj       | 8104 Jun 23 05:46 | 7° $\text{E}$ 13'29       | -0°45'26   | superior conj    | 8105 Jun 06 07:23 | 20° $\text{II}$ 03'33     | -1°16'52   |
| minimum elong       | 8104 Jun 23 08:30 | 7° $\text{E}$ 27'04       | 0°45'04    | minimum elong    | 8105 Jun 06 12:06 | 20° $\text{II}$ 25'49     | 1°16'18    |
| asc. node           | 8104 Jun 27 22:02 | 16° $\text{E}$ 39'34      |            |                  | 8105 Jun 11 11:11 | 0° $\text{E}$             |            |
| evening rise        | 8104 Jul 01 09:23 | 23° $\text{E}$ 44'13      |            | asc. node        | 8105 Jun 14 19:05 | 6° $\text{E}$ 31'48       |            |
|                     | 8104 Jul 04 12:27 | 0° $\Omega$               |            | evening rise     | 8105 Jun 15 08:06 | 7° $\text{E}$ 35'38       |            |
| evening max el      | 8104 Jul 18 19:38 | 22° $\Omega$ 14'55        | 19°49'34   |                  | 8105 Jun 28 03:38 | 0° $\Omega$               |            |
| retrograde          | 8104 Jul 28 22:55 | 27° $\Omega$ 14'42        |            | evening max el   | 8105 Jul 01 16:38 | 4° $\Omega$ 08'37         | 18°54'41   |
| evening set         | 8104 Jul 30 19:35 | 27° $\Omega$ 05'20        |            | retrograde       | 8105 Jul 10 05:12 | 8° $\Omega$ 21'36         |            |
| desc. node          | 8104 Aug 01 17:56 | 26° $\Omega$ 37'04        |            | evening set      | 8105 Jul 12 04:32 | 8° $\Omega$ 08'56         |            |
| inferior conj       | 8104 Aug 08 18:02 | 23° $\Omega$ 04'06        | -2°07'50   | desc. node       | 8105 Jul 19 15:00 | 4° $\Omega$ 23'41         |            |
| minimum elong       | 8104 Aug 08 12:10 | 23° $\Omega$ 13'05        | 2°05'45    | inferior conj    | 8105 Jul 20 09:08 | 3° $\Omega$ 51'45         | -0°13'45   |
| min. Earth dist.    | 8104 Aug 10 19:40 | 21° $\Omega$ 48'02        | 0.55249 AU | minimum elong    | 8105 Jul 20 08:34 | 3° $\Omega$ 52'46         | 0°13'40    |
| morning rise        | 8104 Aug 17 02:47 | 18° $\Omega$ 42'29        |            | transit middle   | 8105 Jul 20 08:34 | 3° $\Omega$ 52'46         | 0°13'40    |
| direct              | 8104 Aug 21 16:21 | 17° $\Omega$ 56'32        |            | transit begin    | 8105 Jul 20 06:36 | 3° $\Omega$ 56'16         |            |
| morning max el      | 8104 Sep 04 11:58 | 24° $\Omega$ 47'13        | 24°29'32   | transit end      | 8105 Jul 20 10:32 | 3° $\Omega$ 49'16         |            |
|                     | 8104 Sep 09 07:54 | 0° $\text{P}$             |            | min. Earth dist. | 8105 Jul 23 10:51 | 1° $\Omega$ 41'56         | 0.56669 AU |
| asc. node           | 8104 Sep 23 21:35 | 22° $\text{P}$ 57'05      |            |                  | 8105 Jul 26 03:50 | 30° $\text{R}$ $\text{E}$ |            |
|                     | 8104 Sep 27 10:28 | 0° $\text{E}$             |            | morning rise     | 8105 Jul 28 09:17 | 28° $\text{E}$ 53'47      |            |
| morning set         | 8104 Sep 29 20:03 | 5° $\text{E}$ 01'39       |            | direct           | 8105 Aug 02 19:26 | 27° $\text{E}$ 43'37      |            |
|                     |                   |                           |            | morning max el   | 8105 Aug 10 11:41 | 0° $\Omega$               |            |
| superior conj       | 8104 Oct 06 17:23 | 20° $\text{E}$ 00'43      | 1°37'50    |                  | 8105 Aug 17 01:50 | 5° $\Omega$ 06'32         | 26°05'50   |
| minimum elong       | 8104 Oct 06 16:11 | 19° $\text{E}$ 54'10      | 1°37'49    |                  | 8105 Sep 04 04:04 | 0° $\text{P}$             |            |
| max. Earth dist.    | 8104 Oct 08 15:35 | 24° $\text{E}$ 11'40      | 1.32695 AU | asc. node        | 8105 Sep 10 18:34 | 12° $\text{P}$ 28'54      |            |
|                     | 8104 Oct 11 08:53 | 0° $\text{M}$             |            | morning set      | 8105 Sep 14 07:03 | 19° $\text{P}$ 47'06      |            |
| evening rise        | 8104 Oct 14 01:08 | 5° $\text{M}$ 32'43       |            |                  | 8105 Sep 18 23:43 | 0° $\text{E}$             |            |
|                     | 8104 Oct 27 08:43 | 0° $\text{Z}$             |            | superior conj    | 8105 Sep 21 04:27 | 4° $\text{E}$ 51'39       | 1°28'29    |
| desc. node          | 8104 Oct 28 16:47 | 2° $\text{Z}$ 09'30       |            | minimum elong    | 8105 Sep 21 02:31 | 4° $\text{E}$ 40'57       | 1°28'17    |
| evening max el      | 8104 Nov 16 09:52 | 26° $\text{Z}$ 24'13      | 27°29'00   | max. Earth dist. | 8105 Sep 21 23:07 | 6° $\text{E}$ 34'52       | 1.31958 AU |
|                     | 8104 Nov 20 16:33 | 0° $\text{Z}$             |            | evening rise     | 8105 Sep 28 03:27 | 19° $\text{E}$ 56'19      |            |
| retrograde          | 8104 Nov 30 02:57 | 3° $\text{Z}$ 42'35       |            |                  | 8105 Oct 03 03:13 | 0° $\text{M}$             |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| desc. node       | 8105 Oct 15 13:53 | 21°♄25'26 |            | desc. node       | 8106 Oct 02 10:58 | 9°♄54'58  |            |
|                  | 8105 Oct 21 17:05 | 0°♄       |            | evening max el   | 8106 Oct 11 18:35 | 20°♄48'07 | 26°28'01   |
| evening max el   | 8105 Oct 29 17:37 | 9°♄00'14  | 27°15'29   | retrograde       | 8106 Oct 25 16:31 | 27°♄54'15 |            |
| retrograde       | 8105 Nov 12 14:10 | 16°♄12'14 |            | evening set      | 8106 Nov 01 08:44 | 26°♄04'32 |            |
| evening set      | 8105 Nov 19 15:44 | 13°♄56'32 |            | min. Earth dist. | 8106 Nov 05 08:02 | 23°♄29'49 | 0.59340 AU |
| min. Earth dist. | 8105 Nov 23 08:17 | 11°♄09'46 | 0.61426 AU | inferior conj    | 8106 Nov 08 12:51 | 21°♄01'56 | -4°37'00   |
| inferior conj    | 8105 Nov 26 09:33 | 8°♄27'51  | -3°33'16   | minimum elong    | 8106 Nov 08 20:01 | 20°♄48'05 | 4°35'12    |
| minimum elong    | 8105 Nov 26 16:06 | 8°♄13'19  | 3°30'57    | morning rise     | 8106 Nov 16 09:38 | 16°♄27'16 |            |
| morning rise     | 8105 Dec 03 18:42 | 3°♄30'59  |            | direct           | 8106 Nov 18 15:32 | 16°♄09'27 |            |
| direct           | 8105 Dec 06 00:15 | 3°♄10'07  |            | asc. node        | 8106 Nov 24 15:04 | 18°♄23'43 |            |
| asc. node        | 8105 Dec 07 18:04 | 3°♄23'17  |            | morning max el   | 8106 Nov 26 11:46 | 19°♄59'55 | 18°19'21   |
| morning max el   | 8105 Dec 13 01:16 | 6°♄43'05  | 17°53'56   |                  | 8106 Dec 03 22:33 | 0°♄       |            |
|                  | 8105 Dec 28 00:25 | 0°♄       |            | morning set      | 8106 Dec 12 08:06 | 15°♄15'36 |            |
| morning set      | 8105 Dec 28 17:58 | 1°♄19'48  |            |                  | 8106 Dec 20 03:27 | 0°♄       |            |
| superior conj    | 8106 Jan 08 07:22 | 20°♄11'38 | 0°23'45    | superior conj    | 8106 Dec 21 13:40 | 2°♄37'12  | 0°56'14    |
| minimum elong    | 8106 Jan 08 09:23 | 20°♄20'23 | 0°23'35    | minimum elong    | 8106 Dec 21 17:04 | 2°♄52'45  | 0°55'55    |
| desc. node       | 8106 Jan 11 13:00 | 25°♄43'49 |            | max. Earth dist. | 8106 Dec 29 03:33 | 16°♄01'18 | 1.40870 AU |
|                  | 8106 Jan 14 02:09 | 0°♄       |            | desc. node       | 8106 Dec 29 10:01 | 16°♄28'55 |            |
| max. Earth dist. | 8106 Jan 15 17:52 | 2°♄43'57  | 1.42835 AU | evening rise     | 8107 Jan 02 17:35 | 23°♄41'53 |            |
| evening rise     | 8106 Jan 22 04:45 | 13°♄06'00 |            |                  | 8107 Jan 06 15:17 | 0°♄       |            |
|                  | 8106 Feb 02 06:58 | 0°♄       |            |                  | 8107 Jan 27 05:19 | 0°♄       |            |
| evening max el   | 8106 Feb 23 08:41 | 27°♄49'59 | 22°02'11   | evening max el   | 8107 Feb 06 00:07 | 11°♄32'42 | 23°21'46   |
|                  | 8106 Feb 25 16:13 | 0°♄       |            | retrograde       | 8107 Feb 16 12:55 | 17°♄46'30 |            |
| retrograde       | 8106 Mar 04 18:10 | 3°♄23'59  |            | asc. node        | 8107 Feb 20 14:11 | 16°♄25'38 |            |
| asc. node        | 8106 Mar 05 17:08 | 3°♄19'18  |            | evening set      | 8107 Feb 21 13:19 | 15°♄41'25 |            |
| evening set      | 8106 Mar 09 06:47 | 1°♄33'48  |            | inferior conj    | 8107 Feb 26 23:07 | 9°♄15'03  | 1°57'37    |
|                  | 8106 Mar 10 21:48 | 30°♄      |            | minimum elong    | 8107 Feb 26 20:56 | 9°♄22'31  | 1°56'58    |
| inferior conj    | 8106 Mar 14 14:35 | 25°♄13'53 | 2°33'43    | min. Earth dist. | 8107 Feb 26 11:06 | 9°♄56'22  | 0.68338 AU |
| minimum elong    | 8106 Mar 14 12:20 | 25°♄21'41 | 2°33'09    | morning rise     | 8107 Mar 04 04:31 | 3°♄09'19  |            |
| min. Earth dist. | 8106 Mar 14 14:23 | 25°♄14'35 | 0.68374 AU | direct           | 8107 Mar 08 11:01 | 1°♄27'43  |            |
| morning rise     | 8106 Mar 19 17:44 | 19°♄02'53 |            | morning max el   | 8107 Mar 16 20:40 | 6°♄17'35  | 21°01'54   |
| direct           | 8106 Mar 24 14:09 | 16°♄58'44 |            | desc. node       | 8107 Mar 27 09:36 | 19°♄17'49 |            |
| morning max el   | 8106 Apr 03 04:22 | 22°♄37'21 | 22°24'46   |                  | 8107 Apr 03 20:41 | 0°♄       |            |
| desc. node       | 8106 Apr 09 12:38 | 29°♄54'22 |            | morning set      | 8107 Apr 16 08:50 | 19°♄01'30 |            |
|                  | 8106 Apr 09 14:26 | 0°♄       |            |                  | 8107 Apr 23 06:05 | 0°♄       |            |
|                  | 8106 Apr 30 11:45 | 0°♄       |            | max. Earth dist. | 8107 Apr 24 00:38 | 1°♄15'27  | 1.42741 AU |
| morning set      | 8106 May 06 20:13 | 10°♄07'38 |            | superior conj    | 8107 May 01 02:56 | 13°♄04'13 | -2°05'23   |
| max. Earth dist. | 8106 May 11 20:55 | 18°♄28'35 | 1.40703 AU | minimum elong    | 8107 May 01 07:17 | 13°♄22'40 | 2°05'15    |
|                  | 8106 May 18 12:18 | 0°♄       |            |                  | 8107 May 10 19:28 | 0°♄       |            |
| superior conj    | 8106 May 19 16:01 | 2°♄03'52  | -1°45'07   | evening rise     | 8107 May 12 18:56 | 3°♄32'22  |            |
| minimum elong    | 8106 May 19 21:48 | 2°♄29'50  | 1°44'38    | asc. node        | 8107 May 19 13:10 | 15°♄30'09 |            |
| evening rise     | 8106 May 29 20:40 | 20°♄54'52 |            | evening max el   | 8107 May 29 10:07 | 29°♄38'13 | 18°05'59   |
| asc. node        | 8106 Jun 01 16:08 | 26°♄10'21 |            |                  | 8107 May 29 19:11 | 0°♄       |            |
|                  | 8106 Jun 03 18:08 | 0°♄       |            | retrograde       | 8107 Jun 05 01:34 | 3°♄02'07  |            |
| evening max el   | 8106 Jun 14 22:43 | 16°♄39'25 | 18°20'24   | evening set      | 8107 Jun 07 15:13 | 2°♄31'38  |            |
| retrograde       | 8106 Jun 22 06:51 | 20°♄19'55 |            |                  | 8107 Jun 11 14:52 | 30°♄      |            |
| evening set      | 8106 Jun 24 13:06 | 19°♄59'51 |            | inferior conj    | 8107 Jun 14 06:50 | 27°♄33'49 | 2°23'54    |
| inferior conj    | 8106 Jul 01 21:53 | 15°♄22'10 | 1°19'12    | minimum elong    | 8107 Jun 14 09:52 | 27°♄26'29 | 2°22'58    |
| minimum elong    | 8106 Jul 02 00:22 | 15°♄16'58 | 1°18'13    | min. Earth dist. | 8107 Jun 17 11:38 | 24°♄30'05 | 0.60900 AU |
| min. Earth dist. | 8106 Jul 05 07:22 | 12°♄34'03 | 0.58665 AU | morning rise     | 8107 Jun 21 02:05 | 21°♄37'22 |            |
| desc. node       | 8106 Jul 06 12:03 | 11°♄39'30 |            | desc. node       | 8107 Jun 23 09:04 | 20°♄21'58 |            |
| morning rise     | 8106 Jul 09 08:24 | 9°♄50'07  |            | direct           | 8107 Jun 27 17:03 | 19°♄25'47 |            |
| direct           | 8106 Jul 15 12:13 | 8°♄09'15  |            | morning max el   | 8107 Jul 11 23:59 | 27°♄24'30 | 27°52'12   |
| morning max el   | 8106 Jul 29 21:28 | 15°♄54'11 | 27°16'51   |                  | 8107 Jul 14 11:19 | 0°♄       |            |
|                  | 8106 Aug 10 09:22 | 0°♄       |            |                  | 8107 Aug 04 02:10 | 0°♄       |            |
|                  | 8106 Aug 27 13:00 | 0°♄       |            | morning set      | 8107 Aug 13 19:50 | 18°♄42'55 |            |
| asc. node        | 8106 Aug 28 15:33 | 2°♄16'46  |            | asc. node        | 8107 Aug 15 12:32 | 22°♄15'27 |            |
| morning set      | 8106 Aug 29 15:36 | 4°♄22'32  |            |                  | 8107 Aug 19 02:57 | 0°♄       |            |
|                  |                   |           |            | max. Earth dist. | 8107 Aug 19 18:41 | 1°♄26'03  | 1.31837 AU |
| superior conj    | 8106 Sep 05 16:16 | 19°♄41'16 | 1°13'55    | superior conj    | 8107 Aug 21 03:06 | 4°♄24'14  | 0°54'33    |
| minimum elong    | 8106 Sep 05 14:01 | 19°♄28'48 | 1°13'33    | minimum elong    | 8107 Aug 21 01:01 | 4°♄12'45  | 0°54'06    |
| max. Earth dist. | 8106 Sep 05 09:26 | 19°♄03'22 | 1.31672 AU | evening rise     | 8107 Aug 27 21:28 | 19°♄13'49 |            |
|                  | 8106 Sep 10 08:25 | 0°♄       |            |                  | 8107 Sep 02 02:43 | 0°♄       |            |
| evening rise     | 8106 Sep 12 10:56 | 4°♄32'03  |            | desc. node       | 8107 Sep 19 08:02 | 27°♄20'02 |            |
|                  | 8106 Sep 25 21:10 | 0°♄       |            |                  |                   |           |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                     | 8107 Sep 21 17:27 | 0°♌       |            | evening rise     | 8108 Aug 11 09:06 | 3°♏55'40  |            |
| evening max el      | 8107 Sep 23 11:22 | 1°♌45'06  | 25°10'27   |                  | 8108 Aug 25 07:38 | 0°♏       |            |
| retrograde          | 8107 Oct 07 08:37 | 8°♌45'42  |            | evening max el   | 8108 Sep 03 23:02 | 12°♏06'17 | 23°34'35   |
| evening set         | 8107 Oct 13 02:38 | 7°♌30'17  |            | desc. node       | 8108 Sep 05 05:05 | 13°♏16'00 |            |
| min. Earth dist.    | 8107 Oct 17 22:58 | 4°♌49'32  | 0.57337 AU | retrograde       | 8108 Sep 17 12:43 | 18°♏53'45 |            |
| inferior conj       | 8107 Oct 20 20:48 | 2°♌52'41  | -5°22'37   | evening set      | 8108 Sep 21 20:34 | 18°♏12'47 |            |
| minimum elong       | 8107 Oct 21 01:14 | 2°♌45'13  | 5°22'04    | min. Earth dist. | 8108 Sep 28 09:03 | 15°♏07'30 | 0.55719 AU |
|                     | 8107 Oct 25 14:15 | 30°♏♏     |            | inferior conj    | 8108 Sep 30 08:42 | 13°♏56'36 | -5°31'57   |
| morning rise        | 8107 Oct 29 02:10 | 28°♏41'04 |            | minimum elong    | 8108 Sep 30 06:26 | 14°♏00'00 | 5°31'48    |
| direct              | 8107 Oct 31 12:58 | 28°♏23'30 |            | morning rise     | 8108 Oct 08 18:27 | 10°♏02'57 |            |
|                     | 8107 Nov 06 01:52 | 0°♌       |            | direct           | 8108 Oct 11 15:03 | 9°♏42'48  |            |
| morning max el      | 8107 Nov 09 13:29 | 2°♌41'24  | 19°06'02   | morning max el   | 8108 Oct 22 03:19 | 14°♏38'32 | 20°15'01   |
| asc. node           | 8107 Nov 11 12:04 | 4°♌43'55  |            | asc. node        | 8108 Oct 28 09:05 | 22°♏08'43 |            |
| morning set         | 8107 Nov 26 07:37 | 29°♌36'39 |            |                  | 8108 Nov 02 05:08 | 0°♌       |            |
|                     | 8107 Nov 26 12:20 | 0°♏       |            | morning set      | 8108 Nov 09 13:25 | 14°♌14'23 |            |
| superior conj       | 8107 Dec 04 14:12 | 15°♏54'43 | 1°19'29    | superior conj    | 8108 Nov 17 04:10 | 29°♌50'38 | 1°34'00    |
| minimum elong       | 8107 Dec 04 17:18 | 16°♏09'35 | 1°19'18    | minimum elong    | 8108 Nov 17 06:08 | 0°♏00'33  | 1°34'00    |
| max. Earth dist.    | 8107 Dec 11 09:17 | 28°♏34'42 | 1.38708 AU |                  | 8108 Nov 17 06:02 | 0°♏       |            |
|                     | 8107 Dec 12 04:20 | 0°♏       |            | max. Earth dist. | 8108 Nov 22 15:47 | 10°♏37'02 | 1.36611 AU |
| evening rise        | 8107 Dec 15 04:24 | 5°♏16'20  |            | evening rise     | 8108 Nov 26 11:43 | 17°♏45'35 |            |
| desc. node          | 8107 Dec 16 07:01 | 7°♏10'34  |            | desc. node       | 8108 Dec 02 04:03 | 27°♏45'00 |            |
|                     | 8107 Dec 30 16:35 | 0°♏       |            |                  | 8108 Dec 03 12:07 | 0°♏       |            |
| evening max el      | 8108 Jan 19 13:26 | 25°♏18'22 | 24°40'42   |                  | 8108 Dec 23 23:49 | 0°♏       |            |
|                     | 8108 Jan 25 05:01 | 0°♏       |            | evening max el   | 8109 Jan 01 02:31 | 9°♏05'44  | 25°51'57   |
| retrograde          | 8108 Jan 31 03:59 | 2°♏04'55  |            | retrograde       | 8109 Jan 13 14:20 | 16°♏13'47 |            |
|                     | 8108 Feb 05 10:21 | 30°♏♏     |            | evening set      | 8109 Jan 19 15:52 | 13°♏44'40 |            |
| evening set         | 8108 Feb 05 16:53 | 29°♏46'27 |            | min. Earth dist. | 8109 Jan 23 22:49 | 9°♏08'21  | 0.67095 AU |
| asc. node           | 8108 Feb 07 11:15 | 28°♏02'58 |            | asc. node        | 8109 Jan 24 08:18 | 8°♏38'42  |            |
| min. Earth dist.    | 8108 Feb 10 06:38 | 24°♏35'40 | 0.67905 AU | inferior conj    | 8109 Jan 25 09:34 | 7°♏18'57  | 0°21'00    |
| inferior conj       | 8108 Feb 11 06:03 | 23°♏17'49 | 1°13'14    | minimum elong    | 8109 Jan 25 09:02 | 7°♏20'40  | 0°20'53    |
| minimum elong       | 8108 Feb 11 04:26 | 23°♏23'13 | 1°12'42    | morning rise     | 8109 Jan 31 02:45 | 1°♏28'30  |            |
| morning rise        | 8108 Feb 16 16:10 | 17°♏18'48 |            | direct           | 8109 Feb 03 08:44 | 0°♏28'02  |            |
| direct              | 8108 Feb 20 09:41 | 15°♏59'02 |            | morning max el   | 8109 Feb 10 04:10 | 4°♏11'38  | 18°55'08   |
| morning max el      | 8108 Feb 27 20:35 | 20°♏09'47 | 19°50'59   | desc. node       | 8109 Feb 28 03:31 | 29°♏21'47 |            |
|                     | 8108 Mar 06 21:35 | 0°♏       |            |                  | 8109 Feb 28 13:22 | 0°♏       |            |
| greatest brilliancy | 8108 Mar 11 20:13 | 7°♏03'10  | -0.6m      | morning set      | 8109 Mar 04 12:57 | 6°♏11'47  |            |
| desc. node          | 8108 Mar 13 06:33 | 9°♏09'26  |            | max. Earth dist. | 8109 Mar 19 03:19 | 28°♏59'56 | 1.45279 AU |
| morning set         | 8108 Mar 25 06:20 | 27°♏19'20 |            |                  | 8109 Mar 19 18:37 | 0°♏       |            |
|                     | 8108 Mar 26 23:58 | 0°♏       |            | superior conj    | 8109 Mar 21 01:39 | 2°♏01'57  | -1°58'23   |
| max. Earth dist.    | 8108 Apr 05 11:10 | 14°♏50'08 | 1.44325 AU | minimum elong    | 8109 Mar 20 17:53 | 1°♏31'22  | 1°57'54    |
| superior conj       | 8108 Apr 10 13:02 | 22°♏59'18 | -2°11'33   | evening rise     | 8109 Apr 05 02:41 | 26°♏04'18 |            |
| minimum elong       | 8108 Apr 10 12:01 | 22°♏55'08 | 2°11'36    |                  | 8109 Apr 07 12:43 | 0°♏       |            |
|                     | 8108 Apr 14 19:53 | 0°♏       |            | asc. node        | 8109 Apr 22 07:15 | 22°♏44'38 |            |
| evening rise        | 8108 Apr 23 22:13 | 15°♏17'25 |            | evening max el   | 8109 Apr 25 11:41 | 26°♏25'44 | 18°33'39   |
|                     | 8108 May 02 15:29 | 0°♏       |            | retrograde       | 8109 May 02 00:07 | 29°♏58'59 |            |
| asc. node           | 8108 May 05 10:12 | 4°♏24'12  |            | evening set      | 8109 May 05 04:19 | 29°♏02'11 |            |
| evening max el      | 8108 May 11 23:24 | 12°♏55'57 | 18°10'40   | inferior conj    | 8109 May 10 21:29 | 23°♏28'29 | 3°21'05    |
| retrograde          | 8108 May 18 08:42 | 16°♏17'49 |            | minimum elong    | 8109 May 10 22:18 | 23°♏26'01 | 3°20'55    |
| evening set         | 8108 May 21 05:37 | 15°♏34'51 |            | min. Earth dist. | 8109 May 12 23:19 | 20°♏59'05 | 0.64991 AU |
| inferior conj       | 8108 May 27 08:03 | 10°♏18'26 | 3°02'52    | morning rise     | 8109 May 16 15:30 | 17°♏12'09 |            |
| minimum elong       | 8108 May 27 10:13 | 10°♏12'31 | 3°02'23    | direct           | 8109 May 23 06:34 | 14°♏25'58 |            |
| min. Earth dist.    | 8108 May 30 00:55 | 7°♏22'29  | 0.63080 AU | desc. node       | 8109 May 27 03:06 | 15°♏14'00 |            |
| morning rise        | 8108 Jun 02 13:18 | 4°♏08'09  |            | morning max el   | 8109 Jun 05 17:32 | 22°♏21'10 | 27°11'51   |
| direct              | 8108 Jun 09 07:50 | 1°♏33'18  |            |                  | 8109 Jun 12 10:35 | 0°♏       |            |
| desc. node          | 8108 Jun 09 06:05 | 1°♏33'19  |            |                  | 8109 Jul 02 10:21 | 0°♏       |            |
| morning max el      | 8108 Jun 23 07:34 | 9°♏36'24  | 27°49'21   | morning set      | 8109 Jul 11 06:07 | 16°♏10'34 |            |
|                     | 8108 Jul 09 04:26 | 0°♏       |            | max. Earth dist. | 8109 Jul 15 18:18 | 25°♏09'15 | 1.33589 AU |
|                     | 8108 Jul 26 09:09 | 0°♏       |            |                  | 8109 Jul 18 02:36 | 0°♏       |            |
| morning set         | 8108 Jul 27 17:37 | 2°♏41'41  |            | asc. node        | 8109 Jul 19 06:29 | 2°♏26'15  |            |
| asc. node           | 8108 Aug 01 09:31 | 12°♏20'08 |            | superior conj    | 8109 Jul 19 14:12 | 3°♏06'53  | 0°03'16    |
| max. Earth dist.    | 8108 Aug 01 22:51 | 13°♏31'01 | 1.32467 AU | minimum elong    | 8109 Jul 19 14:02 | 3°♏06'00  | 0°03'07    |
| superior conj       | 8108 Aug 04 11:05 | 18°♏54'55 | 0°30'48    | behind sun begin | 8109 Jul 19 08:32 | 2°♏37'03  |            |
| minimum elong       | 8108 Aug 04 09:42 | 18°♏47'21 | 0°30'26    | behind sun end   | 8109 Jul 19 19:31 | 3°♏34'59  |            |
|                     | 8108 Aug 09 13:18 | 0°♏       |            | evening rise     | 8109 Jul 26 19:58 | 18°♏31'34 |            |

































































































































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|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8109 Aug 01 11:37 | 0°♍       |            | asc. node           | 8110 Jul 06 03:30 | 22°♊30'24 |            |
| evening max el      | 8109 Aug 16 13:18 | 22°♍22'16 | 21°56'35   |                     | 8110 Jul 09 18:05 | 0°♊       |            |
| desc. node          | 8109 Aug 23 02:10 | 27°♍10'50 |            | evening rise        | 8110 Jul 11 04:07 | 2°♊56'05  |            |
| retrograde          | 8109 Aug 29 04:45 | 28°♍39'03 |            |                     | 8110 Jul 26 18:47 | 0°♍       |            |
| evening set         | 8109 Sep 01 01:51 | 28°♍20'33 |            | evening max el      | 8110 Jul 29 14:01 | 3°♍06'00  | 20°30'28   |
| min. Earth dist.    | 8109 Sep 09 17:35 | 24°♍36'16 | 0.54806 AU | retrograde          | 8110 Aug 09 16:50 | 8°♍35'45  |            |
| inferior conj       | 8109 Sep 10 05:09 | 24°♍20'04 | -4°48'25   | desc. node          | 8110 Aug 09 23:15 | 8°♍35'34  |            |
| minimum elong       | 8109 Sep 09 20:30 | 24°♍32'12 | 4°46'37    | evening set         | 8110 Aug 11 17:32 | 8°♍25'33  |            |
| morning rise        | 8109 Sep 18 16:30 | 20°♍31'20 |            | inferior conj       | 8110 Aug 20 22:08 | 4°♍28'23  | -3°14'27   |
| direct              | 8109 Sep 22 02:48 | 20°♍05'24 |            | minimum elong       | 8110 Aug 20 13:35 | 4°♍40'44  | 3°11'40    |
| morning max el      | 8109 Oct 04 04:07 | 25°♍46'05 | 21°44'57   | min. Earth dist.    | 8110 Aug 22 03:09 | 3°♍46'27  | 0.54815 AU |
|                     | 8109 Oct 08 02:40 | 0°♊       |            | morning rise        | 8110 Aug 29 09:08 | 0°♍24'36  |            |
| asc. node           | 8109 Oct 15 06:05 | 10°♊22'45 |            |                     | 8110 Aug 31 04:21 | 30°♋♊     |            |
| morning set         | 8109 Oct 24 23:02 | 29°♊01'08 |            | direct              | 8110 Sep 02 11:50 | 29°♊48'20 |            |
|                     | 8109 Oct 25 10:16 | 0°♌       |            |                     | 8110 Sep 04 18:41 | 0°♍       |            |
|                     |                   |           |            | morning max el      | 8110 Sep 15 19:20 | 6°♍14'24  | 23°28'50   |
| superior conj       | 8109 Nov 01 03:35 | 14°♌12'31 | 1°40'45    | asc. node           | 8110 Oct 02 03:06 | 29°♍14'11 |            |
| minimum elong       | 8109 Nov 01 04:12 | 14°♌15'47 | 1°40'50    |                     | 8110 Oct 02 12:57 | 0°♊       |            |
| max. Earth dist.    | 8109 Nov 05 04:16 | 22°♌30'24 | 1.34778 AU | morning set         | 8110 Oct 09 10:32 | 13°♊51'16 |            |
|                     | 8109 Nov 08 23:23 | 0°♌       |            |                     |                   |           |            |
| evening rise        | 8109 Nov 09 11:40 | 0°♌58'56  |            | superior conj       | 8110 Oct 16 09:22 | 28°♊51'23 | 1°40'40    |
| desc. node          | 8109 Nov 19 01:05 | 18°♌06'43 |            | minimum elong       | 8110 Oct 16 08:46 | 28°♊48'05 | 1°40'43    |
|                     | 8109 Nov 26 13:08 | 0°♋       |            |                     | 8110 Oct 16 22:07 | 0°♌       |            |
| evening max el      | 8109 Dec 14 15:52 | 22°♋47'56 | 26°48'09   | max. Earth dist.    | 8110 Oct 19 01:08 | 4°♌32'12  | 1.33330 AU |
|                     | 8109 Dec 26 10:43 | 0°♋       |            | evening rise        | 8110 Oct 24 00:24 | 14°♌46'10 |            |
| retrograde          | 8109 Dec 27 19:04 | 0°♋05'55  |            |                     | 8110 Nov 01 02:44 | 0°♌       |            |
|                     | 8109 Dec 29 02:39 | 30°♋♋     |            | desc. node          | 8110 Nov 05 22:08 | 8°♌09'38  |            |
| evening set         | 8110 Jan 03 08:20 | 27°♋30'31 |            |                     | 8110 Nov 21 08:55 | 0°♋       |            |
| min. Earth dist.    | 8110 Jan 07 09:14 | 23°♋28'47 | 0.65921 AU | evening max el      | 8110 Nov 27 04:34 | 6°♋14'09  | 27°22'03   |
| inferior conj       | 8110 Jan 09 07:34 | 21°♋13'28 | -0°38'31   | retrograde          | 8110 Dec 10 17:32 | 13°♋33'35 |            |
| minimum elong       | 8110 Jan 09 08:40 | 21°♋10'17 | 0°37'54    | evening set         | 8110 Dec 17 15:59 | 10°♋58'14 |            |
| asc. node           | 8110 Jan 11 05:23 | 19°♋03'28 |            | min. Earth dist.    | 8110 Dec 21 11:37 | 7°♋29'57  | 0.64401 AU |
| morning rise        | 8110 Jan 15 10:00 | 15°♋34'09 |            | inferior conj       | 8110 Dec 23 21:37 | 4°♋55'50  | -1°44'08   |
| direct              | 8110 Jan 18 06:14 | 14°♋49'33 |            | minimum elong       | 8110 Dec 24 00:49 | 4°♋47'19  | 1°42'39    |
| morning max el      | 8110 Jan 24 17:41 | 18°♋17'28 | 18°15'42   | asc. node           | 8110 Dec 29 02:28 | 0°♋13'56  |            |
|                     | 8110 Feb 02 14:13 | 0°♋       |            |                     | 8110 Dec 29 11:43 | 30°♋♌     |            |
| morning set         | 8110 Feb 12 22:26 | 16°♋27'26 |            | morning rise        | 8110 Dec 30 11:12 | 29°♌30'38 |            |
| desc. node          | 8110 Feb 15 00:29 | 19°♋48'43 |            | direct              | 8111 Jan 01 23:41 | 28°♌58'09 |            |
|                     | 8110 Feb 21 09:32 | 0°♌       |            |                     | 8111 Jan 05 11:27 | 0°♋       |            |
|                     |                   |           |            | morning max el      | 8111 Jan 08 10:33 | 2°♋20'47  | 17°53'16   |
| superior conj       | 8110 Feb 28 06:26 | 10°♌50'26 | -1°26'08   | morning set         | 8111 Jan 25 12:53 | 28°♋08'21 |            |
| minimum elong       | 8110 Feb 27 21:08 | 10°♌13'57 | 1°25'04    |                     | 8111 Jan 26 15:24 | 0°♋       |            |
| max. Earth dist.    | 8110 Mar 01 22:51 | 13°♌28'54 | 1.45500 AU | desc. node          | 8111 Feb 01 21:26 | 10°♋25'30 |            |
|                     | 8110 Mar 12 12:39 | 0°♍       |            |                     |                   |           |            |
| evening rise        | 8110 Mar 16 08:19 | 5°♍57'56  |            | superior conj       | 8111 Feb 07 22:41 | 20°♋16'43 | -0°42'48   |
| greatest brilliancy | 8110 Mar 27 15:58 | 23°♍32'46 | -0.7m      | minimum elong       | 8111 Feb 07 17:47 | 19°♋56'58 | 0°42'00    |
|                     | 8110 Mar 31 23:49 | 0°♌       |            | max. Earth dist.    | 8111 Feb 12 18:34 | 27°♋58'25 | 1.44977 AU |
| evening max el      | 8110 Apr 08 20:37 | 10°♌01'56 | 19°13'56   |                     | 8111 Feb 14 01:25 | 0°♌       |            |
| asc. node           | 8110 Apr 09 04:19 | 10°♌21'08 |            | evening rise        | 8111 Feb 23 22:14 | 15°♌19'32 |            |
| retrograde          | 8110 Apr 15 20:25 | 13°♌58'42 |            |                     | 8111 Mar 05 14:00 | 0°♍       |            |
| evening set         | 8110 Apr 19 08:23 | 12°♌47'19 |            | greatest brilliancy | 8111 Mar 10 18:42 | 7°♍41'57  | -0.6m      |
| inferior conj       | 8110 Apr 24 19:38 | 6°♌57'50  | 3°23'06    | evening max el      | 8111 Mar 23 00:30 | 23°♍39'46 | 20°09'50   |
| minimum elong       | 8110 Apr 24 19:10 | 6°♌59'20  | 3°23'00    | asc. node           | 8111 Mar 27 01:25 | 26°♍59'54 |            |
| min. Earth dist.    | 8110 Apr 26 06:05 | 5°♌06'32  | 0.66505 AU | retrograde          | 8111 Mar 30 18:50 | 28°♍10'17 |            |
| morning rise        | 8110 Apr 30 05:34 | 0°♌40'03  |            | evening set         | 8111 Apr 03 15:24 | 26°♍43'55 |            |
|                     | 8110 May 01 00:43 | 30°♋♍     |            | inferior conj       | 8111 Apr 08 23:33 | 20°♍40'29 | 3°12'11    |
| direct              | 8110 May 06 11:49 | 27°♍54'56 |            | minimum elong       | 8111 Apr 08 22:05 | 20°♍45'26 | 3°11'57    |
|                     | 8110 May 12 15:11 | 0°♌       |            | min. Earth dist.    | 8111 Apr 09 19:35 | 19°♍32'32 | 0.67575 AU |
| desc. node          | 8110 May 14 00:07 | 0°♌55'50  |            | morning rise        | 8111 Apr 14 04:33 | 14°♍23'56 |            |
| morning max el      | 8110 May 19 03:44 | 5°♌28'09  | 26°07'21   | direct              | 8111 Apr 19 22:40 | 11°♍49'52 |            |
|                     | 8110 Jun 06 23:55 | 0°♌       |            | desc. node          | 8111 Apr 30 21:07 | 18°♍06'56 |            |
| morning set         | 8110 Jun 24 05:50 | 29°♌00'24 |            | morning max el      | 8111 May 01 13:07 | 18°♍46'48 | 24°45'17   |
|                     | 8110 Jun 24 18:38 | 0°♊       |            |                     | 8111 May 11 00:31 | 0°♌       |            |
| max. Earth dist.    | 8110 Jun 28 03:13 | 6°♊23'18  | 1.35194 AU |                     | 8111 May 31 02:05 | 0°♌       |            |
|                     |                   |           |            | morning set         | 8111 Jun 06 11:59 | 10°♌57'52 |            |
| superior conj       | 8110 Jul 03 09:58 | 16°♊53'45 | -0°27'10   | max. Earth dist.    | 8111 Jun 10 02:53 | 17°♌28'30 | 1.37196 AU |
| minimum elong       | 8110 Jul 03 11:32 | 17°♊01'46 | 0°27'00    |                     |                   |           |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj    | 8111 Jun 16 19:13 | 0°☿06'41  | -0°58'55   |                  | 8112 May 22 13:53 | 0°♊       |            |
| minimum elong    | 8111 Jun 16 22:49 | 0°☿24'15  | 0°58'27    |                  |                   |           |            |
|                  | 8111 Jun 16 17:51 | 0°☿       |            | superior conj    | 8112 May 29 14:07 | 12°♊36'35 | -1°29'30   |
| asc. node        | 8111 Jun 23 00:31 | 12°☿28'00 |            | minimum elong    | 8112 May 29 19:28 | 13°♊01'22 | 1°28'56    |
| evening rise     | 8111 Jun 25 07:03 | 17°☿01'37 |            |                  | 8112 Jun 07 17:29 | 0°☿       |            |
|                  | 8111 Jul 02 00:44 | 0°♊       |            | evening rise     | 8112 Jun 08 01:53 | 0°☿40'30  |            |
| evening max el   | 8111 Jul 12 03:57 | 14°♊33'18 | 19°23'34   | asc. node        | 8112 Jun 08 21:32 | 2°☿15'00  |            |
| retrograde       | 8111 Jul 21 13:57 | 19°♊12'18 |            | evening max el   | 8112 Jun 24 05:12 | 26°☿43'40 | 18°37'35   |
| evening set      | 8111 Jul 23 10:43 | 19°♊02'08 |            |                  | 8112 Jun 28 20:43 | 0°♊       |            |
| desc. node       | 8111 Jul 27 20:20 | 17°♊27'25 |            | retrograde       | 8112 Jul 02 04:29 | 0°♊41'07  |            |
| inferior conj    | 8111 Aug 01 02:13 | 14°♊54'41 | -1°17'57   | evening set      | 8112 Jul 04 06:21 | 0°♊25'53  |            |
| minimum elong    | 8111 Jul 31 22:44 | 15°♊00'22 | 1°16'42    |                  | 8112 Jul 05 15:25 | 30°♊☿     |            |
| min. Earth dist. | 8111 Aug 03 15:53 | 13°♊14'44 | 0.55761 AU | inferior conj    | 8112 Jul 12 02:26 | 26°☿00'20 | 0°29'02    |
| morning rise     | 8111 Aug 09 08:04 | 10°♊18'02 |            | minimum elong    | 8112 Jul 12 03:30 | 25°☿58'17 | 0°28'30    |
| direct           | 8111 Aug 14 06:10 | 9°♊23'11  |            | desc. node       | 8112 Jul 13 17:24 | 24°☿45'55 |            |
| morning max el   | 8111 Aug 28 07:56 | 16°♊28'43 | 25°12'51   | min. Earth dist. | 8112 Jul 15 09:22 | 23°☿31'27 | 0.57464 AU |
|                  | 8111 Sep 08 07:30 | 0°♊       |            | morning rise     | 8112 Jul 19 21:08 | 20°☿46'33 |            |
| asc. node        | 8111 Sep 19 00:05 | 18°♊33'21 |            | direct           | 8112 Jul 25 15:17 | 19°☿23'39 |            |
| morning set      | 8111 Sep 23 22:11 | 28°♊39'48 |            | morning max el   | 8112 Aug 09 00:02 | 26°☿58'02 | 26°39'58   |
|                  | 8111 Sep 24 13:11 | 0°♊       |            |                  | 8112 Aug 11 21:58 | 0°♊       |            |
|                  |                   |           |            |                  | 8112 Aug 31 17:12 | 0°♊       |            |
| superior conj    | 8111 Sep 30 19:06 | 13°♊39'44 | 1°34'32    | asc. node        | 8112 Sep 04 21:02 | 8°♊12'39  |            |
| minimum elong    | 8111 Sep 30 17:32 | 13°♊31'10 | 1°34'26    | morning set      | 8112 Sep 07 08:18 | 13°♊21'30 |            |
| max. Earth dist. | 8111 Oct 02 05:24 | 16°♊47'47 | 1.32320 AU |                  |                   |           |            |
| evening rise     | 8111 Oct 07 22:33 | 28°♊58'28 |            | superior conj    | 8112 Sep 14 06:40 | 28°♊30'53 | 1°22'55    |
|                  | 8111 Oct 08 10:32 | 0°♊       |            | minimum elong    | 8112 Sep 14 04:33 | 28°♊19'07 | 1°22'38    |
| desc. node       | 8111 Oct 23 19:12 | 27°♊45'51 |            | max. Earth dist. | 8112 Sep 14 14:19 | 29°♊13'19 | 1.31772 AU |
|                  | 8111 Oct 25 06:04 | 0°♊       |            |                  | 8112 Sep 14 22:45 | 0°♊       |            |
| evening max el   | 8111 Nov 09 14:37 | 19°♊11'37 | 27°27'20   | evening rise     | 8112 Sep 21 03:18 | 13°♊27'47 |            |
| retrograde       | 8111 Nov 23 09:19 | 26°♊27'48 |            |                  | 8112 Sep 29 12:07 | 0°♊       |            |
| evening set      | 8111 Nov 30 11:55 | 24°♊01'32 |            | desc. node       | 8112 Oct 09 16:16 | 16°♊44'03 |            |
| min. Earth dist. | 8111 Dec 04 04:11 | 21°♊02'17 | 0.62571 AU |                  | 8112 Oct 20 07:49 | 0°♊       |            |
| inferior conj    | 8111 Dec 07 00:52 | 18°♊19'09 | -2°53'26   | evening max el   | 8112 Oct 21 19:35 | 1°♊27'41  | 26°59'28   |
| minimum elong    | 8111 Dec 07 06:20 | 18°♊06'08 | 2°51'16    | retrograde       | 8112 Nov 04 17:20 | 8°♊38'06  |            |
| morning rise     | 8111 Dec 14 02:50 | 13°♊11'22 |            | evening set      | 8112 Nov 11 16:08 | 6°♊32'02  |            |
| asc. node        | 8111 Dec 15 23:32 | 12°♊48'13 |            | min. Earth dist. | 8112 Nov 15 10:07 | 3°♊52'18  | 0.60533 AU |
| direct           | 8111 Dec 16 10:00 | 12°♊47'20 |            | inferior conj    | 8112 Nov 18 13:55 | 1°♊14'00  | -4°01'38   |
| morning max el   | 8111 Dec 23 03:42 | 16°♊13'59 | 17°48'27   | minimum elong    | 8112 Nov 18 21:01 | 0°♊59'08  | 3°59'25    |
|                  | 8112 Jan 01 20:29 | 0°♊       |            |                  | 8112 Nov 20 01:52 | 30°♊♊     |            |
| morning set      | 8112 Jan 08 02:47 | 10°♊56'50 |            | morning rise     | 8112 Nov 26 04:17 | 26°♊26'31 |            |
|                  | 8112 Jan 19 02:05 | 0°♊       |            | direct           | 8112 Nov 28 09:18 | 26°♊07'27 |            |
|                  |                   |           |            | asc. node        | 8112 Dec 01 20:34 | 26°♊56'43 |            |
| superior conj    | 8112 Jan 19 14:54 | 0°♊53'59  | 0°01'05    | morning max el   | 8112 Dec 05 17:40 | 29°♊47'01 | 18°02'18   |
| minimum elong    | 8112 Jan 19 15:01 | 0°♊54'26  | 0°01'12    |                  | 8112 Dec 05 22:54 | 0°♊       |            |
| behind sun begin | 8112 Jan 19 06:02 | 0°♊16'40  |            | morning set      | 8112 Dec 21 09:35 | 24°♊32'25 |            |
| behind sun end   | 8112 Jan 19 24:00 | 1°♊32'07  |            |                  | 8112 Dec 24 08:13 | 0°♊       |            |
| desc. node       | 8112 Jan 19 18:26 | 1°♊08'48  |            |                  |                   |           |            |
| max. Earth dist. | 8112 Jan 26 11:17 | 12°♊10'16 | 1.43774 AU | superior conj    | 8112 Dec 31 08:19 | 12°♊42'51 | 0°38'37    |
| evening rise     | 8112 Feb 03 10:40 | 24°♊45'50 |            | minimum elong    | 8112 Dec 31 11:12 | 12°♊55'35 | 0°38'21    |
|                  | 8112 Feb 06 20:26 | 0°♊       |            | desc. node       | 8113 Jan 05 15:23 | 21°♊54'03 |            |
|                  | 8112 Feb 27 16:54 | 0°♊       |            | max. Earth dist. | 8113 Jan 07 23:12 | 25°♊48'46 | 1.42034 AU |
| evening max el   | 8112 Mar 04 22:48 | 7°♊18'59  | 21°18'27   |                  | 8113 Jan 10 12:05 | 0°♊       |            |
| asc. node        | 8112 Mar 12 22:31 | 12°♊26'37 |            | evening rise     | 8113 Jan 13 11:58 | 4°♊50'29  |            |
| retrograde       | 8112 Mar 13 17:11 | 12°♊29'43 |            |                  | 8113 Jan 30 03:34 | 0°♊       |            |
| evening set      | 8112 Mar 17 23:31 | 10°♊48'16 |            | evening max el   | 8113 Feb 15 16:19 | 21°♊00'10 | 22°35'40   |
| inferior conj    | 8112 Mar 23 06:52 | 4°♊33'20  | 2°50'33    | retrograde       | 8113 Feb 25 13:40 | 26°♊52'04 |            |
| minimum elong    | 8112 Mar 23 04:48 | 4°♊40'33  | 2°50'05    | asc. node        | 8113 Feb 27 19:37 | 26°♊26'33 |            |
| min. Earth dist. | 8112 Mar 23 13:46 | 4°♊09'25  | 0.68206 AU | evening set      | 8113 Mar 02 07:03 | 24°♊55'40 |            |
|                  | 8112 Mar 26 18:34 | 30°♊♊     |            | inferior conj    | 8113 Mar 07 15:30 | 18°♊32'27 | 2°19'29    |
| morning rise     | 8112 Mar 28 09:54 | 28°♊19'43 |            | minimum elong    | 8113 Mar 07 13:14 | 18°♊40'20 | 2°18'52    |
| direct           | 8112 Apr 02 14:18 | 26°♊03'29 |            | min. Earth dist. | 8113 Mar 07 10:15 | 18°♊50'40 | 0.68409 AU |
|                  | 8112 Apr 10 14:17 | 0°♊       |            | morning rise     | 8113 Mar 12 19:16 | 12°♊23'14 |            |
| morning max el   | 8112 Apr 12 22:38 | 2°♊12'35  | 23°15'44   | direct           | 8113 Mar 17 09:41 | 10°♊28'30 |            |
| desc. node       | 8112 Apr 16 18:05 | 6°♊23'04  |            | morning max el   | 8113 Mar 26 11:18 | 15°♊45'59 | 21°48'12   |
|                  | 8112 May 04 01:04 | 0°♊       |            | desc. node       | 8113 Apr 03 15:02 | 25°♊25'47 |            |
| morning set      | 8112 May 17 19:03 | 21°♊48'59 |            |                  | 8113 Apr 07 00:14 | 0°♊       |            |
| max. Earth dist. | 8112 May 21 22:44 | 28°♊54'05 | 1.39422 AU |                  | 8113 Apr 27 01:48 | 0°♊       |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| morning set      | 8113 Apr 27 22:40 | 1°♄23'15  |            | max. Earth dist.    | 8114 Apr 16 04:45 | 24°♄16'23 | 1.43489 AU |
| max. Earth dist. | 8113 May 03 21:58 | 11°♄07'13 | 1.41612 AU |                     | 8114 Apr 19 17:20 | 0°♄       |            |
| superior conj    | 8113 May 11 14:04 | 24°♄12'58 | -1°55'03   | superior conj       | 8114 Apr 22 14:40 | 4°♄46'13  | -2°10'05   |
| minimum elong    | 8113 May 11 19:40 | 24°♄37'29 | 1°54'41    | minimum elong       | 8114 Apr 22 17:12 | 4°♄56'46  | 2°10'06    |
|                  | 8113 May 14 20:23 | 0°♄       |            | evening rise        | 8114 May 04 23:39 | 25°♄59'42 |            |
| evening rise     | 8113 May 22 08:54 | 13°♄43'18 |            |                     | 8114 May 07 06:27 | 0°♄       |            |
| asc. node        | 8113 May 26 18:34 | 21°♄46'31 |            | asc. node           | 8114 May 13 15:36 | 10°♄56'23 |            |
|                  | 8113 May 31 12:51 | 0°♄       |            | evening max el      | 8114 May 22 02:44 | 22°♄36'45 | 18°05'42   |
| evening max el   | 8113 Jun 07 14:05 | 9°♄28'19  | 18°11'56   | retrograde          | 8114 May 28 14:09 | 25°♄57'43 |            |
| retrograde       | 8113 Jun 14 13:38 | 12°♄59'34 |            | evening set         | 8114 May 31 07:03 | 25°♄21'58 |            |
| evening set      | 8113 Jun 16 23:06 | 12°♄35'22 |            | inferior conj       | 8114 Jun 06 16:32 | 20°♄15'57 | 2°43'18    |
| inferior conj    | 8113 Jun 24 00:10 | 7°♄49'21  | 1°50'05    | minimum elong       | 8114 Jun 06 19:19 | 20°♄08'53 | 2°42'32    |
| minimum elong    | 8113 Jun 24 03:08 | 7°♄42'44  | 1°49'01    | min. Earth dist.    | 8114 Jun 09 16:49 | 17°♄13'08 | 0.61855 AU |
| min. Earth dist. | 8113 Jun 27 09:05 | 4°♄51'22  | 0.59607 AU | morning rise        | 8114 Jun 13 05:36 | 14°♄12'50 |            |
| desc. node       | 8113 Jun 30 14:26 | 2°♄26'47  |            | desc. node          | 8114 Jun 17 11:29 | 12°♄09'18 |            |
| morning rise     | 8113 Jul 01 04:12 | 2°♄05'41  |            | direct              | 8114 Jun 19 23:10 | 11°♄50'12 |            |
| direct           | 8113 Jul 07 13:53 | 0°♄10'54  |            | morning max el      | 8114 Jul 04 03:16 | 19°♄51'07 | 27°55'34   |
| morning max el   | 8113 Jul 21 22:30 | 8°♄03'03  | 27°36'30   |                     | 8114 Jul 12 19:06 | 0°♄       |            |
|                  | 8113 Aug 07 14:33 | 0°♄       |            |                     | 8114 Jul 31 13:11 | 0°♄       |            |
| morning set      | 8113 Aug 22 15:13 | 27°♄51'34 |            | morning set         | 8114 Aug 06 16:59 | 12°♄03'23 |            |
| asc. node        | 8113 Aug 22 17:59 | 28°♄06'00 |            | asc. node           | 8114 Aug 09 14:56 | 18°♄07'38 |            |
|                  | 8113 Aug 23 15:37 | 0°♄       |            | max. Earth dist.    | 8114 Aug 12 08:08 | 23°♄57'26 | 1.32052 AU |
| max. Earth dist. | 8113 Aug 29 00:32 | 11°♄40'38 | 1.31682 AU |                     |                   |           |            |
| superior conj    | 8113 Aug 29 18:18 | 13°♄19'00 | 1°06'16    | superior conj       | 8114 Aug 14 04:08 | 27°♄57'27 | 0°45'00    |
| minimum elong    | 8113 Aug 29 16:03 | 13°♄06'35 | 1°05'52    | minimum elong       | 8114 Aug 14 02:17 | 27°♄47'16 | 0°44'33    |
| evening rise     | 8113 Sep 05 12:19 | 28°♄07'27 |            |                     | 8114 Aug 15 02:28 | 0°♄       |            |
|                  | 8113 Sep 06 09:31 | 0°♄       |            | evening rise        | 8114 Aug 20 23:33 | 12°♄50'11 |            |
|                  | 8113 Sep 23 01:25 | 0°♄       |            |                     | 8114 Aug 29 13:37 | 0°♄       |            |
| desc. node       | 8113 Sep 26 13:20 | 4°♄49'13  |            | desc. node          | 8114 Sep 13 10:25 | 21°♄39'49 |            |
| evening max el   | 8113 Oct 03 17:15 | 12°♄54'32 | 25°58'22   | evening max el      | 8114 Sep 15 07:19 | 23°♄33'38 | 24°31'01   |
| retrograde       | 8113 Oct 17 15:37 | 19°♄58'24 |            |                     | 8114 Sep 25 12:33 | 0°♄       |            |
| evening set      | 8113 Oct 23 23:49 | 18°♄22'56 |            | retrograde          | 8114 Sep 29 02:15 | 0°♄29'16  |            |
| min. Earth dist. | 8113 Oct 28 06:05 | 15°♄47'43 | 0.58458 AU |                     | 8114 Oct 02 16:43 | 30°♄      |            |
| inferior conj    | 8113 Oct 31 09:20 | 13°♄31'09 | -4°59'35   | evening set         | 8114 Oct 04 06:59 | 29°♄29'18 |            |
| minimum elong    | 8113 Oct 31 15:51 | 13°♄19'15 | 4°58'17    | min. Earth dist.    | 8114 Oct 09 18:18 | 26°♄40'17 | 0.56588 AU |
| morning rise     | 8113 Nov 08 10:12 | 9°♄06'04  |            | inferior conj       | 8114 Oct 12 08:33 | 25°♄01'48 | -5°32'11   |
| direct           | 8113 Nov 10 17:28 | 8°♄48'45  |            | minimum elong       | 8114 Oct 12 10:32 | 24°♄58'40 | 5°32'02    |
| asc. node        | 8113 Nov 18 17:33 | 12°♄32'52 |            | morning rise        | 8114 Oct 20 16:15 | 20°♄58'41 |            |
| morning max el   | 8113 Nov 19 00:49 | 12°♄50'05 | 18°36'27   | direct              | 8114 Oct 23 06:55 | 20°♄40'11 |            |
|                  | 8113 Nov 30 14:50 | 0°♄       |            | morning max el      | 8114 Nov 01 21:39 | 25°♄12'50 | 19°32'38   |
| morning set      | 8113 Dec 05 04:09 | 8°♄40'18  |            | asc. node           | 8114 Nov 05 14:33 | 29°♄22'01 |            |
|                  |                   |           |            |                     | 8114 Nov 06 02:09 | 0°♄       |            |
| superior conj    | 8113 Dec 13 22:58 | 25°♄31'56 | 1°07'12    | morning set         | 8114 Nov 19 06:41 | 23°♄09'24 |            |
| minimum elong    | 8113 Dec 14 02:23 | 25°♄47'55 | 1°06'55    |                     | 8114 Nov 22 16:06 | 0°♄       |            |
|                  | 8113 Dec 16 08:55 | 0°♄       |            | superior conj       | 8114 Nov 27 05:43 | 9°♄06'58  | 1°26'40    |
| max. Earth dist. | 8113 Dec 21 06:45 | 8°♄46'37  | 1.39963 AU | minimum elong       | 8114 Nov 27 08:24 | 9°♄20'05  | 1°26'33    |
| desc. node       | 8113 Dec 23 12:23 | 12°♄38'05 |            | max. Earth dist.    | 8114 Dec 03 12:33 | 21°♄05'59 | 1.37799 AU |
| evening rise     | 8113 Dec 25 10:08 | 15°♄51'31 |            | evening rise        | 8114 Dec 07 06:01 | 27°♄49'54 |            |
|                  | 8114 Jan 03 05:05 | 0°♄       |            |                     | 8114 Dec 08 11:40 | 0°♄       |            |
|                  | 8114 Jan 24 21:52 | 0°♄       |            | desc. node          | 8114 Dec 10 09:24 | 3°♄17'04  |            |
| evening max el   | 8114 Jan 29 06:46 | 4°♄44'47  | 23°55'52   |                     | 8114 Dec 27 15:32 | 0°♄       |            |
| retrograde       | 8114 Feb 09 06:54 | 11°♄13'13 |            | evening max el      | 8115 Jan 11 19:57 | 18°♄32'05 | 25°12'25   |
| evening set      | 8114 Feb 14 12:29 | 9°♄02'28  |            | retrograde          | 8115 Jan 23 19:53 | 25°♄28'30 |            |
| asc. node        | 8114 Feb 14 16:41 | 8°♄53'24  |            | evening set         | 8115 Jan 29 14:19 | 23°♄05'03 |            |
| inferior conj    | 8114 Feb 19 23:35 | 2°♄34'45  | 1°39'49    | asc. node           | 8115 Feb 01 13:45 | 19°♄59'42 |            |
| minimum elong    | 8114 Feb 19 21:35 | 2°♄41'33  | 1°39'10    | min. Earth dist.    | 8115 Feb 03 01:05 | 18°♄09'07 | 0.67608 AU |
| min. Earth dist. | 8114 Feb 19 06:47 | 3°♄31'50  | 0.68205 AU | inferior conj       | 8115 Feb 04 05:19 | 16°♄37'18 | 0°52'01    |
|                  | 8114 Feb 21 22:22 | 30°♄      |            | minimum elong       | 8115 Feb 04 04:05 | 16°♄41'18 | 0°51'38    |
| morning rise     | 8114 Feb 25 06:40 | 26°♄31'32 |            | morning rise        | 8115 Feb 09 18:09 | 10°♄41'49 |            |
| direct           | 8114 Mar 01 07:36 | 24°♄59'11 |            | direct              | 8115 Feb 13 06:40 | 9°♄30'32  |            |
| morning max el   | 8114 Mar 09 06:33 | 29°♄30'46 | 20°29'58   | morning max el      | 8115 Feb 20 09:53 | 13°♄27'47 | 19°25'22   |
|                  | 8114 Mar 09 18:07 | 0°♄       |            |                     | 8115 Mar 04 23:53 | 0°♄       |            |
| desc. node       | 8114 Mar 21 11:59 | 15°♄02'22 |            | greatest brilliancy | 8115 Mar 05 07:01 | 0°♄26'29  | -0.7m      |
|                  | 8114 Mar 31 15:12 | 0°♄       |            | desc. node          | 8115 Mar 08 08:56 | 5°♄03'45  |            |
| morning set      | 8114 Apr 07 02:25 | 9°♄54'22  |            | morning set         | 8115 Mar 17 00:55 | 18°♄19'20 |            |



|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8115 Mar 24 13:34 | 0°♿       |            | morning max el      | 8116 Feb 03 20:22 | 27°♿32'23 | 18°36'25   |
| max. Earth dist. | 8115 Mar 29 18:40 | 8°♿11'01  | 1.44817 AU |                     | 8116 Feb 06 02:25 | 0°♿       |            |
|                  |                   |           |            | desc. node          | 8116 Feb 23 05:52 | 25°♿22'34 |            |
| superior conj    | 8115 Apr 02 14:44 | 14°♿16'30 | -2°08'30   | morning set         | 8116 Feb 24 17:42 | 27°♿43'51 |            |
| minimum elong    | 8115 Apr 02 10:38 | 14°♿00'08 | 2°08'24    |                     | 8116 Feb 26 04:14 | 0°♿       |            |
|                  | 8115 Apr 12 07:17 | 0°♿       |            |                     |                   |           |            |
| evening rise     | 8115 Apr 16 17:41 | 7°♿21'19  |            | superior conj       | 8116 Mar 11 21:40 | 23°♿06'23 | -1°46'44   |
| asc. node        | 8115 Apr 30 12:40 | 29°♿37'48 |            | minimum elong       | 8116 Mar 11 12:20 | 22°♿29'52 | 1°45'55    |
|                  | 8115 Apr 30 18:54 | 0°♿       |            | max. Earth dist.    | 8116 Mar 11 12:41 | 22°♿31'12 | 1.45458 AU |
| evening max el   | 8115 May 05 15:58 | 6°♿00'55  | 18°18'10   |                     | 8116 Mar 16 07:10 | 0°♿       |            |
| retrograde       | 8115 May 12 01:28 | 9°♿26'08  |            | evening rise        | 8116 Mar 27 12:07 | 17°♿44'07 |            |
| evening set      | 8115 May 15 01:29 | 8°♿37'18  |            |                     | 8116 Apr 04 04:53 | 0°♿       |            |
| inferior conj    | 8115 May 20 23:29 | 3°♿13'02  | 3°12'49    | greatest brilliancy | 8116 Apr 04 19:41 | 0°♿58'30  | -0.8m      |
| minimum elong    | 8115 May 21 01:06 | 3°♿08'25  | 3°12'29    | asc. node           | 8116 Apr 16 09:46 | 17°♿41'00 |            |
| min. Earth dist. | 8115 May 23 10:00 | 0°♿26'48  | 0.63936 AU | evening max el      | 8116 Apr 18 03:01 | 19°♿33'32 | 18°48'41   |
|                  | 8115 May 23 19:49 | 30°♿♿     |            | retrograde          | 8116 Apr 24 19:29 | 23°♿15'48 |            |
| morning rise     | 8115 May 26 23:36 | 26°♿59'23 |            | evening set         | 8116 Apr 28 02:49 | 22°♿12'59 |            |
| direct           | 8115 Jun 02 17:16 | 24°♿18'34 |            | inferior conj       | 8116 May 03 17:04 | 16°♿32'13 | 3°23'40    |
| desc. node       | 8115 Jun 04 08:31 | 24°♿27'09 |            | minimum elong       | 8116 May 03 17:19 | 16°♿31'26 | 3°23'34    |
|                  | 8115 Jun 14 01:43 | 0°♿       |            | min. Earth dist.    | 8116 May 05 12:17 | 14°♿17'56 | 0.65683 AU |
| morning max el   | 8115 Jun 16 12:24 | 2°♿19'20  | 27°37'17   | morning rise        | 8116 May 09 07:14 | 10°♿14'31 |            |
|                  | 8115 Jul 07 02:13 | 0°♿       |            | direct              | 8116 May 15 18:56 | 7°♿27'27  |            |
| morning set      | 8115 Jul 21 11:13 | 25°♿50'34 |            | desc. node          | 8116 May 21 05:32 | 9°♿03'00  |            |
|                  | 8115 Jul 23 12:55 | 0°♿       |            | morning max el      | 8116 May 28 22:58 | 15°♿15'52 | 26°47'12   |
| max. Earth dist. | 8115 Jul 26 09:18 | 5°♿53'09  | 1.32894 AU |                     | 8116 Jun 10 00:41 | 0°♿       |            |
| asc. node        | 8115 Jul 27 11:55 | 8°♿13'22  |            |                     | 8116 Jun 28 20:58 | 0°♿       |            |
|                  |                   |           |            | morning set         | 8116 Jul 03 18:50 | 9°♿04'37  |            |
| superior conj    | 8115 Jul 29 10:20 | 12°♿20'48 | 0°19'33    | max. Earth dist.    | 8116 Jul 08 00:28 | 17°♿20'37 | 1.34215 AU |
| minimum elong    | 8115 Jul 29 09:23 | 12°♿15'46 | 0°19'14    |                     |                   |           |            |
| evening rise     | 8115 Aug 05 11:08 | 27°♿30'22 |            | superior conj       | 8116 Jul 12 10:40 | 26°♿22'57 | -0°09'22   |
|                  | 8115 Aug 06 15:27 | 0°♿       |            | minimum elong       | 8116 Jul 12 11:11 | 26°♿25'40 | 0°09'25    |
|                  | 8115 Aug 24 07:16 | 0°♿       |            | behind sun begin    | 8116 Jul 12 06:29 | 26°♿01'15 |            |
| evening max el   | 8115 Aug 27 18:45 | 3°♿47'04  | 22°51'59   | behind sun end      | 8116 Jul 12 15:53 | 26°♿50'07 |            |
| desc. node       | 8115 Aug 31 07:31 | 6°♿48'07  |            | asc. node           | 8116 Jul 13 08:56 | 28°♿19'14 |            |
| retrograde       | 8115 Sep 10 00:45 | 10°♿24'12 |            |                     | 8116 Jul 14 04:09 | 0°♿       |            |
| evening set      | 8115 Sep 13 17:09 | 9°♿54'28  |            | evening rise        | 8116 Jul 19 21:08 | 12°♿02'16 |            |
| min. Earth dist. | 8115 Sep 21 02:56 | 6°♿34'19  | 0.55232 AU |                     | 8116 Jul 29 03:22 | 0°♿       |            |
| inferior conj    | 8115 Sep 22 12:46 | 5°♿45'47  | -5°20'22   | evening max el      | 8116 Aug 08 12:42 | 14°♿11'43 | 21°17'52   |
| minimum elong    | 8115 Sep 22 07:17 | 5°♿53'39  | 5°19'42    | desc. node          | 8116 Aug 17 04:36 | 19°♿42'20 |            |
| morning rise     | 8115 Sep 30 23:29 | 1°♿56'48  |            | retrograde          | 8116 Aug 20 14:20 | 20°♿10'34 |            |
| direct           | 8115 Oct 04 01:37 | 1°♿34'38  |            | evening set         | 8116 Aug 23 00:12 | 19°♿57'07 |            |
| morning max el   | 8115 Oct 15 05:49 | 6°♿48'17  | 20°51'05   | inferior conj       | 8116 Sep 01 06:03 | 15°♿59'34 | -4°13'33   |
| asc. node        | 8115 Oct 23 11:32 | 17°♿08'56 |            | minimum elong       | 8116 Aug 31 20:32 | 16°♿12'56 | 4°11'01    |
|                  | 8115 Oct 30 17:00 | 0°♿       |            | min. Earth dist.    | 8116 Sep 01 11:55 | 15°♿51'19 | 0.54685 AU |
| morning set      | 8115 Nov 03 14:21 | 7°♿51'32  |            | morning rise        | 8116 Sep 09 17:35 | 12°♿06'50 |            |
|                  |                   |           |            | direct              | 8116 Sep 13 10:09 | 11°♿37'27 |            |
| superior conj    | 8115 Nov 11 00:07 | 23°♿15'02 | 1°37'46    | morning max el      | 8116 Sep 26 02:06 | 17°♿38'16 | 22°28'10   |
| minimum elong    | 8115 Nov 11 01:31 | 23°♿22'13 | 1°37'48    |                     | 8116 Oct 05 22:39 | 0°♿       |            |
|                  | 8115 Nov 14 08:15 | 0°♿       |            | asc. node           | 8116 Oct 09 08:32 | 5°♿40'23  |            |
| max. Earth dist. | 8115 Nov 15 21:07 | 3°♿01'50  | 1.35785 AU | morning set         | 8116 Oct 18 01:01 | 22°♿40'47 |            |
| evening rise     | 8115 Nov 19 20:49 | 10°♿38'28 |            |                     | 8116 Oct 21 11:29 | 0°♿       |            |
| desc. node       | 8115 Nov 27 06:25 | 23°♿46'28 |            |                     |                   |           |            |
|                  | 8115 Dec 01 01:04 | 0°♿       |            | superior conj       | 8116 Oct 25 02:39 | 7°♿45'57  | 1°41'30    |
|                  | 8115 Dec 23 02:51 | 0°♿       |            | minimum elong       | 8116 Oct 25 02:43 | 7°♿46'20  | 1°41'35    |
| evening max el   | 8115 Dec 25 08:58 | 2°♿17'25  | 26°18'09   | max. Earth dist.    | 8116 Oct 28 12:51 | 14°♿56'33 | 1.34104 AU |
| retrograde       | 8116 Jan 07 03:56 | 9°♿31'15  |            | evening rise        | 8116 Nov 02 02:43 | 24°♿08'00 |            |
| evening set      | 8116 Jan 13 10:47 | 6°♿58'27  |            |                     | 8116 Nov 05 04:28 | 0°♿       |            |
| min. Earth dist. | 8116 Jan 17 14:58 | 2°♿37'14  | 0.66636 AU | desc. node          | 8116 Nov 13 03:28 | 14°♿01'17 |            |
| inferior conj    | 8116 Jan 19 06:44 | 0°♿35'46  | -0°03'26   |                     | 8116 Nov 23 14:41 | 0°♿       |            |
| minimum elong    | 8116 Jan 19 06:49 | 0°♿35'30  | 0°03'15    | evening max el      | 8116 Dec 06 22:03 | 15°♿53'56 | 27°05'42   |
| transit middle   | 8116 Jan 19 06:49 | 0°♿35'30  | 0°03'15    | retrograde          | 8116 Dec 20 06:19 | 23°♿14'23 |            |
| transit begin    | 8116 Jan 19 04:00 | 0°♿44'08  |            | evening set         | 8116 Dec 26 23:52 | 20°♿37'53 |            |
| transit end      | 8116 Jan 19 09:38 | 0°♿26'53  |            | min. Earth dist.    | 8116 Dec 30 22:17 | 16°♿50'41 | 0.65310 AU |
| asc. node        | 8116 Jan 19 10:51 | 0°♿23'12  |            | inferior conj       | 8117 Jan 02 01:41 | 14°♿26'03 | -1°05'43   |
|                  | 8116 Jan 19 18:29 | 30°♿♿     |            | minimum elong       | 8117 Jan 02 03:37 | 14°♿20'35 | 1°04'44    |
| morning rise     | 8116 Jan 25 03:37 | 24°♿50'03 |            | asc. node           | 8117 Jan 05 07:55 | 11°♿01'19 |            |
| direct           | 8116 Jan 28 05:12 | 23°♿56'53 |            | morning rise        | 8117 Jan 08 08:40 | 8°♿52'27  |            |

|                     |                   |  |            |                  |                   |  |            |
|---------------------|-------------------|--|------------|------------------|-------------------|--|------------|
| direct              | 8117 Jan 11 01:13 | 8°  13'39     |            | inferior conj    | 8117 Dec 16 11:31 | 28°  01'14    | -2°13'16   |
| morning max el      | 8117 Jan 17 11:43 | 11°  38'26    | 18°04'02   | minimum elong    | 8117 Dec 16 15:41 | 27°  50'36    | 2°11'28    |
|                     | 8117 Jan 30 09:39 | 0°  ≈         |            | morning rise     | 8117 Dec 23 06:15 | 22°  42'45    |            |
| morning set         | 8117 Feb 04 15:52 | 8°  ≈36'51    |            | asc. node        | 8117 Dec 23 04:58 | 22°  44'00    |            |
| desc. node          | 8117 Feb 09 02:51 | 15°  ≈54'05   |            | direct           | 8117 Dec 25 16:05 | 22°  41'21    |            |
|                     | 8117 Feb 17 21:30 | 0°  ✕         |            | morning max el   | 8118 Jan 01 05:01 | 25°  47'55    | 17°48'55   |
|                     |                   |  |            |                  | 8118 Jan 04 21:24 | 0°  ✕         |            |
| superior conj       | 8117 Feb 19 05:10 | 2°  ✕05'21    | -1°08'28   | morning set      | 8118 Jan 17 17:06 | 20°  ✕48'51   |            |
| minimum elong       | 8117 Feb 18 21:18 | 1°  ✕34'15    | 1°07'25    |                  | 8118 Jan 23 02:01 | 0°  ≈         |            |
| max. Earth dist.    | 8117 Feb 22 07:59 | 6°  ✕59'58    | 1.45363 AU | desc. node       | 8118 Jan 26 23:48 | 6°  ≈33'42    |            |
| evening rise        | 8117 Mar 07 09:37 | 27°  ✕19'41   |            |                  |                   |  |            |
|                     | 8117 Mar 09 03:07 | 0°  Υ         |            | superior conj    | 8118 Jan 30 06:44 | 11°  ≈59'12   | -0°23'44   |
| greatest brilliancy | 8117 Mar 20 15:40 | 17°  Υ35'45   | -0.7m      | minimum elong    | 8118 Jan 30 04:08 | 11°  ≈48'35   | 0°23'14    |
|                     | 8117 Mar 29 14:13 | 0°  ✕         |            | max. Earth dist. | 8118 Feb 05 02:29 | 21°  ≈22'49   | 1.44544 AU |
| evening max el      | 8117 Apr 01 09:54 | 3°  ✕10'20    | 19°35'58   |                  | 8118 Feb 10 13:54 | 0°  ✕         |            |
| asc. node           | 8117 Apr 03 06:52 | 4°  ✕54'28    |            | evening rise     | 8118 Feb 14 20:53 | 6°  ✕38'08    |            |
| retrograde          | 8117 Apr 08 16:57 | 7°  ✕20'38    |            |                  | 8118 Mar 02 11:32 | 0°  Υ         |            |
| evening set         | 8117 Apr 12 08:22 | 6°  ✕03'06    |            | evening max el   | 8118 Mar 15 11:29 | 16°  Υ49'01   | 20°37'47   |
| inferior conj       | 8117 Apr 17 18:00 | 0°  ✕07'35    | 3°19'53    | asc. node        | 8118 Mar 21 03:57 | 21°  Υ04'21   |            |
| minimum elong       | 8117 Apr 17 17:04 | 0°  ✕10'40    | 3°19'45    | retrograde       | 8118 Mar 23 15:27 | 21°  Υ35'45   |            |
|                     | 8117 Apr 17 20:17 | 30°  ✕Υ       |            | evening set      | 8118 Mar 27 16:02 | 20°  Υ03'03   |            |
| min. Earth dist.    | 8117 Apr 18 22:16 | 28°  Υ34'03   | 0.67014 AU | inferior conj    | 8118 Apr 01 23:36 | 13°  Υ54'41   | 3°04'14    |
| morning rise        | 8117 Apr 23 01:27 | 23°  Υ49'53   |            | minimum elong    | 8118 Apr 01 21:50 | 14°  Υ00'45   | 3°03'54    |
| direct              | 8117 Apr 29 02:51 | 21°  Υ08'06   |            | min. Earth dist. | 8118 Apr 02 13:58 | 13°  Υ05'21   | 0.67898 AU |
| desc. node          | 8117 May 08 02:32 | 25°  Υ25'44   |            | morning rise     | 8118 Apr 07 03:25 | 7°  Υ39'18    |            |
| morning max el      | 8117 May 11 08:45 | 28°  Υ28'17   | 25°33'55   | direct           | 8118 Apr 12 15:58 | 5°  Υ11'56    |            |
|                     | 8117 May 12 19:50 | 0°  ✕         |            | morning max el   | 8118 Apr 23 17:41 | 11°  Υ49'12   | 24°07'30   |
|                     | 8117 Jun 03 18:53 | 0°  Π         |            | desc. node       | 8118 Apr 24 23:31 | 13°  Υ06'48   |            |
| morning set         | 8117 Jun 16 11:45 | 21°  Π34'02  |            |                  | 8118 May 08 06:50 | 0°  ✕        |            |
| max. Earth dist.    | 8117 Jun 20 04:35 | 28°  Π25'53 | 1.35999 AU |                  | 8118 May 27 13:35 | 0°  Π       |            |
|                     | 8117 Jun 21 00:24 | 0°  ☾       |            | morning set      | 8118 May 29 08:47 | 3°  Π04'59  |            |
|                     |                   |  |            | max. Earth dist. | 8118 Jun 02 01:38 | 9°  Π35'26  | 1.38128 AU |
| superior conj       | 8117 Jun 26 02:24 | 9°  ☾56'32  | -0°40'35   |                  |                   |  |            |
| minimum elong       | 8117 Jun 26 04:49 | 10°  ☾08'38 | 0°40'17    | superior conj    | 8118 Jun 09 06:08 | 22°  Π52'55 | -1°12'13   |
| asc. node           | 8117 Jun 30 05:58 | 18°  ☾21'03 |            | minimum elong    | 8118 Jun 09 10:34 | 23°  Π14'04 | 1°11'39    |
| evening rise        | 8117 Jul 04 03:23 | 26°  ☾19'20 |            |                  | 8118 Jun 12 22:29 | 0°  ☾       |            |
|                     | 8117 Jul 05 22:59 | 0°  Ω       |            | asc. node        | 8118 Jun 17 02:59 | 8°  ☾14'53  |            |
| evening max el      | 8117 Jul 21 19:11 | 25°  Ω13'55 | 19°59'34   | evening rise     | 8118 Jun 18 03:17 | 10°  ☾14'42 |            |
|                     | 8117 Jul 29 10:05 | 0°  ൬       |            |                  | 8118 Jun 29 01:07 | 0°  Ω       |            |
| retrograde          | 8117 Aug 01 04:30 | 0°  ൬21'14  |            | evening max el   | 8118 Jul 04 14:26 | 7°  Ω00'52  | 19°01'30   |
| evening set         | 8117 Aug 03 01:46 | 0°  ൬11'51  |            | retrograde       | 8118 Jul 13 08:10 | 11°  Ω20'07 |            |
| desc. node          | 8117 Aug 04 01:42 | 29°  Ω59'40 |            | evening set      | 8118 Jul 15 06:44 | 11°  Ω08'12 |            |
|                     | 8117 Aug 04 01:08 | 30°  ✕Ω     |            | desc. node       | 8118 Jul 21 22:46 | 8°  Ω00'43  |            |
| inferior conj       | 8117 Aug 12 02:14 | 26°  Ω12'15 | -2°25'44   | inferior conj    | 8118 Jul 23 14:15 | 6°  Ω53'38  | -0°30'03   |
| minimum elong       | 8117 Aug 11 19:34 | 26°  Ω22'17 | 2°23'23    | minimum elong    | 8118 Jul 23 12:58 | 6°  Ω55'51  | 0°29'41    |
| min. Earth dist.    | 8117 Aug 13 22:58 | 25°  Ω04'53 | 0.55107 AU | min. Earth dist. | 8118 Jul 26 13:18 | 4°  Ω51'17  | 0.56414 AU |
| morning rise        | 8117 Aug 20 11:43 | 21°  Ω55'43 |            | morning rise     | 8118 Jul 31 16:04 | 2°  Ω01'19  |            |
| direct              | 8117 Aug 24 22:30 | 21°  Ω12'28 |            | direct           | 8118 Aug 05 23:11 | 0°  Ω55'25  |            |
| morning max el      | 8117 Sep 07 15:17 | 27°  Ω57'07 | 24°13'57   | morning max el   | 8118 Aug 20 04:33 | 8°  Ω13'49  | 25°52'48   |
|                     | 8117 Sep 09 16:21 | 0°  ൬       |            |                  | 8118 Sep 05 10:16 | 0°  ൬       |            |
| asc. node           | 8117 Sep 26 05:31 | 24°  ൬44'34 |            | asc. node        | 8118 Sep 13 02:30 | 14°  ൬13'07 |            |
|                     | 8117 Sep 28 21:54 | 0°  ✕       |            | morning set      | 8118 Sep 16 23:57 | 22°  ൬16'41 |            |
| morning set         | 8117 Oct 02 12:46 | 7°  ✕30'40  |            |                  | 8118 Sep 20 13:27 | 0°  ✕       |            |
| superior conj       | 8117 Oct 09 10:23 | 22°  ✕29'47 | 1°38'46    | superior conj    | 8118 Sep 23 21:07 | 7°  ✕19'46  | 1°30'14    |
| minimum elong       | 8117 Oct 09 09:20 | 22°  ✕24'03 | 1°38'46    | minimum elong    | 8118 Sep 23 19:16 | 7°  ✕09'33  | 1°30'04    |
| max. Earth dist.    | 8117 Oct 11 12:59 | 27°  ✕03'35 | 1.32846 AU | max. Earth dist. | 8118 Sep 24 19:48 | 9°  ✕24'54  | 1.32041 AU |
|                     | 8117 Oct 12 22:01 | 0°  ♌       |            | evening rise     | 8118 Sep 30 21:09 | 22°  ✕27'45 |            |
| evening rise        | 8117 Oct 16 19:52 | 8°  ♌07'16  |            |                  | 8118 Oct 04 14:16 | 0°  ♌       |            |
|                     | 8117 Oct 28 15:29 | 0°  ✕       |            | desc. node       | 8118 Oct 17 21:35 | 23°  ♌15'11 |            |
| desc. node          | 8117 Oct 31 00:32 | 3°  ✕53'52  |            |                  | 8118 Oct 22 13:50 | 0°  ✕       |            |
| evening max el      | 8117 Nov 19 10:01 | 29°  ✕09'52 | 27°28'10   | evening max el   | 8118 Nov 01 18:26 | 11°  ✕51'31 | 27°19'37   |
|                     | 8117 Nov 20 07:38 | 0°  ✕       |            | retrograde       | 8118 Nov 15 14:26 | 19°  ✕04'20 |            |
| retrograde          | 8117 Dec 03 02:11 | 6°  ✕28'25  |            | evening set      | 8118 Nov 22 16:36 | 16°  ✕45'35 |            |
| evening set         | 8117 Dec 10 02:55 | 3°  ✕56'00  |            | min. Earth dist. | 8118 Nov 26 08:56 | 13°  ✕55'56 | 0.61729 AU |
| min. Earth dist.    | 8117 Dec 13 20:50 | 0°  ✕40'30  | 0.63654 AU | inferior conj    | 8118 Nov 29 09:08 | 11°  ✕13'21 | -3°22'53   |
|                     | 8117 Dec 14 13:03 | 30°  ✕✕     |            | minimum elong    | 8118 Nov 29 15:26 | 10°  ✕59'07 | 3°20'37    |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| morning rise     | 8118 Dec 06 16:26 | 6°♊13'31  |            | minimum elong    | 8119 Nov 11 22:20 | 23°♍38'53 | 4°26'16    |
| direct           | 8118 Dec 08 22:20 | 5°♊51'54  |            | morning rise     | 8119 Nov 19 10:17 | 19°♍15'16 |            |
| asc. node        | 8118 Dec 10 02:00 | 5°♊57'46  |            | direct           | 8119 Nov 21 15:49 | 18°♍57'14 |            |
| morning max el   | 8118 Dec 15 21:08 | 9°♊22'49  | 17°51'55   | asc. node        | 8119 Nov 26 23:00 | 20°♍45'05 |            |
|                  | 8118 Dec 29 09:49 | 0°♊       |            | morning max el   | 8119 Nov 29 08:41 | 22°♍44'28 | 18°14'18   |
| morning set      | 8118 Dec 31 14:54 | 3°♊59'17  |            |                  | 8119 Dec 05 01:45 | 0°♊       |            |
|                  |                   |           |            | morning set      | 8119 Dec 15 03:16 | 17°♊50'25 |            |
|                  |                   |           |            |                  | 8119 Dec 21 14:23 | 0°♊       |            |
| superior conj    | 8119 Jan 11 09:51 | 23°♊07'00 | 0°18'02    |                  |                   |           |            |
| minimum elong    | 8119 Jan 11 11:28 | 23°♊13'53 | 0°17'56    |                  |                   |           |            |
| desc. node       | 8119 Jan 13 20:45 | 27°♊17'46 |            | superior conj    | 8119 Dec 24 13:01 | 5°♊23'52  | 0°51'53    |
|                  | 8119 Jan 15 11:24 | 0°♊       |            | minimum elong    | 8119 Dec 24 16:20 | 5°♊38'56  | 0°51'34    |
| max. Earth dist. | 8119 Jan 18 17:47 | 5°♊23'33  | 1.43095 AU | desc. node       | 8119 Dec 31 17:44 | 18°♊03'04 |            |
| evening rise     | 8119 Jan 25 13:17 | 16°♊17'02 |            | max. Earth dist. | 8120 Jan 01 04:01 | 18°♊46'48 | 1.41178 AU |
|                  | 8119 Feb 03 12:43 | 0°♊       |            | evening rise     | 8120 Jan 05 22:59 | 26°♊44'38 |            |
|                  | 8119 Feb 25 20:28 | 0°♊       |            |                  | 8120 Jan 07 23:21 | 0°♊       |            |
| evening max el   | 8119 Feb 26 07:36 | 0°♊28'37  | 21°50'37   |                  | 8120 Jan 28 05:48 | 0°♊       |            |
| retrograde       | 8119 Mar 07 13:02 | 5°♊56'32  |            | evening max el   | 8120 Feb 08 23:29 | 14°♊10'51 | 23°09'43   |
| asc. node        | 8119 Mar 08 01:02 | 5°♊55'15  |            | retrograde       | 8120 Feb 19 08:21 | 20°♊19'21 |            |
| evening set      | 8119 Mar 12 00:02 | 4°♊08'29  |            | asc. node        | 8120 Feb 22 22:06 | 19°♊15'57 |            |
|                  | 8119 Mar 15 17:41 | 30°♊      |            | evening set      | 8120 Feb 24 06:53 | 18°♊16'26 |            |
| inferior conj    | 8119 Mar 17 07:40 | 27°♊49'44 | 2°38'28    | min. Earth dist. | 8120 Feb 29 05:58 | 12°♊26'10 | 0.68372 AU |
| minimum elong    | 8119 Mar 17 05:27 | 27°♊57'26 | 2°37'55    | inferior conj    | 8120 Feb 29 16:17 | 11°♊50'36 | 2°03'41    |
| min. Earth dist. | 8119 Mar 17 09:14 | 27°♊44'15 | 0.68346 AU | minimum elong    | 8120 Feb 29 14:04 | 11°♊58'15 | 2°03'01    |
| morning rise     | 8119 Mar 22 10:42 | 21°♊38'06 |            | morning rise     | 8120 Mar 05 21:11 | 5°♊43'55  |            |
| direct           | 8119 Mar 27 09:11 | 19°♊30'49 |            | direct           | 8120 Mar 10 05:40 | 3°♊59'00  |            |
| morning max el   | 8119 Apr 06 04:03 | 25°♊17'10 | 22°37'50   | morning max el   | 8120 Mar 18 19:22 | 8°♊55'50  | 21°13'31   |
|                  | 8119 Apr 10 10:15 | 0°♊       |            | desc. node       | 8120 Mar 28 17:24 | 21°♊02'22 |            |
| desc. node       | 8119 Apr 11 20:28 | 1°♊44'01  |            |                  | 8120 Apr 04 01:23 | 0°♊       |            |
|                  | 8119 May 01 18:37 | 0°♊       |            | morning set      | 8120 Apr 18 20:35 | 22°♊26'18 |            |
| morning set      | 8119 May 10 04:20 | 13°♊22'53 |            |                  | 8120 Apr 23 14:27 | 0°♊       |            |
| max. Earth dist. | 8119 May 14 22:39 | 21°♊20'33 | 1.40377 AU | max. Earth dist. | 8120 Apr 26 01:03 | 3°♊58'13  | 1.42464 AU |
|                  | 8119 May 19 22:18 | 0°♊       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8120 May 03 07:52 | 16°♊10'15 | -2°03'04   |
| superior conj    | 8119 May 22 17:29 | 5°♊00'44  | -1°41'14   | minimum elong    | 8120 May 03 12:40 | 16°♊30'49 | 2°02'54    |
| minimum elong    | 8119 May 22 23:13 | 5°♊26'43  | 1°40'43    |                  | 8120 May 11 05:03 | 0°♊       |            |
| evening rise     | 8119 Jun 01 17:32 | 23°♊39'01 |            | evening rise     | 8120 May 14 18:12 | 6°♊23'05  |            |
| asc. node        | 8119 Jun 03 24:00 | 27°♊55'38 |            | asc. node        | 8120 May 20 21:02 | 17°♊18'25 |            |
|                  | 8119 Jun 05 02:40 | 0°♊       |            |                  | 8120 May 29 03:17 | 0°♊       |            |
| evening max el   | 8119 Jun 17 19:18 | 19°♊26'05 | 18°24'13   | evening max el   | 8120 May 31 06:07 | 2°♊20'58  | 18°06'55   |
| retrograde       | 8119 Jun 25 07:03 | 23°♊10'39 |            | retrograde       | 8120 Jun 06 23:22 | 5°♊46'21  |            |
| evening set      | 8119 Jun 27 12:06 | 22°♊51'58 |            | evening set      | 8120 Jun 09 11:54 | 5°♊17'39  |            |
| inferior conj    | 8119 Jul 04 23:44 | 18°♊17'20 | 1°06'56    | inferior conj    | 8120 Jun 16 05:51 | 0°♊22'53  | 2°15'52    |
| minimum elong    | 8119 Jul 05 01:56 | 18°♊12'50 | 1°06'00    | minimum elong    | 8120 Jun 16 08:56 | 0°♊15'37  | 2°14'52    |
| min. Earth dist. | 8119 Jul 08 08:56 | 15°♊33'34 | 0.58342 AU |                  | 8120 Jun 16 15:31 | 30°♊      |            |
| desc. node       | 8119 Jul 08 19:50 | 15°♊12'49 |            | min. Earth dist. | 8120 Jun 19 12:01 | 27°♊19'44 | 0.60564 AU |
| morning rise     | 8119 Jul 12 12:26 | 12°♊49'40 |            | morning rise     | 8120 Jun 23 03:20 | 24°♊29'17 |            |
| direct           | 8119 Jul 18 13:51 | 11°♊13'37 |            | desc. node       | 8120 Jun 24 16:53 | 23°♊35'54 |            |
| morning max el   | 8119 Aug 01 23:15 | 18°♊56'05 | 27°08'25   | direct           | 8120 Jun 29 17:09 | 22°♊21'48 |            |
|                  | 8119 Aug 11 07:33 | 0°♊       |            |                  | 8120 Jul 13 16:52 | 0°♊       |            |
|                  | 8119 Aug 29 00:37 | 0°♊       |            | morning max el   | 8120 Jul 14 00:47 | 0°♊19'28  | 27°49'24   |
| asc. node        | 8119 Aug 30 23:27 | 3°♊58'49  |            |                  | 8120 Aug 04 09:56 | 0°♊       |            |
| morning set      | 8119 Sep 01 08:57 | 6°♊53'53  |            | morning set      | 8120 Aug 15 13:57 | 21°♊16'42 |            |
|                  |                   |           |            | asc. node        | 8120 Aug 16 20:25 | 23°♊55'57 |            |
|                  |                   |           |            |                  | 8120 Aug 19 16:27 | 0°♊       |            |
| superior conj    | 8119 Sep 08 08:55 | 22°♊09'48 | 1°16'26    | max. Earth dist. | 8120 Aug 21 15:26 | 4°♊16'43  | 1.31776 AU |
| minimum elong    | 8119 Sep 08 06:41 | 21°♊57'26 | 1°16'06    |                  |                   |           |            |
| max. Earth dist. | 8119 Sep 08 05:53 | 21°♊53'00 | 1.31682 AU |                  |                   |           |            |
|                  | 8119 Sep 11 21:56 | 0°♊       |            | superior conj    | 8120 Aug 22 19:59 | 6°♊54'02  | 0°57'47    |
| evening rise     | 8119 Sep 15 03:58 | 7°♊01'51  |            | minimum elong    | 8120 Aug 22 17:51 | 6°♊42'13  | 0°57'21    |
|                  | 8119 Sep 27 02:41 | 0°♊       |            | evening rise     | 8120 Aug 29 14:08 | 21°♊42'54 |            |
| desc. node       | 8119 Oct 04 18:40 | 11°♊52'53 |            |                  | 8120 Sep 02 13:34 | 0°♊       |            |
| evening max el   | 8119 Oct 14 20:28 | 23°♊46'48 | 26°37'13   | desc. node       | 8120 Sep 20 15:46 | 29°♊29'16 |            |
|                  | 8119 Oct 24 00:59 | 0°♊       |            |                  | 8120 Sep 21 02:00 | 0°♊       |            |
| retrograde       | 8119 Oct 28 18:20 | 0°♊54'10  |            | evening max el   | 8120 Sep 25 14:26 | 4°♊51'04  | 25°23'41   |
|                  | 8119 Nov 02 09:28 | 30°♊      |            | retrograde       | 8120 Oct 09 12:19 | 11°♊52'57 |            |
| evening set      | 8119 Nov 04 12:43 | 28°♊59'46 |            | evening set      | 8120 Oct 15 10:20 | 10°♊32'13 |            |
| min. Earth dist. | 8119 Nov 08 10:09 | 26°♊24'24 | 0.59647 AU | min. Earth dist. | 8120 Oct 20 02:21 | 7°♊53'31  | 0.57614 AU |
| inferior conj    | 8119 Nov 11 15:05 | 23°♊53'10 | -4°28'13   | inferior conj    | 8120 Oct 23 02:04 | 5°♊50'57  | -5°17'41   |

|                  |                   |                         |            |                     |                   |                        |            |
|------------------|-------------------|-------------------------|------------|---------------------|-------------------|------------------------|------------|
| minimum elong    | 8120 Oct 23 07:13 | 5° $\mathbb{M}$ 42'07   | 5°16'55    | morning rise        | 8121 Oct 12 02:08 | 13° $\mathbb{A}$ 05'41 |            |
| morning rise     | 8120 Oct 31 06:25 | 1° $\mathbb{M}$ 35'56   |            | direct              | 8121 Oct 14 21:03 | 12° $\mathbb{A}$ 46'02 |            |
| direct           | 8120 Nov 02 16:03 | 1° $\mathbb{M}$ 18'35   |            | morning max el      | 8121 Oct 25 03:39 | 17° $\mathbb{A}$ 35'40 | 20°03'18   |
| morning max el   | 8120 Nov 11 11:58 | 5° $\mathbb{M}$ 32'00   | 18°57'39   | asc. node           | 8121 Oct 30 17:01 | 24° $\mathbb{A}$ 09'50 |            |
| asc. node        | 8120 Nov 12 20:01 | 6° $\mathbb{M}$ 54'10   |            |                     | 8121 Nov 03 11:13 | 0° $\mathbb{M}$        |            |
|                  | 8120 Nov 26 23:31 | 0° $\mathbb{A}$         |            | morning set         | 8121 Nov 12 06:41 | 16° $\mathbb{M}$ 43'43 |            |
| morning set      | 8120 Nov 28 01:38 | 2° $\mathbb{A}$ 08'11   |            |                     | 8121 Nov 18 18:37 | 0° $\mathbb{A}$        |            |
| superior conj    | 8120 Dec 06 11:10 | 18° $\mathbb{A}$ 34'25  | 1°16'31    | superior conj       | 8121 Nov 19 23:24 | 2° $\mathbb{A}$ 24'56  | 1°32'19    |
| minimum elong    | 8120 Dec 06 14:22 | 18° $\mathbb{A}$ 49'45  | 1°16'18    | minimum elong       | 8121 Nov 20 01:34 | 2° $\mathbb{A}$ 35'46  | 1°32'16    |
|                  | 8120 Dec 12 14:52 | 0° $\mathbb{B}$         |            | max. Earth dist.    | 8121 Nov 25 16:05 | 13° $\mathbb{A}$ 31'12 | 1.36915 AU |
| max. Earth dist. | 8120 Dec 13 09:57 | 1° $\mathbb{B}$ 25'31   | 1.39033 AU | evening rise        | 8121 Nov 29 11:04 | 20° $\mathbb{A}$ 31'51 |            |
| evening rise     | 8120 Dec 17 06:35 | 8° $\mathbb{B}$ 10'30   |            | desc. node          | 8121 Dec 04 11:46 | 29° $\mathbb{A}$ 20'49 |            |
| desc. node       | 8120 Dec 17 14:44 | 8° $\mathbb{B}$ 45'19   |            |                     | 8121 Dec 04 21:00 | 0° $\mathbb{B}$        |            |
|                  | 8120 Dec 30 21:56 | 0° $\mathbb{A}$         |            |                     | 8121 Dec 24 22:04 | 0° $\mathbb{A}$        |            |
| evening max el   | 8121 Jan 21 13:02 | 27° $\mathbb{A}$ 56'08  | 24°29'15   | evening max el      | 8122 Jan 04 02:11 | 11° $\mathbb{A}$ 43'31 | 25°42'08   |
|                  | 8121 Jan 23 18:04 | 0° $\mathbb{H}$         |            | retrograde          | 8122 Jan 16 11:07 | 18° $\mathbb{A}$ 48'44 |            |
| retrograde       | 8121 Feb 02 00:04 | 4° $\mathbb{H}$ 38'30   |            | evening set         | 8122 Jan 22 10:47 | 16° $\mathbb{A}$ 21'05 |            |
| evening set      | 8121 Feb 07 11:01 | 2° $\mathbb{H}$ 22'01   |            | asc. node           | 8122 Jan 26 16:17 | 11° $\mathbb{A}$ 47'21 |            |
| asc. node        | 8121 Feb 08 19:11 | 1° $\mathbb{H}$ 05'36   |            | min. Earth dist.    | 8122 Jan 26 18:45 | 11° $\mathbb{A}$ 39'35 | 0.67241 AU |
|                  | 8121 Feb 09 18:52 | 30° $\mathbb{R}$        |            | inferior conj       | 8122 Jan 28 03:47 | 9° $\mathbb{A}$ 54'41  | 0°29'23    |
| min. Earth dist. | 8121 Feb 12 01:55 | 27° $\mathbb{A}$ 05'59  | 0.67996 AU | minimum elong       | 8122 Jan 28 03:03 | 9° $\mathbb{A}$ 57'02  | 0°29'13    |
| inferior conj    | 8121 Feb 12 23:36 | 25° $\mathbb{A}$ 53'24  | 1°20'30    | morning rise        | 8122 Feb 02 19:45 | 4° $\mathbb{A}$ 02'46  |            |
| minimum elong    | 8121 Feb 12 21:52 | 25° $\mathbb{A}$ 59'13  | 1°19'56    | direct              | 8122 Feb 06 03:24 | 2° $\mathbb{A}$ 59'32  |            |
| morning rise     | 8121 Feb 18 08:51 | 19° $\mathbb{A}$ 53'07  |            | morning max el      | 8122 Feb 13 00:33 | 6° $\mathbb{A}$ 46'13  | 19°02'25   |
| direct           | 8121 Feb 22 04:14 | 18° $\mathbb{A}$ 30'08  |            | greatest brilliancy | 8122 Feb 26 20:37 | 25° $\mathbb{A}$ 27'22 | -0.8m      |
| morning max el   | 8121 Mar 01 18:04 | 22° $\mathbb{A}$ 46'04  | 20°00'35   |                     | 8122 Mar 01 19:51 | 0° $\mathbb{H}$        |            |
|                  | 8121 Mar 07 21:18 | 0° $\mathbb{H}$         |            | desc. node          | 8122 Mar 02 11:17 | 0° $\mathbb{H}$ 59'24  |            |
| desc. node       | 8121 Mar 15 14:21 | 10° $\mathbb{H}$ 50'11  |            | morning set         | 8122 Mar 07 22:48 | 9° $\mathbb{H}$ 28'26  |            |
|                  | 8121 Mar 28 07:12 | 0° $\mathbb{Y}$         |            |                     | 8122 Mar 21 02:40 | 0° $\mathbb{Y}$        |            |
| morning set      | 8121 Mar 28 19:00 | 0° $\mathbb{Y}$ 45'29   |            | max. Earth dist.    | 8122 Mar 22 02:12 | 1° $\mathbb{Y}$ 32'23  | 1.45182 AU |
| max. Earth dist. | 8121 Apr 08 10:30 | 17° $\mathbb{Y}$ 26'07  | 1.44129 AU |                     |                   |                        |            |
| superior conj    | 8121 Apr 13 21:47 | 26° $\mathbb{Y}$ 15'26  | -2°11'46   | superior conj       | 8122 Mar 24 13:00 | 5° $\mathbb{Y}$ 23'57  | -2°01'43   |
| minimum elong    | 8121 Apr 13 21:48 | 26° $\mathbb{Y}$ 15'27  | 2°11'50    | minimum elong       | 8122 Mar 24 06:04 | 4° $\mathbb{Y}$ 56'33  | 2°01'19    |
|                  | 8121 Apr 16 04:34 | 0° $\mathbb{B}$         |            | evening rise        | 8122 Apr 08 08:40 | 29° $\mathbb{Y}$ 12'16 |            |
| evening rise     | 8121 Apr 27 00:39 | 18° $\mathbb{B}$ 16'42  |            |                     | 8122 Apr 08 20:21 | 0° $\mathbb{B}$        |            |
|                  | 8121 May 03 21:22 | 0° $\mathbb{II}$        |            | asc. node           | 8122 Apr 24 15:11 | 24° $\mathbb{B}$ 43'24 |            |
| asc. node        | 8121 May 07 18:06 | 6° $\mathbb{II}$ 17'07  |            | evening max el      | 8122 Apr 28 08:03 | 29° $\mathbb{B}$ 05'34 | 18°29'06   |
| evening max el   | 8121 May 14 19:23 | 15° $\mathbb{II}$ 36'56 | 18°08'48   |                     | 8122 Apr 29 07:05 | 0° $\mathbb{II}$       |            |
| retrograde       | 8121 May 21 04:54 | 18° $\mathbb{II}$ 58'02 |            | retrograde          | 8122 May 04 19:23 | 2° $\mathbb{II}$ 36'12 |            |
| evening set      | 8121 May 24 00:47 | 18° $\mathbb{II}$ 17'00 |            | evening set         | 8122 May 07 22:32 | 1° $\mathbb{II}$ 41'26 |            |
| inferior conj    | 8121 May 30 04:56 | 13° $\mathbb{II}$ 03'20 | 2°58'22    |                     | 8122 May 10 04:13 | 30° $\mathbb{R}$       |            |
| minimum elong    | 8121 May 30 07:17 | 12° $\mathbb{II}$ 57'03 | 2°57'49    | inferior conj       | 8122 May 13 16:50 | 26° $\mathbb{B}$ 10'08 | 3°19'25    |
| min. Earth dist. | 8121 Jun 01 23:54 | 10° $\mathbb{II}$ 04'53 | 0.62771 AU | minimum elong       | 8122 May 13 17:52 | 26° $\mathbb{B}$ 07'04 | 3°19'13    |
| morning rise     | 8121 Jun 05 12:09 | 6° $\mathbb{II}$ 54'40  |            | min. Earth dist.    | 8122 May 15 20:56 | 23° $\mathbb{B}$ 36'01 | 0.64731 AU |
| desc. node       | 8121 Jun 11 13:55 | 4° $\mathbb{II}$ 24'04  |            | morning rise        | 8122 May 19 12:21 | 19° $\mathbb{B}$ 54'26 |            |
| direct           | 8121 Jun 12 06:43 | 4° $\mathbb{II}$ 22'31  |            | direct              | 8122 May 26 04:19 | 17° $\mathbb{B}$ 09'17 |            |
| morning max el   | 8121 Jun 26 07:41 | 12° $\mathbb{II}$ 25'28 | 27°52'06   | desc. node          | 8122 May 29 10:57 | 17° $\mathbb{B}$ 43'56 |            |
|                  | 8121 Jul 10 07:02 | 0° $\mathbb{B}$         |            | morning max el      | 8122 Jun 08 17:28 | 25° $\mathbb{B}$ 06'01 | 27°19'22   |
|                  | 8121 Jul 27 20:31 | 0° $\mathbb{Q}$         |            |                     | 8122 Jun 13 04:24 | 0° $\mathbb{II}$       |            |
| morning set      | 8121 Jul 30 12:51 | 5° $\mathbb{Q}$ 19'07   |            | morning set         | 8122 Jul 03 18:34 | 0° $\mathbb{B}$        |            |
| asc. node        | 8121 Aug 03 17:24 | 13° $\mathbb{Q}$ 59'56  |            | max. Earth dist.    | 8122 Jul 14 02:57 | 18° $\mathbb{B}$ 52'49 |            |
| max. Earth dist. | 8121 Aug 04 20:34 | 16° $\mathbb{Q}$ 24'41  | 1.32342 AU |                     | 8122 Jul 18 17:38 | 28° $\mathbb{B}$ 07'38 | 1.33397 AU |
|                  |                   |                         |            | asc. node           | 8122 Jul 19 15:23 | 0° $\mathbb{Q}$        |            |
| superior conj    | 8121 Aug 07 04:34 | 21° $\mathbb{Q}$ 27'07  | 0°34'42    |                     | 8122 Jul 21 14:23 | 4° $\mathbb{Q}$ 05'57  |            |
| minimum elong    | 8121 Aug 07 03:02 | 21° $\mathbb{Q}$ 18'45  | 0°34'17    | superior conj       | 8122 Jul 22 08:34 | 5° $\mathbb{Q}$ 42'05  | 0°07'41    |
|                  | 8121 Aug 11 02:32 | 0° $\mathbb{P}$         |            | minimum elong       | 8122 Jul 22 08:10 | 5° $\mathbb{Q}$ 40'02  | 0°07'28    |
| evening rise     | 8121 Aug 14 01:46 | 6° $\mathbb{P}$ 25'14   |            | behind sun begin    | 8122 Jul 22 03:15 | 5° $\mathbb{Q}$ 13'58  |            |
|                  | 8121 Aug 26 09:41 | 0° $\mathbb{A}$         |            | behind sun end      | 8122 Jul 22 13:06 | 6° $\mathbb{Q}$ 06'09  |            |
| evening max el   | 8121 Sep 07 02:33 | 15° $\mathbb{A}$ 16'01  | 23°49'27   | evening rise        | 8122 Jul 29 12:54 | 21° $\mathbb{Q}$ 02'21 |            |
| desc. node       | 8121 Sep 07 12:52 | 15° $\mathbb{A}$ 40'34  |            |                     | 8122 Aug 02 21:28 | 0° $\mathbb{P}$        |            |
| retrograde       | 8121 Sep 20 18:02 | 22° $\mathbb{A}$ 05'57  |            | evening max el      | 8122 Aug 19 15:48 | 25° $\mathbb{P}$ 29'52 | 22°10'35   |
| evening set      | 8121 Sep 25 07:26 | 21° $\mathbb{A}$ 20'26  |            | desc. node          | 8122 Aug 25 09:59 | 29° $\mathbb{P}$ 55'30 |            |
| min. Earth dist. | 8121 Oct 01 13:00 | 18° $\mathbb{A}$ 19'50  | 0.55923 AU |                     | 8122 Aug 25 13:17 | 0° $\mathbb{A}$        |            |
| inferior conj    | 8121 Oct 03 16:50 | 17° $\mathbb{A}$ 01'35  | -5°33'41   | retrograde          | 8122 Sep 01 11:23 | 1° $\mathbb{A}$ 52'19  |            |
| minimum elong    | 8121 Oct 03 15:43 | 17° $\mathbb{A}$ 03'16  | 5°33'37    | evening set         | 8122 Sep 04 13:13 | 1° $\mathbb{A}$ 31'22  |            |

|                     |                   |                               |            |                     |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
|                     | 8122 Sep 08 21:00 | 30° $\mathbb{M}$              |            | retrograde          | 8123 Aug 12 23:31 | 11° $\mathbb{M}$ 45'02        |            |
| min. Earth dist.    | 8122 Sep 12 21:20 | 27° $\mathbb{M}$ 53'51        | 0.54890 AU | evening set         | 8123 Aug 15 02:01 | 11° $\mathbb{M}$ 34'16        |            |
| inferior conj       | 8122 Sep 13 14:55 | 27° $\mathbb{M}$ 29'11        | -4°58'34   | inferior conj       | 8123 Aug 24 07:26 | 7° $\mathbb{M}$ 37'18         | -3°30'57   |
| minimum elong       | 8122 Sep 13 06:53 | 27° $\mathbb{M}$ 40'27        | 4°57'06    | minimum elong       | 8123 Aug 23 22:25 | 7° $\mathbb{M}$ 50'12         | 3°28'08    |
| morning rise        | 8122 Sep 22 02:09 | 23° $\mathbb{M}$ 41'05        |            | min. Earth dist.    | 8123 Aug 25 06:33 | 7° $\mathbb{M}$ 04'13         | 0.54752 AU |
| direct              | 8122 Sep 25 10:23 | 23° $\mathbb{M}$ 16'10        |            | morning rise        | 8123 Sep 01 18:42 | 3° $\mathbb{M}$ 37'06         |            |
| morning max el      | 8122 Oct 07 06:15 | 28° $\mathbb{M}$ 49'38        | 21°30'30   | direct              | 8123 Sep 05 18:39 | 3° $\mathbb{M}$ 02'53         |            |
|                     | 8122 Oct 08 11:02 | 0° $\mathbb{A}$               |            | morning max el      | 8123 Sep 18 22:32 | 9° $\mathbb{M}$ 22'24         | 23°13'04   |
| asc. node           | 8122 Oct 17 14:00 | 12° $\mathbb{A}$ 16'41        |            |                     | 8123 Oct 03 21:08 | 0° $\mathbb{A}$               |            |
|                     | 8122 Oct 26 22:43 | 0° $\mathbb{M}$               |            | asc. node           | 8123 Oct 04 10:58 | 1° $\mathbb{A}$ 02'42         |            |
| morning set         | 8122 Oct 27 15:53 | 1° $\mathbb{M}$ 29'15         |            | morning set         | 8123 Oct 12 03:11 | 16° $\mathbb{A}$ 18'59        |            |
|                     |                   |                               |            |                     | 8123 Oct 18 11:46 | 0° $\mathbb{M}$               |            |
| superior conj       | 8122 Nov 03 21:37 | 16° $\mathbb{M}$ 43'13        | 1°40'11    | superior conj       | 8123 Oct 19 02:37 | 1° $\mathbb{M}$ 19'53         | 1°41'05    |
| minimum elong       | 8122 Nov 03 22:27 | 16° $\mathbb{M}$ 47'32        | 1°40'16    | minimum elong       | 8123 Oct 19 02:11 | 1° $\mathbb{M}$ 17'32         | 1°41'09    |
| max. Earth dist.    | 8122 Nov 08 03:35 | 25° $\mathbb{M}$ 24'49        | 1.35027 AU | max. Earth dist.    | 8123 Oct 21 23:06 | 7° $\mathbb{M}$ 24'12         | 1.33513 AU |
|                     | 8122 Nov 10 11:18 | 0° $\mathbb{A}$               |            | evening rise        | 8123 Oct 26 19:48 | 17° $\mathbb{M}$ 21'15        |            |
| evening rise        | 8122 Nov 12 08:46 | 3° $\mathbb{A}$ 38'47         |            |                     | 8123 Nov 02 12:17 | 0° $\mathbb{A}$               |            |
| desc. node          | 8122 Nov 21 08:50 | 19° $\mathbb{A}$ 44'42        |            | desc. node          | 8123 Nov 08 05:54 | 9° $\mathbb{A}$ 50'51         |            |
|                     | 8122 Nov 27 18:15 | 0° $\mathbb{B}$               |            |                     | 8123 Nov 22 03:31 | 0° $\mathbb{B}$               |            |
| evening max el      | 8122 Dec 17 15:33 | 25° $\mathbb{B}$ 27'04        | 26°41'03   | evening max el      | 8123 Nov 30 04:18 | 8° $\mathbb{B}$ 55'48         | 27°18'43   |
|                     | 8122 Dec 23 03:56 | 0° $\mathbb{A}$               |            | retrograde          | 8123 Dec 13 16:10 | 16° $\mathbb{B}$ 15'53        |            |
| retrograde          | 8122 Dec 30 16:41 | 2° $\mathbb{A}$ 44'01         |            | evening set         | 8123 Dec 20 13:32 | 13° $\mathbb{B}$ 39'51        |            |
| evening set         | 8123 Jan 06 04:24 | 0° $\mathbb{A}$ 09'06         |            | min. Earth dist.    | 8123 Dec 24 09:47 | 10° $\mathbb{B}$ 06'55        | 0.64644 AU |
|                     | 8123 Jan 06 08:51 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | inferior conj       | 8123 Dec 26 18:09 | 7° $\mathbb{B}$ 34'51         | -1°33'51   |
| min. Earth dist.    | 8123 Jan 10 06:08 | 26° $\mathbb{B}$ 02'26        | 0.66119 AU | minimum elong       | 8123 Dec 26 21:00 | 7° $\mathbb{B}$ 27'08         | 1°32'31    |
| inferior conj       | 8123 Jan 12 02:46 | 23° $\mathbb{B}$ 50'31        | -0°29'03   | asc. node           | 8123 Dec 31 10:25 | 3° $\mathbb{B}$ 10'21         |            |
| minimum elong       | 8123 Jan 12 03:35 | 23° $\mathbb{B}$ 48'08        | 0°28'33    | morning rise        | 8124 Jan 02 05:59 | 2° $\mathbb{B}$ 07'31         |            |
| asc. node           | 8123 Jan 13 13:22 | 22° $\mathbb{B}$ 10'06        |            | direct              | 8124 Jan 04 19:27 | 1° $\mathbb{B}$ 33'33         |            |
| morning rise        | 8123 Jan 18 03:42 | 18° $\mathbb{B}$ 09'28        |            | morning max el      | 8124 Jan 11 05:59 | 4° $\mathbb{B}$ 56'22         | 17°55'32   |
| direct              | 8123 Jan 21 01:18 | 17° $\mathbb{B}$ 22'44        |            |                     | 8124 Jan 27 23:58 | 0° $\mathbb{A}$               |            |
| morning max el      | 8123 Jan 27 13:24 | 20° $\mathbb{B}$ 52'07        | 18°20'32   | morning set         | 8124 Jan 28 14:15 | 0° $\mathbb{A}$ 59'46         |            |
|                     | 8123 Feb 03 17:32 | 0° $\mathbb{A}$               |            | desc. node          | 8124 Feb 04 05:10 | 11° $\mathbb{A}$ 59'42        |            |
| morning set         | 8123 Feb 16 03:51 | 19° $\mathbb{A}$ 30'48        |            |                     |                   |                               |            |
| desc. node          | 8123 Feb 17 08:13 | 21° $\mathbb{A}$ 24'17        |            | superior conj       | 8124 Feb 11 07:15 | 23° $\mathbb{A}$ 29'04        | -0°49'38   |
|                     | 8123 Feb 22 17:41 | 0° $\mathbb{H}$               |            | minimum elong       | 8124 Feb 11 01:30 | 23° $\mathbb{A}$ 06'05        | 0°48'45    |
| superior conj       | 8123 Mar 03 17:43 | 14° $\mathbb{H}$ 10'59        | -1°31'59   |                     | 8124 Feb 15 09:41 | 0° $\mathbb{H}$               |            |
| minimum elong       | 8123 Mar 03 08:10 | 13° $\mathbb{H}$ 33'37        | 1°30'57    | max. Earth dist.    | 8124 Feb 15 17:25 | 0° $\mathbb{H}$ 30'31         | 1.45099 AU |
| max. Earth dist.    | 8123 Mar 04 21:43 | 16° $\mathbb{H}$ 00'40        | 1.45514 AU | evening rise        | 8124 Feb 27 08:58 | 18° $\mathbb{H}$ 37'09        |            |
|                     | 8123 Mar 13 20:21 | 0° $\mathbb{Y}$               |            |                     | 8124 Mar 05 19:50 | 0° $\mathbb{Y}$               |            |
| evening rise        | 8123 Mar 19 17:29 | 9° $\mathbb{Y}$ 13'01         |            | greatest brilliancy | 8124 Mar 13 01:11 | 10° $\mathbb{Y}$ 47'24        | -0.6m      |
| greatest brilliancy | 8123 Mar 30 07:27 | 25° $\mathbb{Y}$ 45'05        | -0.8m      | evening max el      | 8124 Mar 24 22:14 | 26° $\mathbb{Y}$ 18'08        | 20°00'34   |
|                     | 8123 Apr 02 02:34 | 0° $\mathbb{B}$               |            | asc. node           | 8124 Mar 28 09:24 | 29° $\mathbb{Y}$ 15'27        |            |
| evening max el      | 8123 Apr 11 17:37 | 12° $\mathbb{B}$ 40'51        | 19°06'51   |                     | 8124 Mar 29 16:27 | 0° $\mathbb{B}$               |            |
| asc. node           | 8123 Apr 11 12:18 | 12° $\mathbb{B}$ 27'15        |            | retrograde          | 8124 Apr 01 13:30 | 0° $\mathbb{B}$ 43'19         |            |
| retrograde          | 8123 Apr 18 15:14 | 16° $\mathbb{B}$ 33'30        |            |                     | 8124 Apr 04 07:06 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| evening set         | 8123 Apr 22 02:00 | 15° $\mathbb{B}$ 24'16        |            | evening set         | 8124 Apr 05 08:41 | 29° $\mathbb{Y}$ 19'16        |            |
| inferior conj       | 8123 Apr 27 13:55 | 9° $\mathbb{B}$ 36'54         | 3°23'40    | inferior conj       | 8124 Apr 10 17:08 | 23° $\mathbb{Y}$ 17'42        | 3°14'34    |
| minimum elong       | 8123 Apr 27 13:38 | 9° $\mathbb{B}$ 37'48         | 3°23'33    | minimum elong       | 8124 Apr 10 15:48 | 23° $\mathbb{Y}$ 22'11        | 3°14'21    |
| min. Earth dist.    | 8123 Apr 29 02:35 | 7° $\mathbb{B}$ 39'34         | 0.66306 AU | min. Earth dist.    | 8124 Apr 11 15:15 | 22° $\mathbb{Y}$ 03'04        | 0.67445 AU |
| morning rise        | 8123 May 03 00:52 | 3° $\mathbb{B}$ 19'03         |            | morning rise        | 8124 Apr 15 22:40 | 17° $\mathbb{Y}$ 00'42        |            |
| direct              | 8123 May 09 08:36 | 0° $\mathbb{B}$ 33'13         |            | direct              | 8124 Apr 21 18:41 | 14° $\mathbb{Y}$ 24'25        |            |
| desc. node          | 8123 May 16 07:56 | 3° $\mathbb{B}$ 09'19         |            | desc. node          | 8124 May 02 04:53 | 20° $\mathbb{Y}$ 08'19        |            |
| morning max el      | 8123 May 22 03:53 | 8° $\mathbb{B}$ 10'42         | 26°18'19   | morning max el      | 8124 May 03 13:24 | 21° $\mathbb{Y}$ 28'01        | 24°58'09   |
|                     | 8123 Jun 08 04:21 | 0° $\mathbb{I}$               |            |                     | 8124 May 10 23:02 | 0° $\mathbb{B}$               |            |
|                     | 8123 Jun 26 05:22 | 0° $\mathbb{B}$               |            |                     | 8124 May 31 10:13 | 0° $\mathbb{I}$               |            |
| morning set         | 8123 Jun 27 04:49 | 1° $\mathbb{B}$ 48'56         |            | morning set         | 8124 Jun 08 13:57 | 13° $\mathbb{I}$ 55'08        |            |
| max. Earth dist.    | 8123 Jul 01 04:16 | 9° $\mathbb{B}$ 25'04         | 1.34931 AU | max. Earth dist.    | 8124 Jun 12 04:52 | 20° $\mathbb{I}$ 29'02        | 1.36875 AU |
|                     |                   |                               |            |                     | 8124 Jun 17 05:31 | 0° $\mathbb{B}$               |            |
| superior conj       | 8123 Jul 06 05:35 | 19° $\mathbb{B}$ 32'48        | -0°22'25   | superior conj       | 8124 Jun 18 16:36 | 2° $\mathbb{B}$ 51'09         | -0°54'08   |
| minimum elong       | 8123 Jul 06 06:52 | 19° $\mathbb{B}$ 39'23        | 0°22'18    | minimum elong       | 8124 Jun 18 19:54 | 3° $\mathbb{B}$ 07'19         | 0°53'40    |
| asc. node           | 8123 Jul 08 11:24 | 24° $\mathbb{B}$ 10'31        |            | asc. node           | 8124 Jun 24 08:26 | 14° $\mathbb{B}$ 09'24        |            |
|                     | 8123 Jul 11 06:26 | 0° $\mathbb{Q}$               |            | evening rise        | 8124 Jun 27 01:27 | 19° $\mathbb{B}$ 37'25        |            |
| evening rise        | 8123 Jul 13 21:35 | 5° $\mathbb{Q}$ 28'44         |            |                     | 8124 Jul 02 08:39 | 0° $\mathbb{Q}$               |            |
|                     | 8123 Jul 27 11:40 | 0° $\mathbb{M}$               |            | evening max el      | 8124 Jul 14 02:35 | 17° $\mathbb{Q}$ 28'14        | 19°32'15   |
| evening max el      | 8123 Aug 01 14:34 | 6° $\mathbb{M}$ 07'24         | 20°42'05   | retrograde          | 8124 Jul 23 18:37 | 22° $\mathbb{Q}$ 14'30        |            |
| desc. node          | 8123 Aug 12 07:04 | 11° $\mathbb{M}$ 43'51        |            |                     |                   |                               |            |

































































































































|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8124 Jul 25 15:05 | 22°04'44  |            |                  | 8125 Jun 27 13:49 | 0°0       |            |
| desc. node       | 8124 Jul 29 04:07 | 20°05'09  |            | retrograde       | 8125 Jul 05 06:07 | 3°035'14  |            |
| inferior conj    | 8124 Aug 03 09:10 | 17°059'40 | -1°35'38   | evening set      | 8125 Jul 07 07:02 | 3°021'00  |            |
| minimum elong    | 8124 Aug 03 04:50 | 18°06'34  | 1°34'04    |                  | 8125 Jul 13 20:23 | 30°08     |            |
| min. Earth dist. | 8124 Aug 05 18:56 | 16°027'54 | 0.55561 AU | inferior conj    | 8125 Jul 15 06:07 | 28°058'34 | 0°14'19    |
| morning rise     | 8124 Aug 11 16:07 | 13°028'21 |            | minimum elong    | 8125 Jul 15 06:39 | 28°057'33 | 0°13'58    |
| direct           | 8124 Aug 16 11:09 | 12°036'49 |            | transit middle   | 8125 Jul 15 06:39 | 28°057'33 | 0°13'58    |
| morning max el   | 8124 Aug 30 11:08 | 19°037'31 | 24°58'01   | transit begin    | 8125 Jul 15 04:50 | 29°000'56 |            |
|                  | 8124 Sep 08 06:09 | 0°0       |            | transit end      | 8125 Jul 15 08:29 | 28°054'10 |            |
| asc. node        | 8124 Sep 20 07:57 | 20°018'21 |            | desc. node       | 8125 Jul 16 01:11 | 28°023'03 |            |
|                  | 8124 Sep 25 02:03 | 0°0       |            | min. Earth dist. | 8125 Jul 18 11:36 | 26°035'56 | 0.57173 AU |
| morning set      | 8124 Sep 25 14:54 | 1°08'12   |            | morning rise     | 8125 Jul 23 02:47 | 23°050'12 |            |
|                  |                   |           |            | direct           | 8125 Jul 28 18:16 | 22°031'47 |            |
| superior conj    | 8124 Oct 02 11:53 | 16°007'35 | 1°35'49    | morning max el   | 8125 Aug 12 02:20 | 0°020'33  | 26°28'39   |
| minimum elong    | 8124 Oct 02 10:27 | 15°059'42 | 1°35'46    |                  | 8125 Aug 12 01:16 | 0°0       |            |
| max. Earth dist. | 8124 Oct 04 02:18 | 19°037'31 | 1.32440 AU |                  | 8125 Sep 02 02:30 | 0°0       |            |
|                  | 8124 Oct 08 23:11 | 0°0       |            | asc. node        | 8125 Sep 07 04:54 | 9°054'58  |            |
| evening rise     | 8124 Oct 09 16:45 | 1°030'36  |            | morning set      | 8125 Sep 10 01:19 | 15°051'01 |            |
| desc. node       | 8124 Oct 25 02:58 | 29°031'46 |            |                  |                   |           |            |
|                  | 8124 Oct 25 10:09 | 0°0       |            | superior conj    | 8125 Sep 16 23:17 | 0°058'33  | 1°25'01    |
| evening max el   | 8124 Nov 11 14:50 | 21°058'14 | 27°28'34   | minimum elong    | 8125 Sep 16 21:13 | 0°047'07  | 1°24'46    |
| retrograde       | 8124 Nov 25 09:05 | 29°015'26 |            |                  | 8125 Sep 16 12:43 | 0°0       |            |
| evening set      | 8124 Dec 02 11:23 | 26°047'11 |            | max. Earth dist. | 8125 Sep 17 10:44 | 2°002'00  | 1.31826 AU |
| min. Earth dist. | 8124 Dec 06 03:55 | 23°043'58 | 0.62858 AU | evening rise     | 8125 Sep 23 20:39 | 15°057'49 |            |
| inferior conj    | 8124 Dec 08 23:10 | 21°001'19 | -2°42'50   |                  | 8125 Sep 30 21:37 | 0°0       |            |
| minimum elong    | 8124 Dec 09 04:18 | 20°048'52 | 2°40'46    | desc. node       | 8125 Oct 12 00:02 | 18°036'23 |            |
| morning rise     | 8124 Dec 15 23:15 | 15°050'43 |            |                  | 8125 Oct 20 16:33 | 0°0       |            |
| asc. node        | 8124 Dec 17 07:25 | 15°030'15 |            | evening max el   | 8125 Oct 24 20:49 | 4°021'18  | 27°05'48   |
| direct           | 8124 Dec 18 06:58 | 15°025'43 |            | retrograde       | 8125 Nov 07 18:16 | 11°032'18 |            |
| morning max el   | 8124 Dec 24 23:16 | 18°051'23 | 17°48'00   | evening set      | 8125 Nov 14 18:11 | 9°022'42  |            |
|                  | 8125 Jan 02 02:44 | 0°0       |            | min. Earth dist. | 8125 Nov 18 11:31 | 6°040'40  | 0.60847 AU |
| morning set      | 8125 Jan 10 01:02 | 13°039'07 |            | inferior conj    | 8125 Nov 21 14:32 | 4°000'48  | -3°51'44   |
|                  | 8125 Jan 19 11:40 | 0°0       |            | minimum elong    | 8125 Nov 21 21:28 | 3°045'57  | 3°49'27    |
| desc. node       | 8125 Jan 21 02:09 | 2°041'58  |            |                  | 8125 Nov 27 02:16 | 30°03     |            |
|                  |                   |           |            | morning rise     | 8125 Nov 29 03:06 | 29°009'55 |            |
| superior conj    | 8125 Jan 21 19:33 | 3°054'40  | -0°05'19   | direct           | 8125 Dec 01 08:11 | 28°050'19 |            |
| minimum elong    | 8125 Jan 21 19:01 | 3°052'28  | 0°05'06    | asc. node        | 8125 Dec 04 04:25 | 29°024'06 |            |
| behind sun begin | 8125 Jan 21 10:15 | 3°015'51  |            |                  | 8125 Dec 05 10:06 | 0°0       |            |
| behind sun end   | 8125 Jan 22 03:48 | 4°029'01  |            | morning max el   | 8125 Dec 08 13:51 | 2°027'30  | 17°58'58   |
| max. Earth dist. | 8125 Jan 28 10:25 | 14°044'37 | 1.43992 AU | morning set      | 8125 Dec 24 05:39 | 27°008'28 |            |
| evening rise     | 8125 Feb 05 20:33 | 27°059'51 |            |                  | 8125 Dec 25 18:52 | 0°0       |            |
|                  | 8125 Feb 07 03:46 | 0°0       |            |                  |                   |           |            |
|                  | 8125 Feb 27 16:08 | 0°0       |            | superior conj    | 8126 Jan 03 09:20 | 15°032'51 | 0°33'29    |
| evening max el   | 8125 Mar 07 21:20 | 9°056'52  | 21°07'34   | minimum elong    | 8126 Jan 03 11:57 | 15°044'21 | 0°33'14    |
| asc. node        | 8125 Mar 15 06:27 | 14°053'37 |            | desc. node       | 8126 Jan 07 23:08 | 23°026'57 |            |
| retrograde       | 8125 Mar 16 11:55 | 15°001'21 |            | max. Earth dist. | 8126 Jan 10 23:07 | 28°028'42 | 1.42322 AU |
| evening set      | 8125 Mar 20 16:41 | 13°022'15 |            |                  | 8126 Jan 11 21:14 | 0°0       |            |
| inferior conj    | 8125 Mar 26 00:02 | 7°008'58  | 2°54'28    | evening rise     | 8126 Jan 16 19:13 | 7°056'59  |            |
| minimum elong    | 8125 Mar 25 22:02 | 7°015'55  | 2°54'02    |                  | 8126 Jan 31 08:07 | 0°0       |            |
| min. Earth dist. | 8125 Mar 26 08:52 | 6°038'22  | 0.68142 AU | evening max el   | 8126 Feb 18 15:31 | 23°037'51 | 22°23'54   |
| morning rise     | 8125 Mar 31 03:11 | 0°054'43  |            | retrograde       | 8126 Feb 28 08:43 | 29°023'30 |            |
|                  | 8125 Apr 01 06:35 | 30°08     |            | asc. node        | 8126 Mar 02 03:30 | 29°007'23 |            |
| direct           | 8125 Apr 05 09:42 | 28°035'23 |            | evening set      | 8126 Mar 05 00:24 | 27°029'18 |            |
|                  | 8125 Apr 09 23:29 | 0°0       |            | inferior conj    | 8126 Mar 10 08:36 | 21°007'14 | 2°24'47    |
| morning max el   | 8125 Apr 15 22:38 | 4°052'08  | 23°29'04   | minimum elong    | 8126 Mar 10 06:19 | 21°015'07 | 2°24'10    |
| desc. node       | 8125 Apr 19 01:51 | 8°015'32  |            | min. Earth dist. | 8126 Mar 10 05:07 | 21°019'19 | 0.68406 AU |
|                  | 8125 May 05 06:30 | 0°0       |            | morning rise     | 8126 Mar 15 12:05 | 14°057'22 |            |
| morning set      | 8125 May 21 00:46 | 24°056'46 |            | direct           | 8126 Mar 20 04:38 | 12°059'13 |            |
|                  | 8125 May 23 23:40 | 0°0       |            | morning max el   | 8126 Mar 29 10:33 | 18°024'00 | 22°00'50   |
| max. Earth dist. | 8125 May 25 00:35 | 1°048'27  | 1.39084 AU | desc. node       | 8126 Apr 05 22:49 | 27°012'07 |            |
|                  |                   |           |            |                  | 8126 Apr 08 01:38 | 0°0       |            |
| superior conj    | 8125 Jun 01 13:54 | 15°028'00 | -1°25'06   |                  | 8126 Apr 28 09:41 | 0°0       |            |
| minimum elong    | 8125 Jun 01 19:03 | 15°052'02 | 1°24'31    | morning set      | 8126 May 01 08:34 | 4°042'32  |            |
|                  | 8125 Jun 09 04:21 | 0°0       |            | max. Earth dist. | 8126 May 06 23:10 | 13°054'29 | 1.41301 AU |
| evening rise     | 8125 Jun 10 21:41 | 3°020'29  |            |                  |                   |           |            |
| asc. node        | 8125 Jun 11 05:27 | 3°058'09  |            | superior conj    | 8126 May 14 17:02 | 27°013'20 | -1°51'42   |
| evening max el   | 8125 Jun 27 02:25 | 29°032'43 | 18°43'10   | minimum elong    | 8126 May 14 22:45 | 27°038'39 | 1°51'18    |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8126 May 16 06:32 | 0°♊       |            | evening rise        | 8127 May 08 00:15 | 28°♊53'36 |            |
| evening rise     | 8126 May 25 06:44 | 16°♊29'28 |            |                     | 8127 May 08 15:17 | 0°♊       |            |
| asc. node        | 8126 May 29 02:29 | 23°♊32'24 |            | asc. node           | 8127 May 15 23:33 | 12°♊46'02 |            |
|                  | 8126 Jun 01 17:52 | 0°♋       |            | evening max el      | 8127 May 24 22:44 | 25°♊18'13 | 18°05'22   |
| evening max el   | 8126 Jun 10 10:26 | 12°♋12'57 | 18°14'30   | retrograde          | 8127 May 31 11:19 | 28°♊39'54 |            |
| retrograde       | 8126 Jun 17 12:42 | 15°♋47'00 |            | evening set         | 8127 Jun 03 03:06 | 28°♊06'01 |            |
| evening set      | 8126 Jun 19 21:04 | 15°♋24'17 |            | inferior conj       | 8127 Jun 09 14:39 | 23°♊02'45 | 2°36'48    |
| inferior conj    | 8126 Jun 27 00:46 | 10°♋41'08 | 1°39'36    | minimum elong       | 8127 Jun 09 17:32 | 22°♊55'31 | 2°36'00    |
| minimum elong    | 8126 Jun 27 03:37 | 10°♋34'57 | 1°38'33    | min. Earth dist.    | 8127 Jun 12 16:36 | 19°♊59'12 | 0.61526 AU |
| min. Earth dist. | 8126 Jun 30 10:07 | 7°♋46'11  | 0.59276 AU | morning rise        | 8127 Jun 16 05:51 | 17°♊01'45 |            |
| desc. node       | 8126 Jul 02 22:14 | 5°♋52'47  |            | desc. node          | 8127 Jun 19 19:17 | 15°♊13'03 |            |
| morning rise     | 8126 Jul 04 07:06 | 5°♋01'26  |            | direct              | 8127 Jun 22 22:38 | 14°♊42'55 |            |
| direct           | 8126 Jul 10 14:56 | 3°♋11'28  |            | morning max el      | 8127 Jul 07 03:49 | 22°♊43'02 | 27°55'10   |
| morning max el   | 8126 Jul 24 23:45 | 11°♋01'02 | 27°30'23   |                     | 8127 Jul 13 14:25 | 0°♋       |            |
|                  | 8126 Aug 08 18:16 | 0°♌       |            |                     | 8127 Aug 01 22:59 | 0°♌       |            |
| morning set      | 8126 Aug 25 08:51 | 0°♍22'51  |            | morning set         | 8127 Aug 09 11:33 | 14°♌37'47 |            |
| asc. node        | 8126 Aug 25 01:53 | 29°♌46'27 |            | asc. node           | 8127 Aug 11 22:53 | 19°♌47'06 |            |
|                  | 8126 Aug 25 04:29 | 0°♎       |            | max. Earth dist.    | 8127 Aug 15 05:24 | 26°♌49'04 | 1.31967 AU |
| superior conj    | 8126 Sep 01 11:01 | 15°♎47'08 | 1°09'07    | superior conj       | 8127 Aug 16 21:16 | 0°♎27'16  | 0°48'31    |
| minimum elong    | 8126 Sep 01 08:46 | 15°♎34'39 | 1°08'43    | minimum elong       | 8127 Aug 16 19:19 | 0°♎16'33  | 0°48'04    |
| max. Earth dist. | 8126 Aug 31 21:03 | 14°♎29'43 | 1.31670 AU |                     | 8127 Aug 16 16:18 | 0°♎       |            |
|                  | 8126 Sep 07 22:25 | 0°♏       |            | evening rise        | 8127 Aug 23 16:14 | 15°♎18'42 |            |
| evening rise     | 8126 Sep 08 05:11 | 0°♏36'08  |            |                     | 8127 Aug 30 22:12 | 0°♏       |            |
|                  | 8126 Sep 24 02:25 | 0°♐       |            | desc. node          | 8127 Sep 15 18:13 | 23°♏54'01 |            |
| desc. node       | 8126 Sep 28 21:07 | 6°♐50'26  |            | evening max el      | 8127 Sep 18 10:42 | 26°♏40'45 | 24°45'10   |
| evening max el   | 8126 Oct 06 19:43 | 15°♐55'34 | 26°09'21   |                     | 8127 Sep 22 09:44 | 0°♐       |            |
| retrograde       | 8126 Oct 20 17:56 | 23°♐00'00 |            | retrograde          | 8127 Oct 02 06:32 | 3°♐38'17  |            |
| evening set      | 8126 Oct 27 05:13 | 21°♐19'27 |            | evening set         | 8127 Oct 07 16:13 | 2°♐32'53  |            |
| min. Earth dist. | 8126 Oct 31 08:46 | 18°♐44'46 | 0.58764 AU |                     | 8127 Oct 12 13:39 | 30°♑♏     |            |
| inferior conj    | 8126 Nov 03 12:46 | 16°♐23'59 | -4°52'06   | min. Earth dist.    | 8127 Oct 12 21:50 | 29°♏47'16 | 0.56839 AU |
| minimum elong    | 8126 Nov 03 19:36 | 16°♐11'16 | 4°50'34    | inferior conj       | 8127 Oct 15 15:06 | 28°♏02'02 | -5°29'43   |
| morning rise     | 8126 Nov 11 12:17 | 11°♐55'26 |            | minimum elong       | 8127 Oct 15 18:03 | 27°♏57'17 | 5°29'27    |
| direct           | 8126 Nov 13 18:59 | 11°♐37'59 |            | morning rise        | 8127 Oct 23 22:05 | 23°♏56'08 |            |
| asc. node        | 8126 Nov 21 01:26 | 14°♐47'36 |            | direct              | 8127 Oct 26 11:20 | 23°♏38'01 |            |
| morning max el   | 8126 Nov 21 22:14 | 15°♐35'19 | 18°30'00   | morning max el      | 8127 Nov 04 20:53 | 28°♏05'12 | 19°22'52   |
|                  | 8126 Dec 01 23:21 | 0°♑       |            |                     | 8127 Nov 06 17:04 | 0°♐       |            |
| morning set      | 8126 Dec 07 22:44 | 11°♑12'14 |            | asc. node           | 8127 Nov 07 22:28 | 1°♐27'02  |            |
|                  |                   |           |            | morning set         | 8127 Nov 22 00:21 | 25°♐39'13 |            |
| superior conj    | 8126 Dec 16 21:08 | 28°♑13'44 | 1°03'29    |                     | 8127 Nov 24 04:21 | 0°♑       |            |
| minimum elong    | 8126 Dec 17 00:34 | 28°♑29'42 | 1°03'10    | superior conj       | 8127 Nov 30 01:53 | 11°♑43'28 | 1°24'15    |
|                  | 8126 Dec 17 20:08 | 0°♒       |            | minimum elong       | 8127 Nov 30 04:43 | 11°♑57'17 | 1°24'07    |
| max. Earth dist. | 8126 Dec 24 07:27 | 11°♒33'36 | 1.40283 AU | max. Earth dist.    | 8127 Dec 06 13:20 | 23°♑58'38 | 1.38114 AU |
| desc. node       | 8126 Dec 25 20:07 | 14°♒11'16 |            |                     | 8127 Dec 09 21:53 | 0°♒       |            |
| evening rise     | 8126 Dec 28 14:03 | 18°♒49'00 |            | evening rise        | 8127 Dec 10 06:54 | 0°♒39'35  |            |
|                  | 8127 Jan 04 12:32 | 0°♓       |            | desc. node          | 8127 Dec 12 17:09 | 4°♒51'28  |            |
|                  | 8127 Jan 25 17:22 | 0°♔       |            |                     | 8127 Dec 28 19:00 | 0°♓       |            |
| evening max el   | 8127 Feb 01 06:19 | 7°♔21'52  | 23°44'02   | evening max el      | 8128 Jan 14 19:32 | 21°♓08'50 | 25°01'29   |
| retrograde       | 8127 Feb 12 02:28 | 13°♔45'12 |            | retrograde          | 8128 Jan 26 16:15 | 28°♓02'01 |            |
| evening set      | 8127 Feb 17 06:16 | 11°♔36'24 |            | evening set         | 8128 Feb 01 08:46 | 25°♓40'09 |            |
| asc. node        | 8127 Feb 17 00:36 | 11°♔48'10 |            | asc. node           | 8128 Feb 03 21:41 | 23°♓05'03 |            |
| min. Earth dist. | 8127 Feb 22 01:44 | 6°♔00'48  | 0.68260 AU | min. Earth dist.    | 8128 Feb 05 20:32 | 20°♓39'05 | 0.67722 AU |
| inferior conj    | 8127 Feb 22 16:53 | 5°♔09'08  | 1°46'22    | inferior conj       | 8128 Feb 06 23:06 | 19°♓11'58 | 0°59'46    |
| minimum elong    | 8127 Feb 22 14:48 | 5°♔16'13  | 1°45'43    | minimum elong       | 8128 Feb 06 21:43 | 19°♓16'30 | 0°59'21    |
|                  | 8127 Feb 26 22:09 | 30°♕♓     |            | morning rise        | 8128 Feb 12 10:57 | 13°♓15'17 |            |
| morning rise     | 8127 Feb 27 23:20 | 29°♓05'04 |            | direct              | 8128 Feb 16 01:11 | 12°♓01'06 |            |
| direct           | 8127 Mar 04 02:13 | 27°♓29'29 |            | morning max el      | 8128 Feb 23 06:56 | 16°♓02'47 | 19°34'01   |
|                  | 8127 Mar 09 20:14 | 0°♕       |            |                     | 8128 Mar 05 03:58 | 0°♕       |            |
| morning max el   | 8127 Mar 12 04:43 | 2°♕07'05  | 20°40'54   | greatest brilliancy | 8128 Mar 07 01:02 | 2°♕45'01  | -0.7m      |
| desc. node       | 8127 Mar 23 19:45 | 16°♕44'06 |            | desc. node          | 8128 Mar 09 16:42 | 6°♕42'06  |            |
|                  | 8127 Apr 01 21:28 | 0°♖       |            | morning set         | 8128 Mar 19 12:45 | 21°♕41'44 |            |
| morning set      | 8127 Apr 10 15:08 | 13°♖20'42 |            |                     | 8128 Mar 24 21:28 | 0°♖       |            |
| max. Earth dist. | 8127 Apr 19 05:05 | 26°♖56'48 | 1.43240 AU | max. Earth dist.    | 8128 Mar 31 17:56 | 10°♖44'59 | 1.44660 AU |
|                  | 8127 Apr 21 02:10 | 0°♗       |            |                     |                   |           |            |
| superior conj    | 8127 Apr 25 21:19 | 7°♗56'16  | -2°08'44   | superior conj       | 8128 Apr 05 00:48 | 17°♖34'49 | -2°10'01   |
| minimum elong    | 8127 Apr 26 00:35 | 8°♗09'57  | 2°08'44    | minimum elong       | 8128 Apr 04 21:48 | 17°♖22'47 | 2°09'59    |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8128 Apr 12 15:58 | 0°♄       |            | max. Earth dist.    | 8129 Mar 14 11:07 | 25°♄01'01 | 1.45409 AU |
| evening rise     | 8128 Apr 18 21:38 | 10°♄23'40 |            |                     |                   |           |            |
|                  | 8128 Apr 30 19:58 | 0°♄       |            | superior conj       | 8129 Mar 15 09:22 | 26°♄28'10 | -1°51'16   |
| asc. node        | 8128 May 01 20:38 | 1°♄32'12  |            | minimum elong       | 8129 Mar 15 00:26 | 25°♄53'12 | 1°50'34    |
| evening max el   | 8128 May 07 12:03 | 8°♄40'13  | 18°15'08   |                     | 8129 Mar 17 15:21 | 0°♄       |            |
| retrograde       | 8128 May 13 21:19 | 12°♄04'04 |            | evening rise        | 8129 Mar 30 19:31 | 20°♄54'35 |            |
| evening set      | 8128 May 16 20:13 | 11°♄17'21 |            |                     | 8129 Apr 05 11:26 | 0°♄       |            |
| inferior conj    | 8128 May 22 19:42 | 5°♄55'43  | 3°09'36    | greatest brilliancy | 8129 Apr 07 05:04 | 2°♄46'20  | -0.9m      |
| minimum elong    | 8128 May 22 21:31 | 5°♄50'37  | 3°09'13    | asc. node           | 8129 Apr 18 17:43 | 19°♄41'58 |            |
| min. Earth dist. | 8128 May 25 08:27 | 3°♄05'45  | 0.63644 AU | evening max el      | 8129 Apr 20 23:34 | 22°♄12'07 | 18°43'06   |
| morning rise     | 8128 May 28 21:33 | 29°♄43'01 |            | retrograde          | 8129 Apr 27 14:31 | 25°♄51'03 |            |
|                  | 8128 May 28 13:07 | 30°♄♄     |            | evening set         | 8129 Apr 30 20:43 | 24°♄50'24 |            |
| direct           | 8128 Jun 04 15:37 | 27°♄04'04 |            | inferior conj       | 8129 May 06 11:55 | 19°♄12'10 | 3°23'03    |
| desc. node       | 8128 Jun 05 16:19 | 27°♄07'28 |            | minimum elong       | 8129 May 06 12:22 | 19°♄10'45 | 3°22'54    |
|                  | 8128 Jun 12 13:24 | 0°♄       |            | min. Earth dist.    | 8129 May 08 09:29 | 16°♄52'15 | 0.65445 AU |
| morning max el   | 8128 Jun 18 12:33 | 5°♄06'04  | 27°42'11   | morning rise        | 8129 May 12 03:21 | 12°♄54'47 |            |
|                  | 8128 Jul 07 08:02 | 0°♄       |            | direct              | 8129 May 18 16:19 | 10°♄07'44 |            |
| morning set      | 8128 Jul 23 07:07 | 28°♄29'19 |            | desc. node          | 8129 May 23 13:19 | 11°♄24'32 |            |
|                  | 8128 Jul 24 01:14 | 0°♄       |            | morning max el      | 8129 May 31 22:59 | 17°♄59'05 | 26°56'23   |
| max. Earth dist. | 8128 Jul 28 07:42 | 8°♄48'13  | 1.32734 AU |                     | 8129 Jun 11 00:48 | 0°♄       |            |
| asc. node        | 8128 Jul 28 19:53 | 9°♄52'34  |            |                     | 8129 Jun 30 06:32 | 0°♄       |            |
|                  |                   |           |            | morning set         | 8129 Jul 06 16:34 | 11°♄49'26 |            |
| superior conj    | 8128 Jul 31 04:10 | 14°♄53'21 | 0°23'40    | max. Earth dist.    | 8129 Jul 11 00:26 | 20°♄19'57 | 1.33985 AU |
| minimum elong    | 8128 Jul 31 03:03 | 14°♄47'20 | 0°23'19    |                     |                   |           |            |
| evening rise     | 8128 Aug 07 03:54 | 29°♄59'38 |            | superior conj       | 8129 Jul 15 05:33 | 28°♄59'40 | -0°04'47   |
|                  | 8128 Aug 07 03:58 | 0°♄       |            | minimum elong       | 8129 Jul 15 05:49 | 29°♄01'03 | 0°04'53    |
|                  | 8128 Aug 23 22:38 | 0°♄       |            | behind sun begin    | 8129 Jul 15 00:22 | 28°♄32'35 |            |
| evening max el   | 8128 Aug 29 21:58 | 6°♄55'52  | 23°06'50   | behind sun end      | 8129 Jul 15 11:16 | 29°♄29'33 |            |
| desc. node       | 8128 Sep 01 15:19 | 9°♄19'57  |            | asc. node           | 8129 Jul 15 16:54 | 29°♄59'04 |            |
| retrograde       | 8128 Sep 12 07:04 | 13°♄37'13 |            |                     | 8129 Jul 15 17:04 | 0°♄       |            |
| evening set      | 8128 Sep 16 04:47 | 13°♄03'50 |            | evening rise        | 8129 Jul 22 14:17 | 14°♄33'32 |            |
| min. Earth dist. | 8128 Sep 23 06:54 | 9°♄49'09  | 0.55382 AU |                     | 8129 Jul 30 09:37 | 0°♄       |            |
| inferior conj    | 8128 Sep 24 21:51 | 8°♄52'38  | -5°25'44   | evening max el      | 8129 Aug 11 14:30 | 17°♄17'21 | 21°31'06   |
| minimum elong    | 8128 Sep 24 17:29 | 8°♄59'00  | 5°25'18    | desc. node          | 8129 Aug 19 12:25 | 22°♄36'46 |            |
| morning rise     | 8128 Oct 03 08:17 | 5°♄02'25  |            | retrograde          | 8129 Aug 23 21:19 | 23°♄22'47 |            |
| direct           | 8128 Oct 06 08:21 | 4°♄41'04  |            | evening set         | 8129 Aug 26 10:43 | 23°♄07'51 |            |
| morning max el   | 8128 Oct 17 07:05 | 9°♄48'22  | 20°38'06   | inferior conj       | 8129 Sep 04 16:01 | 19°♄09'37 | -4°27'01   |
| asc. node        | 8128 Oct 24 19:28 | 19°♄06'20 |            | minimum elong       | 8129 Sep 04 06:38 | 19°♄22'44 | 4°24'42    |
|                  | 8128 Oct 31 03:00 | 0°♄       |            | min. Earth dist.    | 8129 Sep 04 15:48 | 19°♄09'55 | 0.54709 AU |
| morning set      | 8128 Nov 05 07:26 | 10°♄20'01 |            | morning rise        | 8129 Sep 13 03:30 | 15°♄18'37 |            |
|                  |                   |           |            | direct              | 8129 Sep 16 17:48 | 14°♄50'33 |            |
| superior conj    | 8128 Nov 12 18:50 | 25°♄47'39 | 1°36'33    | morning max el      | 8129 Sep 29 04:53 | 20°♄44'29 | 22°12'46   |
| minimum elong    | 8128 Nov 12 20:27 | 25°♄55'50 | 1°36'35    |                     | 8129 Oct 06 22:59 | 0°♄       |            |
|                  | 8128 Nov 14 20:46 | 0°♄       |            | asc. node           | 8129 Oct 11 16:28 | 7°♄31'49  |            |
| max. Earth dist. | 8128 Nov 17 21:00 | 5°♄55'58  | 1.36065 AU | morning set         | 8129 Oct 20 17:45 | 25°♄08'25 |            |
| evening rise     | 8128 Nov 21 19:10 | 13°♄21'40 |            |                     | 8129 Oct 23 00:48 | 0°♄       |            |
| desc. node       | 8128 Nov 28 14:11 | 25°♄22'48 |            |                     |                   |           |            |
|                  | 8128 Dec 01 08:51 | 0°♄       |            | superior conj       | 8129 Oct 27 20:19 | 10°♄15'33 | 1°41'21    |
|                  | 8128 Dec 22 17:24 | 0°♄       |            | minimum elong       | 8129 Oct 27 20:35 | 10°♄16'58 | 1°41'27    |
| evening max el   | 8128 Dec 27 08:30 | 4°♄54'48  | 26°09'18   | max. Earth dist.    | 8129 Oct 31 11:28 | 17°♄49'24 | 1.34332 AU |
| retrograde       | 8129 Jan 09 01:09 | 12°♄07'05 |            | evening rise        | 8129 Nov 04 23:03 | 26°♄45'45 |            |
| evening set      | 8129 Jan 15 06:10 | 9°♄35'26  |            |                     | 8129 Nov 06 15:38 | 0°♄       |            |
| min. Earth dist. | 8129 Jan 19 11:17 | 5°♄08'56  | 0.66805 AU | desc. node          | 8129 Nov 15 11:15 | 15°♄40'15 |            |
| asc. node        | 8129 Jan 20 18:46 | 3°♄31'46  |            |                     | 8129 Nov 24 17:00 | 0°♄       |            |
| inferior conj    | 8129 Jan 21 01:19 | 3°♄11'28  | 0°05'28    | evening max el      | 8129 Dec 09 21:43 | 18°♄33'34 | 27°00'03   |
| minimum elong    | 8129 Jan 21 01:10 | 3°♄11'56  | 0°05'33    | retrograde          | 8129 Dec 23 04:25 | 25°♄53'23 |            |
| transit middle   | 8129 Jan 21 01:10 | 3°♄11'56  | 0°05'33    | evening set         | 8129 Dec 29 20:27 | 23°♄17'11 |            |
| transit begin    | 8129 Jan 20 22:29 | 3°♄20'15  |            | min. Earth dist.    | 8130 Jan 02 19:44 | 19°♄24'52 | 0.65531 AU |
| transit end      | 8129 Jan 21 03:51 | 3°♄03'37  |            | inferior conj       | 8130 Jan 04 21:22 | 17°♄03'19 | -0°55'51   |
|                  | 8129 Jan 23 18:45 | 30°♄♄     |            | minimum elong       | 8130 Jan 04 22:59 | 16°♄58'41 | 0°55'01    |
| morning rise     | 8129 Jan 26 20:51 | 27°♄24'03 |            | asc. node           | 8130 Jan 07 15:49 | 14°♄03'50 |            |
| direct           | 8129 Jan 29 23:55 | 26°♄28'28 |            | morning rise        | 8130 Jan 11 02:43 | 11°♄27'36 |            |
| morning max el   | 8129 Feb 05 16:27 | 0°♄06'35  | 18°42'35   | direct              | 8130 Jan 13 20:30 | 10°♄46'51 |            |
|                  | 8129 Feb 05 13:46 | 0°♄       |            | morning max el      | 8130 Jan 20 07:11 | 14°♄12'36 | 18°07'42   |
| desc. node       | 8129 Feb 24 13:38 | 26°♄58'33 |            |                     | 8130 Jan 31 16:17 | 0°♄       |            |
|                  | 8129 Feb 26 11:53 | 0°♄       |            | morning set         | 8130 Feb 07 19:22 | 11°♄33'56 |            |
| morning set      | 8129 Feb 27 01:39 | 0°♄54'03  |            | desc. node          | 8130 Feb 11 10:34 | 17°♄28'20 |            |



|                     |                   |                                 |  |                  |                   |                       |            |
|---------------------|-------------------|---------------------------------|--|------------------|-------------------|-----------------------|------------|
|                     | 8130 Feb 19 05:59 | 0° $\text{H}$                   |  | morning max el   | 8131 Jan 04 00:23 | 28° $\text{X}$ 13'43  | 17°50'04   |
|                     |                   |                                 |  |                  | 8131 Jan 05 15:40 | 0° $\text{Z}$         |            |
| superior conj       | 8130 Feb 22 15:26 | 5° $\text{H}$ 22'10 -1°14'55    |  | morning set      | 8131 Jan 20 17:00 | 23° $\text{Z}$ 36'04  |            |
| minimum elong       | 8130 Feb 22 06:58 | 4° $\text{H}$ 48'45 1°13'50     |  |                  | 8131 Jan 24 11:15 | 0° $\approx$          |            |
| max. Earth dist.    | 8130 Feb 25 06:29 | 9° $\text{H}$ 29'55 1.45426 AU  |  | desc. node       | 8131 Jan 29 07:32 | 8° $\approx$ 07'23    |            |
|                     | 8130 Mar 10 10:25 | 0° $\text{Y}$                   |  |                  |                   |                       |            |
| evening rise        | 8130 Mar 10 19:34 | 0° $\text{Y}$ 35'30             |  | superior conj    | 8131 Feb 02 13:37 | 15° $\approx$ 06'23   | -0°30'31   |
| greatest brilliancy | 8130 Mar 23 10:25 | 19° $\text{Y}$ 59'23 -0.7m      |  | minimum elong    | 8131 Feb 02 10:12 | 14° $\approx$ 52'32   | 0°29'53    |
|                     | 8130 Mar 30 10:08 | 0° $\text{Z}$                   |  | max. Earth dist. | 8131 Feb 08 01:37 | 23° $\approx$ 56'23   | 1.44711 AU |
| evening max el      | 8130 Apr 04 07:11 | 5° $\text{Z}$ 48'36 19°28'00    |  |                  | 8131 Feb 11 21:55 | 0° $\text{H}$         |            |
| asc. node           | 8130 Apr 05 14:47 | 7° $\text{Z}$ 03'48             |  | evening rise     | 8131 Feb 18 07:32 | 9° $\text{H}$ 54'56   |            |
| retrograde          | 8130 Apr 11 11:32 | 9° $\text{Z}$ 53'53             |  |                  | 8131 Mar 03 15:41 | 0° $\text{Y}$         |            |
| evening set         | 8130 Apr 15 01:44 | 8° $\text{Z}$ 38'31             |  | evening max el   | 8131 Mar 18 09:34 | 19° $\text{Y}$ 27'18  | 20°27'43   |
| inferior conj       | 8130 Apr 20 11:53 | 2° $\text{Z}$ 45'10 3°21'16     |  | asc. node        | 8131 Mar 23 11:51 | 23° $\text{Y}$ 24'32  |            |
| minimum elong       | 8130 Apr 20 11:07 | 2° $\text{Z}$ 47'41 3°21'08     |  | retrograde       | 8131 Mar 26 10:00 | 24° $\text{Y}$ 08'05  |            |
| min. Earth dist.    | 8130 Apr 21 18:19 | 1° $\text{Z}$ 05'16 0.66843 AU  |  | evening set      | 8131 Mar 30 09:11 | 22° $\text{Y}$ 37'33  |            |
|                     | 8130 Apr 22 14:43 | 30° $\text{R}$ $\text{Y}$       |  | inferior conj    | 8131 Apr 04 16:55 | 16° $\text{Y}$ 30'52  | 3°07'16    |
| morning rise        | 8130 Apr 25 20:08 | 26° $\text{Y}$ 27'25            |  | minimum elong    | 8131 Apr 04 15:15 | 16° $\text{Y}$ 36'33  | 3°06'58    |
| direct              | 8130 May 01 23:20 | 23° $\text{Y}$ 44'12            |  | min. Earth dist. | 8131 Apr 05 09:14 | 15° $\text{Y}$ 35'03  | 0.67799 AU |
| desc. node          | 8130 May 10 10:16 | 27° $\text{Y}$ 32'56            |  | morning rise     | 8131 Apr 09 21:06 | 10° $\text{Y}$ 15'06  |            |
|                     | 8130 May 13 04:45 | 0° $\text{Z}$                   |  | direct           | 8131 Apr 15 11:38 | 7° $\text{Y}$ 45'17   |            |
| morning max el      | 8130 May 14 08:49 | 1° $\text{Z}$ 09'16 25°45'56    |  | morning max el   | 8131 Apr 26 17:49 | 14° $\text{Y}$ 29'25  | 24°20'47   |
|                     | 8130 Jun 05 01:17 | 0° $\text{II}$                  |  | desc. node       | 8131 Apr 27 07:13 | 15° $\text{Y}$ 03'45  |            |
| morning set         | 8130 Jun 19 11:53 | 24° $\text{II}$ 25'56           |  |                  | 8131 May 09 09:14 | 0° $\text{Z}$         |            |
|                     | 8130 Jun 22 11:40 | 0° $\text{Z}$                   |  |                  | 8131 May 28 22:35 | 0° $\text{II}$        |            |
| max. Earth dist.    | 8130 Jun 23 06:03 | 1° $\text{Z}$ 27'21 1.35707 AU  |  | morning set      | 8131 Jun 01 12:09 | 6° $\text{II}$ 06'02  |            |
|                     |                   |                                 |  | max. Earth dist. | 8131 Jun 05 03:50 | 12° $\text{II}$ 34'29 | 1.37799 AU |
| superior conj       | 8130 Jun 28 22:43 | 12° $\text{Z}$ 37'52 -0°35'46   |  |                  |                   |                       |            |
| minimum elong       | 8130 Jun 29 00:50 | 12° $\text{Z}$ 48'31 0°35'30    |  | superior conj    | 8131 Jun 12 04:24 | 25° $\text{II}$ 39'56 | -1°07'31   |
| asc. node           | 8130 Jul 02 13:53 | 20° $\text{Z}$ 01'46            |  | minimum elong    | 8131 Jun 12 08:33 | 25° $\text{II}$ 59'53 | 1°06'59    |
| evening rise        | 8130 Jul 06 21:11 | 28° $\text{Z}$ 53'06            |  |                  | 8131 Jun 14 10:03 | 0° $\text{Z}$         |            |
|                     | 8130 Jul 07 10:17 | 0° $\text{Z}$                   |  | asc. node        | 8131 Jun 19 10:54 | 9° $\text{Z}$ 57'00   |            |
| evening max el      | 8130 Jul 24 18:57 | 28° $\text{Z}$ 12'58 20°09'59   |  | evening rise     | 8131 Jun 20 22:09 | 12° $\text{Z}$ 51'57  |            |
|                     | 8130 Jul 26 18:39 | 0° $\text{H}$                   |  |                  | 8131 Jun 30 03:11 | 0° $\text{Z}$         |            |
| retrograde          | 8130 Aug 04 10:22 | 3° $\text{H}$ 28'00             |  | evening max el   | 8131 Jul 07 12:21 | 9° $\text{Z}$ 52'47   | 19°08'49   |
| evening set         | 8130 Aug 06 08:34 | 3° $\text{H}$ 18'27             |  | retrograde       | 8131 Jul 16 11:36 | 14° $\text{Z}$ 18'45  |            |
| desc. node          | 8130 Aug 06 09:30 | 3° $\text{H}$ 18'04             |  | evening set      | 8131 Jul 18 09:24 | 14° $\text{Z}$ 07'32  |            |
|                     | 8130 Aug 14 07:37 | 30° $\text{R}$ $\text{Z}$       |  | desc. node       | 8131 Jul 24 06:32 | 11° $\text{Z}$ 35'29  |            |
| inferior conj       | 8130 Aug 15 10:45 | 29° $\text{Z}$ 20'02 -2°43'23   |  | inferior conj    | 8131 Jul 26 19:47 | 9° $\text{Z}$ 55'28   | -0°46'46   |
| minimum elong       | 8130 Aug 15 03:20 | 29° $\text{Z}$ 31'02 2°40'49    |  | minimum elong    | 8131 Jul 26 17:45 | 9° $\text{Z}$ 58'55   | 0°46'06    |
| min. Earth dist.    | 8130 Aug 17 02:13 | 28° $\text{Z}$ 21'35 0.54988 AU |  | min. Earth dist. | 8131 Jul 29 15:50 | 8° $\text{Z}$ 00'49   | 0.56170 AU |
| morning rise        | 8130 Aug 23 20:52 | 25° $\text{Z}$ 08'20            |  | morning rise     | 8131 Aug 03 23:08 | 5° $\text{Z}$ 08'46   |            |
| direct              | 8130 Aug 28 04:53 | 24° $\text{Z}$ 27'40            |  | direct           | 8131 Aug 09 03:07 | 4° $\text{Z}$ 06'57   |            |
|                     | 8130 Sep 09 13:22 | 0° $\text{H}$                   |  | morning max el   | 8131 Aug 23 07:23 | 11° $\text{Z}$ 20'51  | 25°39'17   |
| morning max el      | 8130 Sep 10 18:32 | 1° $\text{H}$ 05'53 23°58'11    |  |                  | 8131 Sep 06 15:04 | 0° $\text{H}$         |            |
| asc. node           | 8130 Sep 28 13:25 | 26° $\text{H}$ 31'35            |  | asc. node        | 8131 Sep 15 10:23 | 15° $\text{H}$ 57'03  |            |
|                     | 8130 Sep 30 08:45 | 0° $\text{Z}$                   |  | morning set      | 8131 Sep 19 16:47 | 24° $\text{H}$ 45'27  |            |
| morning set         | 8130 Oct 05 05:25 | 9° $\text{Z}$ 58'23             |  |                  | 8131 Sep 22 03:06 | 0° $\text{Z}$         |            |
| superior conj       | 8130 Oct 12 03:23 | 24° $\text{Z}$ 57'38 1°39'34    |  | superior conj    | 8131 Sep 26 13:47 | 9° $\text{Z}$ 47'12   | 1°31'54    |
| minimum elong       | 8130 Oct 12 02:29 | 24° $\text{Z}$ 52'45 1°39'35    |  | minimum elong    | 8131 Sep 26 12:02 | 9° $\text{Z}$ 37'33   | 1°31'45    |
|                     | 8130 Oct 14 11:30 | 0° $\text{H}$                   |  | max. Earth dist. | 8131 Sep 27 16:31 | 12° $\text{Z}$ 14'27  | 1.32130 AU |
| max. Earth dist.    | 8130 Oct 14 10:30 | 29° $\text{Z}$ 54'39 1.33009 AU |  | evening rise     | 8131 Oct 03 14:56 | 24° $\text{Z}$ 58'46  |            |
| evening rise        | 8130 Oct 19 14:42 | 10° $\text{H}$ 40'58            |  |                  | 8131 Oct 06 01:57 | 0° $\text{H}$         |            |
|                     | 8130 Oct 29 23:20 | 0° $\text{X}$                   |  | desc. node       | 8131 Oct 20 05:24 | 25° $\text{H}$ 03'53  |            |
| desc. node          | 8130 Nov 02 08:20 | 5° $\text{X}$ 36'51             |  |                  | 8131 Oct 23 13:19 | 0° $\text{X}$         |            |
|                     | 8130 Nov 20 12:12 | 0° $\text{Z}$                   |  | evening max el   | 8131 Nov 04 19:04 | 14° $\text{X}$ 41'06  | 27°23'00   |
| evening max el      | 8130 Nov 22 10:02 | 1° $\text{Z}$ 53'40 27°26'41    |  | retrograde       | 8131 Nov 18 14:34 | 21° $\text{X}$ 55'00  |            |
| retrograde          | 8130 Dec 06 01:08 | 9° $\text{Z}$ 12'28             |  | evening set      | 8131 Nov 25 17:06 | 19° $\text{X}$ 33'23  |            |
| evening set         | 8130 Dec 13 01:10 | 6° $\text{Z}$ 38'57             |  | min. Earth dist. | 8131 Nov 29 09:17 | 16° $\text{X}$ 40'39  | 0.62028 AU |
| min. Earth dist.    | 8130 Dec 16 19:41 | 3° $\text{Z}$ 19'02 0.63920 AU  |  | inferior conj    | 8131 Dec 02 08:22 | 13° $\text{X}$ 57'36  | -3°12'28   |
| inferior conj       | 8130 Dec 19 08:43 | 0° $\text{Z}$ 41'25 -2°02'47    |  | minimum elong    | 8131 Dec 02 14:23 | 13° $\text{X}$ 43'44  | 3°10'12    |
| minimum elong       | 8130 Dec 19 12:33 | 0° $\text{Z}$ 31'32 2°01'06     |  | morning rise     | 8131 Dec 09 13:48 | 8° $\text{X}$ 54'57   |            |
|                     | 8130 Dec 20 00:49 | 30° $\text{R}$ $\text{X}$       |  | direct           | 8131 Dec 11 20:07 | 8° $\text{X}$ 32'32   |            |
| asc. node           | 8130 Dec 25 12:50 | 25° $\text{X}$ 34'34            |  | asc. node        | 8131 Dec 12 09:52 | 8° $\text{X}$ 34'00   |            |
| morning rise        | 8130 Dec 26 01:37 | 25° $\text{X}$ 20'29            |  | morning max el   | 8131 Dec 18 16:55 | 12° $\text{X}$ 01'42  | 17°50'20   |
| direct              | 8130 Dec 28 12:21 | 24° $\text{X}$ 50'42            |  |                  | 8131 Dec 30 18:43 | 0° $\text{Z}$         |            |

|                  |                   |  |            |                  |                   |  |            |
|------------------|-------------------|--|------------|------------------|-------------------|--|------------|
| morning set      | 8132 Jan 03 12:09 | 6°  39'14       |            | asc. node        | 8132 Nov 28 06:54 | 23°  08'02      |            |
|                  |                   |  |            | morning max el   | 8132 Dec 01 05:26 | 25°  28'04      | 18°09'39   |
| superior conj    | 8132 Jan 14 12:56 | 26°  03'40      | 0°12'08    |                  | 8132 Dec 05 01:19 | 0°              |            |
| minimum elong    | 8132 Jan 14 14:04 | 26°  08'28      | 0°12'06    | morning set      | 8132 Dec 16 22:41 | 20°  25'20      |            |
| behind sun begin | 8132 Jan 14 08:19 | 25°  43'57      |            |                  | 8132 Dec 22 01:22 | 0°              |            |
| behind sun end   | 8132 Jan 14 19:49 | 26°  32'56      |            |                  |                   |  |            |
| desc. node       | 8132 Jan 16 04:31 | 28°  51'23      |            | superior conj    | 8132 Dec 26 12:49 | 8°  11'15       | 0°47'19    |
|                  | 8132 Jan 16 20:51 | 0°              |            | minimum elong    | 8132 Dec 26 16:01 | 8°  25'39       | 0°47'00    |
| max. Earth dist. | 8132 Jan 21 17:32 | 8°  01'42       | 1.43343 AU | desc. node       | 8133 Jan 02 01:33 | 19°  37'00      |            |
| evening rise     | 8132 Jan 28 22:17 | 19°  28'54      |            | max. Earth dist. | 8133 Jan 03 04:18 | 21°  30'17      | 1.41486 AU |
|                  | 8132 Feb 04 19:02 | 0°              |            | evening rise     | 8133 Jan 08 04:55 | 29°  38'12      |            |
|                  | 8132 Feb 26 10:00 | 0°              |            |                  | 8133 Jan 08 07:50 | 0°              |            |
| evening max el   | 8132 Feb 29 06:26 | 3°  06'48       | 21°39'08   |                  | 8133 Jan 28 07:47 | 0°              |            |
| retrograde       | 8132 Mar 09 07:54 | 8°  28'42       |            | evening max el   | 8133 Feb 10 22:49 | 16°  48'32      | 22°57'44   |
| asc. node        | 8132 Mar 09 08:55 | 8°  28'42       |            | retrograde       | 8133 Feb 21 03:44 | 22°  51'30      |            |
| evening set      | 8132 Mar 13 17:17 | 6°  42'53       |            | asc. node        | 8133 Feb 24 06:00 | 22°  03'37      |            |
| inferior conj    | 8132 Mar 19 00:45 | 0°  25'22       | 2°42'56    | evening set      | 8133 Feb 26 00:26 | 20°  50'51      |            |
| minimum elong    | 8132 Mar 18 22:35 | 0°  32'55       | 2°42'26    | inferior conj    | 8133 Mar 03 09:27 | 14°  25'46      | 2°09'30    |
| min. Earth dist. | 8132 Mar 19 04:09 | 0°  13'33       | 0.68309 AU | minimum elong    | 8133 Mar 03 07:13 | 14°  33'32      | 2°08'51    |
|                  | 8132 Mar 19 08:03 | 30°  18'11      |            | min. Earth dist. | 8133 Mar 03 00:54 | 14°  55'23      | 0.68395 AU |
| morning rise     | 8132 Mar 24 03:45 | 24°  13'01      |            | morning rise     | 8133 Mar 08 13:54 | 8°  18'08       |            |
| direct           | 8132 Mar 29 04:17 | 22°  02'37      |            | direct           | 8133 Mar 13 00:26 | 6°  29'49       |            |
| morning max el   | 8132 Apr 08 03:52 | 27°  56'54      | 22°50'59   | morning max el   | 8133 Mar 21 18:15 | 11°  33'51      | 21°25'23   |
|                  | 8132 Apr 10 02:31 | 0°              |            | desc. node       | 8133 Mar 31 01:10 | 22°  47'00      |            |
| desc. node       | 8132 Apr 13 04:11 | 3°  33'53       |            |                  | 8133 Apr 05 05:28 | 0°              |            |
|                  | 8132 May 02 01:14 | 0°              |            | morning set      | 8133 Apr 22 07:58 | 25°  49'52      |            |
| morning set      | 8132 May 12 11:50 | 16°  35'48     |            |                  | 8133 Apr 24 22:45 | 0°             |            |
| max. Earth dist. | 8132 May 17 00:25 | 24°  12'40    | 1.40046 AU | max. Earth dist. | 8133 Apr 29 01:37 | 6°  41'39     | 1.42175 AU |
|                  | 8132 May 20 08:23 | 0°            |            |                  |                   |  |            |
|                  |                   |  |            | superior conj    | 8133 May 06 12:20 | 19°  14'52    | -2°00'28   |
| superior conj    | 8132 May 24 18:29 | 7°  55'38     | -1°37'11   | minimum elong    | 8133 May 06 17:29 | 19°  37'10    | 2°00'14    |
| minimum elong    | 8132 May 25 00:08 | 8°  21'23     | 1°36'39    |                  | 8133 May 12 14:54 | 0°            |            |
| evening rise     | 8132 Jun 03 14:06 | 26°  21'35    |            | evening rise     | 8133 May 17 17:08 | 9°  12'39     |            |
| asc. node        | 8132 Jun 05 07:56 | 29°  40'10    |            | asc. node        | 8133 May 23 04:59 | 19°  06'17    |            |
|                  | 8132 Jun 05 12:08 | 0°            |            |                  | 8133 May 29 22:05 | 0°            |            |
| evening max el   | 8132 Jun 19 16:00 | 22°  02'45    | 18°28'29   | evening max el   | 8133 Jun 03 02:14 | 5°  04'23     | 18°08'16   |
| retrograde       | 8132 Jun 27 07:35 | 26°  01'40    |            | retrograde       | 8133 Jun 09 21:29 | 8°  31'29     |            |
| evening set      | 8132 Jun 29 11:27 | 25°  04'18    |            | evening set      | 8133 Jun 12 08:55 | 8°  04'27     |            |
| inferior conj    | 8132 Jul 07 02:01 | 21°  02'51    | 0°53'58    | inferior conj    | 8133 Jun 19 05:18 | 3°  12'48     | 2°07'10    |
| minimum elong    | 8132 Jul 07 03:52 | 21°  09'09    | 0°53'10    | minimum elong    | 8133 Jun 19 08:22 | 3°  05'41     | 2°06'09    |
| desc. node       | 8132 Jul 10 03:34 | 18°  04'72    |            | min. Earth dist. | 8133 Jun 22 12:38 | 0°  10'51     | 0.60227 AU |
| min. Earth dist. | 8132 Jul 10 10:42 | 18°  33'48    | 0.58022 AU |                  | 8133 Jun 22 17:38 | 30°  18'11    |            |
| morning rise     | 8132 Jul 14 16:51 | 15°  04'48    |            | morning rise     | 8133 Jun 26 05:02 | 27°  12'24    |            |
| direct           | 8132 Jul 20 15:44 | 14°  01'82    |            | desc. node       | 8133 Jun 27 00:38 | 26°  12'39    |            |
| morning max el   | 8132 Aug 04 01:12 | 21°  05'82    | 26°59'17   | direct           | 8133 Jul 02 17:37 | 25°  19'09    |            |
|                  | 8132 Aug 11 02:43 | 0°            |            |                  | 8133 Jul 13 10:50 | 0°            |            |
|                  | 8132 Aug 29 11:43 | 0°            |            | morning max el   | 8133 Jul 17 01:42 | 3°  15'20     | 27°45'45   |
| asc. node        | 8132 Sep 01 07:23 | 5°  04'10     |            |                  | 8133 Aug 05 16:49 | 0°            |            |
| morning set      | 8132 Sep 03 02:15 | 9°  10'49     |            | morning set      | 8133 Aug 18 07:57 | 23°  10'05    |            |
|                  |                   |  |            | asc. node        | 8133 Aug 19 04:22 | 25°  10'36'51 |            |
| superior conj    | 8132 Sep 10 01:34 | 24°  10'38'09 | 1°18'53    |                  | 8133 Aug 21 05:49 | 0°            |            |
| minimum elong    | 8132 Sep 09 23:22 | 24°  10'25'57 | 1°18'33    | max. Earth dist. | 8133 Aug 24 12:06 | 7°  10'06'58  | 1.31727 AU |
| max. Earth dist. | 8132 Sep 10 02:20 | 24°  10'42'26 | 1.31699 AU |                  |                   |  |            |
|                  | 8132 Sep 12 11:40 | 0°            |            | superior conj    | 8133 Aug 25 12:53 | 9°  10'23'44  | 1°00'56    |
| evening rise     | 8132 Sep 16 21:05 | 9°  10'31'42  |            | minimum elong    | 8133 Aug 25 10:41 | 9°  11'39     | 1°00'30    |
|                  | 8132 Sep 27 09:33 | 0°            |            | evening rise     | 8133 Sep 01 06:53 | 24°  12'07    |            |
| desc. node       | 8132 Oct 06 02:29 | 13°  13'49'39 |            |                  | 8133 Sep 04 01:05 | 0°            |            |
| evening max el   | 8132 Oct 16 22:09 | 26°  13'44'12 | 26°45'41   |                  | 8133 Sep 21 17:14 | 0°            |            |
|                  | 8132 Oct 20 19:23 | 0°            |            | desc. node       | 8133 Sep 22 23:34 | 1°  13'36'43  |            |
| retrograde       | 8132 Oct 30 20:00 | 3°  10'52'46  |            | evening max el   | 8133 Sep 28 17:24 | 7°  13'56'10  | 25°36'25   |
| evening set      | 8132 Nov 06 16:13 | 1°  10'53'58  |            | retrograde       | 8133 Oct 12 15:40 | 14°  13'59'00 |            |
|                  | 8132 Nov 09 13:38 | 30°  13'18'11 |            | evening set      | 8133 Oct 18 17:29 | 13°  13'33'03 |            |
| min. Earth dist. | 8132 Nov 10 12:09 | 29°  13'17'28 | 0.59960 AU | min. Earth dist. | 8133 Oct 23 05:42 | 10°  13'55'55 | 0.57901 AU |
| inferior conj    | 8132 Nov 13 16:55 | 26°  13'43'19 | -4°19'02   | inferior conj    | 8133 Oct 26 06:55 | 8°  13'48'06  | -5°11'54   |
| minimum elong    | 8132 Nov 14 00:10 | 26°  13'28'42 | 4°16'58    | minimum elong    | 8133 Oct 26 12:39 | 8°  13'38'03  | 5°10'57    |
| morning rise     | 8132 Nov 21 10:30 | 22°  13'02'05 |            | morning rise     | 8133 Nov 03 10:09 | 4°  13'29'35  |            |
| direct           | 8132 Nov 23 15:43 | 21°  13'43'47 |            | direct           | 8133 Nov 05 18:47 | 4°  13'12'21  |            |

|                  |                   |                            |            |                     |                   |                               |            |
|------------------|-------------------|----------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| morning max el   | 8133 Nov 14 10:12 | 8° $\mathbb{M}$ 21'27      | 18°49'44   | asc. node           | 8134 Nov 02 00:57 | 26° $\mathbb{L}$ 11'58        |            |
| asc. node        | 8133 Nov 15 03:56 | 9° $\mathbb{M}$ 05'44      |            |                     | 8134 Nov 04 14:54 | 0° $\mathbb{M}$               |            |
|                  | 8133 Nov 28 10:13 | 0° $\mathbb{X}$            |            | morning set         | 8134 Nov 15 00:03 | 19° $\mathbb{M}$ 13'20        |            |
| morning set      | 8133 Nov 30 19:49 | 4° $\mathbb{X}$ 40'00      |            |                     | 8134 Nov 20 07:08 | 0° $\mathbb{X}$               |            |
| superior conj    | 8133 Dec 09 08:27 | 21° $\mathbb{X}$ 14'42     | 1°13'21    | superior conj       | 8134 Nov 22 18:51 | 4° $\mathbb{X}$ 59'52         | 1°30'26    |
| minimum elong    | 8133 Dec 09 11:46 | 21° $\mathbb{X}$ 30'23     | 1°13'06    | minimum elong       | 8134 Nov 22 21:12 | 5° $\mathbb{X}$ 11'34         | 1°30'23    |
|                  | 8133 Dec 14 01:39 | 0° $\mathbb{Z}$            |            | max. Earth dist.    | 8134 Nov 28 16:35 | 16° $\mathbb{X}$ 25'35        | 1.37219 AU |
| max. Earth dist. | 8133 Dec 16 10:37 | 4° $\mathbb{Z}$ 15'14      | 1.39362 AU | evening rise        | 8134 Dec 02 10:47 | 23° $\mathbb{X}$ 19'10        |            |
| desc. node       | 8133 Dec 19 22:34 | 10° $\mathbb{Z}$ 20'09     |            |                     | 8134 Dec 06 06:14 | 0° $\mathbb{Z}$               |            |
| evening rise     | 8133 Dec 20 09:15 | 11° $\mathbb{Z}$ 05'40     |            | desc. node          | 8134 Dec 06 19:36 | 0° $\mathbb{Z}$ 57'01         |            |
|                  | 8134 Jan 01 03:59 | 0° $\approx$               |            |                     | 8134 Dec 25 22:05 | 0° $\approx$                  |            |
|                  | 8134 Jan 23 23:12 | 0° $\mathbb{H}$            |            | evening max el      | 8135 Jan 07 01:53 | 14° $\approx$ 21'40           | 25°32'02   |
| evening max el   | 8134 Jan 24 12:41 | 0° $\mathbb{H}$ 33'51      | 24°17'42   | retrograde          | 8135 Jan 19 07:46 | 21° $\approx$ 23'51           |            |
| retrograde       | 8134 Feb 04 20:03 | 7° $\mathbb{H}$ 11'39      |            | evening set         | 8135 Jan 25 05:37 | 18° $\approx$ 57'39           |            |
| evening set      | 8134 Feb 10 05:05 | 4° $\mathbb{H}$ 57'11      |            | asc. node           | 8135 Jan 29 00:11 | 14° $\approx$ 56'15           |            |
| asc. node        | 8134 Feb 11 03:05 | 4° $\mathbb{H}$ 06'33      |            | min. Earth dist.    | 8135 Jan 29 14:33 | 14° $\approx$ 11'07           | 0.67379 AU |
|                  | 8134 Feb 14 13:58 | 30° $\mathbb{R}$ $\approx$ |            | inferior conj       | 8135 Jan 30 21:54 | 12° $\approx$ 30'43           | 0°37'42    |
| min. Earth dist. | 8134 Feb 14 21:10 | 29° $\approx$ 35'58        | 0.68077 AU | minimum elong       | 8135 Jan 30 20:58 | 12° $\approx$ 33'41           | 0°37'26    |
| inferior conj    | 8134 Feb 15 17:08 | 28° $\approx$ 28'47        | 1°27'36    | morning rise        | 8135 Feb 05 12:43 | 6° $\approx$ 37'30            |            |
| minimum elong    | 8134 Feb 15 15:17 | 28° $\approx$ 35'00        | 1°27'01    | direct              | 8135 Feb 08 22:04 | 5° $\approx$ 31'27            |            |
| morning rise     | 8134 Feb 21 01:33 | 22° $\approx$ 27'22        |            | morning max el      | 8135 Feb 15 21:07 | 9° $\approx$ 21'28            | 19°10'04   |
| direct           | 8134 Feb 24 22:51 | 21° $\approx$ 01'07        |            | greatest brilliancy | 8135 Mar 01 05:50 | 27° $\approx$ 13'45           | -0.7m      |
| morning max el   | 8134 Mar 04 15:44 | 25° $\approx$ 22'20        | 20°10'31   |                     | 8135 Mar 03 01:43 | 0° $\mathbb{H}$               |            |
|                  | 8134 Mar 08 18:22 | 0° $\mathbb{H}$            |            | desc. node          | 8135 Mar 04 19:04 | 2° $\mathbb{H}$ 37'50         |            |
| desc. node       | 8134 Mar 17 22:07 | 12° $\mathbb{H}$ 31'15     |            | morning set         | 8135 Mar 11 09:15 | 12° $\mathbb{H}$ 47'23        |            |
|                  | 8134 Mar 29 14:13 | 0° $\mathbb{Y}$            |            |                     | 8135 Mar 22 10:36 | 0° $\mathbb{Y}$               |            |
| morning set      | 8134 Apr 01 07:50 | 4° $\mathbb{Y}$ 12'13      |            | max. Earth dist.    | 8135 Mar 25 01:20 | 4° $\mathbb{Y}$ 06'18         | 1.45072 AU |
| max. Earth dist. | 8134 Apr 11 10:06 | 20° $\mathbb{Y}$ 03'24     | 1.43917 AU |                     |                   |                               |            |
| superior conj    | 8134 Apr 17 06:03 | 29° $\mathbb{Y}$ 30'23     | -2°11'34   | superior conj       | 8135 Mar 28 00:07 | 8° $\mathbb{Y}$ 45'43         | -2°04'33   |
| minimum elong    | 8134 Apr 17 07:02 | 29° $\mathbb{Y}$ 34'24     | 2°11'37    | minimum elong       | 8135 Mar 27 18:07 | 8° $\mathbb{Y}$ 21'57         | 2°04'18    |
|                  | 8134 Apr 17 13:16 | 0° $\mathbb{B}$            |            |                     | 8135 Apr 10 04:13 | 0° $\mathbb{B}$               |            |
| evening rise     | 8134 Apr 30 02:37 | 21° $\mathbb{B}$ 14'51     |            | evening rise        | 8135 Apr 11 14:09 | 2° $\mathbb{B}$ 19'22         |            |
|                  | 8134 May 05 04:19 | 0° $\mathbb{I}$            |            | asc. node           | 8135 Apr 26 23:07 | 26° $\mathbb{B}$ 41'16        |            |
| asc. node        | 8134 May 10 02:03 | 8° $\mathbb{I}$ 09'29      |            |                     | 8135 Apr 29 13:28 | 0° $\mathbb{I}$               |            |
| evening max el   | 8134 May 17 15:26 | 18° $\mathbb{I}$ 18'30     | 18°07'19   | evening max el      | 8135 May 01 04:21 | 1° $\mathbb{I}$ 45'40         | 18°24'53   |
| retrograde       | 8134 May 24 01:22 | 21° $\mathbb{I}$ 39'10     |            | retrograde          | 8135 May 07 14:49 | 5° $\mathbb{I}$ 14'03         |            |
| evening set      | 8134 May 26 20:13 | 21° $\mathbb{I}$ 00'00     |            | evening set         | 8135 May 10 16:53 | 4° $\mathbb{I}$ 21'20         |            |
| inferior conj    | 8134 Jun 02 02:10 | 15° $\mathbb{I}$ 49'01     | 2°53'23    |                     | 8135 May 15 13:04 | 30° $\mathbb{R}$ $\mathbb{B}$ |            |
| minimum elong    | 8134 Jun 02 04:41 | 15° $\mathbb{I}$ 42'23     | 2°52'45    | inferior conj       | 8135 May 16 12:24 | 28° $\mathbb{B}$ 52'26        | 3°17'22    |
| min. Earth dist. | 8134 Jun 04 23:06 | 12° $\mathbb{I}$ 48'36     | 0.62458 AU | minimum elong       | 8135 May 16 13:38 | 28° $\mathbb{B}$ 48'48        | 3°17'07    |
| morning rise     | 8134 Jun 08 11:24 | 9° $\mathbb{I}$ 42'10      |            | min. Earth dist.    | 8135 May 18 18:44 | 26° $\mathbb{B}$ 13'53        | 0.64463 AU |
| desc. node       | 8134 Jun 13 21:39 | 7° $\mathbb{I}$ 18'42      |            | morning rise        | 8135 May 22 09:28 | 22° $\mathbb{B}$ 37'21        |            |
| direct           | 8134 Jun 15 05:48 | 7° $\mathbb{I}$ 13'04      |            | direct              | 8135 May 29 02:09 | 19° $\mathbb{B}$ 53'35        |            |
| morning max el   | 8134 Jun 29 07:52 | 15° $\mathbb{I}$ 15'21     | 27°54'00   | desc. node          | 8135 May 31 18:40 | 20° $\mathbb{B}$ 16'52        |            |
|                  | 8134 Jul 11 08:05 | 0° $\mathbb{S}$            |            | morning max el      | 8135 Jun 11 17:27 | 27° $\mathbb{B}$ 51'46        | 27°26'13   |
|                  | 8134 Jul 29 07:30 | 0° $\mathbb{Q}$            |            |                     | 8135 Jun 13 18:13 | 0° $\mathbb{I}$               |            |
| morning set      | 8134 Aug 02 07:54 | 7° $\mathbb{Q}$ 55'48      |            |                     | 8135 Jul 05 02:06 | 0° $\mathbb{S}$               |            |
| asc. node        | 8134 Aug 06 01:22 | 15° $\mathbb{Q}$ 40'10     |            | morning set         | 8135 Jul 16 23:29 | 21° $\mathbb{S}$ 34'19        |            |
| max. Earth dist. | 8134 Aug 07 18:08 | 19° $\mathbb{Q}$ 17'55     | 1.32231 AU |                     | 8135 Jul 21 04:01 | 0° $\mathbb{Q}$               |            |
| superior conj    | 8134 Aug 09 21:57 | 23° $\mathbb{Q}$ 58'46     | 0°38'28    | max. Earth dist.    | 8135 Jul 21 16:43 | 1° $\mathbb{Q}$ 05'35         | 1.33214 AU |
| minimum elong    | 8134 Aug 09 20:17 | 23° $\mathbb{Q}$ 49'42     | 0°38'03    | asc. node           | 8135 Jul 23 22:22 | 5° $\mathbb{Q}$ 46'13         |            |
|                  | 8134 Aug 12 15:58 | 0° $\mathbb{P}$            |            | superior conj       | 8135 Jul 25 02:45 | 8° $\mathbb{Q}$ 16'49         | 0°11'59    |
| evening rise     | 8134 Aug 16 18:25 | 8° $\mathbb{P}$ 54'39      |            | minimum elong       | 8135 Jul 25 02:09 | 8° $\mathbb{Q}$ 13'39         | 0°11'45    |
|                  | 8134 Aug 27 14:07 | 0° $\mathbb{L}$            |            | behind sun begin    | 8135 Jul 24 22:24 | 7° $\mathbb{Q}$ 53'42         |            |
| desc. node       | 8134 Sep 09 20:39 | 18° $\mathbb{L}$ 02'16     |            | behind sun end      | 8135 Jul 25 05:54 | 8° $\mathbb{Q}$ 33'36         |            |
| evening max el   | 8134 Sep 10 06:05 | 18° $\mathbb{L}$ 25'16     | 24°04'10   | evening rise        | 8135 Aug 01 05:45 | 23° $\mathbb{Q}$ 33'02        |            |
| retrograde       | 8134 Sep 23 23:01 | 25° $\mathbb{L}$ 17'18     |            |                     | 8135 Aug 04 08:09 | 0° $\mathbb{P}$               |            |
| evening set      | 8134 Sep 28 17:55 | 24° $\mathbb{L}$ 26'58     |            | evening max el      | 8135 Aug 22 18:29 | 28° $\mathbb{P}$ 38'06        | 22°24'50   |
| min. Earth dist. | 8134 Oct 04 16:47 | 21° $\mathbb{L}$ 30'45     | 0.56141 AU |                     | 8135 Aug 24 05:51 | 0° $\mathbb{L}$               |            |
| inferior conj    | 8134 Oct 07 00:32 | 20° $\mathbb{L}$ 05'18     | -5°34'15   | desc. node          | 8135 Aug 27 17:43 | 2° $\mathbb{L}$ 36'49         |            |
| minimum elong    | 8134 Oct 07 00:33 | 20° $\mathbb{L}$ 05'15     | 5°34'12    | retrograde          | 8135 Sep 04 17:57 | 5° $\mathbb{L}$ 06'01         |            |
| morning rise     | 8134 Oct 15 09:20 | 16° $\mathbb{L}$ 07'00     |            | evening set         | 8135 Sep 08 00:44 | 4° $\mathbb{L}$ 42'17         |            |
| direct           | 8134 Oct 18 02:42 | 15° $\mathbb{L}$ 47'47     |            | min. Earth dist.    | 8135 Sep 16 01:03 | 1° $\mathbb{L}$ 11'10         | 0.54990 AU |
| morning max el   | 8134 Oct 28 03:40 | 20° $\mathbb{L}$ 31'26     | 19°52'09   | inferior conj       | 8135 Sep 17 00:30 | 0° $\mathbb{L}$ 38'05         | -5°07'35   |
|                  |                   |                            |            | minimum elong       | 8135 Sep 16 17:16 | 0° $\mathbb{L}$ 48'18         | 5°06'23    |

|                     |                   |                               |            |                     |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
|                     | 8135 Sep 18 03:36 | 30° $\mathbb{R}$ $\mathbb{M}$ |            | minimum elong       | 8136 Aug 26 07:37 | 11° $\mathbb{M}$ 00'40        | 3°44'03    |
| morning rise        | 8135 Sep 25 11:35 | 26° $\mathbb{M}$ 50'10        |            | min. Earth dist.    | 8136 Aug 27 10:06 | 10° $\mathbb{M}$ 23'04        | 0.54707 AU |
| direct              | 8135 Sep 28 17:41 | 26° $\mathbb{M}$ 26'15        |            | morning rise        | 8136 Sep 04 04:22 | 6° $\mathbb{M}$ 50'17         |            |
|                     | 8135 Oct 08 02:54 | 0° $\mathbb{L}$               |            | direct              | 8136 Sep 08 01:37 | 6° $\mathbb{M}$ 17'57         |            |
| morning max el      | 8135 Oct 10 08:06 | 1° $\mathbb{L}$ 52'38         | 21°16'27   | morning max el      | 8136 Sep 21 01:40 | 12° $\mathbb{M}$ 31'01        | 22°57'19   |
| asc. node           | 8135 Oct 19 21:56 | 14° $\mathbb{L}$ 12'03        |            |                     | 8136 Oct 04 03:36 | 0° $\mathbb{L}$               |            |
|                     | 8135 Oct 28 10:31 | 0° $\mathbb{M}$               |            | asc. node           | 8136 Oct 05 18:55 | 2° $\mathbb{L}$ 53'02         |            |
| morning set         | 8135 Oct 30 08:46 | 3° $\mathbb{M}$ 58'02         |            | morning set         | 8136 Oct 13 19:50 | 18° $\mathbb{L}$ 47'30        |            |
|                     |                   |                               |            |                     | 8136 Oct 19 01:11 | 0° $\mathbb{M}$               |            |
| superior conj       | 8135 Nov 06 15:47 | 19° $\mathbb{M}$ 14'57        | 1°39'26    |                     |                   |                               |            |
| minimum elong       | 8135 Nov 06 16:49 | 19° $\mathbb{M}$ 20'18        | 1°39'32    | superior conj       | 8136 Oct 20 19:56 | 3° $\mathbb{M}$ 49'33         | 1°41'21    |
| max. Earth dist.    | 8135 Nov 11 03:06 | 28° $\mathbb{M}$ 20'14        | 1.35280 AU | minimum elong       | 8136 Oct 20 19:40 | 3° $\mathbb{M}$ 48'10         | 1°41'26    |
|                     | 8135 Nov 11 23:17 | 0° $\mathbb{J}$               |            | max. Earth dist.    | 8136 Oct 23 21:10 | 10° $\mathbb{M}$ 17'09        | 1.33706 AU |
| evening rise        | 8135 Nov 15 06:09 | 6° $\mathbb{J}$ 20'02         |            | evening rise        | 8136 Oct 28 15:24 | 19° $\mathbb{M}$ 57'48        |            |
| desc. node          | 8135 Nov 23 16:37 | 21° $\mathbb{J}$ 23'09        |            |                     | 8136 Nov 02 22:09 | 0° $\mathbb{J}$               |            |
|                     | 8135 Nov 29 00:02 | 0° $\mathbb{Z}$               |            | desc. node          | 8136 Nov 09 13:39 | 11° $\mathbb{J}$ 32'20        |            |
| evening max el      | 8135 Dec 20 15:08 | 28° $\mathbb{Z}$ 06'19        | 26°33'27   |                     | 8136 Nov 22 00:37 | 0° $\mathbb{Z}$               |            |
|                     | 8135 Dec 22 16:40 | 0° $\mathbb{X}$               |            | evening max el      | 8136 Dec 02 03:55 | 11° $\mathbb{Z}$ 37'33        | 27°14'44   |
| retrograde          | 8136 Jan 02 14:08 | 5° $\mathbb{X}$ 22'18         |            | retrograde          | 8136 Dec 15 14:40 | 18° $\mathbb{Z}$ 58'07        |            |
| evening set         | 8136 Jan 09 00:14 | 2° $\mathbb{X}$ 47'57         |            | evening set         | 8136 Dec 22 10:46 | 16° $\mathbb{Z}$ 21'41        |            |
|                     | 8136 Jan 11 21:32 | 30° $\mathbb{R}$ $\mathbb{Z}$ |            | min. Earth dist.    | 8136 Dec 26 07:42 | 12° $\mathbb{Z}$ 43'53        | 0.64881 AU |
| min. Earth dist.    | 8136 Jan 13 02:49 | 28° $\mathbb{Z}$ 36'18        | 0.66309 AU | inferior conj       | 8136 Dec 28 14:24 | 10° $\mathbb{Z}$ 14'07        | -1°23'41   |
| inferior conj       | 8136 Jan 14 21:46 | 26° $\mathbb{Z}$ 27'53        | -0°19'41   | minimum elong       | 8136 Dec 28 16:55 | 10° $\mathbb{Z}$ 07'12        | 1°22'29    |
| minimum elong       | 8136 Jan 14 22:18 | 26° $\mathbb{Z}$ 26'16        | 0°19'20    | asc. node           | 8137 Jan 01 18:16 | 6° $\mathbb{Z}$ 09'17         |            |
| asc. node           | 8136 Jan 15 21:14 | 25° $\mathbb{Z}$ 18'21        |            | morning rise        | 8137 Jan 04 00:30 | 4° $\mathbb{Z}$ 44'39         |            |
| morning rise        | 8136 Jan 20 21:14 | 20° $\mathbb{Z}$ 45'11        |            | direct              | 8137 Jan 06 15:00 | 4° $\mathbb{Z}$ 09'05         |            |
| direct              | 8136 Jan 23 20:12 | 19° $\mathbb{Z}$ 56'15        |            | morning max el      | 8137 Jan 13 01:24 | 7° $\mathbb{Z}$ 32'23         | 17°58'12   |
| morning max el      | 8136 Jan 30 09:12 | 23° $\mathbb{Z}$ 27'25        | 18°25'45   |                     | 8137 Jan 28 07:59 | 0° $\mathbb{X}$               |            |
|                     | 8136 Feb 04 18:29 | 0° $\mathbb{X}$               |            | morning set         | 8137 Jan 30 16:07 | 3° $\mathbb{X}$ 53'19         |            |
| morning set         | 8136 Feb 19 09:56 | 22° $\mathbb{X}$ 36'42        |            | desc. node          | 8137 Feb 05 12:59 | 13° $\mathbb{X}$ 35'01        |            |
| desc. node          | 8136 Feb 19 16:02 | 23° $\mathbb{X}$ 00'56        |            |                     |                   |                               |            |
|                     | 8136 Feb 24 01:33 | 0° $\mathbb{H}$               |            | superior conj       | 8137 Feb 13 16:19 | 26° $\mathbb{X}$ 43'34        | -0°56'26   |
|                     |                   |                               |            | minimum elong       | 8137 Feb 13 09:46 | 26° $\mathbb{X}$ 17'30        | 0°55'28    |
| superior conj       | 8136 Mar 06 05:13 | 17° $\mathbb{H}$ 32'54        | -1°37'32   |                     | 8137 Feb 15 17:49 | 0° $\mathbb{H}$               |            |
| minimum elong       | 8136 Mar 05 19:36 | 16° $\mathbb{H}$ 55'13        | 1°36'34    | max. Earth dist.    | 8137 Feb 17 16:01 | 3° $\mathbb{H}$ 02'15         | 1.45206 AU |
| max. Earth dist.    | 8136 Mar 06 20:29 | 18° $\mathbb{H}$ 32'40        | 1.45515 AU | evening rise        | 8137 Mar 01 19:34 | 21° $\mathbb{H}$ 55'13        |            |
|                     | 8136 Mar 14 04:05 | 0° $\mathbb{Y}$               |            |                     | 8137 Mar 07 01:58 | 0° $\mathbb{Y}$               |            |
| evening rise        | 8136 Mar 22 02:15 | 12° $\mathbb{Y}$ 27'45        |            | greatest brilliancy | 8137 Mar 16 01:54 | 13° $\mathbb{Y}$ 33'03        | -0.6m      |
| greatest brilliancy | 8136 Mar 31 21:51 | 27° $\mathbb{Y}$ 53'50        | -0.8m      | evening max el      | 8137 Mar 27 19:49 | 28° $\mathbb{Y}$ 57'09        | 19°51'39   |
|                     | 8136 Apr 02 06:33 | 0° $\mathbb{B}$               |            |                     | 8137 Mar 28 21:43 | 0° $\mathbb{B}$               |            |
| asc. node           | 8136 Apr 12 20:10 | 14° $\mathbb{B}$ 32'07        |            | asc. node           | 8137 Mar 30 17:14 | 1° $\mathbb{B}$ 29'47         |            |
| evening max el      | 8136 Apr 13 14:25 | 15° $\mathbb{B}$ 19'54        | 19°00'06   | retrograde          | 8137 Apr 04 08:08 | 3° $\mathbb{B}$ 17'02         |            |
| retrograde          | 8136 Apr 20 10:04 | 19° $\mathbb{B}$ 08'44        |            | evening set         | 8137 Apr 08 01:57 | 1° $\mathbb{B}$ 55'19         |            |
| evening set         | 8136 Apr 23 19:37 | 18° $\mathbb{B}$ 01'44        |            |                     | 8137 Apr 10 04:27 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| inferior conj       | 8136 Apr 29 08:17 | 12° $\mathbb{B}$ 16'32        | 3°23'55    | inferior conj       | 8137 Apr 13 10:45 | 25° $\mathbb{Y}$ 55'49        | 3°16'41    |
| minimum elong       | 8136 Apr 29 08:12 | 12° $\mathbb{B}$ 16'51        | 3°23'48    | minimum elong       | 8137 Apr 13 09:34 | 25° $\mathbb{Y}$ 59'48        | 3°16'30    |
| min. Earth dist.    | 8136 Apr 30 23:12 | 10° $\mathbb{B}$ 13'11        | 0.66100 AU | min. Earth dist.    | 8137 Apr 14 11:01 | 24° $\mathbb{Y}$ 34'26        | 0.67303 AU |
| morning rise        | 8136 May 04 20:18 | 5° $\mathbb{B}$ 58'38         |            | morning rise        | 8137 Apr 18 16:54 | 19° $\mathbb{Y}$ 38'25        |            |
| direct              | 8136 May 11 05:27 | 3° $\mathbb{B}$ 12'14         |            | direct              | 8137 Apr 24 14:49 | 17° $\mathbb{Y}$ 00'03        |            |
| desc. node          | 8136 May 17 15:40 | 5° $\mathbb{B}$ 25'07         |            | desc. node          | 8137 May 04 12:39 | 22° $\mathbb{Y}$ 11'51        |            |
| morning max el      | 8136 May 24 03:59 | 10° $\mathbb{B}$ 53'51        | 26°28'49   | morning max el      | 8137 May 06 13:39 | 24° $\mathbb{Y}$ 09'58        | 25°10'52   |
|                     | 8136 Jun 08 07:45 | 0° $\mathbb{I}$               |            |                     | 8137 May 11 18:59 | 0° $\mathbb{B}$               |            |
|                     | 8136 Jun 26 15:41 | 0° $\mathbb{E}$               |            |                     | 8137 Jun 01 17:44 | 0° $\mathbb{I}$               |            |
| morning set         | 8136 Jun 29 03:26 | 4° $\mathbb{E}$ 36'51         |            | morning set         | 8137 Jun 11 15:25 | 16° $\mathbb{I}$ 51'51        |            |
| max. Earth dist.    | 8136 Jul 03 04:59 | 12° $\mathbb{E}$ 26'32        | 1.34672 AU | max. Earth dist.    | 8137 Jun 15 06:44 | 23° $\mathbb{I}$ 30'45        | 1.36561 AU |
|                     |                   |                               |            |                     | 8137 Jun 18 16:55 | 0° $\mathbb{E}$               |            |
| superior conj       | 8136 Jul 08 00:57 | 22° $\mathbb{E}$ 11'31        | -0°17'43   |                     |                   |                               |            |
| minimum elong       | 8136 Jul 08 01:57 | 22° $\mathbb{E}$ 16'41        | 0°17'39    | superior conj       | 8137 Jun 21 13:42 | 5° $\mathbb{E}$ 35'37         | -0°49'17   |
| asc. node           | 8136 Jul 09 19:21 | 25° $\mathbb{E}$ 51'12        |            | minimum elong       | 8137 Jun 21 16:41 | 5° $\mathbb{E}$ 50'22         | 0°48'53    |
|                     | 8136 Jul 11 18:56 | 0° $\mathbb{Q}$               |            | asc. node           | 8137 Jun 26 16:20 | 15° $\mathbb{E}$ 51'17        |            |
| evening rise        | 8136 Jul 15 14:55 | 8° $\mathbb{Q}$ 01'25         |            | evening rise        | 8137 Jun 29 19:41 | 22° $\mathbb{E}$ 13'26        |            |
|                     | 8136 Jul 27 09:59 | 0° $\mathbb{M}$               |            |                     | 8137 Jul 03 17:40 | 0° $\mathbb{Q}$               |            |
| evening max el      | 8136 Aug 03 15:23 | 9° $\mathbb{M}$ 10'27         | 20°54'11   | evening max el      | 8137 Jul 17 01:32 | 20° $\mathbb{Q}$ 25'08        | 19°41'24   |
| desc. node          | 8136 Aug 13 14:47 | 14° $\mathbb{M}$ 49'05        |            | retrograde          | 8137 Jul 26 23:37 | 25° $\mathbb{Q}$ 18'42        |            |
| retrograde          | 8136 Aug 15 06:24 | 14° $\mathbb{M}$ 55'52        |            | evening set         | 8137 Jul 28 20:04 | 25° $\mathbb{Q}$ 09'13        |            |
| evening set         | 8136 Aug 17 11:04 | 14° $\mathbb{M}$ 44'22        |            | desc. node          | 8137 Jul 31 11:52 | 24° $\mathbb{Q}$ 25'03        |            |
| inferior conj       | 8136 Aug 26 16:57 | 10° $\mathbb{M}$ 47'25        | -3°46'50   | inferior conj       | 8137 Aug 06 16:36 | 21° $\mathbb{Q}$ 06'20        | -1°53'28   |


































































































































|                  |                   |                                      |            |                  |                   |                                      |            |
|------------------|-------------------|--------------------------------------|------------|------------------|-------------------|--------------------------------------|------------|
| minimum elong    | 8137 Aug 06 11:25 | 21° $\Omega$ 14'26                   | 1°51'36    | inferior conj    | 8138 Jul 18 10:19 | 1° $\Omega$ 58'39                    | -0°01'02   |
| min. Earth dist. | 8137 Aug 08 22:06 | 19° $\Omega$ 42'58                   | 0.55384 AU | minimum elong    | 8138 Jul 18 10:16 | 1° $\Omega$ 58'44                    | 0°01'09    |
| morning rise     | 8137 Aug 15 00:32 | 16° $\Omega$ 40'18                   |            | transit middle   | 8138 Jul 18 10:16 | 1° $\Omega$ 58'44                    | 0°01'09    |
| direct           | 8137 Aug 19 16:37 | 15° $\Omega$ 51'51                   |            | transit begin    | 8138 Jul 18 06:34 | 2° $\Omega$ 05'26                    |            |
| morning max el   | 8137 Sep 02 14:24 | 22° $\Omega$ 47'19                   | 24°42'47   | transit end      | 8138 Jul 18 13:58 | 1° $\Omega$ 52'02                    |            |
|                  | 8137 Sep 09 00:46 | 0° $\mathbb{M}$                      |            | desc. node       | 8138 Jul 18 08:56 | 2° $\Omega$ 01'09                    |            |
| asc. node        | 8137 Sep 22 15:53 | 22° $\mathbb{M}$ 04'50               |            |                  | 8138 Jul 21 04:03 | 30° $\mathbb{R}$ $\mathfrak{S}$      |            |
|                  | 8137 Sep 26 14:22 | 0° $\underline{\mathfrak{A}}$        |            | min. Earth dist. | 8138 Jul 21 13:55 | 29° $\mathfrak{S}$ 42'47             | 0.56898 AU |
| morning set      | 8137 Sep 28 07:34 | 3° $\underline{\mathfrak{A}}$ 36'58  |            | morning rise     | 8138 Jul 26 08:53 | 26° $\mathfrak{S}$ 55'53             |            |
|                  |                   |                                      |            | direct           | 8138 Jul 31 21:36 | 25° $\mathfrak{S}$ 41'55             |            |
| superior conj    | 8137 Oct 05 04:42 | 18° $\underline{\mathfrak{A}}$ 36'03 | 1°37'00    |                  | 8138 Aug 11 13:43 | 0° $\Omega$                          |            |
| minimum elong    | 8137 Oct 05 03:24 | 18° $\underline{\mathfrak{A}}$ 28'54 | 1°36'57    | morning max el   | 8138 Aug 15 04:46 | 3° $\Omega$ 08'31                    | 26°16'38   |
| max. Earth dist. | 8137 Oct 06 23:17 | 22° $\underline{\mathfrak{A}}$ 27'59 | 1.32573 AU |                  | 8138 Sep 03 10:42 | 0° $\mathbb{M}$                      |            |
|                  | 8137 Oct 10 11:59 | 0° $\mathbb{M}$                      |            | asc. node        | 8138 Sep 09 12:52 | 11° $\mathbb{M}$ 38'34               |            |
| evening rise     | 8137 Oct 12 11:04 | 4° $\mathbb{M}$ 03'45                |            | morning set      | 8138 Sep 12 18:19 | 18° $\mathbb{M}$ 20'52               |            |
|                  | 8137 Oct 26 15:22 | 0° $\mathfrak{A}$                    |            |                  | 8138 Sep 18 02:36 | 0° $\underline{\mathfrak{A}}$        |            |
| desc. node       | 8137 Oct 27 10:43 | 1° $\mathfrak{A}$ 17'23              |            | superior conj    | 8138 Sep 19 15:56 | 3° $\underline{\mathfrak{A}}$ 26'44  | 1°27'00    |
| evening max el   | 8137 Nov 14 14:59 | 24° $\mathfrak{A}$ 44'35             | 27°29'06   | minimum elong    | 8138 Sep 19 13:56 | 3° $\underline{\mathfrak{A}}$ 15'42  | 1°26'46    |
|                  | 8137 Nov 21 11:40 | 0° $\mathfrak{S}$                    |            | max. Earth dist. | 8138 Sep 20 07:13 | 4° $\underline{\mathfrak{A}}$ 51'22  | 1.31894 AU |
| retrograde       | 8137 Nov 28 08:40 | 2° $\mathfrak{S}$ 02'30              |            | evening rise     | 8138 Sep 26 14:08 | 18° $\underline{\mathfrak{A}}$ 28'45 |            |
|                  | 8137 Dec 04 18:08 | 30° $\mathbb{R}$ $\mathfrak{A}$      |            |                  | 8138 Oct 02 07:44 | 0° $\mathbb{M}$                      |            |
| evening set      | 8137 Dec 05 10:30 | 29° $\mathfrak{A}$ 32'35             |            | desc. node       | 8138 Oct 14 07:48 | 20° $\mathbb{M}$ 28'05               |            |
| min. Earth dist. | 8137 Dec 09 03:27 | 26° $\mathfrak{A}$ 25'10             | 0.63139 AU |                  | 8138 Oct 21 07:08 | 0° $\mathfrak{A}$                    |            |
| inferior conj    | 8137 Dec 11 21:08 | 23° $\mathfrak{A}$ 43'25             | -2°32'20   | evening max el   | 8138 Oct 27 21:57 | 7° $\mathfrak{A}$ 14'31              | 27°11'22   |
| minimum elong    | 8137 Dec 12 01:56 | 23° $\mathfrak{A}$ 31'34             | 2°30'19    | retrograde       | 8138 Nov 10 18:57 | 14° $\mathfrak{A}$ 26'03             |            |
| morning rise     | 8137 Dec 18 19:20 | 18° $\mathfrak{A}$ 29'59             |            | evening set      | 8138 Nov 17 19:49 | 12° $\mathfrak{A}$ 13'10             |            |
| asc. node        | 8137 Dec 19 15:19 | 18° $\mathfrak{A}$ 14'52             |            | min. Earth dist. | 8138 Nov 21 12:43 | 9° $\mathfrak{A}$ 28'38              | 0.61156 AU |
| direct           | 8137 Dec 21 03:41 | 18° $\mathfrak{A}$ 03'54             |            | inferior conj    | 8138 Nov 24 14:48 | 6° $\mathfrak{A}$ 47'34              | -3°41'38   |
| morning max el   | 8137 Dec 27 18:43 | 21° $\mathfrak{A}$ 28'46             | 17°47'57   | minimum elong    | 8138 Nov 24 21:33 | 6° $\mathfrak{A}$ 32'51              | 3°39'20    |
|                  | 8138 Jan 03 07:01 | 0° $\mathfrak{S}$                    |            | morning rise     | 8138 Dec 02 01:32 | 1° $\mathfrak{A}$ 53'25              |            |
| morning set      | 8138 Jan 12 23:39 | 16° $\mathfrak{S}$ 23'03             |            | direct           | 8138 Dec 04 06:50 | 1° $\mathfrak{A}$ 33'10              |            |
|                  | 8138 Jan 20 21:05 | 0° $\approx$                         |            | asc. node        | 8138 Dec 06 12:21 | 1° $\mathfrak{A}$ 54'24              |            |
| desc. node       | 8138 Jan 23 09:57 | 4° $\approx$ 16'10                   |            | morning max el   | 8138 Dec 11 09:55 | 5° $\mathfrak{A}$ 08'03              | 17°56'06   |
| superior conj    | 8138 Jan 25 00:43 | 6° $\approx$ 57'29                   | -0°11'47   | morning set      | 8138 Dec 27 02:02 | 29° $\mathfrak{A}$ 46'15             |            |
| minimum elong    | 8138 Jan 24 23:30 | 6° $\approx$ 52'25                   | 0°11'28    |                  | 8138 Dec 27 05:03 | 0° $\mathfrak{S}$                    |            |
| behind sun begin | 8138 Jan 24 16:53 | 6° $\approx$ 24'58                   |            | superior conj    | 8139 Jan 06 10:52 | 18° $\mathfrak{S}$ 25'12             | 0°28'08    |
| behind sun end   | 8138 Jan 25 06:07 | 7° $\approx$ 19'50                   |            | minimum elong    | 8139 Jan 06 13:10 | 18° $\mathfrak{S}$ 35'16             | 0°27'56    |
| max. Earth dist. | 8138 Jan 31 09:26 | 17° $\approx$ 19'00                  | 1.44196 AU | desc. node       | 8139 Jan 10 06:57 | 25° $\mathfrak{S}$ 00'56             |            |
|                  | 8138 Feb 08 11:08 | 0° $\mathfrak{H}$                    |            |                  | 8139 Jan 13 06:20 | 0° $\approx$                         |            |
| evening rise     | 8138 Feb 09 06:39 | 1° $\mathfrak{H}$ 15'17              |            | max. Earth dist. | 8139 Jan 13 23:06 | 1° $\approx$ 09'16                   | 1.42599 AU |
|                  | 8138 Feb 28 16:58 | 0° $\mathbb{Y}$                      |            | evening rise     | 8139 Jan 20 02:58 | 11° $\approx$ 05'47                  |            |
| evening max el   | 8138 Mar 10 19:47 | 12° $\mathbb{Y}$ 35'52               | 20°56'58   |                  | 8139 Feb 01 13:05 | 0° $\mathfrak{H}$                    |            |
| asc. node        | 8138 Mar 17 14:19 | 17° $\mathbb{Y}$ 19'39               |            | evening max el   | 8139 Feb 21 14:42 | 26° $\mathfrak{H}$ 16'42             | 22°12'09   |
| retrograde       | 8138 Mar 19 06:36 | 17° $\mathbb{Y}$ 34'05               |            |                  | 8139 Feb 25 22:29 | 0° $\mathbb{Y}$                      |            |
| evening set      | 8138 Mar 23 09:52 | 15° $\mathbb{Y}$ 57'17               |            | retrograde       | 8139 Mar 03 03:42 | 1° $\mathbb{Y}$ 56'04                |            |
| inferior conj    | 8138 Mar 28 17:16 | 9° $\mathbb{Y}$ 45'42                | 2°58'08    | asc. node        | 8139 Mar 04 11:24 | 1° $\mathbb{Y}$ 47'11                |            |
| minimum elong    | 8138 Mar 28 15:20 | 9° $\mathbb{Y}$ 52'22                | 2°57'45    | evening set      | 8139 Mar 07 17:45 | 0° $\mathbb{Y}$ 04'01                |            |
| min. Earth dist. | 8138 Mar 29 04:01 | 9° $\mathbb{Y}$ 08'30                | 0.68066 AU |                  | 8139 Mar 07 19:40 | 30° $\mathbb{R}$ $\mathfrak{H}$      |            |
| morning rise     | 8138 Apr 02 20:35 | 3° $\mathbb{Y}$ 30'59                |            | inferior conj    | 8139 Mar 13 01:42 | 23° $\mathfrak{H}$ 43'07             | 2°29'52    |
| direct           | 8138 Apr 08 05:15 | 1° $\mathbb{Y}$ 08'39                |            | minimum elong    | 8139 Mar 12 23:27 | 23° $\mathfrak{H}$ 50'58             | 2°29'17    |
| morning max el   | 8138 Apr 18 22:41 | 7° $\mathbb{Y}$ 32'48                | 23°42'31   | min. Earth dist. | 8139 Mar 13 00:00 | 23° $\mathfrak{H}$ 49'03             | 0.68394 AU |
| desc. node       | 8138 Apr 21 09:38 | 10° $\mathbb{Y}$ 10'06               |            | morning rise     | 8139 Mar 18 04:59 | 17° $\mathfrak{H}$ 32'38             |            |
|                  | 8138 May 06 10:59 | 0° $\mathfrak{B}$                    |            | direct           | 8139 Mar 22 23:38 | 15° $\mathfrak{H}$ 31'11             |            |
| morning set      | 8138 May 24 05:55 | 28° $\mathfrak{B}$ 03'55             |            | morning max el   | 8139 Apr 01 09:58 | 21° $\mathfrak{H}$ 03'18             | 22°13'40   |
|                  | 8138 May 25 09:03 | 0° $\mathbb{I}$                      |            | desc. node       | 8139 Apr 08 06:36 | 29° $\mathfrak{H}$ 00'10             |            |
| max. Earth dist. | 8138 May 28 02:37 | 4° $\mathbb{I}$ 45'21                | 1.38749 AU |                  | 8139 Apr 09 01:12 | 0° $\mathbb{Y}$                      |            |
| superior conj    | 8138 Jun 04 13:20 | 18° $\mathbb{I}$ 19'26               | -1°20'34   |                  | 8139 Apr 29 17:05 | 0° $\mathfrak{B}$                    |            |
| minimum elong    | 8138 Jun 04 18:15 | 18° $\mathbb{I}$ 42'33               | 1°20'00    | morning set      | 8139 May 04 17:55 | 8° $\mathfrak{B}$ 01'10              |            |
|                  | 8138 Jun 10 15:20 | 0° $\mathfrak{S}$                    |            | max. Earth dist. | 8139 May 10 00:42 | 16° $\mathfrak{B}$ 44'22             | 1.40987 AU |
| evening rise     | 8138 Jun 13 17:16 | 6° $\mathfrak{S}$ 00'48              |            | superior conj    | 8139 May 17 19:31 | 0° $\mathbb{I}$ 13'11                | -1°48'09   |
| asc. node        | 8138 Jun 13 13:21 | 5° $\mathfrak{S}$ 41'46              |            | minimum elong    | 8139 May 18 01:18 | 0° $\mathbb{I}$ 38'59                | 1°47'42    |
|                  | 8138 Jun 27 19:44 | 0° $\Omega$                          |            |                  | 8139 May 17 16:33 | 0° $\mathbb{I}$                      |            |
| evening max el   | 8138 Jun 29 23:52 | 2° $\Omega$ 23'35                    | 18°49'10   | evening rise     | 8139 May 28 04:17 | 19° $\mathbb{I}$ 15'33               |            |
| retrograde       | 8138 Jul 08 08:13 | 6° $\Omega$ 31'32                    |            | asc. node        | 8139 May 31 10:24 | 25° $\mathbb{I}$ 18'29               |            |
| evening set      | 8138 Jul 10 08:15 | 6° $\Omega$ 18'12                    |            |                  |                   |                                      |            |

|                  |                   |             |            |                     |                   |             |            |
|------------------|-------------------|-------------|------------|---------------------|-------------------|-------------|------------|
|                  | 8139 Jun 03 00:31 | 0°☿         |            | retrograde          | 8140 Jun 02 08:44 | 1°☿23'18    |            |
| evening max el   | 8139 Jun 13 06:53 | 14°☿58'44   | 18°17'26   | evening set         | 8140 Jun 04 23:23 | 0°☿51'16    |            |
| retrograde       | 8139 Jun 20 12:10 | 18°☿36'04   |            |                     | 8140 Jun 06 15:10 | 30°☿II      |            |
| evening set      | 8139 Jun 22 19:23 | 18°☿14'48   |            | inferior conj       | 8140 Jun 11 13:05 | 25°☿II50'53 | 2°29'49    |
| inferior conj    | 8139 Jun 30 01:48 | 13°☿34'32   | 1°28'30    | minimum elong       | 8140 Jun 11 16:04 | 25°☿II43'33 | 2°28'55    |
| minimum elong    | 8139 Jun 30 04:28 | 13°☿28'51   | 1°27'29    | min. Earth dist.    | 8140 Jun 14 16:37 | 22°☿II47'01 | 0.61190 AU |
| min. Earth dist. | 8139 Jul 03 11:20 | 10°☿43'03   | 0.58949 AU | morning rise        | 8140 Jun 18 06:27 | 19°☿II52'11 |            |
| desc. node       | 8139 Jul 05 06:00 | 9°☿22'04    |            | desc. node          | 8140 Jun 21 03:02 | 18°☿II20'58 |            |
| morning rise     | 8139 Jul 07 10:24 | 7°☿58'53    |            | direct              | 8140 Jun 24 22:18 | 17°☿II37'14 |            |
| direct           | 8139 Jul 13 16:10 | 6°☿13'47    |            | morning max el      | 8140 Jul 09 04:32 | 25°☿II36'42 | 27°54'00   |
| morning max el   | 8139 Jul 28 01:13 | 14°☿00'46   | 27°23'28   |                     | 8140 Jul 13 05:49 | 0°☿         |            |
|                  | 8139 Aug 09 20:09 | 0°☿         |            |                     | 8140 Aug 02 07:58 | 0°☿         |            |
|                  | 8139 Aug 26 16:53 | 0°☿         |            | morning set         | 8140 Aug 11 06:01 | 17°☿II12'43 |            |
| asc. node        | 8139 Aug 27 09:52 | 1°☿II27'56  |            | asc. node           | 8140 Aug 13 06:51 | 21°☿II27'38 |            |
| morning set      | 8139 Aug 28 02:25 | 2°☿II54'33  |            | max. Earth dist.    | 8140 Aug 17 02:32 | 29°☿II41'09 | 1.31889 AU |
| max. Earth dist. | 8139 Sep 03 17:36 | 17°☿II19'31 | 1.31665 AU |                     | 8140 Aug 17 05:59 | 0°☿         |            |
|                  |                   |             |            |                     |                   |             |            |
| superior conj    | 8139 Sep 04 03:45 | 18°☿II15'47 | 1°11'51    | superior conj       | 8140 Aug 18 14:21 | 2°☿II57'43  | 0°51'56    |
| minimum elong    | 8139 Sep 04 01:29 | 18°☿II03'17 | 1°11'27    | minimum elong       | 8140 Aug 18 12:20 | 2°☿II46'33  | 0°51'29    |
|                  | 8139 Sep 09 11:35 | 0°☿         |            | evening rise        | 8140 Aug 25 08:57 | 17°☿II48'04 |            |
| evening rise     | 8139 Sep 10 22:08 | 3°☿II05'39  |            |                     | 8140 Aug 31 07:42 | 0°☿         |            |
|                  | 8139 Sep 25 05:24 | 0°☿II       |            | desc. node          | 8140 Sep 17 01:58 | 26°☿II06'46 |            |
| desc. node       | 8139 Oct 01 04:53 | 8°☿II50'49  |            | evening max el      | 8140 Sep 20 14:00 | 29°☿II48'00 | 24°59'00   |
| evening max el   | 8139 Oct 09 22:02 | 18°☿II56'17 | 26°19'43   |                     | 8140 Sep 20 19:03 | 0°☿II       |            |
| retrograde       | 8139 Oct 23 20:05 | 26°☿II01'32 |            | retrograde          | 8140 Oct 04 10:37 | 6°☿II47'18  |            |
| evening set      | 8139 Oct 30 10:09 | 24°☿II15'59 |            | evening set         | 8140 Oct 10 00:58 | 5°☿II36'27  |            |
| min. Earth dist. | 8139 Nov 03 11:16 | 21°☿II41'29 | 0.59071 AU | min. Earth dist.    | 8140 Oct 15 01:20 | 2°☿II53'42  | 0.57102 AU |
| inferior conj    | 8139 Nov 06 15:49 | 19°☿II16'45 | -4°44'01   | inferior conj       | 8140 Oct 17 21:14 | 1°☿II02'04  | -5°26'16   |
| minimum elong    | 8139 Nov 06 22:53 | 19°☿II03'21 | 4°42'21    | minimum elong       | 8140 Oct 18 01:03 | 0°☿II55'45  | 5°25'51    |
| morning rise     | 8139 Nov 14 13:54 | 14°☿II44'53 |            |                     | 8140 Oct 19 11:26 | 30°☿II      |            |
| direct           | 8139 Nov 16 20:07 | 14°☿II27'16 |            | morning rise        | 8140 Oct 26 03:26 | 26°☿II53'10 |            |
| asc. node        | 8139 Nov 23 09:25 | 17°☿II05'15 |            | direct              | 8140 Oct 28 15:16 | 26°☿II35'24 |            |
| morning max el   | 8139 Nov 24 19:30 | 18°☿II20'50 | 18°24'04   |                     | 8140 Nov 05 18:19 | 0°☿II       |            |
|                  | 8139 Dec 03 06:15 | 0°☿II       |            | morning max el      | 8140 Nov 06 19:54 | 0°☿II57'26  | 19°13'33   |
| morning set      | 8139 Dec 10 17:35 | 13°☿II45'48 |            | asc. node           | 8140 Nov 09 06:26 | 3°☿II34'24  |            |
|                  | 8139 Dec 19 07:12 | 0°☿II       |            | morning set         | 8140 Nov 23 18:08 | 28°☿II09'53 |            |
|                  |                   |             |            |                     | 8140 Nov 24 16:14 | 0°☿II       |            |
| superior conj    | 8139 Dec 19 19:45 | 0°☿II57'50  | 0°59'30    |                     |                   |             |            |
| minimum elong    | 8139 Dec 19 23:11 | 1°☿II13'37  | 0°59'12    | superior conj       | 8140 Dec 01 22:19 | 14°☿II21'20 | 1°21'38    |
| max. Earth dist. | 8139 Dec 27 08:14 | 14°☿II21'04 | 1.40599 AU | minimum elong       | 8140 Dec 02 01:18 | 14°☿II35'46 | 1°21'29    |
| desc. node       | 8139 Dec 28 03:56 | 15°☿II34'52 |            | max. Earth dist.    | 8140 Dec 08 14:03 | 26°☿II50'44 | 1.38436 AU |
| evening rise     | 8139 Dec 31 18:32 | 21°☿II34'51 |            |                     | 8140 Dec 10 08:14 | 0°☿II       |            |
|                  | 8140 Jan 05 20:11 | 0°☿II       |            | evening rise        | 8140 Dec 12 08:13 | 3°☿II30'58  |            |
|                  | 8140 Jan 26 15:10 | 0°☿II       |            | desc. node          | 8140 Dec 14 00:57 | 6°☿II26'27  |            |
| evening max el   | 8140 Feb 04 05:50 | 9°☿II59'48  | 23°32'04   |                     | 8140 Dec 28 23:15 | 0°☿II       |            |
| retrograde       | 8140 Feb 14 22:01 | 16°☿II18'02 |            | evening max el      | 8141 Jan 16 19:03 | 23°☿II45'44 | 24°50'21   |
| asc. node        | 8140 Feb 19 08:31 | 14°☿II41'55 |            |                     | 8141 Jan 25 10:45 | 0°☿II       |            |
| evening set      | 8140 Feb 20 00:00 | 14°☿II11'11 |            | retrograde          | 8141 Jan 28 12:30 | 0°☿II35'31  |            |
| inferior conj    | 8140 Feb 25 10:09 | 7°☿II44'22  | 1°52'45    |                     | 8141 Jan 31 09:25 | 30°☿II      |            |
| minimum elong    | 8140 Feb 25 08:01 | 7°☿II51'41  | 1°52'05    | evening set         | 8141 Feb 03 03:06 | 28°☿II15'23 |            |
| min. Earth dist. | 8140 Feb 24 20:40 | 8°☿II30'33  | 0.68307 AU | asc. node           | 8141 Feb 05 05:36 | 26°☿II09'35 |            |
| morning rise     | 8140 Mar 01 16:00 | 1°☿II39'26  |            | min. Earth dist.    | 8141 Feb 07 15:54 | 23°☿II09'07 | 0.67827 AU |
| direct           | 8140 Mar 05 20:51 | 0°☿II00'36  |            | inferior conj       | 8141 Feb 08 16:47 | 21°☿II46'53 | 1°07'23    |
| morning max el   | 8140 Mar 14 03:07 | 4°☿II44'39  | 20°52'05   | minimum elong       | 8141 Feb 08 15:16 | 21°☿II51'55 | 1°06'53    |
| desc. node       | 8140 Mar 25 03:33 | 18°☿II27'13 |            | morning rise        | 8141 Feb 14 03:41 | 15°☿II48'57 |            |
|                  | 8140 Apr 02 03:07 | 0°☿II       |            | direct              | 8141 Feb 17 19:39 | 14°☿II31'48 |            |
| morning set      | 8140 Apr 13 03:36 | 16°☿II47'16 |            | morning max el      | 8141 Feb 25 04:06 | 18°☿II38'13 | 19°42'57   |
| max. Earth dist. | 8140 Apr 21 05:31 | 29°☿II38'41 | 1.42979 AU |                     | 8141 Mar 06 06:42 | 0°☿II       |            |
|                  | 8140 Apr 21 10:46 | 0°☿II       |            | greatest brilliancy | 8141 Mar 09 22:19 | 5°☿II15'51  | -0.6m      |
|                  |                   |             |            | desc. node          | 8141 Mar 12 00:30 | 8°☿II21'25  |            |
| superior conj    | 8140 Apr 28 03:23 | 11°☿II05'23 | -2°07'02   | morning set         | 8141 Mar 23 00:52 | 25°☿II05'24 |            |
| minimum elong    | 8140 Apr 28 07:18 | 11°☿II21'53 | 2°06'58    |                     | 8141 Mar 26 05:06 | 0°☿II       |            |
|                  | 8140 May 09 00:22 | 0°☿II       |            | max. Earth dist.    | 8141 Apr 03 17:01 | 13°☿II19'05 | 1.44485 AU |
| evening rise     | 8140 May 10 00:24 | 1°☿II46'54  |            |                     |                   |             |            |
| asc. node        | 8140 May 17 07:27 | 14°☿II35'32 |            | superior conj       | 8141 Apr 08 10:21 | 20°☿II52'18 | -2°11'04   |
| evening max el   | 8140 May 26 18:44 | 28°☿II00'33 | 18°05'29   | minimum elong       | 8141 Apr 08 08:27 | 20°☿II44'38 | 2°11'05    |
|                  | 8140 May 29 04:37 | 0°☿II       |            |                     | 8141 Apr 14 00:38 | 0°☿II       |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| evening rise     | 8141 Apr 22 00:58 | 13°♄24'53 |            | superior conj       | 8142 Mar 18 20:56 | 29°♄50'10 | -1°55'23   |
|                  | 8141 May 01 23:20 | 0°♄       |            | minimum elong       | 8142 Mar 18 12:35 | 29°♄17'21 | 1°54'48    |
| asc. node        | 8141 May 04 04:31 | 3°♄26'09  |            |                     | 8142 Mar 18 23:27 | 0°♄       |            |
| evening max el   | 8141 May 10 08:03 | 11°♄20'17 | 18°12'34   | evening rise        | 8142 Apr 03 02:23 | 24°♄04'09 |            |
| retrograde       | 8141 May 16 17:17 | 14°♄43'00 |            |                     | 8142 Apr 06 18:27 | 0°♄       |            |
| evening set      | 8141 May 19 15:05 | 13°♄58'21 |            | greatest brilliancy | 8142 Apr 09 05:37 | 3°♄58'41  | -0.9m      |
| inferior conj    | 8141 May 25 16:07 | 8°♄39'30  | 3°05'58    | asc. node           | 8142 Apr 21 01:34 | 21°♄41'58 |            |
| minimum elong    | 8141 May 25 18:08 | 8°♄33'56  | 3°05'31    | evening max el      | 8142 Apr 23 20:01 | 24°♄51'06 | 18°37'53   |
| min. Earth dist. | 8141 May 28 07:06 | 5°♄46'07  | 0.63340 AU | retrograde          | 8142 Apr 30 09:32 | 28°♄26'52 |            |
| morning rise     | 8141 May 31 19:47 | 2°♄27'59  |            | evening set         | 8142 May 03 14:39 | 27°♄28'18 |            |
|                  | 8141 Jun 05 22:44 | 30°♄      |            | inferior conj       | 8142 May 09 06:52 | 21°♄52'33 | 3°22'01    |
| direct           | 8141 Jun 07 14:08 | 29°♄51'07 |            | minimum elong       | 8142 May 09 07:32 | 21°♄50'33 | 3°21'52    |
| desc. node       | 8141 Jun 08 00:03 | 29°♄51'40 |            | min. Earth dist.    | 8142 May 11 06:46 | 19°♄27'22 | 0.65202 AU |
|                  | 8141 Jun 09 06:34 | 0°♄       |            | morning rise        | 8142 May 14 23:40 | 15°♄35'40 |            |
| morning max el   | 8141 Jun 21 12:40 | 7°♄53'56  | 27°46'24   | direct              | 8142 May 21 13:48 | 12°♄48'57 |            |
|                  | 8141 Jul 08 12:40 | 0°♄       |            | desc. node          | 8142 May 25 21:03 | 13°♄48'49 |            |
|                  | 8141 Jul 25 13:06 | 0°♄       |            | morning max el      | 8142 Jun 03 22:52 | 20°♄42'36 | 27°04'59   |
| morning set      | 8141 Jul 26 02:46 | 1°♄08'09  |            |                     | 8142 Jun 11 22:56 | 0°♄       |            |
| max. Earth dist. | 8141 Jul 31 05:52 | 11°♄43'23 | 1.32584 AU |                     | 8142 Jul 01 15:36 | 0°♄       |            |
| asc. node        | 8141 Jul 31 03:48 | 11°♄32'31 |            | morning set         | 8142 Jul 09 13:53 | 14°♄33'01 |            |
|                  |                   |           |            | max. Earth dist.    | 8142 Jul 14 00:03 | 23°♄18'36 | 1.33768 AU |
| superior conj    | 8141 Aug 02 21:51 | 17°♄26'14 | 0°27'42    |                     | 8142 Jul 17 05:56 | 0°♄       |            |
| minimum elong    | 8141 Aug 02 20:35 | 17°♄19'20 | 0°27'20    |                     |                   |           |            |
|                  | 8141 Aug 08 16:45 | 0°♄       |            | superior conj       | 8142 Jul 18 00:10 | 1°♄35'37  | -0°00'16   |
| evening rise     | 8141 Aug 09 20:37 | 2°♄29'25  |            | minimum elong       | 8142 Jul 18 00:12 | 1°♄35'43  | 0°00'23    |
|                  | 8141 Aug 24 19:06 | 0°♄       |            | behind sun begin    | 8142 Jul 17 18:35 | 1°♄06'14  |            |
| evening max el   | 8141 Sep 02 01:19 | 10°♄05'34 | 23°21'45   | behind sun end      | 8142 Jul 18 05:48 | 2°♄05'14  |            |
| desc. node       | 8141 Sep 03 23:03 | 11°♄49'23 |            | asc. node           | 8142 Jul 18 00:47 | 1°♄38'52  |            |
| retrograde       | 8141 Sep 15 13:03 | 16°♄50'26 |            | evening rise        | 8142 Jul 25 07:16 | 17°♄04'20 |            |
| evening set      | 8141 Sep 19 16:14 | 16°♄13'04 |            |                     | 8142 Jul 31 17:31 | 0°♄       |            |
| min. Earth dist. | 8141 Sep 26 10:54 | 13°♄03'34 | 0.55556 AU | evening max el      | 8142 Aug 14 16:33 | 20°♄23'37 | 21°44'38   |
| inferior conj    | 8141 Sep 28 06:39 | 11°♄59'15 | -5°29'47   | desc. node          | 8142 Aug 21 20:07 | 25°♄27'22 |            |
| minimum elong    | 8141 Sep 28 03:25 | 12°♄04'02 | 5°29'32    | retrograde          | 8142 Aug 27 04:07 | 26°♄35'11 |            |
| morning rise     | 8141 Oct 06 16:45 | 8°♄07'20  |            | evening set         | 8142 Aug 29 21:32 | 26°♄18'28 |            |
| direct           | 8141 Oct 09 14:53 | 7°♄46'40  |            | inferior conj       | 8142 Sep 08 01:52 | 22°♄19'08 | -4°39'19   |
| morning max el   | 8141 Oct 20 08:02 | 12°♄47'45 | 20°25'28   | minimum elong       | 8142 Sep 07 16:49 | 22°♄31'49 | 4°37'16    |
| asc. node        | 8141 Oct 27 03:25 | 21°♄05'19 |            | min. Earth dist.    | 8142 Sep 07 19:33 | 22°♄27'59 | 0.54756 AU |
|                  | 8141 Nov 01 11:45 | 0°♄       |            | morning rise        | 8142 Sep 16 13:16 | 18°♄29'30 |            |
| morning set      | 8141 Nov 08 00:32 | 12°♄48'44 |            | direct              | 8142 Sep 20 01:28 | 18°♄02'34 |            |
|                  |                   |           |            | morning max el      | 8142 Oct 02 07:21 | 23°♄49'26 | 21°57'41   |
| superior conj    | 8141 Nov 15 13:41 | 28°♄20'51 | 1°35'10    |                     | 8142 Oct 07 19:12 | 0°♄       |            |
| minimum elong    | 8141 Nov 15 15:30 | 28°♄30'01 | 1°35'11    | asc. node           | 8142 Oct 14 00:24 | 9°♄24'10  |            |
|                  | 8141 Nov 16 09:19 | 0°♄       |            | morning set         | 8142 Oct 23 10:28 | 27°♄35'52 |            |
| max. Earth dist. | 8141 Nov 20 20:55 | 8°♄49'47  | 1.36358 AU |                     | 8142 Oct 24 13:51 | 0°♄       |            |
| evening rise     | 8141 Nov 24 17:50 | 16°♄05'56 |            |                     |                   |           |            |
| desc. node       | 8141 Nov 30 21:58 | 26°♄59'14 |            | superior conj       | 8142 Oct 30 14:03 | 12°♄45'11 | 1°41'04    |
|                  | 8141 Dec 02 17:06 | 0°♄       |            | minimum elong       | 8142 Oct 30 14:31 | 12°♄47'38 | 1°41'09    |
|                  | 8141 Dec 23 11:37 | 0°♄       |            | max. Earth dist.    | 8142 Nov 03 10:16 | 20°♄42'35 | 1.34568 AU |
| evening max el   | 8141 Dec 30 08:03 | 7°♄32'16  | 26°00'06   | evening rise        | 8142 Nov 07 19:37 | 29°♄23'59 |            |
| retrograde       | 8142 Jan 11 22:13 | 14°♄42'27 |            |                     | 8142 Nov 08 03:07 | 0°♄       |            |
| evening set      | 8142 Jan 18 01:21 | 12°♄12'09 |            | desc. node          | 8142 Nov 17 19:00 | 17°♄18'46 |            |
| min. Earth dist. | 8142 Jan 22 07:26 | 7°♄40'22  | 0.66966 AU |                     | 8142 Nov 25 20:35 | 0°♄       |            |
| asc. node        | 8142 Jan 23 02:39 | 6°♄40'34  |            | evening max el      | 8142 Dec 12 21:22 | 21°♄12'55 | 26°53'54   |
| inferior conj    | 8142 Jan 23 19:43 | 5°♄47'07  | 0°14'12    | retrograde          | 8142 Dec 26 02:16 | 28°♄31'50 |            |
| minimum elong    | 8142 Jan 23 19:21 | 5°♄48'17  | 0°14'10    | evening set         | 8143 Jan 01 16:48 | 25°♄56'03 |            |
| transit middle   | 8142 Jan 23 19:21 | 5°♄48'17  | 0°14'10    | min. Earth dist.    | 8143 Jan 05 16:58 | 21°♄58'40 | 0.65743 AU |
| transit begin    | 8142 Jan 23 18:00 | 5°♄52'30  |            | inferior conj       | 8143 Jan 07 16:49 | 19°♄40'25 | -0°46'09   |
| transit end      | 8142 Jan 23 20:42 | 5°♄44'03  |            | minimum elong       | 8143 Jan 07 18:09 | 19°♄36'35 | 0°45'26    |
| morning rise     | 8142 Jan 29 13:58 | 29°♄58'03 |            | asc. node           | 8143 Jan 09 23:43 | 17°♄07'54 |            |
|                  | 8142 Jan 29 12:41 | 30°♄      |            | morning rise        | 8143 Jan 13 20:35 | 14°♄02'41 |            |
| direct           | 8142 Feb 01 18:34 | 28°♄59'53 |            | direct              | 8143 Jan 16 15:40 | 13°♄19'54 |            |
|                  | 8142 Feb 05 03:31 | 0°♄       |            | morning max el      | 8143 Jan 23 02:42 | 16°♄46'44 | 18°11'50   |
| morning max el   | 8142 Feb 08 12:36 | 2°♄40'50  | 18°49'08   |                     | 8143 Feb 01 21:54 | 0°♄       |            |
| desc. node       | 8142 Feb 26 21:27 | 28°♄35'28 |            | morning set         | 8143 Feb 10 23:32 | 14°♄33'17 |            |
|                  | 8142 Feb 27 19:07 | 0°♄       |            | desc. node          | 8143 Feb 13 18:24 | 19°♄03'34 |            |
| morning set      | 8142 Mar 02 10:13 | 4°♄06'27  |            |                     | 8143 Feb 20 14:22 | 0°♄       |            |
| max. Earth dist. | 8142 Mar 17 09:37 | 27°♄31'34 | 1.45344 AU |                     |                   |           |            |

|                     |                   |                           |            |                  |                   |                       |            |
|---------------------|-------------------|---------------------------|------------|------------------|-------------------|-----------------------|------------|
| superior conj       | 8143 Feb 26 02:08 | 8° $\text{H}$ 40'31       | -1°21'13   | morning set      | 8144 Jan 23 17:26 | 26° $\text{Z}$ 24'41  |            |
| minimum elong       | 8143 Feb 25 17:09 | 8° $\text{H}$ 05'13       | 1°20'07    |                  | 8144 Jan 25 20:18 | 0° $\approx$          |            |
| max. Earth dist.    | 8143 Feb 28 05:09 | 12° $\text{H}$ 00'41      | 1.45475 AU | desc. node       | 8144 Jan 31 15:22 | 9° $\approx$ 41'33    |            |
|                     | 8143 Mar 11 17:54 | 0° $\text{Y}$             |            |                  |                   |                       |            |
| evening rise        | 8143 Mar 14 05:19 | 3° $\text{Y}$ 51'18       |            | superior conj    | 8144 Feb 05 21:08 | 18° $\approx$ 15'24   | -0°37'19   |
| greatest brilliancy | 8143 Mar 26 03:44 | 22° $\text{Y}$ 17'58      | -0.7m      | minimum elong    | 8144 Feb 05 16:54 | 17° $\approx$ 58'17   | 0°36'37    |
|                     | 8143 Mar 31 09:31 | 0° $\text{Z}$             |            | max. Earth dist. | 8144 Feb 11 00:44 | 26° $\approx$ 29'31   | 1.44865 AU |
| evening max el      | 8143 Apr 07 04:20 | 8° $\text{Z}$ 26'59       | 19°20'17   |                  | 8144 Feb 13 06:07 | 0° $\text{H}$         |            |
| asc. node           | 8143 Apr 07 22:38 | 9° $\text{Z}$ 11'42       |            | evening rise     | 8144 Feb 21 18:18 | 13° $\text{H}$ 12'09  |            |
| retrograde          | 8143 Apr 14 06:09 | 12° $\text{Z}$ 27'30      |            |                  | 8144 Mar 03 20:37 | 0° $\text{Y}$         |            |
| evening set         | 8143 Apr 17 19:09 | 11° $\text{Z}$ 14'16      |            | evening max el   | 8144 Mar 20 07:33 | 22° $\text{Y}$ 05'24  | 20°17'53   |
| inferior conj       | 8143 Apr 23 05:51 | 5° $\text{Z}$ 23'00       | 3°22'20    | asc. node        | 8144 Mar 24 19:43 | 25° $\text{Y}$ 42'47  |            |
| minimum elong       | 8143 Apr 23 05:16 | 5° $\text{Z}$ 24'57       | 3°22'13    | retrograde       | 8144 Mar 28 04:36 | 26° $\text{Y}$ 40'30  |            |
| min. Earth dist.    | 8143 Apr 24 14:27 | 3° $\text{Z}$ 36'55       | 0.66667 AU | evening set      | 8144 Apr 01 02:24 | 25° $\text{Y}$ 12'10  |            |
|                     | 8143 Apr 27 16:11 | 30° $\text{R}$ $\text{Y}$ |            | inferior conj    | 8144 Apr 06 10:20 | 19° $\text{Y}$ 07'12  | 3°10'04    |
| morning rise        | 8143 Apr 28 15:00 | 29° $\text{Y}$ 05'13      |            | minimum elong    | 8144 Apr 06 08:47 | 19° $\text{Y}$ 12'29  | 3°09'48    |
| direct              | 8143 May 04 19:53 | 26° $\text{Y}$ 20'54      |            | min. Earth dist. | 8144 Apr 07 04:39 | 18° $\text{Y}$ 04'51  | 0.67689 AU |
| desc. node          | 8143 May 12 18:03 | 29° $\text{Y}$ 42'10      |            | morning rise     | 8144 Apr 11 14:57 | 12° $\text{Y}$ 50'59  |            |
|                     | 8143 May 13 03:16 | 0° $\text{Z}$             |            | direct           | 8144 Apr 17 07:24 | 10° $\text{Y}$ 18'51  |            |
| morning max el      | 8143 May 17 08:51 | 3° $\text{Z}$ 50'28       | 25°57'36   | desc. node       | 8144 Apr 28 15:04 | 17° $\text{Y}$ 02'17  |            |
|                     | 8143 Jun 06 07:03 | 0° $\text{II}$            |            | morning max el   | 8144 Apr 28 18:03 | 17° $\text{Y}$ 09'49  | 24°33'57   |
| morning set         | 8143 Jun 22 11:33 | 27° $\text{II}$ 16'07     |            |                  | 8144 May 09 10:32 | 0° $\text{Z}$         |            |
|                     | 8143 Jun 23 22:48 | 0° $\text{Z}$             |            |                  | 8144 May 29 07:22 | 0° $\text{II}$        |            |
| max. Earth dist.    | 8143 Jun 26 07:19 | 4° $\text{Z}$ 28'26       | 1.35427 AU | morning set      | 8144 Jun 03 15:01 | 9° $\text{II}$ 05'24  |            |
|                     |                   |                           |            | max. Earth dist. | 8144 Jun 07 06:04 | 15° $\text{II}$ 34'01 | 1.37474 AU |
| superior conj       | 8143 Jul 01 18:43 | 15° $\text{Z}$ 18'00      | -0°30'58   |                  |                   |                       |            |
| minimum elong       | 8143 Jul 01 20:32 | 15° $\text{Z}$ 27'10      | 0°30'46    | superior conj    | 8144 Jun 14 02:22 | 28° $\text{II}$ 25'41 | -1°02'46   |
| asc. node           | 8143 Jul 04 21:46 | 21° $\text{Z}$ 41'57      |            | minimum elong    | 8144 Jun 14 06:13 | 28° $\text{II}$ 44'21 | 1°02'16    |
|                     | 8143 Jul 08 22:05 | 0° $\text{Z}$             |            |                  | 8144 Jun 14 21:47 | 0° $\text{Z}$         |            |
| evening rise        | 8143 Jul 09 14:48 | 1° $\text{Z}$ 26'05       |            | asc. node        | 8144 Jun 20 18:47 | 11° $\text{Z}$ 38'16  |            |
|                     | 8143 Jul 26 15:03 | 0° $\text{H}$             |            | evening rise     | 8144 Jun 22 16:52 | 15° $\text{Z}$ 28'22  |            |
| evening max el      | 8143 Jul 27 18:57 | 1° $\text{H}$ 12'29       | 20°20'51   |                  | 8144 Jun 30 08:11 | 0° $\text{Z}$         |            |
| retrograde          | 8143 Aug 07 16:30 | 6° $\text{H}$ 35'25       |            | evening max el   | 8144 Jul 09 10:29 | 12° $\text{Z}$ 45'15  | 19°16'35   |
| desc. node          | 8143 Aug 08 17:11 | 6° $\text{H}$ 32'43       |            | retrograde       | 8144 Jul 18 15:29 | 17° $\text{Z}$ 18'15  |            |
| evening set         | 8143 Aug 09 15:56 | 6° $\text{H}$ 25'34       |            | evening set      | 8144 Jul 20 12:39 | 17° $\text{Z}$ 07'39  |            |
| inferior conj       | 8143 Aug 18 19:32 | 2° $\text{H}$ 27'58       | -3°00'45   | desc. node       | 8144 Jul 25 14:17 | 15° $\text{Z}$ 08'34  |            |
| minimum elong       | 8143 Aug 18 11:27 | 2° $\text{H}$ 39'46       | 2°58'02    | inferior conj    | 8144 Jul 29 01:50 | 12° $\text{Z}$ 58'07  | -1°03'55   |
| min. Earth dist.    | 8143 Aug 20 05:28 | 1° $\text{H}$ 38'24       | 0.54885 AU | minimum elong    | 8144 Jul 28 23:00 | 13° $\text{Z}$ 02'48  | 1°02'56    |
|                     | 8143 Aug 23 05:04 | 30° $\text{R}$ $\text{Z}$ |            | min. Earth dist. | 8144 Jul 31 18:35 | 11° $\text{Z}$ 11'18  | 0.55937 AU |
| morning rise        | 8143 Aug 27 06:08 | 28° $\text{Z}$ 20'44      |            | morning rise     | 8144 Aug 06 06:32 | 8° $\text{Z}$ 16'54   |            |
| direct              | 8143 Aug 31 11:19 | 27° $\text{Z}$ 42'28      |            | direct           | 8144 Aug 11 07:21 | 7° $\text{Z}$ 18'56   |            |
|                     | 8143 Sep 08 08:05 | 0° $\text{H}$             |            | morning max el   | 8144 Aug 25 10:24 | 14° $\text{Z}$ 28'26  | 25°25'20   |
| morning max el      | 8143 Sep 13 21:44 | 4° $\text{H}$ 14'08       | 23°42'27   |                  | 8144 Sep 06 18:04 | 0° $\text{H}$         |            |
| asc. node           | 8143 Sep 30 21:22 | 28° $\text{H}$ 19'27      |            | asc. node        | 8144 Sep 16 18:21 | 17° $\text{H}$ 41'28  |            |
|                     | 8143 Oct 01 18:42 | 0° $\text{Z}$             |            | morning set      | 8144 Sep 21 09:36 | 27° $\text{H}$ 14'05  |            |
| morning set         | 8143 Oct 07 22:04 | 12° $\text{Z}$ 26'10      |            |                  | 8144 Sep 22 16:32 | 0° $\text{Z}$         |            |
| superior conj       | 8143 Oct 14 20:28 | 27° $\text{Z}$ 25'45      | 1°40'14    | superior conj    | 8144 Sep 28 06:30 | 12° $\text{Z}$ 14'43  | 1°33'25    |
| minimum elong       | 8143 Oct 14 19:43 | 27° $\text{Z}$ 21'45      | 1°40'16    | minimum elong    | 8144 Sep 28 04:52 | 12° $\text{Z}$ 05'39  | 1°33'18    |
|                     | 8143 Oct 16 01:05 | 0° $\text{H}$             |            | max. Earth dist. | 8144 Sep 29 13:22 | 15° $\text{Z}$ 04'11  | 1.32225 AU |
| max. Earth dist.    | 8143 Oct 17 08:13 | 2° $\text{H}$ 46'25       | 1.33176 AU | evening rise     | 8144 Oct 05 08:52 | 27° $\text{Z}$ 30'04  |            |
| evening rise        | 8143 Oct 22 09:45 | 13° $\text{H}$ 15'13      |            |                  | 8144 Oct 06 14:05 | 0° $\text{H}$         |            |
|                     | 8143 Oct 31 07:52 | 0° $\text{Z}$             |            | desc. node       | 8144 Oct 21 13:07 | 26° $\text{H}$ 51'13  |            |
| desc. node          | 8143 Nov 04 16:03 | 7° $\text{Z}$ 19'01       |            |                  | 8144 Oct 23 14:51 | 0° $\text{Z}$         |            |
|                     | 8143 Nov 20 23:57 | 0° $\text{Z}$             |            | evening max el   | 8144 Nov 06 19:35 | 17° $\text{Z}$ 29'39  | 27°25'39   |
| evening max el      | 8143 Nov 25 09:58 | 4° $\text{Z}$ 36'47       | 27°24'30   | retrograde       | 8144 Nov 20 14:38 | 24° $\text{Z}$ 44'45  |            |
| retrograde          | 8143 Dec 08 23:56 | 11° $\text{Z}$ 55'56      |            | evening set      | 8144 Nov 27 17:18 | 22° $\text{Z}$ 20'30  |            |
| evening set         | 8143 Dec 15 23:10 | 9° $\text{Z}$ 21'25       |            | min. Earth dist. | 8144 Dec 01 09:27 | 19° $\text{Z}$ 24'23  | 0.62325 AU |
| min. Earth dist.    | 8143 Dec 19 18:16 | 5° $\text{Z}$ 57'02       | 0.64181 AU | inferior conj    | 8144 Dec 04 07:19 | 16° $\text{Z}$ 41'07  | -3°01'56   |
| inferior conj       | 8143 Dec 22 05:41 | 3° $\text{Z}$ 21'12       | -1°52'23   | minimum elong    | 8144 Dec 04 13:02 | 16° $\text{Z}$ 27'42  | 2°59'42    |
| minimum elong       | 8143 Dec 22 09:10 | 3° $\text{Z}$ 12'04       | 1°50'48    | morning rise     | 8144 Dec 11 10:54 | 11° $\text{Z}$ 35'42  |            |
|                     | 8143 Dec 25 16:31 | 30° $\text{R}$ $\text{Z}$ |            | direct           | 8144 Dec 13 17:38 | 11° $\text{Z}$ 12'26  |            |
| asc. node           | 8143 Dec 27 20:47 | 28° $\text{Z}$ 27'19      |            | asc. node        | 8144 Dec 13 17:51 | 11° $\text{Z}$ 12'26  |            |
| morning rise        | 8143 Dec 28 20:47 | 27° $\text{Z}$ 57'56      |            | morning max el   | 8144 Dec 20 12:40 | 14° $\text{Z}$ 40'07  | 17°49'07   |
| direct              | 8143 Dec 31 08:27 | 27° $\text{Z}$ 26'43      |            |                  | 8144 Dec 31 02:55 | 0° $\text{Z}$         |            |
|                     | 8144 Jan 05 22:35 | 0° $\text{Z}$             |            | morning set      | 8145 Jan 05 09:46 | 9° $\text{Z}$ 19'45   |            |
| morning max el      | 8144 Jan 06 19:46 | 0° $\text{Z}$ 49'23       | 17°51'38   |                  |                   |                       |            |



|                  |                   |   |            |                  |  |                   |   |            |
|------------------|-------------------|---|------------|------------------|--|-------------------|---|------------|
| superior conj    | 8145 Jan 16 16:35 | 29°  01'32     | 0°06'03    |                  |  | 8145 Dec 05 18:57 | 0°             |            |
| minimum elong    | 8145 Jan 16 17:11 | 29°  04'02     | 0°06'06    | morning set      |  | 8145 Dec 19 18:19 | 23°  00'01     |            |
| behind sun begin | 8145 Jan 16 08:56 | 28°  29'06     |            |                  |  | 8145 Dec 23 12:25 | 0°             |            |
| behind sun end   | 8145 Jan 17 01:26 | 29°  38'52     |            |                  |  |                   |   |            |
|                  | 8145 Jan 17 06:27 | 0°             |            | superior conj    |  | 8145 Dec 29 13:00 | 10°  58'55     | 0°42'32    |
| desc. node       | 8145 Jan 17 12:20 | 0°  24'47      |            | minimum elong    |  | 8145 Dec 29 16:03 | 11°  32'28     | 0°42'15    |
| max. Earth dist. | 8145 Jan 23 17:06 | 10°  38'15     | 1.43583 AU | desc. node       |  | 8146 Jan 04 09:19 | 21°  09'59     |            |
| evening rise     | 8145 Jan 31 07:38 | 22°  41'17     |            | max. Earth dist. |  | 8146 Jan 06 04:21 | 24°  31'36     | 1.41786 AU |
|                  | 8145 Feb 05 01:54 | 0°             |            |                  |  | 8146 Jan 09 16:43 | 0°             |            |
|                  | 8145 Feb 26 04:40 | 0°             |            | evening rise     |  | 8146 Jan 11 11:17 | 2°  52'14      |            |
| evening max el   | 8145 Mar 03 05:11 | 5°  44'38      | 21°27'53   |                  |  | 8146 Jan 29 11:02 | 0°             |            |
| asc. node        | 8145 Mar 11 16:51 | 10°  59'38     |            | evening max el   |  | 8146 Feb 13 22:08 | 19°  25'48     | 22°45'52   |
| retrograde       | 8145 Mar 12 02:50 | 11°  00'31     |            | retrograde       |  | 8146 Feb 23 23:02 | 25°  22'58     |            |
| evening set      | 8145 Mar 16 10:33 | 9°  17'02      |            | asc. node        |  | 8146 Feb 26 13:58 | 24°  48'24     |            |
| inferior conj    | 8145 Mar 21 17:56 | 3°  00'50      | 2°47'16    | evening set      |  | 8146 Feb 28 17:56 | 23°  42'35     |            |
| minimum elong    | 8145 Mar 21 15:49 | 3°  08'12      | 2°46'47    | inferior conj    |  | 8146 Mar 06 02:37 | 17°  00'28     | 2°15'10    |
| min. Earth dist. | 8145 Mar 21 23:12 | 2°  42'33      | 0.68260 AU | minimum elong    |  | 8146 Mar 06 00:22 | 17°  08'18     | 2°14'31    |
|                  | 8145 Mar 23 23:15 | 30°  47'47     |            | min. Earth dist. |  | 8146 Mar 05 19:51 | 17°  23'58     | 0.68406 AU |
| morning rise     | 8145 Mar 26 20:55 | 26°  47'47     |            | morning rise     |  | 8146 Mar 11 06:41 | 10°  51'56     |            |
| direct           | 8145 Mar 31 23:32 | 24°  43'15     |            | direct           |  | 8146 Mar 15 19:16 | 9°  00'09      |            |
|                  | 8145 Apr 10 13:05 | 0°             |            | morning max el   |  | 8146 Mar 24 17:16 | 14°  11'27     | 21°37'33   |
| morning max el   | 8145 Apr 11 03:51 | 0°  36'34      | 23°04'14   | desc. node       |  | 8146 Apr 02 09:00 | 24°  32'07     |            |
| desc. node       | 8145 Apr 15 12:03 | 5°  24'48      |            |                  |  | 8146 Apr 06 08:47 | 0°             |            |
|                  | 8145 May 03 07:32 | 0°             |            | morning set      |  | 8146 Apr 25 18:55 | 29°  11'54     |            |
| morning set      | 8145 May 15 18:47 | 19°  47'06     |            |                  |  | 8146 Apr 26 06:59 | 0°             |            |
| max. Earth dist. | 8145 May 20 02:19 | 27°  05'50     | 1.39711 AU | max. Earth dist. |  | 8146 May 02 02:22 | 9°  25'59      | 1.41876 AU |
|                  | 8145 May 21 18:25 | 0°             |            |                  |  |                   |   |            |
| superior conj    | 8145 May 27 19:08 | 10°  49'23     | -1°32'59   | superior conj    |  | 8146 May 09 16:19 | 22°  17'55     | -1°57'35   |
| minimum elong    | 8145 May 28 00:38 | 11°  14'42    | 1°32'25    | minimum elong    |  | 8146 May 09 21:45 | 22°  41'37    | 1°57'17    |
| evening rise     | 8145 Jun 06 10:28 | 29°  03'24   |            |                  |  | 8146 May 14 00:58 | 0°           |            |
|                  | 8145 Jun 06 22:18 | 0°           |            | evening rise     |  | 8146 May 20 15:43 | 12°  00'53   |            |
| asc. node        | 8145 Jun 07 15:50 | 1°  23'45    |            | asc. node        |  | 8146 May 25 12:53 | 20°  52'56   |            |
| evening max el   | 8145 Jun 22 12:56 | 25°  00'16   | 18°33'11   |                  |  | 8146 May 30 22:22 | 0°           |            |
| retrograde       | 8145 Jun 30 08:35 | 28°  53'41   |            | evening max el   |  | 8146 Jun 05 22:28 | 7°  48'09    | 18°10'01   |
| evening set      | 8145 Jul 02 11:19 | 28°  37'32   |            | retrograde       |  | 8146 Jun 12 19:56 | 11°  17'18   |            |
| inferior conj    | 8145 Jul 10 04:51 | 24°  09'18   | 0°40'22    | evening set      |  | 8146 Jun 15 06:17 | 10°  51'50   |            |
| minimum elong    | 8145 Jul 10 06:18 | 24°  06'29   | 0°39'42    | inferior conj    |  | 8146 Jun 22 05:10 | 6°  03'13    | 1°57'53    |
| desc. node       | 8145 Jul 12 11:22 | 22°  23'16   |            | minimum elong    |  | 8146 Jun 22 08:12 | 5°  56'22    | 1°56'49    |
| min. Earth dist. | 8145 Jul 13 12:43 | 21°  35'31   | 0.57715 AU | min. Earth dist. |  | 8146 Jun 25 13:27 | 3°  03'09    | 0.59895 AU |
| morning rise     | 8145 Jul 17 21:46 | 18°  51'09   |            | morning rise     |  | 8146 Jun 29 07:12 | 0°  16'21    |            |
| direct           | 8145 Jul 23 18:09 | 17°  24'22   |            | desc. node       |  | 8146 Jun 29 08:26 | 0°  14'30    |            |
| morning max el   | 8145 Aug 07 03:21 | 25°  01'35   | 26°49'16   |                  |  | 8146 Jun 29 18:23 | 30°  47'47   |            |
|                  | 8145 Aug 11 17:45 | 0°           |            | direct           |  | 8146 Jul 05 18:20 | 28°  17'33   |            |
|                  | 8145 Aug 30 22:21 | 0°           |            |                  |  | 8146 Jul 12 01:30 | 0°           |            |
| asc. node        | 8145 Sep 03 15:19 | 7°  22'45    |            | morning max el   |  | 8146 Jul 20 02:43 | 6°  11'40    | 27°41'09   |
| morning set      | 8145 Sep 05 19:27 | 11°  54'45   |            |                  |  | 8146 Aug 06 22:44 | 0°           |            |
|                  |                   |   |            | morning set      |  | 8146 Aug 21 01:50 | 26°  02'12   |            |
| superior conj    | 8145 Sep 12 18:13 | 27°  05'48   | 1°21'11    | asc. node        |  | 8146 Aug 21 12:17 | 27°  01'6'53 |            |
| minimum elong    | 8145 Sep 12 16:04 | 26°  53'49   | 1°20'54    |                  |  | 8146 Aug 22 19:07 | 0°           |            |
| max. Earth dist. | 8145 Sep 12 22:43 | 27°  30'46   | 1.31731 AU | max. Earth dist. |  | 8146 Aug 27 08:40 | 9°  25'03    | 1.31697 AU |
|                  | 8145 Sep 14 01:39 | 0°           |            |                  |  |                   |   |            |
| evening rise     | 8145 Sep 19 14:18 | 12°  01'00   |            | superior conj    |  | 8146 Aug 28 05:43 | 11°  22'25   | 1°03'58    |
|                  | 8145 Sep 28 17:44 | 0°           |            | minimum elong    |  | 8146 Aug 28 03:30 | 11°  20'08   | 1°03'32    |
| desc. node       | 8145 Oct 08 10:12 | 15°  43'56   |            | evening rise     |  | 8146 Sep 03 23:41 | 26°  40'38   |            |
| evening max el   | 8145 Oct 19 23:39 | 29°  39'34   | 26°53'26   |                  |  | 8146 Sep 05 13:21 | 0°           |            |
|                  | 8145 Oct 20 08:24 | 0°           |            | desc. node       |  | 8146 Sep 22 13:21 | 0°           |            |
| retrograde       | 8145 Nov 02 21:28 | 6°  49'12    |            | evening max el   |  | 8146 Sep 25 07:17 | 3°  40'54    |            |
| evening set      | 8145 Nov 09 19:12 | 4°  46'21    |            | retrograde       |  | 8146 Oct 01 20:11 | 10°  59'06   | 25°48'29   |
| min. Earth dist. | 8145 Nov 13 13:59 | 2°  47'08'14 | 0.60270 AU | evening set      |  | 8146 Oct 15 18:36 | 18°  02'32   |            |
|                  | 8145 Nov 16 04:37 | 30°  47'47   |            | min. Earth dist. |  | 8146 Oct 21 23:56 | 16°  31'28   |            |
| inferior conj    | 8145 Nov 16 18:19 | 29°  31'39   | -4°09'33   | inferior conj    |  | 8146 Oct 26 08:48 | 13°  55'32   | 0.58195 AU |
| minimum elong    | 8145 Nov 17 01:30 | 29°  16'51   | 4°07'23    | minimum elong    |  | 8146 Oct 29 11:12 | 11°  42'53   | -5°05'29   |
| morning rise     | 8145 Nov 24 10:12 | 24°  47'02   |            | morning rise     |  | 8146 Oct 29 17:25 | 11°  31'45   | 5°04'19    |
| direct           | 8145 Nov 26 15:14 | 24°  28'24   |            | direct           |  | 8146 Nov 06 13:14 | 7°  20'50    |            |
| asc. node        | 8145 Nov 30 14:53 | 25°  32'09   |            | asc. node        |  | 8146 Nov 08 21:02 | 7°  03'36    |            |
| morning max el   | 8145 Dec 04 02:00 | 28°  10'01   | 18°05'27   | morning max el   |  | 8146 Nov 17 11:53 | 11°  17'47   |            |
|                  |                   |   |            |                  |  | 8146 Nov 17 08:05 | 11°  08'33   | 18°42'24   |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8146 Nov 29 20:21 | 0°♊       |            | morning set         | 8147 Nov 17 17:28 | 21°♎42'28 |            |
| morning set      | 8146 Dec 03 14:08 | 7°♊11'16  |            |                     | 8147 Nov 21 19:41 | 0°♊       |            |
| superior conj    | 8146 Dec 12 06:01 | 23°♊54'53 | 1°09'59    | superior conj       | 8147 Nov 25 14:29 | 7°♊34'43  | 1°28'23    |
| minimum elong    | 8146 Dec 12 09:23 | 24°♊10'47 | 1°09'43    | minimum elong       | 8147 Nov 25 17:01 | 7°♊47'14  | 1°28'17    |
|                  | 8146 Dec 15 12:44 | 0°♊       |            | max. Earth dist.    | 8147 Dec 01 17:14 | 19°♊19'09 | 1.37527 AU |
| max. Earth dist. | 8146 Dec 19 11:19 | 7°♊03'40  | 1.39685 AU | evening rise        | 8147 Dec 05 10:51 | 26°♊06'39 |            |
| desc. node       | 8146 Dec 22 06:18 | 11°♊53'45 |            |                     | 8147 Dec 07 15:59 | 0°♊       |            |
| evening rise     | 8146 Dec 23 12:20 | 14°♊01'09 |            | desc. node          | 8147 Dec 09 03:18 | 2°♊31'48  |            |
|                  | 8147 Jan 02 10:42 | 0°♊       |            |                     | 8147 Dec 26 23:45 | 0°♊       |            |
| evening max el   | 8147 Jan 24 12:03 | 0°♊       |            | evening max el      | 8148 Jan 10 01:30 | 16°♊58'46 | 25°21'35   |
| retrograde       | 8147 Jan 27 12:20 | 3°♊11'09  | 24°06'01   | retrograde          | 8148 Jan 22 04:12 | 23°♊57'53 |            |
| evening set      | 8147 Feb 07 15:51 | 9°♊43'58  |            | evening set         | 8148 Jan 28 00:14 | 21°♊33'08 |            |
| evening set      | 8147 Feb 12 23:01 | 7°♊31'31  |            | asc. node           | 8148 Jan 31 08:06 | 18°♊03'16 |            |
| asc. node        | 8147 Feb 13 11:02 | 7°♊04'50  |            | min. Earth dist.    | 8148 Feb 01 10:09 | 16°♊41'34 | 0.67509 AU |
| min. Earth dist. | 8147 Feb 17 16:17 | 2°♊05'13  | 0.68150 AU | inferior conj       | 8148 Feb 02 15:50 | 15°♊05'43 | 0°45'46    |
| inferior conj    | 8147 Feb 18 10:33 | 1°♊03'26  | 1°34'31    | minimum elong       | 8148 Feb 02 14:44 | 15°♊09'17 | 0°45'27    |
| minimum elong    | 8147 Feb 18 08:36 | 1°♊09'59  | 1°33'54    | morning rise        | 8148 Feb 08 05:33 | 9°♊11'17  |            |
|                  | 8147 Feb 19 05:24 | 30°♊      |            | direct              | 8148 Feb 11 16:37 | 8°♊02'24  |            |
| morning rise     | 8147 Feb 23 18:13 | 25°♊01'01 |            | morning max el      | 8148 Feb 18 17:48 | 11°♊56'07 | 19°18'07   |
| direct           | 8147 Feb 27 17:29 | 23°♊31'27 |            | greatest brilliancy | 8148 Mar 02 19:30 | 29°♊16'25 | -0.7m      |
| morning max el   | 8147 Mar 07 13:32 | 27°♊58'06 | 20°20'50   |                     | 8148 Mar 03 07:08 | 0°♊       |            |
|                  | 8147 Mar 09 11:31 | 0°♊       |            | desc. node          | 8148 Mar 06 02:51 | 4°♊15'51  |            |
| desc. node       | 8147 Mar 20 05:56 | 14°♊12'14 |            | morning set         | 8148 Mar 13 20:14 | 16°♊07'19 |            |
|                  | 8147 Mar 30 21:06 | 0°♊       |            |                     | 8148 Mar 22 18:39 | 0°♊       |            |
| morning set      | 8147 Apr 04 20:41 | 7°♊38'29  |            | max. Earth dist.    | 8148 Mar 27 00:32 | 6°♊39'53  | 1.44946 AU |
| max. Earth dist. | 8147 Apr 14 09:58 | 22°♊41'15 | 1.43694 AU |                     |                   |           |            |
|                  | 8147 Apr 18 22:07 | 0°♊       |            | superior conj       | 8148 Mar 30 10:52 | 12°♊05'52 | -2°06'56   |
| superior conj    | 8147 Apr 20 13:44 | 2°♊43'05  | -2°10'55   | minimum elong       | 8148 Mar 30 05:53 | 11°♊46'04 | 2°06'46    |
| minimum elong    | 8147 Apr 20 15:37 | 2°♊50'50  | 2°10'59    |                     | 8148 Apr 10 12:30 | 0°♊       |            |
| evening rise     | 8147 May 03 04:04 | 24°♊10'51 |            | evening rise        | 8148 Apr 13 19:02 | 5°♊24'14  |            |
|                  | 8147 May 06 12:15 | 0°♊       |            | asc. node           | 8148 Apr 28 07:00 | 28°♊37'10 |            |
| asc. node        | 8147 May 12 09:57 | 10°♊00'04 |            |                     | 8148 Apr 29 07:06 | 0°♊       |            |
| evening max el   | 8147 May 20 11:26 | 20°♊59'24 | 18°06'14   | evening max el      | 8148 May 03 00:30 | 4°♊24'48  | 18°21'07   |
| retrograde       | 8147 May 26 22:01 | 24°♊20'01 |            | retrograde          | 8148 May 09 10:21 | 7°♊51'19  |            |
| evening set      | 8147 May 29 15:50 | 23°♊42'42 |            | evening set         | 8148 May 12 11:19 | 7°♊00'41  |            |
| inferior conj    | 8147 Jun 04 23:39 | 18°♊34'22 | 2°47'52    | inferior conj       | 8148 May 18 08:08 | 1°♊34'13  | 3°14'54    |
| minimum elong    | 8147 Jun 05 02:19 | 18°♊27'28 | 2°47'10    | minimum elong       | 8148 May 18 09:35 | 1°♊30'02  | 3°14'37    |
| min. Earth dist. | 8147 Jun 07 22:27 | 15°♊32'28 | 0.62139 AU |                     | 8148 May 19 16:38 | 30°♊      |            |
| morning rise     | 8147 Jun 11 10:57 | 12°♊29'26 |            | min. Earth dist.    | 8148 May 20 16:43 | 28°♊51'27 | 0.64183 AU |
| desc. node       | 8147 Jun 16 05:27 | 10°♊15'57 |            | morning rise        | 8148 May 24 06:49 | 25°♊19'51 |            |
| direct           | 8147 Jun 18 04:59 | 10°♊03'44 |            | direct              | 8148 May 31 00:04 | 22°♊37'38 |            |
| morning max el   | 8147 Jul 02 08:08 | 18°♊05'15 | 27°55'09   | desc. node          | 8148 Jun 02 02:28 | 22°♊51'48 |            |
|                  | 8147 Jul 12 07:29 | 0°♊       |            |                     | 8148 Jun 13 02:29 | 0°♊       |            |
|                  | 8147 Jul 30 18:10 | 0°♊       |            | morning max el      | 8148 Jun 15 17:30 | 0°♊37'18  | 27°32'30   |
| morning set      | 8147 Aug 05 02:45 | 10°♊31'04 |            |                     | 8148 Jul 05 09:06 | 0°♊       |            |
| asc. node        | 8147 Aug 08 09:15 | 17°♊19'13 |            | morning set         | 8148 Jul 18 19:47 | 24°♊14'34 |            |
| max. Earth dist. | 8147 Aug 10 15:35 | 22°♊10'06 | 1.32131 AU |                     | 8148 Jul 21 16:36 | 0°♊       |            |
|                  |                   |           |            | max. Earth dist.    | 8148 Jul 23 15:37 | 4°♊02'35  | 1.33034 AU |
| superior conj    | 8147 Aug 12 15:13 | 26°♊29'12 | 0°42'10    | asc. node           | 8148 Jul 25 06:14 | 7°♊25'26  |            |
| minimum elong    | 8147 Aug 12 13:26 | 26°♊19'29 | 0°41'43    |                     |                   |           |            |
|                  | 8147 Aug 14 05:41 | 0°♊       |            | superior conj       | 8148 Jul 26 20:47 | 10°♊50'28 | 0°16'15    |
| evening rise     | 8147 Aug 19 11:04 | 11°♊23'13 |            | minimum elong       | 8148 Jul 26 19:59 | 10°♊46'13 | 0°15'58    |
|                  | 8147 Aug 28 20:31 | 0°♊       |            | behind sun begin    | 8148 Jul 26 19:38 | 10°♊44'18 |            |
| desc. node       | 8147 Sep 12 04:23 | 20°♊20'30 |            | behind sun end      | 8148 Jul 26 20:21 | 10°♊48'09 |            |
| evening max el   | 8147 Sep 13 09:35 | 21°♊33'19 | 24°18'42   | evening rise        | 8148 Aug 02 22:33 | 26°♊02'59 |            |
| retrograde       | 8147 Sep 27 03:40 | 28°♊27'18 |            |                     | 8148 Aug 04 19:40 | 0°♊       |            |
| evening set      | 8147 Oct 02 03:56 | 27°♊31'51 |            |                     | 8148 Aug 23 04:08 | 0°♊       |            |
| min. Earth dist. | 8147 Oct 07 20:26 | 24°♊39'42 | 0.56372 AU | evening max el      | 8148 Aug 24 21:24 | 1°♊46'38  | 22°39'26   |
| inferior conj    | 8147 Oct 10 07:48 | 23°♊07'13 | -5°33'42   | desc. node          | 8148 Aug 29 01:27 | 5°♊14'36  |            |
| minimum elong    | 8147 Oct 10 08:55 | 23°♊05'27 | 5°33'36    | retrograde          | 8148 Sep 07 00:29 | 8°♊19'45  |            |
| morning rise     | 8147 Oct 18 16:02 | 19°♊06'24 |            | evening set         | 8148 Sep 10 12:27 | 7°♊52'52  |            |
| direct           | 8147 Oct 21 07:54 | 18°♊47'35 |            | min. Earth dist.    | 8148 Sep 18 04:53 | 4°♊27'50  | 0.55110 AU |
| morning max el   | 8147 Oct 31 03:20 | 23°♊25'19 | 19°41'29   | inferior conj       | 8148 Sep 19 10:02 | 3°♊46'23  | -5°15'16   |
| asc. node        | 8147 Nov 04 08:52 | 28°♊14'33 |            | minimum elong       | 8148 Sep 19 03:43 | 3°♊55'23  | 5°14'23    |
|                  | 8147 Nov 05 15:26 | 0°♊       |            | morning rise        | 8148 Sep 27 20:55 | 29°♊58'07 |            |
|                  |                   |           |            |                     | 8148 Sep 27 17:48 | 30°♊      |            |

|                     |                   |                               |            |                     |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| direct              | 8148 Oct 01 00:51 | 29° $\mathbb{M}$ 35'12        |            | retrograde          | 8149 Aug 18 13:28 | 18° $\mathbb{M}$ 07'19        |            |
|                     | 8148 Oct 04 05:31 | 0° $\mathbb{A}$               |            | evening set         | 8149 Aug 20 20:46 | 17° $\mathbb{M}$ 54'51        |            |
| morning max el      | 8148 Oct 12 09:48 | 4° $\mathbb{A}$ 54'38         | 21°02'38   | inferior conj       | 8149 Aug 30 02:46 | 13° $\mathbb{M}$ 57'42        | -4°02'00   |
| asc. node           | 8148 Oct 21 05:50 | 16° $\mathbb{A}$ 07'43        |            | minimum elong       | 8149 Aug 29 17:16 | 14° $\mathbb{M}$ 11'06        | 3°59'20    |
|                     | 8148 Oct 28 21:47 | 0° $\mathbb{M}$               |            | min. Earth dist.    | 8149 Aug 30 13:51 | 13° $\mathbb{M}$ 42'03        | 0.54686 AU |
| morning set         | 8148 Nov 01 01:40 | 6° $\mathbb{M}$ 26'15         |            | morning rise        | 8149 Sep 07 14:14 | 10° $\mathbb{M}$ 03'09        |            |
|                     |                   |                               |            | direct              | 8149 Sep 11 08:57 | 9° $\mathbb{M}$ 32'28         |            |
| superior conj       | 8148 Nov 08 10:07 | 21° $\mathbb{M}$ 46'31        | 1°38'33    | morning max el      | 8149 Sep 24 04:47 | 15° $\mathbb{M}$ 39'00        | 22°41'34   |
| minimum elong       | 8148 Nov 08 11:21 | 21° $\mathbb{M}$ 52'53        | 1°38'36    |                     | 8149 Oct 05 08:18 | 0° $\mathbb{A}$               |            |
|                     | 8148 Nov 12 11:36 | 0° $\mathbb{A}$               |            | asc. node           | 8149 Oct 08 02:49 | 4° $\mathbb{A}$ 43'20         |            |
| max. Earth dist.    | 8148 Nov 13 02:42 | 1° $\mathbb{A}$ 14'36         | 1.35549 AU | morning set         | 8149 Oct 16 12:31 | 21° $\mathbb{A}$ 15'25        |            |
| evening rise        | 8148 Nov 17 03:50 | 9° $\mathbb{A}$ 01'23         |            |                     | 8149 Oct 20 14:41 | 0° $\mathbb{M}$               |            |
| desc. node          | 8148 Nov 25 00:20 | 23° $\mathbb{A}$ 00'02        |            |                     |                   |                               |            |
|                     | 8148 Nov 29 06:48 | 0° $\mathbb{B}$               |            | superior conj       | 8149 Oct 23 13:24 | 6° $\mathbb{M}$ 19'01         | 1°41'29    |
|                     | 8148 Dec 21 20:44 | 0° $\mathbb{A}$               |            | minimum elong       | 8149 Oct 23 13:19 | 6° $\mathbb{M}$ 18'38         | 1°41'34    |
| evening max el      | 8148 Dec 22 14:37 | 0° $\mathbb{A}$ 43'58         | 26°25'19   | max. Earth dist.    | 8149 Oct 26 19:27 | 13° $\mathbb{M}$ 09'48        | 1.33916 AU |
| retrograde          | 8149 Jan 04 11:29 | 7° $\mathbb{A}$ 58'53         |            | evening rise        | 8149 Oct 31 11:17 | 22° $\mathbb{M}$ 34'33        |            |
| evening set         | 8149 Jan 10 19:52 | 5° $\mathbb{A}$ 25'19         |            |                     | 8149 Nov 04 08:41 | 0° $\mathbb{A}$               |            |
| min. Earth dist.    | 8149 Jan 14 23:17 | 1° $\mathbb{A}$ 08'32         | 0.66493 AU | desc. node          | 8149 Nov 11 21:24 | 13° $\mathbb{A}$ 12'15        |            |
|                     | 8149 Jan 15 22:02 | 30° $\mathbb{R}$ $\mathbb{B}$ |            |                     | 8149 Nov 23 00:12 | 0° $\mathbb{B}$               |            |
| inferior conj       | 8149 Jan 16 16:33 | 29° $\mathbb{B}$ 03'44        | -0°10'33   | evening max el      | 8149 Dec 05 03:34 | 14° $\mathbb{B}$ 17'58        | 27°10'06   |
| minimum elong       | 8149 Jan 16 16:49 | 29° $\mathbb{B}$ 02'53        | 0°10'17    | retrograde          | 8149 Dec 18 13:03 | 21° $\mathbb{B}$ 38'38        |            |
| transit middle      | 8149 Jan 16 16:49 | 29° $\mathbb{B}$ 02'53        | 0°10'17    | evening set         | 8149 Dec 25 07:47 | 19° $\mathbb{B}$ 02'05        |            |
| transit begin       | 8149 Jan 16 14:36 | 29° $\mathbb{B}$ 09'38        |            | min. Earth dist.    | 8149 Dec 29 05:30 | 15° $\mathbb{B}$ 19'16        | 0.65115 AU |
| transit end         | 8149 Jan 16 19:03 | 28° $\mathbb{B}$ 56'10        |            | inferior conj       | 8149 Dec 31 10:26 | 12° $\mathbb{B}$ 52'07        | -1°13'37   |
| asc. node           | 8149 Jan 17 05:08 | 28° $\mathbb{B}$ 25'45        |            | minimum elong       | 8149 Dec 31 12:38 | 12° $\mathbb{B}$ 46'01        | 1°12'33    |
| morning rise        | 8149 Jan 22 14:36 | 23° $\mathbb{B}$ 19'26        |            | asc. node           | 8150 Jan 04 02:12 | 9° $\mathbb{B}$ 08'54         |            |
| direct              | 8149 Jan 25 14:58 | 22° $\mathbb{B}$ 28'16        |            | morning rise        | 8150 Jan 06 18:51 | 7° $\mathbb{B}$ 20'27         |            |
| morning max el      | 8149 Feb 01 05:03 | 26° $\mathbb{B}$ 01'34        | 18°31'17   | direct              | 8150 Jan 09 10:25 | 6° $\mathbb{B}$ 43'11         |            |
|                     | 8149 Feb 04 16:27 | 0° $\mathbb{A}$               |            | morning max el      | 8150 Jan 15 20:49 | 10° $\mathbb{B}$ 07'14        | 18°01'11   |
| desc. node          | 8149 Feb 20 23:48 | 24° $\mathbb{A}$ 36'43        |            |                     | 8150 Jan 29 15:43 | 0° $\mathbb{A}$               |            |
| morning set         | 8149 Feb 21 16:36 | 25° $\mathbb{A}$ 43'14        |            | morning set         | 8150 Feb 02 18:32 | 6° $\mathbb{A}$ 47'30         |            |
|                     | 8149 Feb 24 09:30 | 0° $\mathbb{H}$               |            | desc. node          | 8150 Feb 07 20:46 | 15° $\mathbb{A}$ 09'31        |            |
|                     |                   |                               |            |                     |                   |                               |            |
| superior conj       | 8149 Mar 09 16:47 | 20° $\mathbb{H}$ 54'07        | -1°42'46   | superior conj       | 8150 Feb 17 01:51 | 29° $\mathbb{A}$ 58'34        | -1°03'08   |
| minimum elong       | 8149 Mar 09 07:15 | 20° $\mathbb{H}$ 16'49        | 1°41'52    | minimum elong       | 8150 Feb 16 18:33 | 29° $\mathbb{A}$ 29'37        | 1°02'07    |
| max. Earth dist.    | 8149 Mar 09 19:03 | 21° $\mathbb{H}$ 02'59        | 1.45495 AU |                     | 8150 Feb 17 02:13 | 0° $\mathbb{H}$               |            |
|                     | 8149 Mar 15 12:08 | 0° $\mathbb{Y}$               |            | max. Earth dist.    | 8150 Feb 20 14:32 | 5° $\mathbb{H}$ 32'40         | 1.45296 AU |
| evening rise        | 8149 Mar 25 10:30 | 15° $\mathbb{Y}$ 40'18        |            | evening rise        | 8150 Mar 05 06:00 | 25° $\mathbb{H}$ 12'17        |            |
|                     | 8149 Apr 03 11:47 | 0° $\mathbb{B}$               |            |                     | 8150 Mar 08 08:42 | 0° $\mathbb{Y}$               |            |
| greatest brilliancy | 8149 Apr 03 11:13 | 29° $\mathbb{Y}$ 57'48        | -0.8m      | greatest brilliancy | 8150 Mar 19 00:00 | 16° $\mathbb{Y}$ 08'53        | -0.7m      |
| asc. node           | 8149 Apr 15 04:04 | 16° $\mathbb{B}$ 35'03        |            |                     | 8150 Mar 29 05:45 | 0° $\mathbb{B}$               |            |
| evening max el      | 8149 Apr 16 11:05 | 17° $\mathbb{B}$ 58'10        | 18°53'49   | evening max el      | 8150 Mar 30 17:19 | 1° $\mathbb{B}$ 35'42         | 19°43'03   |
| retrograde          | 8149 Apr 23 04:58 | 21° $\mathbb{B}$ 43'25        |            | asc. node           | 8150 Apr 02 01:09 | 3° $\mathbb{B}$ 42'06         |            |
| evening set         | 8149 Apr 26 13:19 | 20° $\mathbb{B}$ 38'40        |            | retrograde          | 8150 Apr 07 02:45 | 5° $\mathbb{B}$ 50'21         |            |
| inferior conj       | 8149 May 02 02:48 | 14° $\mathbb{B}$ 55'49        | 3°23'50    | evening set         | 8150 Apr 10 19:16 | 4° $\mathbb{B}$ 30'55         |            |
| minimum elong       | 8149 May 02 02:54 | 14° $\mathbb{B}$ 55'30        | 3°23'44    |                     | 8150 Apr 15 02:15 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| min. Earth dist.    | 8149 May 03 20:02 | 12° $\mathbb{B}$ 46'28        | 0.65878 AU | inferior conj       | 8150 Apr 16 04:29 | 28° $\mathbb{Y}$ 33'33        | 3°18'33    |
| morning rise        | 8149 May 07 15:57 | 8° $\mathbb{B}$ 37'56         |            | minimum elong       | 8150 Apr 16 03:26 | 28° $\mathbb{Y}$ 37'02        | 3°18'23    |
| direct              | 8149 May 14 02:28 | 5° $\mathbb{B}$ 51'06         |            | min. Earth dist.    | 8150 Apr 17 06:55 | 27° $\mathbb{Y}$ 05'33        | 0.67152 AU |
| desc. node          | 8149 May 19 23:28 | 7° $\mathbb{B}$ 42'27         |            | morning rise        | 8150 Apr 21 11:18 | 22° $\mathbb{Y}$ 15'55        |            |
| morning max el      | 8149 May 27 04:04 | 13° $\mathbb{B}$ 36'36        | 26°38'56   | direct              | 8150 Apr 27 11:08 | 19° $\mathbb{Y}$ 35'37        |            |
|                     | 8149 Jun 09 10:13 | 0° $\mathbb{I}$               |            | desc. node          | 8150 May 06 20:29 | 24° $\mathbb{Y}$ 16'31        |            |
|                     | 8149 Jun 28 01:48 | 0° $\mathbb{B}$               |            | morning max el      | 8150 May 09 13:51 | 26° $\mathbb{Y}$ 51'20        | 25°23'23   |
| morning set         | 8149 Jul 02 01:44 | 7° $\mathbb{B}$ 23'25         |            |                     | 8150 May 12 12:02 | 0° $\mathbb{B}$               |            |
| max. Earth dist.    | 8149 Jul 06 05:28 | 15° $\mathbb{B}$ 27'11        | 1.34419 AU |                     | 8150 Jun 03 00:58 | 0° $\mathbb{I}$               |            |
|                     |                   |                               |            | morning set         | 8150 Jun 14 16:25 | 19° $\mathbb{I}$ 46'32        |            |
| superior conj       | 8149 Jul 10 20:08 | 24° $\mathbb{B}$ 49'12        | -0°13'03   | max. Earth dist.    | 8150 Jun 18 08:25 | 26° $\mathbb{I}$ 31'43        | 1.36256 AU |
| minimum elong       | 8149 Jul 10 20:52 | 24° $\mathbb{B}$ 52'59        | 0°13'02    |                     | 8150 Jun 20 04:22 | 0° $\mathbb{B}$               |            |
| behind sun begin    | 8149 Jul 10 17:27 | 24° $\mathbb{B}$ 35'17        |            |                     |                   |                               |            |
| behind sun end      | 8149 Jul 11 00:17 | 25° $\mathbb{B}$ 10'43        |            | superior conj       | 8150 Jun 24 10:32 | 8° $\mathbb{B}$ 18'39         | -0°44'27   |
| asc. node           | 8149 Jul 12 03:14 | 27° $\mathbb{B}$ 30'57        |            | minimum elong       | 8150 Jun 24 13:12 | 8° $\mathbb{B}$ 31'57         | 0°44'06    |
|                     | 8149 Jul 13 07:41 | 0° $\mathbb{I}$               |            | asc. node           | 8150 Jun 29 00:15 | 17° $\mathbb{B}$ 32'14        |            |
| evening rise        | 8149 Jul 18 08:11 | 10° $\mathbb{I}$ 33'20        |            | evening rise        | 8150 Jul 02 13:46 | 24° $\mathbb{B}$ 48'14        |            |
|                     | 8149 Jul 28 12:10 | 0° $\mathbb{M}$               |            |                     | 8150 Jul 05 03:49 | 0° $\mathbb{I}$               |            |
| evening max el      | 8149 Aug 06 16:36 | 12° $\mathbb{M}$ 14'26        | 21°06'48   | evening max el      | 8150 Jul 20 00:47 | 23° $\mathbb{I}$ 22'25        | 19°50'59   |
| desc. node          | 8149 Aug 15 22:34 | 17° $\mathbb{M}$ 50'25        |            | retrograde          | 8150 Jul 30 04:55 | 28° $\mathbb{I}$ 23'18        |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8150 Aug 01 01:40 | 28°Ω13'56 |            | evening set      | 8151 Jul 13 09:57 | 9°Ω15'55  |            |
| desc. node       | 8150 Aug 02 19:39 | 27°Ω49'09 |            | desc. node       | 8151 Jul 20 16:45 | 5°Ω38'01  |            |
| inferior conj    | 8150 Aug 10 00:25 | 24°Ω12'57 | -2°11'22   | inferior conj    | 8151 Jul 21 14:59 | 4°Ω59'05  | -0°16'53   |
| minimum elong    | 8150 Aug 09 18:24 | 24°Ω22'10 | 2°09'12    | minimum elong    | 8151 Jul 21 14:17 | 5°Ω00'19  | 0°16'45    |
| min. Earth dist. | 8150 Aug 12 01:20 | 22°Ω58'10 | 0.55228 AU | min. Earth dist. | 8151 Jul 24 16:20 | 2°Ω50'19  | 0.56633 AU |
| morning rise     | 8150 Aug 18 09:12 | 19°Ω52'08 |            | morning rise     | 8151 Jul 29 15:20 | 0°Ω01'58  |            |
| direct           | 8150 Aug 22 22:29 | 19°Ω06'30 |            |                  | 8151 Jul 29 17:13 | 30°℞☿     |            |
| morning max el   | 8150 Sep 05 17:40 | 25°Ω56'17 | 24°27'22   | direct           | 8151 Aug 04 01:06 | 28°☿52'21 |            |
|                  | 8150 Sep 09 14:15 | 0°♊       |            |                  | 8151 Aug 09 09:48 | 0°Ω       |            |
| asc. node        | 8150 Sep 24 23:49 | 23°♊51'00 |            | morning max el   | 8151 Aug 18 07:21 | 6°Ω14'35  | 26°04'09   |
|                  | 8150 Sep 28 02:19 | 0°♊       |            |                  | 8151 Sep 04 17:50 | 0°♊       |            |
| morning set      | 8150 Oct 01 00:16 | 6°♊05'05  |            | asc. node        | 8151 Sep 11 20:48 | 13°♊22'02 |            |
|                  |                   |           |            | morning set      | 8151 Sep 15 11:18 | 20°♊50'23 |            |
|                  |                   |           |            |                  | 8151 Sep 19 16:28 | 0°♊       |            |
| superior conj    | 8150 Oct 07 21:38 | 21°♊04'05 | 1°38'01    | superior conj    | 8151 Sep 22 08:37 | 5°♊54'42  | 1°28'51    |
| minimum elong    | 8150 Oct 07 20:28 | 20°♊57'43 | 1°38'01    | minimum elong    | 8151 Sep 22 06:42 | 5°♊44'07  | 1°28'40    |
| max. Earth dist. | 8150 Oct 09 20:28 | 25°♊18'21 | 1.32715 AU | max. Earth dist. | 8151 Sep 23 03:51 | 7°♊40'58  | 1.31963 AU |
|                  | 8150 Oct 12 01:10 | 0°♊       |            | evening rise     | 8151 Sep 29 07:46 | 20°♊59'50 |            |
| evening rise     | 8150 Oct 15 05:37 | 6°♊36'54  |            |                  | 8151 Oct 03 18:30 | 0°♊       |            |
|                  | 8150 Oct 27 21:48 | 0°♊       |            | desc. node       | 8151 Oct 16 15:33 | 22°♊18'37 |            |
| desc. node       | 8150 Oct 29 18:28 | 3°♊01'31  |            |                  | 8151 Oct 22 01:55 | 0°♊       |            |
| evening max el   | 8150 Nov 17 15:08 | 27°♊29'56 | 27°28'56   | evening max el   | 8151 Oct 30 23:00 | 10°♊07'02 | 27°16'14   |
|                  | 8150 Nov 20 11:29 | 0°♊       |            | retrograde       | 8151 Nov 13 19:30 | 17°♊19'13 |            |
| retrograde       | 8150 Dec 01 08:05 | 4°♊48'19  |            | evening set      | 8151 Nov 20 21:08 | 15°♊03'08 |            |
| evening set      | 8150 Dec 08 09:21 | 2°♊17'02  |            | min. Earth dist. | 8151 Nov 24 13:39 | 12°♊15'58 | 0.61463 AU |
|                  | 8150 Dec 11 03:45 | 30°℞♊     |            | inferior conj    | 8151 Nov 27 14:47 | 9°♊33'57  | -3°31'20   |
| min. Earth dist. | 8150 Dec 12 02:49 | 29°♊05'16 | 0.63415 AU | minimum elong    | 8151 Nov 27 21:18 | 9°♊19'27  | 3°29'02    |
| inferior conj    | 8150 Dec 14 18:53 | 26°♊24'45 | -2°21'45   | morning rise     | 8151 Dec 04 23:41 | 4°♊36'41  |            |
| minimum elong    | 8150 Dec 14 23:20 | 26°♊13'34 | 2°19'51    | direct           | 8151 Dec 07 05:15 | 4°♊15'43  |            |
| morning rise     | 8150 Dec 21 15:13 | 21°♊08'35 |            | asc. node        | 8151 Dec 08 20:20 | 4°♊27'15  |            |
| asc. node        | 8150 Dec 21 23:16 | 21°♊01'30 |            | morning max el   | 8151 Dec 14 05:57 | 7°♊48'24  | 17°53'39   |
| direct           | 8150 Dec 24 00:19 | 20°♊41'18 |            |                  | 8151 Dec 28 14:49 | 0°♊       |            |
| morning max el   | 8150 Dec 30 14:11 | 24°♊05'26 | 17°48'19   | morning set      | 8151 Dec 29 22:45 | 2°♊25'03  |            |
|                  | 8151 Jan 04 08:52 | 0°♊       |            |                  |                   |           |            |
| morning set      | 8151 Jan 15 22:45 | 19°♊08'01 |            | superior conj    | 8152 Jan 09 12:57 | 21°♊19'13 | 0°22'34    |
|                  | 8151 Jan 22 06:33 | 0°♊       |            | minimum elong    | 8152 Jan 09 14:54 | 21°♊27'36 | 0°22'26    |
| desc. node       | 8151 Jan 25 17:43 | 5°♊49'52  |            | desc. node       | 8152 Jan 12 14:41 | 26°♊34'31 |            |
|                  |                   |           |            |                  | 8152 Jan 14 15:38 | 0°♊       |            |
| superior conj    | 8151 Jan 28 06:32 | 10°♊01'41 | -0°18'23   | max. Earth dist. | 8152 Jan 16 23:09 | 3°♊49'33  | 1.42871 AU |
| minimum elong    | 8151 Jan 28 04:34 | 9°♊53'36  | 0°17'58    | evening rise     | 8152 Jan 23 11:12 | 14°♊15'50 |            |
| max. Earth dist. | 8151 Feb 03 08:30 | 19°♊52'49 | 1.44388 AU |                  | 8152 Feb 02 18:38 | 0°♊       |            |
|                  | 8151 Feb 09 18:50 | 0°♊       |            | evening max el   | 8152 Feb 24 13:47 | 28°♊55'15 | 22°00'27   |
| evening rise     | 8151 Feb 12 17:03 | 4°♊31'17  |            |                  | 8152 Feb 25 16:17 | 0°♊       |            |
|                  | 8151 Mar 01 19:23 | 0°♊       |            | retrograde       | 8152 Mar 04 22:40 | 4°♊28'21  |            |
| evening max el   | 8151 Mar 13 18:10 | 15°♊14'38 | 20°46'30   | asc. node        | 8152 Mar 05 19:22 | 4°♊24'33  |            |
| asc. node        | 8151 Mar 19 22:16 | 19°♊43'30 |            | evening set      | 8152 Mar 09 11:04 | 2°♊38'26  |            |
| retrograde       | 8151 Mar 22 01:15 | 20°♊06'36 |            |                  | 8152 Mar 12 00:26 | 30°℞♊     |            |
| evening set      | 8151 Mar 26 03:05 | 18°♊32'00 |            | inferior conj    | 8152 Mar 14 18:50 | 26°♊18'41 | 2°34'45    |
| inferior conj    | 8151 Mar 31 10:33 | 12°♊22'11 | 3°01'37    | minimum elong    | 8152 Mar 14 16:36 | 26°♊26'28 | 2°34'10    |
| minimum elong    | 8151 Mar 31 08:42 | 12°♊28'31 | 3°01'15    | min. Earth dist. | 8152 Mar 14 18:53 | 26°♊18'30 | 0.68377 AU |
| min. Earth dist. | 8151 Mar 31 23:15 | 11°♊38'24 | 0.67983 AU | morning rise     | 8152 Mar 19 21:57 | 20°♊07'35 |            |
| morning rise     | 8151 Apr 05 14:06 | 6°♊07'05  |            | direct           | 8152 Mar 24 18:41 | 18°♊02'59 |            |
| direct           | 8151 Apr 11 00:53 | 3°♊41'57  |            | morning max el   | 8152 Apr 03 09:33 | 23°♊42'37 | 22°26'33   |
| morning max el   | 8151 Apr 21 22:46 | 10°♊13'11 | 23°55'56   |                  | 8152 Apr 08 22:45 | 0°♊       |            |
| desc. node       | 8151 Apr 23 17:27 | 12°♊05'30 |            | desc. node       | 8152 Apr 09 14:24 | 0°♊48'45  |            |
|                  | 8151 May 07 14:49 | 0°♊       |            |                  | 8152 Apr 30 00:15 | 0°♊       |            |
|                  | 8151 May 26 18:22 | 0°♊       |            | morning set      | 8152 May 07 02:34 | 11°♊17'33 |            |
| morning set      | 8151 May 27 10:28 | 1°♊08'53  |            | max. Earth dist. | 8152 May 12 02:22 | 19°♊35'08 | 1.40665 AU |
| max. Earth dist. | 8151 May 31 04:48 | 7°♊43'04  | 1.38418 AU |                  | 8152 May 18 02:37 | 0°♊       |            |
|                  |                   |           |            | superior conj    | 8152 May 19 21:26 | 3°♊11'04  | -1°44'24   |
| superior conj    | 8151 Jun 07 12:24 | 21°♊09'19 | -1°15'59   | minimum elong    | 8152 May 20 03:13 | 3°♊37'06  | 1°43'55    |
| minimum elong    | 8151 Jun 07 17:04 | 21°♊31'24 | 1°15'24    | evening rise     | 8152 May 30 01:27 | 22°♊00'15 |            |
|                  | 8151 Jun 12 02:37 | 0°♊       |            | asc. node        | 8152 Jun 01 18:19 | 27°♊03'54 |            |
| asc. node        | 8151 Jun 15 21:17 | 7°♊24'40  |            |                  | 8152 Jun 03 08:29 | 0°♊       |            |
| evening rise     | 8151 Jun 16 12:37 | 8°♊39'56  |            | evening max el   | 8152 Jun 15 03:23 | 17°♊44'42 | 18°20'50   |
|                  | 8151 Jun 28 13:21 | 0°♊       |            |                  |                   |           |            |
| evening max el   | 8151 Jul 02 21:28 | 5°♊14'35  | 18°55'35   |                  |                   |           |            |
| retrograde       | 8151 Jul 11 10:45 | 9°♊28'27  |            |                  |                   |           |            |





























































































































|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| retrograde       | 8152 Jun 22 12:00 | 21°☿25'46 |            |                     | 8153 Jun 13 01:51 | 30°♊II    |            |
| evening set      | 8152 Jun 24 18:03 | 21°☿05'56 |            | inferior conj       | 8153 Jun 14 11:51 | 28°♊39'58 | 2°22'11    |
| inferior conj    | 8152 Jul 02 03:15 | 16°☿28'38 | 1°16'47    | minimum elong       | 8153 Jun 14 14:53 | 28°♊32'39 | 2°21'15    |
| minimum elong    | 8152 Jul 02 05:41 | 16°☿23'35 | 1°15'48    | min. Earth dist.    | 8153 Jun 17 16:50 | 25°♊36'18 | 0.60852 AU |
| min. Earth dist. | 8152 Jul 05 12:43 | 13°☿41'06 | 0.58621 AU | morning rise        | 8153 Jun 21 07:25 | 22°♊43'54 |            |
| desc. node       | 8152 Jul 06 13:49 | 12°☿53'18 |            | desc. node          | 8153 Jun 23 10:50 | 21°♊32'44 |            |
| morning rise     | 8152 Jul 09 14:04 | 10°☿57'12 |            | direct              | 8153 Jun 27 22:13 | 20°♊32'55 |            |
| direct           | 8152 Jul 15 17:34 | 9°☿16'59  |            | morning max el      | 8153 Jul 12 05:17 | 28°♊31'33 | 27°51'55   |
| morning max el   | 8152 Jul 30 02:51 | 17°☿01'34 | 27°15'48   |                     | 8153 Jul 13 15:47 | 0°☿       |            |
|                  | 8152 Aug 09 19:57 | 0°♊       |            |                     | 8153 Aug 03 16:06 | 0°♊       |            |
|                  | 8152 Aug 27 04:49 | 0°♊       |            | morning set         | 8153 Aug 14 00:15 | 19°♊47'17 |            |
| asc. node        | 8152 Aug 28 17:45 | 3°♊09'31  |            | asc. node           | 8153 Aug 15 14:42 | 23°♊08'10 |            |
| morning set      | 8152 Aug 29 19:53 | 5°♊26'08  |            |                     | 8153 Aug 18 19:29 | 0°♊       |            |
|                  |                   |           |            | max. Earth dist.    | 8153 Aug 19 23:26 | 2°♊32'43  | 1.31824 AU |
| superior conj    | 8152 Sep 05 20:26 | 20°♊44'26 | 1°14'28    |                     |                   |           |            |
| minimum elong    | 8152 Sep 05 18:11 | 20°♊31'58 | 1°14'06    | superior conj       | 8153 Aug 21 07:19 | 5°♊28'02  | 0°55'16    |
| max. Earth dist. | 8152 Sep 05 14:08 | 20°♊09'29 | 1.31666 AU | minimum elong       | 8153 Aug 21 05:13 | 5°♊16'29  | 0°54'48    |
|                  | 8152 Sep 10 01:00 | 0°♊       |            | evening rise        | 8153 Aug 28 01:38 | 20°♊17'27 |            |
| evening rise     | 8152 Sep 12 15:08 | 5°♊35'24  |            |                     | 8153 Sep 01 18:03 | 0°♊       |            |
|                  | 8152 Sep 25 10:02 | 0°♊       |            | desc. node          | 8153 Sep 19 09:44 | 28°♊17'38 |            |
| desc. node       | 8152 Oct 02 12:39 | 10°♊50'00 |            |                     | 8153 Sep 20 21:28 | 0°♊       |            |
| evening max el   | 8152 Oct 12 00:08 | 21°♊56'13 | 26°29'31   | evening max el      | 8153 Sep 23 17:05 | 2°♊54'22  | 25°12'27   |
| retrograde       | 8152 Oct 25 22:04 | 29°♊02'33 |            | retrograde          | 8153 Oct 07 14:25 | 9°♊55'10  |            |
| evening set      | 8152 Nov 01 14:37 | 27°♊12'07 |            | evening set         | 8153 Oct 13 09:04 | 8°♊38'57  |            |
| min. Earth dist. | 8152 Nov 05 13:36 | 24°♊37'23 | 0.59379 AU | min. Earth dist.    | 8153 Oct 18 04:44 | 5°♊58'32  | 0.57374 AU |
| inferior conj    | 8152 Nov 08 18:28 | 22°♊09'00 | -4°35'32   | inferior conj       | 8153 Oct 21 02:50 | 4°♊00'53  | -5°21'58   |
| minimum elong    | 8152 Nov 09 01:40 | 21°♊55'03 | 4°33'41    | minimum elong       | 8153 Oct 21 07:25 | 3°♊53'08  | 5°21'22    |
| morning rise     | 8152 Nov 16 15:03 | 17°♊33'53 |            |                     | 8153 Oct 28 15:11 | 30°♊♊     |            |
| direct           | 8152 Nov 18 20:51 | 17°♊16'04 |            | morning rise        | 8153 Oct 29 08:06 | 29°♊48'47 |            |
| asc. node        | 8152 Nov 24 17:20 | 19°♊25'07 |            | direct              | 8153 Oct 31 18:41 | 29°♊31'18 |            |
| morning max el   | 8152 Nov 26 16:37 | 21°♊06'05 | 18°18'35   |                     | 8153 Nov 03 19:31 | 0°♊       |            |
|                  | 8152 Dec 03 11:04 | 0°♊       |            | morning max el      | 8153 Nov 09 18:34 | 3°♊48'35  | 19°04'47   |
| morning set      | 8152 Dec 12 12:37 | 16°♊20'10 |            | asc. node           | 8153 Nov 11 14:19 | 5°♊43'05  |            |
|                  | 8152 Dec 19 18:13 | 0°♊       |            |                     | 8153 Nov 26 03:44 | 0°♊       |            |
|                  |                   |           |            | morning set         | 8153 Nov 26 12:00 | 0°♊40'54  |            |
| superior conj    | 8152 Dec 21 18:47 | 3°♊43'27  | 0°55'19    |                     |                   |           |            |
| minimum elong    | 8152 Dec 21 22:10 | 3°♊58'53  | 0°55'01    | superior conj       | 8153 Dec 04 19:00 | 17°♊00'06 | 1°18'51    |
| desc. node       | 8152 Dec 29 11:39 | 17°♊19'25 |            | minimum elong       | 8153 Dec 04 22:07 | 17°♊15'03 | 1°18'39    |
| max. Earth dist. | 8152 Dec 29 08:55 | 17°♊07'43 | 1.40916 AU | max. Earth dist.    | 8153 Dec 11 14:38 | 29°♊41'42 | 1.38758 AU |
| evening rise     | 8153 Jan 02 23:33 | 24°♊50'22 |            |                     | 8153 Dec 11 18:43 | 0°♊       |            |
|                  | 8153 Jan 06 04:08 | 0°♊       |            | evening rise        | 8153 Dec 15 09:57 | 6°♊23'44  |            |
|                  | 8153 Jan 26 14:49 | 0°♊       |            | desc. node          | 8153 Dec 16 08:40 | 8°♊01'11  |            |
| evening max el   | 8153 Feb 06 05:15 | 12°♊37'39 | 23°20'01   |                     | 8153 Dec 30 04:12 | 0°♊       |            |
| retrograde       | 8153 Feb 16 17:30 | 18°♊50'43 |            | evening max el      | 8154 Jan 19 18:35 | 26°♊23'06 | 24°39'04   |
| asc. node        | 8153 Feb 20 16:27 | 17°♊33'34 |            |                     | 8154 Jan 23 21:11 | 0°♊       |            |
| evening set      | 8153 Feb 21 17:39 | 16°♊45'54 |            | retrograde          | 8154 Jan 31 08:40 | 3°♊09'06  |            |
| min. Earth dist. | 8153 Feb 26 15:35 | 11°♊00'07 | 0.68349 AU | evening set         | 8154 Feb 05 21:17 | 0°♊50'54  |            |
| inferior conj    | 8153 Feb 27 03:22 | 10°♊19'35 | 1°58'55    |                     | 8154 Feb 06 19:27 | 30°♊♊     |            |
| minimum elong    | 8153 Feb 27 01:11 | 10°♊27'05 | 1°58'16    | asc. node           | 8154 Feb 07 13:31 | 29°♊13'11 |            |
| morning rise     | 8153 Mar 04 08:41 | 4°♊13'43  |            | min. Earth dist.    | 8154 Feb 10 11:12 | 25°♊39'22 | 0.67922 AU |
| direct           | 8153 Mar 08 15:29 | 2°♊31'37  |            | inferior conj       | 8154 Feb 11 10:23 | 24°♊22'13 | 1°14'45    |
| morning max el   | 8153 Mar 17 01:42 | 7°♊22'28  | 21°03'28   | minimum elong       | 8154 Feb 11 08:44 | 24°♊27'43 | 1°14'15    |
| desc. node       | 8153 Mar 27 11:19 | 20°♊10'53 |            | morning rise        | 8154 Feb 16 20:21 | 18°♊23'01 |            |
|                  | 8153 Apr 03 08:15 | 0°♊       |            | direct              | 8154 Feb 20 14:08 | 17°♊02'47 |            |
| morning set      | 8153 Apr 16 15:43 | 20°♊12'56 |            | morning max el      | 8154 Feb 28 01:26 | 21°♊14'12 | 19°52'15   |
|                  | 8153 Apr 22 19:13 | 0°♊       |            |                     | 8154 Mar 07 07:42 | 0°♊       |            |
| max. Earth dist. | 8153 Apr 24 05:54 | 2°♊20'51  | 1.42705 AU | greatest brilliancy | 8154 Mar 13 02:47 | 8°♊13'12  | -0.6m      |
|                  |                   |           |            | desc. node          | 8154 Mar 14 08:15 | 10°♊01'29 |            |
| superior conj    | 8153 May 01 08:51 | 14°♊12'56 | -2°04'59   | morning set         | 8154 Mar 26 13:19 | 28°♊30'43 |            |
| minimum elong    | 8153 May 01 13:18 | 14°♊31'51 | 2°04'52    |                     | 8154 Mar 27 12:27 | 0°♊       |            |
|                  | 8153 May 10 09:44 | 0°♊       |            | max. Earth dist.    | 8154 Apr 06 16:12 | 15°♊54'17 | 1.44297 AU |
| evening rise     | 8153 May 13 00:05 | 4°♊39'02  |            |                     |                   |           |            |
| asc. node        | 8153 May 19 15:22 | 16°♊24'42 |            | superior conj       | 8154 Apr 11 19:29 | 24°♊09'19 | -2°11'40   |
|                  | 8153 May 28 21:50 | 0°♊       |            | minimum elong       | 8154 Apr 11 18:39 | 24°♊05'56 | 2°11'43    |
| evening max el   | 8153 May 29 14:44 | 0°♊43'27  | 18°06'03   |                     | 8154 Apr 15 09:15 | 0°♊       |            |
| retrograde       | 8153 Jun 05 06:25 | 4°♊07'33  |            | evening rise        | 8154 Apr 25 03:48 | 16°♊25'16 |            |
| evening set      | 8153 Jun 07 19:53 | 3°♊37'21  |            |                     | 8154 May 03 04:20 | 0°♊       |            |

|                  |                   |                                |            |                  |                   |                                |            |
|------------------|-------------------|--------------------------------|------------|------------------|-------------------|--------------------------------|------------|
| asc. node        | 8154 May 06 12:25 | 5° $\Pi$ 19'54                 |            | retrograde       | 8155 May 03 04:40 | 1° $\Pi$ 03'40                 |            |
| evening max el   | 8154 May 13 04:02 | 14° $\Pi$ 01'07                | 18°10'23   | evening set      | 8155 May 06 08:44 | 0° $\Pi$ 07'09                 |            |
| retrograde       | 8154 May 19 13:22 | 17° $\Pi$ 22'53                |            |                  | 8155 May 06 13:28 | 30° $\mathbb{R}$               |            |
| evening set      | 8154 May 22 10:07 | 16° $\Pi$ 40'12                |            | inferior conj    | 8155 May 12 02:02 | 24° $\mathbb{B}$ 33'50         | 3°20'38    |
| inferior conj    | 8154 May 28 12:47 | 11° $\Pi$ 24'11                | 3°01'50    | minimum elong    | 8155 May 12 02:54 | 24° $\mathbb{B}$ 31'13         | 3°20'27    |
| minimum elong    | 8154 May 28 14:59 | 11° $\Pi$ 18'11                | 3°01'20    | min. Earth dist. | 8155 May 14 04:12 | 22° $\mathbb{B}$ 03'42         | 0.64954 AU |
| min. Earth dist. | 8154 May 31 05:57 | 8° $\Pi$ 27'51                 | 0.63034 AU | morning rise     | 8155 May 17 20:17 | 18° $\mathbb{B}$ 17'31         |            |
| morning rise     | 8154 Jun 03 18:20 | 5° $\Pi$ 14'05                 |            | direct           | 8155 May 24 11:27 | 15° $\mathbb{B}$ 31'32         |            |
| desc. node       | 8154 Jun 10 07:51 | 2° $\Pi$ 39'48                 |            | desc. node       | 8155 May 28 04:52 | 16° $\mathbb{B}$ 16'25         |            |
| direct           | 8154 Jun 10 12:51 | 2° $\Pi$ 39'39                 |            | morning max el   | 8155 Jun 06 22:45 | 23° $\mathbb{B}$ 26'59         | 27°12'57   |
| morning max el   | 8154 Jun 24 12:46 | 10° $\Pi$ 42'45                | 27°49'48   |                  | 8155 Jun 12 18:33 | 0° $\Pi$                       |            |
|                  | 8154 Jul 09 16:01 | 0° $\mathbb{B}$                |            |                  | 8155 Jul 03 00:06 | 0° $\mathbb{B}$                |            |
|                  | 8154 Jul 27 00:34 | 0° $\Omega$                    |            | morning set      | 8155 Jul 12 10:54 | 17° $\mathbb{B}$ 15'57         |            |
| morning set      | 8154 Jul 28 22:10 | 3° $\Omega$ 46'26              |            | max. Earth dist. | 8155 Jul 16 23:26 | 26° $\mathbb{B}$ 16'56         | 1.33563 AU |
| asc. node        | 8154 Aug 02 11:40 | 13° $\Omega$ 12'37             |            |                  | 8155 Jul 18 18:41 | 0° $\Omega$                    |            |
| max. Earth dist. | 8154 Aug 03 03:44 | 14° $\Omega$ 38'00             | 1.32450 AU | asc. node        | 8155 Jul 20 08:41 | 3° $\Omega$ 18'51              |            |
|                  |                   |                                |            |                  |                   |                                |            |
| superior conj    | 8154 Aug 05 15:24 | 19° $\Omega$ 58'57             | 0°31'40    | superior conj    | 8155 Jul 20 18:38 | 4° $\Omega$ 11'19              | 0°04'13    |
| minimum elong    | 8154 Aug 05 13:58 | 19° $\Omega$ 51'12             | 0°31'15    | minimum elong    | 8155 Jul 20 18:25 | 4° $\Omega$ 10'12              | 0°04'02    |
|                  | 8154 Aug 10 05:45 | 0° $\mathbb{M}$                |            | behind sun begin | 8155 Jul 20 13:00 | 3° $\Omega$ 41'38              |            |
| evening rise     | 8154 Aug 12 13:16 | 4° $\mathbb{M}$ 59'14          |            | behind sun end   | 8155 Jul 20 23:50 | 4° $\Omega$ 38'48              |            |
|                  | 8154 Aug 25 19:17 | 0° $\underline{\Omega}$        |            | evening rise     | 8155 Jul 28 00:11 | 19° $\Omega$ 35'16             |            |
| evening max el   | 8154 Sep 05 04:43 | 13° $\underline{\Omega}$ 15'22 | 23°36'37   |                  | 8155 Aug 02 02:39 | 0° $\mathbb{M}$                |            |
| desc. node       | 8154 Sep 06 06:50 | 14° $\underline{\Omega}$ 16'15 |            | evening max el   | 8155 Aug 17 18:51 | 23° $\mathbb{M}$ 31'05         | 21°58'30   |
| retrograde       | 8154 Sep 18 18:38 | 20° $\underline{\Omega}$ 03'04 |            | desc. node       | 8155 Aug 24 03:56 | 28° $\mathbb{M}$ 15'10         |            |
| evening set      | 8154 Sep 23 03:19 | 19° $\underline{\Omega}$ 21'27 |            | retrograde       | 8155 Aug 30 10:52 | 29° $\mathbb{M}$ 48'35         |            |
| min. Earth dist. | 8154 Sep 29 14:49 | 16° $\underline{\Omega}$ 16'48 | 0.55748 AU | evening set      | 8155 Sep 02 08:41 | 29° $\mathbb{M}$ 29'43         |            |
| inferior conj    | 8154 Oct 01 15:01 | 15° $\underline{\Omega}$ 04'57 | -5°32'31   | inferior conj    | 8155 Sep 11 11:42 | 25° $\mathbb{M}$ 29'00         | -4°50'31   |
| minimum elong    | 8154 Oct 01 12:57 | 15° $\underline{\Omega}$ 08'03 | 5°32'24    | minimum elong    | 8155 Sep 11 03:09 | 25° $\mathbb{M}$ 41'00         | 4°48'46    |
| morning rise     | 8154 Oct 10 00:43 | 11° $\underline{\Omega}$ 10'59 |            | min. Earth dist. | 8155 Sep 10 23:19 | 25° $\mathbb{M}$ 46'22         | 0.54820 AU |
| direct           | 8154 Oct 12 21:05 | 10° $\underline{\Omega}$ 50'53 |            | morning rise     | 8155 Sep 19 23:01 | 21° $\mathbb{M}$ 40'23         |            |
| morning max el   | 8154 Oct 23 08:35 | 15° $\underline{\Omega}$ 45'52 | 20°13'23   | direct           | 8155 Sep 23 09:05 | 21° $\mathbb{M}$ 14'32         |            |
| asc. node        | 8154 Oct 29 11:17 | 23° $\underline{\Omega}$ 05'23 |            | morning max el   | 8155 Oct 05 09:37 | 26° $\mathbb{M}$ 54'11         | 21°42'55   |
|                  | 8154 Nov 02 18:54 | 0° $\mathbb{M}$                |            |                  | 8155 Oct 08 09:03 | 0° $\underline{\Omega}$        |            |
| morning set      | 8154 Nov 10 17:41 | 15° $\mathbb{M}$ 17'54         |            | asc. node        | 8155 Oct 16 08:16 | 11° $\underline{\Omega}$ 17'52 |            |
|                  | 8154 Nov 17 21:51 | 0° $\mathbb{X}$                |            | morning set      | 8155 Oct 26 03:14 | 0° $\mathbb{M}$ 04'19          |            |
|                  |                   |                                |            |                  | 8155 Oct 26 02:25 | 0° $\mathbb{M}$                |            |
| superior conj    | 8154 Nov 18 08:43 | 0° $\mathbb{X}$ 54'49          | 1°33'38    |                  |                   |                                |            |
| minimum elong    | 8154 Nov 18 10:43 | 1° $\mathbb{X}$ 04'55          | 1°33'37    | superior conj    | 8155 Nov 02 07:56 | 15° $\mathbb{M}$ 16'00         | 1°40'37    |
| max. Earth dist. | 8154 Nov 23 21:01 | 11° $\mathbb{X}$ 43'58         | 1.36652 AU | minimum elong    | 8155 Nov 02 08:36 | 15° $\mathbb{M}$ 19'29         | 1°40'42    |
| evening rise     | 8154 Nov 27 16:50 | 18° $\mathbb{X}$ 51'30         |            | max. Earth dist. | 8155 Nov 06 09:22 | 23° $\mathbb{M}$ 37'18         | 1.34811 AU |
| desc. node       | 8154 Dec 03 05:43 | 28° $\mathbb{X}$ 35'40         |            |                  | 8155 Nov 09 14:45 | 0° $\mathbb{X}$                |            |
|                  | 8154 Dec 04 01:40 | 0° $\mathbb{Z}$                |            | evening rise     | 8155 Nov 10 16:27 | 2° $\mathbb{X}$ 03'47          |            |
|                  | 8154 Dec 24 08:23 | 0° $\approx$                   |            | desc. node       | 8155 Nov 20 02:46 | 18° $\mathbb{X}$ 57'44         |            |
| evening max el   | 8155 Jan 02 07:41 | 10° $\approx$ 10'36            | 25°50'38   |                  | 8155 Nov 27 01:00 | 0° $\mathbb{Z}$                |            |
| retrograde       | 8155 Jan 14 19:08 | 17° $\approx$ 18'18            |            | evening max el   | 8155 Dec 15 21:03 | 23° $\mathbb{Z}$ 52'55         | 26°47'14   |
| evening set      | 8155 Jan 20 20:23 | 14° $\approx$ 49'24            |            |                  | 8155 Dec 24 04:03 | 0° $\approx$                   |            |
| min. Earth dist. | 8155 Jan 25 03:28 | 10° $\approx$ 12'24            | 0.67116 AU | retrograde       | 8155 Dec 28 23:59 | 1° $\approx$ 10'50             |            |
| asc. node        | 8155 Jan 25 10:34 | 9° $\approx$ 50'12             |            |                  | 8156 Jan 02 10:49 | 30° $\mathbb{R}$               |            |
| inferior conj    | 8155 Jan 26 14:01 | 8° $\approx$ 23'34             | 0°22'46    | evening set      | 8156 Jan 04 13:01 | 28° $\mathbb{Z}$ 35'33         |            |
| minimum elong    | 8155 Jan 26 13:26 | 8° $\approx$ 25'24             | 0°22'40    | min. Earth dist. | 8156 Jan 08 14:02 | 24° $\mathbb{Z}$ 33'09         | 0.65947 AU |
| morning rise     | 8155 Feb 01 07:00 | 2° $\approx$ 32'55             |            | inferior conj    | 8156 Jan 10 12:09 | 22° $\mathbb{Z}$ 18'15         | -0°36'32   |
| direct           | 8155 Feb 04 13:14 | 1° $\approx$ 32'02             |            | minimum elong    | 8156 Jan 10 13:11 | 22° $\mathbb{Z}$ 15'14         | 0°35'57    |
| morning max el   | 8155 Feb 11 08:53 | 5° $\approx$ 16'00             | 18°56'08   | asc. node        | 8156 Jan 12 07:39 | 20° $\mathbb{Z}$ 14'19         |            |
| desc. node       | 8155 Mar 01 05:11 | 0° $\mathbb{X}$ 13'11          |            | morning rise     | 8156 Jan 16 14:21 | 16° $\mathbb{Z}$ 38'42         |            |
|                  | 8155 Mar 01 01:47 | 0° $\mathbb{X}$                |            | direct           | 8156 Jan 19 10:47 | 15° $\mathbb{Z}$ 53'48         |            |
| morning set      | 8155 Mar 05 19:33 | 7° $\mathbb{X}$ 22'01          |            | morning max el   | 8156 Jan 25 22:19 | 19° $\mathbb{Z}$ 21'52         | 18°16'22   |
|                  | 8155 Mar 20 07:23 | 0° $\mathbb{Y}$                |            |                  | 8156 Feb 03 02:02 | 0° $\approx$                   |            |
| max. Earth dist. | 8155 Mar 20 08:24 | 0° $\mathbb{Y}$ 04'01          | 1.45266 AU | morning set      | 8156 Feb 14 04:25 | 17° $\approx$ 35'44            |            |
|                  |                   |                                |            | desc. node       | 8156 Feb 16 02:09 | 20° $\approx$ 39'32            |            |
|                  |                   |                                |            |                  | 8156 Feb 21 22:28 | 0° $\mathbb{X}$                |            |
| superior conj    | 8155 Mar 22 08:28 | 3° $\mathbb{Y}$ 12'58          | -1°59'05   |                  |                   |                                |            |
| minimum elong    | 8155 Mar 22 00:51 | 2° $\mathbb{Y}$ 42'56          | 1°58'36    | superior conj    | 8156 Feb 29 13:14 | 12° $\mathbb{X}$ 01'06         | -1°27'16   |
| evening rise     | 8155 Apr 06 08:47 | 27° $\mathbb{Y}$ 13'25         |            | minimum elong    | 8156 Feb 29 03:53 | 11° $\mathbb{X}$ 24'25         | 1°26'13    |
|                  | 8155 Apr 08 01:46 | 0° $\mathbb{B}$                |            | max. Earth dist. | 8156 Mar 02 03:58 | 14° $\mathbb{X}$ 32'54         | 1.45507 AU |
| asc. node        | 8155 Apr 23 09:30 | 23° $\mathbb{B}$ 41'44         |            |                  | 8156 Mar 12 01:20 | 0° $\mathbb{Y}$                |            |
| evening max el   | 8155 Apr 26 16:25 | 27° $\mathbb{B}$ 30'51         | 18°32'59   | evening rise     | 8156 Mar 16 14:50 | 7° $\mathbb{Y}$ 07'45          |            |
|                  | 8155 Apr 29 17:59 | 0° $\Pi$                       |            |                  |                   |                                |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| greatest brilliancy | 8156 Mar 27 19:56 | 24°♄33'28 | -0.8m      |                     | 8157 Mar 05 02:00 | 0°♄       |            |
|                     | 8156 Mar 31 11:01 | 0°♄       |            | greatest brilliancy | 8157 Mar 11 01:32 | 8°♄52'50  | -0.6m      |
| evening max el      | 8156 Apr 09 01:25 | 11°♄06'24 | 19°12'52   | evening max el      | 8157 Mar 23 05:25 | 24°♄44'14 | 20°08'25   |
| asc. node           | 8156 Apr 09 06:36 | 11°♄19'24 |            | asc. node           | 8157 Mar 27 03:42 | 28°♄00'09 |            |
| retrograde          | 8156 Apr 16 00:53 | 15°♄02'30 |            | retrograde          | 8157 Mar 30 23:16 | 29°♄13'54 |            |
| evening set         | 8156 Apr 19 12:41 | 13°♄51'24 |            | evening set         | 8157 Apr 03 19:40 | 27°♄47'50 |            |
| inferior conj       | 8156 Apr 25 00:01 | 8°♄02'13  | 3°23'08    | inferior conj       | 8157 Apr 09 03:51 | 21°♄44'39 | 3°12'39    |
| minimum elong       | 8156 Apr 24 23:36 | 8°♄03'34  | 3°23'01    | minimum elong       | 8157 Apr 09 02:25 | 21°♄49'29 | 3°12'24    |
| min. Earth dist.    | 8156 Apr 26 10:48 | 6°♄10'00  | 0.66481 AU | min. Earth dist.    | 8157 Apr 10 00:12 | 20°♄35'41 | 0.67563 AU |
| morning rise        | 8156 Apr 30 10:07 | 1°♄44'21  |            | morning rise        | 8157 Apr 14 08:56 | 15°♄27'57 |            |
|                     | 8156 May 02 20:13 | 30°♄♄     |            | direct              | 8157 Apr 20 03:18 | 12°♄53'35 |            |
| direct              | 8156 May 06 16:34 | 28°♄59'10 |            | desc. node          | 8157 Apr 30 22:50 | 19°♄02'59 |            |
|                     | 8156 May 10 20:58 | 0°♄       |            | morning max el      | 8157 May 01 18:22 | 19°♄51'27 | 24°47'02   |
| desc. node          | 8156 May 14 01:51 | 1°♄54'21  |            |                     | 8157 May 10 10:02 | 0°♄       |            |
| morning max el      | 8156 May 19 08:57 | 6°♄33'00  | 26°08'52   |                     | 8157 May 30 15:33 | 0°♄       |            |
|                     | 8156 Jun 06 11:53 | 0°♄       |            | morning set         | 8157 Jun 06 17:28 | 12°♄04'36 |            |
| morning set         | 8156 Jun 24 10:53 | 0°♄06'05  |            | max. Earth dist.    | 8157 Jun 10 08:18 | 18°♄35'23 | 1.37150 AU |
|                     | 8156 Jun 24 09:34 | 0°♄       |            |                     | 8157 Jun 16 09:20 | 0°♄       |            |
| max. Earth dist.    | 8156 Jun 28 08:30 | 7°♄30'35  | 1.35153 AU | superior conj       | 8157 Jun 17 00:04 | 1°♄11'42  | -0°57'59   |
| superior conj       | 8156 Jul 03 14:33 | 17°♄58'15 | -0°26'12   | minimum elong       | 8157 Jun 17 03:37 | 1°♄29'01  | 0°57'30    |
| minimum elong       | 8156 Jul 03 16:04 | 18°♄05'58 | 0°26'02    | asc. node           | 8157 Jun 23 02:45 | 13°♄20'38 |            |
| asc. node           | 8156 Jul 06 05:43 | 23°♄22'56 |            | evening rise        | 8157 Jun 25 11:28 | 18°♄05'25 |            |
|                     | 8156 Jul 09 10:08 | 0°♄       |            |                     | 8157 Jul 01 15:01 | 0°♄       |            |
| evening rise        | 8156 Jul 11 08:23 | 3°♄59'39  |            | evening max el      | 8157 Jul 12 08:56 | 15°♄39'51 | 19°24'48   |
|                     | 8156 Jul 26 02:27 | 0°♄       |            | retrograde          | 8157 Jul 21 19:49 | 20°♄19'59 |            |
| evening max el      | 8156 Jul 29 19:18 | 4°♄13'56  | 20°32'10   | evening set         | 8157 Jul 23 16:30 | 20°♄09'54 |            |
| retrograde          | 8156 Aug 09 23:02 | 9°♄44'56  |            | desc. node          | 8157 Jul 27 22:06 | 18°♄40'42 |            |
| desc. node          | 8156 Aug 10 01:00 | 9°♄44'55  |            | inferior conj       | 8157 Aug 01 08:23 | 16°♄02'50 | -1°21'21   |
| evening set         | 8156 Aug 11 23:59 | 9°♄34'39  |            | minimum elong       | 8157 Aug 01 04:44 | 16°♄08'46 | 1°20'04    |
| inferior conj       | 8156 Aug 21 04:41 | 5°♄37'34  | -3°17'45   | min. Earth dist.    | 8157 Aug 03 21:30 | 14°♄24'03 | 0.55725 AU |
| minimum elong       | 8156 Aug 20 20:02 | 5°♄50'02  | 3°14'56    | morning rise        | 8157 Aug 09 14:19 | 11°♄27'01 |            |
| min. Earth dist.    | 8156 Aug 22 08:51 | 4°♄56'55  | 0.54800 AU | direct              | 8157 Aug 14 12:02 | 10°♄32'37 |            |
| morning rise        | 8156 Aug 29 15:39 | 1°♄34'23  |            | morning max el      | 8157 Aug 28 13:35 | 17°♄37'32 | 25°10'52   |
| direct              | 8156 Sep 02 18:00 | 0°♄58'23  |            |                     | 8157 Sep 07 18:27 | 0°♄       |            |
| morning max el      | 8156 Sep 16 01:01 | 7°♄23'31  | 23°26'38   | asc. node           | 8157 Sep 19 02:16 | 19°♄26'48 |            |
| asc. node           | 8156 Oct 02 05:16 | 0°♄08'34  |            | morning set         | 8157 Sep 24 02:24 | 29°♄43'18 |            |
|                     | 8156 Oct 02 03:25 | 0°♄       |            |                     | 8157 Sep 24 05:32 | 0°♄       |            |
| morning set         | 8156 Oct 09 14:45 | 14°♄54'57 |            | superior conj       | 8157 Sep 30 23:18 | 14°♄43'04 | 1°34'48    |
| superior conj       | 8156 Oct 16 13:39 | 29°♄55'05 | 1°40'44    | minimum elong       | 8157 Sep 30 21:46 | 14°♄34'40 | 1°34'44    |
| minimum elong       | 8156 Oct 16 13:05 | 29°♄52'00 | 1°40'49    | max. Earth dist.    | 8157 Oct 02 10:15 | 17°♄54'34 | 1.32334 AU |
|                     | 8156 Oct 16 14:34 | 0°♄       |            | evening rise        | 8157 Oct 08 02:57 | 0°♄02'26  |            |
| max. Earth dist.    | 8156 Oct 19 06:08 | 5°♄39'33  | 1.33354 AU |                     | 8157 Oct 08 02:29 | 0°♄       |            |
| evening rise        | 8156 Oct 24 05:00 | 15°♄50'53 |            | desc. node          | 8157 Oct 23 20:55 | 28°♄38'33 |            |
|                     | 8156 Oct 31 16:53 | 0°♄       |            |                     | 8157 Oct 24 17:55 | 0°♄       |            |
| desc. node          | 8156 Nov 05 23:50 | 9°♄01'39  |            | evening max el      | 8157 Nov 09 19:53 | 20°♄17'31 | 27°27'30   |
|                     | 8156 Nov 20 16:12 | 0°♄       |            | retrograde          | 8157 Nov 23 14:31 | 27°♄33'48 |            |
| evening max el      | 8156 Nov 27 09:48 | 7°♄19'46  | 27°21'35   | evening set         | 8157 Nov 30 17:04 | 25°♄07'16 |            |
| retrograde          | 8156 Dec 10 22:37 | 14°♄39'20 |            | min. Earth dist.    | 8157 Dec 04 09:23 | 22°♄07'25 | 0.62617 AU |
| evening set         | 8156 Dec 17 20:54 | 12°♄03'55 |            | inferior conj       | 8157 Dec 07 05:53 | 19°♄24'19 | -2°51'22   |
| min. Earth dist.    | 8156 Dec 21 16:36 | 8°♄34'58  | 0.64438 AU | minimum elong       | 8157 Dec 07 11:17 | 19°♄11'25 | 2°49'13    |
| inferior conj       | 8156 Dec 24 02:24 | 6°♄01'04  | -1°42'00   | morning rise        | 8157 Dec 14 07:36 | 14°♄16'07 |            |
| minimum elong       | 8156 Dec 24 05:32 | 5°♄52'43  | 1°40'34    | asc. node           | 8157 Dec 16 01:44 | 13°♄53'21 |            |
| asc. node           | 8156 Dec 29 04:41 | 1°♄22'45  |            | direct              | 8157 Dec 16 14:49 | 13°♄51'58 |            |
| morning rise        | 8156 Dec 30 15:44 | 0°♄35'35  |            | morning max el      | 8157 Dec 23 08:18 | 17°♄18'26 | 17°48'17   |
| direct              | 8157 Jan 02 04:22 | 0°♄02'54  |            |                     | 8158 Jan 01 09:53 | 0°♄       |            |
| morning max el      | 8157 Jan 08 15:09 | 3°♄25'29  | 17°53'32   | morning set         | 8158 Jan 08 07:41 | 12°♄01'30 |            |
| morning set         | 8157 Jan 25 18:18 | 29°♄15'02 |            |                     | 8158 Jan 18 15:56 | 0°♄       |            |
|                     | 8157 Jan 26 04:59 | 0°♄       |            | superior conj       | 8158 Jan 19 20:43 | 2°♄01'13  | -0°00'11   |
| desc. node          | 8157 Feb 01 23:08 | 11°♄16'05 |            | minimum elong       | 8158 Jan 19 20:43 | 2°♄01'13  | 0°00'03    |
| superior conj       | 8157 Feb 08 05:09 | 21°♄26'25 | -0°44'09   | behind sun begin    | 8158 Jan 19 12:01 | 1°♄24'41  |            |
| minimum elong       | 8157 Feb 08 00:05 | 21°♄06'03 | 0°43'20    | behind sun end      | 8158 Jan 20 05:24 | 2°♄37'41  |            |
| max. Earth dist.    | 8157 Feb 12 23:40 | 29°♄02'24 | 1.45000 AU | desc. node          | 8158 Jan 19 20:05 | 1°♄58'36  |            |
|                     | 8157 Feb 13 14:16 | 0°♄       |            | max. Earth dist.    | 8158 Jan 26 16:19 | 13°♄13'46 | 1.43809 AU |
| evening rise        | 8157 Feb 24 05:01 | 16°♄29'51 |            | evening rise        | 8158 Feb 03 17:12 | 25°♄54'51 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8158 Feb 06 08:55 | 0°♄       |            | desc. node       | 8159 Jan 06 17:03 | 22°♄43'41 |            |
|                  | 8158 Feb 27 02:16 | 0°♄       |            | max. Earth dist. | 8159 Jan 09 04:19 | 26°♄52'52 | 1.42078 AU |
| evening max el   | 8158 Mar 06 03:48 | 8°♄23'04  | 21°16'54   |                  | 8159 Jan 11 01:35 | 0°♄       |            |
| asc. node        | 8158 Mar 14 00:46 | 13°♄29'02 |            | evening rise     | 8159 Jan 14 18:07 | 5°♄58'19  |            |
| retrograde       | 8158 Mar 14 21:39 | 13°♄32'55 |            |                  | 8159 Jan 30 14:55 | 0°♄       |            |
| evening set      | 8158 Mar 19 03:46 | 11°♄51'46 |            | evening max el   | 8159 Feb 16 21:22 | 22°♄04'00 | 22°34'01   |
| inferior conj    | 8158 Mar 24 11:06 | 5°♄37'05  | 2°51'21    | retrograde       | 8159 Feb 26 18:09 | 27°♄55'02 |            |
| minimum elong    | 8158 Mar 24 09:03 | 5°♄44'14  | 2°50'54    | asc. node        | 8159 Feb 28 21:50 | 27°♄31'37 |            |
| min. Earth dist. | 8158 Mar 24 18:16 | 5°♄12'12  | 0.68198 AU | evening set      | 8159 Mar 03 11:19 | 25°♄58'55 |            |
|                  | 8158 Mar 28 22:37 | 30°♄      |            | inferior conj    | 8159 Mar 08 19:43 | 19°♄35'52 | 2°20'36    |
| morning rise     | 8158 Mar 29 14:08 | 29°♄23'21 |            | minimum elong    | 8159 Mar 08 17:27 | 19°♄43'45 | 2°19'59    |
| direct           | 8158 Apr 03 18:51 | 27°♄06'40 |            | min. Earth dist. | 8159 Mar 08 14:44 | 19°♄53'13 | 0.68411 AU |
|                  | 8158 Apr 10 12:13 | 0°♄       |            | morning rise     | 8159 Mar 13 23:27 | 13°♄26'34 |            |
| morning max el   | 8158 Apr 14 03:51 | 3°♄16'56  | 23°17'36   | direct           | 8159 Mar 18 14:10 | 11°♄31'19 |            |
| desc. node       | 8158 Apr 17 19:48 | 7°♄17'12  |            | morning max el   | 8159 Mar 27 16:22 | 16°♄49'49 | 21°49'56   |
|                  | 8158 May 04 13:06 | 0°♄       |            | desc. node       | 8159 Apr 04 16:43 | 26°♄18'21 |            |
| morning set      | 8158 May 19 01:06 | 22°♄57'26 |            |                  | 8159 Apr 07 10:48 | 0°♄       |            |
| max. Earth dist. | 8158 May 23 04:12 | 0°♄00'26  | 1.39374 AU |                  | 8159 Apr 27 14:51 | 0°♄       |            |
|                  | 8158 May 23 04:06 | 0°♄       |            | morning set      | 8159 Apr 29 05:15 | 2°♄32'55  |            |
|                  |                   |           |            | max. Earth dist. | 8159 May 05 03:18 | 12°♄12'19 | 1.41571 AU |
| superior conj    | 8158 May 30 19:20 | 13°♄42'44 | -1°28'39   | superior conj    | 8159 May 12 19:41 | 25°♄19'57 | -1°54'26   |
| minimum elong    | 8158 May 31 00:40 | 14°♄07'26 | 1°28'05    | minimum elong    | 8159 May 13 01:19 | 25°♄44'41 | 1°54'06    |
|                  | 8158 Jun 08 08:46 | 0°♄       |            |                  | 8159 May 15 10:56 | 0°♄       |            |
| evening rise     | 8158 Jun 09 06:33 | 1°♄45'04  |            | evening rise     | 8159 May 23 13:50 | 14°♄48'22 |            |
| asc. node        | 8158 Jun 09 23:47 | 3°♄08'05  |            | asc. node        | 8159 May 27 20:49 | 22°♄39'51 |            |
| evening max el   | 8158 Jun 25 10:00 | 27°♄49'19 | 18°38'19   |                  | 8159 Jun 01 01:48 | 0°♄       |            |
|                  | 8158 Jun 28 01:04 | 0°♄       |            | evening max el   | 8159 Jun 08 18:44 | 10°♄32'53 | 18°12'14   |
| retrograde       | 8158 Jul 03 09:54 | 1°♄47'28  |            | retrograde       | 8159 Jun 15 18:39 | 14°♄04'29 |            |
| evening set      | 8158 Jul 05 11:35 | 1°♄32'25  |            | evening set      | 8159 Jun 18 03:57 | 13°♄40'31 |            |
|                  | 8158 Jul 09 03:47 | 30°♄      |            | inferior conj    | 8159 Jun 25 05:24 | 8°♄54'51  | 1°47'55    |
| inferior conj    | 8158 Jul 13 08:07 | 27°♄07'19 | 0°26'08    | minimum elong    | 8159 Jun 25 08:21 | 8°♄48'19  | 1°46'52    |
| minimum elong    | 8158 Jul 13 09:06 | 27°♄05'28 | 0°25'37    | min. Earth dist. | 8159 Jun 28 14:23 | 5°♄57'17  | 0.59563 AU |
| desc. node       | 8158 Jul 14 19:09 | 26°♄00'38 |            | desc. node       | 8159 Jul 01 16:11 | 3°♄38'49  |            |
| min. Earth dist. | 8158 Jul 16 14:52 | 24°♄39'19 | 0.57420 AU | morning rise     | 8159 Jul 02 09:45 | 3°♄11'44  |            |
| morning rise     | 8158 Jul 21 03:04 | 21°♄54'20 |            | direct           | 8159 Jul 08 19:12 | 1°♄17'36  |            |
| direct           | 8158 Jul 26 20:54 | 20°♄32'01 |            | morning max el   | 8159 Jul 23 03:49 | 9°♄09'17  | 27°35'44   |
| morning max el   | 8158 Aug 10 05:32 | 28°♄05'54 | 26°38'30   |                  | 8159 Aug 08 03:14 | 0°♄       |            |
|                  | 8158 Aug 12 02:29 | 0°♄       |            | morning set      | 8159 Aug 23 19:33 | 28°♄54'23 |            |
|                  | 8158 Sep 01 08:06 | 0°♄       |            | asc. node        | 8159 Aug 23 20:13 | 28°♄57'51 |            |
| asc. node        | 8158 Sep 05 23:15 | 9°♄05'20  |            |                  | 8159 Aug 24 08:03 | 0°♄       |            |
| morning set      | 8158 Sep 08 12:34 | 14°♄24'47 |            | max. Earth dist. | 8159 Aug 30 05:12 | 12°♄45'43 | 1.31674 AU |
|                  |                   |           |            | superior conj    | 8159 Aug 30 22:29 | 14°♄21'21 | 1°06'54    |
| superior conj    | 8158 Sep 15 10:51 | 29°♄33'49 | 1°23'22    | minimum elong    | 8159 Aug 30 20:14 | 14°♄08'56 | 1°06'28    |
| minimum elong    | 8158 Sep 15 08:44 | 29°♄22'08 | 1°23'06    | evening rise     | 8159 Sep 06 16:30 | 29°♄09'50 |            |
|                  | 8158 Sep 15 15:34 | 0°♄       |            |                  | 8159 Sep 07 01:55 | 0°♄       |            |
| max. Earth dist. | 8158 Sep 15 19:03 | 0°♄19'17  | 1.31775 AU |                  | 8159 Sep 23 12:33 | 0°♄       |            |
| evening rise     | 8158 Sep 22 07:34 | 14°♄31'01 |            | desc. node       | 8159 Sep 27 15:04 | 5°♄44'16  |            |
|                  | 8158 Sep 30 02:43 | 0°♄       |            | evening max el   | 8159 Oct 04 22:52 | 14°♄02'02 | 26°00'05   |
| desc. node       | 8158 Oct 10 17:59 | 17°♄37'40 |            | retrograde       | 8159 Oct 18 21:14 | 21°♄05'59 |            |
|                  | 8158 Oct 20 11:37 | 0°♄       |            | evening set      | 8159 Oct 25 05:53 | 19°♄29'48 |            |
| evening max el   | 8158 Oct 23 00:59 | 2°♄34'19  | 27°00'26   | min. Earth dist. | 8159 Oct 29 11:43 | 16°♄54'44 | 0.58494 AU |
| retrograde       | 8158 Nov 05 22:41 | 9°♄44'48  |            | inferior conj    | 8159 Nov 01 15:05 | 14°♄37'35 | -4°58'25   |
| evening set      | 8158 Nov 12 21:39 | 7°♄38'15  |            | minimum elong    | 8159 Nov 01 21:41 | 14°♄25'31 | 4°57'04    |
| min. Earth dist. | 8158 Nov 16 15:34 | 4°♄58'10  | 0.60578 AU | morning rise     | 8159 Nov 09 15:48 | 10°♄12'00 |            |
| inferior conj    | 8158 Nov 19 19:15 | 2°♄19'37  | -3°59'52   | direct           | 8159 Nov 11 22:55 | 9°♄54'42  |            |
| minimum elong    | 8158 Nov 20 02:20 | 2°♄04'44  | 3°57'37    | asc. node        | 8159 Nov 19 19:46 | 13°♄32'06 |            |
|                  | 8158 Nov 22 17:15 | 30°♄      |            | morning max el   | 8159 Nov 20 05:43 | 13°♄55'34 | 18°35'32   |
| morning rise     | 8158 Nov 27 09:24 | 27°♄31'38 |            |                  | 8159 Dec 01 05:23 | 0°♄       |            |
| direct           | 8158 Nov 29 14:23 | 27°♄12'32 |            | morning set      | 8159 Dec 06 08:37 | 9°♄43'51  |            |
| asc. node        | 8158 Dec 02 22:45 | 27°♄58'34 |            |                  |                   |           |            |
|                  | 8158 Dec 05 23:53 | 0°♄       |            | superior conj    | 8159 Dec 15 03:55 | 26°♄36'54 | 1°06'25    |
| morning max el   | 8158 Dec 06 22:21 | 0°♄51'44  | 18°01'45   | minimum elong    | 8159 Dec 15 07:21 | 26°♄52'52 | 1°06'07    |
| morning set      | 8158 Dec 22 14:10 | 25°♄36'06 |            |                  | 8159 Dec 16 23:46 | 0°♄       |            |
|                  | 8158 Dec 24 23:06 | 0°♄       |            | max. Earth dist. | 8159 Dec 22 12:09 | 9°♄52'41  | 1.40009 AU |
| superior conj    | 8159 Jan 01 13:37 | 13°♄48'29 | 0°37'35    | desc. node       | 8159 Dec 24 14:03 | 13°♄27'58 |            |
| minimum elong    | 8159 Jan 01 16:26 | 14°♄00'58 | 0°37'18    |                  |                   |           |            |



|                  |                   |   |            |                     |                   |   |            |
|------------------|-------------------|---|------------|---------------------|-------------------|---|------------|
| evening rise     | 8159 Dec 26 15:55 | 16°  58'44   |            | evening rise        | 8160 Dec 07 11:24 | 28°  55'58   |            |
|                  | 8160 Jan 03 17:42 | 0°           |            |                     | 8160 Dec 08 01:58 | 0°           |            |
|                  | 8160 Jan 25 05:18 | 0°           |            | desc. node          | 8160 Dec 10 11:05 | 4°  07'01    |            |
| evening max el   | 8160 Jan 30 11:56 | 5°  49'00    | 23°54'08   |                     | 8160 Dec 27 02:29 | 0°           |            |
| retrograde       | 8160 Feb 10 11:29 | 12°  16'39   |            | evening max el      | 8161 Jan 12 01:06 | 19°  36'02   | 25°10'48   |
| evening set      | 8160 Feb 15 16:50 | 10°  06'09   |            | retrograde          | 8161 Jan 24 00:36 | 26°  32'01   |            |
| asc. node        | 8160 Feb 15 18:54 | 10°  01'45   |            | evening set         | 8161 Jan 29 18:46 | 24°  08'46   |            |
| min. Earth dist. | 8160 Feb 20 11:17 | 4°  34'51    | 0.68220 AU | asc. node           | 8161 Feb 01 15:58 | 21°  09'57   |            |
| inferior conj    | 8160 Feb 21 03:52 | 3°  38'28    | 1°41'12    | min. Earth dist.    | 8161 Feb 03 05:40 | 19°  12'07   | 0.67632 AU |
| minimum elong    | 8160 Feb 21 01:51 | 3°  45'20    | 1°40'35    | inferior conj       | 8161 Feb 04 09:41 | 17°  40'54   | 0°53'41    |
|                  | 8160 Feb 23 23:37 | 30°          |            | minimum elong       | 8161 Feb 04 08:25 | 17°  45'01   | 0°53'18    |
| morning rise     | 8160 Feb 26 10:52 | 27°  35'09   |            | morning rise        | 8161 Feb 09 22:22 | 11°  45'15   |            |
| direct           | 8160 Mar 01 12:05 | 26°  02'19   |            | direct              | 8161 Feb 13 11:08 | 10°  33'32   |            |
|                  | 8160 Mar 08 21:14 | 0°           |            | morning max el      | 8161 Feb 20 14:41 | 14°  31'18   | 19°26'29   |
| morning max el   | 8160 Mar 09 11:30 | 0°  34'39    | 20°31'24   |                     | 8161 Mar 04 11:43 | 0°           |            |
| desc. node       | 8160 Mar 21 13:39 | 15°  53'58   |            | greatest brilliancy | 8161 Mar 05 11:27 | 1°  27'46    | -0.7m      |
|                  | 8160 Mar 31 03:31 | 0°           |            | desc. node          | 8161 Mar 08 10:37 | 5°  54'21    |            |
| morning set      | 8160 Apr 07 09:23 | 11°  04'56   |            | morning set         | 8161 Mar 17 07:43 | 19°  29'02   |            |
| max. Earth dist. | 8160 Apr 16 10:00 | 25°  20'34   | 1.43461 AU |                     | 8161 Mar 24 02:31 | 0°           |            |
|                  | 8160 Apr 19 06:52 | 0°           |            | max. Earth dist.    | 8161 Mar 29 23:42 | 9°  13'46    | 1.44801 AU |
| superior conj    | 8160 Apr 22 20:46 | 5°  54'20    | -2°09'53   | superior conj       | 8161 Apr 02 21:17 | 15°  25'29   | -2°08'51   |
| minimum elong    | 8160 Apr 22 23:27 | 6°  05'31    | 2°09'55    | minimum elong       | 8161 Apr 02 17:23 | 15°  09'54   | 2°08'45    |
| evening rise     | 8160 May 05 04:58 | 27°  05'39   |            |                     | 8161 Apr 11 20:56 | 0°           |            |
|                  | 8160 May 06 20:41 | 0°           |            | evening rise        | 8161 Apr 16 23:26 | 8°  28'10    |            |
| asc. node        | 8160 May 13 17:51 | 11°  50'18   |            |                     | 8161 Apr 30 05:56 | 0°           |            |
| evening max el   | 8160 May 22 07:22 | 23°  40'40 | 18°05'36   | asc. node           | 8161 Apr 30 14:54 | 0°         |            |
| retrograde       | 8160 May 28 18:54 | 27°  01'41 |            | evening max el      | 8161 May 05 20:35 | 7°  04'22  | 18°17'44   |
| evening set      | 8160 May 31 11:38 | 26°  26'13 |            | retrograde          | 8161 May 12 06:04 | 10°  29'23 |            |
| inferior conj    | 8160 Jun 06 21:26 | 21°  20'34 | 2°41'52    | evening set         | 8161 May 15 05:54 | 9°  24'52  |            |
| minimum elong    | 8160 Jun 07 00:13 | 21°  13'27 | 2°41'06    | inferior conj       | 8161 May 21 04:07 | 4°  16'57  | 3°12'04    |
| min. Earth dist. | 8160 Jun 09 21:57 | 18°  17'36 | 0.61811 AU | minimum elong       | 8161 May 21 05:46 | 4°  12'15  | 3°11'43    |
| morning rise     | 8160 Jun 13 10:48 | 15°  17'40 |            | min. Earth dist.    | 8161 May 23 14:57 | 1°  30'10  | 0.63893 AU |
| desc. node       | 8160 Jun 17 13:13 | 13°  21'6  |            |                     | 8161 May 25 01:05 | 30°        |            |
| direct           | 8160 Jun 20 04:15 | 12°  25'36 |            | morning rise        | 8161 May 27 04:29 | 28°  03'24 |            |
| morning max el   | 8160 Jul 04 08:30 | 20°  56'23 | 27°55'34   | direct              | 8161 Jun 02 22:11 | 25°  22'53 |            |
|                  | 8160 Jul 12 04:28 | 0°         |            | desc. node          | 8161 Jun 04 10:14 | 25°  30'08 |            |
|                  | 8160 Jul 31 04:11 | 0°         |            |                     | 8161 Jun 13 00:44 | 0°         |            |
| morning set      | 8160 Aug 06 21:26 | 13°  06'21 |            | morning max el      | 8161 Jun 16 17:36 | 3°  23'57  | 27°38'05   |
| asc. node        | 8160 Aug 09 17:11 | 18°  09'10 |            |                     | 8161 Jul 06 15:16 | 0°         |            |
| max. Earth dist. | 8160 Aug 12 12:55 | 25°  02'37 | 1.32035 AU | morning set         | 8161 Jul 21 15:53 | 26°  54'28 |            |
|                  |                   |   |            |                     | 8161 Jul 23 04:56 | 0°         |            |
| superior conj    | 8160 Aug 14 08:23 | 28°  09'51 | 0°45'46    | max. Earth dist.    | 8161 Jul 26 14:18 | 6°  09'16  | 1.32866 AU |
| minimum elong    | 8160 Aug 14 06:31 | 28°  04'33 | 0°45'18    | asc. node           | 8161 Jul 27 14:11 | 9°  05'05  |            |
|                  | 8160 Aug 14 19:21 | 0°         |            |                     |                   |   |            |
| evening rise     | 8160 Aug 21 03:43 | 13°  05'21 |            | superior conj       | 8161 Jul 29 14:43 | 13°  02'55 | 0°20'26    |
|                  | 8160 Aug 29 04:13 | 0°         |            | minimum elong       | 8161 Jul 29 13:44 | 13°  01'39 | 0°20'07    |
| desc. node       | 8160 Sep 13 12:10 | 22°  03'14 |            | evening rise        | 8161 Aug 05 15:21 | 28°  02'59 |            |
| evening max el   | 8160 Sep 15 13:04 | 24°  41'42 | 24°33'07   |                     | 8161 Aug 06 07:46 | 0°         |            |
|                  | 8160 Sep 22 18:57 | 0°         |            |                     | 8161 Aug 23 14:37 | 0°         |            |
| retrograde       | 8160 Sep 29 08:06 | 1°  37'37  |            | evening max el      | 8161 Aug 28 00:28 | 4°  55'34  | 22°54'09   |
| evening set      | 8160 Oct 04 13:37 | 0°  36'50  |            | desc. node          | 8161 Aug 31 09:16 | 7°  49'18  |            |
|                  | 8160 Oct 06 00:39 | 30°        |            | retrograde          | 8161 Sep 10 06:55 | 11°  03'20 |            |
| min. Earth dist. | 8160 Oct 10 00:03 | 27°  48'23 | 0.56615 AU | evening set         | 8161 Sep 14 00:10 | 11°  03'03 |            |
| inferior conj    | 8160 Oct 12 14:44 | 26°  08'59 | -5°32'02   | min. Earth dist.    | 8161 Sep 21 08:46 | 7°  43'42  | 0.55250 AU |
| minimum elong    | 8160 Oct 12 16:53 | 26°  05'33 | 5°31'52    | inferior conj       | 8161 Sep 22 19:20 | 6°  54'03  | -5°21'41   |
| morning rise     | 8160 Oct 20 22:20 | 22°  05'30 |            | minimum elong       | 8161 Sep 22 14:03 | 7°  01'39  | 5°21'04    |
| direct           | 8160 Oct 23 12:46 | 21°  04'7  |            | morning rise        | 8161 Oct 01 06:00 | 3°  04'55  |            |
| morning max el   | 8160 Nov 02 02:48 | 26°  19'03 | 19°31'17   | direct              | 8161 Oct 04 07:50 | 2°  42'52  |            |
|                  | 8160 Nov 05 10:46 | 0°         |            | morning max el      | 8161 Oct 15 11:18 | 7°  55'41  | 20°49'15   |
| asc. node        | 8160 Nov 05 16:46 | 0°         |            | asc. node           | 8161 Oct 23 13:46 | 18°  04'23 |            |
| morning set      | 8160 Nov 19 11:03 | 24°  12'35 |            |                     | 8161 Oct 30 08:20 | 0°         |            |
|                  | 8160 Nov 22 07:59 | 0°         |            | morning set         | 8161 Nov 03 18:39 | 8°  15'43  |            |
| superior conj    | 8160 Nov 27 10:25 | 10°  21'05 | 1°26'07    | superior conj       | 8161 Nov 11 04:39 | 24°  18'33 | 1°37'28    |
| minimum elong    | 8160 Nov 27 13:08 | 10°  24'21 | 1°26'01    | minimum elong       | 8161 Nov 11 06:05 | 24°  15'56 | 1°37'32    |
| max. Earth dist. | 8160 Dec 03 18:00 | 22°  21'53 | 1.37843 AU |                     | 8161 Nov 14 00:05 | 0°         |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| max. Earth dist.    | 8161 Nov 16 02:24 | 4°♌08'31  | 1.35824 AU | morning set         | 8162 Oct 19 05:14 | 23°♏42'54 |            |
| evening rise        | 8161 Nov 20 01:52 | 11°♌43'33 |            |                     | 8162 Oct 22 04:07 | 0°♏       |            |
| desc. node          | 8161 Nov 27 08:08 | 24°♌36'41 |            |                     |                   |           |            |
|                     | 8161 Nov 30 14:15 | 0°♏       |            | superior conj       | 8162 Oct 26 06:58 | 8°♏48'17  | 1°41'27    |
|                     | 8161 Dec 22 08:17 | 0°♏       |            | minimum elong       | 8162 Oct 26 07:05 | 8°♏48'53  | 1°41'33    |
| evening max el      | 8161 Dec 25 14:08 | 3°♏21'25  | 26°16'51   | max. Earth dist.    | 8162 Oct 29 17:51 | 16°♏02'09 | 1.34133 AU |
| retrograde          | 8162 Jan 07 08:48 | 10°♏35'04 |            | evening rise        | 8162 Nov 03 07:24 | 25°♏11'32 |            |
| evening set         | 8162 Jan 13 15:22 | 8°♏02'27  |            |                     | 8162 Nov 05 19:40 | 0°♌       |            |
| min. Earth dist.    | 8162 Jan 17 19:40 | 3°♏40'29  | 0.66664 AU | desc. node          | 8162 Nov 14 05:13 | 14°♌51'39 |            |
| inferior conj       | 8162 Jan 19 11:14 | 1°♏39'30  | -0°01'31   |                     | 8162 Nov 24 01:37 | 0°♏       |            |
| minimum elong       | 8162 Jan 19 11:16 | 1°♏39'23  | 0°01'23    | evening max el      | 8162 Dec 08 03:14 | 16°♏57'59 | 27°05'01   |
| transit middle      | 8162 Jan 19 11:16 | 1°♏39'23  | 0°01'23    | retrograde          | 8162 Dec 21 11:20 | 24°♏18'27 |            |
| transit begin       | 8162 Jan 19 08:24 | 1°♏48'10  |            | evening set         | 8162 Dec 28 04:38 | 21°♏42'01 |            |
| transit end         | 8162 Jan 19 14:08 | 1°♏30'37  |            | min. Earth dist.    | 8163 Jan 01 03:10 | 17°♏54'07 | 0.65337 AU |
| asc. node           | 8162 Jan 19 13:03 | 1°♏33'54  |            | inferior conj       | 8163 Jan 03 06:20 | 15°♏29'51 | -1°03'40   |
|                     | 8162 Jan 20 20:18 | 30°♏♏     |            | minimum elong       | 8163 Jan 03 08:13 | 15°♏24'34 | 1°02'43    |
| morning rise        | 8162 Jan 25 07:54 | 25°♏53'33 |            | asc. node           | 8163 Jan 06 10:08 | 12°♏10'21 |            |
| direct              | 8162 Jan 28 09:43 | 25°♏00'02 |            | morning rise        | 8163 Jan 09 13:04 | 9°♏55'59  |            |
| morning max el      | 8162 Feb 04 01:03 | 28°♏35'49 | 18°37'13   | direct              | 8163 Jan 12 05:47 | 9°♏16'54  |            |
|                     | 8162 Feb 05 09:03 | 0°♏       |            | morning max el      | 8163 Jan 18 16:19 | 12°♏41'49 | 18°04'33   |
| desc. node          | 8162 Feb 23 07:34 | 26°♏12'42 |            |                     | 8163 Jan 30 22:49 | 0°♏       |            |
| morning set         | 8162 Feb 25 00:00 | 28°♏52'01 |            | morning set         | 8163 Feb 05 21:35 | 9°♏43'27  |            |
|                     | 8162 Feb 25 17:15 | 0°♏       |            | desc. node          | 8163 Feb 10 04:32 | 16°♏43'55 |            |
| max. Earth dist.    | 8162 Mar 12 17:38 | 23°♏33'34 | 1.45456 AU |                     | 8163 Feb 18 10:40 | 0°♏       |            |
| superior conj       | 8162 Mar 13 04:30 | 24°♏16'07 | -1°47'37   | superior conj       | 8163 Feb 20 11:52 | 3°♏14'52  | -1°09'45   |
| minimum elong       | 8162 Mar 12 19:14 | 23°♏39'50 | 1°46'50    | minimum elong       | 8163 Feb 20 03:53 | 2°♏43'18  | 1°08'40    |
|                     | 8162 Mar 16 20:14 | 0°♏       |            | max. Earth dist.    | 8163 Feb 23 13:04 | 8°♏03'01  | 1.45372 AU |
| evening rise        | 8162 Mar 28 18:22 | 18°♏52'13 |            | evening rise        | 8163 Mar 08 16:17 | 28°♏29'03 |            |
|                     | 8162 Apr 04 17:48 | 0°♏       |            |                     | 8163 Mar 09 15:48 | 0°♏       |            |
| greatest brilliancy | 8162 Apr 05 23:05 | 1°♏55'57  | -0.8m      | greatest brilliancy | 8163 Mar 21 20:13 | 18°♏37'50 | -0.7m      |
| asc. node           | 8162 Apr 17 11:59 | 18°♏37'07 |            |                     | 8163 Mar 29 22:32 | 0°♏       |            |
| evening max el      | 8162 Apr 19 07:43 | 20°♏36'57 | 18°47'51   | evening max el      | 8163 Apr 02 14:45 | 4°♏14'13  | 19°34'45   |
| retrograde          | 8162 Apr 25 23:57 | 24°♏18'40 |            | asc. node           | 8163 Apr 04 09:05 | 5°♏52'48  |            |
| evening set         | 8162 Apr 29 07:08 | 23°♏16'09 |            | retrograde          | 8163 Apr 09 21:23 | 8°♏23'43  |            |
| inferior conj       | 8162 May 04 21:31 | 17°♏35'47 | 3°23'29    | evening set         | 8163 Apr 13 12:38 | 7°♏06'29  |            |
| minimum elong       | 8162 May 04 21:48 | 17°♏34'51 | 3°23'21    | inferior conj       | 8163 Apr 18 22:20 | 1°♏11'17  | 3°20'07    |
| min. Earth dist.    | 8162 May 06 17:05 | 15°♏20'36 | 0.65651 AU | minimum elong       | 8163 Apr 18 21:26 | 1°♏14'14  | 3°19'58    |
| morning rise        | 8162 May 10 11:52 | 11°♏18'04 |            |                     | 8163 Apr 19 19:52 | 30°♏♏     |            |
| direct              | 8162 May 16 23:44 | 8°♏31'02  |            | min. Earth dist.    | 8163 Apr 20 02:55 | 29°♏36'48 | 0.66995 AU |
| desc. node          | 8162 May 22 07:15 | 10°♏02'16 |            | morning rise        | 8163 Apr 24 05:55 | 24°♏53'32 |            |
| morning max el      | 8162 May 30 04:09 | 16°♏19'56 | 26°48'31   | direct              | 8163 Apr 30 07:35 | 22°♏11'33 |            |
|                     | 8162 Jun 10 11:17 | 0°♏       |            | desc. node          | 8163 May 09 04:13 | 26°♏22'26 |            |
|                     | 8162 Jun 29 11:33 | 0°♏       |            | morning max el      | 8163 May 12 13:59 | 29°♏32'25 | 25°35'34   |
| morning set         | 8162 Jul 04 23:43 | 10°♏08'58 |            |                     | 8163 May 13 00:45 | 0°♏       |            |
| max. Earth dist.    | 8162 Jul 09 05:39 | 18°♏27'01 | 1.34181 AU |                     | 8163 Jun 04 07:46 | 0°♏       |            |
| superior conj       | 8162 Jul 13 15:09 | 27°♏26'16 | -0°08'26   | morning set         | 8163 Jun 17 16:57 | 22°♏39'20 |            |
| minimum elong       | 8162 Jul 13 15:37 | 27°♏28'41 | 0°08'28    | max. Earth dist.    | 8163 Jun 21 09:55 | 29°♏32'19 | 1.35961 AU |
| behind sun begin    | 8162 Jul 13 10:42 | 27°♏03'06 |            |                     | 8163 Jun 21 15:46 | 0°♏       |            |
| behind sun end      | 8162 Jul 13 20:32 | 27°♏54'17 |            | superior conj       | 8163 Jun 27 07:05 | 11°♏00'24 | -0°39'37   |
| asc. node           | 8162 Jul 14 11:11 | 29°♏10'48 |            | minimum elong       | 8163 Jun 27 09:26 | 11°♏12'13 | 0°39'19    |
|                     | 8162 Jul 14 20:34 | 0°♏       |            | asc. node           | 8163 Jul 01 08:12 | 19°♏12'49 |            |
| evening rise        | 8162 Jul 21 01:22 | 13°♏04'43 |            | evening rise        | 8163 Jul 05 07:42 | 27°♏22'03 |            |
|                     | 8162 Jul 29 17:07 | 0°♏       |            |                     | 8163 Jul 06 14:49 | 0°♏       |            |
| evening max el      | 8162 Aug 09 18:08 | 15°♏19'05 | 21°19'43   | evening max el      | 8163 Jul 23 00:18 | 26°♏20'05 | 20°00'59   |
| desc. node          | 8162 Aug 18 06:22 | 20°♏47'32 |            |                     | 8163 Jul 27 19:46 | 0°♏       |            |
| retrograde          | 8162 Aug 21 20:30 | 21°♏18'52 |            | retrograde          | 8163 Aug 02 10:28 | 1°♏28'29  |            |
| evening set         | 8162 Aug 24 06:54 | 21°♏05'12 |            | evening set         | 8163 Aug 04 07:51 | 1°♏19'05  |            |
| inferior conj       | 8162 Sep 02 12:39 | 17°♏07'34 | -4°16'15   | desc. node          | 8163 Aug 05 03:26 | 1°♏09'29  |            |
| minimum elong       | 8162 Sep 02 03:08 | 17°♏20'55 | 4°13'45    |                     | 8163 Aug 08 11:26 | 30°♏♏     |            |
| min. Earth dist.    | 8162 Sep 02 17:39 | 17°♏00'32 | 0.54689 AU | inferior conj       | 8163 Aug 13 08:34 | 27°♏19'39 | -2°29'05   |
| morning rise        | 8162 Sep 11 00:07 | 13°♏15'06 |            | minimum elong       | 8163 Aug 13 01:46 | 27°♏29'53 | 2°26'42    |
| direct              | 8162 Sep 14 16:27 | 12°♏45'52 |            | min. Earth dist.    | 8163 Aug 15 04:35 | 26°♏13'33 | 0.55090 AU |
| morning max el      | 8162 Sep 27 07:43 | 18°♏45'44 | 22°26'01   | morning rise        | 8163 Aug 21 18:05 | 23°♏03'53 |            |
|                     | 8162 Oct 06 10:37 | 0°♏       |            | direct              | 8163 Aug 26 04:34 | 22°♏20'56 |            |
| asc. node           | 8162 Oct 10 10:47 | 6°♏34'07  |            | morning max el      | 8163 Sep 08 20:53 | 29°♏04'37 | 24°11'48   |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8163 Sep 09 19:43 | 0°♎       |            |                  | 8164 Sep 04 23:37 | 0°♎       |            |
| asc. node        | 8163 Sep 27 07:45 | 25°♎37'25 |            | asc. node        | 8164 Sep 13 04:43 | 15°♎05'38 |            |
|                  | 8163 Sep 29 13:41 | 0°♏       |            | morning set      | 8164 Sep 17 04:11 | 23°♎19'19 |            |
| morning set      | 8163 Oct 03 16:56 | 8°♏32'42  |            |                  | 8164 Sep 20 06:15 | 0°♏       |            |
| superior conj    | 8163 Oct 10 14:35 | 23°♏31'45 | 1°38'56    | superior conj    | 8164 Sep 24 01:17 | 8°♏22'09  | 1°30'36    |
| minimum elong    | 8163 Oct 10 13:34 | 23°♏26'12 | 1°38'56    | minimum elong    | 8164 Sep 23 23:28 | 8°♏12'04  | 1°30'26    |
| max. Earth dist. | 8163 Oct 12 17:49 | 28°♏08'52 | 1.32866 AU | max. Earth dist. | 8164 Sep 25 00:34 | 10°♏30'36 | 1.32046 AU |
|                  | 8163 Oct 13 14:36 | 0°♐       |            | evening rise     | 8164 Oct 01 01:28 | 23°♏30'41 |            |
| evening rise     | 8163 Oct 18 00:19 | 9°♐10'08  |            |                  | 8164 Oct 04 05:54 | 0°♐       |            |
|                  | 8163 Oct 29 05:12 | 0°♑       |            | desc. node       | 8164 Oct 17 23:20 | 24°♐07'54 |            |
| desc. node       | 8163 Nov 01 02:17 | 4°♑45'01  |            |                  | 8164 Oct 21 23:56 | 0°♑       |            |
|                  | 8163 Nov 20 09:12 | 0°♒       |            | evening max el   | 8164 Nov 01 23:49 | 12°♑57'34 | 27°20'14   |
| evening max el   | 8163 Nov 20 15:15 | 0°♒14'27  | 27°28'06   | retrograde       | 8164 Nov 15 19:45 | 20°♑10'32 |            |
| retrograde       | 8163 Dec 04 07:18 | 7°♒33'07  |            | evening set      | 8164 Nov 22 21:57 | 17°♑51'23 |            |
| evening set      | 8163 Dec 11 07:55 | 5°♒00'37  |            | min. Earth dist. | 8164 Nov 26 14:15 | 15°♑01'20 | 0.61771 AU |
| min. Earth dist. | 8163 Dec 15 01:56 | 1°♒44'29  | 0.63687 AU | inferior conj    | 8164 Nov 29 14:19 | 12°♑18'38 | -3°20'56   |
|                  | 8163 Dec 16 19:08 | 30°♒♑     |            | minimum elong    | 8164 Nov 29 20:35 | 12°♑04'27 | 3°18'38    |
| inferior conj    | 8163 Dec 17 16:23 | 29°♑05'24 | -2°11'13   | morning rise     | 8164 Dec 06 21:22 | 7°♑18'23  |            |
| minimum elong    | 8163 Dec 17 20:29 | 28°♑54'55 | 2°09'25    | direct           | 8164 Dec 09 03:18 | 6°♑56'40  |            |
| morning rise     | 8163 Dec 24 10:51 | 23°♑46'37 |            | asc. node        | 8164 Dec 10 04:12 | 7°♑01'26  |            |
| asc. node        | 8163 Dec 24 07:11 | 23°♑50'17 |            | morning max el   | 8164 Dec 16 01:48 | 10°♑27'20 | 17°51'38   |
| direct           | 8163 Dec 26 20:48 | 23°♑18'01 |            |                  | 8164 Dec 29 00:13 | 0°♒       |            |
| morning max el   | 8164 Jan 02 09:36 | 26°♑41'29 | 17°49'04   | morning set      | 8164 Dec 31 19:43 | 5°♒03'40  |            |
|                  | 8164 Jan 05 06:47 | 0°♓       |            |                  |                   |           |            |
| morning set      | 8164 Jan 18 22:17 | 21°♓53'58 |            | superior conj    | 8165 Jan 11 15:32 | 24°♓13'47 | 0°16'50    |
|                  | 8164 Jan 23 15:58 | 0°♑       |            | minimum elong    | 8165 Jan 11 17:02 | 24°♓20'16 | 0°16'45    |
| desc. node       | 8164 Jan 28 01:29 | 7°♑23'20  |            | desc. node       | 8165 Jan 13 22:29 | 28°♓07'38 |            |
|                  |                   |           |            |                  | 8165 Jan 15 01:12 | 0°♑       |            |
| superior conj    | 8164 Jan 31 12:55 | 13°♑07'14 | -0°25'05   | max. Earth dist. | 8165 Jan 18 23:02 | 6°♑27'51  | 1.43134 AU |
| minimum elong    | 8164 Jan 31 10:11 | 12°♑56'00 | 0°24'33    | evening rise     | 8165 Jan 25 19:47 | 17°♑25'53 |            |
| max. Earth dist. | 8164 Feb 06 07:37 | 22°♑26'17 | 1.44568 AU |                  | 8165 Feb 03 00:53 | 0°♒       |            |
|                  | 8164 Feb 11 02:48 | 0°♒       |            |                  | 8165 Feb 25 01:33 | 0°♑       |            |
| evening rise     | 8164 Feb 16 03:37 | 7°♒47'32  |            | evening max el   | 8165 Feb 26 12:41 | 1°♑32'37  | 21°48'55   |
|                  | 8164 Mar 01 23:02 | 0°♑       |            | retrograde       | 8165 Mar 07 17:32 | 6°♑59'38  |            |
| evening max el   | 8164 Mar 15 16:27 | 17°♑52'55 | 20°36'15   | asc. node        | 8165 Mar 08 03:15 | 6°♑58'48  |            |
| asc. node        | 8164 Mar 21 06:11 | 22°♑05'00 |            | evening set      | 8165 Mar 12 04:19 | 5°♑11'52  |            |
| retrograde       | 8164 Mar 23 19:52 | 22°♑38'43 |            |                  | 8165 Mar 16 16:40 | 30°♒♒     |            |
| evening set      | 8164 Mar 27 20:17 | 21°♑06'18 |            | inferior conj    | 8165 Mar 17 11:54 | 28°♒53'18 | 2°39'22    |
| inferior conj    | 8164 Apr 02 03:52 | 14°♑58'11 | 3°04'48    | minimum elong    | 8165 Mar 17 09:42 | 29°♒00'57 | 2°38'51    |
| minimum elong    | 8164 Apr 02 02:07 | 15°♑04'10 | 3°04'29    | min. Earth dist. | 8165 Mar 17 13:44 | 28°♒46'54 | 0.68346 AU |
| min. Earth dist. | 8164 Apr 02 18:31 | 14°♑07'54 | 0.67892 AU | morning rise     | 8165 Mar 22 14:56 | 22°♒41'32 |            |
| morning rise     | 8164 Apr 07 07:44 | 8°♑42'43  |            | direct           | 8165 Mar 27 13:42 | 20°♒33'48 |            |
| direct           | 8164 Apr 12 20:33 | 6°♑15'00  |            | morning max el   | 8165 Apr 06 09:15 | 26°♒21'17 | 22°39'38   |
| morning max el   | 8164 Apr 23 22:54 | 12°♑53'09 | 24°09'18   |                  | 8165 Apr 09 17:41 | 0°♑       |            |
| desc. node       | 8164 Apr 25 01:10 | 14°♑01'18 |            | desc. node       | 8165 Apr 11 22:07 | 2°♑37'08  |            |
|                  | 8164 May 07 17:53 | 0°♒       |            |                  | 8165 May 01 07:14 | 0°♒       |            |
|                  | 8164 May 27 03:34 | 0°♓       |            | morning set      | 8165 May 10 10:37 | 14°♒31'34 |            |
| morning set      | 8164 May 29 14:25 | 4°♓11'29  |            | max. Earth dist. | 8165 May 15 04:07 | 22°♒26'14 | 1.40333 AU |
| max. Earth dist. | 8164 Jun 02 07:03 | 10°♓41'24 | 1.38086 AU |                  | 8165 May 19 12:48 | 0°♓       |            |
| superior conj    | 8164 Jun 09 11:04 | 23°♓57'30 | -1°11'18   | superior conj    | 8165 May 22 22:52 | 6°♓06'53  | -1°40'28   |
| minimum elong    | 8164 Jun 09 15:27 | 24°♓18'27 | 1°10'45    | minimum elong    | 8165 May 23 04:36 | 6°♓32'53  | 1°39'57    |
|                  | 8164 Jun 12 14:08 | 0°♑       |            | evening rise     | 8165 Jun 01 22:17 | 24°♓43'27 |            |
| asc. node        | 8164 Jun 17 05:13 | 9°♑06'58  |            | asc. node        | 8165 Jun 04 02:14 | 28°♓48'29 |            |
| evening rise     | 8164 Jun 18 07:45 | 11°♑17'52 |            |                  | 8165 Jun 04 17:31 | 0°♑       |            |
|                  | 8164 Jun 28 13:02 | 0°♒       |            | evening max el   | 8165 Jun 18 00:00 | 20°♑30'48 | 18°24'44   |
| evening max el   | 8164 Jul 04 19:15 | 8°♒05'53  | 19°02'27   | retrograde       | 8165 Jun 25 12:16 | 24°♑15'59 |            |
| retrograde       | 8164 Jul 13 13:47 | 12°♒26'08 |            | evening set      | 8165 Jun 27 17:07 | 23°♑57'31 |            |
| evening set      | 8164 Jul 15 12:11 | 12°♒14'21 |            | inferior conj    | 8165 Jul 05 05:11 | 19°♑23'20 | 1°04'19    |
| desc. node       | 8164 Jul 22 00:28 | 9°♒13'52  |            | minimum elong    | 8165 Jul 05 07:19 | 19°♑18'59 | 1°03'26    |
| inferior conj    | 8164 Jul 23 20:08 | 8°♒00'08  | -0°33'16   | min. Earth dist. | 8165 Jul 08 14:19 | 16°♑40'13 | 0.58295 AU |
| minimum elong    | 8164 Jul 23 18:43 | 8°♒02'35  | 0°32'51    | desc. node       | 8165 Jul 08 21:31 | 16°♑26'30 |            |
| min. Earth dist. | 8164 Jul 26 18:47 | 5°♒58'51  | 0.56376 AU | morning rise     | 8165 Jul 12 18:10 | 13°♑56'19 |            |
| morning rise     | 8164 Jul 31 22:06 | 3°♒08'41  |            | direct           | 8165 Jul 18 19:15 | 12°♑20'55 |            |
| direct           | 8164 Aug 06 04:49 | 2°♒03'20  |            | morning max el   | 8165 Aug 02 04:41 | 20°♑03'05 | 27°07'17   |
| morning max el   | 8164 Aug 20 10:05 | 9°♒21'08  | 25°51'05   |                  | 8165 Aug 10 17:15 | 0°♒       |            |

|                  |                   |                      |                  |                   |           |            |
|------------------|-------------------|----------------------|------------------|-------------------|-----------|------------|
|                  | 8165 Aug 28 16:19 | 0°♎                  | morning max el   | 8166 Jul 15 06:08 | 1°♊26'16  | 27°48'56   |
| asc. node        | 8165 Aug 31 01:41 | 4°♎51'06             |                  | 8166 Aug 04 23:40 | 0°♎       |            |
| morning set      | 8165 Sep 01 13:14 | 7°♎56'52             | morning set      | 8166 Aug 16 18:21 | 22°♎20'21 |            |
|                  |                   |                      | asc. node        | 8166 Aug 17 22:40 | 24°♎48'24 |            |
| superior conj    | 8165 Sep 08 13:05 | 23°♎12'22 1°16'59    |                  | 8166 Aug 20 09:03 | 0°♎       |            |
| minimum elong    | 8165 Sep 08 10:51 | 23°♎00'02 1°16'38    | max. Earth dist. | 8166 Aug 22 20:12 | 5°♎22'40  | 1.31770 AU |
| max. Earth dist. | 8165 Sep 08 10:36 | 22°♎58'36 1.31679 AU |                  |                   |           |            |
|                  | 8165 Sep 11 14:43 | 0°♎                  | superior conj    | 8166 Aug 24 00:13 | 7°♎57'08  | 0°58'29    |
| evening rise     | 8165 Sep 15 08:11 | 8°♎04'37             | minimum elong    | 8166 Aug 23 22:04 | 7°♎45'15  | 0°58'02    |
|                  | 8165 Sep 26 16:16 | 0°♎                  | evening rise     | 8166 Aug 30 18:20 | 22°♎45'51 |            |
| desc. node       | 8165 Oct 04 20:25 | 12°♎47'06            |                  | 8166 Sep 03 05:20 | 0°♎       |            |
| evening max el   | 8165 Oct 15 01:56 | 24°♎53'43 26°38'30   |                  | 8166 Sep 21 09:10 | 0°♎       |            |
|                  | 8165 Oct 21 20:22 | 0°♎                  | desc. node       | 8166 Sep 21 17:29 | 0°♎25'31  |            |
| retrograde       | 8165 Oct 28 23:47 | 2°♎01'16             | evening max el   | 8166 Sep 26 20:05 | 5°♎59'02  | 25°25'29   |
| evening set      | 8165 Nov 04 18:27 | 0°♎06'15             | retrograde       | 8166 Oct 10 18:00 | 13°♎00'58 |            |
|                  | 8165 Nov 04 22:56 | 30°♎                 | evening set      | 8166 Oct 16 16:36 | 11°♎39'29 |            |
| min. Earth dist. | 8165 Nov 08 15:41 | 27°♎30'44 0.59692 AU | min. Earth dist. | 8166 Oct 21 08:04 | 9°♎01'00  | 0.57655 AU |
| inferior conj    | 8165 Nov 11 20:35 | 24°♎59'05 -4°26'36   | inferior conj    | 8166 Oct 24 07:58 | 6°♎57'45  | -5°16'49   |
| minimum elong    | 8165 Nov 12 03:51 | 24°♎44'42 4°24'38    | minimum elong    | 8166 Oct 24 13:14 | 6°♎48'40  | 5°16'02    |
| morning rise     | 8165 Nov 19 15:37 | 20°♎20'42            | morning rise     | 8166 Nov 01 12:13 | 2°♎42'14  |            |
| direct           | 8165 Nov 21 21:03 | 20°♎02'40            | direct           | 8166 Nov 03 21:39 | 2°♎24'55  |            |
| asc. node        | 8165 Nov 27 01:12 | 21°♎45'45            | morning max el   | 8166 Nov 12 16:57 | 6°♎37'48  | 18°56'30   |
| morning max el   | 8165 Nov 29 13:28 | 23°♎49'28 18°13'35   | asc. node        | 8166 Nov 13 22:13 | 7°♎52'28  |            |
|                  | 8165 Dec 04 13:12 | 0°♎                  |                  | 8166 Nov 27 14:56 | 0°♎       |            |
| morning set      | 8165 Dec 15 07:49 | 18°♎53'54            | morning set      | 8166 Nov 29 06:01 | 3°♎11'23  |            |
|                  | 8165 Dec 21 05:24 | 0°♎                  |                  |                   |           |            |
| superior conj    | 8165 Dec 24 18:11 | 6°♎29'07 0°50'56     | superior conj    | 8166 Dec 07 15:59 | 19°♎38'48 | 1°15'50    |
| minimum elong    | 8165 Dec 24 21:29 | 6°♎44'02 0°50'37     | minimum elong    | 8166 Dec 07 19:12 | 19°♎54'11 | 1°15'37    |
| desc. node       | 8165 Dec 31 19:29 | 18°♎52'55            |                  | 8166 Dec 13 05:34 | 0°♎       |            |
| max. Earth dist. | 8166 Jan 01 09:15 | 19°♎51'24 1.41226 AU | max. Earth dist. | 8166 Dec 14 15:14 | 2°♎31'09  | 1.39081 AU |
| evening rise     | 8166 Jan 06 05:00 | 27°♎52'01            | evening rise     | 8166 Dec 18 12:10 | 9°♎16'59  |            |
|                  | 8166 Jan 07 12:37 | 0°♎                  | desc. node       | 8166 Dec 18 16:30 | 9°♎35'30  |            |
|                  | 8166 Jan 27 16:12 | 0°♎                  |                  | 8166 Dec 31 10:03 | 0°♎       |            |
| evening max el   | 8166 Feb 09 04:35 | 15°♎14'35 23°08'03   | evening max el   | 8167 Jan 22 18:11 | 29°♎00'08 | 24°27'39   |
| retrograde       | 8166 Feb 19 12:55 | 21°♎22'22            |                  | 8167 Jan 23 19:00 | 0°♎       |            |
| asc. node        | 8166 Feb 23 00:18 | 20°♎22'24            | retrograde       | 8167 Feb 03 04:44 | 5°♎41'54  |            |
| evening set      | 8166 Feb 24 11:13 | 19°♎19'44            | evening set      | 8167 Feb 08 15:25 | 3°♎25'42  |            |
| inferior conj    | 8166 Mar 01 20:33 | 12°♎54'01 2°04'55    | asc. node        | 8167 Feb 09 21:23 | 2°♎14'59  |            |
| minimum elong    | 8166 Mar 01 18:19 | 13°♎01'41 2°04'16    |                  | 8167 Feb 11 20:16 | 30°♎      |            |
| min. Earth dist. | 8166 Mar 01 10:29 | 13°♎28'45 0.68376 AU | min. Earth dist. | 8167 Feb 13 06:28 | 28°♎08'58 | 0.68009 AU |
| morning rise     | 8166 Mar 07 01:22 | 6°♎47'12             | inferior conj    | 8167 Feb 14 03:56 | 26°♎57'05 | 1°22'03    |
| direct           | 8166 Mar 11 10:09 | 5°♎01'47             | minimum elong    | 8167 Feb 14 02:10 | 27°♎02'59 | 1°21'28    |
| morning max el   | 8166 Mar 20 00:25 | 9°♎59'40 21°15'10    | morning rise     | 8167 Feb 19 13:03 | 20°♎56'39 |            |
| desc. node       | 8166 Mar 29 19:06 | 21°♎54'27            | direct           | 8167 Feb 23 08:42 | 19°♎33'11 |            |
|                  | 8166 Apr 04 12:57 | 0°♎                  | morning max el   | 8167 Mar 02 22:57 | 23°♎49'48 | 20°01'55   |
| morning set      | 8166 Apr 20 03:27 | 23°♎36'54            |                  | 8167 Mar 08 06:41 | 0°♎       |            |
|                  | 8166 Apr 24 03:43 | 0°♎                  | desc. node       | 8167 Mar 16 16:03 | 11°♎41'40 |            |
| max. Earth dist. | 8166 Apr 27 06:21 | 5°♎02'58 1.42420 AU  |                  | 8167 Mar 28 19:48 | 0°♎       |            |
|                  |                   |                      | morning set      | 8167 Mar 30 02:00 | 1°♎56'14  |            |
| superior conj    | 8166 May 04 13:45 | 17°♎18'11 -2°02'38   | max. Earth dist. | 8167 Apr 09 15:38 | 18°♎29'57 | 1.44100 AU |
| minimum elong    | 8166 May 04 18:38 | 17°♎39'08 2°02'27    |                  |                   |           |            |
|                  | 8166 May 11 19:32 | 0°♎                  | superior conj    | 8167 Apr 15 04:08 | 27°♎24'30 | -2°11'48   |
| evening rise     | 8166 May 15 23:20 | 7°♎29'03             | minimum elong    | 8167 Apr 15 04:20 | 27°♎25'17 | 2°11'52    |
| asc. node        | 8166 May 21 23:17 | 18°♎12'25            |                  | 8167 Apr 16 18:06 | 0°♎       |            |
|                  | 8166 May 29 11:30 | 0°♎                  | evening rise     | 8167 Apr 28 06:10 | 19°♎23'34 |            |
| evening max el   | 8166 Jun 01 10:48 | 3°♎25'57 18°07'06    |                  | 8167 May 04 10:50 | 0°♎       |            |
| retrograde       | 8166 Jun 08 04:21 | 6°♎51'37             | asc. node        | 8167 May 08 20:20 | 7°♎11'54  |            |
| evening set      | 8166 Jun 10 16:41 | 6°♎23'10             | evening max el   | 8167 May 16 00:03 | 16°♎41'25 | 18°08'35   |
| inferior conj    | 8166 Jun 17 11:00 | 1°♎28'52 2°13'59     | retrograde       | 8167 May 22 09:37 | 20°♎02'26 |            |
| minimum elong    | 8166 Jun 17 14:04 | 1°♎21'37 2°13'00     | evening set      | 8167 May 25 05:21 | 19°♎21'40 |            |
|                  | 8166 Jun 19 00:31 | 30°♎                 | inferior conj    | 8167 May 31 09:45 | 14°♎08'24 | 2°57'15    |
| min. Earth dist. | 8166 Jun 20 17:19 | 28°♎25'54 0.60514 AU | minimum elong    | 8167 May 31 12:08 | 14°♎02'02 | 2°56'40    |
| morning rise     | 8166 Jun 24 08:48 | 25°♎35'43            | min. Earth dist. | 8167 Jun 03 05:00 | 11°♎09'39 | 0.62726 AU |
| desc. node       | 8166 Jun 25 18:33 | 24°♎47'18            | morning rise     | 8167 Jun 06 17:16 | 7°♎59'57  |            |
| direct           | 8166 Jun 30 22:27 | 23°♎28'49            | desc. node       | 8167 Jun 12 15:36 | 5°♎30'31  |            |
|                  | 8166 Jul 13 18:00 | 0°♎                  | direct           | 8167 Jun 13 11:47 | 5°♎28'16  |            |
|                  |                   |                      | morning max el   | 8167 Jun 27 12:55 | 13°♎31'08 | 27°52'24   |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8167 Jul 10 18:17 | 0°☿       |            |                     | 8168 Jun 12 11:18 | 0°♊       |            |
|                     | 8167 Jul 28 11:55 | 0°♊       |            |                     | 8168 Jul 03 08:14 | 0°☿       |            |
| morning set         | 8167 Jul 31 17:23 | 6°♊22'59  |            | morning set         | 8168 Jul 14 07:41 | 19°☿57'22 |            |
| asc. node           | 8167 Aug 04 19:40 | 14°♊52'13 |            | max. Earth dist.    | 8168 Jul 18 22:40 | 29°☿14'13 | 1.33366 AU |
| max. Earth dist.    | 8167 Aug 06 01:25 | 17°♊30'48 | 1.32325 AU |                     | 8168 Jul 19 07:32 | 0°♊       |            |
|                     |                   |           |            | asc. node           | 8168 Jul 21 16:40 | 4°♊58'22  |            |
| superior conj       | 8167 Aug 08 08:52 | 22°♊30'19 | 0°35'30    |                     |                   |           |            |
| minimum elong       | 8167 Aug 08 07:18 | 22°♊21'48 | 0°35'06    | superior conj       | 8168 Jul 22 12:58 | 6°♊45'48  | 0°08'35    |
|                     | 8167 Aug 11 19:12 | 0°♊       |            | minimum elong       | 8168 Jul 22 12:32 | 6°♊43'30  | 0°08'22    |
| evening rise        | 8167 Aug 15 05:56 | 7°♊28'03  |            | behind sun begin    | 8168 Jul 22 07:48 | 6°♊18'23  |            |
|                     | 8167 Aug 26 22:29 | 0°♊       |            | behind sun end      | 8168 Jul 22 17:16 | 7°♊08'40  |            |
| evening max el      | 8167 Sep 08 08:18 | 16°♊24'41 | 23°51'34   | evening rise        | 8168 Jul 29 17:05 | 22°♊05'26 |            |
| desc. node          | 8167 Sep 08 14:34 | 16°♊39'41 |            |                     | 8168 Aug 02 12:58 | 0°♊       |            |
| retrograde          | 8167 Sep 21 23:59 | 23°♊14'50 |            | evening max el      | 8168 Aug 19 21:25 | 26°♊38'36 | 22°12'39   |
| evening set         | 8167 Sep 26 14:13 | 22°♊28'36 |            |                     | 8168 Aug 23 22:01 | 0°♊       |            |
| min. Earth dist.    | 8167 Oct 02 18:46 | 19°♊28'39 | 0.55951 AU | desc. node          | 8168 Aug 25 11:39 | 0°♊58'54  |            |
| inferior conj       | 8167 Oct 04 23:08 | 18°♊09'27 | -5°34'07   | retrograde          | 8168 Sep 01 17:33 | 3°♊01'54  |            |
| minimum elong       | 8167 Oct 04 22:14 | 18°♊10'49 | 5°34'03    | evening set         | 8168 Sep 04 20:09 | 2°♊40'31  |            |
| morning rise        | 8167 Oct 13 08:23 | 14°♊13'12 |            |                     | 8168 Sep 11 10:25 | 30°♊      |            |
| direct              | 8167 Oct 16 03:03 | 13°♊53'38 |            | min. Earth dist.    | 8168 Sep 13 03:06 | 29°♊03'59 | 0.54899 AU |
| morning max el      | 8167 Oct 26 08:54 | 18°♊42'31 | 20°01'44   | inferior conj       | 8168 Sep 13 21:30 | 28°♊38'07 | -5°00'34   |
| asc. node           | 8167 Oct 31 19:15 | 25°♊06'30 |            | minimum elong       | 8168 Sep 13 13:36 | 28°♊49'14 | 4°59'07    |
|                     | 8167 Nov 04 00:11 | 0°♊       |            | morning rise        | 8168 Sep 22 08:41 | 24°♊50'07 |            |
| morning set         | 8167 Nov 13 10:59 | 17°♊47'00 |            | direct              | 8168 Sep 25 16:38 | 24°♊25'20 |            |
|                     | 8167 Nov 19 10:30 | 0°♊       |            | morning max el      | 8168 Oct 07 11:45 | 29°♊57'50 | 21°28'31   |
|                     |                   |           |            |                     | 8168 Oct 07 12:40 | 0°♊       |            |
| superior conj       | 8167 Nov 21 03:59 | 3°♊28'58  | 1°31'53    | asc. node           | 8168 Oct 17 16:16 | 13°♊12'26 |            |
| minimum elong       | 8167 Nov 21 06:11 | 3°♊39'59  | 1°31'52    |                     | 8168 Oct 26 14:37 | 0°♊       |            |
| max. Earth dist.    | 8167 Nov 26 21:25 | 14°♊38'15 | 1.36956 AU | morning set         | 8168 Oct 27 20:07 | 2°♊32'45  |            |
| evening rise        | 8167 Nov 30 16:16 | 21°♊37'47 |            |                     |                   |           |            |
|                     | 8167 Dec 05 10:48 | 0°♊       |            | superior conj       | 8168 Nov 04 02:01 | 17°♊47'04 | 1°40'00    |
| desc. node          | 8167 Dec 05 13:31 | 0°♊11'36  |            | minimum elong       | 8168 Nov 04 02:53 | 17°♊51'36 | 1°40'05    |
|                     | 8167 Dec 25 07:29 | 0°♊       |            | max. Earth dist.    | 8168 Nov 08 08:47 | 26°♊32'21 | 1.35062 AU |
| evening max el      | 8168 Jan 05 07:23 | 12°♊48'20 | 25°40'43   |                     | 8168 Nov 10 02:44 | 0°♊       |            |
| retrograde          | 8168 Jan 17 15:55 | 19°♊53'11 |            | evening rise        | 8168 Nov 12 13:38 | 4°♊44'06  |            |
| evening set         | 8168 Jan 23 15:19 | 17°♊25'45 |            | desc. node          | 8168 Nov 21 10:33 | 20°♊35'57 |            |
| asc. node           | 8168 Jan 27 18:28 | 12°♊59'05 |            |                     | 8168 Nov 27 06:27 | 0°♊       |            |
| min. Earth dist.    | 8168 Jan 27 23:25 | 12°♊43'35 | 0.67264 AU | evening max el      | 8168 Dec 17 20:43 | 26°♊32'00 | 26°39'58   |
| inferior conj       | 8168 Jan 29 08:13 | 10°♊59'15 | 0°31'13    |                     | 8168 Dec 21 20:41 | 0°♊       |            |
| minimum elong       | 8168 Jan 29 07:26 | 11°♊01'44 | 0°31'01    | retrograde          | 8168 Dec 30 21:33 | 3°♊48'50  |            |
| morning rise        | 8168 Feb 04 00:00 | 5°♊07'10  |            | evening set         | 8169 Jan 06 09:01 | 1°♊14'03  |            |
| direct              | 8168 Feb 07 07:55 | 4°♊03'30  |            |                     | 8169 Jan 07 18:27 | 30°♊      |            |
| morning max el      | 8168 Feb 14 05:19 | 7°♊50'36  | 19°03'28   | min. Earth dist.    | 8169 Jan 10 10:53 | 27°♊06'41 | 0.66150 AU |
| greatest brilliancy | 8168 Feb 27 23:29 | 26°♊23'38 | -0.8m      | inferior conj       | 8169 Jan 12 07:18 | 24°♊55'12 | -0°27'05   |
|                     | 8168 Mar 01 08:10 | 0°♊       |            | minimum elong       | 8169 Jan 12 08:03 | 24°♊52'58 | 0°26'37    |
| desc. node          | 8168 Mar 02 13:02 | 1°♊50'58  |            | asc. node           | 8169 Jan 13 15:33 | 23°♊21'13 |            |
| morning set         | 8168 Mar 08 05:31 | 10°♊38'50 |            | morning rise        | 8169 Jan 18 08:01 | 19°♊13'56 |            |
|                     | 8168 Mar 20 15:30 | 0°♊       |            | direct              | 8169 Jan 21 05:49 | 18°♊26'52 |            |
| max. Earth dist.    | 8168 Mar 22 07:21 | 2°♊36'25  | 1.45175 AU | morning max el      | 8169 Jan 27 18:01 | 21°♊56'25 | 18°21'13   |
|                     |                   |           |            |                     | 8169 Feb 03 04:35 | 0°♊       |            |
| superior conj       | 8168 Mar 24 19:50 | 6°♊34'37  | -2°02'17   | morning set         | 8169 Feb 16 09:54 | 20°♊39'12 |            |
| minimum elong       | 8168 Mar 24 13:03 | 6°♊07'51  | 2°01'57    | desc. node          | 8169 Feb 17 09:59 | 22°♊15'28 |            |
|                     | 8168 Apr 08 09:38 | 0°♊       |            |                     | 8169 Feb 22 06:36 | 0°♊       |            |
| evening rise        | 8168 Apr 08 14:43 | 0°♊20'50  |            |                     |                   |           |            |
| asc. node           | 8168 Apr 24 17:24 | 25°♊39'25 |            | superior conj       | 8169 Mar 04 00:33 | 15°♊21'39 | -1°33'04   |
|                     | 8168 Apr 28 08:50 | 0°♊       |            | minimum elong       | 8169 Mar 03 14:59 | 14°♊44'10 | 1°32'03    |
| evening max el      | 8168 Apr 28 12:45 | 0°♊09'55  | 18°28'26   | max. Earth dist.    | 8169 Mar 05 02:45 | 17°♊04'14 | 1.45520 AU |
| retrograde          | 8168 May 04 23:56 | 3°♊40'08  |            |                     | 8169 Mar 13 09:06 | 0°♊       |            |
| evening set         | 8168 May 08 02:56 | 2°♊45'39  |            | evening rise        | 8169 Mar 19 23:57 | 10°♊22'39 |            |
|                     | 8168 May 11 10:53 | 30°♊      |            | greatest brilliancy | 8169 Mar 30 11:22 | 26°♊45'31 | -0.8m      |
| inferior conj       | 8168 May 13 21:24 | 27°♊14'41 | 3°18'54    |                     | 8169 Apr 01 14:20 | 0°♊       |            |
| minimum elong       | 8168 May 13 22:28 | 27°♊11'30 | 3°18'40    | asc. node           | 8169 Apr 11 14:28 | 13°♊24'54 |            |
| min. Earth dist.    | 8168 May 16 01:49 | 24°♊39'54 | 0.64697 AU | evening max el      | 8169 Apr 11 22:22 | 13°♊45'10 | 19°05'50   |
| morning rise        | 8168 May 19 17:09 | 20°♊59'00 |            | retrograde          | 8169 Apr 18 19:40 | 17°♊37'14 |            |
| direct              | 8168 May 26 09:12 | 18°♊14'06 |            | evening set         | 8169 Apr 22 06:17 | 16°♊28'18 |            |
| desc. node          | 8168 May 29 12:38 | 18°♊46'00 |            | inferior conj       | 8169 Apr 27 18:18 | 10°♊41'15 | 3°23'38    |
| morning max el      | 8168 Jun 08 22:40 | 26°♊11'03 | 27°20'21   | minimum elong       | 8169 Apr 27 18:03 | 10°♊42'01 | 3°23'31    |

|                     |                   |                    |            |                  |                   |                     |            |
|---------------------|-------------------|--------------------|------------|------------------|-------------------|---------------------|------------|
| min. Earth dist.    | 8169 Apr 29 07:18 | 8° <b>8</b> 42'59  | 0.66280 AU | min. Earth dist. | 8170 Apr 12 19:50 | 23° <b>Y</b> 06'25  | 0.67427 AU |
| morning rise        | 8169 May 03 05:24 | 4° <b>8</b> 23'19  |            | morning rise     | 8170 Apr 17 03:02 | 18° <b>Y</b> 04'57  |            |
| direct              | 8169 May 09 13:19 | 1° <b>8</b> 37'27  |            | direct           | 8170 Apr 22 23:19 | 15° <b>Y</b> 28'24  |            |
| desc. node          | 8169 May 16 09:39 | 4° <b>8</b> 08'13  |            | desc. node       | 8170 May 03 06:37 | 21° <b>Y</b> 05'00  |            |
| morning max el      | 8169 May 22 09:06 | 9° <b>8</b> 15'35  | 26°19'49   | morning max el   | 8170 May 04 18:38 | 22° <b>Y</b> 32'59  | 24°59'56   |
|                     | 8169 Jun 07 15:58 | 0° <b>II</b>       |            |                  | 8170 May 11 07:35 | 0° <b>8</b>         |            |
|                     | 8169 Jun 25 20:09 | 0° <b>☾</b>        |            |                  | 8170 May 31 23:23 | 0° <b>II</b>        |            |
| morning set         | 8169 Jun 27 09:52 | 2° <b>☾</b> 54'42  |            | morning set      | 8170 Jun 09 19:20 | 15° <b>II</b> 02'07 |            |
| max. Earth dist.    | 8169 Jul 01 09:33 | 10° <b>☾</b> 32'31 | 1.34889 AU | max. Earth dist. | 8170 Jun 13 10:19 | 21° <b>II</b> 36'39 | 1.36832 AU |
|                     |                   |                    |            |                  | 8170 Jun 17 20:51 | 0° <b>☾</b>         |            |
| superior conj       | 8169 Jul 06 10:10 | 20° <b>☾</b> 37'24 | -0°21'27   | superior conj    | 8170 Jun 19 21:25 | 3° <b>☾</b> 56'29   | -0°53'08   |
| minimum elong       | 8169 Jul 06 11:24 | 20° <b>☾</b> 43'41 | 0°21'21    | minimum elong    | 8170 Jun 20 00:39 | 4° <b>☾</b> 12'24   | 0°52'44    |
| asc. node           | 8169 Jul 08 13:39 | 25° <b>☾</b> 03'11 |            | asc. node        | 8170 Jun 25 10:38 | 15° <b>☾</b> 02'09  |            |
|                     | 8169 Jul 10 22:34 | 0° <b>Ω</b>        |            | evening rise     | 8170 Jun 28 05:51 | 20° <b>☾</b> 41'33  |            |
| evening rise        | 8169 Jul 14 01:51 | 6° <b>Ω</b> 32'26  |            |                  | 8170 Jul 02 23:23 | 0° <b>Ω</b>         |            |
|                     | 8169 Jul 26 21:47 | 0° <b>♐</b>        |            | evening max el   | 8170 Jul 15 07:36 | 18° <b>Ω</b> 35'11  | 19°33'29   |
| evening max el      | 8169 Aug 01 19:54 | 7° <b>♐</b> 15'40  | 20°43'51   | retrograde       | 8170 Jul 25 00:30 | 23° <b>Ω</b> 22'29  |            |
| desc. node          | 8169 Aug 12 08:45 | 12° <b>♐</b> 52'38 |            | evening set      | 8170 Jul 26 20:55 | 23° <b>Ω</b> 12'47  |            |
| retrograde          | 8169 Aug 13 05:46 | 12° <b>♐</b> 54'34 |            | desc. node       | 8170 Jul 30 05:50 | 22° <b>Ω</b> 10'02  |            |
| evening set         | 8169 Aug 15 08:34 | 12° <b>♐</b> 43'42 |            | inferior conj    | 8170 Aug 04 15:22 | 19° <b>Ω</b> 08'02  | -1°39'03   |
| inferior conj       | 8169 Aug 24 14:02 | 8° <b>♐</b> 46'48  | -3°34'07   | minimum elong    | 8170 Aug 04 10:52 | 19° <b>Ω</b> 15'11  | 1°37'26    |
| minimum elong       | 8169 Aug 24 04:57 | 8° <b>♐</b> 59'47  | 3°31'18    | min. Earth dist. | 8170 Aug 07 00:32 | 17° <b>Ω</b> 37'28  | 0.55535 AU |
| min. Earth dist.    | 8169 Aug 25 12:18 | 8° <b>♐</b> 14'59  | 0.54739 AU | morning rise     | 8170 Aug 12 22:24 | 14° <b>Ω</b> 37'32  |            |
| morning rise        | 8169 Sep 02 01:15 | 4° <b>♐</b> 47'09  |            | direct           | 8170 Aug 17 17:05 | 13° <b>Ω</b> 46'23  |            |
| direct              | 8169 Sep 06 00:52 | 4° <b>♐</b> 13'11  |            | morning max el   | 8170 Aug 31 16:46 | 20° <b>Ω</b> 46'22  | 24°55'58   |
| morning max el      | 8169 Sep 19 04:15 | 10° <b>♐</b> 31'51 | 23°10'51   |                  | 8170 Sep 08 15:48 | 0° <b>♐</b>         |            |
|                     | 8169 Oct 03 10:59 | 0° <b>♐</b>        |            | asc. node        | 8170 Sep 21 10:13 | 21° <b>♐</b> 12'16  |            |
| asc. node           | 8169 Oct 04 13:15 | 1° <b>♐</b> 57'52  |            |                  | 8170 Sep 25 18:14 | 0° <b>♐</b>         |            |
| morning set         | 8169 Oct 12 07:24 | 17° <b>♐</b> 22'52 |            | morning set      | 8170 Sep 26 19:05 | 2° <b>♐</b> 11'35   |            |
|                     | 8169 Oct 18 04:10 | 0° <b>♐</b>        |            |                  |                   |                     |            |
| superior conj       | 8169 Oct 19 06:54 | 2° <b>♐</b> 23'50  | 1°41'08    | superior conj    | 8170 Oct 03 16:04 | 17° <b>♐</b> 10'50  | 1°36'05    |
| minimum elong       | 8169 Oct 19 06:30 | 2° <b>♐</b> 21'42  | 1°41'12    | minimum elong    | 8170 Oct 03 14:40 | 17° <b>♐</b> 03'07  | 1°36'01    |
| max. Earth dist.    | 8169 Oct 22 04:08 | 8° <b>♐</b> 31'48  | 1.33539 AU | max. Earth dist. | 8170 Oct 05 07:05 | 20° <b>♐</b> 43'56  | 1.32455 AU |
| evening rise        | 8169 Oct 27 00:25 | 18° <b>♐</b> 26'13 |            |                  | 8170 Oct 09 15:16 | 0° <b>♐</b>         |            |
|                     | 8169 Nov 02 02:37 | 0° <b>♐</b>        |            | evening rise     | 8170 Oct 10 21:08 | 2° <b>♐</b> 34'31   |            |
| desc. node          | 8169 Nov 08 07:35 | 10° <b>♐</b> 42'49 |            |                  | 8170 Oct 25 22:30 | 0° <b>♐</b>         |            |
|                     | 8169 Nov 21 11:58 | 0° <b>♐</b>        |            | desc. node       | 8170 Oct 26 04:39 | 0° <b>♐</b> 24'20   |            |
| evening max el      | 8169 Nov 30 09:29 | 10° <b>♐</b> 01'18 | 27°18'08   | evening max el   | 8170 Nov 12 20:04 | 23° <b>♐</b> 04'10  | 27°28'45   |
| retrograde          | 8169 Dec 13 21:12 | 17° <b>♐</b> 21'25 |            |                  | 8170 Nov 23 18:53 | 0° <b>♐</b>         |            |
| evening set         | 8169 Dec 20 18:21 | 14° <b>♐</b> 45'21 |            | retrograde       | 8170 Nov 26 14:16 | 0° <b>♐</b> 21'33   |            |
| min. Earth dist.    | 8169 Dec 24 14:42 | 11° <b>♐</b> 11'43 | 0.64683 AU |                  | 8170 Nov 29 07:35 | 30° <b>♐</b>        |            |
| inferior conj       | 8169 Dec 26 22:52 | 8° <b>♐</b> 39'55  | -1°31'48   | evening set      | 8170 Dec 03 16:29 | 27° <b>♐</b> 53'07  |            |
| minimum elong       | 8169 Dec 27 01:39 | 8° <b>♐</b> 32'21  | 1°30'28    | min. Earth dist. | 8170 Dec 07 09:05 | 24° <b>♐</b> 49'18  | 0.62896 AU |
| asc. node           | 8169 Dec 31 12:37 | 4° <b>♐</b> 19'24  |            | inferior conj    | 8170 Dec 10 04:08 | 22° <b>♐</b> 06'44  | -2°40'50   |
| morning rise        | 8170 Jan 02 10:27 | 3° <b>♐</b> 12'17  |            | minimum elong    | 8170 Dec 10 09:12 | 21° <b>♐</b> 54'23  | 2°38'45    |
| direct              | 8170 Jan 05 00:04 | 2° <b>♐</b> 38'05  |            | morning rise     | 8170 Dec 17 03:58 | 16° <b>♐</b> 55'45  |            |
| morning max el      | 8170 Jan 11 10:33 | 6° <b>♐</b> 00'54  | 17°55'49   | asc. node        | 8170 Dec 18 09:39 | 16° <b>♐</b> 36'12  |            |
|                     | 8170 Jan 27 13:25 | 0° <b>♐</b>        |            | direct           | 8170 Dec 19 11:44 | 16° <b>♐</b> 30'38  |            |
| morning set         | 8170 Jan 28 19:38 | 2° <b>♐</b> 06'18  |            | morning max el   | 8170 Dec 26 03:50 | 19° <b>♐</b> 56'09  | 17°47'56   |
| desc. node          | 8170 Feb 04 06:54 | 12° <b>♐</b> 50'36 |            |                  | 8171 Jan 02 15:21 | 0° <b>♐</b>         |            |
|                     |                   |                    |            | morning set      | 8171 Jan 11 05:59 | 14° <b>♐</b> 44'31  |            |
| superior conj       | 8170 Feb 11 13:41 | 24° <b>♐</b> 38'35 | -0°50'57   |                  | 8171 Jan 20 01:24 | 0° <b>♐</b>         |            |
| minimum elong       | 8170 Feb 11 07:47 | 24° <b>♐</b> 15'02 | 0°50'03    | desc. node       | 8171 Jan 22 03:52 | 3° <b>♐</b> 32'43   |            |
|                     | 8170 Feb 14 22:34 | 0° <b>♐</b>        |            |                  |                   |                     |            |
| max. Earth dist.    | 8170 Feb 15 22:24 | 1° <b>♐</b> 34'04  | 1.45118 AU | superior conj    | 8171 Jan 23 01:26 | 5° <b>♐</b> 02'48   | -0°06'35   |
| evening rise        | 8170 Feb 27 15:37 | 19° <b>♐</b> 47'06 |            | minimum elong    | 8171 Jan 23 00:47 | 5° <b>♐</b> 00'03   | 0°06'21    |
|                     | 8170 Mar 06 07:58 | 0° <b>♐</b>        |            | behind sun begin | 8171 Jan 22 16:15 | 4° <b>♐</b> 24'29   |            |
| greatest brilliancy | 8170 Mar 14 06:49 | 11° <b>♐</b> 54'08 | -0.6m      | behind sun end   | 8171 Jan 23 09:18 | 5° <b>♐</b> 35'32   |            |
| evening max el      | 8170 Mar 26 03:05 | 27° <b>♐</b> 22'39 | 19°59'16   | max. Earth dist. | 8171 Jan 29 15:27 | 15° <b>♐</b> 48'47  | 1.44022 AU |
| asc. node           | 8170 Mar 29 11:33 | 0° <b>♐</b> 15'19  |            | evening rise     | 8171 Feb 07 03:07 | 29° <b>♐</b> 09'41  |            |
|                     | 8170 Mar 29 02:45 | 0° <b>♐</b>        |            |                  | 8171 Feb 07 16:11 | 0° <b>♐</b>         |            |
| retrograde          | 8170 Apr 02 17:56 | 1° <b>♐</b> 47'03  |            |                  | 8171 Feb 28 02:03 | 0° <b>♐</b>         |            |
| evening set         | 8170 Apr 06 12:55 | 0° <b>♐</b> 23'19  |            | evening max el   | 8171 Mar 09 02:19 | 11° <b>♐</b> 01'45  | 21°06'03   |
|                     | 8170 Apr 07 00:49 | 30° <b>♐</b>       |            | asc. node        | 8171 Mar 16 08:38 | 15° <b>♐</b> 56'24  |            |
| inferior conj       | 8170 Apr 11 21:24 | 24° <b>♐</b> 22'03 | 3°14'57    | retrograde       | 8171 Mar 17 16:22 | 16° <b>♐</b> 05'22  |            |
| minimum elong       | 8170 Apr 11 20:06 | 24° <b>♐</b> 26'26 | 3°14'45    | evening set      | 8171 Mar 21 20:56 | 14° <b>♐</b> 26'33  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| inferior conj    | 8171 Mar 27 04:17 | 8°♊13'32  | 2°55'12    | evening rise     | 8172 Jan 18 01:30 | 9°♊06'13  |            |
| minimum elong    | 8171 Mar 27 02:18 | 8°♊20'25  | 2°54'47    |                  | 8172 Jan 31 19:29 | 0°♊       |            |
| min. Earth dist. | 8171 Mar 27 13:23 | 7°♊41'58  | 0.68134 AU | evening max el   | 8172 Feb 19 20:37 | 24°♊42'48 | 22°22'11   |
| morning rise     | 8171 Apr 01 07:26 | 1°♊59'12  |            |                  | 8172 Feb 27 02:23 | 0°♊       |            |
|                  | 8171 Apr 04 12:33 | 30°♊      |            | retrograde       | 8172 Feb 29 13:12 | 0°♊27'30  |            |
| direct           | 8171 Apr 06 14:16 | 29°♊39'26 |            | asc. node        | 8172 Mar 02 05:44 | 0°♊13'03  |            |
|                  | 8171 Apr 08 18:36 | 0°♊       |            |                  | 8172 Mar 02 20:46 | 30°♊      |            |
| morning max el   | 8171 Apr 17 03:50 | 5°♊57'16  | 23°30'57   | evening set      | 8172 Mar 05 04:41 | 28°♊33'35 |            |
| desc. node       | 8171 Apr 20 03:34 | 9°♊10'41  |            | inferior conj    | 8172 Mar 10 12:50 | 22°♊11'40 | 2°25'50    |
|                  | 8171 May 05 18:04 | 0°♊       |            | minimum elong    | 8172 Mar 10 10:34 | 22°♊19'32 | 2°25'14    |
| morning set      | 8171 May 22 06:42 | 26°♊05'34 |            | min. Earth dist. | 8172 Mar 10 09:36 | 22°♊22'53 | 0.68411 AU |
|                  | 8171 May 24 13:37 | 0°♊       |            | morning rise     | 8172 Mar 15 16:17 | 16°♊01'42 |            |
| max. Earth dist. | 8171 May 26 06:03 | 2°♊55'42  | 1.39041 AU | direct           | 8172 Mar 20 09:09 | 14°♊03'04 |            |
|                  |                   |           |            | morning max el   | 8172 Mar 29 15:39 | 19°♊28'48 | 22°02'32   |
| superior conj    | 8171 Jun 02 19:03 | 16°♊34'35 | -1°24'13   | desc. node       | 8172 Apr 06 00:31 | 28°♊05'46 |            |
| minimum elong    | 8171 Jun 03 00:09 | 16°♊58'29 | 1°23'39    |                  | 8172 Apr 07 11:23 | 0°♊       |            |
|                  | 8171 Jun 09 19:36 | 0°♊       |            |                  | 8172 Apr 27 22:27 | 0°♊       |            |
| evening rise     | 8171 Jun 12 02:17 | 4°♊25'30  |            | morning set      | 8172 May 01 15:02 | 5°♊52'33  |            |
| asc. node        | 8171 Jun 12 07:39 | 4°♊51'29  |            | max. Earth dist. | 8172 May 07 04:32 | 15°♊00'24 | 1.41263 AU |
|                  | 8171 Jun 27 15:58 | 0°♊       |            |                  |                   |           |            |
| evening max el   | 8171 Jun 28 07:13 | 0°♊38'54  | 18°43'56   | superior conj    | 8172 May 14 22:33 | 28°♊20'42 | -1°51'04   |
| retrograde       | 8171 Jul 06 11:33 | 4°♊42'10  |            | minimum elong    | 8172 May 15 04:18 | 28°♊46'10 | 1°50'39    |
| evening set      | 8171 Jul 08 12:19 | 4°♊28'04  |            |                  | 8172 May 15 20:55 | 0°♊       |            |
| inferior conj    | 8171 Jul 16 11:50 | 0°♊06'00  | 0°11'18    | evening rise     | 8172 May 25 11:35 | 17°♊34'58 |            |
| minimum elong    | 8171 Jul 16 12:17 | 0°♊05'12  | 0°11'00    | asc. node        | 8172 May 29 04:41 | 24°♊26'08 |            |
| transit middle   | 8171 Jul 16 12:17 | 0°♊05'12  | 0°11'00    |                  | 8172 Jun 01 07:25 | 0°♊       |            |
| transit begin    | 8171 Jul 16 09:36 | 0°♊10'09  |            | evening max el   | 8172 Jun 10 15:05 | 13°♊18'13 | 18°14'52   |
| transit end      | 8171 Jul 16 14:58 | 0°♊00'14  |            | retrograde       | 8172 Jun 17 17:46 | 16°♊52'44 |            |
|                  | 8171 Jul 16 15:05 | 30°♊      |            | evening set      | 8172 Jun 20 01:56 | 16°♊30'15 |            |
| desc. node       | 8171 Jul 17 02:53 | 29°♊38'06 |            | inferior conj    | 8172 Jun 27 06:02 | 11°♊47'29 | 1°37'22    |
| min. Earth dist. | 8171 Jul 19 17:05 | 27°♊44'18 | 0.57137 AU | minimum elong    | 8172 Jun 27 08:51 | 11°♊41'24 | 1°36'19    |
| morning rise     | 8171 Jul 24 08:45 | 24°♊58'26 |            | min. Earth dist. | 8172 Jun 30 15:25 | 8°♊53'01  | 0.59229 AU |
| direct           | 8171 Jul 29 23:55 | 23°♊40'35 |            | desc. node       | 8172 Jul 02 23:55 | 7°♊06'06  |            |
|                  | 8171 Aug 12 01:32 | 0°♊       |            | morning rise     | 8172 Jul 04 12:40 | 6°♊08'21  |            |
| morning max el   | 8171 Aug 13 07:48 | 1°♊10'40  | 26°27'04   | direct           | 8172 Jul 10 20:14 | 4°♊19'04  |            |
|                  | 8171 Sep 02 16:58 | 0°♊       |            | morning max el   | 8172 Jul 25 05:06 | 12°♊08'18 | 27°29'34   |
| asc. node        | 8171 Sep 08 07:10 | 10°♊48'10 |            |                  | 8172 Aug 08 06:06 | 0°♊       |            |
| morning set      | 8171 Sep 11 05:34 | 16°♊54'25 |            |                  | 8172 Aug 24 20:35 | 0°♊       |            |
|                  | 8171 Sep 17 05:30 | 0°♊       |            | asc. node        | 8172 Aug 25 04:08 | 0°♊39'22  |            |
|                  |                   |           |            | morning set      | 8172 Aug 25 13:11 | 1°♊26'43  |            |
| superior conj    | 8171 Sep 18 03:27 | 2°♊01'41  | 1°25'27    | max. Earth dist. | 8172 Sep 01 01:47 | 15°♊36'05 | 1.31663 AU |
| minimum elong    | 8171 Sep 18 01:25 | 1°♊50'20  | 1°25'12    |                  |                   |           |            |
| max. Earth dist. | 8171 Sep 18 15:25 | 3°♊07'56  | 1.31831 AU | superior conj    | 8172 Sep 01 15:13 | 16°♊50'35 | 1°09'42    |
| evening rise     | 8171 Sep 25 00:56 | 17°♊01'19 |            | minimum elong    | 8172 Sep 01 12:58 | 16°♊38'05 | 1°09'19    |
|                  | 8171 Oct 01 12:28 | 0°♊       |            |                  | 8172 Sep 07 14:48 | 0°♊       |            |
| desc. node       | 8171 Oct 13 01:44 | 19°♊30'04 |            | evening rise     | 8172 Sep 08 09:24 | 1°♊39'42  |            |
|                  | 8171 Oct 20 22:47 | 0°♊       |            |                  | 8172 Sep 23 14:11 | 0°♊       |            |
| evening max el   | 8171 Oct 26 02:13 | 5°♊28'19  | 27°06'43   | desc. node       | 8172 Sep 28 22:49 | 7°♊46'06  |            |
| retrograde       | 8171 Nov 08 23:39 | 12°♊39'25 |            | evening max el   | 8172 Oct 07 01:21 | 17°♊04'06 | 26°10'58   |
| evening set      | 8171 Nov 15 23:40 | 10°♊29'24 |            | retrograde       | 8172 Oct 20 23:32 | 24°♊08'39 |            |
| min. Earth dist. | 8171 Nov 19 16:56 | 7°♊47'02  | 0.60884 AU | evening set      | 8172 Oct 27 11:15 | 22°♊27'22 |            |
| inferior conj    | 8171 Nov 22 19:49 | 5°♊06'59  | -3°49'54   | min. Earth dist. | 8172 Oct 31 14:25 | 19°♊52'46 | 0.58802 AU |
| minimum elong    | 8171 Nov 23 02:45 | 4°♊52'09  | 3°47'37    | inferior conj    | 8172 Nov 03 18:30 | 17°♊31'27 | -4°50'44   |
| morning rise     | 8171 Nov 30 08:09 | 0°♊15'39  |            | minimum elong    | 8172 Nov 04 01:24 | 17°♊18'34 | 4°49'12    |
|                  | 8171 Dec 01 13:25 | 30°♊      |            | morning rise     | 8172 Nov 11 17:51 | 13°♊02'26 |            |
| direct           | 8171 Dec 02 13:14 | 29°♊55'59 |            | direct           | 8172 Nov 14 00:26 | 12°♊44'59 |            |
|                  | 8171 Dec 03 12:50 | 0°♊       |            | asc. node        | 8172 Nov 21 03:43 | 15°♊48'25 |            |
| asc. node        | 8171 Dec 05 06:41 | 0°♊27'10  |            | morning max el   | 8172 Nov 22 03:09 | 16°♊41'50 | 18°29'10   |
| morning max el   | 8171 Dec 09 18:33 | 3°♊32'54  | 17°58'33   |                  | 8172 Dec 01 13:09 | 0°♊       |            |
| morning set      | 8171 Dec 25 10:21 | 28°♊13'21 |            | morning set      | 8172 Dec 08 03:17 | 12°♊17'01 |            |
|                  | 8171 Dec 26 09:30 | 0°♊       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8172 Dec 17 02:13 | 29°♊20'02 | 1°02'37    |
| superior conj    | 8172 Jan 04 14:45 | 16°♊39'49 | 0°32'23    | minimum elong    | 8172 Dec 17 05:39 | 29°♊35'57 | 1°02'19    |
| minimum elong    | 8172 Jan 04 17:19 | 16°♊51'02 | 0°32'09    |                  | 8172 Dec 17 10:51 | 0°♊       |            |
| desc. node       | 8172 Jan 09 00:51 | 24°♊17'43 |            | max. Earth dist. | 8172 Dec 24 12:55 | 12°♊40'42 | 1.40331 AU |
| max. Earth dist. | 8172 Jan 12 04:23 | 29°♊34'14 | 1.42362 AU | desc. node       | 8172 Dec 25 21:52 | 15°♊02'18 |            |
|                  | 8172 Jan 12 10:37 | 0°♊       |            | evening rise     | 8172 Dec 28 19:59 | 19°♊57'31 |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8173 Jan 04 01:08 | 0°♊       |            | evening rise        | 8173 Dec 10 12:19 | 1°♊46'22  |            |
|                  | 8173 Jan 25 01:39 | 0°♋       |            | desc. node          | 8173 Dec 12 18:53 | 5°♊42'16  |            |
| evening max el   | 8173 Feb 01 11:29 | 8°♋26'53  | 23°42'15   |                     | 8173 Dec 28 06:09 | 0°♋       |            |
| retrograde       | 8173 Feb 12 07:03 | 14°♋49'27 |            | evening max el      | 8174 Jan 15 00:41 | 22°♋13'27 | 24°59'55   |
| evening set      | 8173 Feb 17 10:37 | 12°♋40'53 |            | retrograde          | 8174 Jan 26 20:58 | 29°♋06'14 |            |
| asc. node        | 8173 Feb 17 02:49 | 12°♋56'54 |            | evening set         | 8174 Feb 01 13:13 | 26°♋44'36 |            |
| inferior conj    | 8173 Feb 22 21:10 | 6°♋13'39  | 1°47'45    | asc. node           | 8174 Feb 03 23:55 | 24°♋15'50 |            |
| minimum elong    | 8173 Feb 22 19:05 | 6°♋20'47  | 1°47'06    | min. Earth dist.    | 8174 Feb 06 01:06 | 21°♋42'50 | 0.67739 AU |
| min. Earth dist. | 8173 Feb 22 06:15 | 7°♋04'34  | 0.68275 AU | inferior conj       | 8174 Feb 07 03:28 | 20°♋16'19 | 1°01'26    |
| morning rise     | 8173 Feb 28 03:32 | 0°♋09'27  |            | minimum elong       | 8174 Feb 07 02:03 | 20°♋20'58 | 1°00'59    |
|                  | 8173 Feb 28 08:29 | 30°♋      |            | morning rise        | 8174 Feb 12 15:09 | 14°♋19'30 |            |
| direct           | 8173 Mar 04 06:42 | 28°♋33'23 |            | direct              | 8174 Feb 16 05:38 | 13°♋04'53 |            |
|                  | 8173 Mar 08 13:09 | 0°♋       |            | morning max el      | 8174 Feb 23 11:45 | 17°♋07'10 | 19°35'13   |
| morning max el   | 8173 Mar 12 09:43 | 3°♋11'48  | 20°42'21   |                     | 8174 Mar 05 15:07 | 0°♋       |            |
| desc. node       | 8173 Mar 23 21:30 | 17°♋36'49 |            | greatest brilliancy | 8174 Mar 08 05:31 | 3°♋47'25  | -0.7m      |
|                  | 8173 Apr 01 09:25 | 0°♌       |            | desc. node          | 8174 Mar 10 18:28 | 7°♋34'05  |            |
| morning set      | 8173 Apr 10 22:02 | 14°♌31'52 |            | morning set         | 8174 Mar 20 19:40 | 22°♋52'48 |            |
| max. Earth dist. | 8173 Apr 19 10:17 | 28°♌01'34 | 1.43208 AU |                     | 8174 Mar 25 10:06 | 0°♌       |            |
|                  | 8173 Apr 20 15:28 | 0°♍       |            | max. Earth dist.    | 8174 Apr 01 22:59 | 11°♌48'57 | 1.44637 AU |
| superior conj    | 8173 Apr 26 03:19 | 9°♍04'51  | -2°08'29   | superior conj       | 8174 Apr 06 07:21 | 18°♌44'56 | -2°10'16   |
| minimum elong    | 8173 Apr 26 06:43 | 9°♍19'07  | 2°08'27    | minimum elong       | 8174 Apr 06 04:33 | 18°♌33'42 | 2°10'16    |
| evening rise     | 8173 May 08 05:28 | 0°♎00'05  |            |                     | 8174 Apr 13 05:21 | 0°♍       |            |
|                  | 8173 May 08 05:27 | 0°♎       |            | evening rise        | 8174 Apr 20 03:20 | 11°♍31'38 |            |
| asc. node        | 8173 May 16 01:44 | 13°♎40'27 |            |                     | 8174 May 01 07:46 | 0°♎       |            |
| evening max el   | 8173 May 25 03:21 | 26°♎23'00 | 18°05'22   | asc. node           | 8174 May 02 22:49 | 2°♎27'49  |            |
| retrograde       | 8173 May 31 16:07 | 29°♎44'50 |            | evening max el      | 8174 May 08 16:41 | 9°♎45'00  | 18°14'45   |
| evening set      | 8173 Jun 03 07:43 | 29°♎11'14 |            | retrograde          | 8174 May 15 01:57 | 13°♎08'41 |            |
| inferior conj    | 8173 Jun 09 19:34 | 24°♎08'22 | 2°35'20    | evening set         | 8174 May 18 00:40 | 12°♎22'16 |            |
| minimum elong    | 8173 Jun 09 22:29 | 24°♎01'06 | 2°34'30    | inferior conj       | 8174 May 24 00:22 | 7°♎01'03  | 3°08'45    |
| min. Earth dist. | 8173 Jun 12 21:45 | 21°♎04'45 | 0.61476 AU | minimum elong       | 8174 May 24 02:14 | 6°♎55'51  | 3°08'21    |
| morning rise     | 8173 Jun 16 11:05 | 18°♎07'39 |            | min. Earth dist.    | 8174 May 26 13:28 | 4°♎10'32  | 0.63599 AU |
| desc. node       | 8173 Jun 19 20:59 | 16°♎22'16 |            | morning rise        | 8174 May 30 02:30 | 0°♎48'28  |            |
| direct           | 8173 Jun 23 03:43 | 15°♎49'23 |            |                     | 8174 May 31 05:17 | 30°♎      |            |
| morning max el   | 8173 Jul 07 09:04 | 23°♎49'29 | 27°55'09   | direct              | 8174 Jun 05 20:34 | 28°♎09'50 |            |
|                  | 8173 Jul 12 22:11 | 0°♏       |            | desc. node          | 8174 Jun 06 18:01 | 28°♎12'24 |            |
|                  | 8173 Aug 01 13:26 | 0°♐       |            |                     | 8174 Jun 12 00:17 | 0°♏       |            |
| morning set      | 8173 Aug 09 16:00 | 15°♐42'02 |            | morning max el      | 8174 Jun 19 17:46 | 6°♏12'01  | 27°42'51   |
| asc. node        | 8173 Aug 12 01:06 | 20°♐39'48 |            |                     | 8174 Jul 07 20:24 | 0°♏       |            |
| max. Earth dist. | 8173 Aug 15 10:12 | 27°♐55'43 | 1.31951 AU | morning set         | 8174 Jul 24 11:43 | 29°♏34'08 |            |
|                  | 8173 Aug 16 08:57 | 0°♑       |            |                     | 8174 Jul 24 16:54 | 0°♐       |            |
| superior conj    | 8173 Aug 17 01:31 | 1°♑30'55  | 0°49'15    | max. Earth dist.    | 8174 Jul 29 12:41 | 9°♐55'25  | 1.32711 AU |
| minimum elong    | 8173 Aug 16 23:33 | 1°♑20'06  | 0°48'48    | asc. node           | 8174 Jul 29 22:06 | 10°♐45'13 |            |
| evening rise     | 8173 Aug 23 20:25 | 16°♑22'10 |            | superior conj       | 8174 Aug 01 08:29 | 15°♐57'21 | 0°24'32    |
|                  | 8173 Aug 30 12:59 | 0°♒       |            | minimum elong       | 8174 Aug 01 07:20 | 15°♐51'08 | 0°24'11    |
| desc. node       | 8173 Sep 15 19:55 | 24°♒52'01 |            |                     | 8174 Aug 07 20:15 | 0°♑       |            |
| evening max el   | 8173 Sep 18 16:25 | 27°♒49'51 | 24°47'11   | evening rise        | 8174 Aug 08 08:04 | 1°♑03'07  |            |
|                  | 8173 Sep 21 03:16 | 0°♓       |            |                     | 8174 Aug 24 07:57 | 0°♒       |            |
| retrograde       | 8173 Oct 02 12:20 | 4°♓47'36  |            | evening max el      | 8174 Aug 31 03:40 | 8°♒05'07  | 23°08'57   |
| evening set      | 8173 Oct 07 22:47 | 3°♓41'24  |            | desc. node          | 8174 Sep 02 16:59 | 10°♒21'09 |            |
| min. Earth dist. | 8173 Oct 13 03:35 | 0°♓56'12  | 0.56874 AU | retrograde          | 8174 Sep 13 13:07 | 14°♒46'54 |            |
|                  | 8173 Oct 14 14:37 | 30°♓      |            | evening set         | 8174 Sep 17 11:42 | 14°♒12'55 |            |
| inferior conj    | 8173 Oct 15 21:14 | 29°♒10'06 | -5°29'22   | min. Earth dist.    | 8174 Sep 24 12:41 | 10°♒58'58 | 0.55409 AU |
| minimum elong    | 8173 Oct 16 00:21 | 29°♒05'02 | 5°29'03    | inferior conj       | 8174 Sep 26 04:19 | 10°♒01'21 | -5°26'47   |
| morning rise     | 8173 Oct 24 04:08 | 25°♒03'47 |            | minimum elong       | 8174 Sep 26 00:08 | 10°♒07'27 | 5°26'22    |
| direct           | 8173 Oct 26 17:09 | 24°♒45'45 |            | morning rise        | 8174 Oct 04 14:43 | 6°♒10'53  |            |
| morning max el   | 8173 Nov 05 02:02 | 29°♒12'15 | 19°21'32   | direct              | 8174 Oct 07 14:31 | 5°♒49'37  |            |
|                  | 8173 Nov 05 21:19 | 0°♔       |            | morning max el      | 8174 Oct 18 12:28 | 10°♒56'05 | 20°36'16   |
| asc. node        | 8173 Nov 08 00:44 | 2°♔25'23  |            | asc. node           | 8174 Oct 25 21:44 | 20°♒02'44 |            |
| morning set      | 8173 Nov 22 04:42 | 26°♔43'07 |            |                     | 8174 Oct 31 17:46 | 0°♔       |            |
|                  | 8173 Nov 23 20:01 | 0°♕       |            | morning set         | 8174 Nov 06 11:40 | 11°♔23'15 |            |
| superior conj    | 8173 Nov 30 06:37 | 12°♕48'20 | 1°23'41    | superior conj       | 8174 Nov 13 23:18 | 26°♔51'30 | 1°36'15    |
| minimum elong    | 8173 Nov 30 09:28 | 13°♕02'17 | 1°23'32    | minimum elong       | 8174 Nov 14 00:57 | 26°♔59'53 | 1°36'16    |
| max. Earth dist. | 8173 Dec 06 18:40 | 25°♕05'33 | 1.38161 AU |                     | 8174 Nov 15 12:33 | 0°♕       |            |
|                  | 8173 Dec 09 12:10 | 0°♖       |            | max. Earth dist.    | 8174 Nov 19 02:11 | 7°♕02'42  | 1.36107 AU |



|                     |                   |                                 |  |                     |                   |                                 |
|---------------------|-------------------|---------------------------------|--|---------------------|-------------------|---------------------------------|
| evening rise        | 8174 Nov 23 00:11 | 14° $\text{♊}$ 27'07            |  | 8175 Oct 23 17:10   | 0° $\text{♍}$     |                                 |
| desc. node          | 8174 Nov 29 15:54 | 26° $\text{♊}$ 13'33            |  |                     |                   |                                 |
|                     | 8174 Dec 01 22:08 | 0° $\text{♋}$                   |  | superior conj       | 8175 Oct 29 00:37 | 11° $\text{♍}$ 18'47 1°41'17    |
|                     | 8174 Dec 23 00:17 | 0° $\text{♌}$                   |  | minimum elong       | 8175 Oct 29 00:56 | 11° $\text{♍}$ 20'25 1°41'22    |
| evening max el      | 8174 Dec 28 13:40 | 5° $\text{♌}$ 59'21 26°08'03    |  | max. Earth dist.    | 8175 Nov 01 16:30 | 18° $\text{♍}$ 56'08 1.34361 AU |
| retrograde          | 8175 Jan 10 06:00 | 13° $\text{♌}$ 11'25            |  | evening rise        | 8175 Nov 06 03:46 | 27° $\text{♍}$ 50'17            |
| evening set         | 8175 Jan 16 10:43 | 10° $\text{♌}$ 39'58            |  |                     | 8175 Nov 07 06:46 | 0° $\text{♊}$                   |
| min. Earth dist.    | 8175 Jan 20 15:57 | 6° $\text{♌}$ 12'45 0.66828 AU  |  | desc. node          | 8175 Nov 16 12:55 | 16° $\text{♊}$ 31'17            |
| asc. node           | 8175 Jan 21 21:00 | 4° $\text{♌}$ 43'00             |  |                     | 8175 Nov 25 04:11 | 0° $\text{♋}$                   |
| inferior conj       | 8175 Jan 22 05:46 | 4° $\text{♌}$ 15'47 0°07'19     |  | evening max el      | 8175 Dec 11 02:54 | 19° $\text{♋}$ 38'34 26°59'17   |
| minimum elong       | 8175 Jan 22 05:34 | 4° $\text{♌}$ 16'24 0°07'22     |  | retrograde          | 8175 Dec 24 09:23 | 26° $\text{♋}$ 58'22            |
| transit middle      | 8175 Jan 22 05:34 | 4° $\text{♌}$ 16'24 0°07'22     |  | evening set         | 8175 Dec 31 01:11 | 24° $\text{♋}$ 22'16            |
| transit begin       | 8175 Jan 22 03:02 | 4° $\text{♌}$ 24'17             |  | min. Earth dist.    | 8176 Jan 04 00:36 | 20° $\text{♋}$ 29'14 0.65559 AU |
| transit end         | 8175 Jan 22 08:07 | 4° $\text{♌}$ 08'32             |  | inferior conj       | 8176 Jan 06 01:59 | 18° $\text{♋}$ 08'06 -0°53'51   |
|                     | 8175 Jan 26 00:58 | 30° $\text{♌}$ 3                |  | minimum elong       | 8176 Jan 06 03:33 | 18° $\text{♋}$ 03'38 0°53'01    |
| morning rise        | 8175 Jan 28 01:06 | 28° $\text{♋}$ 28'10            |  | asc. node           | 8176 Jan 08 18:04 | 15° $\text{♋}$ 14'08            |
| direct              | 8175 Jan 31 04:23 | 27° $\text{♋}$ 32'12            |  | morning rise        | 8176 Jan 12 07:06 | 12° $\text{♋}$ 32'06            |
|                     | 8175 Feb 05 14:21 | 0° $\text{♌}$                   |  | direct              | 8176 Jan 15 01:04 | 11° $\text{♋}$ 51'04            |
| morning max el      | 8175 Feb 06 21:07 | 1° $\text{♌}$ 10'42 18°43'28    |  | morning max el      | 8176 Jan 21 11:47 | 15° $\text{♋}$ 16'55 18°08'17   |
| desc. node          | 8175 Feb 25 15:24 | 27° $\text{♌}$ 49'56            |  |                     | 8176 Feb 01 04:54 | 0° $\text{♌}$                   |
|                     | 8175 Feb 27 00:35 | 0° $\text{♍}$                   |  | morning set         | 8176 Feb 09 01:11 | 12° $\text{♌}$ 41'48            |
| morning set         | 8175 Feb 28 08:03 | 2° $\text{♍}$ 03'26             |  | desc. node          | 8176 Feb 12 12:20 | 18° $\text{♌}$ 19'27            |
| max. Earth dist.    | 8175 Mar 15 16:10 | 26° $\text{♍}$ 04'43 1.45403 AU |  |                     | 8176 Feb 19 18:56 | 0° $\text{♍}$                   |
| superior conj       | 8175 Mar 16 16:13 | 27° $\text{♍}$ 38'57 -1°52'06   |  | superior conj       | 8176 Feb 23 22:14 | 6° $\text{♍}$ 32'50 -1°16'10    |
| minimum elong       | 8175 Mar 16 07:22 | 27° $\text{♍}$ 04'19 1°51'24    |  | minimum elong       | 8176 Feb 23 13:39 | 5° $\text{♍}$ 59'02 1°15'05     |
|                     | 8175 Mar 18 04:10 | 0° $\text{♎}$                   |  | max. Earth dist.    | 8176 Feb 26 11:34 | 10° $\text{♍}$ 33'51 1.45437 AU |
| evening rise        | 8175 Apr 01 01:44 | 22° $\text{♎}$ 03'41            |  |                     | 8176 Mar 09 22:59 | 0° $\text{♎}$                   |
|                     | 8175 Apr 06 00:18 | 0° $\text{♏}$                   |  | evening rise        | 8176 Mar 11 02:15 | 1° $\text{♎}$ 45'48             |
| greatest brilliancy | 8175 Apr 08 07:56 | 3° $\text{♏}$ 42'36 -0.9m       |  | greatest brilliancy | 8176 Mar 23 14:50 | 21° $\text{♎}$ 01'45 -0.7m      |
| asc. node           | 8175 Apr 19 19:54 | 20° $\text{♏}$ 38'46            |  |                     | 8176 Mar 29 19:48 | 0° $\text{♏}$                   |
| evening max el      | 8175 Apr 22 04:16 | 23° $\text{♏}$ 16'33 18°42'17   |  | evening max el      | 8176 Apr 04 12:01 | 6° $\text{♏}$ 53'13 19°26'47    |
| retrograde          | 8175 Apr 28 18:59 | 26° $\text{♏}$ 54'56            |  | asc. node           | 8176 Apr 05 16:58 | 8° $\text{♏}$ 02'29             |
| evening set         | 8175 May 02 01:01 | 25° $\text{♏}$ 54'35            |  | retrograde          | 8176 Apr 11 15:59 | 10° $\text{♏}$ 57'43            |
| inferior conj       | 8175 May 07 16:22 | 20° $\text{♏}$ 16'42 3°22'42    |  | evening set         | 8176 Apr 15 06:01 | 9° $\text{♏}$ 42'38             |
| minimum elong       | 8175 May 07 16:52 | 20° $\text{♏}$ 15'10 3°22'34    |  | inferior conj       | 8176 Apr 20 16:14 | 3° $\text{♏}$ 49'35 3°21'24     |
| min. Earth dist.    | 8175 May 09 14:16 | 17° $\text{♏}$ 56'00 0.65416 AU |  | minimum elong       | 8176 Apr 20 15:30 | 3° $\text{♏}$ 51'58 3°21'16     |
| morning rise        | 8175 May 13 08:01 | 13° $\text{♏}$ 59'19            |  | min. Earth dist.    | 8176 Apr 21 23:00 | 2° $\text{♏}$ 08'44 0.66826 AU  |
| direct              | 8175 May 19 21:08 | 11° $\text{♏}$ 12'20            |  |                     | 8176 Apr 23 16:13 | 30° $\text{♏}$ 9                |
| desc. node          | 8175 May 24 15:02 | 12° $\text{♏}$ 25'13            |  | morning rise        | 8176 Apr 26 00:38 | 27° $\text{♏}$ 31'46            |
| morning max el      | 8175 Jun 02 04:08 | 19° $\text{♏}$ 04'01 26°57'33   |  | direct              | 8176 May 02 04:04 | 24° $\text{♏}$ 48'24            |
|                     | 8175 Jun 11 10:28 | 0° $\text{♐}$                   |  | desc. node          | 8176 May 10 12:02 | 28° $\text{♏}$ 30'50            |
|                     | 8175 Jun 30 20:45 | 0° $\text{♑}$                   |  |                     | 8176 May 12 06:05 | 0° $\text{♏}$                   |
| morning set         | 8175 Jul 07 21:20 | 12° $\text{♑}$ 54'04            |  | morning max el      | 8176 May 14 14:01 | 2° $\text{♏}$ 14'02 25°47'31    |
| max. Earth dist.    | 8175 Jul 12 05:28 | 21° $\text{♑}$ 26'24 1.33955 AU |  |                     | 8176 Jun 04 13:46 | 0° $\text{♐}$                   |
| superior conj       | 8175 Jul 16 09:58 | 0° $\text{♒}$ 03'18 -0°03'51    |  | morning set         | 8176 Jun 19 17:01 | 25° $\text{♐}$ 31'34            |
| minimum elong       | 8175 Jul 16 10:11 | 0° $\text{♒}$ 04'26 0°03'58     |  |                     | 8176 Jun 22 02:49 | 0° $\text{♑}$                   |
| behind sun begin    | 8175 Jul 16 04:39 | 29° $\text{♑}$ 35'32            |  | max. Earth dist.    | 8176 Jun 23 11:20 | 2° $\text{♑}$ 34'09 1.35670 AU  |
| behind sun end      | 8175 Jul 16 15:42 | 0° $\text{♒}$ 33'22             |  | superior conj       | 8176 Jun 29 03:21 | 13° $\text{♑}$ 42'10 -0°34'47   |
|                     | 8175 Jul 16 09:20 | 0° $\text{♓}$                   |  | minimum elong       | 8176 Jun 29 05:24 | 13° $\text{♑}$ 52'31 0°34'33    |
| asc. node           | 8175 Jul 16 19:06 | 0° $\text{♓}$ 51'09             |  | asc. node           | 8176 Jul 02 16:04 | 20° $\text{♑}$ 53'48            |
| evening rise        | 8175 Jul 23 18:26 | 15° $\text{♓}$ 36'21            |  | evening rise        | 8176 Jul 07 01:28 | 29° $\text{♑}$ 56'17            |
|                     | 8175 Jul 30 23:55 | 0° $\text{♐}$                   |  |                     | 8176 Jul 07 02:11 | 0° $\text{♓}$                   |
| evening max el      | 8175 Aug 12 19:55 | 18° $\text{♐}$ 25'15 21°32'59   |  | evening max el      | 8176 Jul 25 00:05 | 29° $\text{♓}$ 19'44 20°11'27   |
| desc. node          | 8175 Aug 20 14:04 | 23° $\text{♐}$ 41'36            |  |                     | 8176 Jul 25 16:55 | 0° $\text{♐}$                   |
| retrograde          | 8175 Aug 25 03:26 | 24° $\text{♐}$ 31'33            |  | retrograde          | 8176 Aug 04 16:20 | 4° $\text{♐}$ 35'54             |
| evening set         | 8175 Aug 27 17:24 | 24° $\text{♐}$ 16'23            |  | desc. node          | 8176 Aug 06 11:09 | 4° $\text{♐}$ 27'43             |
| inferior conj       | 8175 Sep 05 22:32 | 20° $\text{♐}$ 18'03 -4°29'29   |  | evening set         | 8176 Aug 06 14:42 | 4° $\text{♐}$ 26'19             |
| minimum elong       | 8175 Sep 05 13:11 | 20° $\text{♐}$ 31'08 4°27'13    |  | inferior conj       | 8176 Aug 15 17:06 | 0° $\text{♐}$ 28'04 -2°46'44    |
| min. Earth dist.    | 8175 Sep 05 21:29 | 20° $\text{♐}$ 19'31 0.54712 AU |  | minimum elong       | 8176 Aug 15 09:33 | 0° $\text{♐}$ 39'14 2°44'08     |
| morning rise        | 8175 Sep 14 09:56 | 16° $\text{♐}$ 27'19            |  |                     | 8176 Aug 16 12:02 | 30° $\text{♐}$ 8                |
| direct              | 8175 Sep 17 24:00 | 15° $\text{♐}$ 59'22            |  | min. Earth dist.    | 8176 Aug 17 07:50 | 29° $\text{♐}$ 30'49 0.54969 AU |
| morning max el      | 8175 Sep 30 10:24 | 21° $\text{♐}$ 52'23 22°10'43   |  | morning rise        | 8176 Aug 24 03:13 | 26° $\text{♐}$ 17'05            |
|                     | 8175 Oct 07 09:17 | 0° $\text{♑}$                   |  | direct              | 8176 Aug 28 10:53 | 25° $\text{♐}$ 36'42            |
| asc. node           | 8175 Oct 12 18:43 | 8° $\text{♑}$ 26'43             |  |                     | 8176 Sep 08 09:49 | 0° $\text{♐}$                   |
| morning set         | 8175 Oct 21 21:56 | 26° $\text{♑}$ 11'23            |  | morning max el      | 8176 Sep 11 00:07 | 2° $\text{♐}$ 14'02 23°56'06    |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| asc. node        | 8176 Sep 28 15:40 | 27° $\mathbb{M}$ 25'30        |            | asc. node        | 8177 Sep 15 12:37 | 16° $\mathbb{M}$ 50'12        |            |
|                  | 8176 Sep 30 00:01 | 0° $\mathbb{L}$               |            | morning set      | 8177 Sep 19 21:01 | 25° $\mathbb{M}$ 48'41        |            |
| morning set      | 8176 Oct 05 09:36 | 11° $\mathbb{L}$ 01'25        |            |                  | 8177 Sep 21 19:43 | 0° $\mathbb{L}$               |            |
| superior conj    | 8176 Oct 12 07:36 | 26° $\mathbb{L}$ 00'39        | 1°39'42    | superior conj    | 8177 Sep 26 17:59 | 10° $\mathbb{L}$ 50'10        | 1°32'13    |
| minimum elong    | 8176 Oct 12 06:44 | 25° $\mathbb{L}$ 55'57        | 1°39'44    | minimum elong    | 8177 Sep 26 16:15 | 10° $\mathbb{L}$ 40'39        | 1°32'05    |
|                  | 8176 Oct 14 03:57 | 0° $\mathbb{M}$               |            | max. Earth dist. | 8177 Sep 27 21:20 | 13° $\mathbb{L}$ 20'47        | 1.32140 AU |
| max. Earth dist. | 8176 Oct 14 15:24 | 1° $\mathbb{M}$ 01'15         | 1.33026 AU | evening rise     | 8177 Oct 03 19:18 | 26° $\mathbb{L}$ 02'17        |            |
| evening rise     | 8176 Oct 19 19:11 | 11° $\mathbb{M}$ 44'54        |            |                  | 8177 Oct 05 17:42 | 0° $\mathbb{M}$               |            |
|                  | 8176 Oct 29 13:06 | 0° $\mathbb{J}$               |            | desc. node       | 8177 Oct 20 07:03 | 25° $\mathbb{M}$ 56'20        |            |
| desc. node       | 8176 Nov 02 09:57 | 6° $\mathbb{J}$ 28'25         |            |                  | 8177 Oct 23 00:10 | 0° $\mathbb{J}$               |            |
|                  | 8176 Nov 19 16:37 | 0° $\mathbb{Z}$               |            | evening max el   | 8177 Nov 05 00:23 | 15° $\mathbb{J}$ 47'10        | 27°23'26   |
| evening max el   | 8176 Nov 22 15:16 | 2° $\mathbb{Z}$ 59'05         | 27°26'27   | retrograde       | 8177 Nov 18 19:49 | 23° $\mathbb{J}$ 01'13        |            |
| retrograde       | 8176 Dec 06 06:13 | 10° $\mathbb{Z}$ 17'56        |            | evening set      | 8177 Nov 25 22:22 | 20° $\mathbb{J}$ 39'15        |            |
| evening set      | 8176 Dec 13 06:07 | 7° $\mathbb{Z}$ 44'19         |            | min. Earth dist. | 8177 Nov 29 14:34 | 17° $\mathbb{J}$ 46'01        | 0.62072 AU |
| min. Earth dist. | 8176 Dec 17 00:43 | 4° $\mathbb{Z}$ 23'46         | 0.63959 AU | inferior conj    | 8177 Dec 02 13:29 | 15° $\mathbb{J}$ 02'54        | -3°10'26   |
| inferior conj    | 8176 Dec 19 13:33 | 1° $\mathbb{Z}$ 46'20         | -2°00'43   | minimum elong    | 8177 Dec 02 19:27 | 14° $\mathbb{J}$ 49'07        | 3°08'11    |
| minimum elong    | 8176 Dec 19 17:18 | 1° $\mathbb{Z}$ 36'36         | 1°59'02    | morning rise     | 8177 Dec 09 18:41 | 9° $\mathbb{J}$ 59'51         |            |
|                  | 8176 Dec 21 07:37 | 30° $\mathbb{R}$ $\mathbb{J}$ |            | direct           | 8177 Dec 12 01:01 | 9° $\mathbb{J}$ 37'20         |            |
| asc. node        | 8176 Dec 25 15:07 | 26° $\mathbb{J}$ 42'02        |            | asc. node        | 8177 Dec 12 12:08 | 9° $\mathbb{J}$ 38'18         |            |
| morning rise     | 8176 Dec 26 06:12 | 26° $\mathbb{J}$ 25'03        |            | morning max el   | 8177 Dec 18 21:33 | 13° $\mathbb{J}$ 06'13        | 17°50'05   |
| direct           | 8176 Dec 28 17:03 | 25° $\mathbb{J}$ 55'05        |            |                  | 8177 Dec 30 08:50 | 0° $\mathbb{Z}$               |            |
| morning max el   | 8177 Jan 04 04:57 | 29° $\mathbb{J}$ 18'00        | 17°50'14   | morning set      | 8178 Jan 03 16:59 | 7° $\mathbb{Z}$ 43'37         |            |
|                  | 8177 Jan 04 21:18 | 0° $\mathbb{Z}$               |            | superior conj    | 8178 Jan 14 18:38 | 27° $\mathbb{Z}$ 10'28        | 0°10'55    |
| morning set      | 8177 Jan 20 22:14 | 24° $\mathbb{Z}$ 41'50        |            | minimum elong    | 8178 Jan 14 19:39 | 27° $\mathbb{Z}$ 14'49        | 0°10'54    |
|                  | 8177 Jan 24 01:02 | 0° $\approx$                  |            | behind sun begin | 8178 Jan 14 13:13 | 26° $\mathbb{Z}$ 47'24        |            |
| desc. node       | 8177 Jan 29 09:16 | 8° $\approx$ 57'42            |            | behind sun end   | 8178 Jan 15 02:05 | 27° $\mathbb{Z}$ 42'12        |            |
| superior conj    | 8177 Feb 02 19:52 | 16° $\approx$ 15'02           | -0°31'50   | desc. node       | 8178 Jan 16 06:13 | 29° $\mathbb{Z}$ 41'12        |            |
| minimum elong    | 8177 Feb 02 16:18 | 16° $\approx$ 00'34           | 0°31'12    |                  | 8178 Jan 16 10:41 | 0° $\approx$                  |            |
| max. Earth dist. | 8177 Feb 08 06:42 | 25° $\approx$ 00'01           | 1.44737 AU | max. Earth dist. | 8178 Jan 21 22:40 | 9° $\approx$ 05'28            | 1.43382 AU |
|                  | 8177 Feb 11 10:47 | 0° $\mathbb{H}$               |            | evening rise     | 8178 Jan 29 04:44 | 20° $\approx$ 37'32           |            |
| evening rise     | 8177 Feb 18 14:14 | 11° $\mathbb{H}$ 04'38        |            |                  | 8178 Feb 04 07:22 | 0° $\mathbb{H}$               |            |
|                  | 8177 Mar 03 03:22 | 0° $\mathbb{Y}$               |            |                  | 8178 Feb 25 17:25 | 0° $\mathbb{Y}$               |            |
| evening max el   | 8177 Mar 18 14:31 | 20° $\mathbb{Y}$ 31'34        | 20°26'18   | evening max el   | 8178 Mar 01 11:28 | 4° $\mathbb{Y}$ 10'38         | 21°37'34   |
| asc. node        | 8177 Mar 23 14:04 | 24° $\mathbb{Y}$ 25'11        |            | asc. node        | 8178 Mar 10 11:10 | 9° $\mathbb{Y}$ 31'42         |            |
| retrograde       | 8177 Mar 26 14:27 | 25° $\mathbb{Y}$ 11'30        |            | retrograde       | 8178 Mar 10 12:24 | 9° $\mathbb{Y}$ 31'43         |            |
| evening set      | 8177 Mar 30 13:28 | 23° $\mathbb{Y}$ 41'14        |            | evening set      | 8178 Mar 14 21:34 | 7° $\mathbb{Y}$ 46'11         |            |
| inferior conj    | 8177 Apr 04 21:12 | 17° $\mathbb{Y}$ 34'49        | 3°07'49    | inferior conj    | 8178 Mar 20 05:01 | 1° $\mathbb{Y}$ 28'50         | 2°43'52    |
| minimum elong    | 8177 Apr 04 19:34 | 17° $\mathbb{Y}$ 40'25        | 3°07'31    | minimum elong    | 8178 Mar 20 02:52 | 1° $\mathbb{Y}$ 36'21         | 2°43'21    |
| min. Earth dist. | 8177 Apr 05 13:49 | 16° $\mathbb{Y}$ 38'02        | 0.67785 AU | min. Earth dist. | 8178 Mar 20 08:41 | 1° $\mathbb{Y}$ 16'06         | 0.68304 AU |
| morning rise     | 8177 Apr 10 01:27 | 11° $\mathbb{Y}$ 18'57        |            |                  | 8178 Mar 21 06:41 | 30° $\mathbb{R}$ $\mathbb{H}$ |            |
| direct           | 8177 Apr 15 16:15 | 8° $\mathbb{Y}$ 48'50         |            | morning rise     | 8178 Mar 25 08:00 | 25° $\mathbb{H}$ 16'23        |            |
| morning max el   | 8177 Apr 26 23:05 | 15° $\mathbb{Y}$ 33'59        | 24°22'39   | direct           | 8178 Mar 30 08:49 | 23° $\mathbb{H}$ 05'32        |            |
| desc. node       | 8177 Apr 27 09:00 | 15° $\mathbb{Y}$ 59'19        |            | morning max el   | 8178 Apr 09 09:05 | 29° $\mathbb{H}$ 01'01        | 22°52'50   |
|                  | 8177 May 08 19:43 | 0° $\mathbb{B}$               |            |                  | 8178 Apr 10 07:58 | 0° $\mathbb{Y}$               |            |
|                  | 8177 May 28 12:17 | 0° $\mathbb{I}$               |            | desc. node       | 8178 Apr 14 05:58 | 4° $\mathbb{Y}$ 27'32         |            |
| morning set      | 8177 Jun 01 17:48 | 7° $\mathbb{I}$ 13'20         |            |                  | 8178 May 02 13:39 | 0° $\mathbb{B}$               |            |
| max. Earth dist. | 8177 Jun 05 09:24 | 13° $\mathbb{I}$ 41'45        | 1.37753 AU | morning set      | 8178 May 13 18:03 | 17° $\mathbb{B}$ 44'36        |            |
| superior conj    | 8177 Jun 12 09:22 | 26° $\mathbb{I}$ 45'24        | -1°06'34   | max. Earth dist. | 8178 May 18 05:55 | 25° $\mathbb{B}$ 18'52        | 1.39998 AU |
| minimum elong    | 8177 Jun 12 13:28 | 27° $\mathbb{I}$ 05'07        | 1°06'03    |                  | 8178 May 20 22:45 | 0° $\mathbb{I}$               |            |
|                  | 8177 Jun 14 01:34 | 0° $\mathbb{G}$               |            | superior conj    | 8178 May 25 23:50 | 9° $\mathbb{I}$ 01'59         | -1°36'24   |
| asc. node        | 8177 Jun 19 13:05 | 10° $\mathbb{G}$ 49'25        |            | minimum elong    | 8178 May 26 05:28 | 9° $\mathbb{I}$ 27'43         | 1°35'51    |
| evening rise     | 8177 Jun 21 02:40 | 13° $\mathbb{G}$ 56'03        |            | evening rise     | 8178 Jun 04 18:51 | 27° $\mathbb{I}$ 26'22        |            |
|                  | 8177 Jun 29 16:10 | 0° $\mathbb{Q}$               |            | asc. node        | 8178 Jun 06 10:07 | 0° $\mathbb{G}$ 32'57         |            |
| evening max el   | 8177 Jul 07 17:17 | 10° $\mathbb{Q}$ 59'00        | 19°09'52   |                  | 8178 Jun 06 03:10 | 0° $\mathbb{G}$               |            |
| retrograde       | 8177 Jul 16 17:20 | 15° $\mathbb{Q}$ 26'00        |            | evening max el   | 8178 Jun 20 20:47 | 23° $\mathbb{G}$ 18'13        | 18°29'07   |
| evening set      | 8177 Jul 18 15:01 | 15° $\mathbb{Q}$ 14'53        |            | retrograde       | 8178 Jun 28 12:58 | 27° $\mathbb{G}$ 07'48        |            |
| desc. node       | 8177 Jul 24 08:15 | 12° $\mathbb{Q}$ 49'31        |            | evening set      | 8178 Jun 30 16:38 | 26° $\mathbb{G}$ 50'37        |            |
| inferior conj    | 8177 Jul 27 01:50 | 11° $\mathbb{Q}$ 03'11        | -0°50'07   | inferior conj    | 8178 Jul 08 07:38 | 22° $\mathbb{G}$ 19'36        | 0°51'15    |
| minimum elong    | 8177 Jul 26 23:39 | 11° $\mathbb{Q}$ 06'53        | 0°49'24    | minimum elong    | 8178 Jul 08 09:25 | 22° $\mathbb{G}$ 16'04        | 0°50'27    |
| min. Earth dist. | 8177 Jul 29 21:24 | 9° $\mathbb{Q}$ 09'40         | 0.56135 AU | desc. node       | 8178 Jul 11 05:20 | 20° $\mathbb{G}$ 01'57        |            |
| morning rise     | 8177 Aug 04 05:19 | 6° $\mathbb{Q}$ 17'19         |            | min. Earth dist. | 8178 Jul 11 16:11 | 19° $\mathbb{G}$ 41'21        | 0.57979 AU |
| direct           | 8177 Aug 09 08:55 | 5° $\mathbb{Q}$ 16'01         |            | morning rise     | 8178 Jul 15 22:44 | 16° $\mathbb{G}$ 57'15        |            |
| morning max el   | 8177 Aug 23 13:01 | 12° $\mathbb{Q}$ 29'16        | 25°37'25   | direct           | 8178 Jul 21 21:19 | 15° $\mathbb{G}$ 26'30        |            |
|                  | 8177 Sep 06 03:36 | 0° $\mathbb{M}$               |            | morning max el   | 8178 Aug 05 06:42 | 23° $\mathbb{G}$ 06'04        | 26°57'54   |

|                  |                   |           |                |                  |                   |           |            |
|------------------|-------------------|-----------|----------------|------------------|-------------------|-----------|------------|
|                  | 8178 Aug 11 10:57 | 0°♎       |                |                  | 8179 Jul 13 05:13 | 0°♏       |            |
|                  | 8178 Aug 30 03:11 | 0°♍       | morning max el |                  | 8179 Jul 18 07:04 | 4°♏21'49  | 27°45'08   |
| asc. node        | 8178 Sep 02 09:35 | 6°♍33'07  |                |                  | 8179 Aug 06 06:15 | 0°♎       |            |
| morning set      | 8178 Sep 04 06:31 | 10°♍27'41 | morning set    |                  | 8179 Aug 19 12:20 | 24°♎53'10 |            |
|                  |                   |           | asc. node      |                  | 8179 Aug 20 06:35 | 26°♎28'32 |            |
| superior conj    | 8178 Sep 11 05:45 | 25°♍40'38 | 1°19'23        |                  | 8179 Aug 21 22:25 | 0°♍       |            |
| minimum elong    | 8178 Sep 11 03:34 | 25°♍28'28 | 1°19'04        | max. Earth dist. | 8179 Aug 25 16:51 | 8°♍12'21  | 1.31723 AU |
| max. Earth dist. | 8178 Sep 11 07:02 | 25°♍47'43 | 1.31704 AU     |                  |                   |           |            |
|                  | 8178 Sep 13 04:33 | 0°♌       |                | superior conj    | 8179 Aug 26 17:07 | 10°♍26'19 | 1°01'36    |
| evening rise     | 8178 Sep 18 01:20 | 10°♌34'20 |                | minimum elong    | 8179 Aug 26 14:55 | 10°♍14'11 | 1°01'10    |
|                  | 8178 Sep 27 23:41 | 0°♌       |                | evening rise     | 8179 Sep 02 11:06 | 25°♍14'35 |            |
| desc. node       | 8178 Oct 07 04:09 | 14°♌42'58 |                |                  | 8179 Sep 04 17:13 | 0°♌       |            |
| evening max el   | 8178 Oct 18 03:35 | 27°♌50'28 | 26°46'49       |                  | 8179 Sep 22 02:27 | 0°♌       |            |
|                  | 8178 Oct 20 14:28 | 0°♌       |                | desc. node       | 8179 Sep 24 01:15 | 2°♌31'55  |            |
| retrograde       | 8178 Nov 01 01:26 | 4°♌59'12  |                | evening max el   | 8179 Sep 29 23:02 | 9°♌03'30  | 25°38'08   |
| evening set      | 8178 Nov 07 21:51 | 2°♌59'51  |                | retrograde       | 8179 Oct 13 21:19 | 16°♌06'18 |            |
| min. Earth dist. | 8178 Nov 11 17:38 | 0°♌23'06  | 0.60000 AU     | evening set      | 8179 Oct 19 23:38 | 14°♌39'36 |            |
|                  | 8178 Nov 12 05:26 | 30°♌      |                | min. Earth dist. | 8179 Oct 24 11:22 | 12°♌02'38 | 0.57941 AU |
| inferior conj    | 8178 Nov 14 22:19 | 27°♌48'38 | -4°17'22       | inferior conj    | 8179 Oct 27 12:44 | 9°♌54'12  | -5°10'58   |
| minimum elong    | 8178 Nov 15 05:35 | 27°♌33'58 | 4°15'17        | minimum elong    | 8179 Oct 27 18:34 | 9°♌43'55  | 5°09'58    |
| morning rise     | 8178 Nov 22 15:43 | 23°♌06'57 |                | morning rise     | 8179 Nov 04 15:50 | 5°♌35'09  |            |
| direct           | 8178 Nov 24 20:52 | 22°♌48'38 |                | direct           | 8179 Nov 07 00:18 | 5°♌17'56  |            |
| asc. node        | 8178 Nov 29 09:09 | 24°♌08'49 |                | morning max el   | 8179 Nov 15 15:08 | 9°♌26'32  | 18°48'42   |
| morning max el   | 8178 Dec 02 10:11 | 26°♌32'36 | 18°09'03       | asc. node        | 8179 Nov 16 06:11 | 10°♌03'55 |            |
|                  | 8178 Dec 05 10:45 | 0°♌       |                |                  | 8179 Nov 29 01:28 | 0°♌       |            |
| morning set      | 8178 Dec 18 03:16 | 21°♌28'47 |                | morning set      | 8179 Dec 02 00:13 | 5°♌42'50  |            |
|                  | 8178 Dec 22 16:24 | 0°♏       |                |                  |                   |           |            |
| superior conj    | 8178 Dec 27 18:03 | 9°♏16'35  | 0°46'19        | superior conj    | 8179 Dec 10 13:18 | 22°♌18'50 | 1°12'38    |
| minimum elong    | 8178 Dec 27 21:13 | 9°♏30'48  | 0°46'02        | minimum elong    | 8179 Dec 10 16:37 | 22°♌34'32 | 1°12'23    |
| desc. node       | 8179 Jan 03 03:14 | 20°♏26'32 |                |                  | 8179 Dec 14 16:30 | 0°♏       |            |
| max. Earth dist. | 8179 Jan 04 09:31 | 22°♏34'44 | 1.41528 AU     | max. Earth dist. | 8179 Dec 17 15:57 | 5°♏20'42  | 1.39405 AU |
|                  | 8179 Jan 08 21:14 | 0°♏       |                | desc. node       | 8179 Dec 21 00:13 | 11°♏09'34 |            |
| evening rise     | 8179 Jan 09 11:00 | 0°♏55'48  |                | evening rise     | 8179 Dec 21 14:53 | 12°♏12'00 |            |
|                  | 8179 Jan 28 18:36 | 0°♏       |                |                  | 8180 Jan 01 16:24 | 0°♏       |            |
| evening max el   | 8179 Feb 12 03:56 | 17°♏52'26 | 22°56'04       | evening max el   | 8180 Jan 24 03:47 | 0°♏       |            |
| retrograde       | 8179 Feb 22 08:17 | 23°♏54'36 |                | retrograde       | 8180 Jan 25 17:50 | 1°♏37'42  | 24°16'02   |
| asc. node        | 8179 Feb 25 08:15 | 23°♏09'38 |                |                  | 8180 Feb 06 00:40 | 8°♏14'48  |            |
| evening set      | 8179 Feb 27 04:45 | 21°♏54'15 |                | evening set      | 8180 Feb 11 09:27 | 6°♏00'37  |            |
| min. Earth dist. | 8179 Mar 04 05:25 | 15°♏58'04 | 0.68398 AU     | asc. node        | 8180 Feb 12 05:21 | 5°♏15'08  |            |
| inferior conj    | 8179 Mar 04 13:43 | 15°♏29'18 | 2°10'44        | min. Earth dist. | 8180 Feb 16 01:41 | 0°♏38'43  | 0.68092 AU |
| minimum elong    | 8179 Mar 04 11:28 | 15°♏37'05 | 2°10'05        | inferior conj    | 8180 Feb 16 21:25 | 29°♏32'14 | 1°29'05    |
| morning rise     | 8179 Mar 09 18:06 | 9°♏21'32  |                | minimum elong    | 8180 Feb 16 19:33 | 29°♏38'31 | 1°28'30    |
| direct           | 8179 Mar 14 04:56 | 7°♏32'42  |                |                  | 8180 Feb 16 13:11 | 30°♏      |            |
| morning max el   | 8179 Mar 22 23:20 | 12°♏37'44 | 21°27'05       | morning rise     | 8180 Feb 22 05:44 | 23°♏30'40 |            |
| desc. node       | 8179 Apr 01 02:55 | 23°♏39'27 |                | direct           | 8180 Feb 26 03:19 | 22°♏03'55 |            |
|                  | 8179 Apr 05 16:44 | 0°♏       |                | morning max el   | 8180 Mar 04 20:37 | 26°♏25'50 | 20°11'55   |
| morning set      | 8179 Apr 23 14:46 | 27°♏00'07 |                |                  | 8180 Mar 08 02:24 | 0°♏       |            |
|                  | 8179 Apr 25 11:58 | 0°♏       |                | desc. node       | 8180 Mar 17 23:51 | 13°♏22'34 |            |
| max. Earth dist. | 8179 Apr 30 06:56 | 7°♏46'27  | 1.42134 AU     |                  | 8180 Mar 29 02:49 | 0°♏       |            |
|                  |                   |           |                | morning set      | 8180 Apr 01 14:50 | 5°♏22'33  |            |
| superior conj    | 8179 May 07 18:08 | 20°♏22'23 | -1°59'58       | max. Earth dist. | 8180 Apr 11 15:16 | 21°♏06'50 | 1.43893 AU |
| minimum elong    | 8179 May 07 23:22 | 20°♏45'01 | 1°59'43        |                  | 8180 Apr 17 02:54 | 0°♏       |            |
|                  | 8179 May 13 05:28 | 0°♏       |                | superior conj    | 8180 Apr 17 12:18 | 0°♏38'38  | -2°11'30   |
| evening rise     | 8179 May 18 22:12 | 10°♏18'10 |                | minimum elong    | 8180 Apr 17 13:28 | 0°♏43'22  | 2°11'34    |
| asc. node        | 8179 May 24 07:11 | 19°♏59'41 |                | evening rise     | 8180 Apr 30 08:02 | 22°♏20'48 |            |
|                  | 8179 May 30 08:55 | 0°♏       |                |                  | 8180 May 04 18:15 | 0°♏       |            |
| evening max el   | 8179 Jun 04 06:56 | 6°♏09'06  | 18°08'29       | asc. node        | 8180 May 10 04:15 | 9°♏03'17  |            |
| retrograde       | 8179 Jun 11 02:30 | 9°♏36'31  |                | evening max el   | 8180 May 17 20:03 | 19°♏22'06 | 18°07'08   |
| evening set      | 8179 Jun 13 13:45 | 9°♏09'43  |                | retrograde       | 8180 May 24 06:04 | 22°♏42'43 |            |
| inferior conj    | 8179 Jun 20 10:30 | 4°♏18'30  | 2°05'13        | evening set      | 8180 May 27 00:45 | 22°♏03'49 |            |
| minimum elong    | 8179 Jun 20 13:34 | 4°♏11'26  | 2°04'11        | inferior conj    | 8180 Jun 02 06:58 | 16°♏53'12 | 2°52'09    |
| min. Earth dist. | 8179 Jun 23 17:59 | 1°♏16'48  | 0.60180 AU     | minimum elong    | 8180 Jun 02 09:31 | 16°♏46'31 | 2°51'31    |
|                  | 8179 Jun 25 06:53 | 30°♏      |                | min. Earth dist. | 8180 Jun 05 04:10 | 13°♏52'33 | 0.62412 AU |
| morning rise     | 8179 Jun 27 10:34 | 28°♏28'35 |                | morning rise     | 8180 Jun 08 16:30 | 10°♏46'36 |            |
| desc. node       | 8179 Jun 28 02:23 | 28°♏05'11 |                | desc. node       | 8180 Jun 13 23:25 | 8°♏24'51  |            |
| direct           | 8179 Jul 03 22:56 | 26°♏25'58 |                | direct           | 8180 Jun 15 10:51 | 8°♏18'00  |            |

|                     |                   |                                 |            |                     |                   |                                 |            |
|---------------------|-------------------|---------------------------------|------------|---------------------|-------------------|---------------------------------|------------|
| morning max el      | 8180 Jun 29 13:06 | 16° $\Pi$ 20'17                 | 27°54'19   | morning max el      | 8181 Jun 11 22:37 | 28° $\mathcal{B}$ 55'57         | 27°27'11   |
|                     | 8180 Jul 10 18:51 | 0° $\mathcal{B}$                |            |                     | 8181 Jun 12 23:28 | 0° $\Pi$                        |            |
|                     | 8180 Jul 28 22:49 | 0° $\mathcal{Q}$                |            |                     | 8181 Jul 04 15:39 | 0° $\mathcal{B}$                |            |
| morning set         | 8180 Aug 02 12:26 | 8° $\mathcal{Q}$ 59'13          |            | morning set         | 8181 Jul 17 04:11 | 22° $\mathcal{B}$ 38'09         |            |
| asc. node           | 8180 Aug 06 03:34 | 16° $\mathcal{Q}$ 31'36         |            |                     | 8181 Jul 20 20:13 | 0° $\mathcal{Q}$                |            |
| max. Earth dist.    | 8180 Aug 07 22:59 | 20° $\mathcal{Q}$ 23'36         | 1.32208 AU | max. Earth dist.    | 8181 Jul 21 21:45 | 2° $\mathcal{Q}$ 11'40          | 1.33181 AU |
|                     |                   |                                 |            | asc. node           | 8181 Jul 24 00:32 | 6° $\mathcal{Q}$ 37'30          |            |
| superior conj       | 8180 Aug 10 02:15 | 25° $\mathcal{Q}$ 01'34         | 0°39'17    | superior conj       | 8181 Jul 25 07:08 | 9° $\mathcal{Q}$ 19'49          | 0°12'55    |
| minimum elong       | 8180 Aug 10 00:33 | 24° $\mathcal{Q}$ 52'21         | 0°38'51    | minimum elong       | 8181 Jul 25 06:29 | 9° $\mathcal{Q}$ 16'25          | 0°12'38    |
|                     | 8180 Aug 12 08:46 | 0° $\mathcal{M}$                |            | behind sun begin    | 8181 Jul 25 03:06 | 8° $\mathcal{Q}$ 58'24          |            |
| evening rise        | 8180 Aug 16 22:36 | 9° $\mathcal{M}$ 57'07          |            | behind sun end      | 8181 Jul 25 09:52 | 9° $\mathcal{Q}$ 34'27          |            |
|                     | 8180 Aug 27 03:44 | 0° $\mathcal{L}$                |            | evening rise        | 8181 Aug 01 09:56 | 24° $\mathcal{Q}$ 35'29         |            |
| desc. node          | 8180 Sep 09 22:20 | 19° $\mathcal{L}$ 00'47         |            |                     | 8181 Aug 04 00:05 | 0° $\mathcal{M}$                |            |
| evening max el      | 8180 Sep 10 11:53 | 19° $\mathcal{L}$ 33'59         | 24°06'23   | evening max el      | 8181 Aug 23 00:09 | 29° $\mathcal{M}$ 46'29         | 22°27'01   |
| retrograde          | 8180 Sep 24 04:59 | 26° $\mathcal{L}$ 26'17         |            |                     | 8181 Aug 23 05:43 | 0° $\mathcal{L}$                |            |
| evening set         | 8180 Sep 29 00:44 | 25° $\mathcal{L}$ 35'09         |            | desc. node          | 8181 Aug 27 19:27 | 3° $\mathcal{L}$ 39'11          |            |
| min. Earth dist.    | 8180 Oct 04 22:37 | 22° $\mathcal{L}$ 39'37         | 0.56171 AU | retrograde          | 8181 Sep 05 00:09 | 6° $\mathcal{L}$ 15'15          |            |
| inferior conj       | 8180 Oct 07 06:53 | 21° $\mathcal{L}$ 13'10         | -5°34'28   | evening set         | 8181 Sep 08 07:45 | 5° $\mathcal{L}$ 51'02          |            |
| minimum elong       | 8180 Oct 07 07:08 | 21° $\mathcal{L}$ 12'48         | 5°34'25    | min. Earth dist.    | 8181 Sep 16 06:51 | 2° $\mathcal{L}$ 20'53          | 0.55003 AU |
| morning rise        | 8180 Oct 15 15:38 | 17° $\mathcal{L}$ 14'30         |            | inferior conj       | 8181 Sep 17 07:09 | 1° $\mathcal{L}$ 46'34          | -5°09'17   |
| direct              | 8180 Oct 18 08:45 | 16° $\mathcal{L}$ 55'22         |            | minimum elong       | 8181 Sep 17 00:03 | 1° $\mathcal{L}$ 56'35          | 5°08'10    |
| morning max el      | 8180 Oct 28 08:55 | 21° $\mathcal{L}$ 38'11         | 19°50'33   |                     | 8181 Sep 20 13:19 | 30° $\mathcal{R}$ $\mathcal{M}$ |            |
| asc. node           | 8180 Nov 02 03:11 | 27° $\mathcal{L}$ 08'44         |            | morning rise        | 8181 Sep 25 18:11 | 27° $\mathcal{M}$ 58'41         |            |
|                     | 8180 Nov 04 02:43 | 0° $\mathcal{M}$                |            | direct              | 8181 Sep 28 23:59 | 27° $\mathcal{M}$ 34'55         |            |
| morning set         | 8180 Nov 15 04:22 | 20° $\mathcal{M}$ 16'24         |            |                     | 8181 Oct 06 17:24 | 0° $\mathcal{L}$                |            |
|                     | 8180 Nov 19 23:05 | 0° $\mathcal{X}$                |            | morning max el      | 8181 Oct 10 13:38 | 3° $\mathcal{L}$ 00'20          | 21°14'25   |
| superior conj       | 8180 Nov 22 23:27 | 6° $\mathcal{X}$ 03'40          | 1°29'59    | asc. node           | 8181 Oct 20 00:09 | 15° $\mathcal{L}$ 07'08         |            |
| minimum elong       | 8180 Nov 23 01:51 | 6° $\mathcal{X}$ 15'33          | 1°29'55    |                     | 8181 Oct 28 02:20 | 0° $\mathcal{M}$                |            |
| max. Earth dist.    | 8180 Nov 28 21:58 | 17° $\mathcal{X}$ 32'18         | 1.37266 AU | morning set         | 8181 Oct 30 12:59 | 5° $\mathcal{M}$ 00'46          |            |
| evening rise        | 8180 Dec 02 16:03 | 24° $\mathcal{X}$ 24'51         |            | superior conj       | 8181 Nov 06 20:12 | 20° $\mathcal{M}$ 18'04         | 1°39'14    |
|                     | 8180 Dec 05 20:19 | 0° $\mathcal{B}$                |            | minimum elong       | 8181 Nov 06 21:17 | 20° $\mathcal{M}$ 23'38         | 1°39'18    |
| desc. node          | 8180 Dec 06 21:15 | 1° $\mathcal{B}$ 46'49          |            | max. Earth dist.    | 8181 Nov 11 08:18 | 29° $\mathcal{M}$ 26'49         | 1.35322 AU |
|                     | 8180 Dec 25 08:19 | 0° $\approx$                    |            |                     | 8181 Nov 11 15:00 | 0° $\mathcal{X}$                |            |
| evening max el      | 8181 Jan 07 07:03 | 15° $\approx$ 25'33             | 25°30'29   | evening rise        | 8181 Nov 15 11:03 | 7° $\mathcal{X}$ 24'34          |            |
| retrograde          | 8181 Jan 19 12:28 | 22° $\approx$ 27'17             |            | desc. node          | 8181 Nov 23 18:17 | 22° $\mathcal{X}$ 13'07         |            |
| evening set         | 8181 Jan 25 10:04 | 20° $\approx$ 01'19             |            |                     | 8181 Nov 28 12:49 | 0° $\mathcal{B}$                |            |
| asc. node           | 8181 Jan 29 02:25 | 16° $\approx$ 06'34             |            | evening max el      | 8181 Dec 20 20:17 | 29° $\mathcal{B}$ 10'00         | 26°32'16   |
| min. Earth dist.    | 8181 Jan 29 19:09 | 15° $\approx$ 14'04             | 0.67404 AU |                     | 8181 Dec 21 17:25 | 0° $\approx$                    |            |
| inferior conj       | 8181 Jan 31 02:16 | 13° $\approx$ 34'16             | 0°39'24    | retrograde          | 8182 Jan 02 18:59 | 6° $\approx$ 25'48              |            |
| minimum elong       | 8181 Jan 31 01:18 | 13° $\approx$ 37'22             | 0°39'08    | evening set         | 8182 Jan 09 04:49 | 3° $\approx$ 51'35              |            |
| morning rise        | 8181 Feb 05 16:55 | 7° $\approx$ 40'52              |            |                     | 8182 Jan 13 00:25 | 30° $\mathcal{R}$ $\mathcal{B}$ |            |
| direct              | 8181 Feb 09 02:32 | 6° $\approx$ 34'24              |            | min. Earth dist.    | 8182 Jan 13 07:31 | 29° $\mathcal{B}$ 39'12         | 0.66340 AU |
| morning max el      | 8181 Feb 16 01:51 | 10° $\approx$ 24'50             | 19°11'07   | inferior conj       | 8182 Jan 15 02:15 | 27° $\mathcal{B}$ 31'14         | -0°17'47   |
| greatest brilliancy | 8181 Mar 01 09:23 | 28° $\approx$ 11'47             | -0.7m      | minimum elong       | 8182 Jan 15 02:44 | 27° $\mathcal{B}$ 29'46         | 0°17'26    |
|                     | 8181 Mar 02 14:02 | 0° $\mathcal{H}$                |            | asc. node           | 8182 Jan 15 23:28 | 26° $\mathcal{B}$ 28'09         |            |
| desc. node          | 8181 Mar 04 20:47 | 3° $\mathcal{H}$ 28'29          |            | morning rise        | 8182 Jan 21 01:30 | 21° $\mathcal{B}$ 48'20         |            |
| morning set         | 8181 Mar 11 15:58 | 13° $\mathcal{H}$ 56'54         |            | direct              | 8182 Jan 24 00:41 | 20° $\mathcal{B}$ 59'04         |            |
|                     | 8181 Mar 21 23:37 | 0° $\mathcal{Y}$                |            | morning max el      | 8182 Jan 30 13:48 | 24° $\mathcal{B}$ 30'28         | 18°26'26   |
| max. Earth dist.    | 8181 Mar 25 06:23 | 5° $\mathcal{Y}$ 09'08          | 1.45061 AU |                     | 8182 Feb 04 04:43 | 0° $\approx$                    |            |
| superior conj       | 8181 Mar 28 06:49 | 9° $\mathcal{Y}$ 55'09          | -2°05'04   | morning set         | 8182 Feb 19 15:59 | 23° $\approx$ 43'59             |            |
| minimum elong       | 8181 Mar 28 00:59 | 9° $\mathcal{Y}$ 32'04          | 2°04'49    | desc. node          | 8182 Feb 19 17:43 | 23° $\approx$ 50'52             |            |
|                     | 8181 Apr 09 17:45 | 0° $\mathcal{B}$                |            |                     | 8182 Feb 23 14:41 | 0° $\mathcal{H}$                |            |
| evening rise        | 8181 Apr 11 20:03 | 3° $\mathcal{B}$ 26'39          |            | superior conj       | 8182 Mar 07 11:59 | 18° $\mathcal{H}$ 42'19         | -1°38'34   |
| asc. node           | 8181 Apr 27 01:19 | 27° $\mathcal{B}$ 36'13         |            | minimum elong       | 8182 Mar 07 02:22 | 18° $\mathcal{H}$ 04'40         | 1°37'36    |
|                     | 8181 Apr 28 21:06 | 0° $\Pi$                        |            | max. Earth dist.    | 8182 Mar 08 01:27 | 19° $\mathcal{H}$ 35'02         | 1.45513 AU |
| evening max el      | 8181 May 01 08:58 | 2° $\Pi$ 49'01                  | 18°24'18   |                     | 8182 Mar 14 17:06 | 0° $\mathcal{Y}$                |            |
| retrograde          | 8181 May 07 19:19 | 6° $\Pi$ 17'04                  |            | evening rise        | 8182 Mar 23 08:36 | 13° $\mathcal{Y}$ 36'06         |            |
| evening set         | 8181 May 10 21:15 | 5° $\Pi$ 24'39                  |            | greatest brilliancy | 8182 Apr 02 01:48 | 28° $\mathcal{Y}$ 53'36         | -0.8m      |
| inferior conj       | 8181 May 16 16:56 | 29° $\mathcal{B}$ 56'05         | 3°16'45    |                     | 8182 Apr 02 18:57 | 0° $\mathcal{B}$                |            |
| minimum elong       | 8181 May 16 18:13 | 29° $\mathcal{B}$ 52'19         | 3°16'30    | asc. node           | 8182 Apr 13 22:23 | 15° $\mathcal{B}$ 28'51         |            |
|                     | 8181 May 16 15:36 | 30° $\mathcal{R}$ $\mathcal{B}$ |            | evening max el      | 8182 Apr 14 19:08 | 16° $\mathcal{B}$ 23'28         | 18°59'11   |
| min. Earth dist.    | 8181 May 18 23:36 | 27° $\mathcal{B}$ 16'52         | 0.64425 AU | retrograde          | 8182 Apr 21 14:32 | 20° $\mathcal{B}$ 11'44         |            |
| morning rise        | 8181 May 22 14:15 | 23° $\mathcal{B}$ 41'03         |            | evening set         | 8182 Apr 24 23:55 | 19° $\mathcal{B}$ 05'03         |            |
| direct              | 8181 May 29 06:59 | 20° $\mathcal{B}$ 57'31         |            | inferior conj       | 8182 Apr 30 12:40 | 13° $\mathcal{B}$ 20'13         | 3°23'49    |
| desc. node          | 8181 May 31 20:26 | 21° $\mathcal{B}$ 18'39         |            |                     |                   |                                 |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| minimum elong       | 8182 Apr 30 12:37 | 13°♄20'22 | 3°23'42    | minimum elong    | 8183 Apr 14 13:53 | 27°♄03'04 | 3°16'50    |
| min. Earth dist.    | 8182 May 02 03:56 | 11°♄15'56 | 0.66068 AU | min. Earth dist. | 8183 Apr 15 15:37 | 25°♄36'50 | 0.67285 AU |
| morning rise        | 8182 May 06 00:52 | 7°♄02'15  |            | morning rise     | 8183 Apr 19 21:18 | 20°♄41'43 |            |
| direct              | 8182 May 12 10:11 | 4°♄15'49  |            | direct           | 8183 Apr 25 19:28 | 18°♄03'06 |            |
| desc. node          | 8182 May 18 17:25 | 6°♄23'47  |            | desc. node       | 8183 May 05 14:23 | 23°♄07'54 |            |
| morning max el      | 8182 May 25 09:11 | 11°♄58'05 | 26°30'18   | morning max el   | 8183 May 07 18:51 | 25°♄13'52 | 25°12'36   |
|                     | 8182 Jun 08 19:08 | 0°♄       |            |                  | 8183 May 12 02:45 | 0°♄       |            |
|                     | 8182 Jun 27 06:28 | 0°♄       |            |                  | 8183 Jun 02 06:58 | 0°♄       |            |
| morning set         | 8182 Jun 30 08:24 | 5°♄41'42  |            | morning set      | 8183 Jun 12 20:43 | 17°♄57'26 |            |
| max. Earth dist.    | 8182 Jul 04 10:15 | 13°♄33'19 | 1.34636 AU | max. Earth dist. | 8183 Jun 16 12:06 | 24°♄37'00 | 1.36521 AU |
|                     |                   |           |            |                  | 8183 Jun 19 08:24 | 0°♄       |            |
| superior conj       | 8182 Jul 09 05:30 | 23°♄15'13 | -0°16'44   | superior conj    | 8183 Jun 22 18:26 | 6°♄39'39  | -0°48'20   |
| minimum elong       | 8182 Jul 09 06:26 | 23°♄20'05 | 0°16'42    | minimum elong    | 8183 Jun 22 21:22 | 6°♄54'07  | 0°47'56    |
| asc. node           | 8182 Jul 10 21:32 | 26°♄42'45 |            | asc. node        | 8183 Jun 27 18:32 | 16°♄42'55 |            |
|                     | 8182 Jul 12 11:16 | 0°♄       |            | evening rise     | 8183 Jul 01 00:02 | 23°♄16'16 |            |
| evening rise        | 8182 Jul 16 19:11 | 9°♄04'14  |            |                  | 8183 Jul 04 09:02 | 0°♄       |            |
|                     | 8182 Jul 27 21:58 | 0°♄       |            | evening max el   | 8183 Jul 18 06:33 | 21°♄30'56 | 19°42'40   |
| evening max el      | 8182 Aug 04 20:45 | 10°♄17'50 | 20°55'57   | retrograde       | 8183 Jul 28 05:29 | 26°♄25'31 |            |
| desc. node          | 8182 Aug 14 16:31 | 15°♄55'58 |            | evening set      | 8183 Jul 30 01:56 | 26°♄16'04 |            |
| retrograde          | 8182 Aug 16 12:38 | 16°♄04'21 |            | desc. node       | 8183 Aug 01 13:36 | 25°♄35'53 |            |
| evening set         | 8182 Aug 18 17:40 | 15°♄52'43 |            | inferior conj    | 8183 Aug 07 22:47 | 22°♄13'27 | -1°56'53   |
| inferior conj       | 8182 Aug 27 23:33 | 11°♄55'46 | -3°49'51   | minimum elong    | 8183 Aug 07 17:27 | 22°♄21'46 | 1°54'57    |
| minimum elong       | 8182 Aug 27 14:10 | 12°♄09'04 | 3°47'05    | min. Earth dist. | 8183 Aug 10 03:42 | 20°♄51'15 | 0.55361 AU |
| min. Earth dist.    | 8182 Aug 28 15:50 | 11°♄32'40 | 0.54702 AU | morning rise     | 8183 Aug 16 06:46 | 17°♄48'13 |            |
| morning rise        | 8182 Sep 05 10:54 | 7°♄59'04  |            | direct           | 8183 Aug 20 22:33 | 17°♄00'05 |            |
| direct              | 8182 Sep 09 07:52 | 7°♄26'55  |            | morning max el   | 8183 Sep 03 19:59 | 23°♄54'48 | 24°40'48   |
| morning max el      | 8182 Sep 22 07:21 | 13°♄39'06 | 22°55'07   |                  | 8183 Sep 09 09:02 | 0°♄       |            |
|                     | 8182 Oct 04 17:02 | 0°♄       |            | asc. node        | 8183 Sep 23 18:06 | 22°♄57'31 |            |
| asc. node           | 8182 Oct 06 21:07 | 3°♄46'47  |            |                  | 8183 Sep 27 06:33 | 0°♄       |            |
| morning set         | 8182 Oct 15 00:03 | 19°♄50'04 |            | morning set      | 8183 Sep 29 11:47 | 4°♄39'26  |            |
|                     | 8182 Oct 19 17:50 | 0°♄       |            |                  |                   |           |            |
| superior conj       | 8182 Oct 22 00:14 | 4°♄52'16  | 1°41'22    | superior conj    | 8183 Oct 06 08:56 | 19°♄38'29 | 1°37'12    |
| minimum elong       | 8182 Oct 22 00:01 | 4°♄51'06  | 1°41'27    | minimum elong    | 8183 Oct 06 07:40 | 19°♄31'31 | 1°37'11    |
| max. Earth dist.    | 8182 Oct 25 02:11 | 11°♄23'21 | 1.33735 AU | max. Earth dist. | 8183 Oct 08 04:06 | 23°♄33'32 | 1.32585 AU |
| evening rise        | 8182 Oct 29 20:03 | 21°♄01'36 |            |                  | 8183 Oct 11 04:23 | 0°♄       |            |
|                     | 8182 Nov 03 13:00 | 0°♄       |            | evening rise     | 8183 Oct 13 15:31 | 5°♄06'57  |            |
| desc. node          | 8182 Nov 10 15:20 | 12°♄22'51 |            |                  | 8183 Oct 27 04:23 | 0°♄       |            |
|                     | 8182 Nov 22 10:23 | 0°♄       |            | desc. node       | 8183 Oct 28 12:24 | 2°♄08'54  |            |
| evening max el      | 8182 Dec 03 09:06 | 12°♄41'43 | 27°14'06   | evening max el   | 8183 Nov 15 20:17 | 25°♄50'00 | 27°29'13   |
| retrograde          | 8182 Dec 16 19:41 | 20°♄02'21 |            |                  | 8183 Nov 20 22:38 | 0°♄       |            |
| evening set         | 8182 Dec 23 15:34 | 17°♄25'56 |            | retrograde       | 8183 Nov 29 13:55 | 3°♄08'07  |            |
| min. Earth dist.    | 8182 Dec 27 12:37 | 13°♄47'25 | 0.64917 AU | evening set      | 8183 Dec 06 15:37 | 0°♄38'04  |            |
| inferior conj       | 8182 Dec 29 19:05 | 11°♄17'57 | -1°21'37   |                  | 8183 Dec 07 12:12 | 30°♄      |            |
| minimum elong       | 8182 Dec 29 21:33 | 11°♄11'12 | 1°20'27    | min. Earth dist. | 8183 Dec 10 08:39 | 27°♄30'03 | 0.63175 AU |
| asc. node           | 8183 Jan 02 20:31 | 7°♄17'28  |            | inferior conj    | 8183 Dec 13 02:08 | 24°♄48'24 | -2°30'12   |
| morning rise        | 8183 Jan 05 04:57 | 5°♄48'11  |            | minimum elong    | 8183 Dec 13 06:52 | 24°♄36'41 | 2°28'14    |
| direct              | 8183 Jan 07 19:36 | 5°♄12'23  |            | morning rise     | 8183 Dec 20 00:04 | 19°♄34'36 |            |
| morning max el      | 8183 Jan 14 05:58 | 8°♄35'44  | 17°58'32   | asc. node        | 8183 Dec 20 17:34 | 19°♄20'57 |            |
|                     | 8183 Jan 28 21:33 | 0°♄       |            | direct           | 8183 Dec 22 08:30 | 19°♄08'22 |            |
| morning set         | 8183 Jan 31 21:35 | 4°♄58'59  |            | morning max el   | 8183 Dec 28 23:22 | 22°♄33'08 | 17°47'59   |
| desc. node          | 8183 Feb 06 14:40 | 14°♄24'39 |            |                  | 8184 Jan 03 18:54 | 0°♄       |            |
|                     |                   |           |            | morning set      | 8184 Jan 14 04:46 | 17°♄28'23 |            |
| superior conj       | 8183 Feb 14 22:48 | 27°♄52'12 | -0°57'43   |                  | 8184 Jan 21 11:00 | 0°♄       |            |
| minimum elong       | 8183 Feb 14 16:07 | 27°♄25'35 | 0°56'45    | desc. node       | 8184 Jan 24 11:38 | 5°♄06'03  |            |
|                     | 8183 Feb 16 07:00 | 0°♄       |            | superior conj    | 8184 Jan 26 06:49 | 8°♄05'36  | -0°13'07   |
| max. Earth dist.    | 8183 Feb 18 20:59 | 4°♄04'41  | 1.45221 AU | minimum elong    | 8184 Jan 26 05:27 | 7°♄59'56  | 0°12'46    |
| evening rise        | 8183 Mar 03 02:11 | 23°♄04'06 |            | behind sun begin | 8184 Jan 25 23:42 | 7°♄36'06  |            |
|                     | 8183 Mar 07 14:31 | 0°♄       |            | behind sun end   | 8184 Jan 26 11:12 | 8°♄23'45  |            |
| greatest brilliancy | 8183 Mar 17 07:07 | 14°♄37'21 | -0.6m      | max. Earth dist. | 8184 Feb 01 14:35 | 18°♄22'49 | 1.44228 AU |
| evening max el      | 8183 Mar 29 00:39 | 0°♄00'41  | 19°50'24   |                  | 8184 Feb 08 23:51 | 0°♄       |            |
|                     | 8183 Mar 29 00:23 | 0°♄       |            | evening rise     | 8184 Feb 10 13:23 | 2°♄24'54  |            |
| asc. node           | 8183 Mar 31 19:29 | 2°♄28'28  |            |                  | 8184 Feb 29 03:44 | 0°♄       |            |
| retrograde          | 8183 Apr 05 12:33 | 4°♄19'49  |            | evening max el   | 8184 Mar 11 00:48 | 13°♄39'56 | 20°55'23   |
| evening set         | 8183 Apr 09 06:12 | 2°♄58'23  |            | asc. node        | 8184 Mar 17 16:34 | 18°♄21'08 |            |
|                     | 8183 Apr 12 06:53 | 30°♄      |            | retrograde       | 8184 Mar 19 11:03 | 18°♄37'10 |            |
| inferior conj       | 8183 Apr 14 15:03 | 26°♄59'12 | 3°17'01    |                  |                   |           |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8184 Mar 23 14:08 | 17°♿00'39 |            |                  | 8185 Feb 24 17:20 | 0°♿       |            |
| inferior conj    | 8184 Mar 28 21:32 | 10°♿49'19 | 2°58'51    | retrograde       | 8185 Mar 03 08:13 | 2°♿59'13  |            |
| minimum elong    | 8184 Mar 28 19:38 | 10°♿55'55 | 2°58'28    | asc. node        | 8185 Mar 04 13:40 | 2°♿51'33  |            |
| min. Earth dist. | 8184 Mar 29 08:35 | 10°♿11'09 | 0.68062 AU | evening set      | 8185 Mar 07 22:03 | 1°♿07'26  |            |
| morning rise     | 8184 Apr 03 00:53 | 4°♿34'31  |            |                  | 8185 Mar 09 03:02 | 30°♿      |            |
| direct           | 8184 Apr 08 09:51 | 2°♿11'47  |            | inferior conj    | 8185 Mar 13 05:58 | 24°♿46'41 | 2°30'53    |
| morning max el   | 8184 Apr 19 03:54 | 8°♿36'52  | 23°44'18   | minimum elong    | 8185 Mar 13 03:43 | 24°♿54'31 | 2°30'18    |
| desc. node       | 8184 Apr 21 11:22 | 11°♿04'28 |            | min. Earth dist. | 8185 Mar 13 04:31 | 24°♿51'46 | 0.68401 AU |
|                  | 8184 May 05 22:35 | 0°♿       |            | morning rise     | 8185 Mar 18 09:14 | 18°♿36'07 |            |
| morning set      | 8184 May 24 11:43 | 29°♿11'05 |            | direct           | 8185 Mar 23 04:11 | 16°♿34'13 |            |
|                  | 8184 May 24 23:10 | 0°♿       |            | morning max el   | 8185 Apr 01 15:07 | 22°♿07'20 | 22°15'21   |
| max. Earth dist. | 8184 May 28 08:03 | 5°♿51'20  | 1.38707 AU | desc. node       | 8185 Apr 08 08:19 | 29°♿53'07 |            |
|                  |                   |           |            |                  | 8185 Apr 08 10:29 | 0°♿       |            |
| superior conj    | 8184 Jun 04 18:24 | 19°♿24'32 | -1°19'42   |                  | 8185 Apr 29 05:56 | 0°♿       |            |
| minimum elong    | 8184 Jun 04 23:16 | 19°♿47'30 | 1°19'07    | morning set      | 8185 May 05 00:17 | 9°♿10'06  |            |
|                  | 8184 Jun 10 06:53 | 0°♿       |            | max. Earth dist. | 8185 May 10 06:03 | 17°♿49'31 | 1.40944 AU |
| evening rise     | 8184 Jun 13 21:48 | 7°♿04'23  |            |                  | 8185 May 17 07:04 | 0°♿       |            |
| asc. node        | 8184 Jun 13 15:34 | 6°♿34'00  |            |                  |                   |           |            |
|                  | 8184 Jun 27 03:51 | 0°♿       |            | superior conj    | 8185 May 18 00:58 | 1°♿19'34  | -1°47'27   |
| evening max el   | 8184 Jun 30 04:40 | 3°♿28'41  | 18°50'01   | minimum elong    | 8185 May 18 06:46 | 1°♿45'29  | 1°47'01    |
| retrograde       | 8184 Jul 08 13:42 | 7°♿37'29  |            | evening rise     | 8185 May 28 09:05 | 20°♿20'12 |            |
| evening set      | 8184 Jul 10 13:35 | 7°♿24'16  |            | asc. node        | 8185 May 31 12:38 | 26°♿11'33 |            |
| desc. node       | 8184 Jul 18 10:41 | 3°♿14'51  |            |                  | 8185 Jun 02 14:45 | 0°♿       |            |
| inferior conj    | 8184 Jul 18 16:06 | 3°♿05'06  | -0°04'05   | evening max el   | 8185 Jun 13 11:34 | 16°♿03'34 | 18°17'55   |
| minimum elong    | 8184 Jul 18 15:55 | 3°♿05'25  | 0°04'10    | retrograde       | 8185 Jun 20 17:20 | 19°♿41'28 |            |
| transit middle   | 8184 Jul 18 15:55 | 3°♿05'25  | 0°04'10    | evening set      | 8185 Jun 23 00:21 | 19°♿20'26 |            |
| transit begin    | 8184 Jul 18 12:20 | 3°♿11'52  |            | inferior conj    | 8185 Jun 30 07:11 | 14°♿40'34 | 1°26'08    |
| transit end      | 8184 Jul 18 19:31 | 2°♿58'56  |            | minimum elong    | 8185 Jun 30 09:48 | 14°♿35'01 | 1°25'07    |
| min. Earth dist. | 8184 Jul 21 19:24 | 0°♿50'12  | 0.56858 AU | min. Earth dist. | 8185 Jul 03 16:41 | 11°♿49'41 | 0.58898 AU |
|                  | 8184 Jul 23 01:27 | 30°♿      |            | desc. node       | 8185 Jul 05 07:45 | 10°♿35'20 |            |
| morning rise     | 8184 Jul 26 14:52 | 28°♿03'09 |            | morning rise     | 8185 Jul 07 16:04 | 9°♿05'34  |            |
| direct           | 8184 Aug 01 03:13 | 26°♿49'45 |            | direct           | 8185 Jul 13 21:31 | 7°♿21'10  |            |
|                  | 8184 Aug 10 05:35 | 0°♿       |            | morning max el   | 8185 Jul 28 06:36 | 15°♿07'50 | 27°22'32   |
| morning max el   | 8184 Aug 15 10:15 | 4°♿15'44  | 26°15'03   |                  | 8185 Aug 09 07:21 | 0°♿       |            |
|                  | 8184 Sep 03 00:54 | 0°♿       |            |                  | 8185 Aug 26 08:53 | 0°♿       |            |
| asc. node        | 8184 Sep 09 15:04 | 12°♿30'50 |            | asc. node        | 8185 Aug 27 12:03 | 2°♿20'14  |            |
| morning set      | 8184 Sep 12 22:34 | 19°♿23'36 |            | morning set      | 8185 Aug 28 06:44 | 3°♿57'59  |            |
|                  | 8184 Sep 17 19:29 | 0°♿       |            |                  |                   |           |            |
| superior conj    | 8184 Sep 19 20:07 | 4°♿29'13  | 1°27'24    | superior conj    | 8185 Sep 04 07:56 | 19°♿18'48 | 1°12'25    |
| minimum elong    | 8184 Sep 19 18:08 | 4°♿18'16  | 1°27'12    | minimum elong    | 8185 Sep 04 05:41 | 19°♿06'18 | 1°12'03    |
| max. Earth dist. | 8184 Sep 20 11:58 | 5°♿56'56  | 1.31895 AU | max. Earth dist. | 8185 Sep 03 22:21 | 18°♿25'37 | 1.31661 AU |
| evening rise     | 8184 Sep 26 18:27 | 19°♿31'43 |            |                  | 8185 Sep 09 04:10 | 0°♿       |            |
|                  | 8184 Oct 01 23:00 | 0°♿       |            | evening rise     | 8185 Sep 11 02:22 | 4°♿08'48  |            |
| desc. node       | 8184 Oct 14 09:30 | 21°♿21'01 |            |                  | 8185 Sep 24 18:00 | 0°♿       |            |
|                  | 8184 Oct 20 15:18 | 0°♿       |            | desc. node       | 8185 Oct 01 06:36 | 9°♿45'43  |            |
| evening max el   | 8184 Oct 28 03:24 | 8°♿21'08  | 27°12'13   | evening max el   | 8185 Oct 10 03:36 | 20°♿04'01 | 26°21'13   |
| retrograde       | 8184 Nov 11 00:21 | 15°♿32'47 |            | retrograde       | 8185 Oct 24 01:37 | 27°♿09'24 |            |
| evening set      | 8184 Nov 18 01:18 | 13°♿19'28 |            | evening set      | 8185 Oct 30 16:05 | 25°♿23'08 |            |
| min. Earth dist. | 8184 Nov 21 18:08 | 10°♿34'36 | 0.61196 AU | min. Earth dist. | 8185 Nov 03 16:53 | 22°♿48'37 | 0.59114 AU |
| inferior conj    | 8184 Nov 24 20:06 | 7°♿53'23  | -3°39'43   | inferior conj    | 8185 Nov 06 21:28 | 20°♿23'23 | -4°42'37   |
| minimum elong    | 8184 Nov 25 02:49 | 7°♿38'41  | 3°37'25    | minimum elong    | 8185 Nov 07 04:35 | 20°♿09'51 | 4°40'53    |
| morning rise     | 8184 Dec 02 06:36 | 2°♿58'47  |            | morning rise     | 8185 Nov 14 19:23 | 15°♿51'03 |            |
| direct           | 8184 Dec 04 11:54 | 2°♿38'28  |            | direct           | 8185 Nov 17 01:30 | 15°♿33'26 |            |
| asc. node        | 8184 Dec 06 14:37 | 2°♿57'35  |            | asc. node        | 8185 Nov 23 11:37 | 18°♿05'38 |            |
| morning max el   | 8184 Dec 11 14:39 | 6°♿13'03  | 17°55'43   | morning max el   | 8185 Nov 25 00:22 | 19°♿26'30 | 18°23'15   |
|                  | 8184 Dec 26 19:42 | 0°♿       |            |                  | 8185 Dec 02 19:29 | 0°♿       |            |
| morning set      | 8184 Dec 27 06:50 | 0°♿50'51  |            | morning set      | 8185 Dec 10 22:07 | 14°♿49'46 |            |
|                  |                   |           |            |                  | 8185 Dec 18 22:07 | 0°♿       |            |
| superior conj    | 8185 Jan 06 16:26 | 19°♿31'59 | 0°26'59    | superior conj    | 8185 Dec 20 00:52 | 2°♿03'26  | 0°58'38    |
| minimum elong    | 8185 Jan 06 18:40 | 19°♿41'42 | 0°26'48    | minimum elong    | 8185 Dec 20 04:17 | 2°♿19'08  | 0°58'19    |
| desc. node       | 8185 Jan 10 08:37 | 25°♿50'45 |            | max. Earth dist. | 8185 Dec 27 13:36 | 15°♿26'52 | 1.40648 AU |
|                  | 8185 Jan 12 20:00 | 0°♿       |            | desc. node       | 8185 Dec 28 05:37 | 16°♿35'25 |            |
| max. Earth dist. | 8185 Jan 14 04:27 | 2°♿14'20  | 1.42643 AU | evening rise     | 8186 Jan 01 00:30 | 22°♿56'41 |            |
| evening rise     | 8185 Jan 20 09:23 | 12°♿14'42 |            |                  | 8186 Jan 05 09:08 | 0°♿       |            |
|                  | 8185 Feb 01 00:54 | 0°♿       |            |                  | 8186 Jan 26 00:29 | 0°♿       |            |
| evening max el   | 8185 Feb 21 19:48 | 27°♿20'50 | 22°10'25   | evening max el   | 8186 Feb 04 10:59 | 11°♿04'03 | 23°30'18   |

|                  |                   |                            |            |                     |                   |                          |            |
|------------------|-------------------|----------------------------|------------|---------------------|-------------------|--------------------------|------------|
| retrograde       | 8186 Feb 15 02:36 | 17° $\text{K}$ 21'34       |            | evening max el      | 8187 Jan 18 00:13 | 24° $\approx$ 50'17      | 24°48'48   |
| asc. node        | 8186 Feb 19 10:46 | 15° $\text{K}$ 49'31       |            |                     | 8187 Jan 24 10:04 | 0° $\text{K}$            |            |
| evening set      | 8186 Feb 20 04:21 | 15° $\text{K}$ 14'59       |            | retrograde          | 8187 Jan 29 17:14 | 1° $\text{K}$ 39'39      |            |
| min. Earth dist. | 8186 Feb 25 01:11 | 9° $\text{K}$ 33'38        | 0.68319 AU |                     | 8187 Feb 03 11:01 | 30° $\text{R}$ $\approx$ |            |
| inferior conj    | 8186 Feb 25 14:26 | 8° $\text{K}$ 48'13        | 1°54'03    | evening set         | 8187 Feb 04 07:31 | 29° $\approx$ 19'48      |            |
| minimum elong    | 8186 Feb 25 12:17 | 8° $\text{K}$ 55'34        | 1°53'25    | asc. node           | 8187 Feb 06 07:50 | 27° $\approx$ 20'04      |            |
| morning rise     | 8186 Mar 02 20:12 | 2° $\text{K}$ 43'09        |            | min. Earth dist.    | 8187 Feb 08 20:27 | 24° $\approx$ 12'49      | 0.67840 AU |
| direct           | 8186 Mar 07 01:19 | 1° $\text{K}$ 03'51        |            | inferior conj       | 8187 Feb 09 21:08 | 22° $\approx$ 51'14      | 1°08'58    |
| morning max el   | 8186 Mar 15 08:08 | 5° $\text{K}$ 48'47        | 20°53'35   | minimum elong       | 8187 Feb 09 19:35 | 22° $\approx$ 56'22      | 1°08'29    |
| desc. node       | 8186 Mar 26 05:16 | 19° $\text{K}$ 19'23       |            | morning rise        | 8187 Feb 15 07:52 | 16° $\approx$ 53'09      |            |
|                  | 8186 Apr 02 15:02 | 0° $\text{Y}$              |            | direct              | 8187 Feb 19 00:07 | 15° $\approx$ 35'32      |            |
| morning set      | 8186 Apr 14 10:30 | 17° $\text{Y}$ 57'56       |            | morning max el      | 8187 Feb 26 08:58 | 19° $\approx$ 42'40      | 19°44'16   |
|                  | 8186 Apr 22 00:07 | 0° $\text{B}$              |            |                     | 8187 Mar 06 17:17 | 0° $\text{K}$            |            |
| max. Earth dist. | 8186 Apr 22 10:44 | 0° $\text{B}$ 43'04        | 1.42944 AU | greatest brilliancy | 8187 Mar 11 03:17 | 6° $\text{K}$ 20'02      | -0.6m      |
|                  |                   |                            |            | desc. node          | 8187 Mar 13 02:11 | 9° $\text{K}$ 13'14      |            |
| superior conj    | 8186 Apr 29 09:21 | 12° $\text{B}$ 13'25       | -2°06'42   | morning set         | 8187 Mar 24 07:55 | 26° $\text{K}$ 17'02     |            |
| minimum elong    | 8186 Apr 29 13:22 | 12° $\text{B}$ 30'25       | 2°06'38    |                     | 8187 Mar 26 17:40 | 0° $\text{Y}$            |            |
|                  | 8186 May 09 14:44 | 0° $\text{II}$             |            | max. Earth dist.    | 8187 Apr 04 22:14 | 14° $\text{Y}$ 23'40     | 1.44462 AU |
| evening rise     | 8186 May 11 05:36 | 2° $\text{II}$ 52'55       |            |                     |                   |                          |            |
| asc. node        | 8186 May 18 09:41 | 15° $\text{II}$ 29'35      |            | superior conj       | 8187 Apr 09 16:56 | 22° $\text{Y}$ 02'39     | -2°11'15   |
| evening max el   | 8186 May 27 23:21 | 29° $\text{II}$ 04'59      | 18°05'31   | minimum elong       | 8187 Apr 09 15:14 | 21° $\text{Y}$ 55'47     | 2°11'17    |
|                  | 8186 May 28 23:13 | 0° $\text{S}$              |            |                     | 8187 Apr 14 14:02 | 0° $\text{B}$            |            |
| retrograde       | 8186 Jun 03 13:35 | 2° $\text{S}$ 27'56        |            | evening rise        | 8187 Apr 23 06:41 | 14° $\text{B}$ 32'54     |            |
| evening set      | 8186 Jun 06 04:02 | 1° $\text{S}$ 56'12        |            |                     | 8187 May 02 11:55 | 0° $\text{II}$           |            |
|                  | 8186 Jun 09 08:43 | 30° $\text{R}$ $\text{II}$ |            | asc. node           | 8187 May 05 06:45 | 4° $\text{II}$ 21'41     |            |
| inferior conj    | 8186 Jun 12 18:03 | 26° $\text{II}$ 56'13      | 2°28'11    | evening max el      | 8187 May 11 12:42 | 12° $\text{II}$ 24'59    | 18°12'09   |
| minimum elong    | 8186 Jun 12 21:03 | 26° $\text{II}$ 48'54      | 2°27'17    | retrograde          | 8187 May 17 21:55 | 15° $\text{II}$ 47'28    |            |
| min. Earth dist. | 8186 Jun 15 21:48 | 23° $\text{II}$ 52'21      | 0.61142 AU | evening set         | 8187 May 20 19:33 | 15° $\text{II}$ 03'07    |            |
| morning rise     | 8186 Jun 19 11:44 | 20° $\text{II}$ 57'52      |            | inferior conj       | 8187 May 26 20:49 | 9° $\text{II}$ 44'40     | 3°04'59    |
| desc. node       | 8186 Jun 22 04:48 | 19° $\text{II}$ 30'26      |            | minimum elong       | 8187 May 26 22:52 | 9° $\text{II}$ 39'00     | 3°04'32    |
| direct           | 8186 Jun 26 03:24 | 18° $\text{II}$ 43'29      |            | min. Earth dist.    | 8187 May 29 12:08 | 6° $\text{II}$ 50'49     | 0.63302 AU |
| morning max el   | 8186 Jul 10 09:47 | 26° $\text{II}$ 42'52      | 27°53'48   | morning rise        | 8187 Jun 02 00:46 | 3° $\text{II}$ 33'16     |            |
|                  | 8186 Jul 13 11:59 | 0° $\text{S}$              |            | direct              | 8187 Jun 08 19:08 | 0° $\text{II}$ 56'48     |            |
|                  | 8186 Aug 02 22:13 | 0° $\text{Q}$              |            | desc. node          | 8187 Jun 09 01:48 | 0° $\text{II}$ 57'02     |            |
| morning set      | 8186 Aug 12 10:23 | 18° $\text{Q}$ 16'14       |            | morning max el      | 8187 Jun 22 17:53 | 8° $\text{II}$ 59'39     | 27°46'52   |
| asc. node        | 8186 Aug 14 09:02 | 22° $\text{Q}$ 19'37       |            |                     | 8187 Jul 09 00:43 | 0° $\text{S}$            |            |
|                  | 8186 Aug 17 22:40 | 0° $\text{M}$              |            |                     | 8187 Jul 26 04:43 | 0° $\text{Q}$            |            |
| max. Earth dist. | 8186 Aug 18 07:17 | 0° $\text{M}$ 47'04        | 1.31878 AU | morning set         | 8187 Jul 27 07:18 | 2° $\text{Q}$ 12'10      |            |
|                  |                   |                            |            | asc. node           | 8187 Aug 01 06:00 | 12° $\text{Q}$ 24'36     |            |
| superior conj    | 8186 Aug 19 18:33 | 4° $\text{M}$ 00'38        | 0°52'40    | max. Earth dist.    | 8187 Aug 01 10:42 | 12° $\text{Q}$ 49'28     | 1.32565 AU |
| minimum elong    | 8186 Aug 19 16:30 | 3° $\text{M}$ 49'22        | 0°52'12    |                     |                   |                          |            |
| evening rise     | 8186 Aug 26 13:05 | 18° $\text{M}$ 50'48       |            | superior conj       | 8187 Aug 04 02:08 | 18° $\text{Q}$ 29'30     | 0°28'33    |
|                  | 8186 Aug 31 22:59 | 0° $\text{A}$              |            | minimum elong       | 8187 Aug 04 00:49 | 18° $\text{Q}$ 22'25     | 0°28'09    |
| desc. node       | 8186 Sep 18 03:42 | 27° $\text{A}$ 03'43       |            |                     | 8187 Aug 09 09:15 | 0° $\text{M}$            |            |
|                  | 8186 Sep 20 20:48 | 0° $\text{M}$              |            | evening rise        | 8187 Aug 11 00:44 | 3° $\text{M}$ 32'10      |            |
| evening max el   | 8186 Sep 21 19:37 | 0° $\text{M}$ 56'03        | 25°00'56   |                     | 8187 Aug 25 06:09 | 0° $\text{A}$            |            |
| retrograde       | 8186 Oct 05 16:21 | 7° $\text{M}$ 55'31        |            | evening max el      | 8187 Sep 03 06:58 | 11° $\text{A}$ 14'05     | 23°23'52   |
| evening set      | 8186 Oct 11 07:20 | 6° $\text{M}$ 43'52        |            | desc. node          | 8187 Sep 05 00:47 | 12° $\text{A}$ 49'33     |            |
| min. Earth dist. | 8186 Oct 16 07:00 | 4° $\text{M}$ 01'28        | 0.57138 AU | retrograde          | 8187 Sep 16 19:01 | 17° $\text{A}$ 59'19     |            |
| inferior conj    | 8186 Oct 19 03:12 | 2° $\text{M}$ 09'02        | -5°25'45   | evening set         | 8187 Sep 20 23:01 | 17° $\text{A}$ 21'20     |            |
| minimum elong    | 8186 Oct 19 07:11 | 2° $\text{M}$ 02'26        | 5°25'18    | min. Earth dist.    | 8187 Sep 27 16:38 | 14° $\text{A}$ 12'32     | 0.55580 AU |
|                  | 8186 Oct 22 13:37 | 30° $\text{R}$ $\text{A}$  |            | inferior conj       | 8187 Sep 29 12:59 | 13° $\text{A}$ 07'14     | -5°30'35   |
| morning rise     | 8186 Oct 27 09:18 | 27° $\text{A}$ 59'41       |            | minimum elong       | 8187 Sep 29 09:57 | 13° $\text{A}$ 11'42     | 5°30'22    |
| direct           | 8186 Oct 29 20:56 | 27° $\text{A}$ 41'59       |            | morning rise        | 8187 Oct 07 23:01 | 9° $\text{A}$ 15'02      |            |
|                  | 8186 Nov 05 13:05 | 0° $\text{M}$              |            | direct              | 8187 Oct 10 20:54 | 8° $\text{A}$ 54'27      |            |
| morning max el   | 8186 Nov 08 00:55 | 2° $\text{M}$ 03'26        | 19°12'20   | morning max el      | 8187 Oct 21 13:18 | 13° $\text{A}$ 54'46     | 20°23'47   |
| asc. node        | 8186 Nov 10 08:37 | 4° $\text{M}$ 32'06        |            | asc. node           | 8187 Oct 28 05:36 | 22° $\text{A}$ 01'27     |            |
| morning set      | 8186 Nov 24 22:27 | 29° $\text{M}$ 13'06       |            |                     | 8187 Nov 02 01:59 | 0° $\text{M}$            |            |
|                  | 8186 Nov 25 07:53 | 0° $\text{Z}$              |            | morning set         | 8187 Nov 09 04:44 | 13° $\text{M}$ 51'47     |            |
|                  |                   |                            |            |                     |                   |                          |            |
| superior conj    | 8186 Dec 03 03:02 | 15° $\text{Z}$ 25'40       | 1°21'03    | superior conj       | 8187 Nov 16 18:08 | 29° $\text{M}$ 24'32     | 1°34'49    |
| minimum elong    | 8186 Dec 03 06:02 | 15° $\text{Z}$ 40'12       | 1°20'52    | minimum elong       | 8187 Nov 16 19:59 | 29° $\text{M}$ 33'54     | 1°34'50    |
| max. Earth dist. | 8186 Dec 09 19:20 | 27° $\text{Z}$ 56'52       | 1.38478 AU |                     | 8187 Nov 17 01:09 | 0° $\text{Z}$            |            |
|                  | 8186 Dec 10 22:42 | 0° $\text{Z}$              |            | max. Earth dist.    | 8187 Nov 22 02:07 | 9° $\text{Z}$ 56'30      | 1.36395 AU |
| evening rise     | 8186 Dec 13 13:39 | 4° $\text{Z}$ 37'20        |            | evening rise        | 8187 Nov 25 22:51 | 17° $\text{Z}$ 11'19     |            |
| desc. node       | 8186 Dec 15 02:37 | 7° $\text{Z}$ 16'34        |            | desc. node          | 8187 Dec 01 23:38 | 27° $\text{Z}$ 49'46     |            |
|                  | 8186 Dec 29 10:49 | 0° $\approx$               |            |                     | 8187 Dec 03 06:34 | 0° $\text{Z}$            |            |

|                  |                   |                      |  |                     |                   |                      |  |
|------------------|-------------------|----------------------|--|---------------------|-------------------|----------------------|--|
|                  | 8187 Dec 23 19:39 | 0°♊                  |  | evening rise        | 8188 Nov 08 00:23 | 0°♊29'20             |  |
| evening max el   | 8187 Dec 31 13:12 | 8°♊36'56 25°58'51    |  | desc. node          | 8188 Nov 17 20:42 | 18°♊10'23            |  |
| retrograde       | 8188 Jan 13 03:01 | 15°♊46'55            |  |                     | 8188 Nov 25 08:06 | 0°♊                  |  |
| evening set      | 8188 Jan 19 05:52 | 13°♊16'49            |  | evening max el      | 8188 Dec 13 02:34 | 22°♊18'18 26°52'58   |  |
| min. Earth dist. | 8188 Jan 23 12:05 | 8°♊44'19 0.66986 AU  |  | retrograde          | 8188 Dec 26 07:12 | 29°♊37'05            |  |
| asc. node        | 8188 Jan 24 04:54 | 7°♊52'01             |  | evening set         | 8189 Jan 01 21:30 | 27°♊01'25            |  |
| inferior conj    | 8188 Jan 25 00:08 | 6°♊51'38 0°16'01     |  | min. Earth dist.    | 8189 Jan 05 21:47 | 23°♊03'19 0.65775 AU |  |
| minimum elong    | 8188 Jan 24 23:43 | 6°♊52'57 0°15'59     |  | inferior conj       | 8189 Jan 07 21:25 | 20°♊45'27 -0°44'07   |  |
| transit middle   | 8188 Jan 24 23:43 | 6°♊52'57 0°15'59     |  | minimum elong       | 8189 Jan 07 22:41 | 20°♊41'48 0°43'26    |  |
| transit begin    | 8188 Jan 24 23:22 | 6°♊54'03             |  | asc. node           | 8189 Jan 10 01:56 | 18°♊18'53            |  |
| transit end      | 8188 Jan 25 00:05 | 6°♊51'50             |  | morning rise        | 8189 Jan 14 00:57 | 15°♊07'29            |  |
| morning rise     | 8188 Jan 30 18:11 | 1°♊02'21             |  | direct              | 8189 Jan 16 20:14 | 14°♊24'23            |  |
| direct           | 8188 Feb 02 23:02 | 0°♊03'48             |  | morning max el      | 8189 Jan 23 07:17 | 17°♊51'17 18°12'24   |  |
| morning max el   | 8188 Feb 09 17:16 | 3°♊45'08 18°50'06    |  |                     | 8189 Feb 01 10:01 | 0°♊                  |  |
| desc. node       | 8188 Feb 27 23:06 | 29°♊26'39            |  | morning set         | 8189 Feb 11 05:23 | 15°♊41'25            |  |
|                  | 8188 Feb 28 07:39 | 0°♊                  |  | desc. node          | 8189 Feb 13 20:03 | 19°♊54'29            |  |
| morning set      | 8188 Mar 02 16:45 | 5°♊16'29             |  |                     | 8189 Feb 20 03:16 | 0°♊                  |  |
| max. Earth dist. | 8188 Mar 17 14:42 | 28°♊35'36 1.45337 AU |  |                     |                   |                      |  |
|                  | 8188 Mar 18 12:13 | 0°♊                  |  | superior conj       | 8189 Feb 26 08:53 | 9°♊51'14 -1°22'23    |  |
|                  |                   |                      |  | minimum elong       | 8189 Feb 25 23:50 | 9°♊15'38 1°21'18     |  |
| superior conj    | 8188 Mar 19 03:48 | 1°♊01'14 -1°56'08    |  | max. Earth dist.    | 8189 Feb 28 10:10 | 13°♊04'35 1.45483 AU |  |
| minimum elong    | 8188 Mar 18 19:34 | 0°♊28'54 1°55'34     |  |                     | 8189 Mar 11 06:28 | 0°♊                  |  |
| evening rise     | 8188 Apr 03 08:33 | 25°♊13'21            |  | evening rise        | 8189 Mar 14 11:53 | 5°♊01'27             |  |
|                  | 8188 Apr 06 07:27 | 0°♊                  |  | greatest brilliancy | 8189 Mar 26 08:00 | 23°♊20'06 -0.7m      |  |
| asc. node        | 8188 Apr 21 03:49 | 22°♊38'54            |  |                     | 8189 Mar 30 20:08 | 0°♊                  |  |
| evening max el   | 8188 Apr 24 00:43 | 25°♊55'45 18°37'06   |  | evening max el      | 8189 Apr 07 09:10 | 9°♊31'56 19°19'12    |  |
| retrograde       | 8188 Apr 30 14:02 | 29°♊31'00            |  | asc. node           | 8189 Apr 08 00:54 | 10°♊10'34            |  |
| evening set      | 8188 May 03 19:00 | 28°♊32'44            |  | retrograde          | 8189 Apr 14 10:37 | 13°♊31'45            |  |
| inferior conj    | 8188 May 09 11:22 | 22°♊57'19 3°21'37    |  | evening set         | 8189 Apr 17 23:28 | 12°♊18'48            |  |
| minimum elong    | 8188 May 09 12:04 | 22°♊55'11 3°21'27    |  | inferior conj       | 8189 Apr 23 10:15 | 6°♊27'50 3°22'26     |  |
| min. Earth dist. | 8188 May 11 11:36 | 20°♊31'23 0.65173 AU |  | minimum elong       | 8189 Apr 23 09:41 | 6°♊29'39 3°22'19     |  |
| morning rise     | 8188 May 15 04:24 | 16°♊40'28            |  | min. Earth dist.    | 8189 Apr 24 19:10 | 4°♊40'50 0.66643 AU  |  |
| direct           | 8188 May 21 18:40 | 13°♊53'52            |  | morning rise        | 8189 Apr 28 19:32 | 0°♊10'00             |  |
| desc. node       | 8188 May 25 22:47 | 14°♊50'14            |  |                     | 8189 Apr 29 00:04 | 30°♊                 |  |
| morning max el   | 8188 Jun 04 04:02 | 21°♊47'46 27°06'05   |  | direct              | 8189 May 05 00:37 | 27°♊25'36            |  |
|                  | 8188 Jun 11 07:42 | 0°♊                  |  |                     | 8189 May 11 21:06 | 0°♊                  |  |
|                  | 8188 Jul 01 05:36 | 0°♊                  |  | desc. node          | 8189 May 12 19:46 | 0°♊40'47             |  |
| morning set      | 8188 Jul 09 18:40 | 15°♊37'54            |  | morning max el      | 8189 May 17 14:05 | 4°♊55'47 25°59'11    |  |
| max. Earth dist. | 8188 Jul 14 05:05 | 24°♊25'14 1.33737 AU |  |                     | 8189 Jun 05 19:06 | 0°♊                  |  |
|                  | 8188 Jul 16 22:08 | 0°♊                  |  | morning set         | 8189 Jun 22 16:42 | 28°♊22'29            |  |
|                  |                   |                      |  |                     | 8189 Jun 23 13:43 | 0°♊                  |  |
| superior conj    | 8188 Jul 18 04:36 | 2°♊39'35 0°00'41     |  | max. Earth dist.    | 8189 Jun 26 12:43 | 5°♊36'28 1.35388 AU  |  |
| minimum elong    | 8188 Jul 18 04:35 | 2°♊39'25 0°00'32     |  |                     |                   |                      |  |
| behind sun begin | 8188 Jul 17 22:58 | 2°♊09'57             |  | superior conj       | 8189 Jul 01 23:24 | 16°♊23'07 -0°29'59   |  |
| behind sun end   | 8188 Jul 18 10:11 | 3°♊08'56             |  | minimum elong       | 8189 Jul 02 01:09 | 16°♊32'00 0°29'47    |  |
| asc. node        | 8188 Jul 18 03:01 | 2°♊31'11             |  | asc. node           | 8189 Jul 05 00:01 | 22°♊34'54            |  |
| evening rise     | 8188 Jul 25 11:27 | 18°♊07'32            |  |                     | 8189 Jul 08 14:01 | 0°♊                  |  |
|                  | 8188 Jul 31 08:19 | 0°♊                  |  | evening rise        | 8189 Jul 09 19:08 | 2°♊30'12             |  |
| evening max el   | 8188 Aug 14 22:03 | 21°♊32'13 21°46'37   |  |                     | 8189 Jul 25 20:16 | 0°♊                  |  |
| desc. node       | 8188 Aug 21 21:52 | 26°♊32'12            |  | evening max el      | 8189 Jul 28 00:12 | 2°♊20'27 20°22'23    |  |
| retrograde       | 8188 Aug 27 10:18 | 27°♊44'43            |  | retrograde          | 8189 Aug 07 22:37 | 7°♊44'34             |  |
| evening set      | 8188 Aug 30 04:21 | 27°♊27'41            |  | desc. node          | 8189 Aug 08 18:58 | 7°♊42'44             |  |
| inferior conj    | 8188 Sep 08 08:28 | 23°♊28'17 -4°41'41   |  | evening set         | 8189 Aug 09 22:16 | 7°♊34'39             |  |
| minimum elong    | 8188 Sep 07 23:29 | 23°♊40'51 4°39'40    |  | inferior conj       | 8189 Aug 19 02:01 | 3°♊37'09 -3°04'03    |  |
| min. Earth dist. | 8188 Sep 08 01:18 | 23°♊38'18 0.54758 AU |  | minimum elong       | 8189 Aug 18 17:49 | 3°♊49'06 3°01'19     |  |
| morning rise     | 8188 Sep 16 19:48 | 19°♊38'53            |  | min. Earth dist.    | 8189 Aug 20 11:08 | 2°♊48'52 0.54872 AU  |  |
| direct           | 8188 Sep 20 07:43 | 19°♊12'05            |  |                     | 8189 Aug 26 01:49 | 30°♊                 |  |
| morning max el   | 8188 Oct 02 12:54 | 24°♊58'01 21°55'38   |  | morning rise        | 8189 Aug 27 12:37 | 29°♊30'35            |  |
|                  | 8188 Oct 07 03:17 | 0°♊                  |  | direct              | 8189 Aug 31 17:28 | 28°♊52'36            |  |
| asc. node        | 8188 Oct 14 02:35 | 10°♊19'34            |  |                     | 8189 Sep 06 05:15 | 0°♊                  |  |
| morning set      | 8188 Oct 23 14:41 | 28°♊39'36            |  | morning max el      | 8189 Sep 14 03:25 | 5°♊23'20 23°40'16    |  |
|                  | 8188 Oct 24 05:59 | 0°♊                  |  | asc. node           | 8189 Sep 30 23:34 | 29°♊13'50            |  |
|                  |                   |                      |  |                     | 8189 Oct 01 09:27 | 0°♊                  |  |
| superior conj    | 8188 Oct 30 18:24 | 13°♊49'10 1°40'56    |  | morning set         | 8189 Oct 08 02:17 | 13°♊29'51            |  |
| minimum elong    | 8188 Oct 30 18:54 | 13°♊51'51 1°41'03    |  |                     |                   |                      |  |
| max. Earth dist. | 8188 Nov 03 15:24 | 21°♊50'17 1.34600 AU |  | superior conj       | 8189 Oct 15 00:43 | 28°♊29'25 1°40'19    |  |
|                  | 8188 Nov 07 18:18 | 0°♊                  |  | minimum elong       | 8189 Oct 15 00:01 | 28°♊25'37 1°40'22    |  |



|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8189 Oct 15 17:31 | 0°♍       |            | max. Earth dist. | 8190 Sep 30 18:09 | 16°♊10'48 | 1.32242 AU |
| max. Earth dist. | 8189 Oct 17 13:11 | 3°♍53'41  | 1.33200 AU | evening rise     | 8190 Oct 06 13:16 | 28°♊34'10 |            |
| evening rise     | 8189 Oct 22 14:18 | 14°♍19'50 |            |                  | 8190 Oct 07 05:57 | 0°♍       |            |
|                  | 8189 Oct 30 21:51 | 0°♊       |            | desc. node       | 8190 Oct 22 14:52 | 27°♍44'17 |            |
| desc. node       | 8189 Nov 04 17:47 | 8°♊11'17  |            |                  | 8190 Oct 24 02:19 | 0°♊       |            |
|                  | 8189 Nov 20 06:20 | 0°♊       |            | evening max el   | 8190 Nov 08 00:50 | 18°♊35'46 | 27°25'56   |
| evening max el   | 8189 Nov 25 15:10 | 5°♊42'20  | 27°24'06   | retrograde       | 8190 Nov 21 19:51 | 25°♊51'04 |            |
| retrograde       | 8189 Dec 09 04:58 | 13°♊01'32 |            | evening set      | 8190 Nov 28 22:28 | 23°♊26'33 |            |
| evening set      | 8189 Dec 16 04:03 | 10°♊26'55 |            | min. Earth dist. | 8190 Dec 02 14:40 | 20°♊29'53 | 0.62364 AU |
| min. Earth dist. | 8189 Dec 19 23:16 | 7°♊01'52  | 0.64220 AU | inferior conj    | 8190 Dec 05 12:20 | 17°♊46'38 | -2°59'56   |
| inferior conj    | 8189 Dec 22 10:28 | 4°♊26'17  | -1°50'16   | minimum elong    | 8190 Dec 05 18:01 | 17°♊33'18 | 2°57'43    |
| minimum elong    | 8189 Dec 22 13:52 | 4°♊17'18  | 1°48'44    | morning rise     | 8190 Dec 12 15:41 | 12°♊40'50 |            |
|                  | 8189 Dec 27 07:22 | 30°♋♊     |            | direct           | 8190 Dec 14 22:28 | 12°♊17'29 |            |
| asc. node        | 8189 Dec 27 22:58 | 29°♊35'33 |            | asc. node        | 8190 Dec 14 20:02 | 12°♊17'32 |            |
| morning rise     | 8189 Dec 29 01:19 | 29°♊02'42 |            | morning max el   | 8190 Dec 21 17:16 | 15°♊44'58 | 17°48'59   |
| direct           | 8189 Dec 31 13:06 | 28°♊31'17 |            |                  | 8190 Dec 31 16:30 | 0°♊       |            |
|                  | 8190 Jan 04 18:10 | 0°♊       |            | morning set      | 8191 Jan 06 14:39 | 10°♊24'53 |            |
| morning max el   | 8190 Jan 07 00:19 | 1°♊53'52  | 17°51'50   |                  |                   |           |            |
| morning set      | 8190 Jan 23 22:41 | 27°♊30'47 |            | superior conj    | 8191 Jan 17 22:20 | 0°♋09'13  | 0°04'49    |
|                  | 8190 Jan 25 09:57 | 0°♋       |            | minimum elong    | 8191 Jan 17 22:49 | 0°♋11'14  | 0°04'53    |
| desc. node       | 8190 Jan 31 17:03 | 10°♋32'06 |            | behind sun begin | 8191 Jan 17 14:18 | 29°♊35'15 |            |
|                  |                   |           |            | behind sun end   | 8191 Jan 18 07:20 | 0°♋47'08  |            |
| superior conj    | 8190 Feb 06 03:23 | 19°♋24'24 | -0°38'39   |                  | 8191 Jan 17 20:10 | 0°♋       |            |
| minimum elong    | 8190 Feb 05 23:00 | 19°♋06'40 | 0°37'54    | desc. node       | 8191 Jan 18 14:02 | 1°♋15'20  |            |
| max. Earth dist. | 8190 Feb 11 05:45 | 27°♋33'16 | 1.44885 AU | max. Earth dist. | 8191 Jan 24 22:10 | 11°♋42'31 | 1.43615 AU |
|                  | 8190 Feb 12 18:56 | 0°♋       |            | evening rise     | 8191 Feb 01 14:07 | 23°♋50'45 |            |
| evening rise     | 8190 Feb 22 00:55 | 14°♋21'59 |            |                  | 8191 Feb 05 14:09 | 0°♋       |            |
|                  | 8190 Mar 04 08:25 | 0°♋       |            |                  | 8191 Feb 26 13:12 | 0°♋       |            |
| evening max el   | 8190 Mar 21 12:28 | 23°♋10'10 | 20°16'35   | evening max el   | 8191 Mar 04 10:10 | 6°♋49'15  | 21°26'20   |
| asc. node        | 8190 Mar 25 21:58 | 26°♋43'39 |            | asc. node        | 8191 Mar 12 19:04 | 12°♋02'59 |            |
| retrograde       | 8190 Mar 29 09:04 | 27°♋44'30 |            | retrograde       | 8191 Mar 13 07:17 | 12°♋04'18 |            |
| evening set      | 8190 Apr 02 06:41 | 26°♋16'27 |            | evening set      | 8191 Mar 17 14:48 | 10°♋21'06 |            |
| inferior conj    | 8190 Apr 07 14:37 | 20°♋11'45 | 3°10'34    | inferior conj    | 8191 Mar 22 22:10 | 4°♋05'08  | 2°48'06    |
| minimum elong    | 8190 Apr 07 13:06 | 20°♋16'56 | 3°10'19    | minimum elong    | 8191 Mar 22 20:04 | 4°♋12'26  | 2°47'38    |
| min. Earth dist. | 8190 Apr 08 09:13 | 19°♋08'26 | 0.67669 AU | min. Earth dist. | 8191 Mar 23 03:42 | 3°♋45'52  | 0.68253 AU |
| morning rise     | 8190 Apr 12 19:18 | 13°♋55'27 |            |                  | 8191 Mar 26 00:12 | 30°♋♋     |            |
| direct           | 8190 Apr 18 12:01 | 11°♋23'01 |            | morning rise     | 8191 Mar 28 01:09 | 27°♋51'57 |            |
| desc. node       | 8190 Apr 29 16:45 | 17°♋58'34 |            | direct           | 8191 Apr 02 04:03 | 25°♋37'57 |            |
| morning max el   | 8190 Apr 29 23:20 | 18°♋15'06 | 24°35'51   |                  | 8191 Apr 10 14:40 | 0°♋       |            |
|                  | 8190 May 09 20:14 | 0°♋       |            | morning max el   | 8191 Apr 12 09:02 | 1°♋41'25  | 23°06'06   |
|                  | 8190 May 29 20:42 | 0°♋       |            | desc. node       | 8191 Apr 16 13:43 | 6°♋19'12  |            |
| morning set      | 8190 Jun 04 20:39 | 10°♋13'31 |            |                  | 8191 May 03 19:32 | 0°♋       |            |
| max. Earth dist. | 8190 Jun 08 11:40 | 16°♋42'31 | 1.37426 AU | morning set      | 8191 May 17 00:52 | 20°♋56'11 |            |
|                  |                   |           |            | max. Earth dist. | 8191 May 21 07:45 | 28°♋12'35 | 1.39664 AU |
| superior conj    | 8190 Jun 15 07:20 | 29°♋32'02 | -1°01'48   |                  | 8191 May 22 08:31 | 0°♋       |            |
| minimum elong    | 8190 Jun 15 11:07 | 29°♋50'28 | 1°01'18    |                  |                   |           |            |
|                  | 8190 Jun 15 13:05 | 0°♋       |            | superior conj    | 8191 May 29 00:22 | 11°♋56'06 | -1°32'10   |
| asc. node        | 8190 Jun 21 21:04 | 12°♋31'58 |            | minimum elong    | 8191 May 29 05:51 | 12°♋21'21 | 1°31'37    |
| evening rise     | 8190 Jun 23 21:24 | 16°♋33'27 |            | evening rise     | 8191 Jun 07 15:08 | 0°♋08'32  |            |
|                  | 8190 Jun 30 21:52 | 0°♋       |            |                  | 8191 Jun 07 13:21 | 0°♋       |            |
| evening max el   | 8190 Jul 10 15:30 | 13°♋52'42 | 19°17'42   | asc. node        | 8191 Jun 08 18:05 | 2°♋17'32  |            |
| retrograde       | 8190 Jul 19 21:21 | 18°♋26'44 |            | evening max el   | 8191 Jun 23 17:42 | 26°♋06'23 | 18°33'54   |
| evening set      | 8190 Jul 21 18:24 | 18°♋16'13 |            |                  | 8191 Jul 01 04:55 | 0°♋       |            |
| desc. node       | 8190 Jul 26 16:01 | 16°♋23'15 |            | retrograde       | 8191 Jul 01 13:58 | 0°♋00'32  |            |
| inferior conj    | 8190 Jul 30 08:00 | 14°♋07'00 | -1°07'19   |                  | 8191 Jul 01 23:03 | 30°♋♋     |            |
| minimum elong    | 8190 Jul 30 05:01 | 14°♋11'56 | 1°06'17    | evening set      | 8191 Jul 03 16:31 | 29°♋44'33 |            |
| min. Earth dist. | 8190 Aug 02 00:12 | 12°♋21'23 | 0.55909 AU | inferior conj    | 8191 Jul 11 10:30 | 25°♋16'45 | 0°37'31    |
| morning rise     | 8190 Aug 07 12:49 | 9°♋26'36  |            | minimum elong    | 8191 Jul 11 11:51 | 25°♋14'07 | 0°36'53    |
| direct           | 8190 Aug 12 13:16 | 8°♋29'05  |            | desc. node       | 8191 Jul 13 13:05 | 23°♋38'37 |            |
| morning max el   | 8190 Aug 26 16:05 | 15°♋37'49 | 25°23'18   | min. Earth dist. | 8191 Jul 14 18:13 | 22°♋43'48 | 0.57671 AU |
|                  | 8190 Sep 07 05:33 | 0°♋       |            | morning rise     | 8191 Jul 19 03:40 | 19°♋59'21 |            |
| asc. node        | 8190 Sep 17 20:34 | 18°♋35'15 |            | direct           | 8191 Jul 24 23:43 | 18°♋33'10 |            |
| morning set      | 8190 Sep 22 13:51 | 28°♋17'51 |            | morning max el   | 8191 Aug 08 08:50 | 26°♋09'54 | 26°47'51   |
|                  | 8190 Sep 23 08:56 | 0°♋       |            |                  | 8191 Aug 11 23:48 | 0°♋       |            |
|                  |                   |           |            |                  | 8191 Aug 31 13:20 | 0°♋       |            |
| superior conj    | 8190 Sep 29 10:44 | 13°♋18'15 | 1°33'43    | asc. node        | 8191 Sep 04 17:34 | 8°♋16'04  |            |
| minimum elong    | 8190 Sep 29 09:07 | 13°♋09'21 | 1°33'36    | morning set      | 8191 Sep 06 23:44 | 12°♋58'33 |            |

|                  |                   |                               |            |                  |  |                   |                            |            |
|------------------|-------------------|-------------------------------|------------|------------------|--|-------------------|----------------------------|------------|
| superior conj    | 8191 Sep 13 22:25 | 28° $\mathbb{M}$ 09'16        | 1°21'40    |                  |  | 8192 Aug 22 11:25 | 0° $\mathbb{M}$            |            |
| minimum elong    | 8191 Sep 13 20:16 | 27° $\mathbb{M}$ 57'21        | 1°21'23    | max. Earth dist. |  | 8192 Aug 27 13:24 | 11° $\mathbb{M}$ 02'27     | 1.31686 AU |
| max. Earth dist. | 8191 Sep 14 03:26 | 28° $\mathbb{M}$ 37'07        | 1.31733 AU |                  |  |                   |                            |            |
|                  | 8191 Sep 14 18:23 | 0° $\mathbb{L}$               |            | superior conj    |  | 8192 Aug 28 09:55 | 12° $\mathbb{M}$ 55'55     | 1°04'37    |
| evening rise     | 8191 Sep 20 18:34 | 13° $\mathbb{L}$ 04'45        |            | minimum elong    |  | 8192 Aug 28 07:41 | 12° $\mathbb{M}$ 43'36     | 1°04'11    |
|                  | 8191 Sep 29 08:02 | 0° $\mathbb{M}$               |            | evening rise     |  | 8192 Sep 04 03:52 | 27° $\mathbb{M}$ 44'08     |            |
| desc. node       | 8191 Oct 09 11:57 | 16° $\mathbb{M}$ 38'24        |            |                  |  | 8192 Sep 05 05:27 | 0° $\mathbb{L}$            |            |
|                  | 8191 Oct 20 09:36 | 0° $\mathbb{X}$               |            |                  |  | 8192 Sep 21 23:31 | 0° $\mathbb{M}$            |            |
| evening max el   | 8191 Oct 21 05:07 | 0° $\mathbb{X}$ 47'05         | 26°54'32   | desc. node       |  | 8192 Sep 25 09:02 | 4° $\mathbb{M}$ 37'22      |            |
| retrograde       | 8191 Nov 04 02:57 | 7° $\mathbb{X}$ 56'51         |            | evening max el   |  | 8192 Oct 02 01:52 | 12° $\mathbb{M}$ 07'59     | 25°50'18   |
| evening set      | 8191 Nov 11 00:50 | 5° $\mathbb{X}$ 53'29         |            | retrograde       |  | 8192 Oct 16 00:16 | 19° $\mathbb{M}$ 11'28     |            |
| min. Earth dist. | 8191 Nov 14 19:29 | 3° $\mathbb{X}$ 15'06         | 0.60310 AU | evening set      |  | 8192 Oct 22 06:08 | 17° $\mathbb{M}$ 39'38     |            |
| inferior conj    | 8191 Nov 17 23:43 | 0° $\mathbb{X}$ 38'15         | -4°07'51   | min. Earth dist. |  | 8192 Oct 26 14:31 | 15° $\mathbb{M}$ 03'52     | 0.58236 AU |
| minimum elong    | 8191 Nov 18 06:55 | 0° $\mathbb{X}$ 23'24         | 4°05'39    | inferior conj    |  | 8192 Oct 29 17:04 | 12° $\mathbb{M}$ 50'34     | -5°04'22   |
|                  | 8191 Nov 18 18:21 | 30° $\mathbb{R}$ $\mathbb{M}$ |            | minimum elong    |  | 8192 Oct 29 23:23 | 12° $\mathbb{M}$ 39'14     | 5°03'10    |
| morning rise     | 8191 Nov 25 15:24 | 25° $\mathbb{M}$ 53'09        |            | morning rise     |  | 8192 Nov 06 18:57 | 8° $\mathbb{M}$ 28'00      |            |
| direct           | 8191 Nov 27 20:22 | 25° $\mathbb{M}$ 34'29        |            | direct           |  | 8192 Nov 09 02:36 | 8° $\mathbb{M}$ 10'47      |            |
| asc. node        | 8191 Dec 01 17:04 | 26° $\mathbb{M}$ 34'34        |            | morning max el   |  | 8192 Nov 17 13:02 | 12° $\mathbb{M}$ 15'10     | 18°41'20   |
| morning max el   | 8191 Dec 05 06:45 | 29° $\mathbb{M}$ 15'50        | 18°04'55   | asc. node        |  | 8192 Nov 17 14:06 | 12° $\mathbb{M}$ 17'45     |            |
|                  | 8191 Dec 06 00:06 | 0° $\mathbb{X}$               |            |                  |  | 8192 Nov 29 10:58 | 0° $\mathbb{X}$            |            |
| morning set      | 8191 Dec 20 22:58 | 24° $\mathbb{X}$ 04'54        |            | morning set      |  | 8192 Dec 03 18:34 | 8° $\mathbb{X}$ 15'34      |            |
|                  | 8191 Dec 24 03:09 | 0° $\mathbb{Z}$               |            |                  |  |                   |                            |            |
| superior conj    | 8191 Dec 30 18:20 | 12° $\mathbb{Z}$ 05'49        | 0°41'31    | superior conj    |  | 8192 Dec 12 10:56 | 25° $\mathbb{X}$ 00'30     | 1°09'13    |
| minimum elong    | 8191 Dec 30 21:20 | 12° $\mathbb{Z}$ 19'08        | 0°41'13    | minimum elong    |  | 8192 Dec 12 14:19 | 25° $\mathbb{X}$ 16'24     | 1°08'57    |
| desc. node       | 8192 Jan 05 11:01 | 22° $\mathbb{Z}$ 00'51        |            |                  |  | 8192 Dec 15 03:24 | 0° $\mathbb{Z}$            |            |
| max. Earth dist. | 8192 Jan 07 09:38 | 25° $\mathbb{Z}$ 17'30        | 1.41828 AU | max. Earth dist. |  | 8192 Dec 19 16:42 | 8° $\mathbb{Z}$ 10'27      | 1.39735 AU |
|                  | 8192 Jan 10 05:55 | 0° $\approx$                  |            | desc. node       |  | 8192 Dec 22 08:01 | 12° $\mathbb{Z}$ 44'30     |            |
| evening rise     | 8192 Jan 12 17:30 | 4° $\approx$ 01'27            |            | evening rise     |  | 8192 Dec 23 18:04 | 15° $\mathbb{Z}$ 09'00     |            |
|                  | 8192 Jan 29 21:53 | 0° $\mathbb{H}$               |            |                  |  | 8193 Jan 01 23:04 | 0° $\approx$               |            |
| evening max el   | 8192 Feb 15 03:15 | 20° $\mathbb{H}$ 30'55        | 22°44'07   | evening max el   |  | 8193 Jan 23 18:23 | 0° $\mathbb{H}$            |            |
| retrograde       | 8192 Feb 25 03:33 | 26° $\mathbb{H}$ 27'10        |            | retrograde       |  | 8193 Jan 27 17:29 | 4° $\mathbb{H}$ 15'52      | 24°04'16   |
| asc. node        | 8192 Feb 27 16:08 | 25° $\mathbb{H}$ 55'07        |            | evening set      |  | 8193 Feb 07 20:26 | 10° $\mathbb{H}$ 47'55     |            |
| evening set      | 8192 Feb 29 22:13 | 24° $\mathbb{H}$ 29'06        |            | asc. node        |  | 8193 Feb 13 03:22 | 8° $\mathbb{H}$ 35'44      |            |
| inferior conj    | 8192 Mar 06 06:52 | 18° $\mathbb{H}$ 05'06        | 2°16'19    | min. Earth dist. |  | 8193 Feb 13 13:13 | 8° $\mathbb{H}$ 14'00      |            |
| minimum elong    | 8192 Mar 06 04:36 | 18° $\mathbb{H}$ 12'57        | 2°15'41    | inferior conj    |  | 8193 Feb 17 20:47 | 3° $\mathbb{H}$ 08'44      | 0.68168 AU |
| min. Earth dist. | 8192 Mar 06 00:20 | 18° $\mathbb{H}$ 27'45        | 0.68415 AU | minimum elong    |  | 8193 Feb 18 14:49 | 2° $\mathbb{H}$ 07'42      | 1°35'56    |
| morning rise     | 8192 Mar 11 10:52 | 11° $\mathbb{H}$ 56'26        |            |                  |  | 8193 Feb 18 12:51 | 2° $\mathbb{H}$ 14'19      | 1°35'19    |
| direct           | 8192 Mar 15 23:47 | 10° $\mathbb{H}$ 04'07        |            |                  |  | 8193 Feb 20 05:15 | 30° $\mathbb{R}$ $\approx$ |            |
| morning max el   | 8192 Mar 24 22:21 | 15° $\mathbb{H}$ 16'23        | 21°39'12   | morning rise     |  | 8193 Feb 23 22:23 | 26° $\approx$ 05'09        |            |
| desc. node       | 8192 Apr 02 10:40 | 25° $\mathbb{H}$ 25'28        |            | direct           |  | 8193 Feb 27 21:56 | 24° $\approx$ 35'06        |            |
|                  | 8192 Apr 05 19:23 | 0° $\mathbb{Y}$               |            | morning max el   |  | 8193 Mar 07 18:25 | 29° $\approx$ 02'28        | 20°22'13   |
|                  | 8192 Apr 25 19:54 | 0° $\mathbb{Z}$               |            |                  |  | 8193 Mar 08 16:50 | 0° $\mathbb{H}$            |            |
| morning set      | 8192 Apr 26 01:32 | 0° $\mathbb{Z}$ 22'24         |            | desc. node       |  | 8193 Mar 20 07:36 | 15° $\mathbb{H}$ 04'25     |            |
| max. Earth dist. | 8192 May 02 07:37 | 10° $\mathbb{Z}$ 31'24        | 1.41839 AU | morning set      |  | 8193 Mar 30 09:20 | 0° $\mathbb{Y}$            |            |
|                  |                   |                               |            | max. Earth dist. |  | 8193 Apr 05 03:38 | 8° $\mathbb{Y}$ 49'41      |            |
| superior conj    | 8192 May 09 21:57 | 23° $\mathbb{Z}$ 25'37        | -1°57'01   |                  |  | 8193 Apr 14 15:05 | 23° $\mathbb{Y}$ 45'35     | 1.43666 AU |
| minimum elong    | 8192 May 10 03:27 | 23° $\mathbb{Z}$ 49'33        | 1°56'44    |                  |  | 8193 Apr 18 11:29 | 0° $\mathbb{Z}$            |            |
|                  | 8192 May 13 15:22 | 0° $\mathbb{I}$               |            | superior conj    |  |                   |                            |            |
| evening rise     | 8192 May 20 20:38 | 13° $\mathbb{I}$ 06'33        |            | minimum elong    |  | 8193 Apr 20 19:54 | 3° $\mathbb{Z}$ 52'03      | -2°10'48   |
| asc. node        | 8192 May 25 15:06 | 21° $\mathbb{I}$ 47'00        |            | evening rise     |  | 8193 Apr 20 21:56 | 4° $\mathbb{Z}$ 00'29      | 2°10'50    |
|                  | 8192 May 30 10:31 | 0° $\mathbb{E}$               |            |                  |  | 8193 May 03 09:24 | 25° $\mathbb{Z}$ 17'36     |            |
| evening max el   | 8192 Jun 06 03:06 | 8° $\mathbb{E}$ 53'15         | 18°10'19   | asc. node        |  | 8193 May 06 02:09 | 0° $\mathbb{I}$            |            |
| retrograde       | 8192 Jun 13 00:53 | 12° $\mathbb{E}$ 22'44        |            | evening max el   |  | 8193 May 12 12:09 | 10° $\mathbb{I}$ 54'47     |            |
| evening set      | 8192 Jun 15 11:04 | 11° $\mathbb{E}$ 57'30        |            | retrograde       |  | 8193 May 20 16:01 | 22° $\mathbb{I}$ 04'01     | 18°06'07   |
| inferior conj    | 8192 Jun 22 10:20 | 7° $\mathbb{E}$ 09'18         | 1°55'49    | evening set      |  | 8193 May 27 02:44 | 25° $\mathbb{I}$ 24'41     |            |
| minimum elong    | 8192 Jun 22 13:21 | 7° $\mathbb{E}$ 02'30         | 1°54'46    | inferior conj    |  | 8193 May 29 20:22 | 24° $\mathbb{I}$ 47'38     |            |
| min. Earth dist. | 8192 Jun 25 18:44 | 4° $\mathbb{E}$ 09'33         | 0.59846 AU | minimum elong    |  | 8193 Jun 05 04:28 | 19° $\mathbb{I}$ 39'40     | 2°46'35    |
| desc. node       | 8192 Jun 29 10:08 | 1° $\mathbb{E}$ 26'50         |            | min. Earth dist. |  | 8193 Jun 05 07:09 | 19° $\mathbb{I}$ 32'43     | 2°45'52    |
| morning rise     | 8192 Jun 29 12:41 | 1° $\mathbb{E}$ 22'57         |            | morning rise     |  | 8193 Jun 08 03:31 | 16° $\mathbb{I}$ 37'35     | 0.62090 AU |
|                  | 8192 Jul 02 11:03 | 30° $\mathbb{R}$ $\mathbb{I}$ |            | desc. node       |  | 8193 Jun 11 16:03 | 13° $\mathbb{I}$ 35'01     |            |
| direct           | 8192 Jul 05 23:36 | 29° $\mathbb{I}$ 24'48        |            | direct           |  | 8193 Jun 16 07:09 | 11° $\mathbb{I}$ 23'49     |            |
|                  | 8192 Jul 09 14:46 | 0° $\mathbb{E}$               |            | morning max el   |  | 8193 Jun 18 10:00 | 11° $\mathbb{I}$ 09'50     |            |
| morning max el   | 8192 Jul 20 08:01 | 7° $\mathbb{E}$ 18'37         | 27°40'33   |                  |  | 8193 Jul 02 13:20 | 19° $\mathbb{I}$ 11'18     | 27°55'23   |
|                  | 8192 Aug 06 11:30 | 0° $\mathbb{Q}$               |            |                  |  | 8193 Jul 11 17:07 | 0° $\mathbb{E}$            |            |
| morning set      | 8192 Aug 21 06:11 | 27° $\mathbb{Q}$ 26'08        |            | morning set      |  | 8193 Jul 30 09:01 | 0° $\mathbb{Q}$            |            |
| asc. node        | 8192 Aug 21 14:32 | 28° $\mathbb{Q}$ 09'50        |            | asc. node        |  | 8193 Aug 05 07:14 | 11° $\mathbb{Q}$ 35'30     |            |
|                  |                   |                               |            |                  |  | 8193 Aug 08 11:29 | 18° $\mathbb{Q}$ 12'01     |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| max. Earth dist.    | 8193 Aug 10 20:26 | 23°♎16'57 | 1.32109 AU | max. Earth dist.    | 8194 Jul 24 20:37 | 5°♎09'20  | 1.33009 AU |
|                     |                   |           |            | asc. node           | 8194 Jul 26 08:28 | 8°♎17'39  |            |
| superior conj       | 8193 Aug 12 19:29 | 27°♎33'02 | 0°42'57    | superior conj       | 8194 Jul 28 01:08 | 11°♎54'03 | 0°17'08    |
| minimum elong       | 8193 Aug 12 17:41 | 27°♎23'11 | 0°42'30    | minimum elong       | 8194 Jul 28 00:18 | 11°♎49'35 | 0°16'50    |
|                     | 8193 Aug 13 22:18 | 0°♎       |            | evening rise        | 8194 Aug 04 02:43 | 27°♎06'00 |            |
| evening rise        | 8193 Aug 19 15:14 | 12°♎26'48 |            |                     | 8194 Aug 05 11:44 | 0°♎       |            |
|                     | 8193 Aug 28 10:29 | 0°♎       |            |                     | 8194 Aug 23 09:19 | 0°♎       |            |
| desc. node          | 8193 Sep 12 06:06 | 21°♎19'42 |            | evening max el      | 8194 Aug 26 03:00 | 2°♎55'12  | 22°41'30   |
| evening max el      | 8193 Sep 13 15:22 | 22°♎43'02 | 24°20'54   | desc. node          | 8194 Aug 30 03:12 | 6°♎16'32  |            |
| retrograde          | 8193 Sep 27 09:35 | 29°♎37'16 |            | retrograde          | 8194 Sep 08 06:35 | 9°♎28'58  |            |
| evening set         | 8193 Oct 02 10:43 | 28°♎41'00 |            | evening set         | 8194 Sep 11 19:20 | 9°♎01'35  |            |
| min. Earth dist.    | 8193 Oct 08 02:15 | 25°♎49'28 | 0.56406 AU | min. Earth dist.    | 8194 Sep 19 10:36 | 5°♎37'22  | 0.55127 AU |
| inferior conj       | 8193 Oct 10 14:06 | 24°♎15'58 | -5°33'40   | inferior conj       | 8194 Sep 20 16:30 | 4°♎54'47  | -5°16'45   |
| minimum elong       | 8193 Oct 10 15:26 | 24°♎13'53 | 5°33'34    | minimum elong       | 8194 Sep 20 10:22 | 5°♎03'33  | 5°15'54    |
| morning rise        | 8193 Oct 18 22:17 | 20°♎14'46 |            | morning rise        | 8194 Sep 29 03:21 | 1°♎06'27  |            |
| direct              | 8193 Oct 21 13:56 | 19°♎56'02 |            | direct              | 8194 Oct 02 07:01 | 0°♎43'38  |            |
| morning max el      | 8193 Oct 31 08:34 | 24°♎32'57 | 19°39'56   | morning max el      | 8194 Oct 13 15:14 | 6°♎02'13  | 21°00'48   |
| asc. node           | 8193 Nov 04 11:05 | 29°♎12'30 |            | asc. node           | 8194 Oct 22 08:04 | 17°♎03'22 |            |
|                     | 8193 Nov 05 01:15 | 0°♎       |            |                     | 8194 Oct 29 13:16 | 0°♎       |            |
| morning set         | 8193 Nov 17 21:48 | 22°♎46'28 |            | morning set         | 8194 Nov 02 05:54 | 7°♎29'24  |            |
|                     | 8193 Nov 21 11:26 | 0°♎       |            |                     |                   |           |            |
| superior conj       | 8193 Nov 25 19:09 | 8°♎39'33  | 1°27'52    | superior conj       | 8194 Nov 09 14:33 | 22°♎50'08 | 1°38'18    |
| minimum elong       | 8193 Nov 25 21:43 | 8°♎52'13  | 1°27'47    | minimum elong       | 8194 Nov 09 15:50 | 22°♎56'44 | 1°38'22    |
| max. Earth dist.    | 8193 Dec 01 22:37 | 20°♎26'35 | 1.37578 AU |                     | 8194 Nov 13 03:19 | 0°♎       |            |
| evening rise        | 8193 Dec 05 16:12 | 27°♎13'21 |            | max. Earth dist.    | 8194 Nov 14 07:54 | 2°♎21'31  | 1.35585 AU |
|                     | 8193 Dec 07 06:03 | 0°♎       |            | evening rise        | 8194 Nov 18 08:46 | 10°♎06'29 |            |
| desc. node          | 8193 Dec 09 05:02 | 3°♎22'38  |            | desc. node          | 8194 Nov 26 02:05 | 23°♎50'51 |            |
|                     | 8193 Dec 26 10:17 | 0°♎       |            |                     | 8194 Nov 29 19:43 | 0°♎       |            |
| evening max el      | 8194 Jan 10 06:40 | 18°♎03'18 | 25°20'00   |                     | 8194 Dec 22 00:37 | 0°♎       |            |
| retrograde          | 8194 Jan 22 08:55 | 25°♎01'55 |            | evening max el      | 8194 Dec 23 19:47 | 1°♎48'29  | 26°24'11   |
| evening set         | 8194 Jan 28 04:41 | 22°♎37'23 |            | retrograde          | 8195 Jan 05 16:22 | 9°♎03'19  |            |
| asc. node           | 8194 Jan 31 10:18 | 19°♎14'11 |            | evening set         | 8195 Jan 12 00:29 | 6°♎29'53  |            |
| min. Earth dist.    | 8194 Feb 01 14:44 | 17°♎45'07 | 0.67533 AU | min. Earth dist.    | 8195 Jan 16 04:01 | 2°♎12'25  | 0.66518 AU |
| inferior conj       | 8194 Feb 02 20:12 | 16°♎09'51 | 0°47'28    | inferior conj       | 8195 Jan 17 21:04 | 0°♎08'04  | -0°08'37   |
| minimum elong       | 8194 Feb 02 19:03 | 16°♎13'32 | 0°47'07    | minimum elong       | 8195 Jan 17 21:17 | 0°♎07'23  | 0°08'23    |
| morning rise        | 8194 Feb 08 09:46 | 10°♎15'16 |            | transit middle      | 8195 Jan 17 21:17 | 0°♎07'23  | 0°08'23    |
| direct              | 8194 Feb 11 21:04 | 9°♎05'58  |            | transit begin       | 8195 Jan 17 18:50 | 0°♎14'52  |            |
| morning max el      | 8194 Feb 18 22:33 | 13°♎00'09 | 19°19'11   | transit end         | 8195 Jan 17 23:45 | 29°♎59'54 |            |
|                     | 8194 Mar 03 19:00 | 0°♎       |            |                     | 8195 Jan 17 23:43 | 30°♎      |            |
| greatest brilliancy | 8194 Mar 03 23:10 | 0°♎15'32  | -0.7m      | asc. node           | 8195 Jan 18 07:22 | 29°♎36'55 |            |
| desc. node          | 8194 Mar 07 04:32 | 5°♎07'11  |            | morning rise        | 8195 Jan 23 18:55 | 24°♎23'33 |            |
| morning set         | 8194 Mar 15 03:00 | 17°♎17'40 |            | direct              | 8195 Jan 26 19:29 | 23°♎32'03 |            |
|                     | 8194 Mar 23 07:25 | 0°♎       |            | morning max el      | 8195 Feb 02 09:43 | 27°♎05'39 | 18°32'04   |
| max. Earth dist.    | 8194 Mar 28 05:35 | 7°♎43'32  | 1.44928 AU |                     | 8195 Feb 05 00:36 | 0°♎       |            |
|                     |                   |           |            | desc. node          | 8195 Feb 22 01:30 | 25°♎27'32 |            |
| superior conj       | 8194 Mar 31 17:31 | 13°♎15'56 | -2°07'21   | morning set         | 8195 Feb 22 22:50 | 26°♎51'58 |            |
| minimum elong       | 8194 Mar 31 12:43 | 12°♎56'53 | 2°07'13    |                     | 8195 Feb 24 22:23 | 0°♎       |            |
|                     | 8194 Apr 11 01:53 | 0°♎       |            | superior conj       | 8195 Mar 10 23:39 | 22°♎04'45 | -1°43'43   |
| evening rise        | 8194 Apr 15 00:53 | 6°♎32'15  |            | minimum elong       | 8195 Mar 10 14:09 | 21°♎27'34 | 1°42'51    |
| asc. node           | 8194 Apr 29 09:12 | 29°♎32'53 |            | max. Earth dist.    | 8195 Mar 11 00:06 | 22°♎06'32 | 1.45492 AU |
|                     | 8194 Apr 29 16:56 | 0°♎       |            |                     | 8195 Mar 16 00:58 | 0°♎       |            |
| evening max el      | 8194 May 04 05:08 | 5°♎29'11  | 18°20'35   | evening rise        | 8195 Mar 26 16:52 | 16°♎49'36 |            |
| retrograde          | 8194 May 10 14:54 | 8°♎55'27  |            |                     | 8195 Apr 04 00:18 | 0°♎       |            |
| evening set         | 8194 May 13 15:43 | 8°♎05'07  |            | greatest brilliancy | 8195 Apr 04 14:55 | 0°♎57'21  | -0.8m      |
| inferior conj       | 8194 May 19 12:43 | 2°♎39'01  | 3°14'15    | asc. node           | 8195 Apr 16 06:17 | 17°♎32'17 |            |
| minimum elong       | 8194 May 19 14:12 | 2°♎34'42  | 3°13'56    | evening max el      | 8195 Apr 17 15:50 | 19°♎02'36 | 18°52'54   |
|                     | 8194 May 21 20:03 | 30°♎      |            | retrograde          | 8195 Apr 24 09:29 | 22°♎47'17 |            |
| min. Earth dist.    | 8194 May 21 21:37 | 29°♎55'37 | 0.64142 AU | evening set         | 8195 Apr 27 17:39 | 21°♎42'51 |            |
| morning rise        | 8194 May 25 11:39 | 26°♎24'41 |            | inferior conj       | 8195 May 03 07:15 | 16°♎00'21 | 3°23'41    |
| direct              | 8194 Jun 01 04:56 | 23°♎42'44 |            | minimum elong       | 8195 May 03 07:24 | 15°♎59'54 | 3°23'33    |
| desc. node          | 8194 Jun 03 04:10 | 23°♎55'12 |            | min. Earth dist.    | 8195 May 05 00:49 | 13°♎50'08 | 0.65850 AU |
|                     | 8194 Jun 13 04:13 | 0°♎       |            | morning rise        | 8195 May 08 20:35 | 9°♎42'26  |            |
| morning max el      | 8194 Jun 14 22:40 | 1°♎42'38  | 27°33'20   | direct              | 8195 May 15 07:17 | 6°♎55'36  |            |
|                     | 8194 Jul 05 22:08 | 0°♎       |            | desc. node          | 8195 May 21 01:10 | 8°♎42'13  |            |
| morning set         | 8194 Jul 20 00:26 | 25°♎19'00 |            | morning max el      | 8195 May 28 09:17 | 14°♎41'37 | 26°40'15   |
|                     | 8194 Jul 22 08:33 | 0°♎       |            |                     |                   |           |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                     | 8195 Jun 09 20:56 | 0°♂       |            | desc. node       | 8196 May 06 22:09 | 25°♂13'00 |            |
|                     | 8195 Jun 28 16:19 | 0°♂       |            | morning max el   | 8196 May 09 19:03 | 27°♂55'31 | 25°25'00   |
| morning set         | 8195 Jul 03 06:38 | 8°♂28'25  |            |                  | 8196 May 11 18:12 | 0°♂       |            |
| max. Earth dist.    | 8195 Jul 07 10:39 | 16°♂33'59 | 1.34388 AU |                  | 8196 Jun 02 13:57 | 0°♂       |            |
|                     |                   |           |            | morning set      | 8196 Jun 14 21:40 | 20°♂52'10 |            |
| superior conj       | 8195 Jul 12 00:39 | 25°♂53'04 | -0°12'05   | max. Earth dist. | 8196 Jun 18 13:45 | 27°♂38'10 | 1.36214 AU |
| minimum elong       | 8195 Jul 12 01:19 | 25°♂56'34 | 0°12'06    |                  | 8196 Jun 19 19:44 | 0°♂       |            |
| behind sun begin    | 8195 Jul 11 21:28 | 25°♂36'38 |            |                  |                   |           |            |
| behind sun end      | 8195 Jul 12 05:10 | 26°♂16'31 |            | superior conj    | 8196 Jun 24 15:15 | 9°♂22'52  | -0°43'29   |
| asc. node           | 8195 Jul 13 05:28 | 28°♂23'04 |            | minimum elong    | 8196 Jun 24 17:52 | 9°♂35'52  | 0°43'08    |
|                     | 8195 Jul 13 23:59 | 0°♂       |            | asc. node        | 8196 Jun 29 02:30 | 18°♂24'21 |            |
| evening rise        | 8195 Jul 19 12:25 | 11°♂36'19 |            | evening rise     | 8196 Jul 02 18:06 | 25°♂51'18 |            |
|                     | 8195 Jul 29 01:15 | 0°♂       |            |                  | 8196 Jul 04 19:27 | 0°♂       |            |
| evening max el      | 8195 Aug 07 21:58 | 13°♂21'55 | 21°08'33   | evening max el   | 8196 Jul 20 05:53 | 24°♂28'53 | 19°52'23   |
| desc. node          | 8195 Aug 17 00:17 | 18°♂56'26 |            | retrograde       | 8196 Jul 30 10:52 | 29°♂30'53 |            |
| retrograde          | 8195 Aug 19 19:36 | 19°♂15'45 |            | evening set      | 8196 Aug 01 07:41 | 29°♂21'32 |            |
| evening set         | 8195 Aug 22 03:20 | 19°♂03'07 |            | desc. node       | 8196 Aug 02 21:21 | 29°♂00'00 |            |
| inferior conj       | 8195 Aug 31 09:17 | 15°♂05'55 | -4°04'48   | inferior conj    | 8196 Aug 10 06:43 | 25°♂20'48 | -2°14'46   |
| minimum elong       | 8195 Aug 30 23:45 | 15°♂19'22 | 4°02'09    | minimum elong    | 8196 Aug 10 00:33 | 25°♂30'13 | 2°12'34    |
| min. Earth dist.    | 8195 Aug 31 19:33 | 14°♂51'26 | 0.54684 AU | min. Earth dist. | 8196 Aug 12 06:58 | 24°♂07'13 | 0.55203 AU |
| morning rise        | 8195 Sep 08 20:41 | 11°♂11'41 |            | morning rise     | 8196 Aug 18 15:32 | 21°♂00'46 |            |
| direct              | 8195 Sep 12 15:07 | 10°♂41'10 |            | direct           | 8196 Aug 23 04:30 | 20°♂15'28 |            |
| morning max el      | 8195 Sep 25 10:22 | 16°♂46'50 | 22°39'29   | morning max el   | 8196 Sep 05 23:17 | 27°♂04'26 | 24°25'18   |
|                     | 8195 Oct 05 20:48 | 0°♂       |            |                  | 8196 Sep 08 19:48 | 0°♂       |            |
| asc. node           | 8195 Oct 09 05:04 | 5°♂37'31  |            | asc. node        | 8196 Sep 25 02:03 | 24°♂44'26 |            |
| morning set         | 8195 Oct 17 16:43 | 22°♂18'11 |            |                  | 8196 Sep 27 18:09 | 0°♂       |            |
|                     | 8195 Oct 21 07:14 | 0°♂       |            | morning set      | 8196 Oct 01 04:29 | 7°♂08'02  |            |
|                     |                   |           |            |                  |                   |           |            |
| superior conj       | 8195 Oct 24 17:41 | 7°♂21'58  | 1°41'28    | superior conj    | 8196 Oct 08 01:52 | 22°♂07'00 | 1°38'14    |
| minimum elong       | 8195 Oct 24 17:39 | 7°♂21'47  | 1°41'33    | minimum elong    | 8196 Oct 08 00:44 | 22°♂00'49 | 1°38'13    |
| max. Earth dist.    | 8195 Oct 28 00:25 | 14°♂16'03 | 1.33940 AU | max. Earth dist. | 8196 Oct 10 01:21 | 26°♂24'41 | 1.32730 AU |
| evening rise        | 8195 Nov 01 15:56 | 23°♂38'38 |            |                  | 8196 Oct 11 17:34 | 0°♂       |            |
|                     | 8195 Nov 04 23:38 | 0°♂       |            | evening rise     | 8196 Oct 15 10:06 | 7°♂40'41  |            |
| desc. node          | 8195 Nov 12 23:09 | 14°♂03'25 |            |                  | 8196 Oct 27 11:07 | 0°♂       |            |
|                     | 8195 Nov 23 10:33 | 0°♂       |            | desc. node       | 8196 Oct 29 20:13 | 3°♂53'35  |            |
| evening max el      | 8195 Dec 06 08:45 | 15°♂22'48 | 27°09'29   | evening max el   | 8196 Nov 17 20:26 | 28°♂35'38 | 27°28'54   |
| retrograde          | 8195 Dec 19 18:06 | 22°♂43'34 |            |                  | 8196 Nov 19 09:28 | 0°♂       |            |
| evening set         | 8195 Dec 26 12:36 | 20°♂07'05 |            | retrograde       | 8196 Dec 01 13:17 | 5°♂54'06  |            |
| min. Earth dist.    | 8195 Dec 30 10:25 | 16°♂23'35 | 0.65145 AU | evening set      | 8196 Dec 08 14:25 | 3°♂22'41  |            |
| inferior conj       | 8196 Jan 01 15:09 | 13°♂56'44 | -1°11'34   | min. Earth dist. | 8196 Dec 12 07:58 | 0°♂10'17  | 0.63454 AU |
| minimum elong       | 8196 Jan 01 17:17 | 13°♂50'48 | 1°10'31    |                  | 8196 Dec 12 12:11 | 30°♂♂     |            |
| asc. node           | 8196 Jan 05 04:26 | 10°♂18'24 |            | inferior conj    | 8196 Dec 14 23:50 | 27°♂29'55 | -2°19'39   |
| morning rise        | 8196 Jan 07 23:19 | 8°♂24'46  |            | minimum elong    | 8196 Dec 15 04:13 | 27°♂18'52 | 2°17'46    |
| direct              | 8196 Jan 10 15:03 | 7°♂47'15  |            | morning rise     | 8196 Dec 21 19:54 | 22°♂13'21 |            |
| morning max el      | 8196 Jan 17 01:26 | 11°♂11'22 | 18°01'36   | asc. node        | 8196 Dec 22 01:28 | 22°♂08'19 |            |
|                     | 8196 Jan 30 04:56 | 0°♂       |            | direct           | 8196 Dec 24 05:06 | 21°♂45'53 |            |
| morning set         | 8196 Feb 04 00:10 | 7°♂54'20  |            | morning max el   | 8196 Dec 30 18:48 | 25°♂09'54 | 17°48'23   |
| desc. node          | 8196 Feb 08 22:28 | 15°♂59'49 |            |                  | 8197 Jan 03 19:17 | 0°♂       |            |
|                     | 8196 Feb 17 15:16 | 0°♂       |            | morning set      | 8197 Jan 16 03:56 | 20°♂13'37 |            |
|                     |                   |           |            |                  | 8197 Jan 21 20:27 | 0°♂       |            |
| superior conj       | 8196 Feb 18 08:29 | 1°♂08'15  | -1°04'26   | desc. node       | 8197 Jan 25 19:28 | 6°♂40'06  |            |
| minimum elong       | 8196 Feb 18 01:03 | 0°♂38'47  | 1°03'23    |                  |                   |           |            |
| max. Earth dist.    | 8196 Feb 21 19:33 | 6°♂35'55  | 1.45312 AU | superior conj    | 8197 Jan 28 12:42 | 11°♂10'05 | -0°19'43   |
| evening rise        | 8196 Mar 05 12:40 | 26°♂21'53 |            | minimum elong    | 8197 Jan 28 10:35 | 11°♂01'24 | 0°19'17    |
|                     | 8196 Mar 07 21:15 | 0°♂       |            | max. Earth dist. | 8197 Feb 03 13:40 | 20°♂56'42 | 1.44421 AU |
| greatest brilliancy | 8196 Mar 19 04:48 | 17°♂12'04 | -0.7m      |                  | 8197 Feb 09 07:37 | 0°♂       |            |
|                     | 8196 Mar 28 12:35 | 0°♂       |            | evening rise     | 8197 Feb 12 23:48 | 5°♂40'59  |            |
| evening max el      | 8196 Mar 30 22:11 | 2°♂39'41  | 19°41'49   |                  | 8197 Mar 01 06:37 | 0°♂       |            |
| asc. node           | 8196 Apr 02 03:23 | 4°♂40'49  |            | evening max el   | 8197 Mar 13 23:10 | 16°♂18'36 | 20°44'58   |
| retrograde          | 8196 Apr 07 07:12 | 6°♂53'31  |            | asc. node        | 8197 Mar 20 00:28 | 20°♂44'26 |            |
| evening set         | 8196 Apr 10 23:32 | 5°♂34'22  |            | retrograde       | 8197 Mar 22 05:42 | 21°♂09'34 |            |
| inferior conj       | 8196 Apr 16 08:49 | 29°♂37'20 | 3°18'46    | evening set      | 8197 Mar 26 07:20 | 19°♂35'14 |            |
| minimum elong       | 8196 Apr 16 07:49 | 29°♂40'42 | 3°18'37    | inferior conj    | 8197 Mar 31 14:49 | 13°♂25'39 | 3°02'13    |
|                     | 8196 Apr 16 02:00 | 30°♂♂     |            | minimum elong    | 8197 Mar 31 13:00 | 13°♂31'54 | 3°01'53    |
| min. Earth dist.    | 8196 Apr 17 11:34 | 28°♂08'20 | 0.67136 AU | min. Earth dist. | 8197 Apr 01 03:48 | 12°♂40'55 | 0.67978 AU |
| morning rise        | 8196 Apr 21 15:46 | 23°♂19'37 |            | morning rise     | 8197 Apr 05 18:26 | 7°♂10'28  |            |
| direct              | 8196 Apr 27 15:50 | 20°♂39'06 |            | direct           | 8197 Apr 11 05:30 | 4°♂44'58  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| morning max el   | 8197 Apr 22 04:00 | 11°♿17'08 | 23°57'43   |                  | 8198 Apr 09 07:04 | 0°♿       |            |
| desc. node       | 8197 Apr 23 19:08 | 12°♿59'50 |            | desc. node       | 8198 Apr 10 16:07 | 1°♿41'41  |            |
|                  | 8197 May 07 02:06 | 0°♿       |            |                  | 8198 Apr 30 12:59 | 0°♿       |            |
|                  | 8197 May 26 08:23 | 0°♿       |            | morning set      | 8198 May 08 08:56 | 12°♿26'24 |            |
| morning set      | 8197 May 27 16:11 | 2°♿15'42  |            | max. Earth dist. | 8198 May 13 07:48 | 20°♿40'35 | 1.40620 AU |
| max. Earth dist. | 8197 May 31 10:13 | 8°♿49'03  | 1.38372 AU |                  | 8198 May 18 17:08 | 0°♿       |            |
| superior conj    | 8197 Jun 07 17:25 | 22°♿14'15 | -1°15'04   | superior conj    | 8198 May 21 02:52 | 4°♿17'19  | -1°43'40   |
| minimum elong    | 8197 Jun 07 22:02 | 22°♿36'09 | 1°14'31    | minimum elong    | 8198 May 21 08:39 | 4°♿43'24  | 1°43'11    |
|                  | 8197 Jun 11 18:12 | 0°♿       |            | evening rise     | 8198 May 31 06:14 | 23°♿04'46 |            |
| asc. node        | 8197 Jun 15 23:31 | 8°♿16'57  |            | asc. node        | 8198 Jun 02 20:33 | 27°♿56'45 |            |
| evening rise     | 8197 Jun 16 17:08 | 9°♿43'27  |            |                  | 8198 Jun 03 23:09 | 0°♿       |            |
|                  | 8197 Jun 28 00:08 | 0°♿       |            | evening max el   | 8198 Jun 16 08:05 | 18°♿49'25 | 18°21'20   |
| evening max el   | 8197 Jul 03 02:20 | 6°♿20'00  | 18°56'32   | retrograde       | 8198 Jun 23 17:14 | 22°♿31'07 |            |
| retrograde       | 8197 Jul 11 16:21 | 10°♿34'48 |            | evening set      | 8198 Jun 25 23:04 | 22°♿11'30 |            |
| evening set      | 8197 Jul 13 15:24 | 10°♿22'24 |            | inferior conj    | 8198 Jul 03 08:42 | 17°♿34'37 | 1°14'14    |
| desc. node       | 8197 Jul 20 18:25 | 6°♿51'59  |            | minimum elong    | 8198 Jul 03 11:05 | 17°♿29'42 | 1°13'17    |
| inferior conj    | 8197 Jul 21 20:52 | 6°♿05'55  | -0°20'05   | min. Earth dist. | 8198 Jul 06 18:07 | 14°♿47'43 | 0.58573 AU |
| minimum elong    | 8197 Jul 21 20:01 | 6°♿07'24  | 0°19'53    | desc. node       | 8198 Jul 07 15:28 | 14°♿06'58 |            |
| min. Earth dist. | 8197 Jul 24 21:49 | 3°♿58'16  | 0.56592 AU | morning rise     | 8198 Jul 10 19:48 | 12°♿03'50 |            |
| morning rise     | 8197 Jul 29 21:23 | 1°♿09'42  |            | direct           | 8198 Jul 16 22:57 | 10°♿24'18 |            |
| direct           | 8197 Aug 04 06:47 | 0°♿00'39  |            | morning max el   | 8198 Jul 31 08:17 | 18°♿08'29 | 27°14'41   |
| morning max el   | 8197 Aug 18 12:52 | 7°♿22'13  | 26°02'26   |                  | 8198 Aug 10 06:21 | 0°♿       |            |
|                  | 8197 Sep 04 07:28 | 0°♿       |            |                  | 8198 Aug 27 20:41 | 0°♿       |            |
| asc. node        | 8197 Sep 11 23:02 | 14°♿14'42 |            | asc. node        | 8198 Aug 29 20:01 | 4°♿01'45  |            |
| morning set      | 8197 Sep 15 15:31 | 21°♿53'08 |            | morning set      | 8198 Aug 31 00:09 | 6°♿28'54  |            |
|                  | 8197 Sep 19 09:17 | 0°♿       |            |                  |                   |           |            |
| superior conj    | 8197 Sep 22 12:47 | 6°♿57'10  | 1°29'14    | superior conj    | 8198 Sep 07 00:35 | 21°♿46'44 | 1°15'00    |
| minimum elong    | 8197 Sep 22 10:53 | 6°♿46'41  | 1°29'03    | minimum elong    | 8198 Sep 06 22:21 | 21°♿34'19 | 1°14'39    |
| max. Earth dist. | 8197 Sep 23 08:37 | 8°♿46'42  | 1.31972 AU | max. Earth dist. | 8198 Sep 06 18:50 | 21°♿14'50 | 1.31666 AU |
| evening rise     | 8197 Sep 29 12:04 | 22°♿02'48 |            | evening rise     | 8198 Sep 10 17:46 | 0°♿       |            |
|                  | 8197 Oct 03 10:01 | 0°♿       |            |                  | 8198 Sep 25 23:24 | 0°♿       |            |
| desc. node       | 8197 Oct 16 17:16 | 23°♿11'17 |            | desc. node       | 8198 Oct 03 14:20 | 11°♿43'47 |            |
|                  | 8197 Oct 21 11:26 | 0°♿       |            | evening max el   | 8198 Oct 13 05:36 | 23°♿02'40 | 26°30'49   |
| evening max el   | 8197 Oct 31 04:20 | 11°♿12'51 | 27°16'51   |                  | 8198 Oct 25 05:20 | 0°♿       |            |
| retrograde       | 8197 Nov 14 00:44 | 18°♿25'07 |            | retrograde       | 8198 Oct 27 03:30 | 0°♿09'07  |            |
| evening set      | 8197 Nov 21 02:27 | 16°♿08'38 |            |                  | 8198 Oct 29 01:18 | 30°♿      |            |
| min. Earth dist. | 8197 Nov 24 18:58 | 13°♿21'01 | 0.61506 AU | evening set      | 8198 Nov 02 20:22 | 28°♿18'02 |            |
| inferior conj    | 8197 Nov 27 19:56 | 10°♿38'55 | -3°29'25   | min. Earth dist. | 8198 Nov 06 19:05 | 25°♿43'11 | 0.59422 AU |
| minimum elong    | 8197 Nov 28 02:25 | 10°♿24'28 | 3°27'05    | inferior conj    | 8198 Nov 09 23:58 | 23°♿14'21 | -4°34'00   |
| morning rise     | 8197 Dec 05 04:36 | 5°♿41'13  |            | minimum elong    | 8198 Nov 10 07:12 | 23°♿00'18 | 4°32'08    |
| direct           | 8197 Dec 07 10:12 | 5°♿20'10  |            | morning rise     | 8198 Nov 17 20:23 | 18°♿38'46 |            |
| asc. node        | 8197 Dec 08 22:31 | 5°♿30'09  |            | direct           | 8198 Nov 20 02:04 | 18°♿20'57 |            |
| morning max el   | 8197 Dec 14 10:34 | 8°♿52'32  | 17°53'20   | asc. node        | 8198 Nov 25 19:33 | 20°♿24'54 |            |
|                  | 8197 Dec 28 05:24 | 0°♿       |            | morning max el   | 8198 Nov 27 21:22 | 22°♿10'32 | 18°17'51   |
| morning set      | 8197 Dec 30 03:31 | 3°♿29'01  |            |                  | 8198 Dec 03 23:27 | 0°♿       |            |
|                  |                   |           |            | morning set      | 8198 Dec 13 17:06 | 17°♿23'07 |            |
| superior conj    | 8198 Jan 09 18:32 | 22°♿25'30 | 0°21'25    |                  | 8198 Dec 20 09:18 | 0°♿       |            |
| minimum elong    | 8198 Jan 09 20:23 | 22°♿33'29 | 0°21'17    |                  |                   |           |            |
| desc. node       | 8198 Jan 12 16:27 | 27°♿24'21 |            | superior conj    | 8198 Dec 22 23:51 | 4°♿48'07  | 0°54'25    |
|                  | 8198 Jan 14 05:27 | 0°♿       |            | minimum elong    | 8198 Dec 23 03:13 | 5°♿03'26  | 0°54'06    |
| max. Earth dist. | 8198 Jan 17 04:21 | 4°♿53'31  | 1.42910 AU | max. Earth dist. | 8198 Dec 30 14:08 | 18°♿12'10 | 1.40958 AU |
| evening rise     | 8198 Jan 23 17:37 | 15°♿24'12 |            | desc. node       | 8198 Dec 30 13:24 | 18°♿09'04 |            |
|                  | 8198 Feb 02 06:44 | 0°♿       |            | evening rise     | 8199 Jan 04 05:28 | 25°♿57'15 |            |
|                  | 8198 Feb 24 19:14 | 0°♿       |            |                  | 8199 Jan 06 17:23 | 0°♿       |            |
| evening max el   | 8198 Feb 24 18:50 | 29°♿59'01 | 21°58'48   |                  | 8199 Jan 27 00:56 | 0°♿       |            |
| retrograde       | 8198 Mar 06 03:08 | 5°♿31'15  |            | evening max el   | 8199 Feb 07 10:21 | 13°♿41'19 | 23°18'21   |
| asc. node        | 8198 Mar 06 21:32 | 5°♿28'15  |            | retrograde       | 8199 Feb 17 22:04 | 19°♿53'41 |            |
| evening set      | 8198 Mar 10 15:20 | 3°♿41'35  |            | asc. node        | 8199 Feb 21 18:37 | 18°♿40'20 |            |
|                  | 8198 Mar 14 00:42 | 30°♿      |            | evening set      | 8199 Feb 22 21:58 | 17°♿49'10 |            |
| inferior conj    | 8198 Mar 15 23:03 | 27°♿22'02 | 2°35'43    | inferior conj    | 8199 Feb 28 07:37 | 11°♿22'53 | 2°00'14    |
| minimum elong    | 8198 Mar 15 20:50 | 27°♿29'46 | 2°35'10    | minimum elong    | 8199 Feb 28 05:25 | 11°♿30'26 | 1°59'34    |
| min. Earth dist. | 8198 Mar 15 23:22 | 27°♿20'57 | 0.68376 AU | min. Earth dist. | 8199 Feb 27 20:03 | 12°♿02'40 | 0.68354 AU |
| morning rise     | 8198 Mar 21 02:10 | 21°♿10'49 |            | morning rise     | 8199 Mar 05 12:51 | 5°♿16'55  |            |
| direct           | 8198 Mar 25 23:11 | 19°♿05'46 |            | direct           | 8199 Mar 09 19:56 | 3°♿34'20  |            |
| morning max el   | 8198 Apr 04 14:43 | 24°♿46'30 | 22°28'23   | morning max el   | 8199 Mar 18 06:43 | 8°♿26'09  | 21°05'06   |

































































































































|                  |                   |                          |            |                     |                   |                       |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|-----------------------|------------|
| desc. node       | 8199 Mar 28 13:03 | 21° $\text{X}$ 02'50     |            | morning max el      | 8200 Mar 01 06:18 | 22° $\approx$ 17'59   | 19°53'35   |
|                  | 8199 Apr 03 20:03 | 0° $\text{Y}$            |            |                     | 8200 Mar 07 17:42 | 0° $\text{X}$         |            |
| morning set      | 8199 Apr 17 22:36 | 21° $\text{Y}$ 23'13     |            | greatest brilliancy | 8200 Mar 14 10:27 | 9° $\text{X}$ 26'31   | -0.6m      |
|                  | 8199 Apr 23 08:36 | 0° $\text{X}$            |            | desc. node          | 8200 Mar 15 09:59 | 10° $\text{X}$ 52'56  |            |
| max. Earth dist. | 8199 Apr 25 11:13 | 3° $\text{X}$ 25'18      | 1.42670 AU | morning set         | 8200 Mar 27 20:22 | 29° $\text{X}$ 41'34  |            |
|                  |                   |                          |            |                     | 8200 Mar 28 01:09 | 0° $\text{Y}$         |            |
| superior conj    | 8199 May 02 14:45 | 15° $\text{X}$ 20'23     | -2°04'36   | max. Earth dist.    | 8200 Apr 07 21:23 | 16° $\text{Y}$ 58'00  | 1.44275 AU |
| minimum elong    | 8199 May 02 19:18 | 15° $\text{X}$ 39'45     | 2°04'27    |                     |                   |                       |            |
|                  | 8199 May 11 00:17 | 0° $\text{II}$           |            | superior conj       | 8200 Apr 13 01:57 | 25° $\text{Y}$ 18'33  | -2°11'45   |
| evening rise     | 8199 May 14 05:13 | 5° $\text{II}$ 44'23     |            | minimum elong       | 8200 Apr 13 01:19 | 25° $\text{Y}$ 15'59  | 2°11'49    |
| asc. node        | 8199 May 20 17:34 | 17° $\text{II}$ 17'55    |            |                     | 8200 Apr 15 22:51 | 0° $\text{X}$         |            |
|                  | 8199 May 29 03:45 | 0° $\text{X}$            |            | evening rise        | 8200 Apr 26 09:26 | 17° $\text{X}$ 32'09  |            |
| evening max el   | 8199 May 30 19:21 | 1° $\text{X}$ 47'17      | 18°06'07   |                     | 8200 May 03 17:39 | 0° $\text{II}$        |            |
| retrograde       | 8199 Jun 06 11:16 | 5° $\text{X}$ 11'33      |            | asc. node           | 8200 May 07 14:37 | 6° $\text{II}$ 14'09  |            |
| evening set      | 8199 Jun 09 00:33 | 4° $\text{X}$ 41'38      |            | evening max el      | 8200 May 14 08:41 | 15° $\text{II}$ 04'56 | 18°10'02   |
|                  | 8199 Jun 15 10:27 | 30° $\text{X}$ II        |            | retrograde          | 8200 May 20 18:00 | 18° $\text{II}$ 26'29 |            |
| inferior conj    | 8199 Jun 15 16:52 | 29° $\text{II}$ 44'39    | 2°20'29    | evening set         | 8200 May 23 14:36 | 17° $\text{II}$ 44'07 |            |
| minimum elong    | 8199 Jun 15 19:55 | 29° $\text{II}$ 37'21    | 2°19'31    | inferior conj       | 8200 May 29 17:32 | 12° $\text{II}$ 28'27 | 3°00'48    |
| min. Earth dist. | 8199 Jun 18 22:04 | 26° $\text{II}$ 41'02    | 0.60808 AU | minimum elong       | 8200 May 29 19:46 | 12° $\text{II}$ 22'23 | 3°00'16    |
| morning rise     | 8199 Jun 22 12:46 | 23° $\text{II}$ 48'56    |            | min. Earth dist.    | 8200 Jun 01 11:00 | 9° $\text{II}$ 31'44  | 0.62996 AU |
| desc. node       | 8199 Jun 24 12:31 | 22° $\text{II}$ 42'12    |            | morning rise        | 8200 Jun 04 23:23 | 6° $\text{II}$ 18'31  |            |
| direct           | 8199 Jun 29 03:24 | 21° $\text{II}$ 38'32    |            | desc. node          | 8200 Jun 11 09:33 | 3° $\text{II}$ 44'52  |            |
| morning max el   | 8199 Jul 13 10:34 | 29° $\text{II}$ 37'01    | 27°51'33   | direct              | 8200 Jun 11 17:53 | 3° $\text{II}$ 44'29  |            |
|                  | 8199 Jul 13 19:45 | 0° $\text{X}$            |            | morning max el      | 8200 Jun 25 17:58 | 11° $\text{II}$ 47'31 | 27°50'10   |
|                  | 8199 Aug 04 06:16 | 0° $\text{X}$            |            |                     | 8200 Jul 10 03:49 | 0° $\text{X}$         |            |
| morning set      | 8199 Aug 15 04:37 | 20° $\text{X}$ 49'51     |            |                     | 8200 Jul 27 16:14 | 0° $\text{X}$         |            |
| asc. node        | 8199 Aug 16 16:59 | 23° $\text{X}$ 59'47     |            | morning set         | 8200 Jul 30 02:42 | 4° $\text{X}$ 49'31   |            |
|                  | 8199 Aug 19 12:17 | 0° $\text{X}$            |            | asc. node           | 8200 Aug 03 13:56 | 14° $\text{X}$ 04'03  |            |
| max. Earth dist. | 8199 Aug 21 04:08 | 3° $\text{X}$ 37'29      | 1.31811 AU | max. Earth dist.    | 8200 Aug 04 08:33 | 15° $\text{X}$ 42'59  | 1.32429 AU |
|                  |                   |                          |            |                     |                   |                       |            |
| superior conj    | 8199 Aug 22 11:30 | 6° $\text{X}$ 30'02      | 0°55'57    | superior conj       | 8200 Aug 06 19:41 | 21° $\text{X}$ 01'22  | 0°32'28    |
| minimum elong    | 8199 Aug 22 09:23 | 6° $\text{X}$ 18'24      | 0°55'30    | minimum elong       | 8200 Aug 06 18:14 | 20° $\text{X}$ 53'27  | 0°32'04    |
| evening rise     | 8199 Aug 29 05:46 | 21° $\text{X}$ 19'18     |            |                     | 8200 Aug 10 22:32 | 0° $\text{X}$         |            |
|                  | 8199 Sep 02 09:49 | 0° $\text{X}$            |            | evening rise        | 8200 Aug 13 17:25 | 6° $\text{X}$ 01'13   |            |
| desc. node       | 8199 Sep 20 11:24 | 29° $\text{X}$ 13'23     |            |                     | 8200 Aug 26 07:41 | 0° $\text{X}$         |            |
|                  | 8199 Sep 21 03:16 | 0° $\text{X}$            |            | evening max el      | 8200 Sep 06 10:27 | 14° $\text{X}$ 23'27  | 23°38'49   |
| evening max el   | 8199 Sep 24 22:44 | 4° $\text{X}$ 01'51      | 25°14'26   | desc. node          | 8200 Sep 07 08:30 | 15° $\text{X}$ 15'09  |            |
| retrograde       | 8199 Oct 08 20:12 | 11° $\text{X}$ 02'50     |            | retrograde          | 8200 Sep 20 00:38 | 21° $\text{X}$ 11'33  |            |
| evening set      | 8199 Oct 14 15:26 | 9° $\text{X}$ 45'50      |            | evening set         | 8200 Sep 24 10:11 | 20° $\text{X}$ 29'15  |            |
| min. Earth dist. | 8199 Oct 19 10:27 | 7° $\text{X}$ 05'46      | 0.57408 AU | min. Earth dist.    | 8200 Sep 30 20:39 | 17° $\text{X}$ 25'22  | 0.55770 AU |
| inferior conj    | 8199 Oct 22 08:48 | 5° $\text{X}$ 07'21      | -5°21'17   | inferior conj       | 8200 Oct 02 21:24 | 16° $\text{X}$ 12'32  | -5°33'11   |
| minimum elong    | 8199 Oct 22 13:32 | 4° $\text{X}$ 59'20      | 5°20'39    | minimum elong       | 8200 Oct 02 19:33 | 16° $\text{X}$ 15'19  | 5°33'04    |
| morning rise     | 8199 Oct 30 13:58 | 0° $\text{X}$ 54'45      |            | morning rise        | 8200 Oct 11 07:03 | 12° $\text{X}$ 18'17  |            |
| direct           | 8199 Nov 02 00:18 | 0° $\text{X}$ 37'20      |            | direct              | 8200 Oct 14 03:09 | 11° $\text{X}$ 58'17  |            |
| morning max el   | 8199 Nov 10 23:35 | 4° $\text{X}$ 54'06      | 19°03'36   | morning max el      | 8200 Oct 24 13:54 | 16° $\text{X}$ 52'30  | 20°11'44   |
| asc. node        | 8199 Nov 12 16:34 | 6° $\text{X}$ 40'50      |            | asc. node           | 8200 Oct 30 13:34 | 24° $\text{X}$ 01'36  |            |
|                  | 8199 Nov 26 19:19 | 0° $\text{X}$            |            |                     | 8200 Nov 03 08:32 | 0° $\text{X}$         |            |
| morning set      | 8199 Nov 27 16:21 | 1° $\text{X}$ 43'42      |            | morning set         | 8200 Nov 11 21:58 | 16° $\text{X}$ 20'40  |            |
|                  |                   |                          |            |                     | 8200 Nov 18 13:51 | 0° $\text{X}$         |            |
| superior conj    | 8199 Dec 05 23:46 | 18° $\text{X}$ 04'06     | 1°18'11    | superior conj       | 8200 Nov 19 13:15 | 1° $\text{X}$ 58'14   | 1°33'13    |
| minimum elong    | 8199 Dec 06 02:54 | 18° $\text{X}$ 19'08     | 1°18'00    | minimum elong       | 8200 Nov 19 15:18 | 2° $\text{X}$ 08'32   | 1°33'13    |
|                  | 8199 Dec 12 09:24 | 0° $\text{X}$            |            | max. Earth dist.    | 8200 Nov 25 02:20 | 12° $\text{X}$ 50'32  | 1.36695 AU |
| max. Earth dist. | 8199 Dec 12 19:58 | 0° $\text{X}$ 47'33      | 1.38802 AU | evening rise        | 8200 Nov 28 21:59 | 19° $\text{X}$ 56'44  |            |
| evening rise     | 8199 Dec 16 15:28 | 7° $\text{X}$ 29'52      |            | desc. node          | 8200 Dec 04 07:25 | 29° $\text{X}$ 25'42  |            |
| desc. node       | 8199 Dec 17 10:24 | 8° $\text{X}$ 51'04      |            |                     | 8200 Dec 04 15:30 | 0° $\text{X}$         |            |
|                  | 8199 Dec 30 16:13 | 0° $\approx$             |            |                     | 8200 Dec 24 17:35 | 0° $\approx$          |            |
| evening max el   | 8200 Jan 20 23:45 | 27° $\approx$ 27'05      | 24°37'27   | evening max el      | 8201 Jan 03 12:52 | 11° $\approx$ 14'26   | 25°49'12   |
|                  | 8200 Jan 23 18:21 | 0° $\text{X}$            |            | retrograde          | 8201 Jan 15 23:55 | 18° $\approx$ 21'45   |            |
| retrograde       | 8200 Feb 01 13:21 | 4° $\text{X}$ 12'35      |            | evening set         | 8201 Jan 22 00:54 | 15° $\approx$ 53'05   |            |
| evening set      | 8200 Feb 07 01:42 | 1° $\text{X}$ 54'39      |            | min. Earth dist.    | 8201 Jan 26 08:08 | 11° $\approx$ 15'21   | 0.67141 AU |
| asc. node        | 8200 Feb 08 15:42 | 0° $\text{X}$ 22'55      |            | asc. node           | 8201 Jan 26 12:47 | 11° $\approx$ 00'46   |            |
|                  | 8200 Feb 09 00:04 | 30° $\text{X}$ $\approx$ |            | inferior conj       | 8201 Jan 27 18:26 | 9° $\approx$ 27'05    | 0°24'35    |
| min. Earth dist. | 8200 Feb 11 15:45 | 26° $\approx$ 42'24      | 0.67937 AU | minimum elong       | 8201 Jan 27 17:48 | 9° $\approx$ 29'04    | 0°24'27    |
| inferior conj    | 8200 Feb 12 14:42 | 25° $\approx$ 25'58      | 1°16'22    | morning rise        | 8201 Feb 02 11:14 | 3° $\approx$ 36'15    |            |
| minimum elong    | 8200 Feb 12 13:02 | 25° $\approx$ 31'32      | 1°15'50    | direct              | 8201 Feb 05 17:44 | 2° $\approx$ 34'57    |            |
| morning rise     | 8200 Feb 18 00:32 | 19° $\approx$ 26'34      |            | morning max el      | 8201 Feb 12 13:34 | 6° $\approx$ 19'16    | 18°57'04   |
| direct           | 8200 Feb 21 18:36 | 18° $\approx$ 05'51      |            |                     |                   |                       |            |

|                  |                   |     |                  |                     |                   |     |                  |
|------------------|-------------------|-----|------------------|---------------------|-------------------|-----|------------------|
|                  | 8201 Mar 01 14:27 | 0°  |                  | minimum elong       | 8202 Jan 11 17:42 | 23° | 19°11' 0°34'00   |
| desc. node       | 8201 Mar 02 06:56 | 1°  | 03'48            | asc. node           | 8202 Jan 13 09:53 | 21° | 24'16            |
| morning set      | 8201 Mar 07 02:07 | 8°  | 31'02            | morning rise        | 8202 Jan 17 18:42 | 17° | 42'15            |
|                  | 8201 Mar 20 20:24 | 0°  |                  | direct              | 8202 Jan 20 15:21 | 16° | 57'02            |
| max. Earth dist. | 8201 Mar 21 13:24 | 1°  | 06'41 1.45255 AU | morning max el      | 8202 Jan 27 02:55 | 20° | 25'12 18°16'57   |
|                  |                   |     |                  |                     | 8202 Feb 03 13:51 | 0°  |                  |
| superior conj    | 8201 Mar 23 15:16 | 4°  | 22'43 -1°59'44   | morning set         | 8202 Feb 15 10:19 | 18° | 42'43            |
| minimum elong    | 8201 Mar 23 07:47 | 3°  | 53'14 1°59'18    | desc. node          | 8202 Feb 17 03:54 | 21° | 29'43            |
| evening rise     | 8201 Apr 07 14:52 | 28° | 21'19            |                     | 8202 Feb 22 11:38 | 0°  |                  |
|                  | 8201 Apr 08 15:07 | 0°  |                  |                     |                   |     |                  |
| asc. node        | 8201 Apr 24 11:41 | 24° | 37'19            | superior conj       | 8202 Mar 02 19:58 | 13° | 10'27 -1°28'24   |
| evening max el   | 8201 Apr 27 21:08 | 28° | 34'43 18°32'19   | minimum elong       | 8202 Mar 02 10:34 | 12° | 33'35 1°27'20    |
|                  | 8201 Apr 29 10:36 | 0°  |                  | max. Earth dist.    | 8202 Mar 04 08:58 | 15° | 35'28 1.45511 AU |
| retrograde       | 8201 May 04 09:12 | 2°  | 10'08            |                     | 8202 Mar 13 14:15 | 0°  |                  |
| evening set      | 8201 May 07 13:07 | 1°  | 10'54            | evening rise        | 8202 Mar 18 21:17 | 8°  | 16'22            |
|                  | 8201 May 09 04:24 | 30° |                  | greatest brilliancy | 8202 Mar 30 00:06 | 25° | 34'05 -0.8m      |
| inferior conj    | 8201 May 13 06:35 | 25° | 37'55 3°20'11    |                     | 8202 Apr 01 22:39 | 0°  |                  |
| minimum elong    | 8201 May 13 07:29 | 25° | 35'11 3°19'59    | asc. node           | 8202 Apr 11 08:46 | 12° | 16'38            |
| min. Earth dist. | 8201 May 15 09:05 | 23° | 07'04 0.64916 AU | evening max el      | 8202 Apr 11 06:12 | 12° | 10'09 19°11'54   |
| morning rise     | 8201 May 19 01:03 | 19° | 21'40            | retrograde          | 8202 Apr 18 05:21 | 16° | 05'39            |
| direct           | 8201 May 25 16:19 | 16° | 35'53            | evening set         | 8202 Apr 21 17:00 | 14° | 54'50            |
| desc. node       | 8201 May 29 06:35 | 17° | 17'41            | inferior conj       | 8202 Apr 27 04:24 | 9°  | 05'57 3°23'09    |
| morning max el   | 8201 Jun 08 03:57 | 24° | 31'35 27°14'04   | minimum elong       | 8202 Apr 27 04:01 | 9°  | 07'11 3°23'03    |
|                  | 8201 Jun 13 02:25 | 0°  |                  | min. Earth dist.    | 8202 Apr 28 15:30 | 7°  | 12'52 0.66450 AU |
|                  | 8201 Jul 03 14:01 | 0°  |                  | morning rise        | 8202 May 02 14:39 | 2°  | 48'04            |
| morning set      | 8201 Jul 13 15:43 | 18° | 20'25            | direct              | 8202 May 08 21:17 | 0°  | 02'49            |
| max. Earth dist. | 8201 Jul 18 04:35 | 27° | 23'34 1.33534 AU | desc. node          | 8202 May 16 03:35 | 2°  | 52'26            |
|                  | 8201 Jul 19 10:58 | 0°  |                  | morning max el      | 8202 May 21 14:11 | 7°  | 37'23 26°10'29   |
| asc. node        | 8201 Jul 21 10:56 | 4°  | 10'37            |                     | 8202 Jun 07 23:50 | 0°  |                  |
|                  |                   |     |                  |                     | 8202 Jun 26 00:32 | 0°  |                  |
| superior conj    | 8201 Jul 21 23:06 | 5°  | 14'52 0°05'09    | morning set         | 8202 Jun 26 15:58 | 1°  | 11'29            |
| minimum elong    | 8201 Jul 21 22:51 | 5°  | 13'30 0°04'58    | max. Earth dist.    | 8202 Jun 30 13:54 | 8°  | 37'59 1.35116 AU |
| behind sun begin | 8201 Jul 21 17:32 | 4°  | 14'52'26         |                     |                   |     |                  |
| behind sun end   | 8201 Jul 22 04:10 | 5°  | 14'13'38         | superior conj       | 8202 Jul 05 19:11 | 19° | 02'25 -0°25'12   |
| evening rise     | 8201 Jul 29 04:26 | 20° | 13'08'09         | minimum elong       | 8202 Jul 05 20:38 | 19° | 09'51 0°25'04    |
|                  | 8201 Aug 02 18:03 | 0°  |                  | asc. node           | 8202 Jul 08 07:55 | 24° | 14'45            |
| evening max el   | 8201 Aug 19 00:28 | 24° | 39'18 22°00'29   |                     | 8202 Jul 11 02:20 | 0°  |                  |
| desc. node       | 8201 Aug 25 05:36 | 29° | 18'38            | evening rise        | 8202 Jul 13 12:41 | 5°  | 02'51            |
|                  | 8201 Aug 26 18:19 | 0°  |                  |                     | 8202 Jul 27 11:27 | 0°  |                  |
| retrograde       | 8201 Aug 31 17:04 | 0°  | 57'37            | evening max el      | 8202 Aug 01 00:35 | 5°  | 21'06 20°33'45   |
| evening set      | 8201 Sep 03 15:36 | 0°  | 38'23            | retrograde          | 8202 Aug 12 05:11 | 10° | 53'12            |
|                  | 8201 Sep 05 21:15 | 30° |                  | desc. node          | 8202 Aug 12 02:42 | 10° | 53'10            |
| min. Earth dist. | 8201 Sep 12 05:06 | 26° | 56'02 0.54830 AU | evening set         | 8202 Aug 14 06:24 | 10° | 42'49            |
| inferior conj    | 8201 Sep 12 18:21 | 26° | 37'29 -4°52'38   | inferior conj       | 8202 Aug 23 11:12 | 6°  | 45'43 -3°20'54   |
| minimum elong    | 8201 Sep 12 09:53 | 26° | 49'20 4°50'57    | minimum elong       | 8202 Aug 23 02:27 | 6°  | 58'19 3°18'06    |
| morning rise     | 8201 Sep 21 05:36 | 22° | 49'01            | min. Earth dist.    | 8202 Aug 24 14:31 | 6°  | 06'21 0.54795 AU |
| direct           | 8201 Sep 24 15:26 | 22° | 23'17            | morning rise        | 8202 Aug 31 22:08 | 2°  | 43'05            |
| morning max el   | 8201 Oct 06 15:12 | 28° | 01'58 21°40'52   | direct              | 8202 Sep 05 00:11 | 2°  | 07'19            |
|                  | 8201 Oct 08 14:13 | 0°  |                  | morning max el      | 8202 Sep 18 06:41 | 8°  | 31'27 23°24'25   |
| asc. node        | 8201 Oct 17 10:34 | 12° | 12'54            |                     | 8202 Oct 03 17:55 | 0°  |                  |
|                  | 8201 Oct 26 18:36 | 0°  |                  | asc. node           | 8202 Oct 04 07:33 | 1°  | 02'10            |
| morning set      | 8201 Oct 27 07:30 | 1°  | 07'13            | morning set         | 8202 Oct 11 18:57 | 15° | 15'18            |
|                  |                   |     |                  |                     | 8202 Oct 18 07:15 | 0°  |                  |
| superior conj    | 8201 Nov 03 12:21 | 16° | 19'11 1°40'27    | superior conj       | 8202 Oct 18 17:55 | 0°  | 57'28 1°40'49    |
| minimum elong    | 8201 Nov 03 13:04 | 16° | 22'54 1°40'33    | minimum elong       | 8202 Oct 18 17:23 | 0°  | 54'35 1°40'53    |
| max. Earth dist. | 8201 Nov 07 14:35 | 24° | 44'07 1.34847 AU | max. Earth dist.    | 8202 Oct 21 11:03 | 6°  | 45'12 1.33379 AU |
|                  | 8201 Nov 10 06:18 | 0°  |                  | evening rise        | 8202 Oct 26 09:34 | 16° | 54'14            |
| evening rise     | 8201 Nov 11 21:19 | 3°  | 08'20            |                     | 8202 Nov 02 07:24 | 0°  |                  |
| desc. node       | 8201 Nov 21 04:28 | 19° | 48'10            | desc. node          | 8202 Nov 08 01:32 | 9°  | 52'24            |
|                  | 8201 Nov 27 13:13 | 0°  |                  |                     | 8202 Nov 22 00:22 | 0°  |                  |
| evening max el   | 8201 Dec 17 02:15 | 24° | 57'05 26°46'11   | evening max el      | 8202 Nov 29 14:58 | 8°  | 24'09 27°21'12   |
|                  | 8201 Dec 23 09:39 | 0°  |                  | retrograde          | 8202 Dec 13 03:41 | 15° | 43'56            |
| retrograde       | 8201 Dec 30 04:52 | 2°  | 14'48            | evening set         | 8202 Dec 20 01:46 | 13° | 08'29            |
|                  | 8202 Jan 05 07:09 | 30° |                  | min. Earth dist.    | 8202 Dec 23 21:34 | 9°  | 38'54 0.64469 AU |
| evening set      | 8202 Jan 05 17:40 | 29° | 39'36            | inferior conj       | 8202 Dec 26 07:10 | 7°  | 05'13 -1°39'58   |
| min. Earth dist. | 8202 Jan 09 18:49 | 25° | 36'31 0.65981 AU | minimum elong       | 8202 Dec 26 10:14 | 6°  | 57'02 1°38'32    |
| inferior conj    | 8202 Jan 11 16:43 | 23° | 22'02 -0°34'35   |                     |                   |     |                  |

|                     |                   |                                  |                  |                   |                                 |
|---------------------|-------------------|----------------------------------|------------------|-------------------|---------------------------------|
| asc. node           | 8202 Dec 31 06:57 | 2° $\text{Z}$ 30'29              | morning rise     | 8203 Dec 16 12:21 | 15° $\text{Z}$ 20'33            |
| morning rise        | 8203 Jan 01 20:15 | 1° $\text{Z}$ 39'29              | asc. node        | 8203 Dec 18 04:00 | 14° $\text{Z}$ 58'15            |
| direct              | 8203 Jan 04 09:00 | 1° $\text{Z}$ 06'36              | direct           | 8203 Dec 18 19:36 | 14° $\text{Z}$ 56'17            |
| morning max el      | 8203 Jan 10 19:44 | 4° $\text{Z}$ 29'11 17°53'50     | morning max el   | 8203 Dec 25 12:54 | 18° $\text{Z}$ 22'38 17°48'14   |
| morning set         | 8203 Jan 27 23:40 | 0° $\approx$ 20'50               |                  | 8204 Jan 02 23:06 | 0° $\text{Z}$                   |
|                     | 8203 Jan 27 18:43 | 0° $\approx$                     | morning set      | 8204 Jan 10 12:38 | 13° $\text{Z}$ 06'21            |
| desc. node          | 8203 Feb 04 00:51 | 12° $\approx$ 06'13              |                  | 8204 Jan 20 05:49 | 0° $\approx$                    |
|                     |                   |                                  | desc. node       | 8204 Jan 21 21:48 | 2° $\approx$ 48'40              |
| superior conj       | 8203 Feb 10 11:33 | 22° $\approx$ 35'15 -0°45'29     | superior conj    | 8204 Jan 22 02:37 | 3° $\approx$ 08'52 -0°01'29     |
| minimum elong       | 8203 Feb 10 06:20 | 22° $\approx$ 14'15 0°44'39      | minimum elong    | 8204 Jan 22 02:28 | 3° $\approx$ 08'16 0°01'19      |
| max. Earth dist.    | 8203 Feb 15 04:44 | 0° $\text{X}$ 05'38 1.45017 AU   | behind sun begin | 8204 Jan 21 17:26 | 2° $\approx$ 30'22              |
|                     | 8203 Feb 15 03:18 | 0° $\text{X}$                    | behind sun end   | 8204 Jan 22 11:30 | 3° $\approx$ 46'04              |
| evening rise        | 8203 Feb 26 11:42 | 17° $\text{X}$ 39'19             | max. Earth dist. | 8204 Jan 28 21:29 | 14° $\approx$ 17'49 1.43840 AU  |
|                     | 8203 Mar 06 14:11 | 0° $\text{Y}$                    | evening rise     | 8204 Feb 05 23:49 | 27° $\approx$ 04'14             |
| greatest brilliancy | 8203 Mar 13 08:04 | 10° $\text{Y}$ 02'12 -0.6m       |                  | 8204 Feb 07 21:26 | 0° $\text{X}$                   |
| evening max el      | 8203 Mar 25 10:17 | 25° $\text{Y}$ 48'13 20°07'05    |                  | 8204 Feb 28 11:55 | 0° $\text{Y}$                   |
| asc. node           | 8203 Mar 29 05:52 | 28° $\text{Y}$ 59'47             | evening max el   | 8204 Mar 07 08:47 | 9° $\text{Y}$ 27'13 21°15'17    |
|                     | 8203 Mar 31 08:47 | 0° $\text{Z}$                    | asc. node        | 8204 Mar 15 02:58 | 14° $\text{Y}$ 31'21            |
| retrograde          | 8203 Apr 02 03:43 | 0° $\text{Z}$ 17'07              | retrograde       | 8204 Mar 16 02:05 | 14° $\text{Y}$ 36'07            |
|                     | 8203 Apr 03 21:14 | 30° $\text{R}$ $\text{Y}$        | evening set      | 8204 Mar 20 08:00 | 12° $\text{Y}$ 55'17            |
| evening set         | 8203 Apr 05 23:56 | 28° $\text{Y}$ 51'21             | inferior conj    | 8204 Mar 25 15:20 | 6° $\text{Y}$ 40'50 2°52'08     |
| inferior conj       | 8203 Apr 11 08:08 | 22° $\text{Y}$ 48'27 3°13'04     | minimum elong    | 8204 Mar 25 13:17 | 6° $\text{Y}$ 47'55 2°51'41     |
| minimum elong       | 8203 Apr 11 06:44 | 22° $\text{Y}$ 53'11 3°12'50     | min. Earth dist. | 8204 Mar 25 22:47 | 6° $\text{Y}$ 14'58 0.68197 AU  |
| min. Earth dist.    | 8203 Apr 12 04:47 | 21° $\text{Y}$ 38'29 0.67547 AU  | morning rise     | 8204 Mar 30 18:23 | 0° $\text{Y}$ 26'58             |
| morning rise        | 8203 Apr 16 13:18 | 16° $\text{Y}$ 31'40             |                  | 8204 Mar 31 07:07 | 30° $\text{R}$ $\text{X}$       |
| direct              | 8203 Apr 22 07:56 | 13° $\text{Y}$ 56'59             | direct           | 8204 Apr 04 23:24 | 28° $\text{X}$ 09'51            |
| desc. node          | 8203 May 03 00:34 | 19° $\text{Y}$ 58'51             |                  | 8204 Apr 10 05:21 | 0° $\text{Y}$                   |
| morning max el      | 8203 May 03 23:36 | 20° $\text{Y}$ 55'52 24°48'50    | morning max el   | 8204 Apr 15 09:02 | 4° $\text{Y}$ 21'09 23°19'23    |
|                     | 8203 May 11 19:17 | 0° $\text{Z}$                    | desc. node       | 8204 Apr 18 21:31 | 8° $\text{Y}$ 11'20             |
|                     | 8203 Jun 01 04:57 | 0° $\text{II}$                   |                  | 8204 May 05 01:05 | 0° $\text{Z}$                   |
| morning set         | 8203 Jun 08 22:55 | 13° $\text{II}$ 11'11            | morning set      | 8204 May 20 07:02 | 24° $\text{Z}$ 05'11            |
| max. Earth dist.    | 8203 Jun 12 13:46 | 19° $\text{II}$ 42'28 1.37105 AU |                  | 8204 May 23 18:18 | 0° $\text{II}$                  |
|                     | 8203 Jun 18 00:47 | 0° $\text{Z}$                    | max. Earth dist. | 8204 May 24 09:32 | 1° $\text{II}$ 06'04 1.39330 AU |
| superior conj       | 8203 Jun 19 04:54 | 2° $\text{Z}$ 16'33 -0°57'00     | superior conj    | 8204 Jun 01 00:27 | 14° $\text{II}$ 48'14 -1°27'50  |
| minimum elong       | 8203 Jun 19 08:24 | 2° $\text{Z}$ 33'37 0°56'33      | minimum elong    | 8204 Jun 01 05:45 | 15° $\text{II}$ 12'49 1°27'15   |
| asc. node           | 8203 Jun 25 04:55 | 14° $\text{Z}$ 12'46             |                  | 8204 Jun 09 00:07 | 0° $\text{Z}$                   |
| evening rise        | 8203 Jun 27 15:53 | 19° $\text{Z}$ 09'02             | evening rise     | 8204 Jun 10 11:07 | 2° $\text{Z}$ 49'00             |
|                     | 8203 Jul 03 05:33 | 0° $\text{Z}$                    | asc. node        | 8204 Jun 11 01:57 | 4° $\text{Z}$ 00'32             |
| evening max el      | 8203 Jul 14 13:55 | 16° $\text{Z}$ 46'07 19°26'01    | evening max el   | 8204 Jun 26 14:45 | 28° $\text{Z}$ 54'33 18°39'07   |
| retrograde          | 8203 Jul 24 01:40 | 21° $\text{Z}$ 27'20             |                  | 8204 Jun 27 19:22 | 0° $\text{Z}$                   |
| evening set         | 8203 Jul 25 22:17 | 21° $\text{Z}$ 17'19             | retrograde       | 8204 Jul 04 15:17 | 2° $\text{Z}$ 53'28             |
| desc. node          | 8203 Jul 29 23:47 | 19° $\text{Z}$ 53'34             | evening set      | 8204 Jul 06 16:48 | 2° $\text{Z}$ 38'35             |
| inferior conj       | 8203 Aug 03 14:34 | 17° $\text{Z}$ 10'34 -1°24'49    |                  | 8204 Jul 12 03:16 | 30° $\text{R}$ $\text{Z}$       |
| minimum elong       | 8203 Aug 03 10:45 | 17° $\text{Z}$ 16'44 1°23'27     | inferior conj    | 8204 Jul 14 13:46 | 28° $\text{Z}$ 13'57 0°23'13    |
| min. Earth dist.    | 8203 Aug 06 03:07 | 15° $\text{Z}$ 32'58 0.55698 AU  | minimum elong    | 8204 Jul 14 14:39 | 28° $\text{Z}$ 12'18 0°22'45    |
| morning rise        | 8203 Aug 11 20:35 | 12° $\text{Z}$ 35'31             | desc. node       | 8204 Jul 15 20:49 | 27° $\text{Z}$ 15'03            |
| direct              | 8203 Aug 16 17:55 | 11° $\text{Z}$ 41'32             | min. Earth dist. | 8204 Jul 17 20:19 | 25° $\text{Z}$ 46'50 0.57374 AU |
| morning max el      | 8203 Aug 30 19:12 | 18° $\text{Z}$ 45'42 25°08'48    | morning rise     | 8204 Jul 22 08:58 | 23° $\text{Z}$ 01'48            |
|                     | 8203 Sep 09 05:08 | 0° $\text{Z}$                    | direct           | 8204 Jul 28 02:27 | 21° $\text{Z}$ 40'06            |
| asc. node           | 8203 Sep 21 04:30 | 20° $\text{Z}$ 19'49             | morning max el   | 8204 Aug 11 11:00 | 29° $\text{Z}$ 13'32 26°37'04   |
|                     | 8203 Sep 25 21:57 | 0° $\text{Z}$                    |                  | 8204 Aug 12 05:49 | 0° $\text{Z}$                   |
| morning set         | 8203 Sep 26 06:35 | 0° $\text{Z}$ 45'54              |                  | 8204 Sep 01 22:50 | 0° $\text{Z}$                   |
| superior conj       | 8203 Oct 03 03:29 | 15° $\text{Z}$ 45'32 1°35'05     | asc. node        | 8204 Sep 07 01:28 | 9° $\text{Z}$ 58'11             |
| minimum elong       | 8203 Oct 03 01:58 | 15° $\text{Z}$ 37'17 1°35'00     | morning set      | 8204 Sep 09 16:49 | 15° $\text{Z}$ 28'09            |
| max. Earth dist.    | 8203 Oct 04 15:00 | 19° $\text{Z}$ 00'02 1.32350 AU  |                  | 8204 Sep 16 08:22 | 0° $\text{Z}$                   |
|                     | 8203 Oct 09 18:39 | 0° $\text{Z}$                    | superior conj    | 8204 Sep 16 15:01 | 0° $\text{Z}$ 36'54 1°23'50     |
| evening rise        | 8203 Oct 10 07:20 | 1° $\text{Z}$ 05'32              | minimum elong    | 8204 Sep 16 12:56 | 0° $\text{Z}$ 25'17 1°23'34     |
| desc. node          | 8203 Oct 25 22:36 | 29° $\text{Z}$ 30'20             | max. Earth dist. | 8204 Sep 16 23:47 | 1° $\text{Z}$ 25'30 1.31776 AU  |
|                     | 8203 Oct 26 06:11 | 0° $\text{Z}$                    | evening rise     | 8204 Sep 23 11:50 | 15° $\text{Z}$ 34'27            |
| evening max el      | 8203 Nov 12 01:09 | 21° $\text{Z}$ 22'49 27°27'46    |                  | 8204 Sep 30 17:25 | 0° $\text{Z}$                   |
| retrograde          | 8203 Nov 25 19:45 | 28° $\text{Z}$ 39'20             | desc. node       | 8204 Oct 11 19:39 | 18° $\text{Z}$ 31'22            |
| evening set         | 8203 Dec 02 22:13 | 26° $\text{Z}$ 12'35             |                  | 8204 Oct 20 16:24 | 0° $\text{Z}$                   |
| min. Earth dist.    | 8203 Dec 06 14:34 | 23° $\text{Z}$ 12'11 0.62652 AU  | evening max el   | 8204 Oct 24 06:26 | 3° $\text{Z}$ 41'29 27°01'27    |
| inferior conj       | 8203 Dec 09 10:53 | 20° $\text{Z}$ 29'07 -2°49'22    | retrograde       | 8204 Nov 07 04:06 | 10° $\text{Z}$ 52'02            |
| minimum elong       | 8203 Dec 09 16:14 | 20° $\text{Z}$ 16'19 2°47'12     |                  |                   |                                 |



|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| evening set      | 8204 Nov 14 03:14 | 8° $\text{♁}$ 45'00  |            | min. Earth dist. | 8205 Oct 30 17:21 | 18° $\text{♁}$ 02'19 | 0.58539 AU |
| min. Earth dist. | 8204 Nov 17 21:03 | 6° $\text{♁}$ 04'34  | 0.60623 AU | inferior conj    | 8205 Nov 02 20:50 | 15° $\text{♁}$ 44'34 | -4°57'09   |
| inferior conj    | 8204 Nov 21 00:38 | 3° $\text{♁}$ 25'49  | -3°58'01   | minimum elong    | 8205 Nov 03 03:30 | 15° $\text{♁}$ 32'19 | 4°55'45    |
| minimum elong    | 8204 Nov 21 07:42 | 3° $\text{♁}$ 10'55  | 3°55'45    | morning rise     | 8205 Nov 10 21:24 | 11° $\text{♁}$ 18'29 |            |
|                  | 8204 Nov 25 13:45 | 30° $\text{♁}$       |            | direct           | 8205 Nov 13 04:25 | 11° $\text{♁}$ 01'11 |            |
| morning rise     | 8204 Nov 28 14:33 | 28° $\text{♁}$ 37'19 |            | asc. node        | 8205 Nov 20 22:01 | 14° $\text{♁}$ 31'59 |            |
| direct           | 8204 Nov 30 19:29 | 28° $\text{♁}$ 18'10 |            | morning max el   | 8205 Nov 21 10:37 | 15° $\text{♁}$ 01'29 | 18°34'33   |
| asc. node        | 8204 Dec 04 01:00 | 29° $\text{♁}$ 01'06 |            |                  | 8205 Dec 01 19:40 | 0° $\text{♁}$        |            |
|                  | 8204 Dec 05 18:49 | 0° $\text{♁}$        |            | morning set      | 8205 Dec 07 13:03 | 10° $\text{♁}$ 47'35 |            |
| morning max el   | 8204 Dec 08 03:05 | 1° $\text{♁}$ 57'02  | 18°01'13   |                  |                   |                      |            |
| morning set      | 8204 Dec 23 18:51 | 26° $\text{♁}$ 40'31 |            | superior conj    | 8205 Dec 16 08:52 | 27° $\text{♁}$ 42'00 | 1°05'36    |
|                  | 8204 Dec 25 13:55 | 0° $\text{♁}$        |            | minimum elong    | 8205 Dec 16 12:18 | 27° $\text{♁}$ 57'57 | 1°05'19    |
|                  |                   |                      |            |                  | 8205 Dec 17 14:37 | 0° $\text{♁}$        |            |
| superior conj    | 8205 Jan 02 19:00 | 14° $\text{♁}$ 54'57 | 0°36'30    | max. Earth dist. | 8205 Dec 23 17:26 | 10° $\text{♁}$ 58'21 | 1.40059 AU |
| minimum elong    | 8205 Jan 02 21:46 | 15° $\text{♁}$ 07'10 | 0°36'15    | desc. node       | 8205 Dec 25 15:46 | 14° $\text{♁}$ 18'12 |            |
| desc. node       | 8205 Jan 07 18:47 | 23° $\text{♁}$ 33'58 |            | evening rise     | 8205 Dec 27 21:41 | 18° $\text{♁}$ 05'59 |            |
| max. Earth dist. | 8205 Jan 10 09:34 | 27° $\text{♁}$ 57'53 | 1.42124 AU |                  | 8206 Jan 04 06:23 | 0° $\text{♁}$        |            |
|                  | 8205 Jan 11 15:04 | 0° $\text{♁}$        |            |                  | 8206 Jan 25 13:10 | 0° $\text{♁}$        |            |
| evening rise     | 8205 Jan 16 00:24 | 7° $\text{♁}$ 07'02  |            | evening max el   | 8206 Jan 31 17:04 | 6° $\text{♁}$ 53'15  | 23°52'29   |
|                  | 8205 Jan 31 02:17 | 0° $\text{♁}$        |            | retrograde       | 8206 Feb 11 16:05 | 13° $\text{♁}$ 20'12 |            |
| evening max el   | 8205 Feb 18 02:29 | 23° $\text{♁}$ 08'20 | 22°32'17   | evening set      | 8206 Feb 16 21:11 | 11° $\text{♁}$ 09'58 |            |
| retrograde       | 8205 Feb 27 22:39 | 28° $\text{♁}$ 58'27 |            | asc. node        | 8206 Feb 16 21:08 | 11° $\text{♁}$ 10'04 |            |
| asc. node        | 8205 Mar 02 00:03 | 28° $\text{♁}$ 37'03 |            | min. Earth dist. | 8206 Feb 21 15:47 | 5° $\text{♁}$ 37'59  | 0.68230 AU |
| evening set      | 8205 Mar 04 15:35 | 27° $\text{♁}$ 02'36 |            | inferior conj    | 8206 Feb 22 08:09 | 4° $\text{♁}$ 42'20  | 1°42'38    |
| inferior conj    | 8205 Mar 09 23:57 | 20° $\text{♁}$ 39'44 | 2°21'43    | minimum elong    | 8206 Feb 22 06:07 | 4° $\text{♁}$ 49'16  | 1°41'59    |
| minimum elong    | 8205 Mar 09 21:41 | 20° $\text{♁}$ 47'36 | 2°21'05    |                  | 8206 Feb 26 03:06 | 30° $\text{♁}$       |            |
| min. Earth dist. | 8205 Mar 09 19:13 | 20° $\text{♁}$ 56'12 | 0.68419 AU | morning rise     | 8206 Feb 27 15:02 | 28° $\text{♁}$ 38'55 |            |
| morning rise     | 8205 Mar 15 03:38 | 14° $\text{♁}$ 30'19 |            | direct           | 8206 Mar 03 16:33 | 27° $\text{♁}$ 05'37 |            |
| direct           | 8205 Mar 19 18:39 | 12° $\text{♁}$ 34'34 |            |                  | 8206 Mar 09 21:38 | 0° $\text{♁}$        |            |
| morning max el   | 8205 Mar 28 21:27 | 17° $\text{♁}$ 54'02 | 21°51'37   | morning max el   | 8206 Mar 11 16:27 | 1° $\text{♁}$ 38'46  | 20°32'54   |
| desc. node       | 8205 Apr 05 18:28 | 27° $\text{♁}$ 11'27 |            | desc. node       | 8206 Mar 23 15:25 | 16° $\text{♁}$ 46'19 |            |
|                  | 8205 Apr 07 21:05 | 0° $\text{♁}$        |            |                  | 8206 Apr 01 15:38 | 0° $\text{♁}$        |            |
|                  | 8205 Apr 28 03:49 | 0° $\text{♁}$        |            | morning set      | 8206 Apr 09 16:24 | 12° $\text{♁}$ 16'18 |            |
| morning set      | 8205 Apr 30 11:48 | 3° $\text{♁}$ 42'38  |            | max. Earth dist. | 8206 Apr 18 15:16 | 26° $\text{♁}$ 25'26 | 1.43425 AU |
| max. Earth dist. | 8205 May 06 08:35 | 13° $\text{♁}$ 17'18 | 1.41532 AU |                  | 8206 Apr 20 20:12 | 0° $\text{♁}$        |            |
|                  |                   |                      |            |                  |                   |                      |            |
| superior conj    | 8205 May 14 01:16 | 26° $\text{♁}$ 27'00 | -1°53'51   | superior conj    | 8206 Apr 25 02:56 | 7° $\text{♁}$ 03'24  | -2°09'41   |
| minimum elong    | 8205 May 14 06:57 | 26° $\text{♁}$ 51'56 | 1°53'29    | minimum elong    | 8206 Apr 25 05:46 | 7° $\text{♁}$ 15'13  | 2°09'42    |
|                  | 8205 May 16 01:26 | 0° $\text{♁}$        |            | evening rise     | 8206 May 07 10:18 | 28° $\text{♁}$ 12'37 |            |
| evening rise     | 8205 May 24 18:43 | 15° $\text{♁}$ 53'29 |            |                  | 8206 May 08 10:45 | 0° $\text{♁}$        |            |
| asc. node        | 8205 May 28 22:59 | 23° $\text{♁}$ 33'05 |            | asc. node        | 8206 May 15 20:03 | 12° $\text{♁}$ 44'58 |            |
|                  | 8205 Jun 01 15:01 | 0° $\text{♁}$        |            | evening max el   | 8206 May 24 12:01 | 24° $\text{♁}$ 45'42 | 18°05'31   |
| evening max el   | 8205 Jun 09 23:22 | 11° $\text{♁}$ 37'37 | 18°12'34   | retrograde       | 8206 May 30 23:42 | 28° $\text{♁}$ 06'50 |            |
| retrograde       | 8205 Jun 16 23:40 | 15° $\text{♁}$ 09'38 |            | evening set      | 8206 Jun 02 16:16 | 27° $\text{♁}$ 31'39 |            |
| evening set      | 8205 Jun 19 08:46 | 14° $\text{♁}$ 45'54 |            | inferior conj    | 8206 Jun 09 02:21 | 22° $\text{♁}$ 26'23 | 2°40'27    |
| inferior conj    | 8205 Jun 26 10:36 | 10° $\text{♁}$ 00'38 | 1°45'48    | minimum elong    | 8206 Jun 09 05:10 | 22° $\text{♁}$ 19'14 | 2°39'39    |
| minimum elong    | 8205 Jun 26 13:31 | 9° $\text{♁}$ 54'11  | 1°44'44    | min. Earth dist. | 8206 Jun 12 03:06 | 19° $\text{♁}$ 23'18 | 0.61763 AU |
| min. Earth dist. | 8205 Jun 29 19:39 | 7° $\text{♁}$ 03'29  | 0.59512 AU | morning rise     | 8206 Jun 15 16:02 | 16° $\text{♁}$ 23'45 |            |
| desc. node       | 8205 Jul 02 17:53 | 4° $\text{♁}$ 51'16  |            | desc. node       | 8206 Jun 19 14:56 | 14° $\text{♁}$ 25'52 |            |
| morning rise     | 8205 Jul 03 15:15 | 4° $\text{♁}$ 18'07  |            | direct           | 8206 Jun 22 09:21 | 14° $\text{♁}$ 02'16 |            |
| direct           | 8205 Jul 10 00:28 | 2° $\text{♁}$ 24'39  |            | morning max el   | 8206 Jul 06 13:47 | 22° $\text{♁}$ 02'57 | 27°55'35   |
| morning max el   | 8205 Jul 24 09:07 | 10° $\text{♁}$ 16'02 | 27°35'04   |                  | 8206 Jul 13 13:02 | 0° $\text{♁}$        |            |
|                  | 8205 Aug 08 15:29 | 0° $\text{♁}$        |            |                  | 8206 Aug 01 18:48 | 0° $\text{♁}$        |            |
| morning set      | 8205 Aug 24 23:53 | 29° $\text{♁}$ 58'03 |            | morning set      | 8206 Aug 09 01:54 | 14° $\text{♁}$ 10'37 |            |
| asc. node        | 8205 Aug 24 22:25 | 29° $\text{♁}$ 50'21 |            | asc. node        | 8206 Aug 11 19:23 | 19° $\text{♁}$ 51'39 |            |
|                  | 8205 Aug 25 00:15 | 0° $\text{♁}$        |            | max. Earth dist. | 8206 Aug 14 17:46 | 26° $\text{♁}$ 09'19 | 1.32021 AU |
| max. Earth dist. | 8205 Aug 31 09:56 | 13° $\text{♁}$ 51'57 | 1.31666 AU |                  |                   |                      |            |
|                  |                   |                      |            |                  |                   |                      |            |
| superior conj    | 8205 Sep 01 02:40 | 15° $\text{♁}$ 24'35 | 1°07'30    | superior conj    | 8206 Aug 16 12:39 | 0° $\text{♁}$ 03'27  | 0°46'31    |
| minimum elong    | 8205 Sep 01 00:25 | 15° $\text{♁}$ 12'09 | 1°07'06    | minimum elong    | 8206 Aug 16 10:45 | 29° $\text{♁}$ 53'02 | 0°46'04    |
| evening rise     | 8205 Sep 07 20:41 | 0° $\text{♁}$ 13'07  |            |                  | 8206 Aug 16 12:01 | 0° $\text{♁}$        |            |
|                  | 8205 Sep 07 18:13 | 0° $\text{♁}$        |            | evening rise     | 8206 Aug 23 07:53 | 14° $\text{♁}$ 55'43 |            |
|                  | 8205 Sep 23 23:51 | 0° $\text{♁}$        |            |                  | 8206 Aug 30 18:46 | 0° $\text{♁}$        |            |
| desc. node       | 8205 Sep 28 16:44 | 6° $\text{♁}$ 39'50  |            | desc. node       | 8206 Sep 15 13:50 | 23° $\text{♁}$ 35'18 |            |
| evening max el   | 8205 Oct 06 04:28 | 15° $\text{♁}$ 10'14 | 26°01'44   | evening max el   | 8206 Sep 17 18:47 | 25° $\text{♁}$ 50'40 | 24°35'09   |
| retrograde       | 8205 Oct 20 02:47 | 22° $\text{♁}$ 14'13 |            |                  | 8206 Sep 22 23:34 | 0° $\text{♁}$        |            |
| evening set      | 8205 Oct 26 11:55 | 20° $\text{♁}$ 37'17 |            | retrograde       | 8206 Oct 01 13:56 | 2° $\text{♁}$ 46'47  |            |
|                  |                   |                      |            | evening set      | 8206 Oct 06 20:12 | 1° $\text{♁}$ 45'10  |            |


































































































































|                     |                   |  |            |                     |                   |  |            |
|---------------------|-------------------|--|------------|---------------------|-------------------|--|------------|
|                     | 8206 Oct 10 11:40 | 30°             |            | retrograde          | 8207 Sep 12 13:00 | 12°  42'42      |            |
| min. Earth dist.    | 8206 Oct 12 05:46 | 28°  57'15      | 0.56651 AU | evening set         | 8207 Sep 16 07:02 | 12°  11'52      |            |
| inferior conj       | 8206 Oct 14 20:53 | 27°  16'55      | -5°31'50   | min. Earth dist.    | 8207 Sep 23 14:32 | 8°  53'19       | 0.55266 AU |
| minimum elong       | 8206 Oct 14 23:14 | 27°  13'10      | 5°31'38    | inferior conj       | 8207 Sep 25 01:46 | 8°  02'37       | -5°22'56   |
| morning rise        | 8206 Oct 23 04:26 | 23°  13'02      |            | minimum elong       | 8207 Sep 24 20:40 | 8°  09'58       | 5°22'21    |
| direct              | 8206 Oct 25 18:37 | 22°  54'42      |            | morning rise        | 8207 Oct 03 12:23 | 4°  13'22       |            |
| morning max el      | 8206 Nov 04 07:57 | 27°  25'56      | 19°29'52   | direct              | 8207 Oct 06 13:55 | 3°  51'26       |            |
|                     | 8206 Nov 06 17:53 | 0°              |            | morning max el      | 8207 Oct 17 16:41 | 9°  03'29       | 20°47'30   |
| asc. node           | 8206 Nov 07 19:01 | 1°  16'52       |            | asc. node           | 8207 Oct 25 16:01 | 19°  00'41      |            |
| morning set         | 8206 Nov 21 15:21 | 25°  16'08      |            |                     | 8207 Oct 31 23:20 | 0°              |            |
|                     | 8206 Nov 23 23:44 | 0°              |            | morning set         | 8207 Nov 05 22:55 | 9°  15'58'13    |            |
| superior conj       | 8206 Nov 29 15:05 | 11°  15'32      | 1°25'35    | superior conj       | 8207 Nov 13 09:07 | 25°  12'22'50   | 1°37'12    |
| minimum elong       | 8206 Nov 29 17:49 | 11°  28'56      | 1°25'28    | minimum elong       | 8207 Nov 13 10:36 | 25°  13'30'26   | 1°37'14    |
| max. Earth dist.    | 8206 Dec 05 23:20 | 23°  19'42      | 1.37889 AU |                     | 8207 Nov 15 15:46 | 0°              |            |
| evening rise        | 8206 Dec 09 16:44 | 0°  30'21'17    |            | max. Earth dist.    | 8207 Nov 18 07:39 | 5°  16'07       | 1.35859 AU |
|                     | 8206 Dec 09 16:13 | 0°              |            | evening rise        | 8207 Nov 22 06:52 | 12°  14'49'27   |            |
| desc. node          | 8206 Dec 12 12:47 | 4°  35'7'31     |            | desc. node          | 8207 Nov 29 09:49 | 25°  14'27'49   |            |
|                     | 8206 Dec 28 13:28 | 0°              |            |                     | 8207 Dec 02 03:17 | 0°              |            |
| evening max el      | 8207 Jan 14 06:16 | 20°  40'30      | 25°09'18   |                     | 8207 Dec 23 14:02 | 0°              |            |
| retrograde          | 8207 Jan 26 05:19 | 27°  36'04      |            | evening max el      | 8207 Dec 27 19:19 | 4°  26'37       | 26°15'38   |
| evening set         | 8207 Jan 31 23:13 | 25°  13'01      |            | retrograde          | 8208 Jan 09 13:41 | 11°  40'10      |            |
| asc. node           | 8207 Feb 03 18:14 | 22°  20'34      |            | evening set         | 8208 Jan 15 19:58 | 9°  07'45       |            |
| min. Earth dist.    | 8207 Feb 05 10:15 | 20°  15'43      | 0.67650 AU | min. Earth dist.    | 8208 Jan 20 00:24 | 4°  45'03       | 0.66690 AU |
| inferior conj       | 8207 Feb 06 14:03 | 18°  45'04      | 0°55'20    | inferior conj       | 8208 Jan 21 15:44 | 2°  44'32       | 0°00'22    |
| minimum elong       | 8207 Feb 06 12:45 | 18°  49'18      | 0°54'56    | minimum elong       | 8208 Jan 21 15:43 | 2°  44'35       | 0°00'30    |
| morning rise        | 8207 Feb 12 02:35 | 12°  49'17      |            | transit middle      | 8208 Jan 21 15:43 | 2°  44'35       | 0°00'30    |
| direct              | 8207 Feb 15 15:36 | 11°  37'09      |            | transit begin       | 8208 Jan 21 12:51 | 2°  53'24       |            |
| morning max el      | 8207 Feb 22 19:29 | 15°  35'30     | 19°27'38   | transit end         | 8208 Jan 21 18:35 | 2°  35'46      |            |
|                     | 8207 Mar 05 23:12 | 0°            |            | asc. node           | 8208 Jan 21 15:18 | 2°  45'51     |            |
| greatest brilliancy | 8207 Mar 07 15:33 | 2°  28'37     | -0.7m      |                     | 8208 Jan 23 23:41 | 30°  18'30    |            |
| desc. node          | 8207 Mar 10 12:22 | 6°  46'07     |            | morning rise        | 8208 Jan 27 12:12 | 26°  35'58'22 |            |
| morning set         | 8207 Mar 19 14:34 | 20°  13'39'45 |            | direct              | 8208 Jan 30 14:14 | 26°  30'04'30 |            |
|                     | 8207 Mar 25 15:12 | 0°            |            | morning max el      | 8208 Feb 06 05:44 | 29°  34'40'35 | 18°38'02   |
| max. Earth dist.    | 8207 Apr 01 04:51 | 10°  17'57    | 1.44781 AU |                     | 8208 Feb 06 13:29 | 0°            |            |
|                     |                   |  |            | desc. node          | 8208 Feb 25 09:19 | 27°  04'22    |            |
| superior conj       | 8207 Apr 05 03:52 | 16°  09'35'33 | -2°09'10   | morning set         | 8208 Feb 27 06:21 | 0°  11'38     |            |
| minimum elong       | 8207 Apr 05 00:10 | 16°  20'45    | 2°09'06    |                     | 8208 Feb 27 05:56 | 0°            |            |
|                     | 8207 Apr 13 10:18 | 0°            |            | superior conj       | 8208 Mar 14 11:23 | 25°  14'27'14 | -1°48'31   |
| evening rise        | 8207 Apr 19 05:13 | 9°  36'13     |            | minimum elong       | 8208 Mar 14 02:11 | 24°  11'51'13 | 1°47'44    |
|                     | 8207 May 01 17:10 | 0°            |            | max. Earth dist.    | 8208 Mar 13 22:39 | 24°  11'37'24 | 1.45456 AU |
| asc. node           | 8207 May 02 17:08 | 1°  28'17     |            |                     | 8208 Mar 17 08:58 | 0°            |            |
| evening max el      | 8207 May 08 01:15 | 8°  09'01     | 18°17'16   | evening rise        | 8208 Mar 30 00:40 | 20°  01'42    |            |
| retrograde          | 8207 May 14 10:41 | 11°  33'47    |            |                     | 8208 Apr 05 06:29 | 0°            |            |
| evening set         | 8207 May 17 10:21 | 10°  45'35    |            | greatest brilliancy | 8208 Apr 07 02:25 | 2°  54'20     | -0.9m      |
| inferior conj       | 8207 May 23 08:46 | 5°  22'03     | 3°11'15    | asc. node           | 8208 Apr 18 14:13 | 19°  34'23    |            |
| minimum elong       | 8207 May 23 10:28 | 5°  17'13     | 3°10'54    | evening max el      | 8208 Apr 20 12:27 | 21°  41'36    | 18°47'00   |
| min. Earth dist.    | 8207 May 25 19:55 | 2°  34'43     | 0.63855 AU | retrograde          | 8208 Apr 27 04:27 | 25°  22'47    |            |
|                     | 8207 May 28 09:11 | 30°  18'38    |            | evening set         | 8208 Apr 30 11:28 | 24°  20'35    |            |
| morning rise        | 8207 May 29 09:24 | 29°  08'33    |            | inferior conj       | 8208 May 06 01:59 | 18°  40'33    | 3°23'11    |
| direct              | 8207 Jun 05 03:08 | 26°  08'28'21 |            | minimum elong       | 8208 May 06 02:19 | 18°  39'29    | 3°23'04    |
| desc. node          | 8207 Jun 06 11:58 | 26°  08'34'22 |            | min. Earth dist.    | 8208 May 07 21:54 | 16°  24'31    | 0.65623 AU |
|                     | 8207 Jun 13 20:18 | 0°            |            | morning rise        | 8208 May 11 16:32 | 12°  22'48    |            |
| morning max el      | 8207 Jun 18 22:48 | 4°  29'36     | 27°38'44   | direct              | 8208 May 18 04:33 | 9°  35'48     |            |
|                     | 8207 Jul 08 03:56 | 0°            |            | desc. node          | 8208 May 23 09:00 | 11°  02'49    |            |
| morning set         | 8207 Jul 23 20:29 | 27°  58'49    |            | morning max el      | 8208 May 31 09:20 | 17°  25'07    | 26°49'45   |
|                     | 8207 Jul 24 20:45 | 0°            |            |                     | 8208 Jun 10 21:18 | 0°            |            |
| max. Earth dist.    | 8207 Jul 28 19:13 | 8°  05'39     | 1.32843 AU | morning set         | 8208 Jun 30 01:49 | 0°            |            |
| asc. node           | 8207 Jul 29 16:23 | 9°  05'17     |            | max. Earth dist.    | 8208 Jul 06 04:34 | 11°  06'14'15 |            |
|                     |                   |  |            |                     | 8208 Jul 10 10:46 | 19°  06'34'02 | 1.34148 AU |
| superior conj       | 8207 Jul 31 19:02 | 14°  02'27'28 | 0°21'18    | superior conj       | 8208 Jul 14 19:38 | 28°  03'30'31 | -0°07'28   |
| minimum elong       | 8207 Jul 31 18:01 | 14°  02'22'00 | 0°20'58    | minimum elong       | 8208 Jul 14 20:03 | 28°  03'24'40 | 0°07'32    |
| evening rise        | 8207 Aug 07 19:30 | 29°  03'36'00 |            | behind sun begin    | 8208 Jul 14 14:57 | 28°  06'08    |            |
|                     | 8207 Aug 08 00:01 | 0°            |            | behind sun end      | 8208 Jul 15 01:09 | 28°  05'59'15 |            |
|                     | 8207 Aug 24 22:45 | 0°            |            | asc. node           | 8208 Jul 15 13:23 | 0°  03'12     |            |
| evening max el      | 8207 Aug 30 06:06 | 6°  04'19     | 22°56'15   |                     |                   |  |            |
| desc. node          | 8207 Sep 02 10:56 | 8°  05'37     |            |                     |                   |  |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                     | 8208 Jul 15 12:46 | 0°♎       |            | asc. node        | 8209 Jul 02 10:23 | 20°♊05'36 |            |
| evening rise        | 8208 Jul 22 05:35 | 14°♎08'10 |            | evening rise     | 8209 Jul 06 12:01 | 28°♊26'11 |            |
|                     | 8208 Jul 30 06:56 | 0°♎       |            |                  | 8209 Jul 07 06:28 | 0°♎       |            |
| evening max el      | 8208 Aug 10 23:33 | 16°♎27'28 | 21°21'34   | evening max el   | 8209 Jul 24 05:28 | 27°♎28'00 | 20°02'28   |
| desc. node          | 8208 Aug 19 08:02 | 21°♎53'36 |            |                  | 8209 Jul 27 05:02 | 0°♎       |            |
| retrograde          | 8208 Aug 23 02:39 | 22°♎28'13 |            | retrograde       | 8209 Aug 03 16:32 | 2°♎37'34  |            |
| evening set         | 8208 Aug 25 13:34 | 22°♎14'20 |            | evening set      | 8209 Aug 05 14:02 | 2°♎28'09  |            |
| inferior conj       | 8208 Sep 03 19:12 | 18°♎16'42 | -4°18'55   | desc. node       | 8209 Aug 06 05:08 | 2°♎21'02  |            |
| minimum elong       | 8208 Sep 03 09:42 | 18°♎30'02 | 4°16'27    |                  | 8209 Aug 12 00:23 | 30°♎♎     |            |
| min. Earth dist.    | 8208 Sep 03 23:24 | 18°♎10'48 | 0.54687 AU | inferior conj    | 8209 Aug 14 15:00 | 28°♎28'54 | -2°32'35   |
| morning rise        | 8208 Sep 12 06:36 | 14°♎24'33 |            | minimum elong    | 8209 Aug 14 08:02 | 28°♎39'20 | 2°30'08    |
| direct              | 8208 Sep 15 22:40 | 13°♎55'27 |            | min. Earth dist. | 8209 Aug 16 10:14 | 27°♎24'07 | 0.55069 AU |
| morning max el      | 8208 Sep 28 13:18 | 19°♎54'28 | 22°23'56   | morning rise     | 8209 Aug 23 00:32 | 24°♎13'55 |            |
|                     | 8208 Oct 06 21:41 | 0°♎       |            | direct           | 8209 Aug 27 10:42 | 23°♎31'17 |            |
| asc. node           | 8208 Oct 11 13:00 | 7°♎29'22  |            |                  | 8209 Sep 09 20:32 | 0°♎       |            |
| morning set         | 8208 Oct 20 09:26 | 24°♎46'40 |            | morning max el   | 8209 Sep 10 02:33 | 0°♎14'03  | 24°09'37   |
|                     | 8208 Oct 22 20:26 | 0°♎       |            | asc. node        | 8209 Sep 28 09:58 | 26°♎31'55 |            |
|                     |                   |           |            |                  | 8209 Sep 30 05:00 | 0°♎       |            |
| superior conj       | 8208 Oct 27 11:17 | 9°♎52'17  | 1°41'24    | morning set      | 8209 Oct 04 21:08 | 9°♎36'34  |            |
| minimum elong       | 8208 Oct 27 11:27 | 9°♎53'08  | 1°41'30    |                  |                   |           |            |
| max. Earth dist.    | 8208 Oct 30 22:55 | 17°♎09'41 | 1.34160 AU | superior conj    | 8209 Oct 11 18:49 | 24°♎35'33 | 1°39'05    |
| evening rise        | 8208 Nov 04 12:07 | 26°♎16'48 |            | minimum elong    | 8209 Oct 11 17:50 | 24°♎30'12 | 1°39'06    |
|                     | 8208 Nov 06 10:36 | 0°♎       |            | max. Earth dist. | 8209 Oct 13 22:44 | 29°♎16'13 | 1.32887 AU |
| desc. node          | 8208 Nov 15 06:51 | 15°♎43'16 |            |                  | 8209 Oct 14 06:54 | 0°♎       |            |
|                     | 8208 Nov 24 12:19 | 0°♎       |            | evening rise     | 8209 Oct 19 04:49 | 10°♎14'49 |            |
| evening max el      | 8208 Dec 09 08:26 | 18°♎03'35 | 27°04'13   |                  | 8209 Oct 29 18:40 | 0°♎       |            |
| retrograde          | 8208 Dec 22 16:19 | 25°♎24'00 |            | desc. node       | 8209 Nov 02 03:54 | 5°♎37'15  |            |
| evening set         | 8208 Dec 29 09:22 | 22°♎47'40 |            |                  | 8209 Nov 20 11:37 | 0°♎       |            |
| min. Earth dist.    | 8209 Jan 02 08:02 | 18°♎59'03 | 0.65372 AU | evening max el   | 8209 Nov 21 20:29 | 1°♎20'29  | 27°27'53   |
| inferior conj       | 8209 Jan 04 10:58 | 16°♎35'09 | -1°01'38   | retrograde       | 8209 Dec 05 12:22 | 8°♎39'10  |            |
| minimum elong       | 8209 Jan 04 12:47 | 16°♎30'02 | 1°00'42    | evening set      | 8209 Dec 12 12:52 | 6°♎06'34  |            |
| asc. node           | 8209 Jan 07 12:22 | 13°♎20'52 |            | min. Earth dist. | 8209 Dec 16 06:59 | 2°♎49'46  | 0.63727 AU |
| morning rise        | 8209 Jan 10 17:28 | 11°♎00'58 |            | inferior conj    | 8209 Dec 18 21:13 | 0°♎10'54  | -2°09'07   |
| direct              | 8209 Jan 13 10:22 | 10°♎21'36 |            | minimum elong    | 8209 Dec 19 01:15 | 0°♎00'34  | 2°07'21    |
| morning max el      | 8209 Jan 19 20:54 | 13°♎46'36 | 18°05'01   |                  | 8209 Dec 19 01:29 | 30°♎♎     |            |
|                     | 8209 Jan 31 11:35 | 0°♎       |            | asc. node        | 8209 Dec 25 09:25 | 24°♎57'55 |            |
| morning set         | 8209 Feb 07 03:16 | 10°♎51'09 |            | morning rise     | 8209 Dec 25 15:26 | 24°♎51'45 |            |
| desc. node          | 8209 Feb 11 06:15 | 17°♎35'05 |            | direct           | 8209 Dec 28 01:30 | 24°♎22'58 |            |
|                     | 8209 Feb 18 23:34 | 0°♎       |            | morning max el   | 8210 Jan 03 14:08 | 27°♎46'18 | 17°49'11   |
|                     |                   |           |            |                  | 8210 Jan 05 14:37 | 0°♎       |            |
| superior conj       | 8209 Feb 21 18:32 | 4°♎25'18  | -1°10'59   | morning set      | 8210 Jan 20 03:26 | 23°♎00'08 |            |
| minimum elong       | 8209 Feb 21 10:26 | 3°♎53'18  | 1°09'55    |                  | 8210 Jan 24 05:40 | 0°♎       |            |
| max. Earth dist.    | 8209 Feb 24 18:03 | 9°♎06'44  | 1.45388 AU | desc. node       | 8210 Jan 29 03:11 | 8°♎14'07  |            |
| evening rise        | 8209 Mar 09 22:53 | 29°♎39'07 |            |                  |                   |           |            |
|                     | 8209 Mar 10 04:16 | 0°♎       |            | superior conj    | 8210 Feb 01 19:05 | 14°♎16'15 | -0°26'24   |
| greatest brilliancy | 8209 Mar 23 00:40 | 19°♎40'30 | -0.7m      | minimum elong    | 8210 Feb 01 16:11 | 14°♎04'24 | 0°25'51    |
|                     | 8209 Mar 30 07:18 | 0°♎       |            | max. Earth dist. | 8210 Feb 07 12:41 | 23°♎30'28 | 1.44596 AU |
| evening max el      | 8209 Apr 03 19:34 | 5°♎18'50  | 19°33'35   |                  | 8210 Feb 11 15:28 | 0°♎       |            |
| asc. node           | 8209 Apr 05 11:17 | 6°♎51'49  |            | evening rise     | 8210 Feb 17 10:17 | 8°♎57'43  |            |
| retrograde          | 8209 Apr 11 01:48 | 9°♎27'32  |            |                  | 8210 Mar 03 10:22 | 0°♎       |            |
| evening set         | 8209 Apr 14 16:54 | 8°♎10'35  |            | evening max el   | 8210 Mar 17 21:21 | 18°♎57'37 | 20°34'49   |
| inferior conj       | 8209 Apr 20 02:39 | 2°♎15'43  | 3°20'19    | asc. node        | 8210 Mar 23 08:22 | 23°♎06'23 |            |
| minimum elong       | 8209 Apr 20 01:48 | 2°♎18'32  | 3°20'10    | retrograde       | 8210 Mar 26 00:16 | 23°♎42'31 |            |
| min. Earth dist.    | 8209 Apr 21 07:34 | 0°♎40'15  | 0.66974 AU | evening set      | 8210 Mar 30 00:30 | 22°♎10'22 |            |
|                     | 8209 Apr 21 19:59 | 30°♎♎     |            | inferior conj    | 8210 Apr 04 08:06 | 16°♎02'29 | 3°05'26    |
| morning rise        | 8209 Apr 25 10:22 | 25°♎57'54 |            | minimum elong    | 8210 Apr 04 06:23 | 16°♎08'23 | 3°05'06    |
| direct              | 8209 May 01 12:16 | 23°♎15'45 |            | min. Earth dist. | 8210 Apr 04 23:02 | 15°♎11'15 | 0.67880 AU |
| desc. node          | 8209 May 10 06:00 | 27°♎20'13 |            | morning rise     | 8210 Apr 09 12:02 | 9°♎46'57  |            |
|                     | 8209 May 13 04:14 | 0°♎       |            | direct           | 8210 Apr 15 01:07 | 7°♎18'53  |            |
| morning max el      | 8209 May 13 19:11 | 0°♎37'22  | 25°37'15   | morning max el   | 8210 Apr 26 04:06 | 13°♎58'02 | 24°11'09   |
|                     | 8209 Jun 04 20:17 | 0°♎       |            | desc. node       | 8210 Apr 27 02:57 | 14°♎57'06 |            |
| morning set         | 8209 Jun 18 22:10 | 23°♎45'54 |            |                  | 8210 May 09 04:30 | 0°♎       |            |
|                     | 8209 Jun 22 06:50 | 0°♎       |            |                  | 8210 May 28 17:12 | 0°♎       |            |
| max. Earth dist.    | 8209 Jun 22 15:18 | 0°♎40'03  | 1.35917 AU | morning set      | 8210 May 31 20:03 | 5°♎19'12  |            |
|                     |                   |           |            | max. Earth dist. | 8210 Jun 04 12:31 | 11°♎48'46 | 1.38041 AU |
| superior conj       | 8209 Jun 28 11:47 | 12°♎05'38 | -0°38'38   |                  |                   |           |            |
| minimum elong       | 8209 Jun 28 14:05 | 12°♎17'11 | 0°38'21    | superior conj    | 8210 Jun 11 16:01 | 25°♎03'19 | -1°10'23   |

|                  |                   |                                   |            |                  |                   |                                   |            |
|------------------|-------------------|-----------------------------------|------------|------------------|-------------------|-----------------------------------|------------|
| minimum elong    | 8210 Jun 11 20:21 | 25° $\Pi$ 24'04                   | 1°09'50    | superior conj    | 8211 May 25 04:13 | 7° $\Pi$ 13'59                    | -1°39'42   |
|                  | 8210 Jun 14 05:30 | 0° $\mathfrak{E}$                 |            | minimum elong    | 8211 May 25 09:57 | 7° $\Pi$ 39'59                    | 1°39'11    |
| asc. node        | 8210 Jun 19 07:23 | 9° $\mathfrak{E}$ 59'53           |            | evening rise     | 8211 Jun 04 03:02 | 25° $\mathfrak{E}$ 48'49          |            |
| evening rise     | 8210 Jun 20 12:13 | 12° $\mathfrak{E}$ 22'20          |            | asc. node        | 8211 Jun 06 04:25 | 29° $\Pi$ 41'59                   |            |
|                  | 8210 Jun 30 01:11 | 0° $\Omega$                       |            |                  | 8211 Jun 06 08:15 | 0° $\mathfrak{E}$                 |            |
| evening max el   | 8210 Jul 07 00:08 | 9° $\Omega$ 12'24                 | 19°03'29   | evening max el   | 8211 Jun 20 04:43 | 21° $\mathfrak{E}$ 36'23          | 18°25'16   |
| retrograde       | 8210 Jul 15 19:27 | 13° $\Omega$ 33'39                |            | retrograde       | 8211 Jun 27 17:31 | 25° $\mathfrak{E}$ 22'11          |            |
| evening set      | 8210 Jul 17 17:43 | 13° $\Omega$ 21'58                |            | evening set      | 8211 Jun 29 22:10 | 25° $\mathfrak{E}$ 03'56          |            |
| desc. node       | 8210 Jul 24 02:13 | 10° $\Omega$ 28'23                |            | inferior conj    | 8211 Jul 07 10:40 | 20° $\mathfrak{E}$ 30'09          | 1°01'45    |
| inferior conj    | 8210 Jul 26 02:06 | 9° $\Omega$ 08'05                 | -0°36'31   | minimum elong    | 8211 Jul 07 12:45 | 20° $\mathfrak{E}$ 25'58          | 1°00'51    |
| minimum elong    | 8210 Jul 26 00:32 | 9° $\Omega$ 10'46                 | 0°36'03    | desc. node       | 8211 Jul 10 23:17 | 17° $\mathfrak{E}$ 40'55          |            |
| min. Earth dist. | 8210 Jul 29 00:18 | 7° $\Omega$ 07'56                 | 0.56342 AU | min. Earth dist. | 8211 Jul 10 19:44 | 17° $\mathfrak{E}$ 47'41          | 0.58253 AU |
| morning rise     | 8210 Aug 03 04:14 | 4° $\Omega$ 17'29                 |            | morning rise     | 8211 Jul 14 23:56 | 15° $\mathfrak{E}$ 03'46          |            |
| direct           | 8210 Aug 08 10:33 | 3° $\Omega$ 12'40                 |            | direct           | 8211 Jul 21 00:41 | 13° $\mathfrak{E}$ 29'00          |            |
| morning max el   | 8210 Aug 22 15:38 | 10° $\Omega$ 29'44                | 25°49'13   | morning max el   | 8211 Aug 04 10:08 | 21° $\mathfrak{E}$ 10'46          | 27°06'03   |
|                  | 8210 Sep 06 12:28 | 0° $\mathfrak{M}$                 |            |                  | 8211 Aug 12 02:18 | 0° $\Omega$                       |            |
| asc. node        | 8210 Sep 15 06:55 | 15° $\mathfrak{M}$ 58'59          |            |                  | 8211 Aug 30 07:49 | 0° $\mathfrak{M}$                 |            |
| morning set      | 8210 Sep 19 08:22 | 24° $\mathfrak{M}$ 22'41          |            | asc. node        | 8211 Sep 02 03:53 | 5° $\mathfrak{M}$ 43'45           |            |
|                  | 8210 Sep 21 22:51 | 0° $\mathfrak{L}$                 |            | morning set      | 8211 Sep 03 17:30 | 9° $\mathfrak{M}$ 00'17           |            |
| superior conj    | 8210 Sep 26 05:26 | 9° $\mathfrak{L}$ 25'16           | 1°30'56    | superior conj    | 8211 Sep 10 17:15 | 24° $\mathfrak{M}$ 15'22          | 1°17'30    |
| minimum elong    | 8210 Sep 26 03:38 | 9° $\mathfrak{L}$ 15'18           | 1°30'48    | minimum elong    | 8211 Sep 10 15:02 | 24° $\mathfrak{M}$ 03'04          | 1°17'10    |
| max. Earth dist. | 8210 Sep 27 05:18 | 11° $\mathfrak{L}$ 36'50          | 1.32057 AU | max. Earth dist. | 8211 Sep 10 15:17 | 24° $\mathfrak{M}$ 04'31          | 1.31678 AU |
| evening rise     | 8210 Oct 03 05:46 | 24° $\mathfrak{L}$ 34'18          |            |                  | 8211 Sep 13 07:27 | 0° $\mathfrak{L}$                 |            |
|                  | 8210 Oct 05 21:30 | 0° $\mathfrak{M}$                 |            | evening rise     | 8211 Sep 17 12:24 | 9° $\mathfrak{L}$ 07'48           |            |
| desc. node       | 8210 Oct 20 01:00 | 25° $\mathfrak{M}$ 00'47          |            |                  | 8211 Sep 28 05:58 | 0° $\mathfrak{M}$                 |            |
|                  | 8210 Oct 23 10:14 | 0° $\mathfrak{J}$                 |            | desc. node       | 8211 Oct 06 22:06 | 13° $\mathfrak{M}$ 41'26          |            |
| evening max el   | 8210 Nov 04 05:06 | 14° $\mathfrak{J}$ 03'52          | 27°20'46   | evening max el   | 8211 Oct 17 07:24 | 26° $\mathfrak{M}$ 01'03          | 26°39'47   |
| retrograde       | 8210 Nov 18 00:59 | 21° $\mathfrak{J}$ 17'02          |            |                  | 8211 Oct 22 05:25 | 0° $\mathfrak{J}$                 |            |
| evening set      | 8210 Nov 25 03:13 | 18° $\mathfrak{J}$ 57'31          |            | retrograde       | 8211 Oct 31 05:16 | 3° $\mathfrak{J}$ 08'46           |            |
| min. Earth dist. | 8210 Nov 28 19:31 | 16° $\mathfrak{J}$ 07'01          | 0.61810 AU | evening set      | 8211 Nov 07 00:11 | 1° $\mathfrak{J}$ 13'07           |            |
| inferior conj    | 8210 Dec 01 19:25 | 13° $\mathfrak{J}$ 24'15          | -3°18'58   |                  | 8211 Nov 08 23:30 | 30° $\mathfrak{R}$ $\mathfrak{M}$ |            |
| minimum elong    | 8210 Dec 02 01:38 | 13° $\mathfrak{J}$ 10'08          | 3°16'41    | min. Earth dist. | 8211 Nov 10 21:12 | 28° $\mathfrak{M}$ 37'27          | 0.59731 AU |
| morning rise     | 8210 Dec 09 02:14 | 8° $\mathfrak{J}$ 23'38           |            | inferior conj    | 8211 Nov 14 02:05 | 26° $\mathfrak{M}$ 05'24          | -4°25'03   |
| direct           | 8210 Dec 11 08:12 | 8° $\mathfrak{J}$ 01'49           |            | minimum elong    | 8211 Nov 14 09:22 | 25° $\mathfrak{M}$ 50'57          | 4°23'01    |
| asc. node        | 8210 Dec 12 06:27 | 8° $\mathfrak{J}$ 05'39           |            | morning rise     | 8211 Nov 21 20:55 | 21° $\mathfrak{M}$ 26'34          |            |
| morning max el   | 8210 Dec 18 06:24 | 11° $\mathfrak{J}$ 32'14          | 17°51'24   | direct           | 8211 Nov 24 02:15 | 21° $\mathfrak{M}$ 08'32          |            |
|                  | 8210 Dec 30 14:21 | 0° $\mathfrak{Z}$                 |            | asc. node        | 8211 Nov 29 03:28 | 22° $\mathfrak{M}$ 47'06          |            |
| morning set      | 8211 Jan 03 00:30 | 6° $\mathfrak{Z}$ 08'40           |            | morning max el   | 8211 Dec 01 18:14 | 24° $\mathfrak{M}$ 54'58          | 18°12'55   |
|                  |                   |                                   |            |                  | 8211 Dec 05 23:46 | 0° $\mathfrak{J}$                 |            |
| superior conj    | 8211 Jan 13 21:09 | 25° $\mathfrak{Z}$ 21'17          | 0°15'38    | morning set      | 8211 Dec 17 12:21 | 19° $\mathfrak{J}$ 58'05          |            |
| minimum elong    | 8211 Jan 13 22:34 | 25° $\mathfrak{Z}$ 27'20          | 0°15'35    |                  | 8211 Dec 22 20:16 | 0° $\mathfrak{Z}$                 |            |
| behind sun begin | 8211 Jan 13 20:34 | 25° $\mathfrak{Z}$ 18'44          |            |                  |                   |                                   |            |
| behind sun end   | 8211 Jan 14 00:34 | 25° $\mathfrak{Z}$ 35'55          |            | superior conj    | 8211 Dec 26 23:21 | 7° $\mathfrak{Z}$ 35'09           | 0°49'58    |
| desc. node       | 8211 Jan 16 00:08 | 28° $\mathfrak{Z}$ 58'07          |            | minimum elong    | 8211 Dec 27 02:37 | 7° $\mathfrak{Z}$ 49'55           | 0°49'41    |
|                  | 8211 Jan 16 14:49 | 0° $\approx$                      |            | desc. node       | 8212 Jan 02 21:07 | 19° $\mathfrak{Z}$ 43'07          |            |
| max. Earth dist. | 8211 Jan 21 04:12 | 7° $\approx$ 32'49                | 1.43167 AU | max. Earth dist. | 8212 Jan 03 14:33 | 20° $\mathfrak{Z}$ 57'10          | 1.41267 AU |
| evening rise     | 8211 Jan 28 02:14 | 18° $\approx$ 35'30               |            | evening rise     | 8212 Jan 08 11:02 | 29° $\mathfrak{Z}$ 00'20          |            |
|                  | 8211 Feb 04 12:50 | 0° $\mathfrak{H}$                 |            |                  | 8212 Jan 09 01:45 | 0° $\approx$                      |            |
|                  | 8211 Feb 26 07:19 | 0° $\mathfrak{Y}$                 |            |                  | 8212 Jan 29 02:30 | 0° $\mathfrak{H}$                 |            |
| evening max el   | 8211 Feb 28 17:44 | 2° $\mathfrak{Y}$ 37'41           | 21°47'16   | evening max el   | 8212 Feb 11 09:42 | 16° $\mathfrak{H}$ 19'21          | 23°06'20   |
| retrograde       | 8211 Mar 09 22:01 | 8° $\mathfrak{Y}$ 03'51           |            | retrograde       | 8212 Feb 21 17:30 | 22° $\mathfrak{H}$ 26'24          |            |
| asc. node        | 8211 Mar 10 05:28 | 8° $\mathfrak{Y}$ 03'22           |            | asc. node        | 8212 Feb 25 02:35 | 21° $\mathfrak{H}$ 29'39          |            |
| evening set      | 8211 Mar 14 08:35 | 6° $\mathfrak{Y}$ 16'22           |            | evening set      | 8212 Feb 26 15:32 | 20° $\mathfrak{H}$ 24'04          |            |
| inferior conj    | 8211 Mar 19 16:08 | 29° $\mathfrak{H}$ 57'58          | 2°40'21    | min. Earth dist. | 8212 Mar 02 14:59 | 14° $\mathfrak{H}$ 32'21          | 0.68384 AU |
| minimum elong    | 8211 Mar 19 13:57 | 0° $\mathfrak{Y}$ 05'35           | 2°39'49    | inferior conj    | 8212 Mar 03 00:48 | 13° $\mathfrak{H}$ 58'26          | 2°06'09    |
|                  | 8211 Mar 19 15:33 | 30° $\mathfrak{R}$ $\mathfrak{H}$ |            | minimum elong    | 8212 Mar 02 22:34 | 14° $\mathfrak{H}$ 06'07          | 2°05'31    |
| min. Earth dist. | 8211 Mar 19 18:14 | 29° $\mathfrak{H}$ 50'40          | 0.68343 AU | morning rise     | 8212 Mar 08 05:32 | 7° $\mathfrak{H}$ 51'28           |            |
| morning rise     | 8211 Mar 24 19:09 | 23° $\mathfrak{H}$ 46'06          |            | direct           | 8212 Mar 12 14:37 | 6° $\mathfrak{H}$ 05'32           |            |
| direct           | 8211 Mar 29 18:13 | 21° $\mathfrak{H}$ 37'55          |            | morning max el   | 8212 Mar 21 05:29 | 11° $\mathfrak{H}$ 04'27          | 21°16'47   |
| morning max el   | 8211 Apr 08 14:26 | 27° $\mathfrak{H}$ 26'31          | 22°41'29   | desc. node       | 8212 Mar 30 20:49 | 22° $\mathfrak{H}$ 47'31          |            |
|                  | 8211 Apr 11 00:01 | 0° $\mathfrak{Y}$                 |            |                  | 8212 Apr 05 00:12 | 0° $\mathfrak{Y}$                 |            |
| desc. node       | 8211 Apr 13 23:53 | 3° $\mathfrak{Y}$ 31'41           |            | morning set      | 8212 Apr 21 10:17 | 24° $\mathfrak{Y}$ 47'54          |            |
|                  | 8211 May 02 19:29 | 0° $\mathfrak{B}$                 |            |                  | 8212 Apr 24 16:48 | 0° $\mathfrak{B}$                 |            |
| morning set      | 8211 May 12 16:53 | 15° $\mathfrak{B}$ 41'19          |            | max. Earth dist. | 8212 Apr 28 11:37 | 6° $\mathfrak{B}$ 08'13           | 1.42386 AU |
| max. Earth dist. | 8211 May 17 09:36 | 23° $\mathfrak{B}$ 33'09          | 1.40291 AU |                  |                   |                                   |            |
|                  | 8211 May 21 03:00 | 0° $\Pi$                          |            | superior conj    | 8212 May 05 19:35 | 18° $\mathfrak{B}$ 26'21          | -2°02'10   |

|                  |                   |                      |            |                     |                   |                      |            |
|------------------|-------------------|----------------------|------------|---------------------|-------------------|----------------------|------------|
| minimum elong    | 8212 May 06 00:33 | 18° $\text{♄}$ 47'41 | 2°01'59    | superior conj       | 8213 Apr 16 10:30 | 28° $\text{♄}$ 33'56 | -2°11'49   |
|                  | 8212 May 12 09:55 | 0° $\text{♄}$        |            | minimum elong       | 8213 Apr 16 10:53 | 28° $\text{♄}$ 35'29 | 2°11'53    |
| evening rise     | 8212 May 17 04:25 | 8° $\text{♄}$ 35'10  |            |                     | 8213 Apr 17 07:31 | 0° $\text{♄}$        |            |
| asc. node        | 8212 May 23 01:29 | 19° $\text{♄}$ 06'29 |            | evening rise        | 8213 Apr 29 11:41 | 20° $\text{♄}$ 30'46 |            |
|                  | 8212 May 29 20:52 | 0° $\text{♄}$        |            |                     | 8213 May 05 00:21 | 0° $\text{♄}$        |            |
| evening max el   | 8212 Jun 02 15:25 | 4° $\text{♄}$ 30'49  | 18°07'13   | asc. node           | 8213 May 09 22:34 | 8° $\text{♄}$ 06'55  |            |
| retrograde       | 8212 Jun 09 09:14 | 7° $\text{♄}$ 56'41  |            | evening max el      | 8213 May 17 04:42 | 17° $\text{♄}$ 46'05 | 18°08'21   |
| evening set      | 8212 Jun 11 21:23 | 7° $\text{♄}$ 28'31  |            | retrograde          | 8213 May 23 14:18 | 21° $\text{♄}$ 07'01 |            |
| inferior conj    | 8212 Jun 18 16:04 | 2° $\text{♄}$ 34'37  | 2°12'10    | evening set         | 8213 May 26 09:53 | 20° $\text{♄}$ 26'32 |            |
| minimum elong    | 8212 Jun 18 19:08 | 2° $\text{♄}$ 27'25  | 2°11'10    | inferior conj       | 8213 Jun 01 14:32 | 15° $\text{♄}$ 13'38 | 2°56'05    |
|                  | 8212 Jun 21 10:02 | 30° $\text{♄}$       |            | minimum elong       | 8213 Jun 01 16:57 | 15° $\text{♄}$ 07'12 | 2°55'30    |
| min. Earth dist. | 8212 Jun 21 22:34 | 29° $\text{♄}$ 31'48 | 0.60467 AU | min. Earth dist.    | 8213 Jun 04 10:04 | 12° $\text{♄}$ 14'35 | 0.62680 AU |
| morning rise     | 8212 Jun 25 14:11 | 26° $\text{♄}$ 41'54 |            | morning rise        | 8213 Jun 07 22:21 | 9° $\text{♄}$ 05'25  |            |
| desc. node       | 8212 Jun 26 20:19 | 25° $\text{♄}$ 58'19 |            | desc. node          | 8213 Jun 13 17:22 | 6° $\text{♄}$ 37'13  |            |
| direct           | 8212 Jul 02 03:41 | 24° $\text{♄}$ 35'36 |            | direct              | 8213 Jun 14 16:50 | 6° $\text{♄}$ 34'11  |            |
|                  | 8212 Jul 13 17:12 | 0° $\text{♄}$        |            | morning max el      | 8213 Jun 28 18:07 | 14° $\text{♄}$ 36'58 | 27°52'46   |
| morning max el   | 8212 Jul 16 11:26 | 2° $\text{♄}$ 32'52  | 27°48'32   |                     | 8213 Jul 11 05:12 | 0° $\text{♄}$        |            |
|                  | 8212 Aug 05 13:13 | 0° $\text{♄}$        |            |                     | 8213 Jul 29 03:10 | 0° $\text{♄}$        |            |
| morning set      | 8212 Aug 17 22:45 | 23° $\text{♄}$ 24'13 |            | morning set         | 8213 Aug 01 21:55 | 7° $\text{♄}$ 27'16  |            |
| asc. node        | 8212 Aug 19 00:52 | 25° $\text{♄}$ 40'42 |            | asc. node           | 8213 Aug 05 21:50 | 15° $\text{♄}$ 44'18 |            |
|                  | 8212 Aug 21 01:34 | 0° $\text{♄}$        |            | max. Earth dist.    | 8213 Aug 07 06:18 | 18° $\text{♄}$ 37'21 | 1.32305 AU |
| max. Earth dist. | 8212 Aug 24 00:56 | 6° $\text{♄}$ 28'42  | 1.31756 AU |                     |                   |                      |            |
|                  |                   |                      |            | superior conj       | 8213 Aug 09 13:10 | 23° $\text{♄}$ 33'55 | 0°36'20    |
| superior conj    | 8212 Aug 25 04:28 | 9° $\text{♄}$ 00'30  | 0°59'10    | minimum elong       | 8213 Aug 09 11:35 | 23° $\text{♄}$ 25'15 | 0°35'54    |
| minimum elong    | 8212 Aug 25 02:18 | 8° $\text{♄}$ 48'33  | 0°58'43    |                     | 8213 Aug 12 11:50 | 0° $\text{♄}$        |            |
| evening rise     | 8212 Aug 31 22:31 | 23° $\text{♄}$ 49'05 |            | evening rise        | 8213 Aug 16 10:07 | 8° $\text{♄}$ 31'16  |            |
|                  | 8212 Sep 03 21:10 | 0° $\text{♄}$        |            |                     | 8213 Aug 27 11:31 | 0° $\text{♄}$        |            |
|                  | 8212 Sep 21 16:56 | 0° $\text{♄}$        |            | evening max el      | 8213 Sep 09 14:03 | 17° $\text{♄}$ 33'45 | 23°53'41   |
| desc. node       | 8212 Sep 22 19:12 | 1° $\text{♄}$ 22'20  |            | desc. node          | 8213 Sep 09 16:19 | 17° $\text{♄}$ 39'13 |            |
| evening max el   | 8212 Sep 28 01:48 | 7° $\text{♄}$ 07'54  | 25°27'26   | retrograde          | 8213 Sep 23 05:56 | 24° $\text{♄}$ 24'08 |            |
| retrograde       | 8212 Oct 11 23:47 | 14° $\text{♄}$ 10'00 |            | evening set         | 8213 Sep 27 21:01 | 23° $\text{♄}$ 37'11 |            |
| evening set      | 8212 Oct 17 22:58 | 12° $\text{♄}$ 47'45 |            | min. Earth dist.    | 8213 Oct 04 00:34 | 20° $\text{♄}$ 37'55 | 0.55981 AU |
| min. Earth dist. | 8212 Oct 22 13:51 | 10° $\text{♄}$ 09'32 | 0.57690 AU | inferior conj       | 8213 Oct 06 05:29 | 19° $\text{♄}$ 17'43 | -5°34'27   |
| inferior conj    | 8212 Oct 25 13:57 | 8° $\text{♄}$ 05'33  | -5°16'00   | minimum elong       | 8213 Oct 06 04:48 | 19° $\text{♄}$ 18'46 | 5°34'24    |
| minimum elong    | 8212 Oct 25 19:21 | 7° $\text{♄}$ 56'13  | 5°15'09    | morning rise        | 8213 Oct 14 14:41 | 15° $\text{♄}$ 21'08 |            |
| morning rise     | 8212 Nov 02 18:05 | 3° $\text{♄}$ 49'32  |            | direct              | 8213 Oct 17 09:08 | 15° $\text{♄}$ 01'37 |            |
| direct           | 8212 Nov 05 03:19 | 3° $\text{♄}$ 32'17  |            | morning max el      | 8213 Oct 27 14:11 | 19° $\text{♄}$ 49'43 | 20°00'07   |
| morning max el   | 8212 Nov 13 22:01 | 7° $\text{♄}$ 44'36  | 18°55'20   | asc. node           | 8213 Nov 01 21:28 | 26° $\text{♄}$ 03'19 |            |
| asc. node        | 8212 Nov 15 00:28 | 8° $\text{♄}$ 51'45  |            |                     | 8213 Nov 04 12:41 | 0° $\text{♄}$        |            |
|                  | 8212 Nov 28 06:07 | 0° $\text{♄}$        |            | morning set         | 8213 Nov 14 15:17 | 18° $\text{♄}$ 50'22 |            |
| morning set      | 8212 Nov 30 10:27 | 4° $\text{♄}$ 15'31  |            |                     | 8213 Nov 20 02:25 | 0° $\text{♄}$        |            |
|                  |                   |                      |            |                     |                   |                      |            |
| superior conj    | 8212 Dec 08 20:51 | 20° $\text{♄}$ 44'07 | 1°15'09    | superior conj       | 8213 Nov 22 08:34 | 4° $\text{♄}$ 33'01  | 1°31'28    |
| minimum elong    | 8212 Dec 09 00:06 | 20° $\text{♄}$ 59'34 | 1°14'55    | minimum elong       | 8213 Nov 22 10:49 | 4° $\text{♄}$ 44'12  | 1°31'25    |
|                  | 8212 Dec 13 20:10 | 0° $\text{♄}$        |            | max. Earth dist.    | 8213 Nov 28 02:44 | 15° $\text{♄}$ 45'07 | 1.37001 AU |
| max. Earth dist. | 8212 Dec 15 20:37 | 3° $\text{♄}$ 37'57  | 1.39130 AU | evening rise        | 8213 Dec 01 21:28 | 22° $\text{♄}$ 43'35 |            |
| evening rise     | 8212 Dec 19 17:48 | 10° $\text{♄}$ 24'25 |            |                     | 8213 Dec 06 00:43 | 0° $\text{♄}$        |            |
| desc. node       | 8212 Dec 19 18:09 | 10° $\text{♄}$ 25'53 |            | desc. node          | 8213 Dec 06 15:12 | 1° $\text{♄}$ 01'53  |            |
|                  | 8212 Dec 31 22:07 | 0° $\text{♄}$        |            |                     | 8213 Dec 25 17:16 | 0° $\text{♄}$        |            |
|                  | 8213 Jan 23 21:27 | 0° $\text{♄}$        |            | evening max el      | 8214 Jan 06 12:34 | 13° $\text{♄}$ 52'34 | 25°39'17   |
| evening max el   | 8213 Jan 23 23:22 | 0° $\text{♄}$ 04'45  | 24°25'57   | retrograde          | 8214 Jan 18 20:40 | 20° $\text{♄}$ 56'58 |            |
| retrograde       | 8213 Feb 04 09:23 | 6° $\text{♄}$ 45'51  |            | evening set         | 8214 Jan 24 19:48 | 18° $\text{♄}$ 29'45 |            |
| evening set      | 8213 Feb 09 19:48 | 4° $\text{♄}$ 29'56  |            | asc. node           | 8214 Jan 28 20:44 | 14° $\text{♄}$ 09'47 |            |
| asc. node        | 8213 Feb 10 23:40 | 3° $\text{♄}$ 24'39  |            | min. Earth dist.    | 8214 Jan 29 04:02 | 13° $\text{♄}$ 46'53 | 0.67287 AU |
|                  | 8213 Feb 13 20:39 | 30° $\text{♄}$       |            | inferior conj       | 8214 Jan 30 12:37 | 12° $\text{♄}$ 03'07 | 0°32'57    |
| min. Earth dist. | 8213 Feb 14 11:02 | 29° $\text{♄}$ 12'26 | 0.68027 AU | minimum elong       | 8214 Jan 30 11:48 | 12° $\text{♄}$ 05'44 | 0°32'44    |
| inferior conj    | 8213 Feb 15 08:15 | 28° $\text{♄}$ 01'18 | 1°23'32    | morning rise        | 8214 Feb 05 04:14 | 6° $\text{♄}$ 10'52  |            |
| minimum elong    | 8213 Feb 15 06:28 | 28° $\text{♄}$ 07'17 | 1°22'58    | direct              | 8214 Feb 08 12:24 | 5° $\text{♄}$ 06'47  |            |
| morning rise     | 8213 Feb 20 17:14 | 22° $\text{♄}$ 00'42 |            | morning max el      | 8214 Feb 15 10:02 | 8° $\text{♄}$ 54'16  | 19°04'27   |
| direct           | 8213 Feb 24 13:11 | 20° $\text{♄}$ 36'45 |            | greatest brilliancy | 8214 Mar 01 02:09 | 27° $\text{♄}$ 18'40 | -0.8m      |
| morning max el   | 8213 Mar 04 03:49 | 24° $\text{♄}$ 54'01 | 20°03'14   |                     | 8214 Mar 02 20:31 | 0° $\text{♄}$        |            |
|                  | 8213 Mar 08 15:24 | 0° $\text{♄}$        |            | desc. node          | 8214 Mar 04 14:42 | 2° $\text{♄}$ 41'48  |            |
| desc. node       | 8213 Mar 17 17:45 | 12° $\text{♄}$ 33'33 |            | morning set         | 8214 Mar 10 12:08 | 11° $\text{♄}$ 48'26 |            |
|                  | 8213 Mar 29 08:16 | 0° $\text{♄}$        |            |                     | 8214 Mar 22 04:23 | 0° $\text{♄}$        |            |
| morning set      | 8213 Mar 31 09:00 | 3° $\text{♄}$ 07'25  |            | max. Earth dist.    | 8214 Mar 24 12:24 | 3° $\text{♄}$ 39'46  | 1.45158 AU |
| max. Earth dist. | 8213 Apr 10 20:43 | 19° $\text{♄}$ 33'53 | 1.44073 AU |                     |                   |                      |            |
|                  |                   |                      |            | superior conj       | 8214 Mar 27 02:32 | 7° $\text{♄}$ 44'37  | -2°02'53   |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| minimum elong    | 8214 Mar 26 19:55 | 7°♄18'29  | 2°02'33    | desc. node          | 8215 Feb 19 11:39 | 23°♊05'44 |            |
|                  | 8214 Apr 09 22:56 | 0°♄       |            |                     | 8215 Feb 23 19:40 | 0°♊       |            |
| evening rise     | 8214 Apr 10 20:41 | 1°♄28'57  |            |                     |                   |           |            |
| asc. node        | 8214 Apr 26 19:39 | 26°♄35'36 |            | superior conj       | 8215 Mar 06 07:20 | 16°♋31'33 | -1°34'08   |
|                  | 8214 Apr 29 13:29 | 0°♄       |            | minimum elong       | 8215 Mar 05 21:44 | 15°♋54'00 | 1°33'08    |
| evening max el   | 8214 Apr 30 17:27 | 1°♄14'24  | 18°27'51   | max. Earth dist.    | 8215 Mar 07 07:47 | 18°♋07'20 | 1.45523 AU |
| retrograde       | 8214 May 07 04:30 | 4°♄44'16  |            |                     | 8215 Mar 14 22:00 | 0°♄       |            |
| evening set      | 8214 May 10 07:20 | 3°♄50'05  |            | evening rise        | 8215 Mar 22 06:22 | 11°♄31'33 |            |
|                  | 8214 May 14 15:16 | 30°♄      |            | greatest brilliancy | 8215 Apr 01 15:18 | 27°♄45'30 | -0.8m      |
| inferior conj    | 8214 May 16 01:58 | 28°♄19'29 | 3°18'20    |                     | 8215 Apr 03 02:24 | 0°♄       |            |
| minimum elong    | 8214 May 16 03:05 | 28°♄16'10 | 3°18'07    | asc. node           | 8215 Apr 13 16:43 | 14°♄22'09 |            |
| min. Earth dist. | 8214 May 18 06:43 | 25°♄44'01 | 0.64655 AU | evening max el      | 8215 Apr 14 03:06 | 14°♄48'57 | 19°04'51   |
| morning rise     | 8214 May 21 21:57 | 22°♄03'51 |            | retrograde          | 8215 Apr 21 00:07 | 18°♄40'26 |            |
| direct           | 8214 May 28 14:04 | 19°♄19'12 |            | evening set         | 8215 Apr 24 10:34 | 17°♄31'48 |            |
| desc. node       | 8214 May 31 14:22 | 19°♄48'31 |            | inferior conj       | 8215 Apr 29 22:40 | 11°♄45'03 | 3°23'35    |
| morning max el   | 8214 Jun 11 03:52 | 27°♄16'27 | 27°21'25   | minimum elong       | 8215 Apr 29 22:28 | 11°♄45'41 | 3°23'28    |
|                  | 8214 Jun 13 17:24 | 0°♄       |            | min. Earth dist.    | 8215 May 01 12:00 | 9°♄45'53  | 0.66253 AU |
|                  | 8214 Jul 04 21:42 | 0°♄       |            | morning rise        | 8215 May 05 09:57 | 5°♄27'04  |            |
| morning set      | 8214 Jul 16 12:25 | 21°♄02'18 |            | direct              | 8215 May 11 18:02 | 2°♄41'08  |            |
|                  | 8214 Jul 20 23:36 | 0°♄       |            | desc. node          | 8215 May 18 11:21 | 5°♄06'41  |            |
| max. Earth dist. | 8214 Jul 21 03:47 | 0°♄21'37  | 1.33340 AU | morning max el      | 8215 May 24 14:16 | 10°♄19'54 | 26°21'17   |
| asc. node        | 8214 Jul 23 18:51 | 5°♄50'32  |            |                     | 8215 Jun 09 03:32 | 0°♄       |            |
|                  |                   |           |            |                     | 8215 Jun 27 10:58 | 0°♄       |            |
| superior conj    | 8214 Jul 24 17:23 | 7°♄49'50  | 0°09'31    | morning set         | 8215 Jun 29 14:49 | 3°♄59'36  |            |
| minimum elong    | 8214 Jul 24 16:55 | 7°♄47'18  | 0°09'17    | max. Earth dist.    | 8215 Jul 03 14:47 | 11°♄39'12 | 1.34852 AU |
| behind sun begin | 8214 Jul 24 12:23 | 7°♄23'18  |            |                     |                   |           |            |
| behind sun end   | 8214 Jul 24 21:26 | 8°♄11'20  |            | superior conj       | 8215 Jul 08 14:41 | 21°♄41'06 | -0°20'29   |
| evening rise     | 8214 Jul 31 21:18 | 23°♄08'49 |            | minimum elong       | 8215 Jul 08 15:52 | 21°♄47'06 | 0°20'23    |
|                  | 8214 Aug 04 04:35 | 0°♄       |            | asc. node           | 8215 Jul 10 15:51 | 25°♄55'00 |            |
| evening max el   | 8214 Aug 22 03:02 | 27°♄47'18 | 22°14'39   |                     | 8215 Jul 12 14:50 | 0°♄       |            |
|                  | 8214 Aug 24 14:39 | 0°♄       |            | evening rise        | 8215 Jul 16 06:05 | 7°♄35'15  |            |
| desc. node       | 8214 Aug 27 13:24 | 2°♄02'09  |            |                     | 8215 Jul 28 08:50 | 0°♄       |            |
| retrograde       | 8214 Sep 03 23:41 | 4°♄11'17  |            | evening max el      | 8215 Aug 04 01:10 | 8°♄22'51  | 20°45'33   |
| evening set      | 8214 Sep 07 03:04 | 3°♄49'28  |            | desc. node          | 8215 Aug 14 10:28 | 14°♄00'06 |            |
| min. Earth dist. | 8214 Sep 15 08:51 | 0°♄13'48  | 0.54917 AU | retrograde          | 8215 Aug 15 11:55 | 14°♄02'55 |            |
|                  | 8214 Sep 15 18:41 | 30°♄      |            | evening set         | 8215 Aug 17 15:02 | 13°♄51'56 |            |
| inferior conj    | 8214 Sep 16 04:05 | 29°♄46'46 | -5°02'25   | inferior conj       | 8215 Aug 26 20:33 | 9°♄55'03  | -3°37'15   |
| minimum elong    | 8214 Sep 15 20:19 | 29°♄57'42 | 5°01'02    | minimum elong       | 8215 Aug 26 11:23 | 10°♄08'08 | 3°34'25    |
| morning rise     | 8214 Sep 24 15:13 | 25°♄58'46 |            | min. Earth dist.    | 8215 Aug 27 17:58 | 9°♄24'28  | 0.54731 AU |
| direct           | 8214 Sep 27 22:55 | 25°♄34'06 |            | morning rise        | 8215 Sep 04 07:43 | 5°♄55'52  |            |
|                  | 8214 Oct 08 11:39 | 0°♄       |            | direct              | 8215 Sep 08 07:00 | 5°♄22'09  |            |
| morning max el   | 8214 Oct 09 17:14 | 1°♄05'32  | 21°26'30   | morning max el      | 8215 Sep 21 09:52 | 11°♄39'54 | 23°08'41   |
| asc. node        | 8214 Oct 19 18:27 | 14°♄07'21 |            |                     | 8215 Oct 05 00:47 | 0°♄       |            |
|                  | 8214 Oct 28 06:35 | 0°♄       |            | asc. node           | 8215 Oct 06 15:25 | 2°♄51'32  |            |
| morning set      | 8214 Oct 30 00:20 | 3°♄35'33  |            | morning set         | 8215 Oct 14 11:35 | 18°♄25'35 |            |
|                  |                   |           |            |                     | 8215 Oct 19 20:47 | 0°♄       |            |
| superior conj    | 8214 Nov 06 06:24 | 18°♄50'13 | 1°39'49    |                     |                   |           |            |
| minimum elong    | 8214 Nov 06 07:19 | 18°♄54'59 | 1°39'54    | superior conj       | 8215 Oct 21 11:10 | 3°♄26'40  | 1°41'09    |
| max. Earth dist. | 8214 Nov 10 13:56 | 27°♄38'53 | 1.35099 AU | minimum elong       | 8215 Oct 21 10:48 | 3°♄24'44  | 1°41'15    |
|                  | 8214 Nov 11 18:23 | 0°♄       |            | max. Earth dist.    | 8215 Oct 24 09:05 | 9°♄38'01  | 1.33564 AU |
| evening rise     | 8214 Nov 14 18:29 | 5°♄48'39  |            | evening rise        | 8215 Oct 29 05:01 | 19°♄30'06 |            |
| desc. node       | 8214 Nov 23 12:15 | 21°♄26'23 |            |                     | 8215 Nov 03 17:18 | 0°♄       |            |
|                  | 8214 Nov 28 19:00 | 0°♄       |            | desc. node          | 8215 Nov 10 09:17 | 11°♄33'52 |            |
| evening max el   | 8214 Dec 20 01:52 | 27°♄36'11 | 26°38'55   |                     | 8215 Nov 22 21:04 | 0°♄       |            |
|                  | 8214 Dec 22 17:40 | 0°♄       |            | evening max el      | 8215 Dec 02 14:41 | 11°♄06'05 | 27°17'37   |
| retrograde       | 8215 Jan 02 02:25 | 4°♄52'57  |            | retrograde          | 8215 Dec 16 02:16 | 18°♄26'22 |            |
| evening set      | 8215 Jan 08 13:39 | 2°♄18'15  |            | evening set         | 8215 Dec 22 23:12 | 15°♄50'18 |            |
|                  | 8215 Jan 11 00:23 | 30°♄      |            | min. Earth dist.    | 8215 Dec 26 19:39 | 12°♄15'59 | 0.64714 AU |
| min. Earth dist. | 8215 Jan 12 15:38 | 28°♄10'12 | 0.66177 AU | inferior conj       | 8215 Dec 29 03:36 | 9°♄44'25  | -1°29'41   |
| inferior conj    | 8215 Jan 14 11:50 | 25°♄59'09 | -0°25'08   | minimum elong       | 8215 Dec 29 06:19 | 9°♄37'02  | 1°28'24    |
| minimum elong    | 8215 Jan 14 12:32 | 25°♄57'05 | 0°24'41    | asc. node           | 8216 Jan 02 14:50 | 5°♄28'03  |            |
| asc. node        | 8215 Jan 15 17:47 | 24°♄31'33 |            | morning rise        | 8216 Jan 04 14:56 | 4°♄16'31  |            |
| morning rise     | 8215 Jan 20 12:19 | 20°♄17'40 |            | direct              | 8216 Jan 07 04:41 | 3°♄42'06  |            |
| direct           | 8215 Jan 23 10:20 | 19°♄30'18 |            | morning max el      | 8216 Jan 13 15:08 | 7°♄04'57  | 17°56'12   |
| morning max el   | 8215 Jan 29 22:38 | 23°♄00'01 | 18°21'54   |                     | 8216 Jan 29 02:59 | 0°♄       |            |
|                  | 8215 Feb 04 15:25 | 0°♄       |            | morning set         | 8216 Jan 31 01:09 | 3°♄12'47  |            |
| morning set      | 8215 Feb 18 15:55 | 21°♄46'54 |            | desc. node          | 8216 Feb 06 08:36 | 13°♄40'45 |            |

|                     |                   |   |            |                  |  |                   |   |            |
|---------------------|-------------------|---|------------|------------------|--|-------------------|---|------------|
| superior conj       | 8216 Feb 13 20:15 | 25°  48'08   | -0°52'17   |                  |  | 8217 Jan 20 15:23 | 0°           |            |
| minimum elong       | 8216 Feb 13 14:12 | 25°  23'58   | 0°51'23    | desc. node       |  | 8217 Jan 23 05:33 | 4°  22'16    |            |
|                     | 8216 Feb 16 11:36 | 0°           |            |                  |  |                   |   |            |
| max. Earth dist.    | 8216 Feb 18 03:29 | 2°  37'32    | 1.45137 AU | superior conj    |  | 8217 Jan 24 07:24 | 6°  10'14    | -0°07'54   |
| evening rise        | 8216 Feb 29 22:23 | 20°  57'00   |            | minimum elong    |  | 8217 Jan 24 06:37 | 6°  06'56    | 0°07'37    |
|                     | 8216 Mar 06 20:19 | 0°           |            | behind sun begin |  | 8217 Jan 23 22:25 | 5°  32'46    |            |
| greatest brilliancy | 8216 Mar 15 12:14 | 12°  59'28   | -0.6m      | behind sun end   |  | 8217 Jan 24 14:49 | 6°  41'02    |            |
| evening max el      | 8216 Mar 27 07:57 | 28°  26'34   | 19°57'53   | max. Earth dist. |  | 8217 Jan 30 20:32 | 16°  52'05   | 1.44057 AU |
|                     | 8216 Mar 28 23:30 | 0°           |            | evening rise     |  | 8217 Feb 08 09:46 | 0°  18'41    |            |
| asc. node           | 8216 Mar 30 13:47 | 1°  814'33   |            |                  |  | 8217 Feb 08 04:55 | 0°           |            |
| retrograde          | 8216 Apr 03 22:21 | 2°  850'06   |            |                  |  | 8217 Feb 28 12:33 | 0°           |            |
| evening set         | 8216 Apr 07 17:10 | 1°  826'40   |            | evening max el   |  | 8217 Mar 10 07:19 | 12°  05'27   | 21°04'30   |
|                     | 8216 Apr 09 08:26 | 30°  86'00   |            | asc. node        |  | 8217 Mar 17 10:52 | 16°  05'57   |            |
| inferior conj       | 8216 Apr 13 01:41 | 25°  09'25   | 3°15'20    | retrograde       |  | 8217 Mar 18 20:49 | 17°  08'08   |            |
| minimum elong       | 8216 Apr 13 00:25 | 25°  09'58   | 3°15'07    | evening set      |  | 8217 Mar 23 01:12 | 15°  09'37   |            |
| min. Earth dist.    | 8216 Apr 14 00:27 | 24°  09'02   | 0.67415 AU | inferior conj    |  | 8217 Mar 28 08:32 | 9°  16'50    | 2°55'57    |
| morning rise        | 8216 Apr 18 07:25 | 19°  08'28   |            | minimum elong    |  | 8217 Mar 28 06:34 | 9°  23'39    | 2°55'32    |
| direct              | 8216 Apr 24 03:58 | 16°  31'38   |            | min. Earth dist. |  | 8217 Mar 28 17:55 | 8°  44'19    | 0.68128 AU |
| desc. node          | 8216 May 04 08:20 | 22°  00'53   |            | morning rise     |  | 8217 Apr 02 11:43 | 3°  02'25    |            |
| morning max el      | 8216 May 05 23:52 | 23°  37'04   | 25°01'38   | direct           |  | 8217 Apr 07 18:51 | 0°  42'13    |            |
|                     | 8216 May 11 16:01 | 0°           |            | morning max el   |  | 8217 Apr 18 09:03 | 7°  01'06    | 23°32'47   |
|                     | 8216 Jun 01 12:43 | 0°           |            | desc. node       |  | 8217 Apr 21 05:17 | 10°  04'36   |            |
| morning set         | 8216 Jun 11 00:41 | 16°  07'51   |            |                  |  | 8217 May 06 05:54 | 0°           |            |
| max. Earth dist.    | 8216 Jun 14 15:40 | 22°  04'24   | 1.36789 AU | morning set      |  | 8217 May 23 12:37 | 27°  08'57   |            |
|                     | 8216 Jun 18 12:21 | 0°           |            |                  |  | 8217 May 25 03:48 | 0°           |            |
|                     |                   |   |            | max. Earth dist. |  | 8217 May 27 11:28 | 4°  01'21    | 1.38994 AU |
| superior conj       | 8216 Jun 21 02:10 | 5°  00'36    | -0°52'12   | superior conj    |  | 8217 Jun 04 00:11 | 17°  03'50   | -1°23'21   |
| minimum elong       | 8216 Jun 21 05:21 | 5°  16'15    | 0°51'47    | minimum elong    |  | 8217 Jun 04 05:15 | 18°  03'36   | 1°22'47    |
| asc. node           | 8216 Jun 26 12:51 | 15°  05'41   |            |                  |  | 8217 Jun 10 11:07 | 0°           |            |
| evening rise        | 8216 Jun 29 10:12 | 21°  04'26  |            | evening rise     |  | 8217 Jun 13 06:53 | 5°  02'13   |            |
|                     | 8216 Jul 03 14:30 | 0°         |            | asc. node        |  | 8217 Jun 13 09:53 | 5°  04'47  |            |
| evening max el      | 8216 Jul 16 12:35 | 19°  04'10 | 19°34'46   |                  |  | 8217 Jun 27 21:15 | 0°         |            |
| retrograde          | 8216 Jul 26 06:21 | 24°  02'29 |            | evening max el   |  | 8217 Jun 29 12:02 | 1°  04'06  | 18°44'46   |
| evening set         | 8216 Jul 28 02:44 | 24°  01'50 |            | retrograde       |  | 8217 Jul 07 17:03 | 5°  04'10  |            |
| desc. node          | 8216 Jul 31 07:33 | 23°  02'14 |            | evening set      |  | 8217 Jul 09 17:38 | 5°  03'14  |            |
| inferior conj       | 8216 Aug 05 21:33 | 20°  01'57 | -1°42'29   | inferior conj    |  | 8217 Jul 17 17:36 | 1°  02'35  | 0°08'18    |
| minimum elong       | 8216 Aug 05 16:54 | 20°  02'50 | 1°40'49    | minimum elong    |  | 8217 Jul 17 17:56 | 1°  02'00  | 0°08'01    |
| min. Earth dist.    | 8216 Aug 08 06:08 | 18°  04'04 | 0.55503 AU | transit middle   |  | 8217 Jul 17 17:56 | 1°  02'00  | 0°08'01    |
| morning rise        | 8216 Aug 14 04:39 | 15°  04'56 |            | transit begin    |  | 8217 Jul 17 14:44 | 1°  01'52  |            |
| direct              | 8216 Aug 18 23:00 | 14°  05'50 |            | transit end      |  | 8217 Jul 17 21:07 | 1°  06'07  |            |
| morning max el      | 8216 Sep 01 22:23 | 21°  05'42 | 24°53'58   | desc. node       |  | 8217 Jul 18 04:38 | 0°  05'14  |            |
|                     | 8216 Sep 09 01:06 | 0°         |            |                  |  | 8217 Jul 19 08:51 | 30°  08'51 |            |
| asc. node           | 8216 Sep 22 12:24 | 22°  05'12 |            | min. Earth dist. |  | 8217 Jul 20 22:35 | 28°  05'52 | 0.57092 AU |
|                     | 8216 Sep 26 10:26 | 0°         |            | morning rise     |  | 8217 Jul 25 14:44 | 26°  05'55 |            |
| morning set         | 8216 Sep 27 23:17 | 3°  04'22  |            | direct           |  | 8217 Jul 31 05:33 | 24°  08'39 |            |
|                     |                   |   |            |                  |  | 8217 Aug 11 23:48 | 0°         |            |
| superior conj       | 8216 Oct 04 20:16 | 18°  01'31 | 1°36'18    | morning max el   |  | 8217 Aug 14 13:19 | 2°  01'10  | 26°25'31   |
| minimum elong       | 8216 Oct 04 18:53 | 18°  05'59 | 1°36'16    |                  |  | 8217 Sep 03 07:24 | 0°         |            |
| max. Earth dist.    | 8216 Oct 06 11:55 | 21°  05'02 | 1.32467 AU | asc. node        |  | 8217 Sep 09 09:22 | 11°  04'37 |            |
|                     | 8216 Oct 10 07:31 | 0°         |            | morning set      |  | 8217 Sep 12 09:50 | 17°  05'24 |            |
| evening rise        | 8216 Oct 12 01:32 | 3°  03'56  |            |                  |  | 8217 Sep 17 22:23 | 0°         |            |
|                     | 8216 Oct 26 11:13 | 0°         |            | superior conj    |  | 8217 Sep 19 07:39 | 3°  04'22  | 1°25'52    |
| desc. node          | 8216 Oct 27 06:20 | 1°  07'12  |            | minimum elong    |  | 8217 Sep 19 05:37 | 2°  05'07  | 1°25'39    |
| evening max el      | 8216 Nov 14 01:20 | 24°  09'38 | 27°28'52   | max. Earth dist. |  | 8217 Sep 19 20:11 | 4°  03'49  | 1.31835 AU |
|                     | 8216 Nov 22 01:07 | 0°         |            | evening rise     |  | 8217 Sep 26 05:13 | 18°  04'25 |            |
| retrograde          | 8216 Nov 27 19:29 | 1°  03'27  |            |                  |  | 8217 Oct 02 03:34 | 0°         |            |
|                     | 8216 Dec 03 05:45 | 30°  08'30 |            | desc. node       |  | 8217 Oct 14 03:26 | 20°  03'09 |            |
| evening set         | 8216 Dec 04 21:36 | 28°  08'30 |            |                  |  | 8217 Oct 21 05:57 | 0°         |            |
| min. Earth dist.    | 8216 Dec 08 14:17 | 25°  05'40 | 0.62938 AU | evening max el   |  | 8217 Oct 27 07:39 | 6°  03'46  | 27°07'35   |
| inferior conj       | 8216 Dec 11 09:07 | 23°  01'13 | -2°38'44   | retrograde       |  | 8217 Nov 10 05:00 | 13°  07'45 |            |
| minimum elong       | 8216 Dec 11 14:08 | 22°  05'59 | 2°36'40    | evening set      |  | 8217 Nov 17 05:10 | 11°  03'52 |            |
| morning rise        | 8216 Dec 18 08:41 | 18°  00'11 |            | min. Earth dist. |  | 8217 Nov 20 22:24 | 8°  05'24  | 0.60932 AU |
| asc. node           | 8216 Dec 19 11:52 | 17°  03'41 |            | inferior conj    |  | 8217 Nov 24 01:09 | 6°  01'28  | -3°48'02   |
| direct              | 8216 Dec 20 16:31 | 21°  00'18 | 17°47'52   | minimum elong    |  | 8217 Nov 24 08:03 | 5°  07'38  | 3°45'43    |
| morning max el      | 8216 Dec 27 08:27 | 0°         |            | morning rise     |  | 8217 Dec 01 13:15 | 1°  07'20  |            |
|                     | 8217 Jan 03 03:52 | 0°         |            |                  |  |                   |   |            |
| morning set         | 8217 Jan 12 11:00 | 15°  09'15 |            |                  |  |                   |   |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| direct           | 8217 Dec 03 18:20 | 1°♊00'54  |            | asc. node        | 8218 Nov 23 05:55 | 16°♍47'35 |            |
| asc. node        | 8217 Dec 06 08:54 | 1°♊29'29  |            | morning max el   | 8218 Nov 24 08:00 | 17°♍46'38 | 18°28'19   |
| morning max el   | 8217 Dec 10 23:15 | 4°♊37'26  | 17°58'02   |                  | 8218 Dec 03 03:02 | 0°♊       |            |
| morning set      | 8217 Dec 26 15:01 | 29°♊17'03 |            | morning set      | 8218 Dec 10 07:45 | 13°♊20'05 |            |
|                  | 8217 Dec 27 00:21 | 0°♊       |            |                  |                   |           |            |
| superior conj    | 8218 Jan 05 20:11 | 17°♊45'34 | 0°31'17    | superior conj    | 8218 Dec 19 07:13 | 0°♊24'37  | 1°01'47    |
| minimum elong    | 8218 Jan 05 22:40 | 17°♊56'28 | 0°31'04    | minimum elong    | 8218 Dec 19 10:39 | 0°♊40'28  | 1°01'29    |
| desc. node       | 8218 Jan 10 02:31 | 25°♊07'01 |            |                  | 8218 Dec 19 01:55 | 0°♊       |            |
|                  | 8218 Jan 13 00:21 | 0°♊       |            | max. Earth dist. | 8218 Dec 26 18:17 | 13°♊45'56 | 1.40376 AU |
| max. Earth dist. | 8218 Jan 13 09:33 | 0°♊38'06  | 1.42408 AU | desc. node       | 8218 Dec 27 23:33 | 15°♊51'38 |            |
| evening rise     | 8218 Jan 19 07:47 | 10°♊14'07 |            | evening rise     | 8218 Dec 31 01:49 | 21°♊04'19 |            |
|                  | 8218 Feb 01 07:19 | 0°♊       |            |                  | 8219 Jan 05 14:09 | 0°♊       |            |
| evening max el   | 8218 Feb 21 01:43 | 25°♊46'21 | 22°20'31   | evening max el   | 8219 Jan 26 10:40 | 0°♊       |            |
|                  | 8218 Feb 26 03:54 | 0°♊       |            | retrograde       | 8219 Feb 03 16:38 | 9°♊30'41  | 23°40'34   |
| retrograde       | 8218 Mar 02 17:42 | 1°♊30'09  |            | asc. node        | 8219 Feb 14 11:40 | 15°♊52'33 |            |
| asc. node        | 8218 Mar 04 07:59 | 1°♊17'15  |            | evening set      | 8219 Feb 19 05:03 | 14°♊04'25 |            |
|                  | 8218 Mar 06 21:00 | 30°♊      |            | min. Earth dist. | 8219 Feb 19 14:59 | 13°♊44'14 |            |
| evening set      | 8218 Mar 07 08:58 | 29°♊36'29 |            | inferior conj    | 8219 Feb 24 10:46 | 8°♊07'15  | 0.68285 AU |
| inferior conj    | 8218 Mar 12 17:05 | 23°♊14'45 | 2°26'54    | minimum elong    | 8219 Feb 25 01:27 | 7°♊17'03  | 1°49'05    |
| minimum elong    | 8218 Mar 12 14:49 | 23°♊22'37 | 2°26'18    | morning rise     | 8219 Feb 24 23:21 | 7°♊24'14  | 1°48'27    |
| min. Earth dist. | 8218 Mar 12 14:07 | 23°♊25'05 | 0.68413 AU |                  | 8219 Mar 02 07:43 | 1°♊12'45  |            |
| morning rise     | 8218 Mar 17 20:30 | 17°♊04'42 |            | direct           | 8219 Mar 04 09:20 | 30°♊      |            |
| direct           | 8218 Mar 22 13:40 | 15°♊05'35 |            |                  | 8219 Mar 06 11:11 | 29°♊36'12 |            |
| morning max el   | 8218 Mar 31 20:46 | 20°♊32'19 | 22°04'17   | morning max el   | 8219 Mar 08 15:21 | 0°♊       |            |
| desc. node       | 8218 Apr 08 02:14 | 28°♊58'11 |            | desc. node       | 8219 Mar 14 14:43 | 4°♊15'30  | 20°43'53   |
|                  | 8218 Apr 08 21:16 | 0°♊       |            |                  | 8219 Mar 25 23:11 | 18°♊28'21 |            |
| morning set      | 8218 Apr 29 11:26 | 0°♊       |            | morning set      | 8219 Apr 02 21:34 | 0°♊       |            |
| max. Earth dist. | 8218 May 03 21:33 | 7°♊01'38  |            | max. Earth dist. | 8219 Apr 13 05:02 | 15°♊42'29 |            |
|                  | 8218 May 09 09:56 | 16°♊05'25 | 1.41219 AU |                  | 8219 Apr 21 15:38 | 29°♊06'03 | 1.43175 AU |
|                  |                   |           |            |                  | 8219 Apr 22 04:57 | 0°♊       |            |
| superior conj    | 8218 May 17 04:07 | 29°♊27'11 | -1°50'24   | superior conj    | 8219 Apr 28 09:25 | 10°♊12'55 | -2°08'12   |
| minimum elong    | 8218 May 17 09:54 | 29°♊52'48 | 1°50'00    | minimum elong    | 8219 Apr 28 12:57 | 10°♊27'45 | 2°08'10    |
|                  | 8218 May 17 11:31 | 0°♊       |            |                  | 8219 May 09 19:51 | 0°♊       |            |
| evening rise     | 8218 May 27 16:30 | 18°♊39'37 |            | evening rise     | 8219 May 10 10:47 | 1°♊06'03  |            |
| asc. node        | 8218 May 31 06:56 | 25°♊18'59 |            | asc. node        | 8219 May 18 04:00 | 14°♊34'15 |            |
|                  | 8218 Jun 02 21:26 | 0°♊       |            | evening max el   | 8219 May 27 08:00 | 27°♊27'03 | 18°05'19   |
| evening max el   | 8218 Jun 12 19:47 | 14°♊22'37 | 18°15'13   |                  | 8219 May 30 16:49 | 0°♊       |            |
| retrograde       | 8218 Jun 19 22:53 | 17°♊57'37 |            | retrograde       | 8219 Jun 02 20:57 | 0°♊49'00  |            |
| evening set      | 8218 Jun 22 06:52 | 17°♊35'21 |            | evening set      | 8219 Jun 05 12:22 | 0°♊15'41  |            |
| inferior conj    | 8218 Jun 29 11:22 | 12°♊52'58 | 1°35'05    |                  | 8219 Jun 06 02:11 | 30°♊      |            |
| minimum elong    | 8218 Jun 29 14:08 | 12°♊46'59 | 1°34'02    | inferior conj    | 8219 Jun 12 00:32 | 25°♊13'12 | 2°33'46    |
| min. Earth dist. | 8218 Jul 02 20:45 | 9°♊58'59  | 0.59184 AU | minimum elong    | 8219 Jun 12 03:28 | 25°♊05'55 | 2°32'55    |
| desc. node       | 8218 Jul 05 01:42 | 8°♊18'32  |            | min. Earth dist. | 8219 Jun 15 02:56 | 22°♊09'32 | 0.61432 AU |
| morning rise     | 8218 Jul 06 18:18 | 7°♊14'24  |            | morning rise     | 8219 Jun 18 16:22 | 19°♊12'44 |            |
| direct           | 8218 Jul 13 01:35 | 5°♊25'47  |            | desc. node       | 8219 Jun 21 22:44 | 17°♊30'46 |            |
| morning max el   | 8218 Jul 27 10:28 | 13°♊14'35 | 27°28'40   | direct           | 8219 Jun 25 08:52 | 16°♊55'03 |            |
|                  | 8218 Aug 09 17:56 | 0°♊       |            | morning max el   | 8219 Jul 09 14:22 | 24°♊55'01 | 27°54'59   |
|                  | 8218 Aug 26 12:50 | 0°♊       |            |                  | 8219 Jul 14 05:45 | 0°♊       |            |
| asc. node        | 8218 Aug 27 06:21 | 1°♊30'56  |            |                  | 8219 Aug 03 04:04 | 0°♊       |            |
| morning set      | 8218 Aug 27 17:30 | 2°♊29'17  |            | morning set      | 8219 Aug 11 20:26 | 16°♊44'49 |            |
|                  |                   |           |            | asc. node        | 8219 Aug 14 03:21 | 21°♊31'07 |            |
| superior conj    | 8218 Sep 03 19:24 | 17°♊52'40 | 1°10'19    | max. Earth dist. | 8219 Aug 17 14:58 | 29°♊00'40 | 1.31939 AU |
| minimum elong    | 8218 Sep 03 17:09 | 17°♊40'11 | 1°09'54    |                  | 8219 Aug 18 01:50 | 0°♊       |            |
| max. Earth dist. | 8218 Sep 03 06:30 | 16°♊41'05 | 1.31659 AU |                  |                   |           |            |
|                  | 8218 Sep 09 07:28 | 0°♊       |            | superior conj    | 8219 Aug 19 05:45 | 2°♊33'05  | 0°50'00    |
| evening rise     | 8218 Sep 10 13:36 | 2°♊41'53  |            | minimum elong    | 8219 Aug 19 03:46 | 2°♊22'10  | 0°49'32    |
|                  | 8218 Sep 25 02:36 | 0°♊       |            | evening rise     | 8219 Aug 26 00:34 | 17°♊24'06 |            |
| desc. node       | 8218 Oct 01 00:33 | 8°♊40'25  |            |                  | 8219 Sep 01 04:15 | 0°♊       |            |
| evening max el   | 8218 Oct 09 06:55 | 18°♊10'55 | 26°12'30   | desc. node       | 8219 Sep 17 21:39 | 25°♊48'31 |            |
| retrograde       | 8218 Oct 23 05:04 | 25°♊15'33 |            | evening max el   | 8219 Sep 20 22:05 | 28°♊57'14 | 24°49'10   |
| evening set      | 8218 Oct 29 17:11 | 23°♊33'34 |            |                  | 8219 Sep 22 01:15 | 0°♊       |            |
| min. Earth dist. | 8218 Nov 02 20:00 | 20°♊59'01 | 0.58842 AU | retrograde       | 8219 Oct 04 18:06 | 5°♊55'14  |            |
| inferior conj    | 8218 Nov 06 00:09 | 18°♊37'11 | -4°49'26   | evening set      | 8219 Oct 10 05:14 | 4°♊48'13  |            |
| minimum elong    | 8218 Nov 06 07:07 | 18°♊24'09 | 4°47'50    | min. Earth dist. | 8219 Oct 15 09:17 | 2°♊03'28  | 0.56905 AU |
| morning rise     | 8218 Nov 13 23:20 | 14°♊07'42 |            | inferior conj    | 8219 Oct 18 03:15 | 0°♊16'33  | -5°28'59   |
| direct           | 8218 Nov 16 05:48 | 13°♊50'16 |            | minimum elong    | 8219 Oct 18 06:32 | 0°♊11'12  | 5°28'40    |



































































































































|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8219 Oct 18 13:26 | 30°♄      |            | evening set         | 8220 Sep 18 18:38 | 15°♄21'09 |            |
| morning rise        | 8219 Oct 26 10:05 | 26°♄09'50 |            | min. Earth dist.    | 8220 Sep 25 18:30 | 12°♄07'59 | 0.55427 AU |
| direct              | 8219 Oct 28 22:51 | 25°♄51'53 |            | inferior conj       | 8220 Sep 27 10:47 | 11°♄09'19 | -5°27'48   |
|                     | 8219 Nov 06 23:30 | 0°♄       |            | minimum elong       | 8220 Sep 27 06:49 | 11°♄15'07 | 5°27'26    |
| morning max el      | 8219 Nov 07 07:05 | 0°♄17'46  | 19°20'16   | morning rise        | 8220 Oct 05 21:07 | 7°♄18'39  |            |
| asc. node           | 8219 Nov 10 02:56 | 3°♄22'16  |            | direct              | 8220 Oct 08 20:38 | 6°♄57'30  |            |
| morning set         | 8219 Nov 24 09:02 | 27°♄45'50 |            | morning max el      | 8220 Oct 19 17:51 | 12°♄03'13 | 20°34'31   |
|                     | 8219 Nov 25 11:52 | 0°♄       |            | asc. node           | 8220 Oct 26 23:55 | 20°♄58'21 |            |
|                     |                   |           |            |                     | 8220 Nov 01 08:26 | 0°♄       |            |
| superior conj       | 8219 Dec 02 11:18 | 13°♄52'05 | 1°23'06    | morning set         | 8220 Nov 07 15:56 | 12°♄26'15 |            |
| minimum elong       | 8219 Dec 02 14:12 | 14°♄06'09 | 1°22'58    |                     |                   |           |            |
| max. Earth dist.    | 8219 Dec 09 00:02 | 26°♄11'38 | 1.38203 AU | superior conj       | 8220 Nov 15 03:49 | 27°♄55'06 | 1°35'54    |
|                     | 8219 Dec 11 02:43 | 0°♄       |            | minimum elong       | 8220 Nov 15 05:30 | 28°♄03'41 | 1°35'57    |
| evening rise        | 8219 Dec 12 17:43 | 2°♄52'07  |            |                     | 8220 Nov 16 04:27 | 0°♄       |            |
| desc. node          | 8219 Dec 14 20:34 | 6°♄31'53  |            | max. Earth dist.    | 8220 Nov 20 07:27 | 8°♄09'28  | 1.36146 AU |
|                     | 8219 Dec 29 17:42 | 0°♄       |            | evening rise        | 8220 Nov 24 05:15 | 15°♄32'23 |            |
| evening max el      | 8220 Jan 17 05:48 | 23°♄17'10 | 24°58'20   | desc. node          | 8220 Nov 30 17:37 | 27°♄03'55 |            |
|                     | 8220 Jan 27 11:56 | 0°♄       |            |                     | 8220 Dec 02 11:36 | 0°♄       |            |
| retrograde          | 8220 Jan 29 01:39 | 0°♄09'33  |            |                     | 8220 Dec 23 07:48 | 0°♄       |            |
|                     | 8220 Jan 30 14:03 | 30°♄      |            | evening max el      | 8220 Dec 29 18:49 | 7°♄03'32  | 26°06'43   |
| evening set         | 8220 Feb 03 17:38 | 27°♄48'09 |            | retrograde          | 8221 Jan 11 10:49 | 14°♄15'20 |            |
| asc. node           | 8220 Feb 06 02:08 | 25°♄25'39 |            | evening set         | 8221 Jan 17 15:15 | 11°♄44'07 |            |
| min. Earth dist.    | 8220 Feb 08 05:39 | 22°♄45'40 | 0.67759 AU | min. Earth dist.    | 8221 Jan 21 20:37 | 7°♄16'10  | 0.66856 AU |
| inferior conj       | 8220 Feb 09 07:48 | 21°♄19'47 | 1°03'02    | asc. node           | 8221 Jan 22 23:11 | 5°♄54'02  |            |
| minimum elong       | 8220 Feb 09 06:21 | 21°♄24'32 | 1°02'35    | inferior conj       | 8221 Jan 23 10:13 | 5°♄19'43  | 0°09'12    |
| morning rise        | 8220 Feb 14 19:21 | 15°♄22'47 |            | minimum elong       | 8221 Jan 23 09:58 | 5°♄20'29  | 0°09'13    |
| direct              | 8220 Feb 18 10:05 | 14°♄07'44 |            | transit middle      | 8221 Jan 23 09:58 | 5°♄20'29  | 0°09'13    |
| morning max el      | 8220 Feb 25 16:34 | 18°♄10'37 | 19°36'24   | transit begin       | 8221 Jan 23 07:38 | 5°♄27'45  |            |
|                     | 8220 Mar 06 02:21 | 0°♄       |            | transit end         | 8221 Jan 23 12:18 | 5°♄13'13  |            |
| greatest brilliancy | 8220 Mar 09 10:24 | 4°♄50'19  | -0.7m      |                     | 8221 Jan 28 12:15 | 30°♄      |            |
| desc. node          | 8220 Mar 11 20:07 | 8°♄24'42  |            | morning rise        | 8221 Jan 29 05:21 | 29°♄31'52 |            |
| morning set         | 8220 Mar 22 02:32 | 24°♄02'44 |            | direct              | 8221 Feb 01 08:52 | 28°♄35'31 |            |
|                     | 8220 Mar 25 22:58 | 0°♄       |            |                     | 8221 Feb 05 09:29 | 0°♄       |            |
| max. Earth dist.    | 8220 Apr 03 04:02 | 12°♄51'51 | 1.44619 AU | morning max el      | 8221 Feb 08 01:47 | 2°♄14'20  | 18°44'19   |
|                     |                   |           |            | desc. node          | 8221 Feb 26 17:03 | 28°♄40'17 |            |
| superior conj       | 8220 Apr 07 13:50 | 19°♄53'46 | -2°10'32   |                     | 8221 Feb 27 13:24 | 0°♄       |            |
| minimum elong       | 8220 Apr 07 11:14 | 19°♄43'20 | 2°10'31    | morning set         | 8221 Mar 01 14:26 | 3°♄12'06  |            |
|                     | 8220 Apr 13 19:00 | 0°♄       |            | max. Earth dist.    | 8221 Mar 16 21:06 | 27°♄07'18 | 1.45400 AU |
| evening rise        | 8220 Apr 21 09:00 | 12°♄38'15 |            |                     |                   |           |            |
|                     | 8220 May 01 20:12 | 0°♄       |            | superior conj       | 8221 Mar 17 23:00 | 28°♄48'48 | -1°52'54   |
| asc. node           | 8220 May 04 01:04 | 3°♄22'23  |            | minimum elong       | 8221 Mar 17 14:16 | 28°♄14'33 | 1°52'14    |
| evening max el      | 8220 May 09 21:18 | 10°♄48'24 | 18°14'21   |                     | 8221 Mar 18 17:09 | 0°♄       |            |
| retrograde          | 8220 May 16 06:33 | 14°♄11'54 |            | evening rise        | 8221 Apr 02 07:53 | 23°♄11'42 |            |
| evening set         | 8220 May 19 05:07 | 13°♄25'47 |            |                     | 8221 Apr 06 13:25 | 0°♄       |            |
| inferior conj       | 8220 May 25 05:02 | 8°♄04'57  | 3°07'53    | greatest brilliancy | 8221 Apr 09 10:28 | 4°♄36'47  | -0.9m      |
| minimum elong       | 8220 May 25 06:55 | 7°♄59'39  | 3°07'28    | asc. node           | 8221 Apr 20 22:07 | 21°♄34'46 |            |
| min. Earth dist.    | 8220 May 27 18:26 | 5°♄13'55  | 0.63558 AU | evening max el      | 8221 Apr 23 08:57 | 24°♄20'05 | 18°41'31   |
| morning rise        | 8220 May 31 07:25 | 1°♄52'29  |            | retrograde          | 8221 Apr 29 23:26 | 27°♄57'57 |            |
|                     | 8220 Jun 03 09:32 | 30°♄      |            | evening set         | 8221 May 03 05:20 | 26°♄57'53 |            |
| direct              | 8220 Jun 07 01:31 | 29°♄14'11 |            | inferior conj       | 8221 May 08 20:49 | 21°♄20'22 | 3°22'24    |
| desc. node          | 8220 Jun 07 19:44 | 29°♄16'02 |            | minimum elong       | 8221 May 08 21:21 | 21°♄18'42 | 3°22'15    |
|                     | 8220 Jun 10 22:47 | 0°♄       |            | min. Earth dist.    | 8221 May 10 19:04 | 18°♄58'51 | 0.65383 AU |
| morning max el      | 8220 Jun 20 22:57 | 7°♄16'32  | 27°43'29   | morning rise        | 8221 May 14 12:41 | 15°♄03'00 |            |
|                     | 8220 Jul 08 08:57 | 0°♄       |            | direct              | 8221 May 21 01:56 | 12°♄16'06 |            |
|                     | 8220 Jul 25 08:45 | 0°♄       |            | desc. node          | 8221 May 25 16:43 | 13°♄25'08 |            |
| morning set         | 8220 Jul 25 16:19 | 0°♄37'39  |            | morning max el      | 8221 Jun 03 09:17 | 20°♄08'11 | 26°58'47   |
| max. Earth dist.    | 8220 Jul 30 17:35 | 11°♄00'58 | 1.32684 AU |                     | 8221 Jun 11 20:01 | 0°♄       |            |
| asc. node           | 8220 Jul 31 00:20 | 11°♄36'44 |            |                     | 8221 Jul 01 11:00 | 0°♄       |            |
|                     |                   |           |            | morning set         | 8221 Jul 09 02:09 | 13°♄58'27 |            |
| superior conj       | 8220 Aug 02 12:49 | 17°♄00'06 | 0°25'23    | max. Earth dist.    | 8221 Jul 13 10:35 | 22°♄32'49 | 1.33920 AU |
| minimum elong       | 8220 Aug 02 11:38 | 16°♄53'42 | 0°25'02    |                     | 8221 Jul 17 01:39 | 0°♄       |            |
|                     | 8220 Aug 08 12:48 | 0°♄       |            |                     |                   |           |            |
| evening rise        | 8220 Aug 09 12:14 | 2°♄05'23  |            | superior conj       | 8221 Jul 17 14:25 | 1°♄06'47  | -0°02'55   |
|                     | 8220 Aug 24 18:14 | 0°♄       |            | minimum elong       | 8221 Jul 17 14:35 | 1°♄07'36  | 0°03'01    |
| evening max el      | 8220 Sep 01 09:22 | 9°♄13'22  | 23°11'08   | behind sun begin    | 8221 Jul 17 09:00 | 0°♄38'23  |            |
| desc. node          | 8220 Sep 03 18:44 | 11°♄21'27 |            | behind sun end      | 8221 Jul 17 20:10 | 1°♄36'53  |            |
| retrograde          | 8220 Sep 14 19:13 | 15°♄55'43 |            | asc. node           | 8221 Jul 17 21:19 | 1°♄42'57  |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening rise        | 8221 Jul 24 22:38 | 16°♌39'01 |            |                  | 8222 Jul 08 18:09 | 0°♌       |            |
|                     | 8221 Jul 31 14:32 | 0°♍       |            | evening rise     | 8222 Jul 09 05:46 | 0°♌59'32  |            |
| evening max el      | 8221 Aug 14 01:26 | 19°♍33'16 | 21°34'57   |                  | 8222 Jul 26 18:38 | 0°♍       |            |
| desc. node          | 8221 Aug 21 15:49 | 24°♍46'27 |            | evening max el   | 8222 Jul 27 05:16 | 0°♍26'49  | 20°12'59   |
| retrograde          | 8221 Aug 26 09:38 | 25°♍40'27 |            | retrograde       | 8222 Aug 06 22:24 | 5°♍44'09  |            |
| evening set         | 8221 Aug 29 00:12 | 25°♍25'01 |            | evening set      | 8222 Aug 08 20:57 | 5°♍34'31  |            |
| inferior conj       | 8221 Sep 07 05:09 | 21°♍26'34 | -4°32'00   | desc. node       | 8222 Aug 08 12:53 | 5°♍37'32  |            |
| minimum elong       | 8221 Sep 06 19:51 | 21°♍39'35 | 4°29'46    | inferior conj    | 8222 Aug 17 23:32 | 1°♍36'22  | -2°50'05   |
| min. Earth dist.    | 8221 Sep 07 03:13 | 21°♍29'16 | 0.54717 AU | minimum elong    | 8222 Aug 17 15:52 | 1°♍47'42  | 2°47'27    |
| morning rise        | 8221 Sep 15 16:30 | 17°♍36'04 |            | min. Earth dist. | 8222 Aug 19 13:28 | 0°♍40'25  | 0.54955 AU |
| direct              | 8221 Sep 19 06:19 | 17°♍08'14 |            |                  | 8222 Aug 20 17:34 | 30°♌      |            |
| morning max el      | 8221 Oct 01 15:59 | 23°♍00'17 | 22°08'34   | morning rise     | 8222 Aug 26 09:39 | 27°♌26'05 |            |
|                     | 8221 Oct 07 18:59 | 0°♎       |            | direct           | 8222 Aug 30 17:00 | 26°♌45'59 |            |
| asc. node           | 8221 Oct 13 20:54 | 9°♎21'02  |            |                  | 8222 Sep 09 01:52 | 0°♍       |            |
| morning set         | 8221 Oct 23 02:07 | 27°♎14'01 |            | morning max el   | 8222 Sep 13 05:45 | 3°♍22'17  | 23°53'54   |
|                     | 8221 Oct 24 09:34 | 0°♏       |            | asc. node        | 8222 Sep 30 17:53 | 28°♍19'05 |            |
|                     |                   |           |            |                  | 8222 Oct 01 15:11 | 0°♎       |            |
| superior conj       | 8221 Oct 30 04:56 | 12°♏21'38 | 1°41'11    | morning set      | 8222 Oct 07 13:47 | 12°♎04'05 |            |
| minimum elong       | 8221 Oct 30 05:17 | 12°♏23'30 | 1°41'17    |                  |                   |           |            |
| max. Earth dist.    | 8221 Nov 02 21:34 | 20°♏02'30 | 1.34395 AU | superior conj    | 8222 Oct 14 11:49 | 27°♎03'16 | 1°39'49    |
| evening rise        | 8221 Nov 07 08:30 | 28°♏54'26 |            | minimum elong    | 8222 Oct 14 11:00 | 26°♎58'47 | 1°39'51    |
|                     | 8221 Nov 07 22:06 | 0°♐       |            |                  | 8222 Oct 15 20:33 | 0°♏       |            |
| desc. node          | 8221 Nov 17 14:40 | 17°♐22'02 |            | max. Earth dist. | 8222 Oct 16 20:17 | 2°♏07'16  | 1.33050 AU |
|                     | 8221 Nov 25 15:46 | 0°♑       |            | evening rise     | 8222 Oct 21 23:42 | 12°♏48'27 |            |
| evening max el      | 8221 Dec 12 08:04 | 20°♑42'45 | 26°58'25   |                  | 8222 Oct 31 03:09 | 0°♐       |            |
| retrograde          | 8221 Dec 25 14:18 | 28°♑02'27 |            | desc. node       | 8222 Nov 04 11:43 | 7°♐19'55  |            |
| evening set         | 8222 Jan 01 05:52 | 25°♑26'28 |            |                  | 8222 Nov 20 22:10 | 0°♑       |            |
| min. Earth dist.    | 8222 Jan 05 05:25 | 21°♑32'43 | 0.65590 AU | evening max el   | 8222 Nov 24 20:28 | 4°♑03'49  | 27°26'11   |
| inferior conj       | 8222 Jan 07 06:34 | 19°♑12'00 | -0°51'49   | retrograde       | 8222 Dec 08 11:16 | 11°♑22'45 |            |
| minimum elong       | 8222 Jan 07 08:04 | 19°♑07'42 | 0°51'02    | evening set      | 8222 Dec 15 11:02 | 8°♑49'04  |            |
| asc. node           | 8222 Jan 09 20:14 | 16°♑23'43 |            | min. Earth dist. | 8222 Dec 19 05:44 | 5°♑27'52  | 0.63993 AU |
| morning rise        | 8222 Jan 13 11:26 | 13°♑35'44 |            | inferior conj    | 8222 Dec 21 18:21 | 2°♑50'40  | -1°58'39   |
| direct              | 8222 Jan 16 05:35 | 12°♑54'24 |            | minimum elong    | 8222 Dec 21 22:02 | 2°♑41'04  | 1°57'00    |
| morning max el      | 8222 Jan 22 16:20 | 16°♑20'22 | 18°08'49   |                  | 8222 Dec 24 15:57 | 30°♌♐     |            |
|                     | 8222 Feb 01 17:33 | 0°♒       |            | asc. node        | 8222 Dec 27 17:18 | 27°♐49'06 |            |
| morning set         | 8222 Feb 10 06:56 | 13°♒48'39 |            | morning rise     | 8222 Dec 28 10:44 | 27°♐29'05 |            |
| desc. node          | 8222 Feb 13 14:01 | 19°♒09'33 |            | direct           | 8222 Dec 30 21:43 | 26°♐58'55 |            |
|                     | 8222 Feb 20 08:04 | 0°♓       |            |                  | 8223 Jan 06 00:29 | 0°♑       |            |
|                     |                   |           |            | morning max el   | 8223 Jan 06 09:30 | 0°♑21'44  | 17°50'26   |
| superior conj       | 8222 Feb 25 04:55 | 7°♓42'24  | -1°17'23   | morning set      | 8223 Jan 23 03:28 | 25°♑47'21 |            |
| minimum elong       | 8222 Feb 24 20:14 | 7°♓08'13  | 1°16'17    |                  | 8223 Jan 25 14:52 | 0°♒       |            |
| max. Earth dist.    | 8222 Feb 27 16:34 | 11°♓36'46 | 1.45445 AU | desc. node       | 8223 Jan 31 10:58 | 9°♒47'50  |            |
|                     | 8222 Mar 11 11:44 | 0°♔       |            |                  |                   |           |            |
| evening rise        | 8222 Mar 13 08:48 | 2°♔54'59  |            | superior conj    | 8223 Feb 05 02:07 | 17°♒23'34 | -0°33'11   |
| greatest brilliancy | 8222 Mar 25 19:05 | 22°♔02'59 | -0.7m      | minimum elong    | 8223 Feb 04 22:24 | 17°♒08'28 | 0°32'31    |
|                     | 8222 Mar 31 06:05 | 0°♕       |            | max. Earth dist. | 8223 Feb 10 11:48 | 26°♒03'37 | 1.44757 AU |
| evening max el      | 8222 Apr 06 16:48 | 7°♕57'09  | 19°25'40   |                  | 8223 Feb 12 23:42 | 0°♓       |            |
| asc. node           | 8222 Apr 07 19:11 | 9°♕00'33  |            | evening rise     | 8223 Feb 20 20:56 | 12°♓14'19 |            |
| retrograde          | 8222 Apr 13 20:23 | 12°♕00'55 |            |                  | 8223 Mar 04 15:09 | 0°♔       |            |
| evening set         | 8222 Apr 17 10:16 | 10°♕46'07 |            | evening max el   | 8223 Mar 20 19:27 | 21°♔35'50 | 20°24'51   |
| inferior conj       | 8222 Apr 22 20:33 | 4°♕53'22  | 3°21'33    | asc. node        | 8223 Mar 25 16:16 | 25°♔25'47 |            |
| minimum elong       | 8222 Apr 22 19:51 | 4°♕55'38  | 3°21'25    | retrograde       | 8223 Mar 28 18:52 | 26°♔14'54 |            |
| min. Earth dist.    | 8222 Apr 24 03:37 | 3°♕11'37  | 0.66802 AU | evening set      | 8223 Apr 01 17:42 | 24°♔44'56 |            |
|                     | 8222 Apr 26 19:06 | 30°♌♔     |            | inferior conj    | 8223 Apr 07 01:27 | 18°♔38'46 | 3°08'20    |
| morning rise        | 8222 Apr 28 05:05 | 28°♔35'32 |            | minimum elong    | 8223 Apr 06 23:51 | 18°♔44'16 | 3°08'03    |
| direct              | 8222 May 04 08:45 | 25°♔52'03 |            | min. Earth dist. | 8223 Apr 07 18:21 | 17°♔41'02 | 0.67774 AU |
| desc. node          | 8222 May 12 13:42 | 29°♔28'09 |            | morning rise     | 8223 Apr 12 05:47 | 12°♔22'48 |            |
|                     | 8222 May 13 05:29 | 0°♕       |            | direct           | 8223 Apr 17 20:49 | 9°♔52'22  |            |
| morning max el      | 8222 May 16 19:12 | 3°♕18'21  | 25°49'10   | morning max el   | 8223 Apr 29 04:18 | 16°♔38'28 | 24°24'28   |
|                     | 8222 Jun 06 02:10 | 0°♖       |            | desc. node       | 8223 Apr 29 10:40 | 16°♔54'42 |            |
| morning set         | 8222 Jun 21 22:09 | 26°♖37'08 |            |                  | 8223 May 10 05:59 | 0°♕       |            |
|                     | 8222 Jun 23 17:56 | 0°♗       |            |                  | 8223 May 30 01:55 | 0°♖       |            |
| max. Earth dist.    | 8222 Jun 25 16:41 | 3°♗41'11  | 1.35631 AU | morning set      | 8223 Jun 03 23:21 | 8°♖20'10  |            |
|                     |                   |           |            | max. Earth dist. | 8223 Jun 07 14:52 | 14°♖48'36 | 1.37713 AU |
| superior conj       | 8222 Jul 01 08:00 | 14°♗46'27 | -0°33'49   |                  |                   |           |            |
| minimum elong       | 8222 Jul 01 09:59 | 14°♗56'31 | 0°33'34    | superior conj    | 8223 Jun 14 14:16 | 27°♖50'22 | -1°05'38   |
| asc. node           | 8222 Jul 04 18:19 | 21°♗46'07 |            | minimum elong    | 8223 Jun 14 18:19 | 28°♖09'52 | 1°05'07    |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8223 Jun 15 17:04 | 0°☿       |            | superior conj    | 8224 May 27 05:08 | 10°♊08'30 | -1°35'35   |
| asc. node        | 8223 Jun 21 15:20 | 11°☿41'59 |            | minimum elong    | 8224 May 27 10:45 | 10°♊34'12 | 1°35'03    |
| evening rise     | 8223 Jun 23 07:06 | 14°☿59'41 |            | evening rise     | 8224 Jun 05 23:34 | 28°♊31'12 |            |
|                  | 8223 Jul 01 05:36 | 0°♊       |            |                  | 8224 Jun 06 18:12 | 0°☿       |            |
| evening max el   | 8223 Jul 09 22:08 | 12°♊04'38 | 19°10'53   | asc. node        | 8224 Jun 07 12:22 | 1°☿26'14  |            |
| retrograde       | 8223 Jul 18 23:01 | 16°♊32'41 |            | evening max el   | 8224 Jun 22 01:30 | 24°☿23'29 | 18°29'42   |
| evening set      | 8223 Jul 20 20:34 | 16°♊21'41 |            | retrograde       | 8224 Jun 29 18:15 | 28°☿13'41 |            |
| desc. node       | 8223 Jul 26 09:57 | 14°♊02'44 |            | evening set      | 8224 Jul 01 21:42 | 27°☿56'42 |            |
| inferior conj    | 8223 Jul 29 07:48 | 12°♊10'19 | -0°53'24   | inferior conj    | 8224 Jul 09 13:09 | 23°☿26'08 | 0°48'31    |
| minimum elong    | 8223 Jul 29 05:28 | 12°♊14'15 | 0°52'37    | minimum elong    | 8224 Jul 09 14:51 | 23°☿22'47 | 0°47'46    |
| min. Earth dist. | 8223 Aug 01 02:56 | 10°♊17'53 | 0.56101 AU | desc. node       | 8224 Jul 12 07:01 | 21°☿16'17 |            |
| morning rise     | 8223 Aug 06 11:24 | 7°♊25'16  |            | min. Earth dist. | 8224 Jul 12 21:36 | 20°☿48'36 | 0.57936 AU |
| direct           | 8223 Aug 11 14:37 | 6°♊24'28  |            | morning rise     | 8224 Jul 17 04:32 | 18°☿04'29 |            |
| morning max el   | 8223 Aug 25 18:35 | 13°♊37'07 | 25°35'37   | direct           | 8224 Jul 23 02:48 | 16°☿34'20 |            |
|                  | 8223 Sep 07 15:53 | 0°♋       |            | morning max el   | 8224 Aug 06 12:10 | 24°☿13'33 | 26°56'39   |
| asc. node        | 8223 Sep 17 14:53 | 17°♋43'19 |            |                  | 8224 Aug 11 18:31 | 0°♊       |            |
| morning set      | 8223 Sep 22 01:15 | 26°♋51'40 |            |                  | 8224 Aug 30 18:27 | 0°♋       |            |
|                  | 8223 Sep 23 12:19 | 0°♌       |            | asc. node        | 8224 Sep 03 11:51 | 7°♋26'02  |            |
|                  |                   |           |            | morning set      | 8224 Sep 05 10:48 | 11°♋31'03 |            |
| superior conj    | 8223 Sep 28 22:10 | 11°♌52'57 | 1°32'33    |                  |                   |           |            |
| minimum elong    | 8223 Sep 28 20:28 | 11°♌43'34 | 1°32'25    | superior conj    | 8224 Sep 12 09:55 | 26°♋43'39 | 1°19'53    |
| max. Earth dist. | 8223 Sep 30 02:07 | 14°♌26'46 | 1.32146 AU | minimum elong    | 8224 Sep 12 07:45 | 26°♋31'33 | 1°19'34    |
| evening rise     | 8223 Oct 05 23:38 | 27°♌05'38 |            | max. Earth dist. | 8224 Sep 12 11:43 | 26°♋53'38 | 1.31700 AU |
|                  | 8223 Oct 07 09:34 | 0°♍       |            |                  | 8224 Sep 13 21:20 | 0°♌       |            |
| desc. node       | 8223 Oct 22 08:47 | 26°♍49'10 |            | evening rise     | 8224 Sep 19 05:34 | 11°♌37'36 |            |
|                  | 8223 Oct 24 11:19 | 0°♎       |            |                  | 8224 Sep 28 13:49 | 0°♍       |            |
| evening max el   | 8223 Nov 07 05:44 | 16°♎53'25 | 27°23'56   | desc. node       | 8224 Oct 08 05:53 | 15°♍37'26 |            |
| retrograde       | 8223 Nov 21 01:08 | 24°♎07'42 |            | evening max el   | 8224 Oct 19 09:04 | 28°♍58'01 | 26°48'05   |
| evening set      | 8223 Nov 28 03:40 | 21°♎45'22 |            |                  | 8224 Oct 20 12:09 | 0°♎       |            |
| min. Earth dist. | 8223 Dec 01 19:51 | 18°♎51'42 | 0.62110 AU | retrograde       | 8224 Nov 02 06:57 | 6°♎06'58  |            |
| inferior conj    | 8223 Dec 04 18:37 | 16°♎08'31 | -3°08'28   | evening set      | 8224 Nov 09 03:35 | 4°♎07'04  |            |
| minimum elong    | 8223 Dec 05 00:33 | 15°♎54'48 | 3°06'11    | min. Earth dist. | 8224 Nov 12 23:11 | 1°♎30'07  | 0.60040 AU |
| morning rise     | 8223 Dec 11 23:34 | 11°♎05'05 |            |                  | 8224 Nov 14 20:09 | 30°♏♍     |            |
| direct           | 8223 Dec 14 05:56 | 10°♎42'28 |            | inferior conj    | 8224 Nov 16 03:50 | 28°♍55'16 | -4°15'42   |
| asc. node        | 8223 Dec 14 14:21 | 10°♎43'02 |            | minimum elong    | 8224 Nov 16 11:05 | 28°♍40'33 | 4°13'34    |
| morning max el   | 8223 Dec 21 02:13 | 14°♎11'10 | 17°49'54   | morning rise     | 8224 Nov 23 21:01 | 24°♍13'07 |            |
|                  | 8223 Dec 31 22:43 | 0°♏       |            | direct           | 8224 Nov 26 02:05 | 23°♍54'48 |            |
| morning set      | 8224 Jan 05 21:53 | 8°♏48'46  |            | asc. node        | 8224 Nov 30 11:24 | 25°♍10'52 |            |
|                  |                   |           |            | morning max el   | 8224 Dec 03 14:59 | 27°♍38'23 | 18°08'24   |
| superior conj    | 8224 Jan 17 00:24 | 28°♏18'13 | 0°09'41    |                  | 8224 Dec 05 18:37 | 0°♎       |            |
| minimum elong    | 8224 Jan 17 01:19 | 28°♏22'06 | 0°09'41    | morning set      | 8224 Dec 19 07:53 | 22°♎33'14 |            |
| behind sun begin | 8224 Jan 16 18:18 | 27°♏52'13 |            |                  | 8224 Dec 23 07:16 | 0°♏       |            |
| behind sun end   | 8224 Jan 17 08:21 | 28°♏51'55 |            |                  |                   |           |            |
| desc. node       | 8224 Jan 18 07:57 | 0°♐31'45  |            | superior conj    | 8224 Dec 28 23:18 | 10°♏22'54 | 0°45'20    |
|                  | 8224 Jan 18 00:26 | 0°♑       |            | minimum elong    | 8224 Dec 29 02:26 | 10°♏36'55 | 0°45'02    |
| max. Earth dist. | 8224 Jan 24 03:55 | 10°♑10'23 | 1.43416 AU | desc. node       | 8225 Jan 04 04:57 | 21°♏17'04 |            |
| evening rise     | 8224 Jan 31 11:19 | 21°♑47'16 |            | max. Earth dist. | 8225 Jan 05 14:46 | 23°♏40'09 | 1.41575 AU |
|                  | 8224 Feb 05 19:35 | 0°♒       |            |                  | 8225 Jan 09 10:29 | 0°♑       |            |
|                  | 8224 Feb 27 01:10 | 0°♓       |            | evening rise     | 8225 Jan 10 17:08 | 2°♑04'18  |            |
| evening max el   | 8224 Mar 02 16:32 | 5°♓15'27  | 21°35'53   |                  | 8225 Jan 29 05:23 | 0°♒       |            |
| retrograde       | 8224 Mar 11 16:55 | 10°♓35'38 |            | evening max el   | 8225 Feb 13 09:03 | 18°♒56'58 | 22°54'22   |
| asc. node        | 8224 Mar 11 13:22 | 10°♓35'32 |            | retrograde       | 8225 Feb 23 12:51 | 24°♒58'21 |            |
| evening set      | 8224 Mar 16 01:51 | 8°♓50'24  |            | asc. node        | 8225 Feb 26 10:28 | 24°♒16'16 |            |
| inferior conj    | 8224 Mar 21 09:17 | 2°♓33'15  | 2°44'44    | evening set      | 8225 Feb 28 09:04 | 22°♒58'17 |            |
| minimum elong    | 8224 Mar 21 07:08 | 2°♓40'43  | 2°44'14    | inferior conj    | 8225 Mar 05 17:59 | 16°♒33'28 | 2°11'55    |
| min. Earth dist. | 8224 Mar 21 13:12 | 2°♓19'35  | 0.68303 AU | minimum elong    | 8225 Mar 05 15:44 | 16°♒41'16 | 2°11'16    |
|                  | 8224 Mar 23 06:06 | 30°♓♒     |            | min. Earth dist. | 8225 Mar 05 09:56 | 17°♒01'21 | 0.68405 AU |
| morning rise     | 8224 Mar 26 12:15 | 26°♒20'41 |            | morning rise     | 8225 Mar 10 22:18 | 10°♒25'33 |            |
| direct           | 8224 Mar 31 13:23 | 24°♒09'22 |            | direct           | 8225 Mar 15 09:25 | 8°♒36'13  |            |
|                  | 8224 Apr 10 11:56 | 0°♓       |            | morning max el   | 8225 Mar 24 04:24 | 13°♒42'17 | 21°28'43   |
| morning max el   | 8224 Apr 10 14:19 | 0°♓06'00  | 22°54'38   | desc. node       | 8225 Apr 02 04:36 | 24°♒32'24 |            |
| desc. node       | 8224 Apr 15 07:39 | 5°♓21'45  |            |                  | 8225 Apr 06 03:41 | 0°♓       |            |
|                  | 8224 May 03 01:50 | 0°♔       |            | morning set      | 8225 Apr 24 21:31 | 28°♓10'57 |            |
| morning set      | 8224 May 15 00:14 | 18°♔53'38 |            |                  | 8225 Apr 26 00:58 | 0°♔       |            |
| max. Earth dist. | 8224 May 19 11:23 | 26°♔25'20 | 1.39957 AU | max. Earth dist. | 8225 May 01 12:11 | 8°♔51'43  | 1.42092 AU |
|                  | 8224 May 21 12:58 | 0°♕       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8225 May 08 23:55 | 21°♔30'32 | -1°59'27   |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| minimum elong    | 8225 May 09 05:12 | 21°♄53'28 | 1°59'12    | superior conj       | 8226 Apr 19 18:34 | 1°♄48'02  | -2°11'27   |
|                  | 8225 May 13 19:50 | 0°♄       |            | minimum elong       | 8226 Apr 19 19:53 | 1°♄53'31  | 2°11'30    |
| evening rise     | 8225 May 20 03:14 | 11°♄24'21 |            | evening rise        | 8226 May 02 13:28 | 23°♄28'04 |            |
| asc. node        | 8225 May 25 09:25 | 20°♄53'57 |            |                     | 8226 May 06 07:57 | 0°♄       |            |
|                  | 8225 May 30 20:11 | 0°♄       |            | asc. node           | 8226 May 12 06:27 | 9°♄58'25  |            |
| evening max el   | 8225 Jun 05 11:36 | 7°♄14'35  | 18°08'44   | evening max el      | 8226 May 20 00:41 | 20°♄27'15 | 18°06'59   |
| retrograde       | 8225 Jun 12 07:29 | 10°♄42'18 |            | retrograde          | 8226 May 26 10:47 | 23°♄47'52 |            |
| evening set      | 8225 Jun 14 18:33 | 10°♄15'45 |            | evening set         | 8226 May 29 05:19 | 23°♄09'14 |            |
| inferior conj    | 8225 Jun 21 15:40 | 5°♄24'58  | 2°03'14    | inferior conj       | 8226 Jun 04 11:48 | 17°♄59'01 | 2°50'56    |
| minimum elong    | 8225 Jun 21 18:43 | 5°♄17'57  | 2°02'12    | minimum elong       | 8226 Jun 04 14:22 | 17°♄52'16 | 2°50'16    |
| min. Earth dist. | 8225 Jun 24 23:17 | 2°♄23'33  | 0.60130 AU | min. Earth dist.    | 8226 Jun 07 09:16 | 14°♄58'09 | 0.62364 AU |
|                  | 8225 Jun 28 00:55 | 30°♄      |            | morning rise        | 8226 Jun 10 21:38 | 11°♄52'39 |            |
| morning rise     | 8225 Jun 28 16:04 | 29°♄35'34 |            | desc. node          | 8226 Jun 16 01:06 | 9°♄32'49  |            |
| desc. node       | 8225 Jun 29 04:04 | 29°♄17'41 |            | direct              | 8226 Jun 17 15:54 | 9°♄24'36  |            |
| direct           | 8225 Jul 05 04:13 | 27°♄33'35 |            | morning max el      | 8226 Jul 01 18:18 | 17°♄26'47 | 27°54'31   |
|                  | 8225 Jul 12 17:55 | 0°♄       |            |                     | 8226 Jul 12 04:54 | 0°♄       |            |
| morning max el   | 8225 Jul 19 12:23 | 5°♄29'08  | 27°44'35   |                     | 8226 Jul 30 13:45 | 0°♄       |            |
|                  | 8225 Aug 06 19:14 | 0°♄       |            | morning set         | 8226 Aug 04 16:54 | 10°♄03'41 |            |
| morning set      | 8225 Aug 20 16:43 | 25°♄57'23 |            | asc. node           | 8226 Aug 08 05:47 | 17°♄24'24 |            |
| asc. node        | 8225 Aug 21 08:49 | 27°♄21'37 |            | max. Earth dist.    | 8226 Aug 10 03:50 | 21°♄30'29 | 1.32196 AU |
|                  | 8225 Aug 22 14:45 | 0°♄       |            |                     |                   |           |            |
| max. Earth dist. | 8225 Aug 26 21:35 | 9°♄18'55  | 1.31715 AU | superior conj       | 8226 Aug 12 06:30 | 26°♄05'23 | 0°40'04    |
|                  |                   |           |            | minimum elong       | 8226 Aug 12 04:47 | 25°♄56'01 | 0°39'38    |
| superior conj    | 8225 Aug 27 21:20 | 11°♄30'03 | 1°02'16    |                     | 8226 Aug 14 01:22 | 0°♄       |            |
| minimum elong    | 8225 Aug 27 19:08 | 11°♄17'52 | 1°01'50    | evening rise        | 8226 Aug 19 02:45 | 11°♄00'36 |            |
| evening rise     | 8225 Sep 03 15:18 | 26°♄18'16 |            |                     | 8226 Aug 28 17:23 | 0°♄       |            |
|                  | 8225 Sep 05 09:12 | 0°♄       |            | desc. node          | 8226 Sep 12 00:02 | 19°♄59'45 |            |
|                  | 8225 Sep 22 11:49 | 0°♄       |            | evening max el      | 8226 Sep 12 17:35 | 20°♄42'55 | 24°08'23   |
| desc. node       | 8225 Sep 25 02:58 | 3°♄28'32  |            | retrograde          | 8226 Sep 26 10:47 | 27°♄35'21 |            |
| evening max el   | 8225 Oct 01 04:42 | 10°♄12'19 | 25°39'55   | evening set         | 8226 Oct 01 07:22 | 26°♄43'27 |            |
| retrograde       | 8225 Oct 15 03:00 | 17°♄15'09 |            | min. Earth dist.    | 8226 Oct 07 04:19 | 23°♄48'28 | 0.56205 AU |
| evening set      | 8225 Oct 21 05:52 | 15°♄47'43 |            | inferior conj       | 8226 Oct 09 13:04 | 22°♄21'07 | -5°34'36   |
| min. Earth dist. | 8225 Oct 25 17:06 | 13°♄10'56 | 0.57982 AU | minimum elong       | 8226 Oct 09 13:30 | 22°♄20'26 | 5°34'32    |
| inferior conj    | 8225 Oct 28 18:37 | 11°♄01'50 | -5°09'56   | morning rise        | 8226 Oct 17 21:45 | 18°♄22'05 |            |
| minimum elong    | 8225 Oct 29 00:34 | 10°♄51'21 | 5°08'53    | direct              | 8226 Oct 20 14:39 | 18°♄03'01 |            |
| morning rise     | 8225 Nov 05 21:36 | 6°♄42'16  |            | morning max el      | 8226 Oct 30 14:04 | 22°♄45'04 | 19°49'04   |
| direct           | 8225 Nov 08 05:53 | 6°♄25'05  |            | asc. node           | 8226 Nov 04 05:23 | 28°♄05'56 |            |
| morning max el   | 8225 Nov 16 20:07 | 10°♄33'10 | 18°47'36   |                     | 8226 Nov 05 13:47 | 0°♄       |            |
| asc. node        | 8225 Nov 17 08:24 | 11°♄03'32 |            | morning set         | 8226 Nov 17 08:38 | 21°♄19'54 |            |
|                  | 8225 Nov 29 16:20 | 0°♄       |            |                     | 8226 Nov 21 14:55 | 0°♄       |            |
| morning set      | 8225 Dec 03 04:39 | 6°♄47'00  |            | superior conj       | 8226 Nov 25 04:02 | 7°♄08'00  | 1°29'30    |
|                  |                   |           |            | minimum elong       | 8226 Nov 25 06:28 | 7°♄20'02  | 1°29'27    |
| superior conj    | 8225 Dec 11 18:12 | 23°♄24'15 | 1°11'53    | max. Earth dist.    | 8226 Dec 01 03:16 | 18°♄39'21 | 1.37308 AU |
| minimum elong    | 8225 Dec 11 21:32 | 23°♄39'59 | 1°11'39    | evening rise        | 8226 Dec 04 21:16 | 25°♄31'02 |            |
|                  | 8225 Dec 15 07:11 | 0°♄       |            |                     | 8226 Dec 07 10:18 | 0°♄       |            |
| max. Earth dist. | 8225 Dec 18 21:18 | 6°♄27'16  | 1.39456 AU | desc. node          | 8226 Dec 08 22:59 | 2°♄37'47  |            |
| desc. node       | 8225 Dec 22 01:58 | 12°♄00'22 |            |                     | 8226 Dec 26 18:30 | 0°♄       |            |
| evening rise     | 8225 Dec 22 20:34 | 13°♄19'33 |            | evening max el      | 8227 Jan 09 12:13 | 16°♄30'29 | 25°29'03   |
|                  | 8226 Jan 02 04:41 | 0°♄       |            | retrograde          | 8227 Jan 21 17:12 | 23°♄31'52 |            |
|                  | 8226 Jan 24 09:01 | 0°♄       |            | evening set         | 8227 Jan 27 14:32 | 21°♄06'05 |            |
| evening max el   | 8226 Jan 26 23:01 | 2°♄42'22  | 24°14'21   | asc. node           | 8227 Jan 31 04:36 | 17°♄18'12 |            |
| retrograde       | 8226 Feb 07 05:18 | 9°♄18'42  |            | min. Earth dist.    | 8227 Jan 31 23:45 | 16°♄18'10 | 0.67422 AU |
| evening set      | 8226 Feb 12 13:49 | 7°♄04'48  |            | inferior conj       | 8227 Feb 02 06:39 | 14°♄38'57 | 0°41'10    |
| asc. node        | 8226 Feb 13 07:33 | 6°♄24'35  |            | minimum elong       | 8227 Feb 02 05:38 | 14°♄42'11 | 0°40'52    |
| min. Earth dist. | 8226 Feb 17 06:13 | 1°♄42'11  | 0.68107 AU | morning rise        | 8227 Feb 07 21:07 | 8°♄45'25  |            |
| inferior conj    | 8226 Feb 18 01:43 | 0°♄36'26  | 1°30'34    | direct              | 8227 Feb 11 07:00 | 7°♄38'32  |            |
| minimum elong    | 8226 Feb 17 23:50 | 0°♄42'47  | 1°29'58    | morning max el      | 8227 Feb 18 06:36 | 11°♄29'26 | 19°12'15   |
|                  | 8226 Feb 18 12:33 | 30°♄      |            | greatest brilliancy | 8227 Mar 03 13:03 | 29°♄11'29 | -0.7m      |
| morning rise     | 8226 Feb 23 09:55 | 24°♄34'44 |            |                     | 8227 Mar 04 01:57 | 0°♄       |            |
| direct           | 8226 Feb 27 07:48 | 23°♄07'29 |            | desc. node          | 8227 Mar 06 22:30 | 4°♄20'24  |            |
| morning max el   | 8226 Mar 07 01:30 | 27°♄30'06 | 20°13'16   | morning set         | 8227 Mar 13 22:46 | 15°♄07'55 |            |
|                  | 8226 Mar 09 09:21 | 0°♄       |            |                     | 8227 Mar 23 12:17 | 0°♄       |            |
| desc. node       | 8226 Mar 20 01:34 | 14°♄14'44 |            | max. Earth dist.    | 8227 Mar 27 11:32 | 6°♄13'38  | 1.45045 AU |
|                  | 8226 Mar 30 15:07 | 0°♄       |            |                     |                   |           |            |
| morning set      | 8226 Apr 03 21:48 | 6°♄33'51  |            | superior conj       | 8227 Mar 30 13:34 | 11°♄06'04 | -2°05'33   |
| max. Earth dist. | 8226 Apr 13 20:24 | 22°♄11'16 | 1.43860 AU | minimum elong       | 8227 Mar 30 07:55 | 10°♄43'43 | 2°05'20    |
|                  | 8226 Apr 18 16:13 | 0°♄       |            |                     |                   |           |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8227 Apr 11 06:57 | 0°♄       |            |                     | 8228 Feb 05 13:54 | 0°♁       |            |
| evening rise     | 8227 Apr 14 02:00 | 4°♄35'30  |            | morning set         | 8228 Feb 21 22:09 | 24°♁53'06 |            |
| asc. node        | 8227 Apr 29 03:31 | 28°♄32'33 |            | desc. node          | 8228 Feb 21 19:26 | 24°♁42'19 |            |
|                  | 8227 Apr 30 05:28 | 0°♂       |            |                     | 8228 Feb 25 03:28 | 0°♂       |            |
| evening max el   | 8227 May 03 13:39 | 3°♂53'58  | 18°23'43   |                     |                   |           |            |
| retrograde       | 8227 May 09 23:53 | 7°♂21'42  |            | superior conj       | 8228 Mar 08 18:51 | 19°♂53'26 | -1°39'35   |
| evening set      | 8227 May 13 01:39 | 6°♂29'35  |            | minimum elong       | 8228 Mar 08 09:14 | 19°♂15'49 | 1°38'38    |
| inferior conj    | 8227 May 18 21:31 | 1°♂01'21  | 3°16'09    | max. Earth dist.    | 8228 Mar 09 06:31 | 20°♂39'05 | 1.45516 AU |
| minimum elong    | 8227 May 18 22:51 | 0°♂57'28  | 3°15'52    |                     | 8228 Mar 15 05:48 | 0°♂       |            |
|                  | 8227 May 19 18:27 | 30°♄      |            | evening rise        | 8228 Mar 24 15:00 | 14°♂45'55 |            |
| min. Earth dist. | 8227 May 21 04:30 | 28°♄21'31 | 0.64386 AU | greatest brilliancy | 8228 Apr 03 05:30 | 29°♂53'31 | -0.8m      |
| morning rise     | 8227 May 24 19:05 | 24°♄46'21 |            |                     | 8228 Apr 03 07:10 | 0°♄       |            |
| direct           | 8227 May 31 11:53 | 22°♄03'06 |            | asc. node           | 8228 Apr 15 00:35 | 16°♄26'29 |            |
| desc. node       | 8227 Jun 02 22:07 | 22°♄22'06 |            | evening max el      | 8228 Apr 15 23:52 | 17°♄28'03 | 18°58'14   |
| morning max el   | 8227 Jun 14 03:49 | 0°♂01'46  | 27°28'05   | retrograde          | 8228 Apr 22 18:59 | 21°♄15'45 |            |
|                  | 8227 Jun 14 03:07 | 0°♂       |            | evening set         | 8228 Apr 26 04:12 | 20°♄09'21 |            |
|                  | 8227 Jul 06 04:45 | 0°♄       |            | inferior conj       | 8228 May 01 17:05 | 14°♄24'51 | 3°23'41    |
| morning set      | 8227 Jul 19 08:51 | 23°♄43'09 |            | minimum elong       | 8228 May 01 17:04 | 14°♄24'53 | 3°23'35    |
|                  | 8227 Jul 22 12:06 | 0°♄       |            | min. Earth dist.    | 8228 May 03 08:41 | 12°♄19'39 | 0.66042 AU |
| max. Earth dist. | 8227 Jul 24 02:46 | 3°♄18'56  | 1.33155 AU | morning rise        | 8228 May 07 05:27 | 8°♄06'48  |            |
| asc. node        | 8227 Jul 26 02:46 | 7°♄30'16  |            | direct              | 8228 May 13 14:56 | 5°♄20'21  |            |
|                  |                   |           |            | desc. node          | 8228 May 19 19:06 | 7°♄23'23  |            |
| superior conj    | 8227 Jul 27 11:29 | 10°♄23'57 | 0°13'48    | morning max el      | 8228 May 26 14:23 | 13°♄03'12 | 26°31'41   |
| minimum elong    | 8227 Jul 27 10:48 | 10°♄20'19 | 0°13'32    |                     | 8228 Jun 09 06:05 | 0°♂       |            |
| behind sun begin | 8227 Jul 27 07:52 | 10°♄04'38 |            |                     | 8228 Jun 27 20:59 | 0°♄       |            |
| behind sun end   | 8227 Jul 27 13:44 | 10°♄36'00 |            | morning set         | 8228 Jul 01 13:21 | 6°♄47'20  |            |
| evening rise     | 8227 Aug 03 14:05 | 25°♄39'00 |            | max. Earth dist.    | 8228 Jul 05 15:28 | 14°♄40'42 | 1.34595 AU |
|                  | 8227 Aug 05 15:54 | 0°♄       |            |                     |                   |           |            |
|                  | 8227 Aug 24 07:44 | 0°♄       |            | superior conj       | 8228 Jul 10 10:01 | 24°♄19'43 | -0°15'47   |
| evening max el   | 8227 Aug 25 05:44 | 0°♄55'29  | 22°29'03   | minimum elong       | 8228 Jul 10 10:54 | 24°♄24'19 | 0°15'45    |
| desc. node       | 8227 Aug 29 21:07 | 4°♄42'00  |            | behind sun begin    | 8228 Jul 10 09:44 | 24°♄18'17 |            |
| retrograde       | 8227 Sep 07 06:13 | 7°♄24'57  |            | behind sun end      | 8228 Jul 10 12:05 | 24°♄30'21 |            |
| evening set      | 8227 Sep 10 14:38 | 7°♄00'15  |            | asc. node           | 8228 Jul 11 23:46 | 27°♄35'30 |            |
| min. Earth dist. | 8227 Sep 18 12:34 | 3°♄30'58  | 0.55020 AU |                     | 8228 Jul 13 03:25 | 0°♄       |            |
| inferior conj    | 8227 Sep 19 13:39 | 2°♄55'30  | -5°10'58   | evening rise        | 8228 Jul 17 23:24 | 10°♄07'52 |            |
| minimum elong    | 8227 Sep 19 06:43 | 3°♄05'19  | 5°09'53    |                     | 8228 Jul 28 10:11 | 0°♄       |            |
|                  | 8227 Sep 25 07:47 | 30°♄      |            | evening max el      | 8228 Aug 06 02:07 | 11°♄26'23 | 20°57'49   |
| morning rise     | 8227 Sep 28 00:38 | 29°♄07'35 |            | desc. node          | 8228 Aug 15 18:12 | 17°♄03'54 |            |
| direct           | 8227 Oct 01 06:09 | 28°♄43'57 |            | retrograde          | 8228 Aug 17 18:53 | 17°♄14'06 |            |
|                  | 8227 Oct 06 20:32 | 0°♄       |            | evening set         | 8228 Aug 20 00:18 | 17°♄02'20 |            |
| morning max el   | 8227 Oct 12 19:04 | 4°♄08'24  | 21°12'29   | inferior conj       | 8228 Aug 29 06:10 | 13°♄05'25 | -3°52'51   |
| asc. node        | 8227 Oct 22 02:23 | 16°♄03'07 |            | minimum elong       | 8228 Aug 28 20:44 | 13°♄18'47 | 3°50'06    |
|                  | 8227 Oct 29 17:52 | 0°♄       |            | min. Earth dist.    | 8228 Aug 29 21:35 | 12°♄43'35 | 0.54692 AU |
| morning set      | 8227 Nov 01 17:11 | 6°♄04'14  |            | morning rise        | 8228 Sep 06 17:28 | 9°♄09'11  |            |
|                  |                   |           |            | direct              | 8228 Sep 10 14:06 | 8°♄37'15  |            |
| superior conj    | 8227 Nov 09 00:34 | 21°♄21'57 | 1°39'00    | morning max el      | 8228 Sep 23 13:02 | 14°♄48'36 | 22°52'55   |
| minimum elong    | 8227 Nov 09 01:42 | 21°♄27'44 | 1°39'06    |                     | 8228 Oct 05 05:47 | 0°♄       |            |
|                  | 8227 Nov 13 06:35 | 0°♄       |            | asc. node           | 8228 Oct 07 23:22 | 4°♄42'09  |            |
| max. Earth dist. | 8227 Nov 13 13:26 | 0°♄34'00  | 1.35357 AU | morning set         | 8228 Oct 16 04:15 | 20°♄54'07 |            |
| evening rise     | 8227 Nov 17 15:55 | 8°♄29'55  |            |                     | 8228 Oct 20 10:11 | 0°♄       |            |
| desc. node       | 8227 Nov 25 19:59 | 23°♄04'26 |            |                     |                   |           |            |
|                  | 8227 Nov 30 01:26 | 0°♄       |            | superior conj       | 8228 Oct 23 04:32 | 5°♄56'28  | 1°41'23    |
|                  | 8227 Dec 22 19:14 | 0°♁       |            | minimum elong       | 8228 Oct 23 04:21 | 5°♄55'31  | 1°41'28    |
| evening max el   | 8227 Dec 23 01:24 | 0°♁14'59  | 26°31'10   | max. Earth dist.    | 8228 Oct 26 07:14 | 12°♄31'13 | 1.33763 AU |
| retrograde       | 8228 Jan 04 23:50 | 7°♁30'46  |            | evening rise        | 8228 Oct 31 00:42 | 22°♄06'54 |            |
| evening set      | 8228 Jan 11 09:25 | 4°♁56'41  |            |                     | 8228 Nov 04 03:38 | 0°♄       |            |
| min. Earth dist. | 8228 Jan 15 12:13 | 0°♁43'38  | 0.66365 AU | desc. node          | 8228 Nov 11 17:03 | 13°♄15'02 |            |
|                  | 8228 Jan 16 02:53 | 30°♄      |            |                     | 8228 Nov 22 20:01 | 0°♄       |            |
| inferior conj    | 8228 Jan 17 06:45 | 28°♄36'04 | -0°15'52   | evening max el      | 8228 Dec 04 14:18 | 13°♄47'28 | 27°13'25   |
| minimum elong    | 8228 Jan 17 07:10 | 28°♄34'47 | 0°15'32    | retrograde          | 8228 Dec 18 00:43 | 21°♄08'06 |            |
| transit middle   | 8228 Jan 17 07:10 | 28°♄34'47 | 0°15'32    | evening set         | 8228 Dec 24 20:23 | 18°♄31'43 |            |
| transit begin    | 8228 Jan 17 06:26 | 28°♄37'01 |            | min. Earth dist.    | 8228 Dec 28 17:33 | 14°♄52'28 | 0.64954 AU |
| transit end      | 8228 Jan 17 07:55 | 28°♄32'33 |            | inferior conj       | 8228 Dec 30 23:47 | 12°♄23'19 | -1°19'34   |
| asc. node        | 8228 Jan 18 01:40 | 27°♄39'39 |            | minimum elong       | 8228 Dec 31 02:11 | 12°♄16'43 | 1°18'24    |
| morning rise     | 8228 Jan 23 05:47 | 22°♄52'59 |            | asc. node           | 8229 Jan 03 22:44 | 8°♄27'21  |            |
| direct           | 8228 Jan 26 05:11 | 22°♄03'24 |            | morning rise        | 8229 Jan 06 09:25 | 6°♄53'13  |            |
| morning max el   | 8228 Feb 01 18:25 | 25°♄35'03 | 18°27'13   | direct              | 8229 Jan 09 00:12 | 6°♄17'11  |            |

|                     |                   |   |            |                  |                   |  |            |
|---------------------|-------------------|---|------------|------------------|-------------------|--|------------|
| morning max el      | 8229 Jan 15 10:32 | 9°  40'34    | 17°58'52   | asc. node        | 8229 Dec 21 19:48 | 20°  27'31      |            |
|                     | 8229 Jan 29 10:45 | 0°           |            | direct           | 8229 Dec 23 13:16 | 20°  13'13      |            |
| morning set         | 8229 Feb 02 03:06 | 6°  06'10    |            | morning max el   | 8229 Dec 30 03:56 | 23°  37'48      | 17°47'56   |
| desc. node          | 8229 Feb 07 16:24 | 15°  15'48   |            |                  | 8230 Jan 04 06:08 | 0°              |            |
|                     |                   |   |            | morning set      | 8230 Jan 15 09:47 | 18°  33'50      |            |
| superior conj       | 8229 Feb 16 05:22 | 29°  02'22   | -0°59'02   |                  | 8230 Jan 22 00:49 | 0°              |            |
| minimum elong       | 8229 Feb 15 22:32 | 28°  35'12   | 0°58'02    | desc. node       | 8230 Jan 25 13:23 | 5°  56'44       |            |
|                     | 8229 Feb 16 19:52 | 0°           |            |                  |                   |  |            |
| max. Earth dist.    | 8229 Feb 20 01:59 | 5°  08'30    | 1.45240 AU | superior conj    | 8230 Jan 27 12:48 | 9°  13'46       | -0°14'24   |
| evening rise        | 8229 Mar 04 08:51 | 24°  14'23   |            | minimum elong    | 8230 Jan 27 11:17 | 9°  07'32       | 0°14'03    |
|                     | 8229 Mar 08 02:49 | 0°           |            | behind sun begin | 8230 Jan 27 06:40 | 8°  48'26       |            |
| greatest brilliancy | 8229 Mar 18 12:09 | 15°  42'05   | -0.6m      | behind sun end   | 8230 Jan 27 15:54 | 9°  26'37       |            |
|                     | 8229 Mar 29 04:48 | 0°           |            | max. Earth dist. | 8230 Feb 02 19:35 | 19°  26'32      | 1.44258 AU |
| evening max el      | 8229 Mar 30 05:31 | 1°  05'23    | 19°49'08   |                  | 8230 Feb 09 12:27 | 0°              |            |
| asc. node           | 8229 Apr 01 21:41 | 3°  28'06    |            | evening rise     | 8230 Feb 11 19:59 | 3°  34'36       |            |
| retrograde          | 8229 Apr 06 17:00 | 5°  23'42    |            |                  | 8230 Mar 01 14:30 | 0°              |            |
| evening set         | 8229 Apr 10 10:28 | 4°  02'35    |            | evening max el   | 8230 Mar 13 05:46 | 14°  44'34      | 20°53'55   |
|                     | 8229 Apr 14 08:00 | 30°  08'00   |            | asc. node        | 8230 Mar 19 18:46 | 19°  23'10      |            |
| inferior conj       | 8229 Apr 15 19:21 | 28°  03'42   | 3°17'18    | retrograde       | 8230 Mar 21 15:30 | 19°  40'55      |            |
| minimum elong       | 8229 Apr 15 18:14 | 28°  07'27   | 3°17'08    | evening set      | 8230 Mar 25 18:24 | 18°  04'40      |            |
| min. Earth dist.    | 8229 Apr 16 20:15 | 26°  04'21   | 0.67268 AU | inferior conj    | 8230 Mar 31 01:47 | 11°  53'38      | 2°59'31    |
| morning rise        | 8229 Apr 21 01:43 | 21°  04'08   |            | minimum elong    | 8230 Mar 30 23:54 | 12°  00'09      | 2°59'09    |
| direct              | 8229 Apr 27 00:09 | 19°  07'14   |            | min. Earth dist. | 8230 Mar 31 13:07 | 11°  14'28      | 0.68052 AU |
| desc. node          | 8229 May 06 16:06 | 24°  04'57   |            | morning rise     | 8230 Apr 05 05:10 | 5°  38'45       |            |
| morning max el      | 8229 May 09 00:05 | 26°  18'52   | 25°14'18   | direct           | 8230 Apr 10 14:26 | 3°  15'37       |            |
|                     | 8229 May 12 09:39 | 0°           |            | morning max el   | 8230 Apr 21 09:07 | 9°  41'45       | 23°46'12   |
|                     | 8229 Jun 02 19:53 | 0°           |            | desc. node       | 8230 Apr 23 13:05 | 11°  59'39      |            |
| morning set         | 8229 Jun 14 02:03 | 19°  04'10   |            |                  | 8230 May 07 09:48 | 0°              |            |
| max. Earth dist.    | 8229 Jun 17 17:27 | 25°  44'17  | 1.36476 AU | morning set      | 8230 May 26 17:35 | 0°  19'34      |            |
|                     | 8229 Jun 19 23:38 | 0°         |            |                  | 8230 May 26 13:00 | 0°            |            |
|                     |                   |   |            | max. Earth dist. | 8230 May 30 13:34 | 6°  58'42     | 1.38661 AU |
| superior conj       | 8229 Jun 23 23:13 | 7°  44'53  | -0°47'21   |                  |                   |  |            |
| minimum elong       | 8229 Jun 24 02:05 | 7°  59'05  | 0°46'59    | superior conj    | 8230 Jun 06 23:31 | 20°  30'59    | -1°18'47   |
| asc. node           | 8229 Jun 28 20:46 | 17°  35'45 |            | minimum elong    | 8230 Jun 07 04:21 | 20°  53'46    | 1°18'13    |
| evening rise        | 8229 Jul 02 04:25 | 24°  20'20 |            |                  | 8230 Jun 11 22:13 | 0°            |            |
|                     | 8229 Jul 05 00:19 | 0°         |            | asc. node        | 8230 Jun 15 17:49 | 7°  27'18     |            |
| evening max el      | 8229 Jul 19 11:39 | 22°  03'18 | 19°44'02   | evening rise     | 8230 Jun 16 02:25 | 8°  09'19     |            |
| retrograde          | 8229 Jul 29 11:27 | 27°  03'59 |            |                  | 8230 Jun 28 12:52 | 0°            |            |
| evening set         | 8229 Jul 31 07:55 | 27°  04'34 |            | evening max el   | 8230 Jul 02 09:32 | 4°  35'06     | 18°50'52   |
| desc. node          | 8229 Aug 02 15:18 | 26°  04'21 |            | retrograde       | 8230 Jul 10 19:15 | 8°  04'45     |            |
| inferior conj       | 8229 Aug 09 05:06 | 23°  02'16 | -2°00'20   | evening set      | 8230 Jul 12 19:00 | 8°  31'40     |            |
| minimum elong       | 8229 Aug 08 23:35 | 23°  30'49 | 1°58'22    | inferior conj    | 8230 Jul 20 21:57 | 4°  12'50     | -0°07'15   |
| min. Earth dist.    | 8229 Aug 11 09:21 | 22°  01'18 | 0.55333 AU | minimum elong    | 8230 Jul 20 21:39 | 4°  13'23     | 0°07'16    |
| morning rise        | 8229 Aug 17 13:07 | 18°  05'52 |            | transit middle   | 8230 Jul 20 21:39 | 4°  13'23     | 0°07'16    |
| direct              | 8229 Aug 22 04:35 | 18°  10'04 |            | transit begin    | 8230 Jul 20 18:20 | 4°  19'20     |            |
| morning max el      | 8229 Sep 05 01:39 | 25°  04'01 | 24°38'42   | transit end      | 8230 Jul 21 00:57 | 4°  07'25     |            |
|                     | 8229 Sep 09 16:00 | 0°         |            | desc. node       | 8230 Jul 20 12:22 | 4°  30'00     |            |
| asc. node           | 8229 Sep 24 20:21 | 23°  05'14 |            | min. Earth dist. | 8230 Jul 24 00:56 | 1°  58'58     | 0.56821 AU |
|                     | 8229 Sep 27 22:22 | 0°         |            |                  | 8230 Jul 27 05:22 | 30°  08'00    |            |
| morning set         | 8229 Sep 30 16:01 | 5°  43'14  |            | morning rise     | 8230 Jul 28 20:55 | 29°  08'11'45 |            |
|                     |                   |   |            | direct           | 8230 Aug 03 08:55 | 27°  08'58'54 |            |
| superior conj       | 8229 Oct 07 13:09 | 20°  42'10 | 1°37'26    |                  | 8230 Aug 10 13:47 | 0°            |            |
| minimum elong       | 8229 Oct 07 11:55 | 20°  35'22 | 1°37'24    | morning max el   | 8230 Aug 17 15:48 | 5°  02'40'9   | 26°13'23   |
| max. Earth dist.    | 8229 Oct 09 08:59 | 24°  40'40 | 1.32603 AU |                  | 8230 Sep 04 14:43 | 0°            |            |
|                     | 8229 Oct 11 20:35 | 0°         |            | asc. node        | 8230 Sep 11 17:21 | 13°  09'24'16 |            |
| evening rise        | 8229 Oct 14 19:59 | 6°  11'24  |            | morning set      | 8230 Sep 15 02:50 | 20°  27'10    |            |
|                     | 8229 Oct 27 17:20 | 0°         |            |                  | 8230 Sep 19 12:14 | 0°            |            |
| desc. node          | 8229 Oct 29 14:08 | 3°  01'34  |            |                  |                   |  |            |
| evening max el      | 8229 Nov 17 01:31 | 26°  56'01 | 27°29'12   | superior conj    | 8230 Sep 22 00:19 | 5°  32'30     | 1°27'48    |
|                     | 8229 Nov 20 15:13 | 0°         |            | minimum elong    | 8230 Sep 21 22:21 | 5°  21'40     | 1°27'36    |
| retrograde          | 8229 Nov 30 19:03 | 4°  31'40  |            | max. Earth dist. | 8230 Sep 22 16:43 | 7°  03'15     | 1.31903 AU |
| evening set         | 8229 Dec 07 20:40 | 1°  34'59  |            | evening rise     | 8230 Sep 28 22:46 | 20°  35'25    |            |
|                     | 8229 Dec 10 01:01 | 30°  08'00 |            |                  | 8230 Oct 03 14:14 | 0°            |            |
| min. Earth dist.    | 8229 Dec 11 13:48 | 28°  35'19 | 0.63218 AU | desc. node       | 8230 Oct 16 11:12 | 22°  14'25    |            |
| inferior conj       | 8229 Dec 14 07:03 | 25°  33'48 | -2°28'09   |                  | 8230 Oct 21 23:52 | 0°            |            |
| minimum elong       | 8229 Dec 14 11:44 | 25°  42'13 | 2°26'11    | evening max el   | 8230 Oct 30 08:46 | 9°  27'52     | 27°12'57   |
| morning rise        | 8229 Dec 21 04:45 | 20°  39'36 |            | retrograde       | 8230 Nov 13 05:39 | 16°  39'33    |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8230 Nov 20 06:42 | 14°♊25'50 |            | min. Earth dist. | 8231 Nov 05 22:28 | 23°♍55'52 | 0.59149 AU |
| min. Earth dist. | 8230 Nov 23 23:29 | 11°♊40'34 | 0.61238 AU | inferior conj    | 8231 Nov 09 03:06 | 21°♍30'08 | -4°41'09   |
| inferior conj    | 8230 Nov 27 01:20 | 8°♊59'13  | -3°37'49   | minimum elong    | 8231 Nov 09 10:15 | 21°♍16'29 | 4°39'24    |
| minimum elong    | 8230 Nov 27 08:01 | 8°♊44'33  | 3°35'30    | morning rise     | 8231 Nov 17 00:50 | 16°♍57'22 |            |
| morning rise     | 8230 Dec 04 11:36 | 4°♊04'10  |            | direct           | 8231 Nov 19 06:50 | 16°♍39'45 |            |
| direct           | 8230 Dec 06 16:54 | 3°♊43'46  |            | asc. node        | 8231 Nov 25 13:53 | 19°♍06'24 |            |
| asc. node        | 8230 Dec 08 16:51 | 4°♊00'54  |            | morning max el   | 8231 Nov 27 05:13 | 20°♍32'23 | 18°22'30   |
| morning max el   | 8230 Dec 13 19:18 | 7°♊18'02  | 17°55'20   |                  | 8231 Dec 04 08:16 | 0°♊       |            |
|                  | 8230 Dec 28 10:15 | 0°♊       |            | morning set      | 8231 Dec 13 02:38 | 15°♊54'07 |            |
| morning set      | 8230 Dec 29 11:32 | 1°♊55'22  |            |                  | 8231 Dec 20 12:58 | 0°♊       |            |
| superior conj    | 8231 Jan 08 21:54 | 20°♋38'40 | 0°25'52    | superior conj    | 8231 Dec 22 05:58 | 3°♋09'26  | 0°57'43    |
| minimum elong    | 8231 Jan 09 00:03 | 20°♋48'02 | 0°25'41    | minimum elong    | 8231 Dec 22 09:22 | 3°♋25'03  | 0°57'25    |
| desc. node       | 8231 Jan 12 10:21 | 26°♋41'14 |            | max. Earth dist. | 8231 Dec 29 19:01 | 16°♋33'23 | 1.40693 AU |
|                  | 8231 Jan 14 09:37 | 0°♋       |            | desc. node       | 8231 Dec 30 07:20 | 17°♋26'05 |            |
| max. Earth dist. | 8231 Jan 16 09:39 | 3°♋19'07  | 1.42683 AU | evening rise     | 8232 Jan 03 06:27 | 24°♋04'56 |            |
| evening rise     | 8231 Jan 22 15:42 | 13°♋23'32 |            |                  | 8232 Jan 06 22:02 | 0°♋       |            |
|                  | 8231 Feb 02 12:40 | 0°♋       |            |                  | 8232 Jan 27 09:56 | 0°♋       |            |
| evening max el   | 8231 Feb 24 00:52 | 28°♋25'19 | 22°08'46   | evening max el   | 8232 Feb 06 16:06 | 12°♋08'44 | 23°28'32   |
|                  | 8231 Feb 25 16:20 | 0°♋       |            | retrograde       | 8232 Feb 17 07:10 | 18°♋25'30 |            |
| retrograde       | 8231 Mar 05 12:41 | 4°♋02'48  |            | asc. node        | 8232 Feb 21 12:56 | 16°♋57'32 |            |
| asc. node        | 8231 Mar 06 15:52 | 3°♋56'17  |            | evening set      | 8232 Feb 22 08:40 | 16°♋19'09 |            |
| evening set      | 8231 Mar 10 02:19 | 2°♋11'17  |            | min. Earth dist. | 8232 Feb 27 05:41 | 10°♋37'05 | 0.68333 AU |
|                  | 8231 Mar 12 06:28 | 30°♋      |            | inferior conj    | 8232 Feb 27 18:42 | 9°♋52'26  | 1°55'25    |
| inferior conj    | 8231 Mar 15 10:11 | 25°♋50'42 | 2°31'54    | minimum elong    | 8232 Feb 27 16:32 | 9°♋59'50  | 1°54'45    |
| minimum elong    | 8231 Mar 15 07:57 | 25°♋58'30 | 2°31'19    | morning rise     | 8232 Mar 04 00:23 | 3°♋47'13  |            |
| min. Earth dist. | 8231 Mar 15 08:59 | 25°♋54'55 | 0.68402 AU | direct           | 8232 Mar 08 05:47 | 2°♋07'26  |            |
| morning rise     | 8231 Mar 20 13:26 | 19°♋40'02 |            | morning max el   | 8232 Mar 16 13:08 | 6°♋53'15  | 20°55'06   |
| direct           | 8231 Mar 25 08:41 | 17°♋37'41 |            | desc. node       | 8232 Mar 27 07:00 | 20°♋12'00 |            |
| morning max el   | 8231 Apr 03 20:15 | 23°♋11'50 | 22°17'07   |                  | 8232 Apr 03 02:47 | 0°♋       |            |
|                  | 8231 Apr 09 19:13 | 0°♋       |            | morning set      | 8232 Apr 15 17:21 | 19°♋08'39 |            |
| desc. node       | 8231 Apr 10 10:03 | 0°♋46'42  |            |                  | 8232 Apr 22 13:23 | 0°♋       |            |
|                  | 8231 Apr 30 18:34 | 0°♋       |            | max. Earth dist. | 8232 Apr 23 15:56 | 1°♋47'37  | 1.42913 AU |
| morning set      | 8231 May 07 06:40 | 10°♋19'39 |            | superior conj    | 8232 Apr 30 15:15 | 13°♋21'23 | -2°06'21   |
| max. Earth dist. | 8231 May 12 11:30 | 18°♋55'40 | 1.40903 AU | minimum elong    | 8232 Apr 30 19:23 | 13°♋38'53 | 2°06'17    |
|                  | 8231 May 18 21:26 | 0°♋       |            |                  | 8232 May 10 05:05 | 0°♋       |            |
| superior conj    | 8231 May 20 06:25 | 2°♋26'31  | -1°46'46   | evening rise     | 8232 May 12 10:44 | 3°♋58'48  |            |
| minimum elong    | 8231 May 20 12:14 | 2°♋52'31  | 1°46'19    | asc. node        | 8232 May 19 11:51 | 16°♋23'21 |            |
| evening rise     | 8231 May 30 13:54 | 21°♋25'21 |            | evening max el   | 8232 May 29 03:56 | 0°♋09'18  | 18°05'34   |
| asc. node        | 8231 Jun 02 14:50 | 27°♋04'54 |            |                  | 8232 May 29 00:12 | 0°♋       |            |
|                  | 8231 Jun 04 05:04 | 0°♋       |            | retrograde       | 8232 Jun 04 18:25 | 3°♋32'26  |            |
| evening max el   | 8231 Jun 15 16:14 | 17°♋08'36 | 18°18'19   | evening set      | 8232 Jun 07 08:40 | 3°♋00'59  |            |
| retrograde       | 8231 Jun 22 22:27 | 20°♋47'02 |            |                  | 8232 Jun 11 20:33 | 30°♋      |            |
| evening set      | 8231 Jun 25 05:17 | 20°♋26'13 |            | inferior conj    | 8232 Jun 13 23:01 | 28°♋01'24 | 2°26'34    |
| inferior conj    | 8231 Jul 02 12:31 | 15°♋46'44 | 1°23'45    | minimum elong    | 8232 Jun 14 02:01 | 27°♋54'04 | 2°25'39    |
| minimum elong    | 8231 Jul 02 15:06 | 15°♋41'18 | 1°22'44    | min. Earth dist. | 8232 Jun 17 02:58 | 24°♋57'32 | 0.61095 AU |
| min. Earth dist. | 8231 Jul 05 22:01 | 12°♋56'23 | 0.58854 AU | morning rise     | 8232 Jun 20 17:01 | 22°♋03'22 |            |
| desc. node       | 8231 Jul 07 09:26 | 11°♋48'49 |            | desc. node       | 8232 Jun 23 06:29 | 20°♋39'56 |            |
| morning rise     | 8231 Jul 09 21:42 | 10°♋12'16 |            | direct           | 8232 Jun 27 08:33 | 19°♋49'33 |            |
| direct           | 8231 Jul 16 02:52 | 8°♋28'32  |            | morning max el   | 8232 Jul 11 15:02 | 27°♋48'50 | 27°53'35   |
| morning max el   | 8231 Jul 30 11:59 | 16°♋14'51 | 27°21'34   |                  | 8232 Jul 13 17:25 | 0°♋       |            |
|                  | 8231 Aug 10 18:15 | 0°♋       |            |                  | 8232 Aug 03 12:24 | 0°♋       |            |
|                  | 8231 Aug 28 00:48 | 0°♋       |            | morning set      | 8232 Aug 13 14:47 | 19°♋19'39 |            |
| asc. node        | 8231 Aug 29 14:19 | 3°♋12'50  |            | asc. node        | 8232 Aug 15 11:15 | 23°♋11'45 |            |
| morning set      | 8231 Aug 30 11:03 | 5°♋01'15  |            |                  | 8232 Aug 18 15:21 | 0°♋       |            |
| max. Earth dist. | 8231 Sep 06 03:03 | 19°♋31'19 | 1.31654 AU | max. Earth dist. | 8232 Aug 19 12:00 | 1°♋52'40  | 1.31862 AU |
| superior conj    | 8231 Sep 06 12:07 | 20°♋21'36 | 1°12'59    | superior conj    | 8232 Aug 20 22:45 | 5°♋03'29  | 0°53'22    |
| minimum elong    | 8231 Sep 06 09:52 | 20°♋09'08 | 1°12'37    | minimum elong    | 8232 Aug 20 20:42 | 4°♋52'08  | 0°52'55    |
|                  | 8231 Sep 10 20:49 | 0°♋       |            | evening rise     | 8232 Aug 27 17:14 | 19°♋53'29 |            |
| evening rise     | 8231 Sep 13 06:34 | 5°♋11'45  |            |                  | 8232 Sep 01 14:25 | 0°♋       |            |
|                  | 8231 Sep 26 06:52 | 0°♋       |            | desc. node       | 8232 Sep 19 05:21 | 28°♋00'34 |            |
| desc. node       | 8231 Oct 03 08:16 | 10°♋40'26 |            |                  | 8232 Sep 21 00:08 | 0°♋       |            |
| evening max el   | 8231 Oct 12 09:10 | 21°♋11'46 | 26°22'45   | evening max el   | 8232 Sep 23 01:18 | 2°♋04'29  | 25°02'58   |
| retrograde       | 8231 Oct 26 07:10 | 28°♋17'20 |            | retrograde       | 8232 Oct 06 22:09 | 9°♋04'13  |            |
| evening set      | 8231 Nov 01 21:59 | 26°♋30'22 |            | evening set      | 8232 Oct 12 13:49 | 7°♋51'47  |            |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| min. Earth dist.    | 8232 Oct 17 12:45 | 5° $\mathbb{M}$ 09'45         | 0.57170 AU | retrograde       | 8233 Sep 18 01:04 | 19° $\mathbb{Q}$ 08'36        |            |
| inferior conj       | 8232 Oct 20 09:15 | 3° $\mathbb{M}$ 16'29         | -5°25'14   | evening set      | 8233 Sep 22 05:56 | 18° $\mathbb{Q}$ 29'58        |            |
| minimum elong       | 8232 Oct 20 13:23 | 3° $\mathbb{M}$ 09'37         | 5°24'43    | min. Earth dist. | 8233 Sep 28 22:27 | 15° $\mathbb{Q}$ 21'54        | 0.55606 AU |
|                     | 8232 Oct 26 00:34 | 30° $\mathbb{R}$ $\mathbb{Q}$ |            | inferior conj    | 8233 Sep 30 19:25 | 14° $\mathbb{Q}$ 15'32        | -5°31'24   |
| morning rise        | 8232 Oct 28 15:15 | 29° $\mathbb{Q}$ 06'42        |            | minimum elong    | 8233 Sep 30 16:36 | 14° $\mathbb{Q}$ 19'42        | 5°31'11    |
| direct              | 8232 Oct 31 02:39 | 28° $\mathbb{Q}$ 49'04        |            | morning rise     | 8233 Oct 09 05:25 | 10° $\mathbb{Q}$ 23'01        |            |
|                     | 8232 Nov 04 21:38 | 0° $\mathbb{M}$               |            | direct           | 8233 Oct 12 03:02 | 10° $\mathbb{Q}$ 02'31        |            |
| morning max el      | 8232 Nov 09 06:00 | 3° $\mathbb{M}$ 09'57         | 19°11'06   | morning max el   | 8233 Oct 22 18:39 | 15° $\mathbb{Q}$ 02'02        | 20°22'03   |
| asc. node           | 8232 Nov 11 10:53 | 5° $\mathbb{M}$ 30'27         |            | asc. node        | 8233 Oct 29 07:52 | 22° $\mathbb{Q}$ 57'50        |            |
|                     | 8232 Nov 25 23:27 | 0° $\mathbb{X}$               |            |                  | 8233 Nov 02 15:59 | 0° $\mathbb{M}$               |            |
| morning set         | 8232 Nov 26 02:49 | 0° $\mathbb{X}$ 16'46         |            | morning set      | 8233 Nov 10 09:01 | 14° $\mathbb{M}$ 54'52        |            |
| superior conj       | 8232 Dec 04 07:48 | 16° $\mathbb{X}$ 30'26        | 1°20'25    | superior conj    | 8233 Nov 17 22:40 | 0° $\mathbb{X}$ 28'17         | 1°34'28    |
| minimum elong       | 8232 Dec 04 10:50 | 16° $\mathbb{X}$ 45'04        | 1°20'15    | minimum elong    | 8233 Nov 18 00:34 | 0° $\mathbb{X}$ 37'50         | 1°34'29    |
| max. Earth dist.    | 8232 Dec 11 00:42 | 29° $\mathbb{X}$ 03'35        | 1.38524 AU |                  | 8233 Nov 17 17:05 | 0° $\mathbb{X}$               |            |
|                     | 8232 Dec 11 13:13 | 0° $\mathbb{Z}$               |            | max. Earth dist. | 8233 Nov 23 07:24 | 11° $\mathbb{X}$ 03'13        | 1.36439 AU |
| evening rise        | 8232 Dec 14 19:09 | 5° $\mathbb{Z}$ 44'08         |            | evening rise     | 8233 Nov 27 03:58 | 18° $\mathbb{X}$ 16'47        |            |
| desc. node          | 8232 Dec 16 04:20 | 8° $\mathbb{Z}$ 06'59         |            | desc. node       | 8233 Dec 03 01:20 | 28° $\mathbb{X}$ 40'02        |            |
|                     | 8232 Dec 29 22:31 | 0° $\approx$                  |            |                  | 8233 Dec 03 20:15 | 0° $\mathbb{Z}$               |            |
| evening max el      | 8233 Jan 19 05:21 | 25° $\approx$ 54'33           | 24°47'08   |                  | 8233 Dec 24 04:15 | 0° $\approx$                  |            |
|                     | 8233 Jan 23 23:33 | 0° $\mathbb{H}$               |            | evening max el   | 8234 Jan 01 18:23 | 9° $\approx$ 41'08            | 25°57'29   |
| retrograde          | 8233 Jan 30 21:53 | 2° $\mathbb{H}$ 43'23         |            | retrograde       | 8234 Jan 14 07:49 | 16° $\approx$ 50'46           |            |
| evening set         | 8233 Feb 05 11:55 | 0° $\mathbb{H}$ 23'48         |            | evening set      | 8234 Jan 20 10:23 | 14° $\approx$ 20'53           |            |
|                     | 8233 Feb 05 22:42 | 30° $\mathbb{R}$ $\approx$    |            | min. Earth dist. | 8234 Jan 24 16:45 | 9° $\approx$ 47'39            | 0.67010 AU |
| asc. node           | 8233 Feb 07 10:01 | 28° $\approx$ 30'10           |            | asc. node        | 8234 Jan 25 07:07 | 9° $\approx$ 02'55            |            |
| min. Earth dist.    | 8233 Feb 10 01:00 | 25° $\approx$ 16'05           | 0.67861 AU | inferior conj    | 8234 Jan 26 04:34 | 7° $\approx$ 55'31            | 0°17'50    |
| inferior conj       | 8233 Feb 11 01:27 | 23° $\approx$ 55'10           | 1°10'35    | minimum elong    | 8234 Jan 26 04:07 | 7° $\approx$ 56'59            | 0°17'47    |
| minimum elong       | 8233 Feb 10 23:52 | 24° $\approx$ 00'23           | 1°10'04    | morning rise     | 8234 Jan 31 22:25 | 2° $\approx$ 06'01            |            |
| morning rise        | 8233 Feb 16 12:02 | 17° $\approx$ 56'54           |            | direct           | 8234 Feb 04 03:31 | 1° $\approx$ 07'03            |            |
| direct              | 8233 Feb 20 04:34 | 16° $\approx$ 38'49           |            | morning max el   | 8234 Feb 10 21:57 | 4° $\approx$ 48'46            | 18°51'02   |
| morning max el      | 8233 Feb 27 13:47 | 20° $\approx$ 46'34           | 19°45'28   |                  | 8234 Feb 28 20:21 | 0° $\mathbb{H}$               |            |
|                     | 8233 Mar 07 03:44 | 0° $\mathbb{H}$               |            | desc. node       | 8234 Mar 01 00:52 | 0° $\mathbb{H}$ 17'37         |            |
| greatest brilliancy | 8233 Mar 12 08:44 | 7° $\mathbb{H}$ 25'27         | -0.6m      | morning set      | 8234 Mar 04 23:15 | 6° $\mathbb{H}$ 25'37         |            |
| desc. node          | 8233 Mar 14 03:56 | 10° $\mathbb{H}$ 04'50        |            | max. Earth dist. | 8234 Mar 19 19:43 | 29° $\mathbb{H}$ 38'38        | 1.45329 AU |
| morning set         | 8233 Mar 25 14:49 | 27° $\mathbb{H}$ 27'29        |            |                  | 8234 Mar 20 01:10 | 0° $\mathbb{Y}$               |            |
|                     | 8233 Mar 27 06:21 | 0° $\mathbb{Y}$               |            | superior conj    | 8234 Mar 21 10:38 | 2° $\mathbb{Y}$ 11'20         | -1°56'52   |
| max. Earth dist.    | 8233 Apr 06 03:13 | 15° $\mathbb{Y}$ 26'52        | 1.44441 AU | minimum elong    | 8234 Mar 21 02:31 | 1° $\mathbb{Y}$ 39'28         | 1°56'20    |
| superior conj       | 8233 Apr 10 23:21 | 23° $\mathbb{Y}$ 11'46        | -2°11'24   | evening rise     | 8234 Apr 05 14:41 | 26° $\mathbb{Y}$ 21'34        |            |
| minimum elong       | 8233 Apr 10 21:51 | 23° $\mathbb{Y}$ 05'42        | 2°11'27    |                  | 8234 Apr 07 20:40 | 0° $\mathbb{Z}$               |            |
|                     | 8233 Apr 15 03:33 | 0° $\mathbb{Z}$               |            | asc. node        | 8234 Apr 23 05:59 | 23° $\mathbb{Z}$ 34'45        |            |
| evening rise        | 8233 Apr 24 12:16 | 15° $\mathbb{Z}$ 39'47        |            | evening max el   | 8234 Apr 26 05:24 | 26° $\mathbb{Z}$ 59'36        | 18°36'22   |
|                     | 8233 May 03 00:50 | 0° $\mathbb{I}$               |            |                  | 8234 Apr 30 06:18 | 0° $\mathbb{I}$               |            |
| asc. node           | 8233 May 06 08:54 | 5° $\mathbb{I}$ 16'16         |            | retrograde       | 8234 May 02 18:30 | 0° $\mathbb{I}$ 34'22         |            |
| evening max el      | 8233 May 12 17:18 | 13° $\mathbb{I}$ 28'58        | 18°11'50   |                  | 8234 May 05 05:33 | 30° $\mathbb{R}$ $\mathbb{Z}$ |            |
| retrograde          | 8233 May 19 02:30 | 16° $\mathbb{I}$ 51'18        |            | evening set      | 8234 May 05 23:20 | 29° $\mathbb{Z}$ 36'23        |            |
| evening set         | 8233 May 21 23:59 | 16° $\mathbb{I}$ 07'15        |            | inferior conj    | 8234 May 11 15:51 | 24° $\mathbb{Z}$ 01'20        | 3°21'13    |
| inferior conj       | 8233 May 28 01:30 | 10° $\mathbb{I}$ 49'13        | 3°04'03    | minimum elong    | 8234 May 11 16:35 | 23° $\mathbb{Z}$ 59'04        | 3°21'03    |
| minimum elong       | 8233 May 28 03:35 | 10° $\mathbb{I}$ 43'28        | 3°03'34    | min. Earth dist. | 8234 May 13 16:24 | 21° $\mathbb{Z}$ 34'39        | 0.65139 AU |
| min. Earth dist.    | 8233 May 30 17:08 | 7° $\mathbb{I}$ 54'53         | 0.63257 AU | morning rise     | 8234 May 17 09:06 | 17° $\mathbb{Z}$ 44'30        |            |
| morning rise        | 8233 Jun 03 05:44 | 4° $\mathbb{I}$ 37'59         |            | direct           | 8234 May 23 23:30 | 14° $\mathbb{Z}$ 58'03        |            |
| direct              | 8233 Jun 10 00:05 | 2° $\mathbb{I}$ 01'53         |            | desc. node       | 8234 May 28 00:32 | 15° $\mathbb{Z}$ 51'03        |            |
| desc. node          | 8233 Jun 10 03:30 | 2° $\mathbb{I}$ 01'57         |            | morning max el   | 8234 Jun 06 09:11 | 22° $\mathbb{Z}$ 52'13        | 27°07'12   |
| morning max el      | 8233 Jun 23 23:03 | 10° $\mathbb{I}$ 04'51        | 27°47'25   |                  | 8234 Jun 12 16:16 | 0° $\mathbb{I}$               |            |
|                     | 8233 Jul 09 12:38 | 0° $\mathbb{O}$               |            |                  | 8234 Jul 02 19:37 | 0° $\mathbb{O}$               |            |
|                     | 8233 Jul 26 20:17 | 0° $\mathbb{Q}$               |            | morning set      | 8234 Jul 11 23:24 | 16° $\mathbb{O}$ 42'03        |            |
| morning set         | 8233 Jul 28 11:52 | 3° $\mathbb{Q}$ 16'15         |            | max. Earth dist. | 8234 Jul 16 10:09 | 25° $\mathbb{O}$ 31'26        | 1.33709 AU |
| asc. node           | 8233 Aug 02 08:13 | 13° $\mathbb{Q}$ 16'37        |            |                  | 8234 Jul 18 14:24 | 0° $\mathbb{Q}$               |            |
| max. Earth dist.    | 8233 Aug 02 15:36 | 13° $\mathbb{Q}$ 55'51        | 1.32541 AU | superior conj    | 8234 Jul 20 09:01 | 3° $\mathbb{Q}$ 42'47         | 0°01'38    |
| superior conj       | 8233 Aug 05 06:26 | 19° $\mathbb{Q}$ 32'52        | 0°29'23    | minimum elong    | 8234 Jul 20 08:56 | 3° $\mathbb{Q}$ 42'23         | 0°01'27    |
| minimum elong       | 8233 Aug 05 05:05 | 19° $\mathbb{Q}$ 25'35        | 0°29'00    | behind sun begin | 8234 Jul 20 03:21 | 3° $\mathbb{Q}$ 13'00         |            |
|                     | 8233 Aug 10 01:48 | 0° $\mathbb{P}$               |            | behind sun end   | 8234 Jul 20 14:31 | 4° $\mathbb{Q}$ 11'50         |            |
| evening rise        | 8233 Aug 12 04:54 | 4° $\mathbb{P}$ 35'04         |            | asc. node        | 8234 Jul 20 05:11 | 3° $\mathbb{Q}$ 22'38         |            |
|                     | 8233 Aug 25 17:39 | 0° $\mathbb{Q}$               |            | evening rise     | 8234 Jul 27 15:37 | 19° $\mathbb{Q}$ 10'00        |            |
| evening max el      | 8233 Sep 04 12:42 | 12° $\mathbb{Q}$ 23'00        | 23°26'03   |                  | 8234 Aug 01 23:28 | 0° $\mathbb{P}$               |            |
| desc. node          | 8233 Sep 06 02:26 | 13° $\mathbb{Q}$ 49'38        |            | evening max el   | 8234 Aug 17 03:32 | 22° $\mathbb{P}$ 39'50        | 21°48'32   |



|                     |                   |                      |            |                  |                   |                      |            |
|---------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| desc. node          | 8234 Aug 23 23:32 | 27° $\cap$ 35'46     |            | evening rise     | 8235 Jul 11 23:25 | 3° $\Omega$ 32'52    |            |
| retrograde          | 8234 Aug 29 16:23 | 28° $\cap$ 53'06     |            |                  | 8235 Jul 27 03:32 | 0° $\cap$            |            |
| evening set         | 8234 Sep 01 11:07 | 28° $\cap$ 35'45     |            | evening max el   | 8235 Jul 30 05:23 | 3° $\cap$ 26'48      | 20°23'54   |
| inferior conj       | 8234 Sep 10 15:00 | 24° $\cap$ 36'10     | -4°43'53   | retrograde       | 8235 Aug 10 04:39 | 8° $\cap$ 52'04      |            |
| minimum elong       | 8234 Sep 10 06:05 | 24° $\cap$ 48'39     | 4°41'57    | desc. node       | 8235 Aug 10 20:39 | 8° $\cap$ 50'56      |            |
| min. Earth dist.    | 8234 Sep 10 07:01 | 24° $\cap$ 47'21     | 0.54769 AU | evening set      | 8235 Aug 12 04:31 | 8° $\cap$ 42'05      |            |
| morning rise        | 8234 Sep 19 02:17 | 20° $\cap$ 46'56     |            | inferior conj    | 8235 Aug 21 08:25 | 4° $\cap$ 44'39      | -3°07'17   |
| direct              | 8234 Sep 22 13:58 | 20° $\cap$ 20'15     |            | minimum elong    | 8235 Aug 21 00:07 | 4° $\cap$ 56'45      | 3°04'31    |
| morning max el      | 8234 Oct 04 18:24 | 26° $\cap$ 05'11     | 21°53'35   | min. Earth dist. | 8235 Aug 22 16:46 | 3° $\cap$ 57'35      | 0.54860 AU |
|                     | 8234 Oct 08 10:45 | 0° $\Omega$          |            | morning rise     | 8235 Aug 29 19:00 | 0° $\cap$ 38'42      |            |
| asc. node           | 8234 Oct 16 04:51 | 11° $\Omega$ 13'59   |            | direct           | 8235 Sep 02 23:32 | 0° $\cap$ 01'00      |            |
| morning set         | 8234 Oct 25 18:53 | 29° $\Omega$ 41'51   |            | morning max el   | 8235 Sep 16 09:01 | 6° $\cap$ 30'48      | 23°38'08   |
|                     | 8234 Oct 25 22:20 | 0° $\cap$            |            | asc. node        | 8235 Oct 03 01:49 | 0° $\Omega$ 07'08    |            |
|                     |                   |                      |            |                  | 8235 Oct 03 00:17 | 0° $\Omega$          |            |
| superior conj       | 8234 Nov 01 22:44 | 14° $\cap$ 51'41     | 1°40'50    | morning set      | 8235 Oct 10 06:27 | 14° $\Omega$ 31'59   |            |
| minimum elong       | 8234 Nov 01 23:17 | 14° $\cap$ 54'35     | 1°40'55    |                  |                   |                      |            |
| max. Earth dist.    | 8234 Nov 05 20:28 | 22° $\cap$ 56'10     | 1.34632 AU | superior conj    | 8235 Oct 17 04:56 | 29° $\Omega$ 31'34   | 1°40'25    |
|                     | 8234 Nov 09 09:51 | 0° $\nearrow$        |            | minimum elong    | 8235 Oct 17 04:16 | 29° $\Omega$ 27'58   | 1°40'28    |
| evening rise        | 8234 Nov 10 05:09 | 1° $\nearrow$ 33'12  |            |                  | 8235 Oct 17 10:12 | 0° $\cap$            |            |
| desc. node          | 8234 Nov 19 22:23 | 19° $\nearrow$ 00'31 |            | max. Earth dist. | 8235 Oct 19 18:05 | 4° $\cap$ 59'14      | 1.33220 AU |
|                     | 8234 Nov 26 20:10 | 0° $\searrow$        |            | evening rise     | 8235 Oct 24 18:48 | 15° $\cap$ 22'54     |            |
| evening max el      | 8234 Dec 15 07:45 | 23° $\searrow$ 22'26 | 26°52'08   |                  | 8235 Nov 01 12:15 | 0° $\nearrow$        |            |
|                     | 8234 Dec 24 20:26 | 0° $\approx$         |            | desc. node       | 8235 Nov 06 19:27 | 9° $\nearrow$ 01'56  |            |
| retrograde          | 8234 Dec 28 12:08 | 0° $\approx$ 41'11   |            |                  | 8235 Nov 21 13:43 | 0° $\searrow$        |            |
|                     | 8234 Dec 31 22:32 | 30° $\nwarrow$       |            | evening max el   | 8235 Nov 27 20:23 | 6° $\searrow$ 46'50  | 27°23'49   |
| evening set         | 8235 Jan 04 02:13 | 28° $\searrow$ 05'38 |            | retrograde       | 8235 Dec 11 10:03 | 14° $\searrow$ 06'11 |            |
| min. Earth dist.    | 8235 Jan 08 02:37 | 24° $\searrow$ 06'51 | 0.65800 AU | evening set      | 8235 Dec 18 08:58 | 11° $\searrow$ 31'28 |            |
| inferior conj       | 8235 Jan 10 02:01 | 21° $\searrow$ 49'24 | -0°42'10   | min. Earth dist. | 8235 Dec 22 04:16 | 8° $\searrow$ 05'50  | 0.64252 AU |
| minimum elong       | 8235 Jan 10 03:13 | 21° $\searrow$ 45'55 | 0°41'29    | inferior conj    | 8235 Dec 24 15:16 | 5° $\searrow$ 30'26  | -1°48'15   |
| asc. node           | 8235 Jan 12 04:12 | 19° $\searrow$ 28'41 |            | minimum elong    | 8235 Dec 24 18:37 | 5° $\searrow$ 21'36  | 1°46'42    |
| morning rise        | 8235 Jan 16 05:18 | 16° $\searrow$ 11'12 |            | asc. node        | 8235 Dec 30 01:17 | 0° $\searrow$ 42'51  |            |
| direct              | 8235 Jan 19 00:47 | 15° $\searrow$ 27'47 |            | morning rise     | 8235 Dec 31 05:52 | 0° $\searrow$ 06'34  |            |
| morning max el      | 8235 Jan 25 11:54 | 18° $\searrow$ 54'50 | 18°13'03   |                  | 8235 Dec 31 12:31 | 30° $\nwarrow$       |            |
|                     | 8235 Feb 02 22:10 | 0° $\approx$         |            | direct           | 8236 Jan 02 17:47 | 29° $\nearrow$ 34'57 |            |
| morning set         | 8235 Feb 13 11:19 | 16° $\approx$ 48'57  |            |                  | 8236 Jan 04 22:57 | 0° $\searrow$        |            |
| desc. node          | 8235 Feb 15 21:48 | 20° $\approx$ 44'57  |            | morning max el   | 8236 Jan 09 04:55 | 2° $\searrow$ 57'30  | 17°52'05   |
|                     | 8235 Feb 21 16:23 | 0° $\nwarrow$        |            | morning set      | 8236 Jan 26 04:01 | 28° $\searrow$ 36'20 |            |
|                     |                   |                      |            |                  | 8236 Jan 26 23:48 | 0° $\approx$         |            |
| superior conj       | 8235 Feb 28 15:44 | 11° $\nwarrow$ 01'26 | -1°23'35   | desc. node       | 8236 Feb 02 18:45 | 11° $\approx$ 21'53  |            |
| minimum elong       | 8235 Feb 28 06:36 | 10° $\nwarrow$ 25'34 | 1°22'30    |                  |                   |                      |            |
| max. Earth dist.    | 8235 Mar 02 15:18 | 14° $\nwarrow$ 08'00 | 1.45487 AU | superior conj    | 8236 Feb 08 09:45 | 20° $\approx$ 32'57  | -0°39'59   |
|                     | 8235 Mar 12 19:15 | 0° $\Upsilon$        |            | minimum elong    | 8236 Feb 08 05:12 | 20° $\approx$ 14'36  | 0°39'14    |
| evening rise        | 8235 Mar 16 18:30 | 6° $\Upsilon$ 11'06  |            | max. Earth dist. | 8236 Feb 13 10:54 | 28° $\approx$ 36'42  | 1.44905 AU |
| greatest brilliancy | 8235 Mar 28 12:13 | 24° $\Upsilon$ 21'15 | -0.7m      |                  | 8236 Feb 14 08:00 | 0° $\nwarrow$        |            |
|                     | 8235 Apr 01 07:16 | 0° $\searrow$        |            | evening rise     | 8236 Feb 24 07:39 | 15° $\nwarrow$ 31'26 |            |
| evening max el      | 8235 Apr 09 14:00 | 10° $\searrow$ 36'06 | 19°18'04   |                  | 8236 Mar 04 20:32 | 0° $\Upsilon$        |            |
| asc. node           | 8235 Apr 10 03:05 | 11° $\searrow$ 08'26 |            | evening max el   | 8236 Mar 22 17:25 | 24° $\Upsilon$ 14'06 | 20°15'11   |
| retrograde          | 8235 Apr 16 15:04 | 14° $\searrow$ 35'13 |            | asc. node        | 8236 Mar 27 00:13 | 27° $\Upsilon$ 43'32 |            |
| evening set         | 8235 Apr 20 03:46 | 13° $\searrow$ 22'32 |            | retrograde       | 8236 Mar 30 13:32 | 28° $\Upsilon$ 47'36 |            |
| inferior conj       | 8235 Apr 25 14:37 | 7° $\searrow$ 31'53  | 3°22'29    | evening set      | 8236 Apr 03 10:58 | 27° $\Upsilon$ 19'50 |            |
| minimum elong       | 8235 Apr 25 14:06 | 7° $\searrow$ 33'34  | 3°22'22    | inferior conj    | 8236 Apr 08 18:56 | 21° $\Upsilon$ 15'23 | 3°11'02    |
| min. Earth dist.    | 8235 Apr 26 23:52 | 5° $\searrow$ 43'58  | 0.66621 AU | minimum elong    | 8236 Apr 08 17:26 | 21° $\Upsilon$ 20'28 | 3°10'47    |
| morning rise        | 8235 May 01 00:04 | 1° $\searrow$ 13'59  |            | min. Earth dist. | 8236 Apr 09 13:50 | 20° $\Upsilon$ 11'06 | 0.67656 AU |
|                     | 8235 May 02 13:55 | 30° $\nwarrow$       |            | morning rise     | 8236 Apr 13 23:41 | 14° $\Upsilon$ 58'58 |            |
| direct              | 8235 May 07 05:22 | 28° $\Upsilon$ 29'29 |            | direct           | 8236 Apr 19 16:40 | 12° $\Upsilon$ 26'15 |            |
|                     | 8235 May 12 08:43 | 0° $\searrow$        |            | desc. node       | 8236 Apr 30 18:30 | 18° $\Upsilon$ 54'01 |            |
| desc. node          | 8235 May 14 21:32 | 1° $\searrow$ 38'46  |            | morning max el   | 8236 May 01 04:36 | 19° $\Upsilon$ 19'19 | 24°37'38   |
| morning max el      | 8235 May 19 19:18 | 6° $\searrow$ 00'13  | 26°00'44   |                  | 8236 May 10 06:02 | 0° $\searrow$        |            |
|                     | 8235 Jun 07 07:16 | 0° $\cap$            |            |                  | 8236 May 30 10:18 | 0° $\cap$            |            |
| morning set         | 8235 Jun 24 21:46 | 29° $\cap$ 27'31     |            | morning set      | 8236 Jun 06 02:10 | 11° $\cap$ 19'50     |            |
|                     | 8235 Jun 25 04:47 | 0° $\searrow$        |            | max. Earth dist. | 8236 Jun 09 17:09 | 17° $\cap$ 49'04     | 1.37383 AU |
| max. Earth dist.    | 8235 Jun 28 18:02 | 6° $\searrow$ 43'05  | 1.35355 AU |                  | 8236 Jun 16 04:40 | 0° $\searrow$        |            |
|                     |                   |                      |            |                  |                   |                      |            |
| superior conj       | 8235 Jul 04 04:00 | 17° $\searrow$ 26'49 | -0°29'00   | superior conj    | 8236 Jun 16 12:13 | 0° $\searrow$ 36'35  | -1°00'51   |
| minimum elong       | 8235 Jul 04 05:42 | 17° $\searrow$ 35'25 | 0°28'50    | minimum elong    | 8236 Jun 16 15:57 | 0° $\searrow$ 54'45  | 1°00'22    |
| asc. node           | 8235 Jul 07 02:12 | 23° $\searrow$ 26'19 |            | asc. node        | 8236 Jun 22 23:14 | 13° $\searrow$ 23'40 |            |
|                     | 8235 Jul 10 06:12 | 0° $\Omega$          |            | evening rise     | 8236 Jun 25 01:50 | 17° $\searrow$ 36'41 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8236 Jul 01 12:09 | 0°♎       |            | evening rise     | 8237 Jun 08 19:49 | 1°♊12'39  |            |
| evening max el   | 8236 Jul 11 20:26 | 14°♎58'14 | 19°18'48   | asc. node        | 8237 Jun 09 20:16 | 3°♊09'50  |            |
| retrograde       | 8236 Jul 21 03:07 | 19°♎33'20 |            | evening max el   | 8237 Jun 24 22:28 | 27°♊11'26 | 18°34'36   |
| evening set      | 8236 Jul 23 00:04 | 19°♎22'54 |            |                  | 8237 Jun 28 15:01 | 0°♎       |            |
| desc. node       | 8236 Jul 27 17:44 | 17°♎35'51 |            | retrograde       | 8237 Jul 02 19:21 | 1°♎06'17  |            |
| inferior conj    | 8236 Jul 31 14:04 | 15°♎14'03 | -1°10'43   | evening set      | 8237 Jul 04 21:42 | 0°♎50'29  |            |
| minimum elong    | 8236 Jul 31 10:55 | 15°♎19'14 | 1°09'36    |                  | 8237 Jul 07 04:46 | 30°♊♊     |            |
| min. Earth dist. | 8236 Aug 03 05:45 | 13°♎29'34 | 0.55877 AU | inferior conj    | 8237 Jul 12 16:08 | 26°♊23'08 | 0°34'41    |
| morning rise     | 8236 Aug 08 19:00 | 10°♎34'28 |            | minimum elong    | 8237 Jul 12 17:24 | 26°♊20'41 | 0°34'04    |
| direct           | 8236 Aug 13 19:04 | 9°♎37'24  |            | desc. node       | 8237 Jul 14 14:48 | 24°♊52'50 |            |
| morning max el   | 8236 Aug 27 21:42 | 16°♎45'32 | 25°21'24   | min. Earth dist. | 8237 Jul 15 23:41 | 23°♊51'02 | 0.57627 AU |
|                  | 8236 Sep 07 17:01 | 0°♏       |            | morning rise     | 8237 Jul 20 09:34 | 21°♊06'31 |            |
| asc. node        | 8236 Sep 18 22:47 | 19°♏27'52 |            | direct           | 8237 Jul 26 05:17 | 19°♊40'54 |            |
| morning set      | 8236 Sep 23 18:04 | 29°♏20'28 |            | morning max el   | 8237 Aug 09 14:18 | 27°♊17'08 | 26°46'25   |
|                  | 8236 Sep 24 01:28 | 0°♏       |            |                  | 8237 Aug 12 05:16 | 0°♎       |            |
|                  |                   |           |            |                  | 8237 Sep 01 04:24 | 0°♏       |            |
| superior conj    | 8236 Sep 30 14:55 | 14°♏20'41 | 1°34'00    | asc. node        | 8237 Sep 05 19:44 | 9°♏08'00  |            |
| minimum elong    | 8236 Sep 30 13:20 | 14°♏11'55 | 1°33'55    | morning set      | 8237 Sep 08 03:59 | 14°♏01'13 |            |
| max. Earth dist. | 8236 Oct 01 22:58 | 17°♏16'33 | 1.32251 AU |                  |                   |           |            |
| evening rise     | 8236 Oct 07 17:38 | 29°♏37'13 |            | superior conj    | 8237 Sep 15 02:35 | 29°♏11'36 | 1°22'08    |
|                  | 8236 Oct 07 22:03 | 0°♏       |            | minimum elong    | 8237 Sep 15 00:27 | 28°♏59'45 | 1°21'51    |
| desc. node       | 8236 Oct 23 16:32 | 28°♏36'12 |            |                  | 8237 Sep 15 11:18 | 0°♏       |            |
|                  | 8236 Oct 24 14:14 | 0°♏       |            | max. Earth dist. | 8237 Sep 15 08:07 | 29°♏42'21 | 1.31738 AU |
| evening max el   | 8236 Nov 09 06:08 | 19°♏41'16 | 27°26'17   | evening rise     | 8237 Sep 21 22:49 | 14°♏07'19 |            |
| retrograde       | 8236 Nov 23 01:06 | 26°♏56'48 |            |                  | 8237 Sep 29 22:43 | 0°♏       |            |
| evening set      | 8236 Nov 30 03:41 | 24°♏32'00 |            | desc. node       | 8237 Oct 10 13:37 | 17°♏31'22 |            |
| min. Earth dist. | 8236 Dec 03 19:55 | 21°♏34'47 | 0.62406 AU |                  | 8237 Oct 20 12:51 | 0°♏       |            |
| inferior conj    | 8236 Dec 06 17:25 | 18°♏51'30 | -2°57'52   | evening max el   | 8237 Oct 22 10:30 | 1°♏53'06  | 26°55'32   |
| minimum elong    | 8236 Dec 06 23:02 | 18°♏38'16 | 2°55'40    | retrograde       | 8237 Nov 05 08:20 | 9°♏02'56  |            |
| morning rise     | 8236 Dec 13 20:31 | 13°♏45'19 |            | evening set      | 8237 Nov 12 06:21 | 6°♏59'06  |            |
| asc. node        | 8236 Dec 15 22:18 | 13°♏22'04 |            | min. Earth dist. | 8237 Nov 16 00:55 | 4°♏20'24  | 0.60354 AU |
| direct           | 8236 Dec 16 03:20 | 13°♏21'52 |            | inferior conj    | 8237 Nov 19 05:03 | 1°♏43'18  | -4°06'04   |
| morning max el   | 8236 Dec 22 21:54 | 16°♏49'08 | 17°48'48   | minimum elong    | 8237 Nov 19 12:14 | 1°♏28'26  | 4°03'51    |
|                  | 8237 Jan 01 06:08 | 0°♏       |            |                  | 8237 Nov 21 08:32 | 30°♏♏     |            |
| morning set      | 8237 Jan 07 19:33 | 11°♏29'09 |            | morning rise     | 8237 Nov 26 20:31 | 26°♏57'43 |            |
|                  | 8237 Jan 18 10:09 | 0°♏       |            | direct           | 8237 Nov 29 01:27 | 26°♏39'00 |            |
|                  |                   |           |            | asc. node        | 8237 Dec 02 19:18 | 27°♏35'37 |            |
| superior conj    | 8237 Jan 19 04:09 | 1°♏16'06  | 0°03'34    |                  | 8237 Dec 06 03:04 | 0°♏       |            |
| minimum elong    | 8237 Jan 19 04:30 | 1°♏17'35  | 0°03'40    | morning max el   | 8237 Dec 06 11:27 | 0°♏20'03  | 18°04'21   |
| behind sun begin | 8237 Jan 18 19:48 | 0°♏40'48  |            | morning set      | 8237 Dec 22 03:33 | 25°♏08'05 |            |
| behind sun end   | 8237 Jan 19 13:13 | 1°♏54'17  |            |                  | 8237 Dec 24 18:13 | 0°♏       |            |
| desc. node       | 8237 Jan 19 15:44 | 2°♏04'53  |            |                  |                   |           |            |
| max. Earth dist. | 8237 Jan 26 03:17 | 12°♏45'53 | 1.43653 AU | superior conj    | 8237 Dec 31 23:36 | 13°♏10'55 | 0°40'29    |
| evening rise     | 8237 Feb 02 20:39 | 24°♏59'20 |            | minimum elong    | 8238 Jan 01 02:33 | 13°♏24'00 | 0°40'13    |
|                  | 8237 Feb 06 02:45 | 0°♏       |            | desc. node       | 8238 Jan 06 12:43 | 22°♏50'08 |            |
|                  | 8237 Feb 26 22:30 | 0°♏       |            | max. Earth dist. | 8238 Jan 08 14:46 | 26°♏21'12 | 1.41872 AU |
| evening max el   | 8237 Mar 05 15:12 | 7°♏52'49  | 21°24'45   |                  | 8238 Jan 10 19:33 | 0°♏       |            |
| asc. node        | 8237 Mar 13 21:19 | 13°♏05'09 |            | evening rise     | 8238 Jan 13 23:37 | 5°♏08'44  |            |
| retrograde       | 8237 Mar 14 11:46 | 13°♏07'00 |            |                  | 8238 Jan 30 09:18 | 0°♏       |            |
| evening set      | 8237 Mar 18 19:05 | 11°♏24'06 |            | evening max el   | 8238 Feb 16 08:19 | 21°♏34'19 | 22°42'28   |
| inferior conj    | 8237 Mar 24 02:25 | 5°♏08'20  | 2°48'56    | retrograde       | 8238 Feb 26 08:03 | 27°♏29'43 |            |
| minimum elong    | 8237 Mar 24 00:20 | 5°♏15'36  | 2°48'28    | asc. node        | 8238 Feb 28 18:22 | 27°♏00'02 |            |
| min. Earth dist. | 8237 Mar 24 08:14 | 4°♏48'07  | 0.68249 AU | evening set      | 8238 Mar 03 02:30 | 25°♏31'56 |            |
|                  | 8237 Mar 28 02:49 | 30°♏♏     |            | inferior conj    | 8238 Mar 08 11:05 | 19°♏08'07 | 2°17'29    |
| morning rise     | 8237 Mar 29 05:24 | 28°♏55'01 |            | minimum elong    | 8238 Mar 08 08:50 | 19°♏15'57 | 2°16'51    |
| direct           | 8237 Apr 03 08:36 | 26°♏40'35 |            | min. Earth dist. | 8238 Mar 08 04:49 | 19°♏29'52 | 0.68416 AU |
|                  | 8237 Apr 10 14:18 | 0°♏       |            | morning rise     | 8238 Mar 13 15:02 | 12°♏59'20 |            |
| morning max el   | 8237 Apr 13 14:15 | 2°♏45'12  | 23°07'55   | direct           | 8238 Mar 18 04:16 | 11°♏06'31 |            |
| desc. node       | 8237 Apr 17 15:28 | 7°♏12'44  |            | morning max el   | 8238 Mar 27 03:25 | 16°♏19'48 | 21°40'56   |
|                  | 8237 May 04 07:46 | 0°♏       |            | desc. node       | 8238 Apr 04 12:25 | 26°♏17'45 |            |
| morning set      | 8237 May 18 06:58 | 22°♏04'12 |            |                  | 8238 Apr 07 06:11 | 0°♏       |            |
| max. Earth dist. | 8237 May 22 13:10 | 29°♏18'08 | 1.39616 AU |                  | 8238 Apr 27 09:02 | 0°♏       |            |
|                  | 8237 May 22 22:50 | 0°♏       |            | morning set      | 8238 Apr 28 08:14 | 1°♏32'11  |            |
|                  |                   |           |            | max. Earth dist. | 8238 May 04 12:57 | 11°♏36'10 | 1.41792 AU |
| superior conj    | 8237 May 30 05:37 | 13°♏01'48 | -1°31'21   |                  |                   |           |            |
| minimum elong    | 8237 May 30 11:04 | 13°♏26'58 | 1°30'47    | superior conj    | 8238 May 12 03:40 | 24°♏32'46 | -1°56'28   |
|                  | 8237 Jun 08 04:41 | 0°♏       |            | minimum elong    | 8238 May 12 09:13 | 24°♏56'58 | 1°56'09    |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8238 May 15 05:55 | 0°♊       |            | evening rise        | 8239 May 05 14:44 | 26°♊23'27 |            |
| evening rise     | 8238 May 23 01:37 | 14°♊11'47 |            |                     | 8239 May 07 16:19 | 0°♊       |            |
| asc. node        | 8238 May 27 17:18 | 22°♊40'14 |            | asc. node           | 8239 May 14 14:21 | 11°♊48'32 |            |
|                  | 8238 May 31 23:13 | 0°♋       |            | evening max el      | 8239 May 22 20:38 | 23°♊07'52 | 18°06'01   |
| evening max el   | 8238 Jun 08 07:48 | 9°♋58'08  | 18°10'38   | retrograde          | 8239 May 29 07:28 | 26°♊28'34 |            |
| retrograde       | 8238 Jun 15 05:56 | 13°♋28'00 |            | evening set         | 8239 Jun 01 00:57 | 25°♊51'48 |            |
| evening set      | 8238 Jun 17 15:57 | 13°♋03'00 |            | inferior conj       | 8239 Jun 07 09:20 | 20°♊44'11 | 2°45'14    |
| inferior conj    | 8238 Jun 24 15:35 | 8°♋15'13  | 1°53'43    | minimum elong       | 8239 Jun 07 12:03 | 20°♊37'12 | 2°44'30    |
| minimum elong    | 8238 Jun 24 18:35 | 8°♋08'30  | 1°52'40    | min. Earth dist.    | 8239 Jun 10 08:37 | 17°♊41'57 | 0.62043 AU |
| min. Earth dist. | 8238 Jun 28 00:04 | 5°♋15'53  | 0.59795 AU | morning rise        | 8239 Jun 13 21:14 | 14°♊39'47 |            |
| desc. node       | 8238 Jul 01 11:51 | 2°♋39'16  |            | desc. node          | 8239 Jun 18 08:54 | 12°♊31'01 |            |
| morning rise     | 8238 Jul 01 18:17 | 2°♋29'26  |            | direct              | 8239 Jun 20 15:04 | 12°♊15'10 |            |
| direct           | 8238 Jul 08 04:56 | 0°♋31'58  |            | morning max el      | 8239 Jul 04 18:34 | 20°♊16'33 | 27°55'31   |
| morning max el   | 8238 Jul 22 13:23 | 8°♋25'24  | 27°39'49   |                     | 8239 Jul 13 02:41 | 0°♋       |            |
|                  | 8238 Aug 08 00:11 | 0°♌       |            |                     | 8239 Jul 31 23:59 | 0°♌       |            |
| morning set      | 8238 Aug 23 10:31 | 28°♌29'20 |            | morning set         | 8239 Aug 07 11:42 | 12°♌38'45 |            |
| asc. node        | 8238 Aug 23 16:43 | 29°♌01'42 |            | asc. node           | 8239 Aug 10 13:41 | 19°♌03'33 |            |
|                  | 8238 Aug 24 03:48 | 0°♍       |            | max. Earth dist.    | 8239 Aug 13 01:14 | 24°♌22'30 | 1.32091 AU |
| max. Earth dist. | 8238 Aug 29 18:09 | 12°♍08'08 | 1.31684 AU |                     |                   |           |            |
|                  |                   |           |            | superior conj       | 8239 Aug 14 23:43 | 28°♌35'41 | 0°43'43    |
| superior conj    | 8238 Aug 30 14:07 | 13°♍58'36 | 1°05'15    | minimum elong       | 8239 Aug 14 21:54 | 28°♌25'42 | 0°43'16    |
| minimum elong    | 8238 Aug 30 11:53 | 13°♍46'15 | 1°04'50    |                     | 8239 Aug 15 15:07 | 0°♍       |            |
| evening rise     | 8238 Sep 06 08:04 | 28°♍46'48 |            | evening rise        | 8239 Aug 21 19:22 | 13°♍29'10 |            |
|                  | 8238 Sep 06 21:48 | 0°♎       |            |                     | 8239 Aug 30 00:56 | 0°♎       |            |
|                  | 8238 Sep 23 10:28 | 0°♏       |            | desc. node          | 8239 Sep 14 07:46 | 22°♎17'25 |            |
| desc. node       | 8238 Sep 27 10:41 | 5°♏32'12  |            | evening max el      | 8239 Sep 15 21:07 | 23°♎51'22 | 24°23'02   |
| evening max el   | 8238 Oct 04 07:27 | 13°♏15'12 | 25°51'54   |                     | 8239 Sep 25 03:57 | 0°♏       |            |
| retrograde       | 8238 Oct 18 05:48 | 20°♏18'35 |            | retrograde          | 8239 Sep 29 15:27 | 0°♏45'52  |            |
| evening set      | 8238 Oct 24 12:09 | 18°♏46'01 |            |                     | 8239 Oct 04 04:26 | 30°♏♎     |            |
| min. Earth dist. | 8238 Oct 28 20:09 | 16°♏10'20 | 0.58280 AU | evening set         | 8239 Oct 04 17:24 | 29°♎48'46 |            |
| inferior conj    | 8238 Oct 31 22:47 | 13°♏56'30 | -5°03'14   | min. Earth dist.    | 8239 Oct 10 08:00 | 26°♎57'49 | 0.56437 AU |
| minimum elong    | 8238 Nov 01 05:11 | 13°♏44'58 | 5°01'59    | inferior conj       | 8239 Oct 12 20:19 | 25°♎23'23 | -5°33'39   |
| morning rise     | 8238 Nov 09 00:31 | 9°♏33'22  |            | minimum elong       | 8239 Oct 12 21:51 | 25°♎20'59 | 5°33'32    |
| direct           | 8238 Nov 11 08:03 | 9°♏16'11  |            | morning rise        | 8239 Oct 21 04:27 | 21°♎21'49 |            |
| morning max el   | 8238 Nov 19 17:54 | 13°♏20'02 | 18°40'21   | direct              | 8239 Oct 23 19:51 | 21°♎03'10 |            |
| asc. node        | 8238 Nov 19 16:18 | 13°♏16'13 |            | morning max el      | 8239 Nov 02 13:44 | 25°♎39'19 | 19°38'28   |
|                  | 8238 Dec 01 01:44 | 0°♐       |            |                     | 8239 Nov 06 10:25 | 0°♏       |            |
| morning set      | 8238 Dec 05 22:57 | 9°♐18'16  |            | asc. node           | 8239 Nov 06 13:18 | 0°♏09'27  |            |
|                  |                   |           |            | morning set         | 8239 Nov 20 02:06 | 23°♏49'29 |            |
| superior conj    | 8238 Dec 14 15:48 | 26°♐04'34 | 1°08'27    |                     | 8239 Nov 23 03:21 | 0°♐       |            |
| minimum elong    | 8238 Dec 14 19:12 | 26°♐20'28 | 1°08'11    |                     |                   |           |            |
|                  | 8238 Dec 16 18:25 | 0°♑       |            | superior conj       | 8239 Nov 27 23:46 | 9°♐43'27  | 1°27'22    |
| max. Earth dist. | 8238 Dec 21 21:59 | 9°♑15'29  | 1.39781 AU | minimum elong       | 8239 Nov 28 02:22 | 9°♐56'16  | 1°27'17    |
| desc. node       | 8238 Dec 24 09:41 | 13°♑33'50 |            | max. Earth dist.    | 8239 Dec 04 03:59 | 21°♐33'10 | 1.37622 AU |
| evening rise     | 8238 Dec 25 23:44 | 16°♑15'14 |            | evening rise        | 8239 Dec 07 21:30 | 28°♐19'11 |            |
|                  | 8239 Jan 03 11:49 | 0°♒       |            |                     | 8239 Dec 08 20:20 | 0°♑       |            |
|                  | 8239 Jan 25 01:42 | 0°♓       |            | desc. node          | 8239 Dec 11 06:41 | 4°♑12'33  |            |
| evening max el   | 8239 Jan 29 22:36 | 5°♓19'28  | 24°02'37   |                     | 8239 Dec 27 21:09 | 0°♒       |            |
| retrograde       | 8239 Feb 10 01:01 | 11°♓50'50 |            | evening max el      | 8240 Jan 12 11:50 | 19°♒07'26 | 25°18'27   |
| evening set      | 8239 Feb 15 07:41 | 9°♓38'54  |            | retrograde          | 8240 Jan 24 13:38 | 26°♒05'40 |            |
| asc. node        | 8239 Feb 15 15:27 | 9°♓21'55  |            | evening set         | 8240 Jan 30 09:08 | 23°♒41'22 |            |
| min. Earth dist. | 8239 Feb 20 01:16 | 4°♓11'14  | 0.68180 AU | asc. node           | 8240 Feb 02 12:31 | 20°♒24'45 |            |
| inferior conj    | 8239 Feb 20 19:04 | 3°♓10'54  | 1°37'23    | min. Earth dist.    | 8240 Feb 03 19:19 | 18°♒48'24 | 0.67554 AU |
| minimum elong    | 8239 Feb 20 17:06 | 3°♓17'36  | 1°36'46    | inferior conj       | 8240 Feb 05 00:33 | 17°♒13'44 | 0°49'09    |
|                  | 8239 Feb 23 05:46 | 30°♒♑     |            | minimum elong       | 8240 Feb 04 23:23 | 17°♒17'32 | 0°48'49    |
| morning rise     | 8239 Feb 26 02:32 | 27°♒08'16 |            | morning rise        | 8240 Feb 10 13:58 | 11°♒18'59 |            |
| direct           | 8239 Mar 02 02:23 | 25°♒37'43 |            | direct              | 8240 Feb 14 01:32 | 10°♒09'17 |            |
|                  | 8239 Mar 09 20:58 | 0°♒       |            | morning max el      | 8240 Feb 21 03:19 | 14°♒03'57 | 19°20'20   |
| morning max el   | 8239 Mar 09 23:20 | 0°♒05'51  | 20°23'40   |                     | 8240 Mar 04 06:50 | 0°♒       |            |
| desc. node       | 8239 Mar 22 09:21 | 15°♒55'53 |            | greatest brilliancy | 8240 Mar 05 03:09 | 1°♒15'31  | -0.7m      |
|                  | 8239 Mar 31 21:45 | 0°♓       |            | desc. node          | 8240 Mar 08 06:17 | 5°♒58'23  |            |
| morning set      | 8239 Apr 07 10:36 | 10°♓00'00 |            | morning set         | 8240 Mar 16 09:51 | 18°♒27'55 |            |
| max. Earth dist. | 8239 Apr 16 20:18 | 24°♓49'22 | 1.43636 AU |                     | 8240 Mar 23 20:17 | 0°♓       |            |
|                  | 8239 Apr 20 01:02 | 0°♔       |            | max. Earth dist.    | 8240 Mar 29 10:42 | 8°♓46'58  | 1.44915 AU |
|                  |                   |           |            |                     |                   |           |            |
| superior conj    | 8239 Apr 23 02:03 | 5°♔00'06  | -2°10'39   | superior conj       | 8240 Apr 02 00:11 | 14°♓25'39 | -2°07'45   |
| minimum elong    | 8239 Apr 23 04:14 | 5°♔09'12  | 2°10'42    | minimum elong       | 8240 Apr 01 19:35 | 14°♓07'21 | 2°07'38    |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8240 Apr 11 15:23 | 0°♄       |            | superior conj       | 8241 Mar 12 06:29 | 23°♄14'49 | -1°44'40   |
| evening rise     | 8240 Apr 16 06:44 | 7°♄39'47  |            | minimum elong       | 8241 Mar 11 21:01 | 22°♄37'49 | 1°43'49    |
| asc. node        | 8240 Apr 30 11:25 | 0°♄27'55  |            | max. Earth dist.    | 8241 Mar 12 05:05 | 23°♄09'22 | 1.45491 AU |
|                  | 8240 Apr 30 03:36 | 0°♄       |            |                     | 8241 Mar 16 13:55 | 0°♄       |            |
| evening max el   | 8240 May 05 09:46 | 6°♄32'52  | 18°20'02   | evening rise        | 8241 Mar 27 23:10 | 17°♄58'17 |            |
| retrograde       | 8240 May 11 19:28 | 9°♄58'53  |            |                     | 8241 Apr 04 13:01 | 0°♄       |            |
| evening set      | 8240 May 14 20:07 | 9°♄08'51  |            | greatest brilliancy | 8241 Apr 05 18:37 | 1°♄56'26  | -0.8m      |
| inferior conj    | 8240 May 20 17:19 | 3°♄43'05  | 3°13'30    | asc. node           | 8241 Apr 17 08:31 | 18°♄29'03 |            |
| minimum elong    | 8240 May 20 18:51 | 3°♄38'40  | 3°13'11    | evening max el      | 8241 Apr 18 20:34 | 20°♄06'31 | 18°52'02   |
| min. Earth dist. | 8240 May 23 02:33 | 0°♄59'04  | 0.64105 AU | retrograde          | 8241 Apr 25 13:57 | 23°♄50'39 |            |
|                  | 8240 May 24 00:17 | 30°♄      |            | evening set         | 8241 Apr 28 21:58 | 22°♄46'32 |            |
| morning rise     | 8240 May 26 16:31 | 27°♄28'48 |            | inferior conj       | 8241 May 04 11:41 | 17°♄04'25 | 3°23'29    |
| direct           | 8240 Jun 02 09:50 | 24°♄47'08 |            | minimum elong       | 8241 May 04 11:52 | 17°♄03'50 | 3°23'22    |
| desc. node       | 8240 Jun 04 05:56 | 24°♄58'00 |            | min. Earth dist.    | 8241 May 06 05:36 | 14°♄53'17 | 0.65818 AU |
|                  | 8240 Jun 13 04:29 | 0°♄       |            | morning rise        | 8241 May 10 01:12 | 10°♄46'27 |            |
| morning max el   | 8240 Jun 16 03:52 | 2°♄47'16  | 27°34'08   | direct              | 8241 May 16 12:04 | 7°♄59'38  |            |
|                  | 8240 Jul 06 11:12 | 0°♄       |            | desc. node          | 8241 May 22 02:56 | 9°♄41'48  |            |
| morning set      | 8240 Jul 21 05:06 | 26°♄22'54 |            | morning max el      | 8241 May 29 14:30 | 15°♄46'15 | 26°41'39   |
|                  | 8240 Jul 23 00:33 | 0°♄       |            |                     | 8241 Jun 10 07:30 | 0°♄       |            |
| max. Earth dist. | 8240 Jul 26 01:35 | 6°♄15'22  | 1.32978 AU |                     | 8241 Jun 29 06:47 | 0°♄       |            |
| asc. node        | 8240 Jul 27 10:40 | 9°♄09'13  |            | morning set         | 8241 Jul 04 11:35 | 9°♄33'36  |            |
|                  |                   |           |            | max. Earth dist.    | 8241 Jul 08 15:52 | 17°♄40'58 | 1.34350 AU |
| superior conj    | 8240 Jul 29 05:29 | 12°♄57'09 | 0°18'02    |                     |                   |           |            |
| minimum elong    | 8240 Jul 29 04:37 | 12°♄52'28 | 0°17'43    | superior conj       | 8241 Jul 13 05:12 | 26°♄57'11 | -0°11'07   |
| evening rise     | 8240 Aug 05 06:54 | 28°♄08'35 |            | minimum elong       | 8241 Jul 13 05:49 | 27°♄00'24 | 0°11'09    |
|                  | 8240 Aug 06 03:58 | 0°♄       |            | behind sun begin    | 8241 Jul 13 01:37 | 26°♄38'36 |            |
|                  | 8240 Aug 23 15:51 | 0°♄       |            | behind sun end      | 8241 Jul 13 10:01 | 27°♄22'13 |            |
| evening max el   | 8240 Aug 27 08:42 | 4°♄03'52  | 22°43'43   | asc. node           | 8241 Jul 14 07:41 | 29°♄15'05 |            |
| desc. node       | 8240 Aug 31 04:53 | 7°♄18'15  |            |                     | 8241 Jul 14 16:16 | 0°♄       |            |
| retrograde       | 8240 Sep 09 12:48 | 10°♄38'25 |            | evening rise        | 8241 Jul 20 16:41 | 12°♄39'34 |            |
| evening set      | 8240 Sep 13 02:23 | 10°♄10'31 |            |                     | 8241 Jul 29 14:39 | 0°♄       |            |
| min. Earth dist. | 8240 Sep 20 16:25 | 6°♄47'14  | 0.55140 AU | evening max el      | 8241 Aug 09 03:25 | 14°♄30'12 | 21°10'25   |
| inferior conj    | 8240 Sep 21 23:06 | 6°♄03'27  | -5°18'13   | desc. node          | 8241 Aug 18 02:00 | 20°♄03'05 |            |
| minimum elong    | 8240 Sep 21 17:09 | 6°♄11'58  | 5°17'26    | retrograde          | 8241 Aug 21 01:53 | 20°♄25'05 |            |
| morning rise     | 8240 Sep 30 09:54 | 2°♄15'04  |            | evening set         | 8241 Aug 23 10:04 | 20°♄12'17 |            |
| direct           | 8240 Oct 03 13:16 | 1°♄52'23  |            | inferior conj       | 8241 Sep 01 15:57 | 16°♄15'05 | -4°07'41   |
| morning max el   | 8240 Oct 14 20:44 | 7°♄10'07  | 20°58'52   | minimum elong       | 8241 Sep 01 06:24 | 16°♄28'32 | 4°05'03    |
| asc. node        | 8240 Oct 23 10:18 | 17°♄59'09 |            | min. Earth dist.    | 8241 Sep 02 01:21 | 16°♄01'50 | 0.54679 AU |
|                  | 8240 Oct 30 04:34 | 0°♄       |            | morning rise        | 8241 Sep 10 03:17 | 12°♄21'14 |            |
| morning set      | 8240 Nov 03 10:10 | 8°♄32'41  |            | direct              | 8241 Sep 13 21:26 | 11°♄50'53 |            |
|                  |                   |           |            | morning max el      | 8241 Sep 26 16:03 | 17°♄55'41 | 22°37'18   |
| superior conj    | 8240 Nov 10 19:01 | 23°♄53'54 | 1°38'02    |                     | 8241 Oct 06 08:44 | 0°♄       |            |
| minimum elong    | 8240 Nov 10 20:20 | 24°♄00'43 | 1°38'06    | asc. node           | 8241 Oct 10 07:18 | 6°♄32'18  |            |
|                  | 8240 Nov 13 19:05 | 0°♄       |            | morning set         | 8241 Oct 18 20:58 | 23°♄21'37 |            |
| max. Earth dist. | 8240 Nov 15 13:10 | 3°♄28'46  | 1.35625 AU |                     | 8241 Oct 21 23:41 | 0°♄       |            |
| evening rise     | 8240 Nov 19 13:45 | 11°♄11'47 |            |                     |                   |           |            |
| desc. node       | 8240 Nov 27 03:44 | 24°♄41'14 |            | superior conj       | 8241 Oct 25 22:02 | 8°♄25'34  | 1°41'25    |
|                  | 8240 Nov 30 08:46 | 0°♄       |            | minimum elong       | 8241 Oct 25 22:03 | 8°♄25'37  | 1°41'32    |
|                  | 8240 Dec 22 05:32 | 0°♄       |            | max. Earth dist.    | 8241 Oct 29 05:31 | 15°♄23'15 | 1.33971 AU |
| evening max el   | 8240 Dec 25 00:57 | 2°♄52'47  | 26°22'54   | evening rise        | 8241 Nov 02 20:40 | 24°♄43'25 |            |
| retrograde       | 8241 Jan 06 21:13 | 10°♄07'25 |            |                     | 8241 Nov 05 14:37 | 0°♄       |            |
| evening set      | 8241 Jan 13 05:03 | 7°♄34'09  |            | desc. node          | 8241 Nov 14 00:47 | 14°♄54'26 |            |
| min. Earth dist. | 8241 Jan 17 08:43 | 3°♄15'57  | 0.66549 AU |                     | 8241 Nov 23 21:06 | 0°♄       |            |
| inferior conj    | 8241 Jan 19 01:33 | 1°♄12'04  | -0°06'45   | evening max el      | 8241 Dec 07 13:56 | 16°♄27'38 | 27°08'43   |
| minimum elong    | 8241 Jan 19 01:43 | 1°♄11'32  | 0°06'31    | retrograde          | 8241 Dec 20 23:05 | 23°♄48'22 |            |
| transit middle   | 8241 Jan 19 01:43 | 1°♄11'32  | 0°06'31    | evening set         | 8241 Dec 27 17:22 | 21°♄31'57 |            |
| transit begin    | 8241 Jan 18 23:05 | 1°♄19'33  |            | min. Earth dist.    | 8241 Dec 31 15:19 | 17°♄27'41 | 0.65182 AU |
| transit end      | 8241 Jan 19 04:22 | 1°♄03'30  |            | inferior conj       | 8242 Jan 02 19:49 | 15°♄01'12 | -1°09'32   |
| asc. node        | 8241 Jan 19 09:37 | 0°♄47'36  |            | minimum elong       | 8242 Jan 02 21:53 | 14°♄55'26 | 1°08'30    |
|                  | 8241 Jan 20 01:31 | 30°♄      |            | asc. node           | 8242 Jan 06 06:42 | 11°♄27'43 |            |
| morning rise     | 8241 Jan 24 23:11 | 25°♄27'20 |            | morning rise        | 8242 Jan 09 03:45 | 9°♄28'55  |            |
| direct           | 8241 Jan 27 23:59 | 24°♄35'28 |            | direct              | 8242 Jan 11 19:38 | 8°♄51'10  |            |
| morning max el   | 8241 Feb 03 14:21 | 28°♄09'21 | 18°32'49   | morning max el      | 8242 Jan 18 06:00 | 12°♄15'18 | 18°01'58   |
|                  | 8241 Feb 05 07:43 | 0°♄       |            |                     | 8242 Jan 30 18:05 | 0°♄       |            |
| desc. node       | 8241 Feb 23 03:13 | 26°♄18'07 |            | morning set         | 8242 Feb 05 05:43 | 9°♄00'49  |            |
| morning set      | 8241 Feb 24 05:02 | 28°♄00'12 |            | desc. node          | 8242 Feb 10 00:09 | 16°♄50'04 |            |
|                  | 8241 Feb 25 11:21 | 0°♄       |            |                     | 8242 Feb 18 04:21 | 0°♄       |            |

|                     |                   |                           |            |                  |                   |                       |            |
|---------------------|-------------------|---------------------------|------------|------------------|-------------------|-----------------------|------------|
| superior conj       | 8242 Feb 19 15:02 | 2° $\text{H}$ 17'35       | -1°05'41   | morning set      | 8243 Jan 18 09:02 | 21° $\text{Z}$ 19'19  |            |
| minimum elong       | 8242 Feb 19 07:28 | 1° $\text{H}$ 47'38       | 1°04'39    |                  | 8243 Jan 23 10:15 | 0° $\approx$          |            |
| max. Earth dist.    | 8242 Feb 23 00:28 | 7° $\text{H}$ 38'41       | 1.45327 AU | desc. node       | 8243 Jan 27 21:06 | 7° $\approx$ 30'19    |            |
| evening rise        | 8242 Mar 07 19:15 | 27° $\text{H}$ 31'12      |            |                  |                   |                       |            |
|                     | 8242 Mar 09 09:49 | 0° $\text{Y}$             |            | superior conj    | 8243 Jan 30 18:48 | 12° $\approx$ 18'37   | -0°21'03   |
| greatest brilliancy | 8242 Mar 21 09:39 | 18° $\text{Y}$ 15'34      | -0.7m      | minimum elong    | 8243 Jan 30 16:32 | 12° $\approx$ 09'18   | 0°20'34    |
|                     | 8242 Mar 29 20:21 | 0° $\text{Z}$             |            | max. Earth dist. | 8243 Feb 05 18:46 | 22° $\approx$ 00'46   | 1.44447 AU |
| evening max el      | 8242 Apr 02 03:00 | 3° $\text{Z}$ 43'45       | 19°40'38   |                  | 8243 Feb 10 20:19 | 0° $\text{H}$         |            |
| asc. node           | 8242 Apr 04 05:37 | 5° $\text{Z}$ 37'37       |            | evening rise     | 8243 Feb 15 06:27 | 6° $\text{H}$ 50'55   |            |
| retrograde          | 8242 Apr 09 11:37 | 7° $\text{Z}$ 56'50       |            |                  | 8243 Mar 02 17:48 | 0° $\text{Y}$         |            |
| evening set         | 8242 Apr 13 03:48 | 6° $\text{Z}$ 37'59       |            | evening max el   | 8243 Mar 16 04:08 | 17° $\text{Y}$ 23'14  | 20°43'29   |
| inferior conj       | 8242 Apr 18 13:07 | 0° $\text{Z}$ 41'17       | 3°19'03    | asc. node        | 8243 Mar 22 02:43 | 21° $\text{Y}$ 46'04  |            |
| minimum elong       | 8242 Apr 18 12:09 | 0° $\text{Z}$ 44'31       | 3°18'53    | retrograde       | 8243 Mar 24 10:07 | 22° $\text{Y}$ 13'16  |            |
|                     | 8242 Apr 19 01:31 | 30° $\text{R}$ $\text{Y}$ |            | evening set      | 8243 Mar 28 11:35 | 20° $\text{Y}$ 39'13  |            |
| min. Earth dist.    | 8242 Apr 19 16:12 | 29° $\text{Y}$ 11'19      | 0.67115 AU | inferior conj    | 8243 Apr 02 19:04 | 14° $\text{Y}$ 29'53  | 3°02'52    |
| morning rise        | 8242 Apr 23 20:11 | 24° $\text{Y}$ 23'31      |            | minimum elong    | 8243 Apr 02 17:16 | 14° $\text{Y}$ 36'04  | 3°02'31    |
| direct              | 8242 Apr 29 20:29 | 21° $\text{Y}$ 42'47      |            | min. Earth dist. | 8243 Apr 03 08:20 | 13° $\text{Y}$ 44'13  | 0.67969 AU |
| desc. node          | 8242 May 08 23:55 | 26° $\text{Y}$ 10'05      |            | morning rise     | 8243 Apr 07 22:44 | 8° $\text{Y}$ 14'38   |            |
| morning max el      | 8242 May 12 00:15 | 28° $\text{Y}$ 59'59      | 25°26'44   | direct           | 8243 Apr 13 10:05 | 5° $\text{Y}$ 48'47   |            |
|                     | 8242 May 12 23:25 | 0° $\text{Z}$             |            | morning max el   | 8243 Apr 24 09:12 | 12° $\text{Y}$ 21'55  | 23°59'33   |
|                     | 8242 Jun 04 02:43 | 0° $\text{II}$            |            | desc. node       | 8243 Apr 25 20:52 | 13° $\text{Y}$ 55'12  |            |
| morning set         | 8242 Jun 17 02:55 | 21° $\text{II}$ 58'20     |            |                  | 8243 May 08 12:59 | 0° $\text{Z}$         |            |
| max. Earth dist.    | 8242 Jun 20 19:07 | 28° $\text{II}$ 45'18     | 1.36174 AU |                  | 8243 May 27 22:08 | 0° $\text{II}$        |            |
|                     | 8242 Jun 21 10:56 | 0° $\text{Z}$             |            | morning set      | 8243 May 29 21:54 | 3° $\text{II}$ 23'26  |            |
|                     |                   |                           |            | max. Earth dist. | 8243 Jun 02 15:44 | 9° $\text{II}$ 56'19  | 1.38330 AU |
| superior conj       | 8242 Jun 26 19:58 | 10° $\text{Z}$ 27'35      | -0°42'30   |                  |                   |                       |            |
| minimum elong       | 8242 Jun 26 22:32 | 10° $\text{Z}$ 40'19      | 0°42'11    | superior conj    | 8243 Jun 09 22:24 | 23° $\text{II}$ 20'01 | -1°14'10   |
| asc. node           | 8242 Jul 01 04:41 | 19° $\text{Z}$ 16'32      |            | minimum elong    | 8243 Jun 10 02:59 | 23° $\text{II}$ 41'43 | 1°13'36    |
| evening rise        | 8242 Jul 04 22:27 | 26° $\text{Z}$ 54'52      |            |                  | 8243 Jun 13 09:36 | 0° $\text{Z}$         |            |
|                     | 8242 Jul 06 11:05 | 0° $\text{Z}$             |            | asc. node        | 8243 Jun 18 01:42 | 9° $\text{Z}$ 09'45   |            |
| evening max el      | 8242 Jul 22 10:58 | 25° $\text{Z}$ 35'43      | 19°53'43   | evening rise     | 8243 Jun 18 21:39 | 10° $\text{Z}$ 47'46  |            |
|                     | 8242 Jul 28 24:00 | 0° $\text{H}$             |            |                  | 8243 Jun 29 11:27 | 0° $\text{Z}$         |            |
| retrograde          | 8242 Aug 01 16:48 | 0° $\text{H}$ 38'46       |            | evening max el   | 8243 Jul 05 07:10 | 7° $\text{Z}$ 25'57   | 18°57'26   |
| evening set         | 8242 Aug 03 13:42 | 0° $\text{H}$ 29'24       |            | retrograde       | 8243 Jul 13 21:54 | 11° $\text{Z}$ 41'41  |            |
| desc. node          | 8242 Aug 04 23:07 | 0° $\text{H}$ 10'56       |            | evening set      | 8243 Jul 15 20:49 | 11° $\text{Z}$ 29'23  |            |
|                     | 8242 Aug 05 13:45 | 30° $\text{R}$ $\text{Z}$ |            | desc. node       | 8243 Jul 22 20:11 | 8° $\text{Z}$ 06'07   |            |
| inferior conj       | 8242 Aug 12 13:01 | 26° $\text{Z}$ 28'54      | -2°18'11   | inferior conj    | 8243 Jul 24 02:43 | 7° $\text{Z}$ 13'14   | -0°23'14   |
| minimum elong       | 8242 Aug 12 06:42 | 26° $\text{Z}$ 38'32      | 2°15'56    | minimum elong    | 8243 Jul 24 01:44 | 7° $\text{Z}$ 14'57   | 0°23'00    |
| min. Earth dist.    | 8242 Aug 14 12:36 | 25° $\text{Z}$ 16'32      | 0.55184 AU | min. Earth dist. | 8243 Jul 27 03:17 | 5° $\text{Z}$ 06'38   | 0.56559 AU |
| morning rise        | 8242 Aug 20 21:52 | 22° $\text{Z}$ 09'38      |            | morning rise     | 8243 Aug 01 03:25 | 2° $\text{Z}$ 17'49   |            |
| direct              | 8242 Aug 25 10:31 | 21° $\text{Z}$ 24'38      |            | direct           | 8243 Aug 06 12:27 | 1° $\text{Z}$ 09'19   |            |
| morning max el      | 8242 Sep 08 04:54 | 28° $\text{Z}$ 12'43      | 24°23'13   | morning max el   | 8243 Aug 20 18:23 | 8° $\text{Z}$ 30'12   | 26°00'42   |
|                     | 8242 Sep 10 00:01 | 0° $\text{H}$             |            |                  | 8243 Sep 05 20:48 | 0° $\text{H}$         |            |
| asc. node           | 8242 Sep 27 04:16 | 25° $\text{H}$ 37'52      |            | asc. node        | 8243 Sep 14 01:13 | 15° $\text{H}$ 07'30  |            |
|                     | 8242 Sep 29 09:50 | 0° $\text{Z}$             |            | morning set      | 8243 Sep 17 19:43 | 22° $\text{H}$ 56'13  |            |
| morning set         | 8242 Oct 03 08:42 | 8° $\text{Z}$ 11'00       |            |                  | 8243 Sep 21 02:01 | 0° $\text{Z}$         |            |
| superior conj       | 8242 Oct 10 06:05 | 23° $\text{Z}$ 09'54      | 1°38'23    | superior conj    | 8243 Sep 24 16:57 | 8° $\text{Z}$ 00'00   | 1°29'36    |
| minimum elong       | 8242 Oct 10 04:59 | 23° $\text{Z}$ 03'54      | 1°38'24    | minimum elong    | 8243 Sep 24 15:04 | 7° $\text{Z}$ 49'38   | 1°29'26    |
| max. Earth dist.    | 8242 Oct 12 06:11 | 27° $\text{Z}$ 30'47      | 1.32747 AU | max. Earth dist. | 8243 Sep 25 13:20 | 9° $\text{Z}$ 52'37   | 1.31979 AU |
|                     | 8242 Oct 13 10:00 | 0° $\text{H}$             |            | evening rise     | 8243 Oct 01 16:22 | 23° $\text{Z}$ 06'09  |            |
| evening rise        | 8242 Oct 17 14:33 | 8° $\text{H}$ 44'24       |            |                  | 8243 Oct 05 01:32 | 0° $\text{H}$         |            |
|                     | 8242 Oct 29 00:35 | 0° $\text{Z}$             |            | desc. node       | 8243 Oct 18 18:58 | 24° $\text{H}$ 04'21  |            |
| desc. node          | 8242 Oct 31 21:53 | 4° $\text{Z}$ 45'20       |            |                  | 8243 Oct 22 21:12 | 0° $\text{Z}$         |            |
| evening max el      | 8242 Nov 20 01:41 | 29° $\text{Z}$ 41'14      | 27°28'54   | evening max el   | 8243 Nov 02 09:42 | 12° $\text{Z}$ 19'28  | 27°17'34   |
|                     | 8242 Nov 20 09:41 | 0° $\text{Z}$             |            | retrograde       | 8243 Nov 16 06:02 | 19° $\text{Z}$ 31'55  |            |
| retrograde          | 8242 Dec 03 18:27 | 6° $\text{Z}$ 59'47       |            | evening set      | 8243 Nov 23 07:49 | 17° $\text{Z}$ 15'02  |            |
| evening set         | 8242 Dec 10 19:27 | 4° $\text{Z}$ 28'16       |            | min. Earth dist. | 8243 Nov 27 00:18 | 14° $\text{Z}$ 27'03  | 0.61543 AU |
| min. Earth dist.    | 8242 Dec 14 13:05 | 1° $\text{Z}$ 15'17       | 0.63489 AU | inferior conj    | 8243 Nov 30 01:08 | 11° $\text{Z}$ 44'50  | -3°27'28   |
|                     | 8242 Dec 15 19:17 | 30° $\text{R}$ $\text{Z}$ |            | minimum elong    | 8243 Nov 30 07:35 | 11° $\text{Z}$ 30'26  | 3°25'09    |
| inferior conj       | 8242 Dec 17 04:44 | 28° $\text{Z}$ 35'03      | -2°17'33   | morning rise     | 8243 Dec 07 09:33 | 6° $\text{Z}$ 46'44   |            |
| minimum elong       | 8242 Dec 17 09:04 | 28° $\text{Z}$ 24'09      | 2°15'41    | direct           | 8243 Dec 09 15:10 | 6° $\text{Z}$ 25'37   |            |
| morning rise        | 8242 Dec 24 00:33 | 23° $\text{Z}$ 18'08      |            | asc. node        | 8243 Dec 11 00:45 | 6° $\text{Z}$ 34'10   |            |
| asc. node           | 8242 Dec 24 03:44 | 23° $\text{Z}$ 15'11      |            | morning max el   | 8243 Dec 16 15:14 | 9° $\text{Z}$ 57'43   | 17°53'04   |
| direct              | 8242 Dec 26 09:51 | 22° $\text{Z}$ 50'30      |            |                  | 8243 Dec 29 19:42 | 0° $\text{Z}$         |            |
| morning max el      | 8243 Jan 01 23:23 | 26° $\text{Z}$ 14'24      | 17°48'27   | morning set      | 8244 Jan 01 08:18 | 4° $\text{Z}$ 34'05   |            |
|                     | 8243 Jan 05 04:50 | 0° $\text{Z}$             |            |                  |                   |                       |            |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| superior conj    | 8244 Jan 12 00:07 | 23° $\text{♁}$ 32'53 | 0°20'14    |                  | 8244 Dec 21 00:07 | 0° $\text{♁}$        |            |
| minimum elong    | 8244 Jan 12 01:53 | 23° $\text{♁}$ 40'30 | 0°20'07    |                  |                   |                      |            |
| desc. node       | 8244 Jan 14 18:04 | 28° $\text{♁}$ 14'37 |            | superior conj    | 8244 Dec 24 05:03 | 5° $\text{♁}$ 54'42  | 0°53'29    |
|                  | 8244 Jan 15 19:05 | 0° $\approx$         |            | minimum elong    | 8244 Dec 24 08:23 | 6° $\text{♁}$ 09'54  | 0°53'10    |
| max. Earth dist. | 8244 Jan 19 09:39 | 5° $\approx$ 58'56   | 1.42950 AU | desc. node       | 8244 Dec 31 15:04 | 18° $\text{♁}$ 59'43 |            |
| evening rise     | 8244 Jan 26 00:02 | 16° $\approx$ 33'42  |            | max. Earth dist. | 8244 Dec 31 19:29 | 19° $\text{♁}$ 18'32 | 1.41006 AU |
|                  | 8244 Feb 03 18:38 | 0° $\text{♁}$        |            | evening rise     | 8245 Jan 05 11:32 | 27° $\text{♁}$ 06'04 |            |
|                  | 8244 Feb 25 23:25 | 0° $\text{♁}$        |            |                  | 8245 Jan 07 06:23 | 0° $\approx$         |            |
| evening max el   | 8244 Feb 26 23:53 | 1° $\text{♁}$ 03'40  | 21°57'05   |                  | 8245 Jan 27 10:53 | 0° $\text{♁}$        |            |
| retrograde       | 8244 Mar 07 07:35 | 6° $\text{♁}$ 34'59  |            | evening max el   | 8245 Feb 08 15:29 | 14° $\text{♁}$ 46'10 | 23°16'33   |
| asc. node        | 8244 Mar 07 23:47 | 6° $\text{♁}$ 32'39  |            | retrograde       | 8245 Feb 19 02:38 | 20° $\text{♁}$ 57'46 |            |
| evening set      | 8244 Mar 11 19:35 | 4° $\text{♁}$ 45'35  |            | asc. node        | 8245 Feb 22 20:52 | 19° $\text{♁}$ 47'58 |            |
|                  | 8244 Mar 16 00:07 | 30° $\text{♁}$       |            | evening set      | 8245 Feb 24 02:16 | 18° $\text{♁}$ 53'31 |            |
| inferior conj    | 8244 Mar 17 03:17 | 28° $\text{♁}$ 26'09 | 2°36'40    | inferior conj    | 8245 Mar 01 11:52 | 12° $\text{♁}$ 27'19 | 2°01'28    |
| minimum elong    | 8244 Mar 17 01:04 | 28° $\text{♁}$ 33'52 | 2°36'07    | minimum elong    | 8245 Mar 01 09:40 | 12° $\text{♁}$ 34'53 | 2°00'50    |
| min. Earth dist. | 8244 Mar 17 03:50 | 28° $\text{♁}$ 24'13 | 0.68381 AU | min. Earth dist. | 8245 Mar 01 00:33 | 13° $\text{♁}$ 06'16 | 0.68366 AU |
| morning rise     | 8244 Mar 22 06:23 | 22° $\text{♁}$ 14'51 |            | morning rise     | 8245 Mar 06 17:02 | 6° $\text{♁}$ 21'10  |            |
| direct           | 8244 Mar 27 03:41 | 20° $\text{♁}$ 09'20 |            | direct           | 8245 Mar 11 00:24 | 4° $\text{♁}$ 38'06  |            |
| morning max el   | 8244 Apr 05 19:51 | 25° $\text{♁}$ 51'07 | 22°30'06   | morning max el   | 8245 Mar 19 11:44 | 9° $\text{♁}$ 30'50  | 21°06'38   |
|                  | 8244 Apr 09 14:34 | 0° $\text{♁}$        |            | desc. node       | 8245 Mar 29 14:44 | 21° $\text{♁}$ 55'38 |            |
| desc. node       | 8244 Apr 11 17:48 | 2° $\text{♁}$ 35'24  |            |                  | 8245 Apr 04 07:29 | 0° $\text{♁}$        |            |
|                  | 8244 May 01 01:26 | 0° $\text{♁}$        |            | morning set      | 8245 Apr 19 05:24 | 22° $\text{♁}$ 34'03 |            |
| morning set      | 8244 May 09 15:10 | 13° $\text{♁}$ 35'29 |            |                  | 8245 Apr 23 21:43 | 0° $\text{♁}$        |            |
| max. Earth dist. | 8244 May 14 13:08 | 21° $\text{♁}$ 46'23 | 1.40578 AU | max. Earth dist. | 8245 Apr 26 16:22 | 4° $\text{♁}$ 29'57  | 1.42634 AU |
|                  | 8244 May 19 07:26 | 0° $\text{♁}$        |            |                  |                   |                      |            |
| superior conj    | 8244 May 22 08:11 | 5° $\text{♁}$ 23'53  | -1°42'57   | superior conj    | 8245 May 03 20:35 | 16° $\text{♁}$ 28'28 | -2°04'11   |
| minimum elong    | 8244 May 22 13:59 | 5° $\text{♁}$ 50'01  | 1°42'27    | minimum elong    | 8245 May 04 01:14 | 16° $\text{♁}$ 48'16 | 2°04'03    |
| evening rise     | 8244 Jun 01 10:57 | 24° $\text{♁}$ 09'40 |            |                  | 8245 May 11 14:37 | 0° $\text{♁}$        |            |
| asc. node        | 8244 Jun 03 22:44 | 28° $\text{♁}$ 50'10 |            | evening rise     | 8245 May 15 10:18 | 6° $\text{♁}$ 50'28  |            |
|                  | 8244 Jun 04 13:45 | 0° $\text{♁}$        |            | asc. node        | 8245 May 21 19:47 | 18° $\text{♁}$ 12'14 |            |
| evening max el   | 8244 Jun 17 12:45 | 19° $\text{♁}$ 54'40 | 18°21'53   |                  | 8245 May 29 11:08 | 0° $\text{♁}$        |            |
| retrograde       | 8244 Jun 24 22:25 | 23° $\text{♁}$ 36'59 |            | evening max el   | 8245 May 31 23:57 | 2° $\text{♁}$ 52'09  | 18°06'15   |
| evening set      | 8244 Jun 27 04:02 | 23° $\text{♁}$ 17'35 |            | retrograde       | 8245 Jun 07 16:08 | 6° $\text{♁}$ 16'41  |            |
| inferior conj    | 8244 Jul 04 14:06 | 18° $\text{♁}$ 41'09 | 1°11'45    | evening set      | 8245 Jun 10 05:14 | 5° $\text{♁}$ 47'03  |            |
| minimum elong    | 8244 Jul 04 16:24 | 18° $\text{♁}$ 36'22 | 1°10'48    | inferior conj    | 8245 Jun 16 21:53 | 0° $\text{♁}$ 50'30  | 2°18'44    |
| min. Earth dist. | 8244 Jul 07 23:27 | 15° $\text{♁}$ 54'53 | 0.58524 AU | minimum elong    | 8245 Jun 17 00:56 | 0° $\text{♁}$ 43'13  | 2°17'46    |
| desc. node       | 8244 Jul 08 17:13 | 15° $\text{♁}$ 20'56 |            |                  | 8245 Jun 17 18:54 | 30° $\text{♁}$       |            |
| morning rise     | 8244 Jul 12 01:29 | 13° $\text{♁}$ 11'00 |            | min. Earth dist. | 8245 Jun 20 03:17 | 27° $\text{♁}$ 46'57 | 0.60756 AU |
| direct           | 8244 Jul 18 04:19 | 11° $\text{♁}$ 32'07 |            | morning rise     | 8245 Jun 23 18:05 | 24° $\text{♁}$ 55'12 |            |
| morning max el   | 8244 Aug 01 13:40 | 19° $\text{♁}$ 16'02 | 27°13'39   | desc. node       | 8245 Jun 25 14:16 | 23° $\text{♁}$ 52'53 |            |
|                  | 8244 Aug 10 16:07 | 0° $\text{♁}$        |            | direct           | 8245 Jun 30 08:32 | 22° $\text{♁}$ 45'22 |            |
|                  | 8244 Aug 28 12:16 | 0° $\text{♁}$        |            |                  | 8245 Jul 13 21:52 | 0° $\text{♁}$        |            |
| asc. node        | 8244 Aug 30 22:10 | 4° $\text{♁}$ 54'29  |            | morning max el   | 8245 Jul 14 15:49 | 0° $\text{♁}$ 43'47  | 27°51'16   |
| morning set      | 8244 Sep 01 04:27 | 7° $\text{♁}$ 32'43  |            |                  | 8245 Aug 04 19:55 | 0° $\text{♁}$        |            |
|                  |                   |                      |            | morning set      | 8245 Aug 16 09:00 | 21° $\text{♁}$ 54'04 |            |
| superior conj    | 8244 Sep 08 04:46 | 22° $\text{♁}$ 50'10 | 1°15'34    | asc. node        | 8245 Aug 17 19:08 | 24° $\text{♁}$ 52'25 |            |
| minimum elong    | 8244 Sep 08 02:32 | 22° $\text{♁}$ 37'46 | 1°15'13    |                  | 8245 Aug 20 04:45 | 0° $\text{♁}$        |            |
| max. Earth dist. | 8244 Sep 07 23:33 | 22° $\text{♁}$ 21'15 | 1.31661 AU | max. Earth dist. | 8245 Aug 22 08:54 | 4° $\text{♁}$ 44'08  | 1.31799 AU |
|                  | 8244 Sep 11 10:24 | 0° $\text{♁}$        |            |                  |                   |                      |            |
| evening rise     | 8244 Sep 14 23:33 | 7° $\text{♁}$ 41'28  |            | superior conj    | 8245 Aug 23 15:42 | 7° $\text{♁}$ 33'41  | 0°56'40    |
|                  | 8244 Sep 26 12:41 | 0° $\text{♁}$        |            | minimum elong    | 8245 Aug 23 13:35 | 7° $\text{♁}$ 21'59  | 0°56'12    |
| desc. node       | 8244 Oct 04 16:03 | 12° $\text{♁}$ 39'00 |            | evening rise     | 8245 Aug 30 09:55 | 22° $\text{♁}$ 22'49 |            |
| evening max el   | 8244 Oct 14 11:08 | 24° $\text{♁}$ 10'46 | 26°32'14   |                  | 8245 Sep 03 01:24 | 0° $\text{♁}$        |            |
|                  | 8244 Oct 22 16:36 | 0° $\text{♁}$        |            |                  | 8245 Sep 21 09:35 | 0° $\text{♁}$        |            |
| retrograde       | 8244 Oct 28 09:02 | 1° $\text{♁}$ 17'28  |            | desc. node       | 8245 Sep 21 13:09 | 0° $\text{♁}$ 10'44  |            |
|                  | 8244 Nov 02 22:44 | 30° $\text{♁}$       |            | evening max el   | 8245 Sep 26 04:24 | 5° $\text{♁}$ 10'43  | 25°16'19   |
| evening set      | 8244 Nov 04 02:12 | 29° $\text{♁}$ 25'43 |            | retrograde       | 8245 Oct 10 01:56 | 12° $\text{♁}$ 11'48 |            |
| min. Earth dist. | 8244 Nov 08 00:40 | 26° $\text{♁}$ 50'46 | 0.59463 AU | evening set      | 8245 Oct 15 21:46 | 10° $\text{♁}$ 54'01 |            |
| inferior conj    | 8244 Nov 11 05:33 | 24° $\text{♁}$ 21'29 | -4°32'29   | min. Earth dist. | 8245 Oct 20 16:09 | 8° $\text{♁}$ 14'13  | 0.57448 AU |
| minimum elong    | 8244 Nov 11 12:49 | 24° $\text{♁}$ 07'19 | 4°30'33    | inferior conj    | 8245 Oct 23 14:44 | 6° $\text{♁}$ 15'02  | -5°20'33   |
| morning rise     | 8244 Nov 19 01:46 | 19° $\text{♁}$ 45'27 |            | minimum elong    | 8245 Oct 23 19:37 | 6° $\text{♁}$ 06'46  | 5°19'52    |
| direct           | 8244 Nov 21 07:22 | 19° $\text{♁}$ 27'38 |            | morning rise     | 8245 Oct 31 19:49 | 2° $\text{♁}$ 01'56  |            |
| asc. node        | 8244 Nov 26 21:45 | 21° $\text{♁}$ 26'27 |            | direct           | 8245 Nov 03 05:57 | 1° $\text{♁}$ 44'34  |            |
| morning max el   | 8244 Nov 29 02:12 | 23° $\text{♁}$ 16'48 | 18°17'08   | morning max el   | 8245 Nov 12 04:36 | 6° $\text{♁}$ 00'46  | 19°02'24   |
|                  | 8244 Dec 04 10:55 | 0° $\text{♁}$        |            | asc. node        | 8245 Nov 13 18:45 | 7° $\text{♁}$ 39'37  |            |
| morning set      | 8244 Dec 14 21:40 | 18° $\text{♁}$ 27'56 |            |                  | 8245 Nov 27 10:39 | 0° $\text{♁}$        |            |
|                  |                   |                      |            | morning set      | 8245 Nov 28 20:43 | 2° $\text{♁}$ 47'37  |            |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| superior conj    | 8245 Dec 07 04:34 | 19° $\text{♄}$ 09'11 | 1°17'33    | superior conj    | 8246 Nov 20 17:46 | 3° $\text{♄}$ 02'24  | 1°32'50    |
| minimum elong    | 8245 Dec 07 07:43 | 19° $\text{♄}$ 24'18 | 1°17'20    | minimum elong    | 8246 Nov 20 19:51 | 3° $\text{♄}$ 12'53  | 1°32'49    |
|                  | 8245 Dec 12 23:58 | 0° $\text{♄}$        |            | max. Earth dist. | 8246 Nov 26 07:34 | 13° $\text{♄}$ 57'32 | 1.36738 AU |
| max. Earth dist. | 8245 Dec 14 01:16 | 1° $\text{♄}$ 54'03  | 1.38849 AU | evening rise     | 8246 Nov 30 03:05 | 21° $\text{♄}$ 02'39 |            |
| evening rise     | 8245 Dec 17 21:01 | 8° $\text{♄}$ 37'00  |            | desc. node       | 8246 Dec 05 09:07 | 0° $\text{♄}$ 16'32  |            |
| desc. node       | 8245 Dec 18 12:05 | 9° $\text{♄}$ 41'41  |            |                  | 8246 Dec 05 05:14 | 0° $\text{♄}$        |            |
|                  | 8245 Dec 31 04:07 | 0° $\text{♄}$        |            |                  | 8246 Dec 25 02:48 | 0° $\text{♄}$        |            |
| evening max el   | 8246 Jan 22 04:55 | 28° $\text{♄}$ 31'55 | 24°35'51   | evening max el   | 8247 Jan 04 18:02 | 12° $\text{♄}$ 19'19 | 25°47'53   |
|                  | 8246 Jan 23 17:57 | 0° $\text{♄}$        |            | retrograde       | 8247 Jan 17 04:43 | 19° $\text{♄}$ 26'20 |            |
| retrograde       | 8246 Feb 02 18:03 | 5° $\text{♄}$ 16'52  |            | evening set      | 8247 Jan 23 05:25 | 16° $\text{♄}$ 57'53 |            |
| evening set      | 8246 Feb 08 06:06 | 2° $\text{♄}$ 59'13  |            | min. Earth dist. | 8247 Jan 27 12:47 | 12° $\text{♄}$ 19'28 | 0.67161 AU |
| asc. node        | 8246 Feb 09 17:56 | 1° $\text{♄}$ 33'14  |            | asc. node        | 8247 Jan 27 15:02 | 12° $\text{♄}$ 12'25 |            |
|                  | 8246 Feb 11 02:32 | 30° $\text{♄}$       |            | inferior conj    | 8247 Jan 28 22:52 | 10° $\text{♄}$ 31'47 | 0°26'21    |
| min. Earth dist. | 8246 Feb 12 20:19 | 27° $\text{♄}$ 46'15 | 0.67951 AU | minimum elong    | 8247 Jan 28 22:12 | 10° $\text{♄}$ 33'54 | 0°26'13    |
| inferior conj    | 8246 Feb 13 19:02 | 26° $\text{♄}$ 30'30 | 1°17'54    | morning rise     | 8247 Feb 03 15:28 | 4° $\text{♄}$ 40'45  |            |
| minimum elong    | 8246 Feb 13 17:20 | 26° $\text{♄}$ 36'10 | 1°17'22    | direct           | 8247 Feb 06 22:13 | 3° $\text{♄}$ 39'03  |            |
| morning rise     | 8246 Feb 19 04:44 | 20° $\text{♄}$ 30'58 |            | morning max el   | 8247 Feb 13 18:17 | 7° $\text{♄}$ 23'45  | 18°58'05   |
| direct           | 8246 Feb 22 23:04 | 19° $\text{♄}$ 09'45 |            |                  | 8247 Mar 02 02:44 | 0° $\text{♄}$        |            |
| morning max el   | 8246 Mar 02 11:11 | 23° $\text{♄}$ 22'36 | 19°54'55   | desc. node       | 8247 Mar 03 08:37 | 1° $\text{♄}$ 55'22  |            |
|                  | 8246 Mar 08 03:03 | 0° $\text{♄}$        |            | morning set      | 8247 Mar 08 08:45 | 9° $\text{♄}$ 41'34  |            |
| desc. node       | 8246 Mar 16 11:41 | 11° $\text{♄}$ 45'06 |            |                  | 8247 Mar 21 09:07 | 0° $\text{♄}$        |            |
|                  | 8246 Mar 28 13:34 | 0° $\text{♄}$        |            | max. Earth dist. | 8247 Mar 22 18:32 | 2° $\text{♄}$ 11'06  | 1.45244 AU |
| morning set      | 8246 Mar 29 03:24 | 0° $\text{♄}$ 53'17  |            |                  |                   |                      |            |
| max. Earth dist. | 8246 Apr 09 02:32 | 18° $\text{♄}$ 02'38 | 1.44249 AU | superior conj    | 8247 Mar 24 22:06 | 5° $\text{♄}$ 33'55  | -2°00'24   |
|                  |                   |                      |            | minimum elong    | 8247 Mar 24 14:46 | 5° $\text{♄}$ 05'00  | 1°59'58    |
| superior conj    | 8246 Apr 14 08:24 | 26° $\text{♄}$ 28'43 | -2°11'50   | evening rise     | 8247 Apr 08 20:58 | 29° $\text{♄}$ 30'34 |            |
| minimum elong    | 8246 Apr 14 07:58 | 26° $\text{♄}$ 26'56 | 2°11'54    |                  | 8247 Apr 09 04:12 | 0° $\text{♄}$        |            |
|                  | 8246 Apr 16 12:09 | 0° $\text{♄}$        |            | asc. node        | 8247 Apr 25 13:58 | 25° $\text{♄}$ 34'15 |            |
| evening rise     | 8246 Apr 27 15:01 | 18° $\text{♄}$ 40'02 |            | evening max el   | 8247 Apr 29 01:50 | 29° $\text{♄}$ 39'37 | 18°31'35   |
|                  | 8246 May 04 06:49 | 0° $\text{♄}$        |            |                  | 8247 Apr 29 10:08 | 0° $\text{♄}$        |            |
| asc. node        | 8246 May 08 16:52 | 7° $\text{♄}$ 09'51  |            | retrograde       | 8247 May 05 13:43 | 3° $\text{♄}$ 11'34  |            |
| evening max el   | 8246 May 15 13:20 | 16° $\text{♄}$ 10'02 | 18°09'45   | evening set      | 8247 May 08 17:29 | 2° $\text{♄}$ 15'38  |            |
| retrograde       | 8246 May 21 22:40 | 19° $\text{♄}$ 31'26 |            |                  | 8247 May 11 12:50 | 30° $\text{♄}$       |            |
| evening set      | 8246 May 24 19:06 | 18° $\text{♄}$ 49'21 |            | inferior conj    | 8247 May 14 11:06 | 26° $\text{♄}$ 42'58 | 3°19'41    |
| inferior conj    | 8246 May 30 22:17 | 13° $\text{♄}$ 34'05 | 2°59'42    | minimum elong    | 8247 May 14 12:04 | 26° $\text{♄}$ 40'06 | 3°19'28    |
| minimum elong    | 8246 May 31 00:33 | 13° $\text{♄}$ 27'56 | 2°59'10    | min. Earth dist. | 8247 May 16 13:56 | 24° $\text{♄}$ 11'26 | 0.64886 AU |
| min. Earth dist. | 8246 Jun 02 16:03 | 10° $\text{♄}$ 37'00 | 0.62952 AU | morning rise     | 8247 May 20 05:49 | 20° $\text{♄}$ 26'44 |            |
| morning rise     | 8246 Jun 06 04:26 | 7° $\text{♄}$ 24'21  |            | direct           | 8247 May 26 21:12 | 17° $\text{♄}$ 41'08 |            |
| desc. node       | 8246 Jun 12 11:17 | 4° $\text{♄}$ 51'30  |            | desc. node       | 8247 May 30 08:18 | 18° $\text{♄}$ 19'58 |            |
| direct           | 8246 Jun 12 22:56 | 4° $\text{♄}$ 50'45  |            | morning max el   | 8247 Jun 09 09:06 | 25° $\text{♄}$ 36'58 | 27°15'03   |
| morning max el   | 8246 Jun 26 23:11 | 12° $\text{♄}$ 53'47 | 27°50'35   |                  | 8247 Jun 13 09:28 | 0° $\text{♄}$        |            |
|                  | 8246 Jul 10 14:59 | 0° $\text{♄}$        |            |                  | 8247 Jul 04 03:37 | 0° $\text{♄}$        |            |
|                  | 8246 Jul 28 07:29 | 0° $\text{♄}$        |            | morning set      | 8247 Jul 14 20:25 | 19° $\text{♄}$ 25'09 |            |
| morning set      | 8246 Jul 31 07:14 | 5° $\text{♄}$ 54'10  |            | max. Earth dist. | 8247 Jul 19 09:34 | 28° $\text{♄}$ 30'11 | 1.33506 AU |
| asc. node        | 8246 Aug 04 16:09 | 14° $\text{♄}$ 56'46 |            |                  | 8247 Jul 20 03:03 | 0° $\text{♄}$        |            |
| max. Earth dist. | 8246 Aug 05 13:25 | 16° $\text{♄}$ 49'53 | 1.32410 AU | asc. node        | 8247 Jul 22 13:10 | 5° $\text{♄}$ 03'05  |            |
|                  |                   |                      |            |                  |                   |                      |            |
| superior conj    | 8246 Aug 07 23:58 | 22° $\text{♄}$ 05'18 | 0°33'18    | superior conj    | 8247 Jul 23 03:30 | 6° $\text{♄}$ 18'44  | 0°06'04    |
| minimum elong    | 8246 Aug 07 22:29 | 21° $\text{♄}$ 57'14 | 0°32'53    | minimum elong    | 8247 Jul 23 03:11 | 6° $\text{♄}$ 17'06  | 0°05'51    |
|                  | 8246 Aug 11 15:02 | 0° $\text{♄}$        |            | behind sun begin | 8247 Jul 22 21:59 | 5° $\text{♄}$ 49'37  |            |
| evening rise     | 8246 Aug 14 21:34 | 7° $\text{♄}$ 04'42  |            | behind sun end   | 8247 Jul 23 08:23 | 6° $\text{♄}$ 44'38  |            |
|                  | 8246 Aug 26 20:06 | 0° $\text{♄}$        |            | evening rise     | 8247 Jul 30 08:36 | 21° $\text{♄}$ 41'18 |            |
| evening max el   | 8246 Sep 07 16:11 | 15° $\text{♄}$ 32'49 | 23°40'57   |                  | 8247 Aug 03 09:26 | 0° $\text{♄}$        |            |
| desc. node       | 8246 Sep 08 10:15 | 16° $\text{♄}$ 15'25 |            | evening max el   | 8247 Aug 20 05:59 | 25° $\text{♄}$ 47'52 | 22°02'29   |
| retrograde       | 8246 Sep 21 06:35 | 22° $\text{♄}$ 21'09 |            |                  | 8247 Aug 25 15:00 | 0° $\text{♄}$        |            |
| evening set      | 8246 Sep 25 17:00 | 21° $\text{♄}$ 38'09 |            | desc. node       | 8247 Aug 26 07:20 | 0° $\text{♄}$ 22'31  |            |
| min. Earth dist. | 8246 Oct 02 02:26 | 18° $\text{♄}$ 34'56 | 0.55800 AU | retrograde       | 8247 Sep 01 23:10 | 2° $\text{♄}$ 07'03  |            |
| inferior conj    | 8246 Oct 04 03:45 | 17° $\text{♄}$ 21'07 | -5°33'41   | evening set      | 8247 Sep 04 22:26 | 1° $\text{♄}$ 47'26  |            |
| minimum elong    | 8246 Oct 04 02:07 | 17° $\text{♄}$ 23'35 | 5°33'35    |                  | 8247 Sep 09 21:04 | 30° $\text{♄}$       |            |
| morning rise     | 8246 Oct 12 13:21 | 13° $\text{♄}$ 26'30 |            | min. Earth dist. | 8247 Sep 13 10:49 | 28° $\text{♄}$ 06'07 | 0.54835 AU |
| direct           | 8246 Oct 15 09:12 | 13° $\text{♄}$ 06'35 |            | inferior conj    | 8247 Sep 14 00:53 | 27° $\text{♄}$ 46'24 | -4°54'44   |
| morning max el   | 8246 Oct 25 19:10 | 17° $\text{♄}$ 59'58 | 20°10'03   | minimum elong    | 8247 Sep 13 16:32 | 27° $\text{♄}$ 58'07 | 4°53'05    |
| asc. node        | 8246 Oct 31 15:45 | 24° $\text{♄}$ 58'28 |            | morning rise     | 8247 Sep 22 12:04 | 23° $\text{♄}$ 58'06 |            |
|                  | 8246 Nov 03 21:35 | 0° $\text{♄}$        |            | direct           | 8247 Sep 25 21:39 | 23° $\text{♄}$ 32'31 |            |
| morning set      | 8246 Nov 13 02:13 | 17° $\text{♄}$ 24'09 |            | morning max el   | 8247 Oct 07 20:41 | 29° $\text{♄}$ 10'16 | 21°38'54   |
|                  | 8246 Nov 19 05:42 | 0° $\text{♄}$        |            |                  | 8247 Oct 08 17:19 | 0° $\text{♄}$        |            |
|                  |                   |                      |            | asc. node        | 8247 Oct 18 12:46 | 13° $\text{♄}$ 08'27 |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8247 Oct 27 10:31 | 0°♍       |            | asc. node           | 8248 Oct 04 09:44 | 1°♊56'39  |            |
| morning set         | 8247 Oct 28 11:43 | 2°♍10'53  |            | morning set         | 8248 Oct 11 23:09 | 17°♊00'57 |            |
|                     |                   |           |            |                     | 8248 Oct 17 23:42 | 0°♍       |            |
| superior conj       | 8247 Nov 04 16:42 | 17°♍23'11 | 1°40'17    |                     |                   |           |            |
| minimum elong       | 8247 Nov 04 17:28 | 17°♍27'07 | 1°40'24    | superior conj       | 8248 Oct 18 22:10 | 2°♍01'09  | 1°40'52    |
| max. Earth dist.    | 8247 Nov 08 19:45 | 25°♍51'48 | 1.34878 AU | minimum elong       | 8248 Oct 18 21:40 | 1°♍58'29  | 1°40'57    |
|                     | 8247 Nov 10 21:42 | 0°♊       |            | max. Earth dist.    | 8248 Oct 21 16:03 | 7°♍52'36  | 1.33399 AU |
| evening rise        | 8247 Nov 13 02:08 | 4°♊13'45  |            | evening rise        | 8248 Oct 26 14:07 | 17°♍58'55 |            |
| desc. node          | 8247 Nov 22 06:10 | 20°♊39'44 |            |                     | 8248 Nov 01 21:44 | 0°♊       |            |
|                     | 8247 Nov 28 01:18 | 0°♊       |            | desc. node          | 8248 Nov 08 03:14 | 10°♊44'31 |            |
| evening max el      | 8247 Dec 18 07:27 | 26°♊02'32 | 26°45'12   |                     | 8248 Nov 21 08:35 | 0°♊       |            |
|                     | 8247 Dec 22 23:31 | 0°♊       |            | evening max el      | 8248 Nov 29 20:09 | 9°♊29'48  | 27°20'44   |
| retrograde          | 8247 Dec 31 09:48 | 3°♊20'11  |            | retrograde          | 8248 Dec 13 08:42 | 16°♊49'41 |            |
| evening set         | 8248 Jan 06 22:22 | 0°♊45'05  |            | evening set         | 8248 Dec 20 06:37 | 14°♊14'09 |            |
|                     | 8248 Jan 07 19:31 | 30°♋♊     |            | min. Earth dist.    | 8248 Dec 24 02:32 | 10°♊43'54 | 0.64507 AU |
| min. Earth dist.    | 8248 Jan 10 23:37 | 26°♊41'19 | 0.66010 AU | inferior conj       | 8248 Dec 26 11:55 | 8°♊10'27  | -1°37'52   |
| inferior conj       | 8248 Jan 12 21:18 | 24°♊27'14 | -0°32'34   | minimum elong       | 8248 Dec 26 14:54 | 8°♊02'25  | 1°36'28    |
| minimum elong       | 8248 Jan 12 22:13 | 24°♊24'32 | 0°32'02    | asc. node           | 8248 Dec 31 09:08 | 3°♊39'28  |            |
| asc. node           | 8248 Jan 14 12:06 | 22°♊35'49 |            | morning rise        | 8249 Jan 02 00:45 | 2°♊44'24  |            |
| morning rise        | 8248 Jan 18 23:04 | 18°♊47'13 |            | direct              | 8249 Jan 04 13:38 | 2°♊11'19  |            |
| direct              | 8248 Jan 21 19:54 | 18°♊01'41 |            | morning max el      | 8249 Jan 11 00:18 | 5°♊33'51  | 17°54'05   |
| morning max el      | 8248 Jan 28 07:33 | 21°♊30'00 | 18°17'37   |                     | 8249 Jan 27 08:14 | 0°♊       |            |
|                     | 8248 Feb 04 00:59 | 0°♊       |            | morning set         | 8249 Jan 28 05:01 | 1°♊27'19  |            |
| morning set         | 8248 Feb 16 16:20 | 19°♊51'32 |            | desc. node          | 8249 Feb 04 02:31 | 12°♊56'49 |            |
| desc. node          | 8248 Feb 18 05:35 | 22°♊21'01 |            |                     |                   |           |            |
|                     | 8248 Feb 23 00:29 | 0°♋       |            | superior conj       | 8249 Feb 10 17:56 | 23°♊44'40 | -0°46'48   |
|                     |                   |           |            | minimum elong       | 8249 Feb 10 12:34 | 23°♊23'04 | 0°45'57    |
| superior conj       | 8248 Mar 03 02:50 | 14°♋21'43 | -1°29'32   |                     | 8249 Feb 14 16:11 | 0°♋       |            |
| minimum elong       | 8248 Mar 02 17:23 | 13°♋44'40 | 1°28'29    | max. Earth dist.    | 8249 Feb 15 09:43 | 1°♋09'15  | 1.45039 AU |
| max. Earth dist.    | 8248 Mar 04 14:05 | 16°♋39'52 | 1.45517 AU | evening rise        | 8249 Feb 26 18:21 | 18°♋49'16 |            |
|                     | 8248 Mar 13 02:52 | 0°♌       |            |                     | 8249 Mar 06 02:16 | 0°♌       |            |
| evening rise        | 8248 Mar 19 03:51 | 9°♌26'49  |            | greatest brilliancy | 8249 Mar 13 14:24 | 11°♌11'26 | -0.6m      |
| greatest brilliancy | 8248 Mar 30 04:15 | 26°♌35'52 | -0.8m      | evening max el      | 8249 Mar 25 15:10 | 26°♌52'47 | 20°05'47   |
|                     | 8248 Apr 01 10:09 | 0°♌       |            | asc. node           | 8249 Mar 29 08:06 | 0°♌00'00  |            |
| asc. node           | 8248 Apr 11 11:03 | 13°♌15'13 |            |                     | 8249 Mar 29 08:06 | 0°♌       |            |
| evening max el      | 8248 Apr 11 11:01 | 13°♌15'10 | 19°10'48   | retrograde          | 8249 Apr 02 08:10 | 1°♌20'56  |            |
| retrograde          | 8248 Apr 18 09:49 | 17°♌09'59 |            | evening set         | 8249 Apr 06 04:12 | 29°♌55'27 |            |
| evening set         | 8248 Apr 21 21:19 | 15°♌59'27 |            |                     | 8249 Apr 06 01:44 | 30°♌♌     |            |
| inferior conj       | 8248 Apr 27 08:48 | 10°♌10'53 | 3°23'10    | inferior conj       | 8249 Apr 11 12:25 | 23°♌52'51 | 3°13'30    |
| minimum elong       | 8248 Apr 27 08:28 | 10°♌11'59 | 3°23'02    | minimum elong       | 8249 Apr 11 11:03 | 23°♌57'28 | 3°13'16    |
| min. Earth dist.    | 8248 Apr 28 20:14 | 8°♌16'52  | 0.66428 AU | min. Earth dist.    | 8249 Apr 12 09:23 | 22°♌41'54 | 0.67528 AU |
| morning rise        | 8248 May 02 19:13 | 3°♌52'54  |            | morning rise        | 8249 Apr 16 17:41 | 17°♌35'58 |            |
| direct              | 8248 May 09 02:02 | 1°♌07'36  |            | direct              | 8249 Apr 22 12:34 | 15°♌01'00 |            |
| desc. node          | 8248 May 16 05:18 | 3°♌51'34  |            | desc. node          | 8249 May 03 02:16 | 20°♌55'19 |            |
| morning max el      | 8248 May 21 19:25 | 8°♌42'44  | 26°11'58   | morning max el      | 8249 May 04 04:52 | 22°♌00'56 | 24°50'41   |
|                     | 8248 Jun 07 11:25 | 0°♍       |            |                     | 8249 May 11 04:00 | 0°♌       |            |
|                     | 8248 Jun 25 15:17 | 0°♍       |            |                     | 8249 May 31 18:07 | 0°♍       |            |
| morning set         | 8248 Jun 26 21:01 | 2°♍17'19  |            | morning set         | 8249 Jun 09 04:25 | 14°♍18'40 |            |
| max. Earth dist.    | 8248 Jun 30 19:12 | 9°♍45'27  | 1.35080 AU | max. Earth dist.    | 8249 Jun 12 19:16 | 20°♍50'20 | 1.37058 AU |
|                     |                   |           |            |                     | 8249 Jun 17 16:04 | 0°♍       |            |
| superior conj       | 8248 Jul 05 23:47 | 20°♍07'01 | -0°24'14   |                     |                   |           |            |
| minimum elong       | 8248 Jul 06 01:11 | 20°♍14'10 | 0°24'06    | superior conj       | 8249 Jun 19 09:47 | 3°♍22'20  | -0°56'02   |
| asc. node           | 8248 Jul 08 10:10 | 25°♍07'27 |            | minimum elong       | 8249 Jun 19 13:13 | 3°♍39'08  | 0°55'35    |
|                     | 8248 Jul 10 18:26 | 0°♎       |            | asc. node           | 8249 Jun 25 07:10 | 15°♍05'58 |            |
| evening rise        | 8248 Jul 13 16:58 | 6°♎06'29  |            | evening rise        | 8249 Jun 27 20:20 | 20°♍13'35 |            |
|                     | 8248 Jul 26 21:10 | 0°♎       |            |                     | 8249 Jul 02 20:08 | 0°♎       |            |
| evening max el      | 8248 Aug 01 05:48 | 6°♎28'43  | 20°35'20   | evening max el      | 8249 Jul 14 18:56 | 17°♎53'20 | 19°27'13   |
| retrograde          | 8248 Aug 12 11:17 | 12°♎01'58 |            | retrograde          | 8249 Jul 24 07:34 | 22°♎35'36 |            |
| desc. node          | 8248 Aug 12 04:26 | 12°♎01'46 |            | evening set         | 8249 Jul 26 04:06 | 22°♎25'39 |            |
| evening set         | 8248 Aug 14 12:45 | 11°♎51'32 |            | desc. node          | 8249 Jul 30 01:30 | 21°♎07'12 |            |
| inferior conj       | 8248 Aug 23 17:39 | 7°♎54'29  | -3°24'06   | inferior conj       | 8249 Aug 03 20:46 | 18°♎19'14 | -1°28'15   |
| minimum elong       | 8248 Aug 23 08:48 | 8°♎07'12  | 3°21'16    | minimum elong       | 8249 Aug 03 16:47 | 18°♎25'39 | 1°26'50    |
| min. Earth dist.    | 8248 Aug 24 20:09 | 7°♎16'20  | 0.54780 AU | min. Earth dist.    | 8249 Aug 06 08:44 | 16°♎42'50 | 0.55669 AU |
| morning rise        | 8248 Sep 01 04:33 | 3°♎52'26  |            | morning rise        | 8249 Aug 12 02:53 | 13°♎45'00 |            |
| direct              | 8248 Sep 05 06:16 | 3°♎16'55  |            | direct              | 8249 Aug 16 23:51 | 12°♎51'25 |            |
| morning max el      | 8248 Sep 18 12:18 | 9°♎40'14  | 23°22'20   | morning max el      | 8249 Aug 31 00:52 | 19°♎54'51 | 25°06'45   |
|                     | 8248 Oct 03 07:56 | 0°♏       |            |                     | 8249 Sep 08 15:05 | 0°♎       |            |


































































































































|                  |                   |                                 |                  |                   |                                 |            |
|------------------|-------------------|---------------------------------|------------------|-------------------|---------------------------------|------------|
| asc. node        | 8249 Sep 21 06:43 | 21° $\mathbb{M}$ 13'34          | direct           | 8250 Jul 29 08:06 | 22° $\mathfrak{G}$ 48'52        |            |
|                  | 8249 Sep 25 14:08 | 0° $\mathfrak{L}$               |                  | 8250 Aug 12 07:29 | 0° $\mathfrak{L}$               |            |
| morning set      | 8249 Sep 26 10:48 | 1° $\mathfrak{L}$ 49'31         | morning max el   | 8250 Aug 12 16:31 | 0° $\mathfrak{L}$ 21'40         | 26°35'28   |
|                  |                   |                                 |                  | 8250 Sep 02 13:24 | 0° $\mathbb{M}$                 |            |
| superior conj    | 8249 Oct 03 07:41 | 16° $\mathfrak{L}$ 48'59        | asc. node        | 8250 Sep 08 03:40 | 10° $\mathbb{M}$ 50'57          |            |
| minimum elong    | 8249 Oct 03 06:12 | 16° $\mathfrak{L}$ 40'53        | morning set      | 8250 Sep 10 21:03 | 16° $\mathbb{M}$ 31'17          |            |
| max. Earth dist. | 8249 Oct 04 19:47 | 20° $\mathfrak{L}$ 06'38        |                  | 8250 Sep 17 01:12 | 0° $\mathfrak{L}$               |            |
|                  | 8249 Oct 09 10:43 | 0° $\mathbb{M}$                 |                  |                   |                                 |            |
| evening rise     | 8249 Oct 10 11:44 | 2° $\mathbb{M}$ 09'35           | superior conj    | 8250 Sep 17 19:11 | 1° $\mathfrak{L}$ 39'43         | 1°24'17    |
|                  | 8249 Oct 25 18:26 | 0° $\mathfrak{X}$               | minimum elong    | 8250 Sep 17 17:06 | 1° $\mathfrak{L}$ 28'11         | 1°24'01    |
| desc. node       | 8249 Oct 26 00:18 | 0° $\mathfrak{X}$ 23'05         | max. Earth dist. | 8250 Sep 18 04:28 | 2° $\mathfrak{L}$ 31'11         | 1.31785 AU |
| evening max el   | 8249 Nov 12 06:22 | 22° $\mathfrak{X}$ 28'51        | evening rise     | 8250 Sep 24 16:06 | 16° $\mathfrak{L}$ 37'36        |            |
| retrograde       | 8249 Nov 26 00:56 | 29° $\mathfrak{X}$ 45'32        |                  | 8250 Oct 01 08:19 | 0° $\mathbb{M}$                 |            |
| evening set      | 8249 Dec 03 03:20 | 27° $\mathfrak{X}$ 18'34        | desc. node       | 8250 Oct 12 21:24 | 19° $\mathbb{M}$ 24'52          |            |
| min. Earth dist. | 8249 Dec 06 19:45 | 24° $\mathfrak{X}$ 17'34        |                  | 8250 Oct 20 22:19 | 0° $\mathfrak{X}$               |            |
| inferior conj    | 8249 Dec 09 15:52 | 21° $\mathfrak{X}$ 34'32        | evening max el   | 8250 Oct 25 11:50 | 4° $\mathfrak{X}$ 47'59         | 27°02'22   |
| minimum elong    | 8249 Dec 09 21:09 | 21° $\mathfrak{X}$ 21'50        | retrograde       | 8250 Nov 08 09:28 | 11° $\mathfrak{X}$ 58'35        |            |
| morning rise     | 8249 Dec 16 17:05 | 16° $\mathfrak{X}$ 25'35        | evening set      | 8250 Nov 15 08:42 | 9° $\mathfrak{X}$ 51'06         |            |
| asc. node        | 8249 Dec 18 06:10 | 16° $\mathfrak{X}$ 03'54        | min. Earth dist. | 8250 Nov 19 02:28 | 7° $\mathfrak{X}$ 10'19         | 0.60662 AU |
| direct           | 8249 Dec 19 00:24 | 16° $\mathfrak{X}$ 01'12        | inferior conj    | 8250 Nov 22 05:55 | 4° $\mathfrak{X}$ 31'23         | -3°56'15   |
| morning max el   | 8249 Dec 25 17:29 | 19° $\mathfrak{X}$ 27'22        | minimum elong    | 8250 Nov 22 12:58 | 4° $\mathfrak{X}$ 16'29         | 3°53'58    |
|                  | 8250 Jan 02 11:55 | 0° $\mathfrak{Z}$               |                  | 8250 Nov 28 22:45 | 30° $\mathbb{R}$ $\mathbb{M}$   |            |
| morning set      | 8250 Jan 10 17:33 | 14° $\mathfrak{Z}$ 11'27        | morning rise     | 8250 Nov 29 19:36 | 29° $\mathbb{M}$ 42'24          |            |
|                  | 8250 Jan 19 19:38 | 0° $\mathfrak{A}$               | direct           | 8250 Dec 02 00:31 | 29° $\mathbb{M}$ 23'12          |            |
| desc. node       | 8250 Jan 21 23:29 | 3° $\mathfrak{A}$ 38'59         | asc. node        | 8250 Dec 05 03:11 | 0° $\mathfrak{X}$ 03'11         |            |
|                  |                   |                                 |                  | 8250 Dec 05 00:10 | 0° $\mathfrak{X}$               |            |
| superior conj    | 8250 Jan 22 08:26 | 4° $\mathfrak{A}$ 16'31         | morning max el   | 8250 Dec 09 07:45 | 3° $\mathfrak{X}$ 01'49         | 18°00'47   |
| minimum elong    | 8250 Jan 22 08:10 | 4° $\mathfrak{A}$ 15'27         | morning set      | 8250 Dec 24 23:29 | 27° $\mathfrak{X}$ 44'44        |            |
| behind sun begin | 8250 Jan 21 23:11 | 3° $\mathfrak{A}$ 37'45         |                  | 8250 Dec 26 04:43 | 0° $\mathfrak{Z}$               |            |
| behind sun end   | 8250 Jan 22 17:10 | 4° $\mathfrak{A}$ 53'03         |                  |                   |                                 |            |
| max. Earth dist. | 8250 Jan 29 02:28 | 15° $\mathfrak{A}$ 21'32        | superior conj    | 8251 Jan 04 00:22 | 16° $\mathfrak{Z}$ 01'15        | 0°35'26    |
| evening rise     | 8250 Feb 06 06:20 | 28° $\mathfrak{A}$ 13'32        | minimum elong    | 8251 Jan 04 03:05 | 16° $\mathfrak{Z}$ 13'12        | 0°35'11    |
|                  | 8250 Feb 07 09:56 | 0° $\mathfrak{H}$               | desc. node       | 8251 Jan 08 20:28 | 24° $\mathfrak{Z}$ 24'07        |            |
|                  | 8250 Feb 27 21:48 | 0° $\mathbb{Y}$                 | max. Earth dist. | 8251 Jan 11 14:49 | 29° $\mathfrak{Z}$ 02'57        | 1.42162 AU |
| evening max el   | 8250 Mar 08 13:45 | 10° $\mathbb{Y}$ 31'28          |                  | 8251 Jan 12 04:34 | 0° $\mathfrak{A}$               |            |
| asc. node        | 8250 Mar 16 05:10 | 15° $\mathbb{Y}$ 33'45          | evening rise     | 8251 Jan 17 06:38 | 8° $\mathfrak{A}$ 15'40         |            |
| retrograde       | 8250 Mar 17 06:31 | 15° $\mathbb{Y}$ 39'28          |                  | 8251 Jan 31 13:42 | 0° $\mathfrak{H}$               |            |
| evening set      | 8250 Mar 21 12:14 | 13° $\mathbb{Y}$ 58'55          | evening max el   | 8251 Feb 19 07:35 | 24° $\mathfrak{H}$ 12'58        | 22°30'34   |
| inferior conj    | 8250 Mar 26 19:33 | 7° $\mathbb{Y}$ 44'44           |                  | 8251 Feb 28 11:03 | 0° $\mathbb{Y}$                 |            |
| minimum elong    | 8250 Mar 26 17:32 | 7° $\mathbb{Y}$ 51'45           | retrograde       | 8251 Mar 01 03:09 | 0° $\mathbb{Y}$ 02'09           |            |
| min. Earth dist. | 8250 Mar 27 03:17 | 7° $\mathbb{Y}$ 17'52           |                  | 8251 Mar 01 19:00 | 30° $\mathbb{R}$ $\mathfrak{H}$ |            |
| morning rise     | 8250 Mar 31 22:37 | 1° $\mathbb{Y}$ 30'45           | asc. node        | 8251 Mar 03 02:15 | 29° $\mathfrak{H}$ 42'42        |            |
|                  | 8250 Apr 03 01:57 | 30° $\mathbb{R}$ $\mathfrak{H}$ | evening set      | 8251 Mar 05 19:52 | 28° $\mathfrak{H}$ 06'35        |            |
| direct           | 8250 Apr 06 03:56 | 29° $\mathfrak{H}$ 13'12        | inferior conj    | 8251 Mar 11 04:11 | 21° $\mathfrak{H}$ 43'51        | 2°22'48    |
|                  | 8250 Apr 09 11:50 | 0° $\mathbb{Y}$                 | minimum elong    | 8251 Mar 11 01:55 | 21° $\mathfrak{H}$ 51'44        | 2°22'12    |
| morning max el   | 8250 Apr 16 14:13 | 5° $\mathbb{Y}$ 25'35           | min. Earth dist. | 8251 Mar 10 23:42 | 21° $\mathfrak{H}$ 59'28        | 0.68423 AU |
| desc. node       | 8250 Apr 19 23:12 | 9° $\mathbb{Y}$ 05'40           | morning rise     | 8251 Mar 16 07:50 | 15° $\mathfrak{H}$ 34'21        |            |
|                  | 8250 May 05 12:51 | 0° $\mathfrak{B}$               | direct           | 8251 Mar 20 23:11 | 13° $\mathfrak{H}$ 38'05        |            |
| morning set      | 8250 May 21 13:00 | 25° $\mathfrak{B}$ 13'42        | morning max el   | 8251 Mar 30 02:34 | 18° $\mathfrak{H}$ 58'33        | 21°53'22   |
|                  | 8250 May 24 08:18 | 0° $\mathbb{I}$                 | desc. node       | 8251 Apr 06 20:09 | 28° $\mathfrak{H}$ 04'33        |            |
| max. Earth dist. | 8250 May 25 14:59 | 2° $\mathbb{I}$ 12'47           |                  | 8251 Apr 08 07:06 | 0° $\mathbb{Y}$                 |            |
|                  |                   | 1.39281 AU                      |                  | 8251 Apr 28 16:40 | 0° $\mathfrak{B}$               |            |
| superior conj    | 8250 Jun 02 05:37 | 15° $\mathbb{I}$ 54'33          | morning set      | 8251 May 01 18:23 | 4° $\mathfrak{B}$ 52'40         |            |
| minimum elong    | 8250 Jun 02 10:53 | 16° $\mathbb{I}$ 19'01          | max. Earth dist. | 8251 May 07 13:58 | 14° $\mathfrak{B}$ 22'56        | 1.41493 AU |
|                  | 8250 Jun 09 15:22 | 0° $\mathfrak{G}$               |                  |                   |                                 |            |
| evening rise     | 8250 Jun 11 15:44 | 3° $\mathfrak{G}$ 53'46         | superior conj    | 8251 May 15 06:52 | 27° $\mathfrak{B}$ 34'17        | -1°53'13   |
| asc. node        | 8250 Jun 12 04:10 | 4° $\mathfrak{G}$ 53'47         | minimum elong    | 8251 May 15 12:35 | 27° $\mathfrak{B}$ 59'24        | 1°52'52    |
|                  | 8250 Jun 27 19:19 | 0° $\mathfrak{L}$               |                  | 8251 May 16 15:51 | 0° $\mathbb{I}$                 |            |
| evening max el   | 8250 Jun 27 19:34 | 0° $\mathfrak{L}$ 00'36         | evening rise     | 8251 May 25 23:37 | 16° $\mathbb{I}$ 58'49          |            |
| retrograde       | 8250 Jul 05 20:43 | 4° $\mathfrak{L}$ 00'17         | asc. node        | 8251 May 30 01:12 | 24° $\mathbb{I}$ 26'38          |            |
| evening set      | 8250 Jul 07 22:06 | 3° $\mathfrak{L}$ 45'33         |                  | 8251 Jun 02 04:29 | 0° $\mathfrak{G}$               |            |
|                  | 8250 Jul 14 22:45 | 30° $\mathbb{R}$ $\mathfrak{G}$ | evening max el   | 8251 Jun 11 04:03 | 12° $\mathfrak{G}$ 42'36        | 18°12'54   |
| inferior conj    | 8250 Jul 15 19:31 | 29° $\mathfrak{G}$ 21'20        | retrograde       | 8251 Jun 18 04:43 | 16° $\mathfrak{G}$ 15'01        |            |
| minimum elong    | 8250 Jul 15 20:17 | 29° $\mathfrak{G}$ 19'53        | evening set      | 8251 Jun 20 13:38 | 15° $\mathfrak{G}$ 51'31        |            |
| desc. node       | 8250 Jul 16 22:34 | 28° $\mathfrak{G}$ 30'12        | inferior conj    | 8251 Jun 27 15:53 | 11° $\mathfrak{G}$ 06'37        | 1°43'35    |
| min. Earth dist. | 8250 Jul 19 01:49 | 26° $\mathfrak{G}$ 55'10        | minimum elong    | 8251 Jun 27 18:46 | 11° $\mathfrak{G}$ 00'16        | 1°42'31    |
| morning rise     | 8250 Jul 23 14:57 | 24° $\mathfrak{G}$ 09'59        | min. Earth dist. | 8251 Jul 01 00:57 | 8° $\mathfrak{G}$ 09'56         | 0.59466 AU |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| desc. node       | 8251 Jul 03 19:37 | 6°♄04'02  |            | desc. node          | 8252 Jun 19 16:39 | 15°♂33'47 |            |
| morning rise     | 8251 Jul 04 20:51 | 5°♄24'39  |            | direct              | 8252 Jun 22 14:23 | 15°♂07'46 |            |
| direct           | 8251 Jul 11 05:49 | 3°♄31'53  |            | morning max el      | 8252 Jul 06 19:01 | 23°♂08'25 | 27°55'40   |
| morning max el   | 8251 Jul 25 14:29 | 11°♄22'52 | 27°34'14   |                     | 8252 Jul 12 21:24 | 0°♄       |            |
|                  | 8251 Aug 09 03:35 | 0°♂       |            |                     | 8252 Aug 01 09:29 | 0°♂       |            |
|                  | 8251 Aug 25 16:28 | 0°♎       |            | morning set         | 8252 Aug 09 06:23 | 15°♂14'14 |            |
| morning set      | 8251 Aug 26 04:12 | 1°♎01'14  |            | asc. node           | 8252 Aug 11 21:39 | 20°♂43'43 |            |
| asc. node        | 8251 Aug 26 00:39 | 0°♎42'38  |            | max. Earth dist.    | 8252 Aug 14 22:36 | 27°♂15'17 | 1.32001 AU |
| max. Earth dist. | 8251 Sep 01 14:39 | 14°♎57'34 | 1.31662 AU |                     | 8252 Aug 16 04:47 | 0°♎       |            |
| superior conj    | 8251 Sep 02 06:51 | 16°♎27'19 | 1°08'08    | superior conj       | 8252 Aug 16 16:55 | 1°♎06'27  | 0°47'17    |
| minimum elong    | 8251 Sep 02 04:36 | 16°♎14'52 | 1°07'43    | minimum elong       | 8252 Aug 16 15:00 | 0°♎55'55  | 0°46'49    |
|                  | 8251 Sep 08 10:43 | 0°♊       |            | evening rise        | 8252 Aug 23 12:04 | 15°♎58'31 |            |
| evening rise     | 8251 Sep 09 00:53 | 1°♊15'55  |            |                     | 8252 Aug 30 09:36 | 0°♊       |            |
|                  | 8251 Sep 24 11:40 | 0°♌       |            | desc. node          | 8252 Sep 15 15:35 | 24°♊33'12 |            |
| desc. node       | 8251 Sep 29 18:29 | 7°♌34'57  |            | evening max el      | 8252 Sep 18 00:33 | 26°♊59'28 | 24°37'17   |
| evening max el   | 8251 Oct 07 10:04 | 16°♌17'46 | 26°03'20   |                     | 8252 Sep 21 13:18 | 0°♌       |            |
| retrograde       | 8251 Oct 21 08:20 | 23°♌21'47 |            | retrograde          | 8252 Oct 01 19:50 | 3°♌55'53  |            |
| evening set      | 8251 Oct 27 17:56 | 21°♌44'07 |            | evening set         | 8252 Oct 07 02:53 | 2°♌53'27  |            |
| min. Earth dist. | 8251 Oct 31 22:59 | 19°♌09'13 | 0.58579 AU | min. Earth dist.    | 8252 Oct 12 11:34 | 0°♌06'04  | 0.56684 AU |
| inferior conj    | 8251 Nov 04 02:32 | 16°♌50'56 | -4°55'56   |                     | 8252 Oct 12 15:28 | 30°♋♊     |            |
| minimum elong    | 8251 Nov 04 09:17 | 16°♌38'31 | 4°54'29    | inferior conj       | 8252 Oct 15 03:06 | 28°♊24'46 | -5°31'34   |
| morning rise     | 8251 Nov 12 02:57 | 12°♌24'21 |            | minimum elong       | 8252 Oct 15 05:39 | 28°♊20'42 | 5°31'22    |
| direct           | 8251 Nov 14 09:51 | 12°♌07'03 |            | morning rise        | 8252 Oct 23 10:36 | 24°♊20'31 |            |
| asc. node        | 8251 Nov 22 00:14 | 15°♌31'21 |            | direct              | 8252 Oct 26 00:33 | 24°♊02'15 |            |
| morning max el   | 8251 Nov 22 15:29 | 16°♌06'50 | 18°33'39   | morning max el      | 8252 Nov 04 13:09 | 28°♊32'45 | 19°28'26   |
|                  | 8251 Dec 02 09:48 | 0°♌       |            |                     | 8252 Nov 05 23:26 | 0°♌       |            |
| morning set      | 8251 Dec 08 17:30 | 11°♌51'05 |            | asc. node           | 8252 Nov 07 21:15 | 2°♌14'29  |            |
|                  |                   |           |            | morning set         | 8252 Nov 21 19:43 | 26°♌19'35 |            |
| superior conj    | 8251 Dec 17 13:50 | 28°♌46'55 | 1°04'48    |                     | 8252 Nov 23 15:33 | 0°♌       |            |
| minimum elong    | 8251 Dec 17 17:15 | 29°♌02'51 | 1°04'31    | superior conj       | 8252 Nov 29 19:48 | 12°♌19'54 | 1°25'01    |
|                  | 8251 Dec 18 05:34 | 0°♍       |            | minimum elong       | 8252 Nov 29 22:33 | 12°♌33'26 | 1°24'55    |
| max. Earth dist. | 8251 Dec 24 22:47 | 12°♍04'09 | 1.40104 AU | max. Earth dist.    | 8252 Dec 06 04:44 | 24°♌26'27 | 1.37937 AU |
| desc. node       | 8251 Dec 26 17:28 | 15°♍08'08 |            |                     | 8252 Dec 09 06:38 | 0°♍       |            |
| evening rise     | 8251 Dec 29 03:28 | 19°♍13'09 |            | evening rise        | 8252 Dec 09 22:08 | 1°♍08'32  |            |
|                  | 8252 Jan 04 19:11 | 0°♎       |            | desc. node          | 8252 Dec 12 14:30 | 5°♍47'42  |            |
|                  | 8252 Jan 25 21:29 | 0°♋       |            |                     | 8252 Dec 28 00:44 | 0°♎       |            |
| evening max el   | 8252 Feb 01 22:12 | 7°♋57'26  | 23°50'46   | evening max el      | 8253 Jan 14 11:25 | 21°♎44'29 | 25°07'41   |
| retrograde       | 8252 Feb 12 20:39 | 14°♋23'41 |            | retrograde          | 8253 Jan 26 10:01 | 28°♎39'34 |            |
| asc. node        | 8252 Feb 17 23:21 | 12°♋18'16 |            | evening set         | 8253 Feb 01 03:39 | 26°♎16'45 |            |
| evening set      | 8252 Feb 18 01:31 | 12°♋13'41 |            | asc. node           | 8253 Feb 03 20:26 | 23°♎30'44 |            |
| min. Earth dist. | 8252 Feb 22 20:17 | 6°♋41'01  | 0.68244 AU | min. Earth dist.    | 8253 Feb 05 14:48 | 21°♎18'43 | 0.67672 AU |
| inferior conj    | 8252 Feb 23 12:25 | 5°♋46'07  | 1°44'00    | inferior conj       | 8253 Feb 06 18:24 | 19°♎48'40 | 0°57'00    |
| minimum elong    | 8252 Feb 23 10:22 | 5°♋53'05  | 1°43'22    | minimum elong       | 8253 Feb 06 17:04 | 19°♎53'01 | 0°56'35    |
|                  | 8252 Feb 28 10:32 | 30°♋♎     |            | morning rise        | 8253 Feb 12 06:47 | 13°♎52'44 |            |
| morning rise     | 8252 Feb 28 19:12 | 29°♎42'34 |            | direct              | 8253 Feb 15 20:03 | 12°♎40'10 |            |
| direct           | 8252 Mar 03 21:00 | 28°♎08'46 |            | morning max el      | 8253 Feb 23 00:16 | 16°♎39'04 | 19°28'46   |
|                  | 8252 Mar 08 17:43 | 0°♋       |            |                     | 8253 Mar 05 10:41 | 0°♋       |            |
| morning max el   | 8252 Mar 11 21:23 | 2°♋42'42  | 20°34'23   | greatest brilliancy | 8253 Mar 07 19:40 | 3°♋28'53  | -0.7m      |
| desc. node       | 8252 Mar 23 17:06 | 17°♋38'05 |            | desc. node          | 8253 Mar 10 14:03 | 7°♋36'58  |            |
|                  | 8252 Apr 01 03:48 | 0°♎       |            | morning set         | 8253 Mar 19 21:25 | 21°♋49'48 |            |
| morning set      | 8252 Apr 09 23:22 | 13°♎26'56 |            |                     | 8253 Mar 25 04:03 | 0°♎       |            |
| max. Earth dist. | 8252 Apr 18 20:28 | 27°♎29'28 | 1.43396 AU | max. Earth dist.    | 8253 Apr 01 09:55 | 11°♎21'06 | 1.44762 AU |
|                  | 8252 Apr 20 09:39 | 0°♏       |            | superior conj       | 8253 Apr 05 10:27 | 17°♎44'53 | -2°09'30   |
| superior conj    | 8252 Apr 25 09:01 | 8°♏11'31  | -2°09'28   | minimum elong       | 8253 Apr 05 06:57 | 17°♎30'53 | 2°09'26    |
| minimum elong    | 8252 Apr 25 11:59 | 8°♏23'56  | 2°09'28    |                     | 8253 Apr 12 23:52 | 0°♏       |            |
| evening rise     | 8252 May 07 15:35 | 29°♏18'32 |            | evening rise        | 8253 Apr 19 10:59 | 10°♏43'23 |            |
|                  | 8252 May 08 01:00 | 0°♐       |            |                     | 8253 May 01 05:00 | 0°♐       |            |
| asc. node        | 8252 May 15 22:17 | 13°♐38'52 |            | asc. node           | 8253 May 02 19:21 | 2°♐23'10  |            |
| evening max el   | 8252 May 24 16:36 | 25°♐49'37 | 18°05'27   | evening max el      | 8253 May 08 05:53 | 9°♐12'44  | 18°16'48   |
| retrograde       | 8252 May 31 04:28 | 29°♐10'51 |            | retrograde          | 8253 May 14 15:15 | 12°♐37'17 |            |
| evening set      | 8252 Jun 02 20:50 | 28°♐35'57 |            | evening set         | 8253 May 17 14:46 | 11°♐49'23 |            |
| inferior conj    | 8252 Jun 09 07:13 | 23°♐31'03 | 2°39'01    | inferior conj       | 8253 May 23 13:23 | 6°♐26'14  | 3°10'29    |
| minimum elong    | 8252 Jun 09 10:03 | 23°♐23'52 | 2°38'13    | minimum elong       | 8253 May 23 15:08 | 6°♐21'18  | 3°10'06    |
| min. Earth dist. | 8252 Jun 12 08:13 | 20°♐27'51 | 0.61714 AU | min. Earth dist.    | 8253 May 26 00:52 | 3°♐38'17  | 0.63812 AU |
| morning rise     | 8252 Jun 15 21:13 | 17°♐28'42 |            |                     |                   |           |            |

|                     |                   |                                 |            |                     |                   |                         |            |
|---------------------|-------------------|---------------------------------|------------|---------------------|-------------------|-------------------------|------------|
| morning rise        | 8253 May 29 14:17 | 0° $\Pi$ 12'48                  |            | retrograde          | 8254 Apr 28 08:56 | 26° $\mathcal{B}$ 25'59 |            |
|                     | 8253 May 29 20:51 | 30° $\mathcal{R}$ $\mathcal{B}$ |            | evening set         | 8254 May 01 15:47 | 25° $\mathcal{B}$ 24'05 |            |
| direct              | 8253 Jun 05 08:02 | 27° $\mathcal{B}$ 32'54         |            | inferior conj       | 8254 May 07 06:25 | 19° $\mathcal{B}$ 44'25 | 3°22'56    |
| desc. node          | 8253 Jun 06 13:40 | 27° $\mathcal{B}$ 37'48         |            | minimum elong       | 8254 May 07 06:48 | 19° $\mathcal{B}$ 43'14 | 3°22'48    |
|                     | 8253 Jun 12 11:50 | 0° $\Pi$                        |            | min. Earth dist.    | 8254 May 09 02:40 | 17° $\mathcal{B}$ 27'35 | 0.65588 AU |
| morning max el      | 8253 Jun 19 04:00 | 5° $\Pi$ 34'24                  | 27°39'30   | morning rise        | 8254 May 12 21:11 | 13° $\mathcal{B}$ 26'41 |            |
|                     | 8253 Jul 07 16:38 | 0° $\mathcal{E}$                |            | direct              | 8254 May 19 09:21 | 10° $\mathcal{B}$ 39'42 |            |
| morning set         | 8253 Jul 24 01:07 | 29° $\mathcal{E}$ 02'45         |            | desc. node          | 8254 May 24 10:39 | 12° $\mathcal{B}$ 02'31 |            |
|                     | 8253 Jul 24 12:37 | 0° $\mathcal{Q}$                |            | morning max el      | 8254 Jun 01 14:31 | 18° $\mathcal{B}$ 29'30 | 26°51'04   |
| max. Earth dist.    | 8253 Jul 29 00:11 | 9° $\mathcal{Q}$ 11'51          | 1.32816 AU |                     | 8254 Jun 11 07:16 | 0° $\Pi$                |            |
| asc. node           | 8253 Jul 29 18:38 | 10° $\mathcal{Q}$ 49'04         |            |                     | 8254 Jun 30 16:09 | 0° $\mathcal{E}$        |            |
|                     |                   |                                 |            | morning set         | 8254 Jul 07 09:26 | 12° $\mathcal{E}$ 18'46 |            |
| superior conj       | 8253 Jul 31 23:23 | 15° $\mathcal{Q}$ 30'35         | 0°22'11    | max. Earth dist.    | 8254 Jul 11 15:55 | 20° $\mathcal{E}$ 40'26 | 1.34116 AU |
| minimum elong       | 8253 Jul 31 22:20 | 15° $\mathcal{Q}$ 24'55         | 0°21'50    |                     |                   |                         |            |
| evening rise        | 8253 Aug 07 23:40 | 0° $\mathcal{P}$ 38'35          |            | superior conj       | 8254 Jul 16 00:07 | 29° $\mathcal{E}$ 33'58 | -0°06'32   |
|                     | 8253 Aug 07 16:26 | 0° $\mathcal{P}$                |            | minimum elong       | 8254 Jul 16 00:29 | 29° $\mathcal{E}$ 35'51 | 0°06'35    |
|                     | 8253 Aug 24 07:51 | 0° $\mathcal{A}$                |            | behind sun begin    | 8254 Jul 15 19:13 | 29° $\mathcal{E}$ 08'29 |            |
| evening max el      | 8253 Aug 30 11:48 | 7° $\mathcal{A}$ 12'49          | 22°58'24   | behind sun end      | 8254 Jul 16 05:44 | 0° $\mathcal{Q}$ 03'16  |            |
| desc. node          | 8253 Sep 02 12:41 | 9° $\mathcal{A}$ 51'36          |            |                     | 8254 Jul 16 05:06 | 0° $\mathcal{Q}$        |            |
| retrograde          | 8253 Sep 12 19:10 | 13° $\mathcal{A}$ 51'47         |            | asc. node           | 8254 Jul 16 15:37 | 0° $\mathcal{Q}$ 54'59  |            |
| evening set         | 8253 Sep 16 14:01 | 13° $\mathcal{A}$ 20'24         |            | evening rise        | 8254 Jul 23 09:48 | 15° $\mathcal{Q}$ 10'47 |            |
| min. Earth dist.    | 8253 Sep 23 20:20 | 10° $\mathcal{A}$ 02'41         | 0.55287 AU |                     | 8254 Jul 30 21:12 | 0° $\mathcal{P}$        |            |
| inferior conj       | 8253 Sep 25 08:18 | 9° $\mathcal{A}$ 10'50          | -5°24'08   | evening max el      | 8254 Aug 12 04:59 | 17° $\mathcal{P}$ 34'57 | 21°23'25   |
| minimum elong       | 8253 Sep 25 03:24 | 9° $\mathcal{A}$ 17'55          | 5°23'36    | desc. node          | 8254 Aug 20 09:45 | 22° $\mathcal{P}$ 58'32 |            |
| morning rise        | 8253 Oct 03 18:53 | 5° $\mathcal{A}$ 21'24          |            | retrograde          | 8254 Aug 24 08:48 | 23° $\mathcal{P}$ 36'35 |            |
| direct              | 8253 Oct 06 20:06 | 4° $\mathcal{A}$ 59'36          |            | evening set         | 8254 Aug 26 20:16 | 23° $\mathcal{P}$ 22'29 |            |
| morning max el      | 8253 Oct 17 22:08 | 10° $\mathcal{A}$ 10'48         | 20°45'36   | inferior conj       | 8254 Sep 05 01:46 | 19° $\mathcal{P}$ 24'46 | -4°21'32   |
| asc. node           | 8253 Oct 25 18:15 | 19° $\mathcal{A}$ 56'14         |            | minimum elong       | 8254 Sep 04 16:17 | 19° $\mathcal{P}$ 38'04 | 4°19'06    |
|                     | 8253 Oct 31 14:20 | 0° $\mathcal{M}$                |            | min. Earth dist.    | 8254 Sep 05 05:08 | 19° $\mathcal{P}$ 20'02 | 0.54691 AU |
| morning set         | 8253 Nov 06 03:09 | 11° $\mathcal{M}$ 00'55         |            | morning rise        | 8254 Sep 13 13:06 | 15° $\mathcal{P}$ 32'52 |            |
|                     |                   |                                 |            | direct              | 8254 Sep 17 04:55 | 15° $\mathcal{P}$ 03'54 |            |
| superior conj       | 8253 Nov 13 13:35 | 26° $\mathcal{M}$ 26'03         | 1°36'53    | morning max el      | 8254 Sep 29 18:52 | 21° $\mathcal{P}$ 01'58 | 22°21'49   |
| minimum elong       | 8253 Nov 13 15:07 | 26° $\mathcal{M}$ 33'52         | 1°36'57    |                     | 8254 Oct 07 08:33 | 0° $\mathcal{A}$        |            |
|                     | 8253 Nov 15 07:42 | 0° $\mathcal{X}$                |            | asc. node           | 8254 Oct 12 15:13 | 8° $\mathcal{A}$ 23'19  |            |
| max. Earth dist.    | 8253 Nov 18 12:52 | 6° $\mathcal{X}$ 22'29          | 1.35902 AU | morning set         | 8254 Oct 21 13:38 | 25° $\mathcal{A}$ 48'57 |            |
| evening rise        | 8253 Nov 22 11:52 | 13° $\mathcal{X}$ 54'11         |            |                     | 8254 Oct 23 12:59 | 0° $\mathcal{M}$        |            |
| desc. node          | 8253 Nov 29 11:34 | 26° $\mathcal{X}$ 18'00         |            |                     |                   |                         |            |
|                     | 8253 Dec 01 16:44 | 0° $\mathcal{Z}$                |            | superior conj       | 8254 Oct 28 15:36 | 10° $\mathcal{M}$ 54'47 | 1°41'20    |
|                     | 8253 Dec 22 20:56 | 0° $\approx$                    |            | minimum elong       | 8254 Oct 28 15:48 | 10° $\mathcal{M}$ 55'51 | 1°41'26    |
| evening max el      | 8253 Dec 28 00:26 | 5° $\approx$ 30'15              | 26°14'23   | max. Earth dist.    | 8254 Nov 01 03:55 | 18° $\mathcal{M}$ 15'30 | 1.34192 AU |
| retrograde          | 8254 Jan 09 18:30 | 12° $\approx$ 43'37             |            | evening rise        | 8254 Nov 05 16:49 | 27° $\mathcal{M}$ 20'31 |            |
| evening set         | 8254 Jan 16 00:32 | 10° $\approx$ 11'22             |            |                     | 8254 Nov 07 01:56 | 0° $\mathcal{X}$        |            |
| min. Earth dist.    | 8254 Jan 20 05:05 | 5° $\approx$ 47'57              | 0.66717 AU | desc. node          | 8254 Nov 16 08:37 | 16° $\mathcal{X}$ 33'49 |            |
| inferior conj       | 8254 Jan 21 20:12 | 3° $\approx$ 47'56              | 0°02'15    |                     | 8254 Nov 24 23:41 | 0° $\mathcal{Z}$        |            |
| minimum elong       | 8254 Jan 21 20:08 | 3° $\approx$ 48'08              | 0°02'21    | evening max el      | 8254 Dec 10 13:35 | 19° $\mathcal{Z}$ 07'33 | 27°03'28   |
| transit middle      | 8254 Jan 21 20:08 | 3° $\approx$ 48'08              | 0°02'21    | retrograde          | 8254 Dec 23 21:17 | 26° $\mathcal{Z}$ 27'55 |            |
| transit begin       | 8254 Jan 21 17:17 | 3° $\approx$ 56'52              |            | evening set         | 8254 Dec 30 14:06 | 23° $\mathcal{Z}$ 51'42 |            |
| transit end         | 8254 Jan 21 22:58 | 3° $\approx$ 39'24              |            | min. Earth dist.    | 8255 Jan 03 12:53 | 20° $\mathcal{Z}$ 02'22 | 0.65403 AU |
| asc. node           | 8254 Jan 21 17:31 | 3° $\approx$ 56'12              |            | inferior conj       | 8255 Jan 05 15:36 | 17° $\mathcal{Z}$ 38'50 | -0°59'36   |
|                     | 8254 Jan 25 04:28 | 30° $\mathcal{R}$ $\mathcal{Z}$ |            | minimum elong       | 8255 Jan 05 17:21 | 17° $\mathcal{Z}$ 33'53 | 0°58'42    |
| morning rise        | 8254 Jan 27 16:28 | 28° $\mathcal{Z}$ 01'32         |            | asc. node           | 8255 Jan 08 14:34 | 14° $\mathcal{Z}$ 29'55 |            |
| direct              | 8254 Jan 30 18:42 | 27° $\mathcal{Z}$ 07'19         |            | morning rise        | 8255 Jan 11 21:52 | 12° $\mathcal{Z}$ 04'22 |            |
|                     | 8254 Feb 05 15:53 | 0° $\approx$                    |            | direct              | 8255 Jan 14 14:57 | 11° $\mathcal{Z}$ 24'44 |            |
| morning max el      | 8254 Feb 06 10:22 | 0° $\approx$ 43'43              | 18°38'49   | morning max el      | 8255 Jan 21 01:28 | 14° $\mathcal{Z}$ 49'47 | 18°05'29   |
| desc. node          | 8254 Feb 25 11:00 | 27° $\approx$ 54'27             |            |                     | 8255 Feb 01 00:34 | 0° $\approx$            |            |
|                     | 8254 Feb 26 18:55 | 0° $\mathcal{X}$                |            | morning set         | 8255 Feb 08 08:55 | 11° $\approx$ 57'22     |            |
| morning set         | 8254 Feb 27 12:36 | 1° $\mathcal{X}$ 09'35          |            | desc. node          | 8255 Feb 12 07:57 | 18° $\approx$ 24'52     |            |
| max. Earth dist.    | 8254 Mar 15 03:35 | 25° $\mathcal{X}$ 39'45         | 1.45449 AU |                     | 8255 Feb 19 12:48 | 0° $\mathcal{X}$        |            |
|                     |                   |                                 |            |                     |                   |                         |            |
| superior conj       | 8254 Mar 15 18:09 | 26° $\mathcal{X}$ 36'50         | -1°49'23   | superior conj       | 8255 Feb 23 01:08 | 5° $\mathcal{X}$ 34'16  | -1°12'14   |
| minimum elong       | 8254 Mar 15 09:01 | 26° $\mathcal{X}$ 01'04         | 1°48'38    | minimum elong       | 8255 Feb 22 16:55 | 5° $\mathcal{X}$ 01'50  | 1°11'09    |
|                     | 8254 Mar 17 22:00 | 0° $\mathcal{Y}$                |            | max. Earth dist.    | 8255 Feb 25 23:01 | 10° $\mathcal{X}$ 09'10 | 1.45399 AU |
| evening rise        | 8254 Mar 31 06:52 | 21° $\mathcal{Y}$ 09'50         |            |                     | 8255 Mar 10 17:04 | 0° $\mathcal{Y}$        |            |
|                     | 8254 Apr 05 19:29 | 0° $\mathcal{B}$                |            | evening rise        | 8255 Mar 11 05:26 | 0° $\mathcal{Y}$ 47'52  |            |
| greatest brilliancy | 8254 Apr 08 05:49 | 3° $\mathcal{B}$ 52'01          | -0.9m      | greatest brilliancy | 8255 Mar 24 05:16 | 20° $\mathcal{Y}$ 42'31 | -0.7m      |
| asc. node           | 8254 Apr 19 16:25 | 20° $\mathcal{B}$ 30'39         |            |                     | 8255 Mar 30 16:59 | 0° $\mathcal{B}$        |            |
| evening max el      | 8254 Apr 21 17:10 | 22° $\mathcal{B}$ 45'18         | 18°46'13   | evening max el      | 8255 Apr 05 00:22 | 6° $\mathcal{B}$ 22'16  | 19°32'25   |

|                  |                   |                      |                  |                   |           |            |
|------------------|-------------------|----------------------|------------------|-------------------|-----------|------------|
| asc. node        | 8255 Apr 06 13:30 | 7°♄49'38             | evening rise     | 8256 Feb 18 17:03 | 10°♄07'17 |            |
| retrograde       | 8255 Apr 12 06:12 | 10°♄30'11            |                  | 8256 Mar 02 22:06 | 0°♄       |            |
| evening set      | 8255 Apr 15 21:08 | 9°♄13'31             | evening max el   | 8256 Mar 18 02:19 | 20°♄01'20 | 20°33'17   |
| inferior conj    | 8255 Apr 21 06:57 | 3°♄18'58 3°20'28     | asc. node        | 8256 Mar 23 10:33 | 24°♄06'37 |            |
| minimum elong    | 8255 Apr 21 06:08 | 3°♄21'40 3°20'20     | retrograde       | 8256 Mar 26 04:41 | 24°♄45'17 |            |
| min. Earth dist. | 8255 Apr 22 12:12 | 1°♄42'34 0.66954 AU  | evening set      | 8256 Mar 30 04:45 | 23°♄13'24 |            |
|                  | 8255 Apr 23 20:26 | 30°♄                 | inferior conj    | 8256 Apr 04 12:21 | 17°♄05'46 | 3°05'58    |
| morning rise     | 8255 Apr 26 14:48 | 27°♄01'06            | minimum elong    | 8256 Apr 04 10:40 | 17°♄11'34 | 3°05'39    |
| direct           | 8255 May 02 16:56 | 24°♄18'47            | min. Earth dist. | 8256 Apr 05 03:34 | 16°♄13'35 | 0.67875 AU |
| desc. node       | 8255 May 11 07:38 | 28°♄16'39            | morning rise     | 8256 Apr 09 16:21 | 10°♄50'07 |            |
|                  | 8255 May 13 06:49 | 0°♄                  | direct           | 8256 Apr 15 05:44 | 8°♄21'44  |            |
| morning max el   | 8255 May 15 00:19 | 1°♄41'01 25°38'52    | morning max el   | 8256 Apr 26 09:19 | 15°♄01'48 | 24°12'54   |
|                  | 8255 Jun 05 08:59 | 0°♄                  | desc. node       | 8256 Apr 27 04:38 | 15°♄51'33 |            |
| morning set      | 8255 Jun 20 03:18 | 24°♄50'49            |                  | 8256 May 08 15:16 | 0°♄       |            |
|                  | 8255 Jun 22 22:06 | 0°♄                  |                  | 8256 May 28 07:04 | 0°♄       |            |
| max. Earth dist. | 8255 Jun 23 20:36 | 1°♄46'12 1.35878 AU  | morning set      | 8256 Jun 01 01:39 | 6°♄25'24  |            |
|                  |                   |                      | max. Earth dist. | 8256 Jun 04 17:56 | 12°♄54'35 | 1.37997 AU |
| superior conj    | 8255 Jun 29 16:25 | 13°♄09'13 -0°37'40   | superior conj    | 8256 Jun 11 20:56 | 26°♄07'42 | -1°09'27   |
| minimum elong    | 8255 Jun 29 18:40 | 13°♄20'28 0°37'23    | minimum elong    | 8256 Jun 12 01:13 | 26°♄28'13 | 1°08'56    |
| asc. node        | 8255 Jul 03 12:37 | 20°♄57'15            |                  | 8256 Jun 13 21:07 | 0°♄       |            |
| evening rise     | 8255 Jul 07 16:18 | 29°♄28'40            |                  | 8256 Jun 19 09:37 | 10°♄51'47 |            |
|                  | 8255 Jul 07 22:27 | 0°♄                  | asc. node        | 8256 Jun 20 16:40 | 13°♄25'21 |            |
| evening max el   | 8255 Jul 25 10:33 | 28°♄33'58 20°03'54   | evening rise     | 8256 Jun 29 14:08 | 0°♄       |            |
|                  | 8255 Jul 27 00:06 | 0°♄                  | evening max el   | 8256 Jul 07 04:59 | 10°♄17'27 | 19°04'29   |
| retrograde       | 8255 Aug 04 22:26 | 3°♄44'39             | retrograde       | 8256 Jul 16 01:05 | 14°♄39'42 |            |
| evening set      | 8255 Aug 06 20:06 | 3°♄35'12             | evening set      | 8256 Jul 17 23:13 | 14°♄28'08 |            |
| desc. node       | 8255 Aug 07 06:48 | 3°♄30'21             | desc. node       | 8256 Jul 24 03:52 | 11°♄41'29 |            |
|                  | 8255 Aug 15 05:18 | 30°♄                 | inferior conj    | 8256 Jul 26 08:00 | 10°♄14'35 | -0°39'47   |
| inferior conj    | 8255 Aug 15 21:17 | 29°♄36'09 -2°35'54   | minimum elong    | 8256 Jul 26 06:18 | 10°♄17'31 | 0°39'15    |
| minimum elong    | 8255 Aug 15 14:11 | 29°♄46'46 2°33'26    | min. Earth dist. | 8256 Jul 29 05:46 | 8°♄15'32  | 0.56303 AU |
| min. Earth dist. | 8255 Aug 17 15:49 | 28°♄32'34 0.55050 AU | morning rise     | 8256 Aug 03 10:17 | 5°♄24'50  |            |
| morning rise     | 8255 Aug 24 06:49 | 25°♄21'53            | direct           | 8256 Aug 08 16:15 | 4°♄20'32  |            |
| direct           | 8255 Aug 28 16:41 | 24°♄39'33            | morning max el   | 8256 Aug 22 21:10 | 11°♄36'59 | 25°47'29   |
|                  | 8255 Sep 09 19:46 | 0°♄                  |                  | 8256 Sep 06 01:19 | 0°♄       |            |
| morning max el   | 8255 Sep 11 08:07 | 1°♄21'27 24°07'34    | asc. node        | 8256 Sep 15 09:10 | 16°♄51'32 |            |
| asc. node        | 8255 Sep 29 12:12 | 27°♄24'56            | morning set      | 8256 Sep 19 12:35 | 25°♄25'10 |            |
|                  | 8255 Sep 30 20:28 | 0°♄                  |                  | 8256 Sep 21 15:36 | 0°♄       |            |
| morning set      | 8255 Oct 06 01:20 | 10°♄38'55            |                  |                   |           |            |
| superior conj    | 8255 Oct 12 23:02 | 25°♄37'54 1°39'14    | superior conj    | 8256 Sep 26 09:36 | 10°♄27'31 | 1°31'18    |
| minimum elong    | 8255 Oct 12 22:05 | 25°♄32'44 1°39'16    | minimum elong    | 8256 Sep 26 07:49 | 10°♄17'41 | 1°31'09    |
|                  | 8255 Oct 14 23:31 | 0°♄                  | max. Earth dist. | 8256 Sep 27 10:04 | 12°♄42'23 | 1.32063 AU |
| max. Earth dist. | 8255 Oct 15 03:37 | 0°♄22'00 1.32902 AU  | evening rise     | 8256 Oct 03 10:05 | 25°♄37'07 |            |
| evening rise     | 8255 Oct 20 09:18 | 11°♄18'06            |                  | 8256 Oct 05 13:21 | 0°♄       |            |
|                  | 8255 Oct 30 08:34 | 0°♄                  | desc. node       | 8256 Oct 20 02:42 | 25°♄53'10 |            |
| desc. node       | 8255 Nov 03 05:39 | 6°♄28'42             |                  | 8256 Oct 22 21:04 | 0°♄       |            |
|                  | 8255 Nov 20 15:39 | 0°♄                  | evening max el   | 8256 Nov 04 10:26 | 15°♄09'38 | 27°21'20   |
| evening max el   | 8255 Nov 23 01:45 | 2°♄25'37 27°27'46    | retrograde       | 8256 Nov 18 06:15 | 22°♄23'00 |            |
| retrograde       | 8255 Dec 06 17:30 | 9°♄44'23             | evening set      | 8256 Nov 25 08:31 | 20°♄03'08 |            |
| evening set      | 8255 Dec 13 17:52 | 7°♄11'40             | min. Earth dist. | 8256 Nov 29 00:48 | 17°♄12'11 | 0.61850 AU |
| min. Earth dist. | 8255 Dec 17 12:05 | 3°♄54'17 0.63763 AU  | inferior conj    | 8256 Dec 02 00:34 | 14°♄29'20 | -3°17'00   |
| inferior conj    | 8255 Dec 20 02:06 | 1°♄15'36 -2°07'01    | minimum elong    | 8256 Dec 02 06:44 | 14°♄15'16 | 3°14'41    |
| minimum elong    | 8255 Dec 20 06:04 | 1°♄05'24 2°05'15     | morning rise     | 8256 Dec 09 07:08 | 9°♄28'19  |            |
|                  | 8255 Dec 21 08:01 | 30°♄                 | direct           | 8256 Dec 11 13:08 | 9°♄06'25  |            |
| asc. node        | 8255 Dec 26 11:36 | 26°♄04'57            | asc. node        | 8256 Dec 12 08:39 | 9°♄09'22  |            |
| morning rise     | 8255 Dec 26 20:03 | 25°♄56'05            | morning max el   | 8256 Dec 18 11:03 | 12°♄36'34 | 17°51'11   |
| direct           | 8255 Dec 29 06:14 | 25°♄27'07            |                  | 8256 Dec 30 04:37 | 0°♄       |            |
| morning max el   | 8256 Jan 04 18:45 | 28°♄50'21 17°49'21   | morning set      | 8257 Jan 03 05:21 | 7°♄13'00  |            |
|                  | 8256 Jan 05 21:13 | 0°♄                  |                  |                   |           |            |
| morning set      | 8256 Jan 21 08:41 | 24°♄05'41            | superior conj    | 8257 Jan 14 02:52 | 26°♄28'02 | 0°14'26    |
|                  | 8256 Jan 24 19:35 | 0°♄                  | minimum elong    | 8257 Jan 14 04:10 | 26°♄33'39 | 0°14'23    |
| desc. node       | 8256 Jan 30 04:56 | 9°♄04'12             | behind sun begin | 8257 Jan 14 00:21 | 26°♄17'17 |            |
|                  |                   |                      | behind sun end   | 8257 Jan 14 08:00 | 26°♄50'00 |            |
| superior conj    | 8256 Feb 03 01:21 | 15°♄24'41 -0°27'45   | desc. node       | 8257 Jan 16 01:54 | 29°♄48'00 |            |
| minimum elong    | 8256 Feb 02 22:18 | 15°♄12'12 0°27'11    |                  | 8257 Jan 16 04:45 | 0°♄       |            |
| max. Earth dist. | 8256 Feb 08 17:53 | 24°♄34'13 1.44626 AU | max. Earth dist. | 8257 Jan 21 09:25 | 8°♄36'48  | 1.43208 AU |
|                  | 8256 Feb 12 04:26 | 0°♄                  | evening rise     | 8257 Jan 28 08:45 | 19°♄44'11 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8257 Feb 04 01:11 | 0°♄       |            | evening rise     | 8258 Jan 08 17:06 | 0°♄07'53  |            |
|                  | 8257 Feb 25 14:25 | 0°♄       |            |                  | 8258 Jan 08 15:09 | 0°♄       |            |
| evening max el   | 8257 Feb 28 22:46 | 3°♄41'18  | 21°45'35   |                  | 8258 Jan 28 13:15 | 0°♄       |            |
| retrograde       | 8257 Mar 10 02:29 | 9°♄06'37  |            | evening max el   | 8258 Feb 11 14:50 | 17°♄23'12 | 23°04'37   |
| asc. node        | 8257 Mar 10 07:38 | 9°♄06'23  |            | retrograde       | 8258 Feb 21 22:04 | 23°♄29'27 |            |
| evening set      | 8257 Mar 14 12:51 | 7°♄19'24  |            | asc. node        | 8258 Feb 25 04:45 | 22°♄35'59 |            |
| inferior conj    | 8257 Mar 19 20:23 | 1°♄01'11  | 2°41'15    | evening set      | 8258 Feb 26 19:52 | 21°♄27'25 |            |
| minimum elong    | 8257 Mar 19 18:12 | 1°♄08'46  | 2°40'44    | inferior conj    | 8258 Mar 04 05:04 | 15°♄01'53 | 2°07'24    |
| min. Earth dist. | 8257 Mar 19 22:44 | 0°♄52'58  | 0.68344 AU | minimum elong    | 8258 Mar 04 02:50 | 15°♄09'35 | 2°06'45    |
|                  | 8257 Mar 20 14:00 | 30°♄      |            | min. Earth dist. | 8258 Mar 03 19:29 | 15°♄34'59 | 0.68390 AU |
| morning rise     | 8257 Mar 24 23:24 | 24°♄49'11 |            | morning rise     | 8258 Mar 09 09:44 | 8°♄54'48  |            |
| direct           | 8257 Mar 29 22:45 | 22°♄40'34 |            | direct           | 8258 Mar 13 19:07 | 7°♄08'21  |            |
| morning max el   | 8257 Apr 08 19:38 | 28°♄30'17 | 22°43'16   | morning max el   | 8258 Mar 22 10:33 | 12°♄08'16 | 21°18'25   |
|                  | 8257 Apr 10 06:02 | 0°♄       |            | desc. node       | 8258 Mar 31 22:34 | 23°♄39'46 |            |
| desc. node       | 8257 Apr 14 01:36 | 4°♄24'45  |            |                  | 8258 Apr 05 11:35 | 0°♄       |            |
|                  | 8257 May 02 08:02 | 0°♄       |            | morning set      | 8258 Apr 22 17:05 | 25°♄58'03 |            |
| morning set      | 8257 May 12 23:06 | 16°♄49'31 |            |                  | 8258 Apr 25 06:02 | 0°♄       |            |
| max. Earth dist. | 8257 May 17 14:59 | 24°♄38'15 | 1.40245 AU | max. Earth dist. | 8258 Apr 29 16:56 | 7°♄12'48  | 1.42348 AU |
|                  | 8257 May 20 17:26 | 0°♄       |            |                  |                   |           |            |
| superior conj    | 8257 May 25 09:32 | 8°♄19'42  | -1°38'56   | superior conj    | 8258 May 07 01:25 | 19°♄33'44 | -2°01'42   |
| minimum elong    | 8257 May 25 15:15 | 8°♄45'42  | 1°38'25    | minimum elong    | 8258 May 07 06:28 | 19°♄55'26 | 2°01'30    |
| evening rise     | 8257 Jun 04 07:45 | 26°♄52'54 |            |                  | 8258 May 13 00:29 | 0°♄       |            |
|                  | 8257 Jun 05 23:19 | 0°♄       |            | evening rise     | 8258 May 18 09:30 | 9°♄40'30  |            |
| asc. node        | 8257 Jun 06 06:38 | 0°♄34'30  |            | asc. node        | 8258 May 24 03:41 | 19°♄59'43 |            |
| evening max el   | 8257 Jun 20 09:26 | 22°♄41'05 | 18°25'54   |                  | 8258 May 30 07:22 | 0°♄       |            |
| retrograde       | 8257 Jun 27 22:49 | 26°♄27'36 |            | evening max el   | 8258 Jun 03 20:04 | 5°♄35'03  | 18°07'21   |
| evening set      | 8257 Jun 30 03:15 | 26°♄09'33 |            | retrograde       | 8258 Jun 10 14:09 | 9°♄01'08  |            |
| inferior conj    | 8257 Jul 07 16:12 | 21°♄36'14 | 0°59'04    | evening set      | 8258 Jun 13 02:08 | 8°♄33'13  |            |
| minimum elong    | 8257 Jul 07 18:11 | 21°♄32'13 | 0°58'13    | inferior conj    | 8258 Jun 19 21:10 | 3°♄39'47  | 2°10'19    |
| min. Earth dist. | 8257 Jul 11 01:10 | 18°♄54'29 | 0.58203 AU | minimum elong    | 8258 Jun 20 00:13 | 3°♄32'36  | 2°09'17    |
| desc. node       | 8257 Jul 11 00:57 | 18°♄54'54 |            | min. Earth dist. | 8258 Jun 23 03:50 | 0°♄37'07  | 0.60422 AU |
| morning rise     | 8257 Jul 15 05:44 | 16°♄10'34 |            |                  | 8258 Jun 23 20:55 | 30°♄      |            |
| direct           | 8257 Jul 21 06:07 | 14°♄36'26 |            | morning rise     | 8258 Jun 26 19:37 | 27°♄47'30 |            |
| morning max el   | 8257 Aug 04 15:35 | 22°♄17'53 | 27°04'51   | desc. node       | 8258 Jun 27 22:01 | 27°♄08'58 |            |
|                  | 8257 Aug 11 11:01 | 0°♄       |            | direct           | 8258 Jul 03 08:55 | 25°♄41'48 |            |
|                  | 8257 Aug 29 23:19 | 0°♄       |            |                  | 8258 Jul 13 14:07 | 0°♄       |            |
| asc. node        | 8257 Sep 02 06:08 | 6°♄36'13  |            | morning max el   | 8258 Jul 17 16:44 | 3°♄38'51  | 27°48'02   |
| morning set      | 8257 Sep 03 21:47 | 10°♄03'16 |            |                  | 8258 Aug 06 02:45 | 0°♄       |            |
|                  |                   |           |            | morning set      | 8258 Aug 19 03:06 | 24°♄27'02 |            |
| superior conj    | 8257 Sep 10 21:25 | 25°♄17'57 | 1°18'01    | asc. node        | 8258 Aug 20 03:07 | 26°♄32'35 |            |
| minimum elong    | 8257 Sep 10 19:13 | 25°♄05'41 | 1°17'42    |                  | 8258 Aug 21 18:11 | 0°♄       |            |
| max. Earth dist. | 8257 Sep 10 20:01 | 25°♄10'11 | 1.31677 AU | max. Earth dist. | 8258 Aug 25 05:37 | 7°♄33'48  | 1.31747 AU |
|                  | 8257 Sep 13 00:17 | 0°♄       |            |                  |                   |           |            |
| evening rise     | 8257 Sep 17 16:38 | 10°♄10'35 |            | superior conj    | 8258 Aug 26 08:38 | 10°♄02'47 | 0°59'50    |
|                  | 8257 Sep 27 19:58 | 0°♄       |            | minimum elong    | 8258 Aug 26 06:28 | 9°♄50'47  | 0°59'23    |
| desc. node       | 8257 Oct 06 23:47 | 14°♄35'15 |            | evening rise     | 8258 Sep 02 02:40 | 24°♄51'15 |            |
| evening max el   | 8257 Oct 17 12:53 | 27°♄07'51 | 26°41'02   |                  | 8258 Sep 04 13:15 | 0°♄       |            |
|                  | 8257 Oct 20 21:28 | 0°♄       |            |                  | 8258 Sep 22 01:44 | 0°♄       |            |
| retrograde       | 8257 Oct 31 10:45 | 4°♄15'43  |            | desc. node       | 8258 Sep 23 20:53 | 2°♄17'48  |            |
| evening set      | 8257 Nov 07 05:55 | 2°♄19'26  |            | evening max el   | 8258 Sep 29 07:25 | 8°♄15'17  | 25°29'16   |
|                  | 8257 Nov 10 18:03 | 30°♄      |            | retrograde       | 8258 Oct 13 05:27 | 15°♄17'27 |            |
| min. Earth dist. | 8257 Nov 11 02:43 | 29°♄43'35 | 0.59774 AU | evening set      | 8258 Oct 19 05:11 | 13°♄54'26 |            |
| inferior conj    | 8257 Nov 14 07:35 | 27°♄11'08 | -4°23'24   | min. Earth dist. | 8258 Oct 23 19:32 | 11°♄16'26 | 0.57728 AU |
| minimum elong    | 8257 Nov 14 14:52 | 26°♄56'37 | 4°21'21    | inferior conj    | 8258 Oct 26 19:49 | 9°♄11'48  | -5°15'07   |
| morning rise     | 8257 Nov 22 02:13 | 22°♄31'49 |            | minimum elong    | 8258 Oct 27 01:20 | 9°♄02'14  | 5°14'14    |
| direct           | 8257 Nov 24 07:28 | 22°♄13'46 |            | morning rise     | 8258 Nov 03 23:49 | 4°♄55'16  |            |
| asc. node        | 8257 Nov 29 05:42 | 23°♄47'50 |            | direct           | 8258 Nov 06 08:51 | 4°♄38'04  |            |
| morning max el   | 8257 Dec 01 23:01 | 25°♄59'50 | 18°12'14   | morning max el   | 8258 Nov 15 02:58 | 8°♄49'52  | 18°54'15   |
|                  | 8257 Dec 05 09:39 | 0°♄       |            | asc. node        | 8258 Nov 16 02:43 | 9°♄49'53  |            |
| morning set      | 8257 Dec 17 16:55 | 21°♄01'34 |            |                  | 8258 Nov 28 21:24 | 0°♄       |            |
|                  | 8257 Dec 22 11:20 | 0°♄       |            | morning set      | 8258 Dec 01 14:48 | 5°♄18'22  |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8257 Dec 27 04:33 | 8°♄40'27  | 0°49'01    | superior conj    | 8258 Dec 10 01:39 | 21°♄48'14 | 1°14'26    |
| minimum elong    | 8257 Dec 27 07:47 | 8°♄55'03  | 0°48'43    | minimum elong    | 8258 Dec 10 04:54 | 22°♄03'44 | 1°14'14    |
| desc. node       | 8258 Jan 02 22:53 | 20°♄32'59 |            |                  | 8258 Dec 14 11:00 | 0°♄       |            |
| max. Earth dist. | 8258 Jan 03 19:48 | 22°♄01'48 | 1.41313 AU | max. Earth dist. | 8258 Dec 17 01:55 | 4°♄43'33  | 1.39173 AU |
|                  |                   |           |            | evening rise     | 8258 Dec 20 23:22 | 11°♄30'43 |            |

|                  |                   |   |            |                     |                   |  |            |
|------------------|-------------------|---|------------|---------------------|-------------------|--|------------|
| desc. node       | 8258 Dec 20 19:53 | 11°  15'48   |            | desc. node          | 8259 Dec 07 16:53 | 1°  52'04   |            |
|                  | 8259 Jan 01 10:29 | 0°   |            |                     | 8259 Dec 26 03:19 | 0°    |            |
|                  | 8259 Jan 24 01:23 | 0°   |            | evening max el      | 8260 Jan 07 17:43 | 14°  56'48  | 25°37'53   |
| evening max el   | 8259 Jan 25 04:32 | 1°  08'57  | 24°24'22   | retrograde          | 8260 Jan 20 01:24 | 22°  00'50  |            |
| retrograde       | 8259 Feb 05 14:04 | 7°  49'30  |            | evening set         | 8260 Jan 26 00:17 | 19°  33'50  |            |
| evening set      | 8259 Feb 11 00:13 | 5°  33'52  |            | asc. node           | 8260 Jan 29 22:57 | 15°  20'40  |            |
| asc. node        | 8259 Feb 12 01:51 | 4°  34'10  |            | min. Earth dist.    | 8260 Jan 30 08:38 | 14°  50'18  | 0.67308 AU |
| min. Earth dist. | 8259 Feb 15 15:35 | 0°  15'41  | 0.68038 AU | inferior conj       | 8260 Jan 31 17:00 | 13°  07'05  | 0°34'42    |
|                  | 8259 Feb 15 20:16 | 30°  R  |            | minimum elong       | 8260 Jan 31 16:09 | 13°  09'51  | 0°34'29    |
| inferior conj    | 8259 Feb 16 12:34 | 29°  05'16   | 1°25'05    | morning rise        | 8260 Feb 06 08:26 | 7°  14'41   |            |
| minimum elong    | 8259 Feb 16 10:46 | 29°  11'20   | 1°24'30    | direct              | 8260 Feb 09 16:52 | 6°  10'11   |            |
| morning rise     | 8259 Feb 21 21:25 | 23°  04'31   |            | morning max el      | 8260 Feb 16 14:44 | 9°  58'04   | 19°05'30   |
| direct           | 8259 Feb 25 17:39 | 21°  40'04   |            | greatest brilliancy | 8260 Mar 01 04:49 | 28°  13'52  | -0.7m      |
| morning max el   | 8259 Mar 05 08:44 | 25°  58'06   | 20°04'40   |                     | 8260 Mar 02 08:46 | 0°  H   |            |
|                  | 8259 Mar 08 23:37 | 0°  H  |            | desc. node          | 8260 Mar 04 16:26 | 3°  H33'00  |            |
| desc. node       | 8259 Mar 18 19:30 | 13°  H25'27  |            | morning set         | 8260 Mar 10 18:50 | 12°  H58'28   |            |
|                  | 8259 Mar 29 20:44 | 0°  Y  |            |                     | 8260 Mar 21 17:14 | 0°  Y   |            |
| morning set      | 8259 Apr 01 16:08 | 4°  Y18'51   |            | max. Earth dist.    | 8260 Mar 24 17:29 | 4°  Y43'23  | 1.45146 AU |
| max. Earth dist. | 8259 Apr 12 01:59 | 20°  Y38'20  | 1.44048 AU |                     |                   |  |            |
|                  |                   |   |            | superior conj       | 8260 Mar 27 09:18 | 8°  Y54'54  | -2°03'27   |
| superior conj    | 8259 Apr 17 16:57 | 29°  Y43'31  | -2°11'48   | minimum elong       | 8260 Mar 27 02:51 | 8°  Y29'25  | 2°03'08    |
| minimum elong    | 8259 Apr 17 17:31 | 29°  Y45'50  | 2°11'53    |                     | 8260 Apr 09 12:15 | 0°  B   |            |
|                  | 8259 Apr 17 20:59 | 0°  B  |            | evening rise        | 8260 Apr 11 02:41 | 2°  B37'15  |            |
| evening rise     | 8259 Apr 30 17:16 | 21°  B38'00  |            | asc. node           | 8260 Apr 26 21:50 | 27°  B31'22   |            |
|                  | 8259 May 05 14:02 | 0°  II   |            |                     | 8260 Apr 28 20:08 | 0°  II  |            |
| asc. node        | 8259 May 11 00:46 | 9°  II01'24  |            | evening max el      | 8260 Apr 30 22:08 | 2°  II18'39   | 18°27'13   |
| evening max el   | 8259 May 18 09:21 | 18°  II50'25   | 18°08'02   | retrograde          | 8260 May 07 09:02 | 5°  II48'09   |            |
| retrograde       | 8259 May 24 18:59 | 22°  II11'13   |            | evening set         | 8260 May 10 11:43 | 4°  II54'16   |            |
| evening set      | 8259 May 27 14:24 | 21°  II31'01   |            |                     | 8260 May 15 18:16 | 30°  R  B  |            |
| inferior conj    | 8259 Jun 02 19:20 | 16°  II18'28   | 2°54'57    | inferior conj       | 8260 May 16 06:31 | 29°  B23'59   | 3°17'46    |
| minimum elong    | 8259 Jun 02 21:46 | 16°  II11'58   | 2°54'19    | minimum elong       | 8260 May 16 07:41 | 29°  B20'33   | 3°17'32    |
| min. Earth dist. | 8259 Jun 05 15:08 | 13°  II19'08   | 0.62643 AU | min. Earth dist.    | 8260 May 18 11:36 | 26°  B47'52   | 0.64619 AU |
| morning rise     | 8259 Jun 09 03:27 | 10°  II10'27   |            | morning rise        | 8260 May 22 02:45 | 23°  B08'24   |            |
| desc. node       | 8259 Jun 14 19:04 | 7°  II43'39  |            | direct              | 8260 May 28 18:56 | 20°  B24'00   |            |
| direct           | 8259 Jun 15 21:54 | 7°  II39'42  |            | desc. node          | 8260 May 31 16:04 | 20°  B50'50   |            |
| morning max el   | 8259 Jun 29 23:19 | 15°  II42'19   | 27°53'00   | morning max el      | 8260 Jun 11 09:03 | 28°  B21'28   | 27°22'23   |
|                  | 8259 Jul 11 16:01 | 0°  B  |            |                     | 8260 Jun 12 22:50 | 0°  II  |            |
|                  | 8259 Jul 29 18:29 | 0°  Q  |            |                     | 8260 Jul 04 11:08 | 0°  B   |            |
| morning set      | 8259 Aug 03 02:25 | 8°  Q30'35   |            | morning set         | 8260 Jul 16 17:09 | 22°  B06'47   |            |
| asc. node        | 8259 Aug 07 00:06 | 16°  Q36'04  |            |                     | 8260 Jul 20 15:40 | 0°  Q   |            |
| max. Earth dist. | 8259 Aug 08 11:05 | 19°  Q42'37  | 1.32289 AU | max. Earth dist.    | 8260 Jul 21 08:51 | 1°  Q28'16  | 1.33312 AU |
|                  |                   |   |            | asc. node           | 8260 Jul 23 21:04 | 6°  Q42'35  |            |
| superior conj    | 8259 Aug 10 17:26 | 24°  Q36'34  | 0°37'07    |                     |                   |  |            |
| minimum elong    | 8259 Aug 10 15:49 | 24°  Q27'45  | 0°36'42    | superior conj       | 8260 Jul 24 21:48 | 8°  Q53'27  | 0°10'26    |
|                  | 8259 Aug 13 04:38 | 0°  np   |            | minimum elong       | 8260 Jul 24 21:16 | 8°  Q50'41  | 0°10'11    |
| evening rise     | 8259 Aug 17 14:15 | 9°  np33'31  |            | behind sun begin    | 8260 Jul 24 17:00 | 8°  Q27'58  |            |
|                  | 8259 Aug 28 01:01 | 0°  Q  |            | behind sun end      | 8260 Jul 25 01:33 | 9°  Q13'26  |            |
| desc. node       | 8259 Sep 10 17:59 | 18°  Q37'34  |            | evening rise        | 8260 Aug 01 01:30 | 24°  Q11'48   |            |
| evening max el   | 8259 Sep 10 19:44 | 18°  Q41'49  | 23°55'47   |                     | 8260 Aug 03 20:22 | 0°  np  |            |
| retrograde       | 8259 Sep 24 11:48 | 25°  Q32'28  |            | evening max el      | 8260 Aug 22 08:37 | 28°  np55'49  | 22°16'42   |
| evening set      | 8259 Sep 29 03:44 | 24°  Q44'48  |            |                     | 8260 Aug 23 11:58 | 0°  Q   |            |
| min. Earth dist. | 8259 Oct 05 06:18 | 21°  Q46'12  | 0.56007 AU | desc. node          | 8260 Aug 27 15:04 | 3°  Q05'05  |            |
| inferior conj    | 8259 Oct 07 11:44 | 20°  Q25'04  | -5°34'50   | retrograde          | 8260 Sep 04 05:51 | 5°  Q20'38  |            |
| minimum elong    | 8259 Oct 07 11:15 | 20°  Q25'47  | 5°34'46    | evening set         | 8260 Sep 07 09:59 | 4°  Q58'24  |            |
| morning rise     | 8259 Oct 15 20:52 | 16°  Q28'10  |            | min. Earth dist.    | 8260 Sep 15 14:35 | 1°  Q23'44  | 0.54927 AU |
| direct           | 8259 Oct 18 15:05 | 16°  Q08'44  |            | inferior conj       | 8260 Sep 16 10:40 | 0°  Q55'30  | -5°04'17   |
| morning max el   | 8259 Oct 28 19:23 | 20°  Q56'06  | 19°58'34   | minimum elong       | 8260 Sep 16 03:01 | 1°  Q06'15  | 5°02'58    |
| asc. node        | 8259 Nov 02 23:44 | 26°  Q59'53  |            |                     | 8260 Sep 18 02:30 | 30°  R  np |            |
|                  | 8259 Nov 05 00:48 | 0°  ml   |            | morning rise        | 8260 Sep 24 21:45 | 27°  np07'38  |            |
| morning set      | 8259 Nov 15 19:32 | 19°  ml53'14   |            | direct              | 8260 Sep 28 05:10 | 26°  np43'06  |            |
|                  | 8259 Nov 20 18:23 | 0°  x  |            |                     | 8260 Oct 07 06:20 | 0°  Q   |            |
| superior conj    | 8259 Nov 23 13:06 | 5°  x36'34   | 1°31'01    | morning max el      | 8260 Oct 09 22:45 | 2°  Q13'38  | 21°24'31   |
| minimum elong    | 8259 Nov 23 15:22 | 5°  x47'56   | 1°30'59    | asc. node           | 8260 Oct 19 20:42 | 15°  Q03'02   |            |
| max. Earth dist. | 8259 Nov 29 08:01 | 16°  x51'39  | 1.37041 AU |                     | 8260 Oct 27 22:20 | 0°  ml  |            |
| evening rise     | 8259 Dec 03 02:36 | 23°  x48'59  |            | morning set         | 8260 Oct 30 04:34 | 4°  ml38'59   |            |
|                  | 8259 Dec 06 14:45 | 0°  B  |            | superior conj       | 8260 Nov 06 10:47 | 19°  ml53'59  | 1°39'38    |

|                     |                   |                               |            |                     |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| minimum elong       | 8260 Nov 06 11:45 | 19° $\mathbb{M}$ 58'58        | 1°39'42    | superior conj       | 8261 Oct 21 15:26 | 4° $\mathbb{M}$ 29'57         | 1°41'12    |
| max. Earth dist.    | 8260 Nov 10 19:09 | 28° $\mathbb{M}$ 46'23        | 1.35134 AU | minimum elong       | 8261 Oct 21 15:07 | 4° $\mathbb{M}$ 28'14         | 1°41'17    |
|                     | 8260 Nov 11 09:58 | 0° $\mathbb{X}$               |            | max. Earth dist.    | 8261 Oct 24 14:02 | 10° $\mathbb{M}$ 44'40        | 1.33592 AU |
| evening rise        | 8260 Nov 14 23:21 | 6° $\mathbb{X}$ 53'50         |            | evening rise        | 8261 Oct 29 09:37 | 20° $\mathbb{M}$ 34'24        |            |
| desc. node          | 8260 Nov 23 13:56 | 22° $\mathbb{X}$ 17'24        |            |                     | 8261 Nov 03 07:59 | 0° $\mathbb{X}$               |            |
|                     | 8260 Nov 28 07:31 | 0° $\mathbb{Z}$               |            | desc. node          | 8261 Nov 10 10:59 | 12° $\mathbb{X}$ 25'20        |            |
| evening max el      | 8260 Dec 20 07:01 | 28° $\mathbb{Z}$ 40'53        | 26°37'48   |                     | 8261 Nov 22 06:27 | 0° $\mathbb{Z}$               |            |
|                     | 8260 Dec 21 16:58 | 0° $\approx$                  |            | evening max el      | 8261 Dec 02 19:48 | 12° $\mathbb{Z}$ 10'55        | 27°17'03   |
| retrograde          | 8261 Jan 02 07:16 | 5° $\approx$ 57'30            |            | retrograde          | 8261 Dec 16 07:15 | 19° $\mathbb{Z}$ 31'21        |            |
| evening set         | 8261 Jan 08 18:16 | 3° $\approx$ 22'54            |            | evening set         | 8261 Dec 23 04:00 | 16° $\mathbb{Z}$ 55'17        |            |
|                     | 8261 Jan 12 04:26 | 30° $\mathbb{R}$ $\mathbb{Z}$ |            | min. Earth dist.    | 8261 Dec 27 00:33 | 13° $\mathbb{Z}$ 20'16        | 0.64749 AU |
| min. Earth dist.    | 8261 Jan 12 20:22 | 29° $\mathbb{Z}$ 14'10        | 0.66209 AU | inferior conj       | 8261 Dec 29 08:17 | 10° $\mathbb{Z}$ 48'58        | -1°27'39   |
| inferior conj       | 8261 Jan 14 16:21 | 27° $\mathbb{Z}$ 03'31        | -0°23'11   | minimum elong       | 8261 Dec 29 10:56 | 10° $\mathbb{Z}$ 41'45        | 1°26'23    |
| minimum elong       | 8261 Jan 14 17:00 | 27° $\mathbb{Z}$ 01'37        | 0°22'46    | asc. node           | 8262 Jan 02 17:02 | 6° $\mathbb{Z}$ 36'45         |            |
| asc. node           | 8261 Jan 15 20:00 | 25° $\mathbb{Z}$ 42'24        |            | morning rise        | 8262 Jan 04 19:22 | 5° $\mathbb{Z}$ 20'48         |            |
| morning rise        | 8261 Jan 20 16:38 | 21° $\mathbb{Z}$ 21'49        |            | direct              | 8262 Jan 07 09:16 | 4° $\mathbb{Z}$ 46'10         |            |
| direct              | 8261 Jan 23 14:50 | 20° $\mathbb{Z}$ 34'08        |            | morning max el      | 8262 Jan 13 19:41 | 8° $\mathbb{Z}$ 09'02         | 17°56'31   |
| morning max el      | 8261 Jan 30 03:14 | 24° $\mathbb{Z}$ 04'02        | 18°22'33   |                     | 8262 Jan 28 16:27 | 0° $\approx$                  |            |
|                     | 8261 Feb 04 01:41 | 0° $\approx$                  |            | morning set         | 8262 Jan 31 06:33 | 4° $\approx$ 19'05            |            |
| morning set         | 8261 Feb 18 21:54 | 22° $\approx$ 54'51           |            | desc. node          | 8262 Feb 06 10:20 | 14° $\approx$ 31'24           |            |
| desc. node          | 8261 Feb 19 13:22 | 23° $\approx$ 56'33           |            |                     |                   |                               |            |
|                     | 8261 Feb 23 08:38 | 0° $\mathbb{X}$               |            | superior conj       | 8262 Feb 14 02:40 | 26° $\approx$ 57'24           | -0°53'36   |
|                     |                   |                               |            | minimum elong       | 8262 Feb 13 20:28 | 26° $\approx$ 32'40           | 0°52'40    |
| superior conj       | 8261 Mar 06 14:04 | 17° $\mathbb{X}$ 41'40        | -1°35'13   |                     | 8262 Feb 16 00:34 | 0° $\mathbb{X}$               |            |
| minimum elong       | 8261 Mar 06 04:28 | 17° $\mathbb{X}$ 04'03        | 1°34'12    | max. Earth dist.    | 8262 Feb 18 08:24 | 3° $\mathbb{X}$ 40'40         | 1.45153 AU |
| max. Earth dist.    | 8261 Mar 07 12:46 | 19° $\mathbb{X}$ 10'32        | 1.45525 AU | evening rise        | 8262 Mar 02 04:59 | 22° $\mathbb{X}$ 06'37        |            |
|                     | 8261 Mar 14 10:48 | 0° $\mathbb{Y}$               |            |                     | 8262 Mar 07 08:35 | 0° $\mathbb{Y}$               |            |
| evening rise        | 8261 Mar 22 12:44 | 12° $\mathbb{Y}$ 40'40        |            | greatest brilliancy | 8262 Mar 16 17:45 | 14° $\mathbb{Y}$ 05'44        | -0.6m      |
| greatest brilliancy | 8261 Apr 01 19:14 | 28° $\mathbb{Y}$ 45'55        | -0.8m      | evening max el      | 8262 Mar 28 12:48 | 29° $\mathbb{Y}$ 30'59        | 19°56'40   |
|                     | 8261 Apr 02 14:30 | 0° $\mathbb{B}$               |            |                     | 8262 Mar 29 00:26 | 0° $\mathbb{B}$               |            |
| asc. node           | 8261 Apr 13 18:53 | 15° $\mathbb{B}$ 19'38        |            | asc. node           | 8262 Mar 31 15:57 | 2° $\mathbb{B}$ 14'14         |            |
| evening max el      | 8261 Apr 14 07:51 | 15° $\mathbb{B}$ 53'14        | 19°03'56   | retrograde          | 8262 Apr 05 02:46 | 3° $\mathbb{B}$ 53'47         |            |
| retrograde          | 8261 Apr 21 04:35 | 19° $\mathbb{B}$ 44'09        |            | evening set         | 8262 Apr 08 21:25 | 2° $\mathbb{B}$ 30'39         |            |
| evening set         | 8261 Apr 24 14:52 | 18° $\mathbb{B}$ 35'49        |            |                     | 8262 Apr 11 12:14 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| inferior conj       | 8261 Apr 30 03:03 | 12° $\mathbb{B}$ 49'24        | 3°23'30    | inferior conj       | 8262 Apr 14 05:58 | 26° $\mathbb{Y}$ 30'01        | 3°15'41    |
| minimum elong       | 8261 Apr 30 02:54 | 12° $\mathbb{B}$ 49'54        | 3°23'24    | minimum elong       | 8262 Apr 14 04:44 | 26° $\mathbb{Y}$ 34'10        | 3°15'29    |
| min. Earth dist.    | 8261 May 01 16:43 | 10° $\mathbb{B}$ 49'21        | 0.66221 AU | min. Earth dist.    | 8262 Apr 15 05:03 | 25° $\mathbb{Y}$ 12'20        | 0.67393 AU |
| morning rise        | 8261 May 05 14:30 | 6° $\mathbb{B}$ 31'22         |            | morning rise        | 8262 Apr 19 11:48 | 20° $\mathbb{Y}$ 12'42        |            |
| direct              | 8261 May 11 22:45 | 3° $\mathbb{B}$ 45'25         |            | direct              | 8262 Apr 25 08:35 | 17° $\mathbb{Y}$ 35'34        |            |
| desc. node          | 8261 May 18 13:03 | 6° $\mathbb{B}$ 05'47         |            | desc. node          | 8262 May 05 10:02 | 22° $\mathbb{Y}$ 57'38        |            |
| morning max el      | 8261 May 24 19:29 | 11° $\mathbb{B}$ 24'52        | 26°22'49   | morning max el      | 8262 May 07 05:05 | 24° $\mathbb{Y}$ 42'00        | 25°03'29   |
|                     | 8261 Jun 08 14:47 | 0° $\mathbb{I}$               |            |                     | 8262 May 11 23:43 | 0° $\mathbb{B}$               |            |
|                     | 8261 Jun 27 01:35 | 0° $\mathbb{E}$               |            |                     | 8262 Jun 02 01:41 | 0° $\mathbb{I}$               |            |
| morning set         | 8261 Jun 29 19:50 | 5° $\mathbb{E}$ 05'24         |            | morning set         | 8262 Jun 12 06:06 | 17° $\mathbb{I}$ 15'08        |            |
| max. Earth dist.    | 8261 Jul 03 20:07 | 12° $\mathbb{E}$ 46'58        | 1.34814 AU | max. Earth dist.    | 8262 Jun 15 21:09 | 23° $\mathbb{I}$ 50'50        | 1.36742 AU |
|                     |                   |                               |            |                     | 8262 Jun 19 03:32 | 0° $\mathbb{E}$               |            |
| superior conj       | 8261 Jul 08 19:16 | 22° $\mathbb{E}$ 45'44        | -0°19'29   |                     |                   |                               |            |
| minimum elong       | 8261 Jul 08 20:23 | 22° $\mathbb{E}$ 51'27        | 0°19'26    | superior conj       | 8262 Jun 22 06:59 | 6° $\mathbb{E}$ 06'16         | -0°51'12   |
| asc. node           | 8261 Jul 10 18:02 | 26° $\mathbb{E}$ 47'25        |            | minimum elong       | 8262 Jun 22 10:07 | 6° $\mathbb{E}$ 21'38         | 0°50'49    |
|                     | 8261 Jul 12 06:59 | 0° $\mathbb{Q}$               |            | asc. node           | 8262 Jun 27 15:02 | 16° $\mathbb{E}$ 46'59        |            |
| evening rise        | 8261 Jul 16 10:22 | 8° $\mathbb{Q}$ 39'00         |            | evening rise        | 8262 Jun 30 14:37 | 22° $\mathbb{E}$ 48'55        |            |
|                     | 8261 Jul 27 20:19 | 0° $\mathbb{M}$               |            |                     | 8262 Jul 04 05:29 | 0° $\mathbb{Q}$               |            |
| evening max el      | 8261 Aug 04 06:30 | 9° $\mathbb{M}$ 30'58         | 20°47'15   | evening max el      | 8262 Jul 17 17:40 | 20° $\mathbb{Q}$ 48'35        | 19°36'05   |
| desc. node          | 8261 Aug 14 12:10 | 15° $\mathbb{M}$ 08'14        |            | retrograde          | 8262 Jul 27 12:18 | 25° $\mathbb{Q}$ 38'05        |            |
| retrograde          | 8261 Aug 15 18:08 | 15° $\mathbb{M}$ 12'08        |            | evening set         | 8262 Jul 29 08:41 | 25° $\mathbb{Q}$ 28'29        |            |
| evening set         | 8261 Aug 17 21:34 | 15° $\mathbb{M}$ 01'03        |            | desc. node          | 8262 Aug 01 09:14 | 24° $\mathbb{Q}$ 35'01        |            |
| inferior conj       | 8261 Aug 27 03:07 | 11° $\mathbb{M}$ 04'09        | -3°40'17   | inferior conj       | 8262 Aug 07 03:52 | 21° $\mathbb{Q}$ 24'23        | -1°46'00   |
| minimum elong       | 8261 Aug 26 17:54 | 11° $\mathbb{M}$ 17'18        | 3°37'29    | minimum elong       | 8262 Aug 06 23:02 | 21° $\mathbb{Q}$ 32'00        | 1°44'15    |
| min. Earth dist.    | 8261 Aug 27 23:41 | 10° $\mathbb{M}$ 34'50        | 0.54726 AU | min. Earth dist.    | 8262 Aug 09 11:49 | 19° $\mathbb{Q}$ 56'14        | 0.55481 AU |
| morning rise        | 8261 Sep 04 14:14 | 7° $\mathbb{M}$ 05'26         |            | morning rise        | 8262 Aug 15 11:01 | 16° $\mathbb{Q}$ 55'29        |            |
| direct              | 8261 Sep 08 13:12 | 6° $\mathbb{M}$ 31'55         |            | direct              | 8262 Aug 20 05:01 | 16° $\mathbb{Q}$ 05'05        |            |
| morning max el      | 8261 Sep 21 15:32 | 12° $\mathbb{M}$ 48'44        | 23°06'27   | morning max el      | 8262 Sep 03 04:04 | 23° $\mathbb{Q}$ 03'34        | 24°51'47   |
|                     | 8261 Oct 04 14:12 | 0° $\mathbb{L}$               |            |                     | 8262 Sep 09 09:26 | 0° $\mathbb{M}$               |            |
| asc. node           | 8261 Oct 06 17:40 | 3° $\mathbb{L}$ 46'02         |            | asc. node           | 8262 Sep 23 14:38 | 22° $\mathbb{M}$ 59'05        |            |
| morning set         | 8261 Oct 14 15:47 | 19° $\mathbb{L}$ 28'47        |            |                     | 8262 Sep 27 02:27 | 0° $\mathbb{L}$               |            |
|                     | 8261 Oct 19 13:18 | 0° $\mathbb{M}$               |            | morning set         | 8262 Sep 29 03:30 | 4° $\mathbb{L}$ 17'46         |            |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| superior conj    | 8262 Oct 06 00:29 | 19° $\Omega$ 16'50            | 1°36'33    |                  | 8263 Aug 11 18:32 | 0° $\Omega$                   |            |
| minimum elong    | 8262 Oct 05 23:08 | 19° $\Omega$ 09'28            | 1°36'31    | morning max el   | 8263 Aug 15 18:50 | 3° $\Omega$ 26'26             | 26°23'59   |
| max. Earth dist. | 8262 Oct 07 16:43 | 22° $\Omega$ 56'24            | 1.32488 AU |                  | 8263 Sep 03 21:29 | 0° $\mathbb{N}$               |            |
|                  | 8262 Oct 10 23:46 | 0° $\mathbb{N}$               |            | asc. node        | 8263 Sep 10 11:38 | 12° $\mathbb{N}$ 34'04        |            |
| evening rise     | 8262 Oct 13 05:59 | 4° $\mathbb{N}$ 41'56         |            | morning set      | 8263 Sep 13 14:06 | 19° $\mathbb{N}$ 01'10        |            |
|                  | 8262 Oct 27 00:02 | 0° $\mathbb{N}$               |            |                  | 8263 Sep 18 15:06 | 0° $\Omega$                   |            |
| desc. node       | 8262 Oct 28 08:03 | 2° $\mathbb{N}$ 08'28         |            |                  |                   |                               |            |
| evening max el   | 8262 Nov 15 06:35 | 25° $\mathbb{N}$ 15'20        | 27°28'56   | superior conj    | 8263 Sep 20 11:51 | 4° $\Omega$ 07'53             | 1°26'17    |
|                  | 8262 Nov 21 06:36 | 0° $\mathbb{Z}$               |            | minimum elong    | 8263 Sep 20 09:50 | 3° $\Omega$ 56'43             | 1°26'05    |
| retrograde       | 8262 Nov 29 00:40 | 2° $\mathbb{Z}$ 32'56         |            | max. Earth dist. | 8263 Sep 21 00:57 | 5° $\Omega$ 20'26             | 1.31838 AU |
| evening set      | 8262 Dec 06 02:40 | 0° $\mathbb{Z}$ 04'09         |            | evening rise     | 8263 Sep 27 09:32 | 19° $\Omega$ 08'21            |            |
|                  | 8262 Dec 06 05:02 | 30° $\mathbb{R}$ $\mathbb{N}$ |            |                  | 8263 Oct 02 18:37 | 0° $\mathbb{N}$               |            |
| min. Earth dist. | 8262 Dec 09 19:26 | 26° $\mathbb{N}$ 59'05        | 0.62975 AU | desc. node       | 8263 Oct 15 05:07 | 21° $\mathbb{N}$ 16'57        |            |
| inferior conj    | 8262 Dec 12 14:03 | 24° $\mathbb{N}$ 16'43        | -2°36'42   |                  | 8263 Oct 21 13:31 | 0° $\mathbb{N}$               |            |
| minimum elong    | 8262 Dec 12 19:00 | 24° $\mathbb{N}$ 04'37        | 2°34'39    | evening max el   | 8263 Oct 28 13:06 | 7° $\mathbb{N}$ 42'13         | 27°08'28   |
| morning rise     | 8262 Dec 19 13:22 | 19° $\mathbb{N}$ 04'56        |            | retrograde       | 8263 Nov 11 10:23 | 14° $\mathbb{N}$ 53'27        |            |
| asc. node        | 8262 Dec 20 14:06 | 18° $\mathbb{N}$ 47'31        |            | evening set      | 8263 Nov 18 10:40 | 12° $\mathbb{N}$ 42'33        |            |
| direct           | 8262 Dec 21 21:16 | 18° $\mathbb{N}$ 39'32        |            | min. Earth dist. | 8263 Nov 22 03:52 | 9° $\mathbb{N}$ 59'26         | 0.60973 AU |
| morning max el   | 8262 Dec 28 13:01 | 22° $\mathbb{N}$ 04'49        | 17°47'52   | inferior conj    | 8263 Nov 25 06:29 | 7° $\mathbb{N}$ 19'03         | -3°46'07   |
|                  | 8263 Jan 03 15:51 | 0° $\mathbb{Z}$               |            | minimum elong    | 8263 Nov 25 13:21 | 7° $\mathbb{N}$ 04'14         | 3°43'49    |
| morning set      | 8263 Jan 13 16:00 | 16° $\mathbb{Z}$ 54'39        |            | morning rise     | 8263 Dec 02 18:21 | 2° $\mathbb{N}$ 26'45         |            |
|                  | 8263 Jan 21 05:13 | 0° $\approx$                  |            | direct           | 8263 Dec 04 23:25 | 2° $\mathbb{N}$ 06'57         |            |
| desc. node       | 8263 Jan 24 07:18 | 5° $\approx$ 12'58            |            | asc. node        | 8263 Dec 07 11:10 | 2° $\mathbb{N}$ 33'05         |            |
|                  |                   |                               |            | morning max el   | 8263 Dec 12 03:58 | 5° $\mathbb{N}$ 43'09         | 17°57'37   |
| superior conj    | 8263 Jan 25 13:21 | 7° $\approx$ 18'25            | -0°09'10   | morning set      | 8263 Dec 27 19:45 | 0° $\mathbb{Z}$ 22'16         |            |
| minimum elong    | 8263 Jan 25 12:25 | 7° $\approx$ 14'32            | 0°08'54    |                  | 8263 Dec 27 14:55 | 0° $\mathbb{Z}$               |            |
| behind sun begin | 8263 Jan 25 04:38 | 6° $\approx$ 42'08            |            |                  |                   |                               |            |
| behind sun end   | 8263 Jan 25 20:12 | 7° $\approx$ 46'52            |            | superior conj    | 8264 Jan 07 01:40 | 18° $\mathbb{Z}$ 52'57        | 0°30'10    |
| max. Earth dist. | 8263 Feb 01 01:37 | 17° $\approx$ 56'17           | 1.44085 AU | minimum elong    | 8264 Jan 07 04:06 | 19° $\mathbb{Z}$ 03'32        | 0°29'58    |
|                  | 8263 Feb 08 17:27 | 0° $\mathbb{H}$               |            | desc. node       | 8264 Jan 11 04:16 | 25° $\mathbb{Z}$ 57'59        |            |
| evening rise     | 8263 Feb 09 16:22 | 1° $\mathbb{H}$ 28'31         |            |                  | 8264 Jan 13 13:49 | 0° $\approx$                  |            |
|                  | 8263 Feb 28 22:58 | 0° $\mathbb{Y}$               |            | max. Earth dist. | 8264 Jan 14 14:51 | 1° $\approx$ 43'53            | 1.42451 AU |
| evening max el   | 8263 Mar 11 12:17 | 13° $\mathbb{Y}$ 10'08        | 21°02'57   | evening rise     | 8264 Jan 20 14:10 | 11° $\approx$ 23'46           |            |
| asc. node        | 8263 Mar 18 13:04 | 18° $\mathbb{Y}$ 00'12        |            |                  | 8264 Feb 01 18:50 | 0° $\mathbb{H}$               |            |
| retrograde       | 8263 Mar 20 01:15 | 18° $\mathbb{Y}$ 11'50        |            | evening max el   | 8264 Feb 22 06:49 | 26° $\mathbb{H}$ 51'29        | 22°18'46   |
| evening set      | 8263 Mar 24 05:26 | 16° $\mathbb{Y}$ 33'37        |            |                  | 8264 Feb 25 19:13 | 0° $\mathbb{Y}$               |            |
| inferior conj    | 8263 Mar 29 12:45 | 10° $\mathbb{Y}$ 21'06        | 2°56'40    | retrograde       | 8264 Mar 02 22:12 | 2° $\mathbb{Y}$ 34'19         |            |
| minimum elong    | 8263 Mar 29 10:49 | 10° $\mathbb{Y}$ 27'51        | 2°56'16    | asc. node        | 8264 Mar 04 10:11 | 2° $\mathbb{Y}$ 22'56         |            |
| min. Earth dist. | 8263 Mar 29 22:26 | 9° $\mathbb{Y}$ 47'36         | 0.68123 AU | evening set      | 8264 Mar 07 13:15 | 0° $\mathbb{Y}$ 40'56         |            |
| morning rise     | 8263 Apr 03 15:59 | 4° $\mathbb{Y}$ 06'35         |            |                  | 8264 Mar 08 07:32 | 30° $\mathbb{R}$ $\mathbb{H}$ |            |
| direct           | 8263 Apr 08 23:25 | 1° $\mathbb{Y}$ 45'57         |            | inferior conj    | 8264 Mar 12 21:19 | 24° $\mathbb{H}$ 19'22        | 2°27'59    |
| morning max el   | 8263 Apr 19 14:14 | 8° $\mathbb{Y}$ 05'51         | 23°34'37   | minimum elong    | 8264 Mar 12 19:04 | 24° $\mathbb{H}$ 27'13        | 2°27'22    |
| desc. node       | 8263 Apr 22 07:01 | 10° $\mathbb{Y}$ 59'34        |            | min. Earth dist. | 8264 Mar 12 18:36 | 24° $\mathbb{H}$ 28'50        | 0.68420 AU |
|                  | 8263 May 06 17:20 | 0° $\mathbb{B}$               |            | morning rise     | 8264 Mar 18 00:43 | 18° $\mathbb{H}$ 09'13        |            |
| morning set      | 8263 May 24 18:28 | 28° $\mathbb{B}$ 21'07        |            | direct           | 8264 Mar 22 18:11 | 16° $\mathbb{H}$ 09'37        |            |
|                  | 8263 May 25 17:42 | 0° $\mathbb{H}$               |            | morning max el   | 8264 Apr 01 01:54 | 21° $\mathbb{H}$ 37'19        | 22°06'00   |
| max. Earth dist. | 8263 May 28 16:53 | 5° $\mathbb{H}$ 08'04         | 1.38950 AU | desc. node       | 8264 Apr 08 04:00 | 29° $\mathbb{H}$ 52'10        |            |
|                  |                   |                               |            |                  | 8264 Apr 08 06:26 | 0° $\mathbb{Y}$               |            |
| superior conj    | 8263 Jun 05 05:15 | 18° $\mathbb{H}$ 45'52        | -1°22'29   |                  | 8264 Apr 29 00:04 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8263 Jun 05 10:18 | 19° $\mathbb{H}$ 09'29        | 1°21'55    | morning set      | 8264 May 04 04:00 | 8° $\mathbb{B}$ 11'39         |            |
|                  | 8263 Jun 11 02:26 | 0° $\mathbb{B}$               |            | max. Earth dist. | 8264 May 09 15:16 | 17° $\mathbb{B}$ 11'14        | 1.41181 AU |
| evening rise     | 8263 Jun 14 11:25 | 6° $\mathbb{B}$ 33'42         |            |                  |                   |                               |            |
| asc. node        | 8263 Jun 14 12:04 | 6° $\mathbb{B}$ 36'49         |            | superior conj    | 8264 May 17 09:37 | 0° $\mathbb{H}$ 34'30         | -1°49'45   |
|                  | 8263 Jun 28 04:10 | 0° $\Omega$                   |            | minimum elong    | 8264 May 17 15:25 | 1° $\mathbb{H}$ 00'15         | 1°49'20    |
| evening max el   | 8263 Jun 30 16:50 | 2° $\Omega$ 50'06             | 18°45'37   |                  | 8264 May 17 01:50 | 0° $\mathbb{H}$               |            |
| retrograde       | 8263 Jul 08 22:30 | 6° $\Omega$ 55'00             |            | evening rise     | 8264 May 27 21:19 | 19° $\mathbb{H}$ 45'02        |            |
| evening set      | 8263 Jul 10 22:57 | 6° $\Omega$ 41'12             |            | asc. node        | 8264 May 31 09:06 | 26° $\mathbb{H}$ 12'33        |            |
| inferior conj    | 8263 Jul 18 23:22 | 2° $\Omega$ 19'59             | 0°05'14    |                  | 8264 Jun 02 11:24 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8263 Jul 18 23:34 | 2° $\Omega$ 19'37             | 0°05'01    | evening max el   | 8264 Jun 13 00:26 | 15° $\mathbb{B}$ 27'50        | 18°15'37   |
| transit middle   | 8263 Jul 18 23:34 | 2° $\Omega$ 19'37             | 0°05'01    | retrograde       | 8264 Jun 20 03:57 | 19° $\mathbb{B}$ 03'19        |            |
| transit begin    | 8263 Jul 18 20:04 | 2° $\Omega$ 26'02             |            | evening set      | 8264 Jun 22 11:44 | 18° $\mathbb{B}$ 41'17        |            |
| transit end      | 8263 Jul 19 03:04 | 2° $\Omega$ 13'10             |            | inferior conj    | 8264 Jun 29 16:38 | 13° $\mathbb{B}$ 59'16        | 1°32'49    |
| desc. node       | 8263 Jul 19 06:18 | 2° $\Omega$ 07'13             |            | minimum elong    | 8264 Jun 29 19:22 | 13° $\mathbb{B}$ 53'23        | 1°31'46    |
| min. Earth dist. | 8263 Jul 22 04:03 | 0° $\Omega$ 00'14             | 0.57050 AU | min. Earth dist. | 8264 Jul 03 02:03 | 11° $\mathbb{B}$ 05'47        | 0.59134 AU |
|                  | 8263 Jul 22 04:11 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | desc. node       | 8264 Jul 05 03:23 | 9° $\mathbb{B}$ 31'55         |            |
| morning rise     | 8263 Jul 26 20:43 | 27° $\mathbb{B}$ 14'09        |            | morning rise     | 8264 Jul 06 23:53 | 8° $\mathbb{B}$ 21'19         |            |
| direct           | 8263 Aug 01 11:11 | 25° $\mathbb{B}$ 57'28        |            | direct           | 8264 Jul 13 06:53 | 6° $\mathbb{B}$ 33'21         |            |



|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| morning max el   | 8264 Jul 27 15:48 | 14°☿21'50 | 27°27'53   |                     | 8265 Jul 13 12:11 | 0°☿       |            |
|                  | 8264 Aug 09 05:11 | 0°♊       |            |                     | 8265 Aug 02 18:13 | 0°♊       |            |
|                  | 8264 Aug 26 04:44 | 0°♈       |            | morning set         | 8265 Aug 12 00:52 | 17°♊49'23 |            |
| asc. node        | 8264 Aug 27 08:35 | 2°♈24'00  |            | asc. node           | 8265 Aug 14 05:33 | 22°♊24'00 |            |
| morning set      | 8264 Aug 27 21:50 | 3°♈33'19  |            |                     | 8265 Aug 17 18:22 | 0°♈       |            |
|                  |                   |           |            | max. Earth dist.    | 8265 Aug 17 19:47 | 0°♈07'41  | 1.31922 AU |
| superior conj    | 8264 Sep 03 23:36 | 18°♈56'17 | 1°10'53    |                     |                   |           |            |
| minimum elong    | 8264 Sep 03 21:20 | 18°♈43'48 | 1°10'30    | superior conj       | 8265 Aug 19 09:59 | 3°♈37'01  | 0°50'44    |
| max. Earth dist. | 8264 Sep 03 11:14 | 17°♈47'44 | 1.31649 AU | minimum elong       | 8265 Aug 19 07:59 | 3°♈26'00  | 0°50'17    |
|                  | 8264 Sep 08 23:55 | 0°♊       |            | evening rise        | 8265 Aug 26 04:44 | 18°♈27'51 |            |
| evening rise     | 8264 Sep 10 17:48 | 3°♊45'38  |            |                     | 8265 Aug 31 19:17 | 0°♊       |            |
|                  | 8264 Sep 24 14:53 | 0°♈       |            | desc. node          | 8265 Sep 17 23:18 | 26°♊46'35 |            |
| desc. node       | 8264 Oct 01 02:13 | 9°♈36'08  |            | evening max el      | 8265 Sep 21 03:49 | 0°♈06'47  | 24°51'14   |
| evening max el   | 8264 Oct 09 12:32 | 19°♈19'41 | 26°14'08   |                     | 8265 Sep 21 01:00 | 0°♈       |            |
| retrograde       | 8264 Oct 23 10:40 | 26°♈24'27 |            | retrograde          | 8265 Oct 04 23:57 | 7°♈05'00  |            |
| evening set      | 8264 Oct 29 23:13 | 24°♈41'44 |            | evening set         | 8265 Oct 10 11:48 | 5°♈57'09  |            |
| min. Earth dist. | 8264 Nov 03 01:39 | 22°♈07'15 | 0.58885 AU | min. Earth dist.    | 8265 Oct 15 15:02 | 3°♈12'51  | 0.56941 AU |
| inferior conj    | 8264 Nov 06 05:54 | 19°♈44'49 | -4°48'02   | inferior conj       | 8265 Oct 18 09:23 | 1°♈25'01  | -5°28'35   |
| minimum elong    | 8264 Nov 06 12:55 | 19°♈31'39 | 4°46'24    | minimum elong       | 8265 Oct 18 12:51 | 1°♈19'22  | 5°28'12    |
| morning rise     | 8264 Nov 14 04:56 | 15°♈14'52 |            |                     | 8265 Oct 20 14:54 | 30°♈♊     |            |
| direct           | 8264 Nov 16 11:16 | 14°♈57'26 |            | morning rise        | 8265 Oct 26 16:09 | 27°♊17'52 |            |
| asc. node        | 8264 Nov 23 08:12 | 17°♈48'44 |            | direct              | 8265 Oct 29 04:40 | 26°♊59'59 |            |
| morning max el   | 8264 Nov 24 12:54 | 18°♈53'17 | 18°27'23   |                     | 8265 Nov 05 21:02 | 0°♈       |            |
|                  | 8264 Dec 02 16:15 | 0°♈       |            | morning max el      | 8265 Nov 07 12:13 | 1°♈25'11  | 19°18'54   |
| morning set      | 8264 Dec 10 12:15 | 14°♈24'40 |            | asc. node           | 8265 Nov 10 05:12 | 4°♈21'06  |            |
|                  | 8264 Dec 18 16:43 | 0°♊       |            | morning set         | 8265 Nov 24 13:23 | 28°♈49'59 |            |
|                  |                   |           |            |                     | 8265 Nov 25 03:24 | 0°♈       |            |
| superior conj    | 8264 Dec 19 12:16 | 1°♊30'42  | 1°00'54    |                     |                   |           |            |
| minimum elong    | 8264 Dec 19 15:41 | 1°♊46'30  | 1°00'37    | superior conj       | 8265 Dec 02 16:02 | 14°♈57'16 | 1°22'30    |
| max. Earth dist. | 8264 Dec 26 23:39 | 14°♊52'28 | 1.40427 AU | minimum elong       | 8265 Dec 02 18:57 | 15°♈11'26 | 1°22'22    |
| desc. node       | 8264 Dec 28 01:15 | 16°♊42'24 |            | max. Earth dist.    | 8265 Dec 09 05:24 | 27°♈18'55 | 1.38253 AU |
| evening rise     | 8264 Dec 31 07:42 | 22°♊12'34 |            |                     | 8265 Dec 10 17:05 | 0°♊       |            |
|                  | 8265 Jan 05 02:55 | 0°♈       |            | evening rise        | 8265 Dec 12 23:09 | 3°♊59'13  |            |
|                  | 8265 Jan 25 19:40 | 0°♈       |            | desc. node          | 8265 Dec 14 22:15 | 7°♊22'40  |            |
| evening max el   | 8265 Feb 03 21:47 | 10°♈35'27 | 23°38'48   |                     | 8265 Dec 29 05:06 | 0°♈       |            |
| retrograde       | 8265 Feb 14 16:15 | 16°♈56'35 |            | evening max el      | 8266 Jan 17 10:57 | 24°♈21'52 | 24°56'43   |
| asc. node        | 8265 Feb 19 07:18 | 15°♈12'45 |            |                     | 8266 Jan 24 17:31 | 0°♈       |            |
| evening set      | 8265 Feb 19 19:19 | 14°♈48'31 |            | retrograde          | 8266 Jan 29 06:20 | 1°♈13'46  |            |
| min. Earth dist. | 8265 Feb 24 15:16 | 9°♈10'49  | 0.68298 AU |                     | 8266 Feb 02 09:12 | 30°♈♊     |            |
| inferior conj    | 8265 Feb 25 05:44 | 8°♈21'22  | 1°50'28    | evening set         | 8266 Feb 03 22:03 | 28°♈52'36 |            |
| minimum elong    | 8265 Feb 25 03:37 | 8°♈28'36  | 1°49'48    | asc. node           | 8266 Feb 06 04:23 | 26°♈36'13 |            |
| morning rise     | 8265 Mar 02 11:54 | 2°♈16'57  |            | min. Earth dist.    | 8266 Feb 08 10:13 | 23°♈49'24 | 0.67779 AU |
| direct           | 8265 Mar 06 15:38 | 0°♈39'57  |            | inferior conj       | 8266 Feb 09 12:08 | 22°♈24'10 | 1°04'39    |
| morning max el   | 8265 Mar 14 19:41 | 5°♈20'06  | 20°45'22   | minimum elong       | 8266 Feb 09 10:40 | 22°♈29'01 | 1°04'11    |
| desc. node       | 8265 Mar 26 00:56 | 19°♈21'13 |            | morning rise        | 8266 Feb 14 23:32 | 16°♈26'59 |            |
|                  | 8265 Apr 02 09:21 | 0°♈       |            | direct              | 8266 Feb 18 14:32 | 15°♈11'29 |            |
| morning set      | 8265 Apr 13 11:58 | 16°♈53'51 |            | morning max el      | 8266 Feb 25 21:22 | 19°♈15'00 | 19°37'34   |
|                  | 8265 Apr 21 18:07 | 0°♈       |            |                     | 8266 Mar 06 13:04 | 0°♈       |            |
| max. Earth dist. | 8265 Apr 21 20:51 | 0°♈11'02  | 1.43140 AU | greatest brilliancy | 8266 Mar 10 14:57 | 5°♈53'02  | -0.7m      |
|                  |                   |           |            | desc. node          | 8266 Mar 12 21:52 | 9°♈16'46  |            |
| superior conj    | 8265 Apr 28 15:26 | 11°♈21'46 | -2°07'54   | morning set         | 8266 Mar 23 09:24 | 25°♈13'42 |            |
| minimum elong    | 8265 Apr 28 19:06 | 11°♈37'10 | 2°07'53    |                     | 8266 Mar 26 11:31 | 0°♈       |            |
|                  | 8265 May 09 10:00 | 0°♈       |            | max. Earth dist.    | 8266 Apr 04 09:06 | 13°♈55'57 | 1.44596 AU |
| evening rise     | 8265 May 10 16:00 | 2°♈12'50  |            |                     |                   |           |            |
| asc. node        | 8265 May 18 06:10 | 15°♈28'48 |            | superior conj       | 8266 Apr 08 20:20 | 21°♈03'50 | -2°10'45   |
| evening max el   | 8265 May 27 12:36 | 28°♈32'09 | 18°05'18   | minimum elong       | 8266 Apr 08 17:56 | 20°♈54'12 | 2°10'46    |
|                  | 8265 May 29 04:40 | 0°♈       |            |                     | 8266 Apr 14 08:20 | 0°♈       |            |
| retrograde       | 8265 Jun 03 01:45 | 1°♈54'16  |            | evening rise        | 8266 Apr 22 14:42 | 13°♈46'13 |            |
| evening set      | 8265 Jun 05 16:59 | 1°♈21'14  |            |                     | 8266 May 02 08:34 | 0°♈       |            |
|                  | 8265 Jun 08 01:54 | 30°♈♈     |            | asc. node           | 8266 May 05 03:14 | 4°♈17'57  |            |
| inferior conj    | 8265 Jun 12 05:28 | 26°♈19'09 | 2°32'15    | evening max el      | 8266 May 11 01:55 | 11°♈53'12 | 18°13'56   |
| minimum elong    | 8265 Jun 12 08:24 | 26°♈11'51 | 2°31'22    | retrograde          | 8266 May 17 11:09 | 15°♈16'29 |            |
| min. Earth dist. | 8265 Jun 15 08:05 | 23°♈15'24 | 0.61382 AU | evening set         | 8266 May 20 09:32 | 14°♈30'41 |            |
| morning rise     | 8265 Jun 18 21:36 | 20°♈18'59 |            | inferior conj       | 8266 May 26 09:41 | 9°♈10'15  | 3°06'59    |
| desc. node       | 8265 Jun 22 00:26 | 18°♈40'33 |            | minimum elong       | 8266 May 26 11:36 | 9°♈04'51  | 3°06'33    |
| direct           | 8265 Jun 25 13:57 | 18°♈01'53 |            | min. Earth dist.    | 8266 May 28 23:24 | 6°♈18'43  | 0.63517 AU |
| morning max el   | 8265 Jul 09 19:37 | 26°♈01'50 | 27°54'56   | morning rise        | 8266 Jun 01 12:20 | 2°♈57'53  |            |

|                     |                   |                                 |            |                     |                   |                         |            |
|---------------------|-------------------|---------------------------------|------------|---------------------|-------------------|-------------------------|------------|
| direct              | 8266 Jun 08 06:27 | 0° $\Pi$ 19'55                  |            | minimum elong       | 8267 May 10 01:53 | 22° $\mathcal{B}$ 23'28 | 3°21'53    |
| desc. node          | 8266 Jun 08 21:28 | 0° $\Pi$ 21'10                  |            | min. Earth dist.    | 8267 May 11 23:53 | 20° $\mathcal{B}$ 02'57 | 0.65354 AU |
| morning max el      | 8266 Jun 22 04:07 | 8° $\Pi$ 22'24                  | 27°44'04   | morning rise        | 8267 May 15 17:22 | 16° $\mathcal{B}$ 07'55 |            |
|                     | 8266 Jul 08 20:59 | 0° $\mathcal{E}$                |            | direct              | 8267 May 22 06:46 | 13° $\mathcal{B}$ 21'07 |            |
|                     | 8266 Jul 26 00:17 | 0° $\Omega$                     |            | desc. node          | 8267 May 26 18:29 | 14° $\mathcal{B}$ 26'27 |            |
| morning set         | 8266 Jul 26 20:52 | 1° $\Omega$ 42'05               |            | morning max el      | 8267 Jun 04 14:26 | 21° $\mathcal{B}$ 13'27 | 26°59'55   |
| max. Earth dist.    | 8266 Jul 31 22:26 | 12° $\Omega$ 07'27              | 1.32664 AU |                     | 8267 Jun 12 04:55 | 0° $\Pi$                |            |
| asc. node           | 8266 Aug 01 02:30 | 12° $\Omega$ 28'58              |            |                     | 8267 Jul 02 00:58 | 0° $\mathcal{E}$        |            |
|                     |                   |                                 |            | morning set         | 8267 Jul 10 06:56 | 15° $\mathcal{E}$ 03'26 |            |
| superior conj       | 8266 Aug 03 17:06 | 18° $\Omega$ 03'45              | 0°26'15    | max. Earth dist.    | 8267 Jul 14 15:39 | 23° $\mathcal{E}$ 39'41 | 1.33892 AU |
| minimum elong       | 8266 Aug 03 15:53 | 17° $\Omega$ 57'09              | 0°25'52    |                     | 8267 Jul 17 17:48 | 0° $\Omega$             |            |
|                     | 8266 Aug 09 05:13 | 0° $\mathcal{M}$                |            |                     |                   |                         |            |
| evening rise        | 8266 Aug 10 16:22 | 3° $\mathcal{M}$ 08'30          |            | superior conj       | 8267 Jul 18 18:50 | 2° $\Omega$ 10'45       | -0°01'58   |
|                     | 8266 Aug 25 04:52 | 0° $\mathcal{L}$                |            | minimum elong       | 8267 Jul 18 18:57 | 2° $\Omega$ 11'20       | 0°02'06    |
| evening max el      | 8266 Sep 02 14:58 | 10° $\mathcal{L}$ 22'06         | 23°13'12   | behind sun begin    | 8267 Jul 18 13:20 | 1° $\Omega$ 41'54       |            |
| desc. node          | 8266 Sep 04 20:24 | 12° $\mathcal{L}$ 22'02         |            | behind sun end      | 8267 Jul 19 00:34 | 2° $\Omega$ 40'49       |            |
| retrograde          | 8266 Sep 16 01:11 | 17° $\mathcal{L}$ 04'54         |            | asc. node           | 8267 Jul 18 23:28 | 2° $\Omega$ 35'03       |            |
| evening set         | 8266 Sep 20 01:25 | 16° $\mathcal{L}$ 29'43         |            | evening rise        | 8267 Jul 26 02:49 | 17° $\Omega$ 42'12      |            |
| min. Earth dist.    | 8266 Sep 27 00:14 | 13° $\mathcal{L}$ 17'17         | 0.55448 AU |                     | 8267 Aug 01 05:15 | 0° $\mathcal{M}$        |            |
| inferior conj       | 8266 Sep 28 17:08 | 12° $\mathcal{L}$ 17'37         | -5°28'46   | evening max el      | 8267 Aug 15 06:51 | 20° $\mathcal{M}$ 41'19 | 21°36'47   |
| minimum elong       | 8266 Sep 28 13:21 | 12° $\mathcal{L}$ 23'09         | 5°28'26    | desc. node          | 8267 Aug 22 17:30 | 25° $\mathcal{M}$ 51'10 |            |
| morning rise        | 8266 Oct 07 03:24 | 8° $\mathcal{L}$ 26'43          |            | retrograde          | 8267 Aug 27 15:41 | 26° $\mathcal{M}$ 49'20 |            |
| direct              | 8266 Oct 10 02:39 | 8° $\mathcal{L}$ 05'39          |            | evening set         | 8267 Aug 30 06:52 | 26° $\mathcal{M}$ 33'37 |            |
| morning max el      | 8266 Oct 20 23:09 | 13° $\mathcal{L}$ 10'37         | 20°32'50   | inferior conj       | 8267 Sep 08 11:38 | 22° $\mathcal{M}$ 35'04 | -4°34'22   |
| asc. node           | 8266 Oct 28 02:09 | 21° $\mathcal{L}$ 54'48         |            | minimum elong       | 8267 Sep 08 02:23 | 22° $\mathcal{M}$ 48'01 | 4°32'12    |
|                     | 8266 Nov 01 22:44 | 0° $\mathcal{M}$                |            | min. Earth dist.    | 8267 Sep 08 08:54 | 22° $\mathcal{M}$ 38'53 | 0.54721 AU |
| morning set         | 8266 Nov 08 20:10 | 13° $\mathcal{M}$ 29'42         |            | morning rise        | 8267 Sep 16 22:55 | 18° $\mathcal{M}$ 44'48 |            |
|                     |                   |                                 |            | direct              | 8267 Sep 20 12:31 | 18° $\mathcal{M}$ 17'04 |            |
| superior conj       | 8266 Nov 16 08:17 | 28° $\mathcal{M}$ 59'10         | 1°35'35    | morning max el      | 8267 Oct 02 21:28 | 24° $\mathcal{M}$ 08'13 | 22°06'34   |
| minimum elong       | 8266 Nov 16 10:00 | 29° $\mathcal{M}$ 07'57         | 1°35'37    |                     | 8267 Oct 08 03:47 | 0° $\mathcal{L}$        |            |
|                     | 8266 Nov 16 20:16 | 0° $\mathcal{J}$                |            | asc. node           | 8267 Oct 14 23:07 | 10° $\mathcal{L}$ 15'59 |            |
| max. Earth dist.    | 8266 Nov 21 12:39 | 9° $\mathcal{J}$ 16'33          | 1.36183 AU | morning set         | 8267 Oct 24 06:18 | 28° $\mathcal{L}$ 17'11 |            |
| evening rise        | 8266 Nov 25 10:16 | 16° $\mathcal{J}$ 38'07         |            |                     | 8267 Oct 25 01:50 | 0° $\mathcal{M}$        |            |
| desc. node          | 8266 Dec 01 19:16 | 27° $\mathcal{J}$ 54'43         |            |                     |                   |                         |            |
|                     | 8266 Dec 03 01:01 | 0° $\mathcal{Z}$                |            | superior conj       | 8267 Oct 31 09:14 | 13° $\mathcal{M}$ 25'05 | 1°41'06    |
|                     | 8266 Dec 23 15:32 | 0° $\approx$                    |            | minimum elong       | 8267 Oct 31 09:38 | 13° $\mathcal{M}$ 27'10 | 1°41'12    |
| evening max el      | 8266 Dec 30 23:58 | 8° $\approx$ 08'28              | 26°05'28   | max. Earth dist.    | 8267 Nov 04 02:36 | 21° $\mathcal{M}$ 09'24 | 1.34421 AU |
| retrograde          | 8267 Jan 12 15:39 | 15° $\approx$ 20'05             |            | evening rise        | 8267 Nov 08 13:12 | 29° $\mathcal{M}$ 59'11 |            |
| evening set         | 8267 Jan 18 19:48 | 12° $\approx$ 49'05             |            |                     | 8267 Nov 08 13:22 | 0° $\mathcal{J}$        |            |
| min. Earth dist.    | 8267 Jan 23 01:18 | 8° $\approx$ 20'24              | 0.66878 AU | desc. node          | 8267 Nov 18 16:18 | 18° $\mathcal{J}$ 13'08 |            |
| asc. node           | 8267 Jan 24 01:26 | 7° $\approx$ 05'43              |            |                     | 8267 Nov 26 03:17 | 0° $\mathcal{Z}$        |            |
| inferior conj       | 8267 Jan 24 14:40 | 6° $\approx$ 24'29              | 0°11'01    | evening max el      | 8267 Dec 13 13:14 | 21° $\mathcal{Z}$ 48'00 | 26°57'37   |
| minimum elong       | 8267 Jan 24 14:22 | 6° $\approx$ 25'24              | 0°11'03    | retrograde          | 8267 Dec 26 19:15 | 29° $\mathcal{Z}$ 07'38 |            |
| transit middle      | 8267 Jan 24 14:22 | 6° $\approx$ 25'24              | 0°11'03    | evening set         | 8268 Jan 02 10:34 | 26° $\mathcal{Z}$ 31'45 |            |
| transit begin       | 8267 Jan 24 12:18 | 6° $\approx$ 31'51              |            | min. Earth dist.    | 8268 Jan 06 10:14 | 22° $\mathcal{Z}$ 37'19 | 0.65619 AU |
| transit end         | 8267 Jan 24 16:27 | 6° $\approx$ 18'57              |            | inferior conj       | 8268 Jan 08 11:10 | 20° $\mathcal{Z}$ 16'59 | -0°49'50   |
| morning rise        | 8267 Jan 30 09:37 | 0° $\approx$ 36'25              |            | minimum elong       | 8268 Jan 08 12:37 | 20° $\mathcal{Z}$ 12'51 | 0°49'03    |
|                     | 8267 Jan 31 16:01 | 30° $\mathcal{R}$ $\mathcal{Z}$ |            | asc. node           | 8268 Jan 10 22:29 | 17° $\mathcal{Z}$ 34'18 |            |
| direct              | 8267 Feb 02 13:22 | 29° $\mathcal{Z}$ 39'41         |            | morning rise        | 8268 Jan 14 15:48 | 14° $\mathcal{Z}$ 40'26 |            |
|                     | 8267 Feb 04 11:43 | 0° $\approx$                    |            | direct              | 8268 Jan 17 10:10 | 13° $\mathcal{Z}$ 58'48 |            |
| morning max el      | 8267 Feb 09 06:28 | 3° $\approx$ 18'50              | 18°45'13   | morning max el      | 8268 Jan 23 20:56 | 17° $\mathcal{Z}$ 24'52 | 18°09'23   |
| desc. node          | 8267 Feb 27 18:47 | 29° $\approx$ 31'55             |            |                     | 8268 Feb 02 05:49 | 0° $\approx$            |            |
|                     | 8267 Feb 28 01:58 | 0° $\mathcal{H}$                |            | morning set         | 8268 Feb 11 12:45 | 14° $\approx$ 56'34     |            |
| morning set         | 8267 Mar 02 20:53 | 4° $\mathcal{H}$ 21'58          |            | desc. node          | 8268 Feb 14 15:43 | 20° $\approx$ 00'31     |            |
| max. Earth dist.    | 8267 Mar 18 02:07 | 28° $\mathcal{H}$ 11'09         | 1.45395 AU |                     | 8268 Feb 20 21:02 | 0° $\mathcal{H}$        |            |
|                     |                   |                                 |            |                     |                   |                         |            |
| superior conj       | 8267 Mar 19 05:52 | 29° $\mathcal{H}$ 59'54         | -1°53'43   | superior conj       | 8268 Feb 26 11:39 | 8° $\mathcal{H}$ 52'54  | -1°18'36   |
| minimum elong       | 8267 Mar 18 21:13 | 29° $\mathcal{H}$ 26'03         | 1°53'04    | minimum elong       | 8268 Feb 26 02:53 | 8° $\mathcal{H}$ 18'23  | 1°17'30    |
|                     | 8267 Mar 19 05:53 | 0° $\mathcal{Y}$                |            | max. Earth dist.    | 8268 Feb 28 21:39 | 12° $\mathcal{H}$ 40'41 | 1.45458 AU |
| evening rise        | 8267 Apr 03 14:05 | 24° $\mathcal{Y}$ 21'02         |            |                     | 8268 Mar 11 00:19 | 0° $\mathcal{Y}$        |            |
|                     | 8267 Apr 07 02:19 | 0° $\mathcal{B}$                |            | evening rise        | 8268 Mar 13 15:22 | 4° $\mathcal{Y}$ 04'54  |            |
| greatest brilliancy | 8267 Apr 10 12:55 | 5° $\mathcal{B}$ 31'39          | -0.9m      | greatest brilliancy | 8268 Mar 25 23:16 | 23° $\mathcal{Y}$ 04'25 | -0.7m      |
| asc. node           | 8267 Apr 22 00:18 | 22° $\mathcal{B}$ 31'46         |            |                     | 8268 Mar 30 16:34 | 0° $\mathcal{B}$        |            |
| evening max el      | 8267 Apr 24 13:40 | 25° $\mathcal{B}$ 24'51         | 18°40'43   | evening max el      | 8268 Apr 06 21:37 | 9° $\mathcal{B}$ 01'36  | 19°24'33   |
| retrograde          | 8267 May 01 03:55 | 29° $\mathcal{B}$ 02'12         |            | asc. node           | 8268 Apr 07 21:24 | 9° $\mathcal{B}$ 59'03  |            |
| evening set         | 8267 May 04 09:40 | 28° $\mathcal{B}$ 02'25         |            | retrograde          | 8268 Apr 14 00:49 | 13° $\mathcal{B}$ 04'36 |            |
| inferior conj       | 8267 May 10 01:17 | 22° $\mathcal{B}$ 25'16         | 3°22'02    | evening set         | 8268 Apr 17 14:33 | 11° $\mathcal{B}$ 50'04 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| inferior conj    | 8268 Apr 23 00:54 | 5°♄57'38  | 3°21'39    | asc. node        | 8269 Mar 25 18:30 | 26°♄26'20 |            |
| minimum elong    | 8268 Apr 23 00:15 | 5°♄59'45  | 3°21'31    | retrograde       | 8269 Mar 28 23:18 | 27°♄18'20 |            |
| min. Earth dist. | 8268 Apr 24 08:18 | 4°♄14'57  | 0.66782 AU | evening set      | 8269 Apr 01 21:58 | 25°♄48'37 |            |
| morning rise     | 8268 Apr 28 09:35 | 29°♄39'43 |            | inferior conj    | 8269 Apr 07 05:44 | 19°♄42'41 | 3°08'52    |
|                  | 8268 Apr 28 00:49 | 30°♄♄     |            | minimum elong    | 8269 Apr 07 04:09 | 19°♄48'05 | 3°08'35    |
| direct           | 8268 May 04 13:28 | 26°♄56'08 |            | min. Earth dist. | 8269 Apr 07 22:55 | 18°♄44'00 | 0.67763 AU |
|                  | 8268 May 12 01:40 | 0°♄       |            | morning rise     | 8269 Apr 12 10:07 | 13°♄26'37 |            |
| desc. node       | 8268 May 12 15:28 | 0°♄26'08  |            | direct           | 8269 Apr 18 01:26 | 10°♄55'52 |            |
| morning max el   | 8268 May 17 00:25 | 4°♄23'05  | 25°50'44   | morning max el   | 8269 Apr 29 09:32 | 17°♄42'55 | 24°26'15   |
|                  | 8268 Jun 05 14:22 | 0°♄       |            | desc. node       | 8269 Apr 29 12:27 | 17°♄50'19 |            |
| morning set      | 8268 Jun 22 03:16 | 27°♄42'58 |            |                  | 8269 May 09 16:02 | 0°♄       |            |
|                  | 8268 Jun 23 08:54 | 0°♄       |            |                  | 8269 May 29 15:28 | 0°♄       |            |
| max. Earth dist. | 8268 Jun 25 22:00 | 4°♄48'26  | 1.35590 AU | morning set      | 8269 Jun 04 04:55 | 9°♄27'05  |            |
|                  |                   |           |            | max. Earth dist. | 8269 Jun 07 20:18 | 15°♄55'24 | 1.37666 AU |
| superior conj    | 8268 Jul 01 12:38 | 15°♄51'02 | -0°32'50   | superior conj    | 8269 Jun 14 19:11 | 28°♄55'31 | -1°04'42   |
| minimum elong    | 8268 Jul 01 14:34 | 16°♄00'48 | 0°32'37    | minimum elong    | 8269 Jun 14 23:10 | 29°♄14'47 | 1°04'11    |
| asc. node        | 8268 Jul 04 20:29 | 22°♄38'23 |            |                  | 8269 Jun 15 08:31 | 0°♄       |            |
|                  | 8268 Jul 08 10:06 | 0°♄       |            | asc. node        | 8269 Jun 21 17:31 | 12°♄34'25 |            |
| evening rise     | 8268 Jul 09 10:03 | 2°♄03'05  |            | evening rise     | 8269 Jun 23 11:34 | 16°♄03'34 |            |
|                  | 8268 Jul 25 22:42 | 0°♄       |            |                  | 8269 Jun 30 19:18 | 0°♄       |            |
| evening max el   | 8268 Jul 27 10:28 | 1°♄34'18  | 20°14'32   | evening max el   | 8269 Jul 10 03:04 | 13°♄10'54 | 19°11'59   |
| retrograde       | 8268 Aug 07 04:29 | 6°♄52'49  |            | retrograde       | 8269 Jul 19 04:48 | 17°♄40'02 |            |
| desc. node       | 8268 Aug 08 14:36 | 6°♄47'37  |            | evening set      | 8269 Jul 21 02:13 | 17°♄29'08 |            |
| evening set      | 8268 Aug 09 03:12 | 6°♄43'08  |            | desc. node       | 8269 Jul 26 11:42 | 15°♄16'34 |            |
| inferior conj    | 8268 Aug 18 05:59 | 2°♄45'06  | -2°53'27   | inferior conj    | 8269 Jul 29 13:51 | 13°♄18'07 | -0°56'45   |
| minimum elong    | 8268 Aug 17 22:10 | 2°♄56'36  | 2°50'47    | minimum elong    | 8269 Jul 29 11:22 | 13°♄22'18 | 0°55'55    |
| min. Earth dist. | 8268 Aug 19 19:06 | 1°♄50'27  | 0.54937 AU | min. Earth dist. | 8269 Aug 01 08:29 | 11°♄26'50 | 0.56066 AU |
|                  | 8268 Aug 23 04:04 | 30°♄♄     |            | morning rise     | 8269 Aug 06 17:36 | 8°♄33'54  |            |
| morning rise     | 8268 Aug 26 16:05 | 28°♄35'32 |            | direct           | 8269 Aug 11 20:23 | 7°♄33'35  |            |
| direct           | 8268 Aug 30 23:07 | 27°♄55'43 |            | morning max el   | 8269 Aug 26 00:11 | 14°♄45'34 | 25°33'41   |
|                  | 8268 Sep 07 10:26 | 0°♄       |            |                  | 8269 Sep 07 03:44 | 0°♄       |            |
| morning max el   | 8268 Sep 13 11:24 | 4°♄31'06  | 23°51'45   | asc. node        | 8269 Sep 17 17:04 | 18°♄36'22 |            |
| asc. node        | 8268 Sep 30 20:05 | 29°♄13'11 |            | morning set      | 8269 Sep 22 05:27 | 27°♄54'46 |            |
|                  | 8268 Oct 01 06:02 | 0°♄       |            |                  | 8269 Sep 23 04:50 | 0°♄       |            |
| morning set      | 8268 Oct 07 17:59 | 13°♄07'32 |            | superior conj    | 8269 Sep 29 02:20 | 12°♄55'49 | 1°32'51    |
| superior conj    | 8268 Oct 14 16:04 | 28°♄06'41 | 1°39'56    | minimum elong    | 8269 Sep 29 00:40 | 12°♄46'34 | 1°32'44    |
| minimum elong    | 8268 Oct 14 15:16 | 28°♄02'23 | 1°39'59    | max. Earth dist. | 8269 Sep 30 06:53 | 15°♄32'52 | 1.32160 AU |
|                  | 8268 Oct 15 13:01 | 0°♄       |            | evening rise     | 8269 Oct 06 03:59 | 28°♄09'03 |            |
| max. Earth dist. | 8268 Oct 17 01:14 | 3°♄14'19  | 1.33071 AU |                  | 8269 Oct 07 01:31 | 0°♄       |            |
| evening rise     | 8268 Oct 22 04:14 | 13°♄52'50 |            | desc. node       | 8269 Oct 22 10:28 | 27°♄41'32 |            |
|                  | 8268 Oct 30 17:09 | 0°♄       |            |                  | 8269 Oct 23 22:49 | 0°♄       |            |
| desc. node       | 8268 Nov 04 13:23 | 8°♄11'47  |            | evening max el   | 8269 Nov 07 11:00 | 17°♄59'02 | 27°24'18   |
|                  | 8268 Nov 20 04:11 | 0°♄       |            | retrograde       | 8269 Nov 21 06:20 | 25°♄13'30 |            |
| evening max el   | 8268 Nov 25 01:42 | 5°♄09'31  | 27°25'54   | evening set      | 8269 Nov 28 08:51 | 22°♄50'51 |            |
| retrograde       | 8268 Dec 08 16:19 | 12°♄28'32 |            | min. Earth dist. | 8269 Dec 02 01:03 | 19°♄56'39 | 0.62151 AU |
| evening set      | 8268 Dec 15 15:58 | 9°♄54'44  |            | inferior conj    | 8269 Dec 04 23:39 | 17°♄13'27 | -3°06'26   |
| min. Earth dist. | 8268 Dec 19 10:46 | 6°♄32'54  | 0.64031 AU | minimum elong    | 8269 Dec 05 05:32 | 16°♄59'49 | 3°04'11    |
| inferior conj    | 8268 Dec 21 23:10 | 3°♄55'54  | -1°56'33   | morning rise     | 8269 Dec 12 04:22 | 12°♄09'38 |            |
| minimum elong    | 8268 Dec 22 02:47 | 3°♄46'28  | 1°54'55    | direct           | 8269 Dec 14 10:46 | 11°♄46'55 |            |
|                  | 8268 Dec 26 04:25 | 30°♄♄     |            | asc. node        | 8269 Dec 14 16:35 | 11°♄47'11 |            |
| asc. node        | 8268 Dec 27 19:32 | 28°♄57'08 |            | morning max el   | 8269 Dec 21 06:48 | 15°♄15'25 | 17°49'44   |
| morning rise     | 8268 Dec 28 15:18 | 28°♄33'59 |            |                  | 8269 Dec 31 12:34 | 0°♄       |            |
| direct           | 8268 Dec 31 02:25 | 28°♄03'37 |            | morning set      | 8270 Jan 06 02:43 | 9°♄53'12  |            |
|                  | 8269 Jan 04 22:59 | 0°♄       |            | superior conj    | 8270 Jan 17 06:07 | 29°♄25'13 | 0°08'27    |
| morning max el   | 8269 Jan 06 14:04 | 1°♄26'20  | 17°50'38   | minimum elong    | 8270 Jan 17 06:55 | 29°♄28'38 | 0°08'29    |
| morning set      | 8269 Jan 23 08:44 | 26°♄53'34 |            | behind sun begin | 8270 Jan 16 23:26 | 28°♄56'47 |            |
|                  | 8269 Jan 25 04:36 | 0°♄       |            | behind sun end   | 8270 Jan 17 14:25 | 0°♄00'25  |            |
| desc. node       | 8269 Jan 31 12:40 | 10°♄38'22 |            |                  | 8270 Jan 17 14:19 | 0°♄       |            |
| superior conj    | 8269 Feb 05 08:25 | 18°♄32'39 | -0°34'30   | desc. node       | 8270 Jan 18 09:39 | 1°♄21'41  |            |
| minimum elong    | 8269 Feb 05 04:32 | 18°♄16'56 | 0°33'50    | max. Earth dist. | 8270 Jan 24 09:01 | 11°♄14'15 | 1.43449 AU |
| max. Earth dist. | 8269 Feb 10 16:55 | 27°♄07'35 | 1.44784 AU | evening rise     | 8270 Jan 31 17:48 | 22°♄56'12 |            |
|                  | 8269 Feb 12 12:33 | 0°♄       |            |                  | 8270 Feb 05 07:57 | 0°♄       |            |
| evening rise     | 8269 Feb 21 03:39 | 13°♄24'19 |            |                  | 8270 Feb 26 09:35 | 0°♄       |            |
|                  | 8269 Mar 04 02:58 | 0°♄       |            | evening max el   | 8270 Mar 03 21:33 | 6°♄19'43  | 21°34'18   |
| evening max el   | 8269 Mar 21 00:22 | 22°♄40'06 | 20°23'26   |                  |                   |           |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| retrograde       | 8270 Mar 12 21:24 | 11°♄39'03 |            | evening max el   | 8271 Feb 14 14:08 | 20°♄01'01 | 22°52'42   |
| asc. node        | 8270 Mar 12 15:36 | 11°♄38'45 |            | retrograde       | 8271 Feb 24 17:23 | 26°♄01'37 |            |
| evening set      | 8270 Mar 17 06:07 | 9°♄54'07  |            | asc. node        | 8271 Feb 27 12:42 | 25°♄22'14 |            |
| inferior conj    | 8270 Mar 22 13:31 | 3°♄37'10  | 2°45'38    | evening set      | 8271 Mar 01 13:22 | 24°♄01'50 |            |
| minimum elong    | 8270 Mar 22 11:23 | 3°♄44'34  | 2°45'08    | inferior conj    | 8271 Mar 06 22:13 | 17°♄37'10 | 2°13'06    |
| min. Earth dist. | 8270 Mar 22 17:43 | 3°♄22'33  | 0.68296 AU | minimum elong    | 8271 Mar 06 19:58 | 17°♄44'58 | 2°12'28    |
|                  | 8270 Mar 25 06:20 | 30°♄      |            | min. Earth dist. | 8271 Mar 06 14:25 | 18°♄04'12 | 0.68408 AU |
| morning rise     | 8270 Mar 27 16:29 | 27°♄24'27 |            | morning rise     | 8271 Mar 12 02:28 | 11°♄29'07 |            |
| direct           | 8270 Apr 01 17:55 | 25°♄12'42 |            | direct           | 8271 Mar 16 13:54 | 9°♄39'14  |            |
|                  | 8270 Apr 10 14:32 | 0°♄       |            | morning max el   | 8271 Mar 25 09:28 | 14°♄46'21 | 21°30'26   |
| morning max el   | 8270 Apr 11 19:32 | 1°♄10'30  | 22°56'32   | desc. node       | 8271 Apr 03 06:20 | 25°♄25'03 |            |
| desc. node       | 8270 Apr 16 09:24 | 6°♄15'50  |            |                  | 8271 Apr 06 14:36 | 0°♄       |            |
|                  | 8270 May 03 14:01 | 0°♄       |            | morning set      | 8271 Apr 26 04:16 | 29°♄21'10 |            |
| morning set      | 8270 May 16 06:26 | 20°♄02'37 |            |                  | 8271 Apr 26 14:03 | 0°♄       |            |
| max. Earth dist. | 8270 May 20 16:53 | 27°♄31'47 | 1.39911 AU | max. Earth dist. | 8271 May 02 17:31 | 9°♄56'43  | 1.42055 AU |
|                  | 8270 May 22 03:11 | 0°♄       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8271 May 10 05:39 | 22°♄37'55 | -1°58'55   |
| superior conj    | 8270 May 28 10:27 | 11°♄15'00 | -1°34'47   | minimum elong    | 8271 May 10 11:01 | 23°♄01'10 | 1°58'40    |
| minimum elong    | 8270 May 28 16:03 | 11°♄40'39 | 1°34'14    |                  | 8271 May 14 10:20 | 0°♄       |            |
| evening rise     | 8270 Jun 07 04:18 | 29°♄36'02 |            | evening rise     | 8271 May 21 08:15 | 12°♄29'41 |            |
|                  | 8270 Jun 07 09:19 | 0°♄       |            | asc. node        | 8271 May 26 11:37 | 21°♄47'16 |            |
| asc. node        | 8270 Jun 08 14:35 | 2°♄19'17  |            |                  | 8271 May 31 08:15 | 0°♄       |            |
| evening max el   | 8270 Jun 23 06:16 | 25°♄28'56 | 18°30'19   | evening max el   | 8271 Jun 06 16:14 | 8°♄18'53  | 18°08'54   |
| retrograde       | 8270 Jun 30 23:35 | 29°♄19'48 |            | retrograde       | 8271 Jun 13 12:24 | 11°♄46'50 |            |
| evening set      | 8270 Jul 03 02:51 | 29°♄03'01 |            | evening set      | 8271 Jun 15 23:17 | 11°♄20'33 |            |
| inferior conj    | 8270 Jul 10 18:45 | 24°♄32'54 | 0°45'47    | inferior conj    | 8271 Jun 22 20:47 | 6°♄30'09  | 2°01'16    |
| minimum elong    | 8270 Jul 10 20:22 | 24°♄29'43 | 0°45'02    | minimum elong    | 8271 Jun 22 23:49 | 6°♄23'11  | 2°00'13    |
| desc. node       | 8270 Jul 13 08:46 | 22°♄30'53 |            | min. Earth dist. | 8271 Jun 26 04:32 | 3°♄29'00  | 0.60086 AU |
| min. Earth dist. | 8270 Jul 14 03:05 | 21°♄56'07 | 0.57892 AU | morning rise     | 8271 Jun 29 21:31 | 0°♄41'14  |            |
| morning rise     | 8270 Jul 18 10:24 | 19°♄11'58 |            | desc. node       | 8271 Jun 30 05:49 | 0°♄28'45  |            |
| direct           | 8270 Jul 24 08:20 | 17°♄42'26 |            |                  | 8271 Jul 01 02:53 | 30°♄      |            |
| morning max el   | 8270 Aug 07 17:40 | 25°♄21'13 | 26°55'17   | direct           | 8271 Jul 06 09:29 | 28°♄39'51 |            |
|                  | 8270 Aug 12 01:22 | 0°♄       |            |                  | 8271 Jul 11 22:05 | 0°♄       |            |
|                  | 8270 Aug 31 09:38 | 0°♄       |            | morning max el   | 8271 Jul 20 17:41 | 6°♄35'06  | 27°44'01   |
| asc. node        | 8270 Sep 04 14:03 | 8°♄18'25  |            |                  | 8271 Aug 07 08:20 | 0°♄       |            |
| morning set      | 8270 Sep 06 15:04 | 12°♄34'09 |            | morning set      | 8271 Aug 21 21:04 | 27°♄00'16 |            |
|                  |                   |           |            | asc. node        | 8271 Aug 22 11:02 | 28°♄13'17 |            |
| superior conj    | 8270 Sep 13 14:06 | 27°♄46'21 | 1°20'22    |                  | 8271 Aug 23 07:15 | 0°♄       |            |
| minimum elong    | 8270 Sep 13 11:56 | 27°♄34'18 | 1°20'04    | max. Earth dist. | 8271 Aug 28 02:16 | 10°♄23'57 | 1.31704 AU |
| max. Earth dist. | 8270 Sep 13 16:26 | 27°♄59'19 | 1.31703 AU |                  |                   |           |            |
|                  | 8270 Sep 14 14:11 | 0°♄       |            | superior conj    | 8271 Aug 29 01:31 | 12°♄32'27 | 1°02'55    |
| evening rise     | 8270 Sep 20 09:49 | 12°♄40'30 |            | minimum elong    | 8271 Aug 28 23:18 | 12°♄20'14 | 1°02'29    |
|                  | 8270 Sep 29 04:13 | 0°♄       |            | evening rise     | 8271 Sep 04 19:27 | 27°♄20'36 |            |
| desc. node       | 8270 Oct 09 07:33 | 16°♄30'56 |            |                  | 8271 Sep 06 01:28 | 0°♄       |            |
| evening max el   | 8270 Oct 20 14:29 | 0°♄04'30  | 26°49'11   |                  | 8271 Sep 22 22:00 | 0°♄       |            |
|                  | 8270 Oct 20 12:35 | 0°♄       |            | desc. node       | 8271 Sep 26 04:39 | 4°♄23'59  |            |
| retrograde       | 8270 Nov 03 12:21 | 7°♄13'32  |            | evening max el   | 8271 Oct 02 10:21 | 11°♄20'06 | 25°41'47   |
| evening set      | 8270 Nov 10 09:11 | 5°♄13'03  |            | retrograde       | 8271 Oct 16 08:40 | 18°♄23'03 |            |
| min. Earth dist. | 8270 Nov 14 04:39 | 2°♄35'50  | 0.60084 AU | evening set      | 8271 Oct 22 12:04 | 16°♄54'53 |            |
| inferior conj    | 8270 Nov 17 09:13 | 0°♄00'42  | -4°14'01   | min. Earth dist. | 8271 Oct 26 22:48 | 14°♄18'19 | 0.58018 AU |
| minimum elong    | 8270 Nov 17 16:29 | 29°♄45'55 | 4°11'52    | inferior conj    | 8271 Oct 30 00:29 | 12°♄08'34 | -5°08'57   |
|                  | 8270 Nov 17 09:33 | 30°♄      |            | minimum elong    | 8271 Oct 30 06:32 | 11°♄57'51 | 5°07'51    |
| morning rise     | 8270 Nov 25 02:11 | 25°♄18'02 |            | morning rise     | 8271 Nov 07 03:20 | 7°♄48'30  |            |
| direct           | 8270 Nov 27 07:11 | 24°♄59'42 |            | direct           | 8271 Nov 09 11:27 | 7°♄31'21  |            |
| asc. node        | 8270 Dec 01 13:38 | 26°♄11'53 |            | morning max el   | 8271 Nov 18 01:04 | 11°♄38'54 | 18°46'31   |
| morning max el   | 8270 Dec 04 19:42 | 28°♄42'57 | 18°07'48   | asc. node        | 8271 Nov 18 10:38 | 12°♄02'23 |            |
|                  | 8270 Dec 06 01:09 | 0°♄       |            |                  | 8271 Nov 30 07:13 | 0°♄       |            |
| morning set      | 8270 Dec 20 12:25 | 23°♄36'37 |            | morning set      | 8271 Dec 04 09:02 | 7°♄50'21  |            |
|                  | 8270 Dec 23 22:17 | 0°♄       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8271 Dec 12 23:03 | 24°♄28'51 | 1°11'10    |
| superior conj    | 8270 Dec 30 04:30 | 11°♄28'11 | 0°44'20    | minimum elong    | 8271 Dec 13 02:23 | 24°♄44'36 | 1°10'54    |
| minimum elong    | 8270 Dec 30 07:35 | 11°♄42'01 | 0°44'03    |                  | 8271 Dec 15 22:03 | 0°♄       |            |
| desc. node       | 8271 Jan 05 06:37 | 22°♄06'38 |            | max. Earth dist. | 8271 Dec 20 02:38 | 7°♄33'12  | 1.39503 AU |
| max. Earth dist. | 8271 Jan 06 19:56 | 24°♄44'33 | 1.41615 AU | desc. node       | 8271 Dec 23 03:36 | 12°♄50'07 |            |
|                  | 8271 Jan 09 23:58 | 0°♄       |            | evening rise     | 8271 Dec 24 02:13 | 14°♄26'22 |            |
| evening rise     | 8271 Jan 11 23:10 | 3°♄11'51  |            |                  | 8272 Jan 02 17:12 | 0°♄       |            |
|                  | 8271 Jan 29 16:26 | 0°♄       |            |                  | 8272 Jan 24 15:13 | 0°♄       |            |

|                  |                   |                          |            |                     |                   |                           |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|---------------------------|------------|
| evening max el   | 8272 Jan 28 04:10 | 3° $\text{H}$ 46'28      | 24°12'40   | retrograde          | 8273 Jan 21 21:54 | 24° $\approx$ 35'07       |            |
| retrograde       | 8272 Feb 08 09:55 | 10° $\text{H}$ 22'06     |            | evening set         | 8273 Jan 27 18:58 | 22° $\approx$ 09'33       |            |
| evening set      | 8272 Feb 13 18:10 | 8° $\text{H}$ 08'28      |            | asc. node           | 8273 Jan 31 06:50 | 18° $\approx$ 28'14       |            |
| asc. node        | 8272 Feb 14 09:47 | 7° $\text{H}$ 33'21      |            | min. Earth dist.    | 8273 Feb 01 04:19 | 17° $\approx$ 20'56       | 0.67448 AU |
| min. Earth dist. | 8272 Feb 18 10:44 | 2° $\text{H}$ 45'09      | 0.68122 AU | inferior conj       | 8273 Feb 02 11:00 | 15° $\approx$ 42'18       | 0°42'51    |
| inferior conj    | 8272 Feb 19 06:00 | 1° $\text{H}$ 40'07      | 1°32'02    | minimum elong       | 8273 Feb 02 09:58 | 15° $\approx$ 45'39       | 0°42'34    |
| minimum elong    | 8272 Feb 19 04:06 | 1° $\text{H}$ 46'33      | 1°31'26    | morning rise        | 8273 Feb 08 01:19 | 9° $\approx$ 48'36        |            |
|                  | 8272 Feb 20 12:03 | 30° $\text{R}$ $\approx$ |            | direct              | 8273 Feb 11 11:27 | 8° $\approx$ 41'17        |            |
| morning rise     | 8272 Feb 24 14:04 | 25° $\approx$ 38'18      |            | morning max el      | 8273 Feb 18 11:19 | 12° $\approx$ 32'37       | 19°13'16   |
| direct           | 8272 Feb 28 12:15 | 24° $\approx$ 10'33      |            | greatest brilliancy | 8273 Mar 03 16:39 | 0° $\text{H}$ 09'34       | -0.7m      |
| morning max el   | 8272 Mar 07 06:23 | 28° $\approx$ 33'51      | 20°14'40   |                     | 8273 Mar 03 14:06 | 0° $\text{H}$             |            |
|                  | 8272 Mar 08 15:26 | 0° $\text{H}$            |            | desc. node          | 8273 Mar 07 00:11 | 5° $\text{H}$ 10'53       |            |
| desc. node       | 8272 Mar 20 03:15 | 15° $\text{H}$ 06'19     |            | morning set         | 8273 Mar 14 05:26 | 16° $\text{H}$ 17'12      |            |
|                  | 8272 Mar 30 03:32 | 0° $\text{Y}$            |            |                     | 8273 Mar 23 01:15 | 0° $\text{Y}$             |            |
| morning set      | 8272 Apr 04 04:49 | 7° $\text{Y}$ 44'38      |            | max. Earth dist.    | 8273 Mar 27 16:33 | 7° $\text{Y}$ 16'25       | 1.45028 AU |
| max. Earth dist. | 8272 Apr 14 01:33 | 23° $\text{Y}$ 15'07     | 1.43833 AU |                     |                   |                           |            |
|                  | 8272 Apr 18 05:42 | 0° $\text{B}$            |            | superior conj       | 8273 Mar 30 20:11 | 12° $\text{Y}$ 15'19      | -2°06'02   |
|                  |                   |                          |            | minimum elong       | 8273 Mar 30 14:44 | 11° $\text{Y}$ 53'40      | 2°05'50    |
| superior conj    | 8272 Apr 20 00:49 | 2° $\text{B}$ 56'45      | -2°11'21   |                     | 8273 Apr 10 20:27 | 0° $\text{B}$             |            |
| minimum elong    | 8272 Apr 20 02:19 | 3° $\text{B}$ 02'56      | 2°11'25    | evening rise        | 8273 Apr 14 07:51 | 5° $\text{B}$ 42'48       |            |
| evening rise     | 8272 May 02 18:53 | 24° $\text{B}$ 34'30     |            | asc. node           | 8273 Apr 29 05:43 | 29° $\text{B}$ 27'47      |            |
|                  | 8272 May 05 21:56 | 0° $\text{II}$           |            |                     | 8273 Apr 29 15:04 | 0° $\text{II}$            |            |
| asc. node        | 8272 May 12 08:40 | 10° $\text{II}$ 52'35    |            | evening max el      | 8273 May 03 18:18 | 4° $\text{II}$ 57'47      | 18°23'13   |
| evening max el   | 8272 May 20 05:18 | 21° $\text{II}$ 31'17    | 18°06'48   | retrograde          | 8273 May 10 04:27 | 8° $\text{II}$ 25'16      |            |
| retrograde       | 8272 May 26 15:28 | 24° $\text{II}$ 51'51    |            | evening set         | 8273 May 13 06:03 | 7° $\text{II}$ 33'27      |            |
| evening set      | 8272 May 29 09:51 | 24° $\text{II}$ 13'31    |            | inferior conj       | 8273 May 19 02:06 | 2° $\text{II}$ 05'35      | 3°15'30    |
| inferior conj    | 8272 Jun 04 16:36 | 19° $\text{II}$ 03'37    | 2°49'39    | minimum elong       | 8273 May 19 03:28 | 2° $\text{II}$ 01'35      | 3°15'12    |
| minimum elong    | 8272 Jun 04 19:12 | 18° $\text{II}$ 56'50    | 2°48'58    |                     | 8273 May 20 21:10 | 30° $\text{R}$ $\text{B}$ |            |
| min. Earth dist. | 8272 Jun 07 14:20 | 16° $\text{II}$ 02'32    | 0.62320 AU | min. Earth dist.    | 8273 May 21 09:25 | 29° $\text{B}$ 25'07      | 0.64342 AU |
| morning rise     | 8272 Jun 11 02:44 | 12° $\text{II}$ 57'30    |            | morning rise        | 8273 May 24 23:54 | 25° $\text{B}$ 50'38      |            |
| desc. node       | 8272 Jun 16 02:51 | 10° $\text{II}$ 39'36    |            | direct              | 8273 May 31 16:45 | 23° $\text{B}$ 07'40      |            |
| direct           | 8272 Jun 17 20:57 | 10° $\text{II}$ 29'57    |            | desc. node          | 8273 Jun 02 23:51 | 23° $\text{B}$ 24'42      |            |
| morning max el   | 8272 Jul 01 23:29 | 18° $\text{II}$ 31'57    | 27°54'44   |                     | 8273 Jun 13 05:53 | 0° $\text{II}$            |            |
|                  | 8272 Jul 11 14:59 | 0° $\text{B}$            |            | morning max el      | 8273 Jun 14 09:01 | 1° $\text{II}$ 06'40      | 27°29'04   |
|                  | 8272 Jul 30 04:51 | 0° $\text{Q}$            |            |                     | 8273 Jul 05 17:55 | 0° $\text{B}$             |            |
| morning set      | 8272 Aug 04 21:23 | 11° $\text{Q}$ 07'00     |            | morning set         | 8273 Jul 19 13:34 | 24° $\text{B}$ 47'31      |            |
| asc. node        | 8272 Aug 08 07:59 | 18° $\text{Q}$ 15'50     |            |                     | 8273 Jul 22 04:07 | 0° $\text{Q}$             |            |
| max. Earth dist. | 8272 Aug 10 08:39 | 22° $\text{Q}$ 36'01     | 1.32177 AU | max. Earth dist.    | 8273 Jul 24 07:52 | 4° $\text{Q}$ 25'44       | 1.33128 AU |
|                  |                   |                          |            | asc. node           | 8273 Jul 26 04:57 | 8° $\text{Q}$ 21'58       |            |
| superior conj    | 8272 Aug 12 10:46 | 27° $\text{Q}$ 08'04     | 0°40'52    |                     |                   |                           |            |
| minimum elong    | 8272 Aug 12 09:01 | 26° $\text{Q}$ 58'34     | 0°40'25    | superior conj       | 8273 Jul 27 15:53 | 11° $\text{Q}$ 27'29      | 0°14'43    |
|                  | 8272 Aug 13 18:11 | 0° $\text{P}$            |            | minimum elong       | 8273 Jul 27 15:10 | 11° $\text{Q}$ 23'37      | 0°14'26    |
| evening rise     | 8272 Aug 19 06:54 | 12° $\text{P}$ 03'00     |            | behind sun begin    | 8273 Jul 27 12:47 | 11° $\text{Q}$ 10'56      |            |
|                  | 8272 Aug 28 07:31 | 0° $\text{A}$            |            | behind sun end      | 8273 Jul 27 17:32 | 11° $\text{Q}$ 36'17      |            |
| desc. node       | 8272 Sep 12 01:45 | 20° $\text{A}$ 58'00     |            | evening rise        | 8273 Aug 03 18:18 | 26° $\text{Q}$ 41'57      |            |
| evening max el   | 8272 Sep 12 23:20 | 21° $\text{A}$ 51'23     | 24°10'33   |                     | 8273 Aug 05 07:58 | 0° $\text{P}$             |            |
| retrograde       | 8272 Sep 26 16:43 | 28° $\text{A}$ 44'06     |            |                     | 8273 Aug 23 11:54 | 0° $\text{A}$             |            |
| evening set      | 8272 Oct 01 14:08 | 27° $\text{A}$ 51'26     |            | evening max el      | 8273 Aug 25 11:24 | 2° $\text{A}$ 04'02       | 22°31'08   |
| min. Earth dist. | 8272 Oct 07 10:06 | 24° $\text{A}$ 57'07     | 0.56233 AU | desc. node          | 8273 Aug 29 22:51 | 5° $\text{A}$ 44'10       |            |
| inferior conj    | 8272 Oct 09 19:21 | 23° $\text{A}$ 28'46     | -5°34'44   | retrograde          | 8273 Sep 07 12:23 | 8° $\text{A}$ 34'11       |            |
| minimum elong    | 8272 Oct 09 20:00 | 23° $\text{A}$ 27'46     | 5°34'40    | evening set         | 8273 Sep 10 21:37 | 8° $\text{A}$ 08'59       |            |
| morning rise     | 8272 Oct 18 03:59 | 19° $\text{A}$ 29'25     |            | min. Earth dist.    | 8273 Sep 18 18:22 | 4° $\text{A}$ 40'33       | 0.55038 AU |
| direct           | 8272 Oct 20 20:38 | 19° $\text{A}$ 10'25     |            | inferior conj       | 8273 Sep 19 20:14 | 4° $\text{A}$ 03'55       | -5°12'34   |
| morning max el   | 8272 Oct 30 19:18 | 23° $\text{A}$ 51'43     | 19°47'32   | minimum elong       | 8273 Sep 19 13:28 | 4° $\text{A}$ 13'31       | 5°11'33    |
| asc. node        | 8272 Nov 04 07:36 | 29° $\text{A}$ 02'43     |            | morning rise        | 8273 Sep 28 07:11 | 0° $\text{A}$ 15'56       |            |
|                  | 8272 Nov 05 00:18 | 0° $\text{M}$            |            |                     | 8273 Sep 29 16:59 | 30° $\text{R}$ $\text{P}$ |            |
| morning set      | 8272 Nov 17 12:56 | 22° $\text{M}$ 23'00     |            | direct              | 8273 Oct 01 12:25 | 29° $\text{P}$ 52'26      |            |
|                  | 8272 Nov 21 06:52 | 0° $\text{J}$            |            |                     | 8273 Oct 03 07:09 | 0° $\text{A}$             |            |
| superior conj    | 8272 Nov 25 08:39 | 8° $\text{J}$ 11'52      | 1°29'02    | morning max el      | 8273 Oct 13 00:34 | 5° $\text{A}$ 15'54       | 21°10'32   |
| minimum elong    | 8272 Nov 25 11:07 | 8° $\text{J}$ 24'04      | 1°28'58    | asc. node           | 8273 Oct 22 04:35 | 16° $\text{A}$ 58'08      |            |
| max. Earth dist. | 8272 Dec 01 08:40 | 19° $\text{J}$ 46'11     | 1.37354 AU |                     | 8273 Oct 29 09:30 | 0° $\text{M}$             |            |
| evening rise     | 8272 Dec 05 02:32 | 26° $\text{J}$ 36'44     |            | morning set         | 8273 Nov 01 21:26 | 7° $\text{M}$ 07'00       |            |
|                  | 8272 Dec 07 00:32 | 0° $\text{Z}$            |            |                     |                   |                           |            |
| desc. node       | 8272 Dec 09 00:37 | 3° $\text{Z}$ 27'34      |            | superior conj       | 8273 Nov 09 05:02 | 22° $\text{M}$ 25'09      | 1°38'47    |
|                  | 8272 Dec 26 05:10 | 0° $\approx$             |            | minimum elong       | 8273 Nov 09 06:11 | 22° $\text{M}$ 31'09      | 1°38'52    |
| evening max el   | 8273 Jan 09 17:22 | 17° $\approx$ 34'15      | 25°27'30   |                     | 8273 Nov 12 22:26 | 0° $\text{J}$             |            |
|                  |                   |                          |            | max. Earth dist.    | 8273 Nov 13 18:39 | 1° $\text{J}$ 40'32       | 1.35397 AU |

|                     |                   |           |               |                     |                   |                      |
|---------------------|-------------------|-----------|---------------|---------------------|-------------------|----------------------|
| evening rise        | 8273 Nov 17 20:52 | 9°♌34'35  |               | 8274 Oct 21 02:52   | 0°♍               |                      |
| desc. node          | 8273 Nov 25 21:40 | 23°♌54'26 |               |                     |                   |                      |
|                     | 8273 Nov 29 14:29 | 0°♌       | superior conj | 8274 Oct 24 08:49   | 6°♍58'53          | 1°41'22              |
|                     | 8273 Dec 21 22:51 | 0°♍       | minimum elong | 8274 Oct 24 08:41   | 6°♍58'10          | 1°41'28              |
| evening max el      | 8273 Dec 23 06:32 | 1°♍18'46  | 26°29'58      | max. Earth dist.    | 8274 Oct 27 12:11 | 13°♍36'47 1.33790 AU |
| retrograde          | 8274 Jan 05 04:41 | 8°♍34'26  |               | evening rise        | 8274 Nov 01 05:21 | 23°♍10'25            |
| evening set         | 8274 Jan 11 14:01 | 6°♍00'30  |               |                     | 8274 Nov 04 18:43 | 0°♌                  |
| min. Earth dist.    | 8274 Jan 15 16:56 | 1°♍46'43  | 0.66395 AU    | desc. node          | 8274 Nov 12 18:44 | 14°♌05'24            |
| inferior conj       | 8274 Jan 17 11:15 | 29°♌39'36 | -0°13'57      |                     | 8274 Nov 23 06:25 | 0°♌                  |
| minimum elong       | 8274 Jan 17 11:37 | 29°♌38'28 | 0°13'38       | evening max el      | 8274 Dec 05 19:29 | 14°♌51'40 27°12'51   |
| transit middle      | 8274 Jan 17 11:37 | 29°♌38'28 | 0°13'38       | retrograde          | 8274 Dec 19 05:46 | 22°♌12'27            |
| transit begin       | 8274 Jan 17 10:05 | 29°♌43'06 |               | evening set         | 8274 Dec 26 01:12 | 19°♌36'06            |
| transit end         | 8274 Jan 17 13:09 | 29°♌33'51 |               | min. Earth dist.    | 8274 Dec 29 22:28 | 15°♌56'11 0.64983 AU |
|                     | 8274 Jan 17 04:29 | 30°♌♌     |               | inferior conj       | 8275 Jan 01 04:30 | 13°♌27'19 -1°17'30   |
| asc. node           | 8274 Jan 18 03:54 | 28°♌49'48 |               | minimum elong       | 8275 Jan 01 06:49 | 13°♌20'54 1°16'22    |
| morning rise        | 8274 Jan 23 10:05 | 23°♌56'18 |               | asc. node           | 8275 Jan 05 00:58 | 9°♌35'59             |
| direct              | 8274 Jan 26 09:40 | 23°♌06'23 |               | morning rise        | 8275 Jan 07 13:52 | 7°♌56'57             |
| morning max el      | 8274 Feb 01 23:03 | 26°♌38'15 | 18°27'55      | direct              | 8275 Jan 10 04:48 | 7°♌20'41             |
|                     | 8274 Feb 04 22:44 | 0°♍       |               | morning max el      | 8275 Jan 16 15:09 | 10°♌44'10 17°59'19   |
| desc. node          | 8274 Feb 21 21:08 | 25°♍32'15 |               |                     | 8275 Jan 30 00:11 | 0°♍                  |
| morning set         | 8274 Feb 22 04:15 | 26°♍00'32 |               | morning set         | 8275 Feb 03 08:42 | 7°♍12'33             |
|                     | 8274 Feb 24 16:36 | 0°♎       |               | desc. node          | 8275 Feb 08 18:05 | 16°♍05'37            |
| superior conj       | 8274 Mar 10 01:37 | 21°♎02'50 | -1°40'34      | superior conj       | 8275 Feb 17 11:59 | 0°♎11'45 -1°00'21    |
| minimum elong       | 8274 Mar 09 16:01 | 20°♎25'17 | 1°39'39       | minimum elong       | 8275 Feb 17 05:01 | 29°♍44'02 0°59'21    |
| max. Earth dist.    | 8274 Mar 10 11:27 | 21°♎41'18 | 1.45515 AU    |                     | 8275 Feb 17 09:02 | 0°♎                  |
|                     | 8274 Mar 15 18:51 | 0°♏       |               | max. Earth dist.    | 8275 Feb 21 07:04 | 6°♎11'38 1.45254 AU  |
| evening rise        | 8274 Mar 25 21:19 | 15°♏54'05 |               | evening rise        | 8275 Mar 05 15:35 | 25°♎23'55            |
|                     | 8274 Apr 03 19:48 | 0°♏       |               |                     | 8275 Mar 08 15:23 | 0°♏                  |
| greatest brilliancy | 8274 Apr 04 09:19 | 0°♏52'39  | -0.8m         | greatest brilliancy | 8275 Mar 19 17:07 | 16°♏45'40 -0.6m      |
| asc. node           | 8274 Apr 16 02:48 | 17°♏22'59 |               |                     | 8275 Mar 29 11:06 | 0°♏                  |
| evening max el      | 8274 Apr 17 04:35 | 18°♏31'27 | 18°57'21      | evening max el      | 8275 Mar 31 10:23 | 2°♏09'13 19°47'50    |
| retrograde          | 8274 Apr 23 23:27 | 22°♏18'39 |               | asc. node           | 8275 Apr 02 23:54 | 4°♏26'50             |
| evening set         | 8274 Apr 27 08:30 | 21°♏12'34 |               | retrograde          | 8275 Apr 07 21:25 | 6°♏26'40             |
| inferior conj       | 8274 May 02 21:29 | 15°♏28'24 | 3°23'35       | evening set         | 8275 Apr 11 14:43 | 5°♏05'51             |
| minimum elong       | 8274 May 02 21:31 | 15°♏28'18 | 3°23'27       |                     | 8275 Apr 16 07:50 | 30°♎♏                |
| min. Earth dist.    | 8274 May 04 13:26 | 13°♏22'18 | 0.66009 AU    | inferior conj       | 8275 Apr 16 23:40 | 29°♏07'19 3°17'38    |
| morning rise        | 8274 May 08 10:01 | 9°♏10'20  |               | minimum elong       | 8275 Apr 16 22:35 | 29°♏10'57 3°17'26    |
| direct              | 8274 May 14 19:40 | 6°♏23'51  |               | min. Earth dist.    | 8275 Apr 18 00:54 | 27°♏42'56 0.67253 AU |
| desc. node          | 8274 May 20 20:52 | 8°♏22'10  |               | morning rise        | 8275 Apr 22 06:08 | 22°♏49'38            |
| morning max el      | 8274 May 27 19:35 | 14°♏07'20 | 26°33'09      | direct              | 8275 Apr 28 04:50 | 20°♏10'30            |
|                     | 8274 Jun 09 17:04 | 0°♐       |               | desc. node          | 8275 May 07 17:51 | 25°♏01'13            |
|                     | 8274 Jun 28 11:36 | 0°♑       |               | morning max el      | 8275 May 10 05:19 | 27°♏22'55 25°16'00   |
| morning set         | 8274 Jul 02 18:18 | 7°♑52'06  |               |                     | 8275 May 12 16:15 | 0°♏                  |
| max. Earth dist.    | 8274 Jul 06 20:43 | 15°♑47'27 | 1.34558 AU    |                     | 8275 Jun 03 08:56 | 0°♐                  |
| superior conj       | 8274 Jul 11 14:33 | 25°♑23'18 | -0°14'49      | morning set         | 8275 Jun 15 07:20 | 20°♐09'46            |
| minimum elong       | 8274 Jul 11 15:23 | 25°♑27'37 | 0°14'48       | max. Earth dist.    | 8275 Jun 18 22:49 | 26°♐50'39 1.36435 AU |
| behind sun begin    | 8274 Jul 11 13:05 | 25°♑15'44 |               |                     | 8275 Jun 20 15:01 | 0°♑                  |
| behind sun end      | 8274 Jul 11 17:41 | 25°♑39'30 |               | superior conj       | 8275 Jun 25 03:57 | 8°♑48'56 -0°46'23    |
| asc. node           | 8274 Jul 13 01:57 | 28°♑27'00 |               | minimum elong       | 8275 Jun 25 06:46 | 9°♑02'51 0°46'01     |
|                     | 8274 Jul 13 19:45 | 0°♒       |               | asc. node           | 8275 Jun 29 22:58 | 18°♑27'26            |
| evening rise        | 8274 Jul 19 03:39 | 11°♒10'37 |               | evening rise        | 8275 Jul 03 08:45 | 25°♑23'10            |
|                     | 8274 Jul 28 23:07 | 0°♒       |               |                     | 8275 Jul 05 15:54 | 0°♒                  |
| evening max el      | 8274 Aug 07 07:28 | 12°♒33'38 | 20°59'34      | evening max el      | 8275 Jul 20 16:42 | 23°♒44'23 19°45'23   |
| desc. node          | 8274 Aug 16 19:57 | 18°♒10'16 |               | retrograde          | 8275 Jul 30 17:22 | 28°♒41'09            |
| retrograde          | 8274 Aug 19 01:03 | 18°♒22'24 |               | evening set         | 8275 Aug 01 13:53 | 28°♒31'45            |
| evening set         | 8274 Aug 21 06:53 | 18°♒10'28 |               | desc. node          | 8275 Aug 03 17:03 | 27°♒59'16            |
| inferior conj       | 8274 Aug 30 12:44 | 14°♒13'31 | -3°55'49      | inferior conj       | 8275 Aug 10 11:22 | 24°♒29'44 -2°03'47   |
| minimum elong       | 8274 Aug 30 03:16 | 14°♒26'56 | 3°53'04       | minimum elong       | 8275 Aug 10 05:43 | 24°♒38'30 2°01'45    |
| min. Earth dist.    | 8274 Aug 31 03:19 | 13°♒52'53 | 0.54691 AU    | min. Earth dist.    | 8275 Aug 12 14:58 | 23°♒10'00 0.55308 AU |
| morning rise        | 8274 Sep 07 23:58 | 10°♒17'38 |               | morning rise        | 8275 Aug 18 19:27 | 20°♒06'08            |
| direct              | 8274 Sep 11 20:20 | 9°♒45'53  |               | direct              | 8275 Aug 23 10:36 | 19°♒18'40            |
| morning max el      | 8274 Sep 24 18:40 | 15°♒56'18 | 22°50'44      | morning max el      | 8275 Sep 06 07:16 | 26°♒11'49 24°36'37   |
|                     | 8274 Oct 05 18:36 | 0°♓       |               |                     | 8275 Sep 09 22:28 | 0°♒                  |
| asc. node           | 8274 Oct 09 01:34 | 5°♓35'38  |               | asc. node           | 8275 Sep 25 22:33 | 24°♒44'35            |
| morning set         | 8274 Oct 17 08:27 | 21°♓56'23 |               |                     | 8275 Sep 28 14:19 | 0°♓                  |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| morning set      | 8275 Oct 01 20:12 | 6°♌45'37  |            |                  | 8276 Jul 29 22:03 | 30°♊☿     |            |
|                  |                   |           |            | direct           | 8276 Aug 03 14:32 | 29°♊06'56 |            |
| superior conj    | 8275 Oct 08 17:21 | 21°♌44'29 | 1°37'37    |                  | 8276 Aug 08 07:57 | 0°♌       |            |
| minimum elong    | 8275 Oct 08 16:09 | 21°♌37'52 | 1°37'37    | morning max el   | 8276 Aug 17 21:18 | 6°♌31'37  | 26°11'48   |
| max. Earth dist. | 8275 Oct 10 13:49 | 25°♌46'20 | 1.32619 AU |                  | 8276 Sep 04 04:28 | 0°♍       |            |
|                  | 8275 Oct 12 13:05 | 0°♍       |            | asc. node        | 8276 Sep 11 19:32 | 14°♍16'45 |            |
| evening rise     | 8275 Oct 16 00:25 | 7°♍14'31  |            | morning set      | 8276 Sep 15 07:04 | 21°♍30'11 |            |
|                  | 8275 Oct 28 06:44 | 0°♎       |            |                  | 8276 Sep 19 05:02 | 0°♎       |            |
| desc. node       | 8275 Oct 30 15:49 | 3°♎52'57  |            |                  |                   |           |            |
| evening max el   | 8275 Nov 18 06:48 | 28°♎01'08 | 27°29'15   | superior conj    | 8276 Sep 22 04:30 | 6°♎35'15  | 1°28'12    |
|                  | 8275 Nov 20 12:00 | 0°♏       |            | minimum elong    | 8276 Sep 22 02:33 | 6°♎24'31  | 1°28'00    |
| retrograde       | 8275 Dec 02 00:15 | 5°♏19'24  |            | max. Earth dist. | 8276 Sep 22 21:30 | 8°♎09'18  | 1.31906 AU |
| evening set      | 8275 Dec 09 01:45 | 2°♏49'04  |            | evening rise     | 8276 Sep 29 03:04 | 21°♎38'39 |            |
|                  | 8275 Dec 12 10:29 | 30°♏♎     |            |                  | 8276 Oct 03 05:41 | 0°♍       |            |
| min. Earth dist. | 8275 Dec 12 18:58 | 29°♎39'46 | 0.63255 AU | desc. node       | 8276 Oct 16 12:55 | 23°♍07'30 |            |
| inferior conj    | 8275 Dec 15 12:01 | 26°♎58'25 | -2°26'04   |                  | 8276 Oct 21 09:02 | 0°♎       |            |
| minimum elong    | 8275 Dec 15 16:37 | 26°♎46'57 | 2°24'06    | evening max el   | 8276 Oct 30 14:11 | 10°♎34'26 | 27°13'43   |
| morning rise     | 8275 Dec 22 09:26 | 21°♎43'49 |            | retrograde       | 8276 Nov 13 10:59 | 17°♎46'13 |            |
| asc. node        | 8275 Dec 22 22:03 | 21°♎33'24 |            | evening set      | 8276 Nov 20 12:09 | 15°♎32'04 |            |
| direct           | 8275 Dec 24 18:03 | 21°♎17'17 |            | min. Earth dist. | 8276 Nov 24 04:54 | 12°♎46'25 | 0.61283 AU |
| morning max el   | 8275 Dec 31 08:32 | 24°♎41'44 | 17°47'58   | inferior conj    | 8276 Nov 27 06:36 | 10°♎04'54 | -3°35'53   |
|                  | 8276 Jan 04 17:00 | 0°♏       |            | minimum elong    | 8276 Nov 27 13:16 | 9°♎50'16  | 3°33'32    |
| morning set      | 8276 Jan 16 14:53 | 19°♏38'46 |            | morning rise     | 8276 Dec 04 16:38 | 5°♎09'23  |            |
|                  | 8276 Jan 22 14:50 | 0°♐       |            | direct           | 8276 Dec 06 21:58 | 4°♎48'54  |            |
| desc. node       | 8276 Jan 26 15:02 | 6°♐46'14  |            | asc. node        | 8276 Dec 08 19:04 | 5°♎04'06  |            |
|                  |                   |           |            | morning max el   | 8276 Dec 13 24:00 | 8°♎22'49  | 17°54'55   |
| superior conj    | 8276 Jan 28 18:52 | 10°♐21'31 | -0°15'44   |                  | 8276 Dec 28 00:51 | 0°♏       |            |
| minimum elong    | 8276 Jan 28 17:13 | 10°♐14'42 | 0°15'20    | morning set      | 8276 Dec 29 16:16 | 2°♏59'36  |            |
| behind sun begin | 8276 Jan 28 14:22 | 10°♐02'55 |            |                  |                   |           |            |
| behind sun end   | 8276 Jan 28 20:04 | 10°♐26'28 |            | superior conj    | 8277 Jan 09 03:26 | 21°♏45'06 | 0°24'42    |
| max. Earth dist. | 8276 Feb 04 00:44 | 20°♐30'06 | 1.44289 AU | minimum elong    | 8277 Jan 09 05:30 | 21°♏54'06 | 0°24'33    |
|                  | 8276 Feb 10 01:18 | 0°♑       |            | desc. node       | 8277 Jan 12 12:01 | 27°♏30'49 |            |
| evening rise     | 8276 Feb 13 02:40 | 4°♑43'52  |            |                  | 8277 Jan 13 23:25 | 0°♐       |            |
|                  | 8276 Mar 01 01:40 | 0°♒       |            | max. Earth dist. | 8277 Jan 16 14:52 | 4°♐23'25  | 1.42728 AU |
| evening max el   | 8276 Mar 13 10:45 | 15°♒48'22 | 20°52'21   | evening rise     | 8277 Jan 22 22:05 | 14°♐32'04 |            |
| asc. node        | 8276 Mar 19 21:02 | 20°♒24'14 |            |                  | 8277 Feb 02 00:42 | 0°♑       |            |
| retrograde       | 8276 Mar 21 19:56 | 20°♒43'45 |            | evening max el   | 8277 Feb 24 05:57 | 29°♑29'08 | 22°07'03   |
| evening set      | 8276 Mar 25 22:39 | 19°♒07'47 |            |                  | 8277 Feb 24 18:21 | 0°♒       |            |
| inferior conj    | 8276 Mar 31 06:02 | 12°♒56'59 | 3°00'11    | retrograde       | 8277 Mar 05 17:10 | 5°♒05'41  |            |
| minimum elong    | 8276 Mar 31 04:10 | 13°♒03'25 | 2°59'48    | asc. node        | 8277 Mar 06 18:07 | 5°♒00'11  |            |
| min. Earth dist. | 8276 Mar 31 17:39 | 12°♒16'53 | 0.68049 AU | evening set      | 8277 Mar 10 06:35 | 3°♒14'26  |            |
| morning rise     | 8276 Apr 05 09:28 | 6°♒42'02  |            |                  | 8277 Mar 13 07:24 | 30°♒♑     |            |
| direct           | 8276 Apr 10 19:02 | 4°♒18'30  |            | inferior conj    | 8277 Mar 15 14:25 | 26°♑54'01 | 2°32'52    |
| morning max el   | 8276 Apr 21 14:19 | 10°♒45'35 | 23°47'59   | minimum elong    | 8277 Mar 15 12:11 | 27°♑01'48 | 2°32'19    |
| desc. node       | 8276 Apr 23 14:47 | 12°♒53'47 |            | min. Earth dist. | 8277 Mar 15 13:28 | 26°♑57'22 | 0.68405 AU |
|                  | 8276 May 06 21:11 | 0°♓       |            | morning rise     | 8277 Mar 20 17:38 | 20°♑43'15 |            |
|                  | 8276 May 26 03:02 | 0°♔       |            | direct           | 8277 Mar 25 13:10 | 18°♑40'27 |            |
| morning set      | 8276 May 26 23:21 | 1°♔26'24  |            | morning max el   | 8277 Apr 04 01:22 | 24°♑15'37 | 22°18'51   |
| max. Earth dist. | 8276 May 30 18:56 | 8°♔04'12  | 1.38617 AU |                  | 8277 Apr 09 03:46 | 0°♒       |            |
|                  |                   |           |            | desc. node       | 8277 Apr 10 11:43 | 1°♒39'28  |            |
| superior conj    | 8276 Jun 07 04:33 | 21°♔35'49 | -1°17'54   |                  | 8277 Apr 30 07:18 | 0°♓       |            |
| minimum elong    | 8276 Jun 07 09:20 | 21°♔58'26 | 1°17'20    | morning set      | 8277 May 07 13:03 | 11°♓28'30 |            |
|                  | 8276 Jun 11 13:47 | 0°♕       |            | max. Earth dist. | 8277 May 12 16:52 | 20°♓00'48 | 1.40860 AU |
| asc. node        | 8276 Jun 15 20:02 | 8°♕19'25  |            |                  | 8277 May 18 11:55 | 0°♔       |            |
| evening rise     | 8276 Jun 16 06:55 | 9°♕12'40  |            |                  |                   |           |            |
|                  | 8276 Jun 27 23:12 | 0°♌       |            | superior conj    | 8277 May 20 11:52 | 3°♔32'49  | -1°46'04   |
| evening max el   | 8276 Jul 02 14:21 | 5°♌40'12  | 18°51'47   | minimum elong    | 8277 May 20 17:42 | 3°♔58'54  | 1°45'37    |
| retrograde       | 8276 Jul 11 00:47 | 9°♌50'46  |            | evening rise     | 8277 May 30 18:42 | 22°♔29'52 |            |
| evening set      | 8276 Jul 13 00:22 | 9°♌37'49  |            | asc. node        | 8277 Jun 02 17:04 | 27°♔57'49 |            |
| desc. node       | 8276 Jul 20 14:07 | 5°♌43'41  |            |                  | 8277 Jun 03 19:37 | 0°♕       |            |
| inferior conj    | 8276 Jul 21 03:45 | 5°♌19'23  | -0°10'20   | evening max el   | 8277 Jun 15 20:54 | 18°♕13'07 | 18°18'45   |
| minimum elong    | 8276 Jul 21 03:19 | 5°♌20'09  | 0°10'19    | retrograde       | 8277 Jun 23 03:35 | 21°♕52'08 |            |
| transit middle   | 8276 Jul 21 03:19 | 5°♌20'09  | 0°10'19    | evening set      | 8277 Jun 25 10:12 | 21°♕31'33 |            |
| transit begin    | 8276 Jul 21 00:28 | 5°♌25'16  |            | inferior conj    | 8277 Jul 02 17:51 | 16°♕52'28 | 1°21'20    |
| transit end      | 8276 Jul 21 06:10 | 5°♌15'02  |            | minimum elong    | 8277 Jul 02 20:23 | 16°♕47'10 | 1°20'20    |
| min. Earth dist. | 8276 Jul 24 06:24 | 3°♌06'33  | 0.56777 AU | min. Earth dist. | 8277 Jul 06 03:20 | 14°♕02'41 | 0.58805 AU |
| morning rise     | 8276 Jul 29 02:55 | 0°♌19'12  |            | desc. node       | 8277 Jul 07 11:10 | 13°♕01'50 |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| morning rise     | 8277 Jul 10 03:20 | 11°☿18'38 |            | direct              | 8278 Jun 28 13:43 | 20°♊55'58 |            |
| direct           | 8277 Jul 16 08:10 | 9°☿35'35  |            | morning max el      | 8278 Jul 12 20:19 | 28°♊55'09 | 27°53'19   |
| morning max el   | 8277 Jul 30 17:21 | 17°☿21'34 | 27°20'37   |                     | 8278 Jul 13 21:48 | 0°☿       |            |
|                  | 8277 Aug 10 04:51 | 0°♊       |            |                     | 8278 Aug 04 02:25 | 0°♊       |            |
|                  | 8277 Aug 27 16:39 | 0°♊       |            | morning set         | 8278 Aug 14 19:11 | 20°♊23'06 |            |
| asc. node        | 8277 Aug 29 16:29 | 4°♊04'51  |            | asc. node           | 8278 Aug 16 13:28 | 24°♊03'45 |            |
| morning set      | 8277 Aug 30 15:20 | 6°♊04'19  |            |                     | 8278 Aug 19 08:01 | 0°♊       |            |
|                  |                   |           |            | max. Earth dist.    | 8278 Aug 20 16:45 | 2°♊58'21  | 1.31852 AU |
| superior conj    | 8277 Sep 06 16:16 | 21°♊24'13 | 1°13'33    |                     |                   |           |            |
| minimum elong    | 8277 Sep 06 14:02 | 21°♊11'45 | 1°13'10    | superior conj       | 8278 Aug 22 02:58 | 6°♊06'20  | 0°54'05    |
| max. Earth dist. | 8277 Sep 06 07:46 | 20°♊37'01 | 1.31650 AU | minimum elong       | 8278 Aug 22 00:53 | 5°♊54'54  | 0°53'37    |
|                  | 8277 Sep 10 13:32 | 0°♊       |            | evening rise        | 8278 Aug 28 21:23 | 20°♊56'07 |            |
| evening rise     | 8277 Sep 13 10:45 | 6°♊14'30  |            |                     | 8278 Sep 02 06:00 | 0°♊       |            |
|                  | 8277 Sep 25 20:02 | 0°♊       |            | desc. node          | 8278 Sep 20 07:06 | 28°♊57'18 |            |
| desc. node       | 8277 Oct 03 10:00 | 11°♊35'01 |            |                     | 8278 Sep 21 04:57 | 0°♊       |            |
| evening max el   | 8277 Oct 12 14:40 | 22°♊18'55 | 26°24'10   | evening max el      | 8278 Sep 24 06:56 | 3°♊12'27  | 25°04'53   |
| retrograde       | 8277 Oct 26 12:39 | 29°♊24'37 |            | retrograde          | 8278 Oct 08 03:52 | 10°♊12'21 |            |
| evening set      | 8277 Nov 02 03:49 | 27°♊36'57 |            | evening set         | 8278 Oct 13 20:10 | 8°♊59'07  |            |
| min. Earth dist. | 8277 Nov 06 04:00 | 25°♊02'24 | 0.59193 AU | min. Earth dist.    | 8278 Oct 18 18:26 | 6°♊17'26  | 0.57206 AU |
| inferior conj    | 8277 Nov 09 08:41 | 22°♊36'11 | -4°39'42   | inferior conj       | 8278 Oct 21 15:12 | 4°♊23'23  | -5°24'36   |
| minimum elong    | 8277 Nov 09 15:52 | 22°♊22'24 | 4°37'53    | minimum elong       | 8278 Oct 21 19:30 | 4°♊16'14  | 5°24'05    |
| morning rise     | 8277 Nov 17 06:15 | 18°♊02'56 |            | morning rise        | 8278 Oct 29 21:07 | 0°♊13'09  |            |
| direct           | 8277 Nov 19 12:08 | 17°♊45'19 |            |                     | 8278 Oct 31 02:54 | 30°♊      |            |
| asc. node        | 8277 Nov 25 16:03 | 20°♊06'25 |            | direct              | 8278 Nov 01 08:17 | 29°♊55'35 |            |
| morning max el   | 8277 Nov 27 10:01 | 21°♊37'29 | 18°21'41   |                     | 8278 Nov 02 13:16 | 0°♊       |            |
|                  | 8277 Dec 03 20:47 | 0°♊       |            | morning max el      | 8278 Nov 10 11:01 | 4°♊15'53  | 19°09'52   |
| morning set      | 8277 Dec 13 07:07 | 16°♊57'29 |            | asc. node           | 8278 Nov 12 13:02 | 6°♊28'10  |            |
|                  | 8277 Dec 20 04:02 | 0°♊       |            |                     | 8278 Nov 26 15:01 | 0°♊       |            |
|                  |                   |           |            | morning set         | 8278 Nov 27 07:09 | 1°♊19'53  |            |
| superior conj    | 8277 Dec 22 11:01 | 4°♊14'25  | 0°56'51    |                     |                   |           |            |
| minimum elong    | 8277 Dec 22 14:24 | 4°♊29'56  | 0°56'32    | superior conj       | 8278 Dec 05 12:31 | 17°♊34'39 | 1°19'48    |
| max. Earth dist. | 8277 Dec 30 00:18 | 17°♊38'27 | 1.40740 AU | minimum elong       | 8278 Dec 05 15:34 | 17°♊49'23 | 1°19'37    |
| desc. node       | 8277 Dec 30 09:01 | 18°♊15'43 |            | max. Earth dist.    | 8278 Dec 12 05:58 | 0°♊09'34  | 1.38569 AU |
| evening rise     | 8278 Jan 03 12:21 | 25°♊12'04 |            |                     | 8278 Dec 12 03:51 | 0°♊       |            |
|                  | 8278 Jan 06 11:13 | 0°♊       |            | evening rise        | 8278 Dec 16 00:35 | 6°♊50'22  |            |
|                  | 8278 Jan 26 19:51 | 0°♊       |            | desc. node          | 8278 Dec 17 06:01 | 8°♊57'03  |            |
| evening max el   | 8278 Feb 06 21:13 | 13°♊12'34 | 23°26'51   |                     | 8278 Dec 30 10:24 | 0°♊       |            |
| retrograde       | 8278 Feb 17 11:44 | 19°♊28'38 |            | evening max el      | 8279 Jan 20 10:28 | 26°♊58'37 | 24°45'34   |
| asc. node        | 8278 Feb 21 15:10 | 18°♊04'34 |            |                     | 8279 Jan 23 18:55 | 0°♊       |            |
| evening set      | 8278 Feb 22 12:59 | 17°♊22'33 |            | retrograde          | 8279 Feb 01 02:33 | 3°♊47'01  |            |
| inferior conj    | 8278 Feb 27 22:57 | 10°♊55'53 | 1°56'41    | evening set         | 8279 Feb 06 16:18 | 1°♊27'42  |            |
| minimum elong    | 8278 Feb 27 20:47 | 11°♊03'19 | 1°56'03    |                     | 8279 Feb 08 04:52 | 30°♊      |            |
| min. Earth dist. | 8278 Feb 27 10:09 | 11°♊39'47 | 0.68340 AU | asc. node           | 8279 Feb 08 12:14 | 29°♊40'04 |            |
| morning rise     | 8278 Mar 05 04:33 | 4°♊50'34  |            | min. Earth dist.    | 8279 Feb 11 05:33 | 26°♊19'15 | 0.67876 AU |
| direct           | 8278 Mar 09 10:14 | 3°♊10'18  |            | inferior conj       | 8279 Feb 12 05:46 | 24°♊59'00 | 1°12'09    |
| morning max el   | 8278 Mar 17 18:09 | 7°♊57'06  | 20°56'41   | minimum elong       | 8279 Feb 12 04:09 | 25°♊04'19 | 1°11'38    |
| desc. node       | 8278 Mar 28 08:40 | 21°♊03'52 |            | morning rise        | 8279 Feb 17 16:13 | 19°♊00'33 |            |
|                  | 8278 Apr 03 14:34 | 0°♊       |            | direct              | 8279 Feb 21 09:00 | 17°♊42'02 |            |
| morning set      | 8278 Apr 17 00:17 | 20°♊19'24 |            | morning max el      | 8279 Feb 28 18:36 | 21°♊50'26 | 19°46'44   |
|                  | 8278 Apr 23 02:40 | 0°♊       |            |                     | 8279 Mar 07 13:52 | 0°♊       |            |
| max. Earth dist. | 8278 Apr 24 21:14 | 2°♊52'21  | 1.42874 AU | greatest brilliancy | 8279 Mar 13 14:26 | 8°♊31'49  | -0.6m      |
|                  |                   |           |            | desc. node          | 8279 Mar 15 05:35 | 10°♊56'05 |            |
| superior conj    | 8278 May 01 21:14 | 14°♊29'31 | -2°06'00   | morning set         | 8279 Mar 26 21:45 | 28°♊38'08 |            |
| minimum elong    | 8278 May 02 01:29 | 14°♊47'31 | 2°05'55    |                     | 8279 Mar 27 18:59 | 0°♊       |            |
|                  | 8278 May 10 19:28 | 0°♊       |            | max. Earth dist.    | 8279 Apr 07 08:17 | 16°♊30'28 | 1.44419 AU |
| evening rise     | 8278 May 13 15:56 | 5°♊04'56  |            |                     |                   |           |            |
| asc. node        | 8278 May 20 14:07 | 17°♊17'30 |            | superior conj       | 8279 Apr 12 05:46 | 24°♊21'03 | -2°11'33   |
|                  | 8278 May 29 04:35 | 0°♊       |            | minimum elong       | 8279 Apr 12 04:28 | 24°♊15'47 | 2°11'36    |
| evening max el   | 8278 May 30 08:34 | 1°♊13'54  | 18°05'36   |                     | 8279 Apr 15 17:02 | 0°♊       |            |
| retrograde       | 8278 Jun 05 23:16 | 4°♊37'13  |            | evening rise        | 8279 Apr 25 17:52 | 16°♊46'52 |            |
| evening set      | 8278 Jun 08 13:20 | 4°♊06'03  |            |                     | 8279 May 03 13:54 | 0°♊       |            |
|                  | 8278 Jun 14 05:56 | 30°♊      |            | asc. node           | 8279 May 07 11:09 | 6°♊11'18  |            |
| inferior conj    | 8278 Jun 15 04:02 | 29°♊06'53 | 2°24'52    | evening max el      | 8279 May 13 21:55 | 14°♊33'07 | 18°11'30   |
| minimum elong    | 8278 Jun 15 07:02 | 28°♊59'34 | 2°23'57    | retrograde          | 8279 May 20 07:09 | 17°♊55'17 |            |
| min. Earth dist. | 8278 Jun 18 08:10 | 26°♊03'05 | 0.61048 AU | evening set         | 8279 May 23 04:28 | 17°♊11'31 |            |
| morning rise     | 8278 Jun 21 22:21 | 23°♊09'12 |            | inferior conj       | 8279 May 29 06:13 | 11°♊53'52 | 3°03'03    |
| desc. node       | 8278 Jun 24 08:11 | 21°♊49'52 |            | minimum elong       | 8279 May 29 08:20 | 11°♊48'02 | 3°02'33    |



|                  |                   |                                 |            |                     |                   |                                 |            |
|------------------|-------------------|---------------------------------|------------|---------------------|-------------------|---------------------------------|------------|
| min. Earth dist. | 8279 May 31 22:09 | 8° $\Pi$ 59'07                  | 0.63217 AU | morning rise        | 8280 May 17 13:50 | 18° $\mathcal{B}$ 48'56         |            |
| morning rise     | 8279 Jun 04 10:44 | 5° $\Pi$ 42'48                  |            | direct              | 8280 May 24 04:21 | 16° $\mathcal{B}$ 02'39         |            |
| direct           | 8279 Jun 11 05:05 | 3° $\Pi$ 07'04                  |            | desc. node          | 8280 May 28 02:13 | 16° $\mathcal{B}$ 52'17         |            |
| desc. node       | 8279 Jun 11 05:12 | 3° $\Pi$ 07'04                  |            | morning max el      | 8280 Jun 06 14:21 | 23° $\mathcal{B}$ 57'04         | 27°08'17   |
| morning max el   | 8279 Jun 25 04:13 | 11° $\Pi$ 10'04                 | 27°47'53   |                     | 8280 Jun 12 00:16 | 0° $\Pi$                        |            |
|                  | 8279 Jul 10 00:22 | 0° $\mathcal{E}$                |            |                     | 8280 Jul 02 09:26 | 0° $\mathcal{E}$                |            |
|                  | 8279 Jul 27 11:48 | 0° $\mathcal{Q}$                |            | morning set         | 8280 Jul 12 04:11 | 17° $\mathcal{E}$ 46'44         |            |
| morning set      | 8279 Jul 29 16:24 | 4° $\mathcal{Q}$ 20'00          |            | max. Earth dist.    | 8280 Jul 16 15:13 | 26° $\mathcal{E}$ 38'06         | 1.33677 AU |
| asc. node        | 8279 Aug 03 10:27 | 14° $\mathcal{Q}$ 08'38         |            |                     | 8280 Jul 18 06:33 | 0° $\mathcal{Q}$                |            |
| max. Earth dist. | 8279 Aug 03 20:26 | 15° $\mathcal{Q}$ 01'37         | 1.32519 AU | asc. node           | 8280 Jul 20 07:26 | 4° $\mathcal{Q}$ 15'00          |            |
| superior conj    | 8279 Aug 06 10:43 | 20° $\mathcal{Q}$ 35'55         | 0°30'13    | superior conj       | 8280 Jul 20 13:27 | 4° $\mathcal{Q}$ 46'39          | 0°02'33    |
| minimum elong    | 8279 Aug 06 09:20 | 20° $\mathcal{Q}$ 28'28         | 0°29'50    | minimum elong       | 8280 Jul 20 13:19 | 4° $\mathcal{Q}$ 45'57          | 0°02'23    |
|                  | 8279 Aug 10 18:25 | 0° $\mathcal{P}$                |            | behind sun begin    | 8280 Jul 20 07:46 | 4° $\mathcal{Q}$ 16'44          |            |
| evening rise     | 8279 Aug 13 09:02 | 5° $\mathcal{P}$ 37'40          |            | behind sun end      | 8280 Jul 20 18:52 | 5° $\mathcal{Q}$ 15'13          |            |
|                  | 8279 Aug 26 05:39 | 0° $\mathcal{A}$                |            | evening rise        | 8280 Jul 27 19:50 | 20° $\mathcal{Q}$ 13'07         |            |
| evening max el   | 8279 Sep 05 18:24 | 13° $\mathcal{A}$ 31'36         | 23°28'12   |                     | 8280 Aug 01 14:41 | 0° $\mathcal{P}$                |            |
| desc. node       | 8279 Sep 07 04:11 | 14° $\mathcal{A}$ 49'36         |            | evening max el      | 8280 Aug 17 09:06 | 23° $\mathcal{P}$ 48'27         | 21°50'32   |
| retrograde       | 8279 Sep 19 07:04 | 20° $\mathcal{A}$ 17'38         |            | desc. node          | 8280 Aug 24 01:17 | 28° $\mathcal{P}$ 40'15         |            |
| evening set      | 8279 Sep 23 12:47 | 19° $\mathcal{A}$ 38'23         |            |                     | 8280 Aug 28 21:19 | 0° $\mathcal{A}$                |            |
| min. Earth dist. | 8279 Sep 30 04:14 | 16° $\mathcal{A}$ 31'03         | 0.55626 AU | retrograde          | 8280 Aug 29 22:34 | 0° $\mathcal{A}$ 02'35          |            |
| inferior conj    | 8279 Oct 02 01:48 | 15° $\mathcal{A}$ 23'41         | -5°32'08   |                     | 8280 Aug 31 00:04 | 30° $\mathcal{R}$ $\mathcal{P}$ |            |
| minimum elong    | 8279 Oct 01 23:12 | 15° $\mathcal{A}$ 27'33         | 5°31'57    | evening set         | 8280 Sep 01 17:59 | 29° $\mathcal{P}$ 44'54         |            |
| morning rise     | 8279 Oct 10 11:44 | 11° $\mathcal{A}$ 30'56         |            | inferior conj       | 8280 Sep 10 21:36 | 25° $\mathcal{P}$ 45'11         | -4°46'12   |
| direct           | 8279 Oct 13 09:06 | 11° $\mathcal{A}$ 10'31         |            | minimum elong       | 8280 Sep 10 12:46 | 25° $\mathcal{P}$ 57'33         | 4°44'17    |
| morning max el   | 8279 Oct 23 23:58 | 16° $\mathcal{A}$ 09'21         | 20°20'24   | min. Earth dist.    | 8280 Sep 10 12:45 | 25° $\mathcal{P}$ 57'34         | 0.54773 AU |
| asc. node        | 8279 Oct 30 10:03 | 23° $\mathcal{A}$ 54'10         |            | morning rise        | 8280 Sep 19 08:49 | 21° $\mathcal{P}$ 56'10         |            |
|                  | 8279 Nov 03 05:37 | 0° $\mathcal{M}$                |            | direct              | 8280 Sep 22 20:15 | 21° $\mathcal{P}$ 29'36         |            |
| morning set      | 8279 Nov 11 13:17 | 15° $\mathcal{M}$ 58'23         |            | morning max el      | 8280 Oct 04 23:57 | 27° $\mathcal{P}$ 13'35         | 21°51'33   |
|                  | 8279 Nov 18 08:58 | 0° $\mathcal{X}$                |            |                     | 8280 Oct 07 16:38 | 0° $\mathcal{A}$                |            |
| superior conj    | 8279 Nov 19 03:12 | 1° $\mathcal{X}$ 32'29          | 1°34'05    | asc. node           | 8280 Oct 16 07:03 | 12° $\mathcal{A}$ 09'18         |            |
| minimum elong    | 8279 Nov 19 05:08 | 1° $\mathcal{X}$ 42'15          | 1°34'06    | morning set         | 8280 Oct 25 23:06 | 0° $\mathcal{M}$ 45'26          |            |
| max. Earth dist. | 8279 Nov 24 12:42 | 12° $\mathcal{X}$ 10'35         | 1.36477 AU |                     | 8280 Oct 25 14:25 | 0° $\mathcal{M}$                |            |
| evening rise     | 8279 Nov 28 09:05 | 19° $\mathcal{X}$ 22'48         |            | superior conj       | 8280 Nov 02 03:06 | 15° $\mathcal{M}$ 55'33         | 1°40'41    |
| desc. node       | 8279 Dec 04 03:04 | 29° $\mathcal{X}$ 31'02         |            | minimum elong       | 8280 Nov 02 03:42 | 15° $\mathcal{M}$ 58'41         | 1°40'48    |
|                  | 8279 Dec 04 09:53 | 0° $\mathcal{Z}$                |            | max. Earth dist.    | 8280 Nov 06 01:39 | 24° $\mathcal{M}$ 03'49         | 1.34664 AU |
|                  | 8279 Dec 24 12:58 | 0° $\mathcal{A}$                |            |                     | 8280 Nov 09 01:14 | 0° $\mathcal{X}$                |            |
| evening max el   | 8280 Jan 02 23:34 | 10° $\mathcal{A}$ 46'07         | 25°56'07   | evening rise        | 8280 Nov 10 09:57 | 2° $\mathcal{X}$ 38'28          |            |
| retrograde       | 8280 Jan 15 12:39 | 17° $\mathcal{A}$ 55'25         |            | desc. node          | 8280 Nov 20 00:07 | 19° $\mathcal{X}$ 52'02         |            |
| evening set      | 8280 Jan 21 14:55 | 15° $\mathcal{A}$ 25'46         |            |                     | 8280 Nov 26 08:06 | 0° $\mathcal{Z}$                |            |
| min. Earth dist. | 8280 Jan 25 21:25 | 10° $\mathcal{A}$ 51'49         | 0.67036 AU | evening max el      | 8280 Dec 15 12:57 | 24° $\mathcal{Z}$ 27'38         | 26°51'09   |
| asc. node        | 8280 Jan 26 09:17 | 10° $\mathcal{A}$ 14'51         |            |                     | 8280 Dec 22 16:46 | 0° $\mathcal{A}$                |            |
| inferior conj    | 8280 Jan 27 09:01 | 9° $\mathcal{A}$ 00'14          | 0°19'42    | retrograde          | 8280 Dec 28 17:03 | 1° $\mathcal{A}$ 46'14          |            |
| minimum elong    | 8280 Jan 27 08:31 | 9° $\mathcal{A}$ 01'51          | 0°19'37    |                     | 8281 Jan 03 03:55 | 30° $\mathcal{R}$ $\mathcal{Z}$ |            |
| morning rise     | 8280 Feb 02 02:41 | 3° $\mathcal{A}$ 10'31          |            | evening set         | 8281 Jan 04 06:53 | 29° $\mathcal{Z}$ 10'48         |            |
| direct           | 8280 Feb 05 08:01 | 2° $\mathcal{A}$ 11'08          |            | min. Earth dist.    | 8281 Jan 08 07:25 | 25° $\mathcal{Z}$ 11'18         | 0.65833 AU |
| morning max el   | 8280 Feb 12 02:40 | 5° $\mathcal{A}$ 53'12          | 18°51'57   | inferior conj       | 8281 Jan 10 06:36 | 22° $\mathcal{Z}$ 54'17         | -0°40'07   |
|                  | 8280 Feb 29 08:49 | 0° $\mathcal{H}$                |            | minimum elong       | 8281 Jan 10 07:44 | 22° $\mathcal{Z}$ 50'58         | 0°39'29    |
| desc. node       | 8280 Mar 01 02:33 | 1° $\mathcal{H}$ 08'52          |            | asc. node           | 8281 Jan 12 06:22 | 20° $\mathcal{Z}$ 39'44         |            |
| morning set      | 8280 Mar 05 05:48 | 7° $\mathcal{H}$ 35'29          |            | morning rise        | 8281 Jan 16 09:39 | 17° $\mathcal{Z}$ 15'50         |            |
|                  | 8280 Mar 19 13:59 | 0° $\mathcal{Y}$                |            | direct              | 8281 Jan 19 05:21 | 16° $\mathcal{Z}$ 32'06         |            |
| max. Earth dist. | 8280 Mar 20 00:46 | 0° $\mathcal{Y}$ 42'19          | 1.45325 AU | morning max el      | 8281 Jan 25 16:30 | 19° $\mathcal{Z}$ 59'15         | 18°13'38   |
|                  |                   |                                 |            |                     | 8281 Feb 02 09:52 | 0° $\mathcal{A}$                |            |
| superior conj    | 8280 Mar 21 17:26 | 3° $\mathcal{Y}$ 21'59          | -1°57'35   | morning set         | 8281 Feb 13 17:13 | 17° $\mathcal{A}$ 56'59         |            |
| minimum elong    | 8280 Mar 21 09:28 | 2° $\mathcal{Y}$ 50'37          | 1°57'04    | desc. node          | 8281 Feb 15 23:31 | 21° $\mathcal{A}$ 35'57         |            |
| evening rise     | 8280 Apr 05 20:47 | 27° $\mathcal{Y}$ 30'14         |            |                     | 8281 Feb 21 05:21 | 0° $\mathcal{H}$                |            |
|                  | 8280 Apr 07 09:47 | 0° $\mathcal{B}$                |            | superior conj       | 8281 Feb 28 22:30 | 12° $\mathcal{H}$ 11'57         | -1°24'44   |
| asc. node        | 8280 Apr 23 08:13 | 24° $\mathcal{B}$ 31'11         |            | minimum elong       | 8281 Feb 28 13:18 | 11° $\mathcal{H}$ 35'49         | 1°23'40    |
| evening max el   | 8280 Apr 26 10:06 | 28° $\mathcal{B}$ 03'53         | 18°35'38   | max. Earth dist.    | 8281 Mar 02 20:20 | 15° $\mathcal{H}$ 11'40         | 1.45497 AU |
|                  | 8280 Apr 28 15:30 | 0° $\Pi$                        |            |                     | 8281 Mar 12 07:55 | 0° $\mathcal{Y}$                |            |
| retrograde       | 8280 May 02 23:00 | 1° $\Pi$ 38'09                  |            | evening rise        | 8281 Mar 17 01:02 | 7° $\mathcal{Y}$ 20'55          |            |
| evening set      | 8280 May 06 03:41 | 0° $\Pi$ 40'27                  |            | greatest brilliancy | 8281 Mar 28 16:16 | 25° $\mathcal{Y}$ 22'16         | -0.7m      |
|                  | 8280 May 07 03:28 | 30° $\mathcal{R}$ $\mathcal{B}$ |            |                     | 8281 Mar 31 18:30 | 0° $\mathcal{B}$                |            |
| inferior conj    | 8280 May 11 20:21 | 25° $\mathcal{B}$ 05'45         | 3°20'48    |                     |                   |                                 |            |
| minimum elong    | 8280 May 11 21:09 | 25° $\mathcal{B}$ 03'21         | 3°20'37    | evening max el      | 8281 Apr 09 18:46 | 11° $\mathcal{B}$ 40'34         | 19°16'59   |
| min. Earth dist. | 8280 May 13 21:15 | 22° $\mathcal{B}$ 38'19         | 0.65107 AU | asc. node           | 8281 Apr 10 05:18 | 12° $\mathcal{B}$ 06'40         |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| retrograde          | 8281 Apr 16 19:31 | 15°♄39'00 |            | retrograde       | 8282 Mar 31 17:57 | 29°♄51'30 |            |
| evening set         | 8281 Apr 20 08:03 | 14°♄26'37 |            | evening set      | 8282 Apr 04 15:12 | 28°♄24'02 |            |
| inferior conj       | 8281 Apr 25 18:59 | 8°♄36'15  | 3°22'34    | inferior conj    | 8282 Apr 09 23:11 | 22°♄19'52 | 3°11'30    |
| minimum elong       | 8281 Apr 25 18:30 | 8°♄37'48  | 3°22'26    | minimum elong    | 8282 Apr 09 21:43 | 22°♄24'50 | 3°11'15    |
| min. Earth dist.    | 8281 Apr 27 04:32 | 6°♄47'25  | 0.66596 AU | min. Earth dist. | 8282 Apr 10 18:23 | 21°♄14'35 | 0.67641 AU |
| morning rise        | 8281 May 01 04:35 | 2°♄18'18  |            | morning rise     | 8282 Apr 15 04:01 | 16°♄03'20 |            |
|                     | 8281 May 04 21:03 | 30°♄      |            | direct           | 8282 Apr 20 21:15 | 13°♄30'18 |            |
| direct              | 8281 May 07 10:05 | 29°♄33'43 |            | desc. node       | 8282 May 01 20:12 | 19°♄50'21 |            |
|                     | 8281 May 10 02:37 | 0°♄       |            | morning max el   | 8282 May 02 09:50 | 20°♄24'22 | 24°39'27   |
| desc. node          | 8281 May 14 23:14 | 2°♄37'10  |            |                  | 8282 May 10 15:14 | 0°♄       |            |
| morning max el      | 8281 May 20 00:31 | 7°♄05'08  | 26°02'20   |                  | 8282 May 30 23:33 | 0°♄       |            |
|                     | 8281 Jun 06 19:05 | 0°♄       |            | morning set      | 8282 Jun 07 07:39 | 12°♄27'06 |            |
|                     | 8281 Jun 24 19:36 | 0°♄       |            | max. Earth dist. | 8282 Jun 10 22:38 | 18°♄56'42 | 1.37341 AU |
| morning set         | 8281 Jun 25 02:53 | 0°♄33'35  |            |                  | 8282 Jun 16 19:58 | 0°♄       |            |
| max. Earth dist.    | 8281 Jun 28 23:22 | 7°♄50'43  | 1.35313 AU |                  |                   |           |            |
|                     |                   |           |            | superior conj    | 8282 Jun 17 17:04 | 1°♄42'03  | -0°59'53   |
| superior conj       | 8281 Jul 04 08:39 | 18°♄31'40 | -0°28'02   | minimum elong    | 8282 Jun 17 20:45 | 1°♄59'58  | 0°59'25    |
| minimum elong       | 8281 Jul 04 10:17 | 18°♄39'59 | 0°27'51    | asc. node        | 8282 Jun 24 01:28 | 14°♄16'41 |            |
| asc. node           | 8281 Jul 07 04:28 | 24°♄19'15 |            | evening rise     | 8282 Jun 26 06:15 | 18°♄40'52 |            |
|                     | 8281 Jul 09 22:13 | 0°♄       |            |                  | 8282 Jul 02 02:26 | 0°♄       |            |
| evening rise        | 8281 Jul 12 03:44 | 4°♄36'45  |            | evening max el   | 8282 Jul 13 01:21 | 16°♄04'45 | 19°19'55   |
|                     | 8281 Jul 26 11:35 | 0°♄       |            | retrograde       | 8282 Jul 22 08:52 | 20°♄40'54 |            |
| evening max el      | 8281 Jul 30 10:39 | 4°♄34'51  | 20°25'31   | evening set      | 8282 Jul 24 05:44 | 20°♄30'33 |            |
| retrograde          | 8281 Aug 10 10:49 | 10°♄01'19 |            | desc. node       | 8282 Jul 28 19:27 | 18°♄49'14 |            |
| desc. node          | 8281 Aug 10 22:22 | 10°♄00'44 |            | inferior conj    | 8282 Aug 01 20:08 | 16°♄22'02 | -1°14'02   |
| evening set         | 8281 Aug 12 10:54 | 9°♄51'17  |            | minimum elong    | 8282 Aug 01 16:50 | 16°♄27'28 | 1°12'53    |
| inferior conj       | 8281 Aug 21 14:57 | 5°♄53'55  | -3°10'35   | min. Earth dist. | 8282 Aug 04 11:19 | 14°♄38'40 | 0.55847 AU |
| minimum elong       | 8281 Aug 21 06:32 | 6°♄06'09  | 3°07'48    | morning rise     | 8282 Aug 10 01:11 | 11°♄43'14 |            |
| min. Earth dist.    | 8281 Aug 22 22:27 | 5°♄08'09  | 0.54846 AU | direct           | 8282 Aug 15 00:52 | 10°♄46'38 |            |
| morning rise        | 8281 Aug 30 01:30 | 1°♄48'36  |            | morning max el   | 8282 Aug 29 03:17 | 17°♄54'06 | 25°19'26   |
| direct              | 8281 Sep 03 05:41 | 1°♄11'10  |            |                  | 8282 Sep 08 03:50 | 0°♄       |            |
| morning max el      | 8281 Sep 16 14:42 | 7°♄40'01  | 23°35'55   | asc. node        | 8282 Sep 20 01:02 | 20°♄21'31 |            |
|                     | 8281 Oct 02 14:37 | 0°♄       |            | morning set      | 8282 Sep 24 22:15 | 0°♄23'42  |            |
| asc. node           | 8281 Oct 03 04:04 | 1°♄01'46  |            |                  | 8282 Sep 24 17:48 | 0°♄       |            |
| morning set         | 8281 Oct 10 10:40 | 15°♄35'38 |            |                  |                   |           |            |
|                     |                   |           |            | superior conj    | 8282 Oct 01 19:05 | 15°♄23'44 | 1°34'17    |
| superior conj       | 8281 Oct 17 09:12 | 0°♄35'12  | 1°40'30    | minimum elong    | 8282 Oct 01 17:31 | 15°♄15'07 | 1°34'12    |
| minimum elong       | 8281 Oct 17 08:34 | 0°♄31'48  | 1°40'34    | max. Earth dist. | 8282 Oct 03 03:42 | 18°♄22'43 | 1.32262 AU |
|                     | 8281 Oct 17 02:41 | 0°♄       |            | evening rise     | 8282 Oct 08 21:58 | 0°♄40'50  |            |
| max. Earth dist.    | 8281 Oct 19 23:02 | 6°♄06'23  | 1.33245 AU |                  | 8282 Oct 08 14:05 | 0°♄       |            |
| evening rise        | 8281 Oct 24 23:22 | 16°♄27'30 |            | desc. node       | 8282 Oct 24 18:15 | 29°♄29'00 |            |
|                     | 8281 Nov 01 02:30 | 0°♄       |            |                  | 8282 Oct 25 02:13 | 0°♄       |            |
| desc. node          | 8281 Nov 06 21:10 | 9°♄54'01  |            | evening max el   | 8282 Nov 10 11:23 | 20°♄47'24 | 27°26'39   |
|                     | 8281 Nov 20 21:18 | 0°♄       |            | retrograde       | 8282 Nov 24 06:20 | 28°♄03'11 |            |
| evening max el      | 8281 Nov 28 01:34 | 7°♄52'19  | 27°23'24   | evening set      | 8282 Dec 01 08:52 | 25°♄38'05 |            |
| retrograde          | 8281 Dec 11 15:05 | 15°♄11'46 |            | min. Earth dist. | 8282 Dec 05 01:07 | 22°♄40'22 | 0.62442 AU |
| evening set         | 8281 Dec 18 13:51 | 12°♄36'59 |            | inferior conj    | 8282 Dec 07 22:27 | 19°♄57'05 | -2°55'53   |
| min. Earth dist.    | 8281 Dec 22 09:14 | 9°♄10'41  | 0.64288 AU | minimum elong    | 8282 Dec 08 04:01 | 19°♄43'56 | 2°53'40    |
| inferior conj       | 8281 Dec 24 20:02 | 6°♄35'30  | -1°46'09   | morning rise     | 8282 Dec 15 01:17 | 14°♄50'32 |            |
| minimum elong       | 8281 Dec 24 23:18 | 6°♄26'50  | 1°44'38    | direct           | 8282 Dec 17 08:08 | 14°♄26'58 |            |
| asc. node           | 8281 Dec 30 03:27 | 1°♄51'19  |            | asc. node        | 8282 Dec 17 00:31 | 14°♄27'26 |            |
| morning rise        | 8281 Dec 31 10:22 | 1°♄11'21  |            | morning max el   | 8282 Dec 24 02:30 | 17°♄54'06 | 17°48'41   |
| direct              | 8282 Jan 02 22:26 | 0°♄39'33  |            |                  | 8283 Jan 01 19:18 | 0°♄       |            |
| morning max el      | 8282 Jan 09 09:27 | 4°♄02'02  | 17°52'19   | morning set      | 8283 Jan 09 00:26 | 12°♄34'35 |            |
| morning set         | 8282 Jan 26 09:19 | 29°♄42'44 |            |                  | 8283 Jan 18 23:52 | 0°♄       |            |
|                     | 8282 Jan 26 13:24 | 0°♄       |            |                  |                   |           |            |
| desc. node          | 8282 Feb 02 20:28 | 12°♄12'43 |            | superior conj    | 8283 Jan 20 09:56 | 2°♄24'12  | 0°02'19    |
|                     |                   |           |            | minimum elong    | 8283 Jan 20 10:11 | 2°♄25'14  | 0°02'25    |
| superior conj       | 8282 Feb 08 16:06 | 21°♄42'22 | -0°41'19   | behind sun begin | 8283 Jan 20 01:20 | 1°♄47'54  |            |
| minimum elong       | 8282 Feb 08 11:23 | 21°♄23'24 | 0°40'32    | behind sun end   | 8283 Jan 20 19:02 | 3°♄02'29  |            |
| max. Earth dist.    | 8282 Feb 13 15:56 | 29°♄40'35 | 1.44925 AU | desc. node       | 8283 Jan 20 17:27 | 2°♄55'48  |            |
|                     | 8282 Feb 13 20:50 | 0°♄       |            | max. Earth dist. | 8283 Jan 27 08:26 | 13°♄50'51 | 1.43682 AU |
| evening rise        | 8282 Feb 24 14:21 | 16°♄41'39 |            | evening rise     | 8283 Feb 04 03:13 | 26°♄09'27 |            |
|                     | 8282 Mar 05 08:27 | 0°♄       |            |                  | 8283 Feb 06 15:01 | 0°♄       |            |
| greatest brilliancy | 8282 Mar 11 06:02 | 8°♄45'16  | -0.6m      |                  | 8283 Feb 27 07:38 | 0°♄       |            |
| evening max el      | 8282 Mar 23 22:18 | 25°♄18'48 | 20°13'48   | evening max el   | 8283 Mar 06 20:13 | 8°♄58'06  | 21°23'08   |
| asc. node           | 8282 Mar 28 02:24 | 28°♄44'07 |            | asc. node        | 8283 Mar 14 23:29 | 14°♄08'54 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| retrograde       | 8283 Mar 15 16:15 | 14°♿11'24 |            |                  | 8284 Jan 30 20:25 | 0°♿       |            |
| evening set      | 8283 Mar 19 23:20 | 12°♿28'49 |            | evening max el   | 8284 Feb 17 13:25 | 22°♿39'13 | 22°40'45   |
| inferior conj    | 8283 Mar 25 06:39 | 6°♿13'16  | 2°49'45    | retrograde       | 8284 Feb 27 12:34 | 28°♿33'46 |            |
| minimum elong    | 8283 Mar 25 04:35 | 6°♿20'29  | 2°49'18    | asc. node        | 8284 Feb 29 20:34 | 28°♿06'22 |            |
| min. Earth dist. | 8283 Mar 25 12:45 | 5°♿52'06  | 0.68244 AU | evening set      | 8284 Mar 03 06:46 | 26°♿36'15 |            |
| morning rise     | 8283 Mar 30 09:39 | 29°♿59'51 |            | inferior conj    | 8284 Mar 08 15:19 | 20°♿12'36 | 2°18'35    |
|                  | 8283 Mar 30 09:35 | 30°♿      |            | minimum elong    | 8284 Mar 08 13:04 | 20°♿20'27 | 2°17'58    |
| direct           | 8283 Apr 04 13:09 | 27°♿44'57 |            | min. Earth dist. | 8284 Mar 08 09:18 | 20°♿33'29 | 0.68422 AU |
|                  | 8283 Apr 10 09:14 | 0°♿       |            | morning rise     | 8284 Mar 13 19:13 | 14°♿03'42 |            |
| morning max el   | 8283 Apr 14 19:28 | 3°♿50'43  | 23°09'47   | direct           | 8284 Mar 18 08:44 | 12°♿10'22 |            |
| desc. node       | 8283 Apr 18 17:08 | 8°♿07'45  |            | morning max el   | 8284 Mar 27 08:28 | 17°♿24'37 | 21°42'37   |
|                  | 8283 May 04 19:29 | 0°♿       |            | desc. node       | 8284 Apr 04 14:04 | 27°♿11'08 |            |
| morning set      | 8283 May 19 13:01 | 23°♿13'29 |            |                  | 8284 Apr 06 16:24 | 0°♿       |            |
|                  | 8283 May 23 12:46 | 0°♿       |            |                  | 8284 Apr 26 21:49 | 0°♿       |            |
| max. Earth dist. | 8283 May 23 18:37 | 0°♿25'18  | 1.39576 AU | morning set      | 8284 Apr 28 14:51 | 2°♿42'50  |            |
|                  |                   |           |            | max. Earth dist. | 8284 May 04 18:13 | 12°♿41'48 | 1.41753 AU |
| superior conj    | 8283 May 31 10:50 | 14°♿08'38 | -1°30'29   |                  |                   |           |            |
| minimum elong    | 8283 May 31 16:16 | 14°♿33'42 | 1°29'57    | superior conj    | 8284 May 12 09:19 | 25°♿40'44 | -1°55'53   |
|                  | 8283 Jun 08 19:47 | 0°♿       |            | minimum elong    | 8284 May 12 14:54 | 26°♿05'10 | 1°55'34    |
| evening rise     | 8283 Jun 10 00:27 | 2°♿17'48  |            |                  | 8284 May 14 20:11 | 0°♿       |            |
| asc. node        | 8283 Jun 10 22:28 | 4°♿03'23  |            | evening rise     | 8284 May 23 06:33 | 15°♿17'47 |            |
| evening max el   | 8283 Jun 26 03:12 | 28°♿17'15 | 18°35'14   | asc. node        | 8284 May 27 19:31 | 23°♿34'24 |            |
|                  | 8283 Jun 28 02:35 | 0°♿       |            |                  | 8284 May 31 12:04 | 0°♿       |            |
| retrograde       | 8283 Jul 04 00:39 | 2°♿12'43  |            | evening max el   | 8284 Jun 08 12:26 | 11°♿03'32 | 18°10'54   |
| evening set      | 8283 Jul 06 02:50 | 1°♿57'06  |            | retrograde       | 8284 Jun 15 10:55 | 14°♿33'45 |            |
|                  | 8283 Jul 10 09:53 | 30°♿      |            | evening set      | 8284 Jun 17 20:44 | 14°♿09'00 |            |
| inferior conj    | 8283 Jul 13 21:43 | 27°♿30'09 | 0°31'51    | inferior conj    | 8284 Jun 24 20:46 | 9°♿21'36  | 1°51'37    |
| minimum elong    | 8283 Jul 13 22:53 | 27°♿27'54 | 0°31'16    | minimum elong    | 8284 Jun 24 23:44 | 9°♿14'57  | 1°50'34    |
| desc. node       | 8283 Jul 15 16:30 | 26°♿07'36 |            | min. Earth dist. | 8284 Jun 28 05:20 | 6°♿22'38  | 0.59748 AU |
| min. Earth dist. | 8283 Jul 17 05:06 | 24°♿58'51 | 0.57590 AU | morning rise     | 8284 Jul 01 23:46 | 3°♿36'22  |            |
| morning rise     | 8283 Jul 21 15:24 | 22°♿14'16 |            | desc. node       | 8284 Jul 01 13:31 | 3°♿52'08  |            |
| direct           | 8283 Jul 27 10:51 | 20°♿49'14 |            | direct           | 8284 Jul 08 10:12 | 1°♿39'33  |            |
| morning max el   | 8283 Aug 10 19:45 | 28°♿24'57 | 26°44'59   | morning max el   | 8284 Jul 22 18:41 | 9°♿32'37  | 27°39'09   |
|                  | 8283 Aug 12 09:25 | 0°♿       |            |                  | 8284 Aug 07 12:27 | 0°♿       |            |
|                  | 8283 Sep 01 19:09 | 0°♿       |            | morning set      | 8284 Aug 23 14:52 | 29°♿33'22 |            |
| asc. node        | 8283 Sep 06 21:59 | 10°♿01'06 |            | asc. node        | 8284 Aug 23 18:56 | 29°♿54'41 |            |
| morning set      | 8283 Sep 09 08:12 | 15°♿04'32 |            |                  | 8284 Aug 23 19:57 | 0°♿       |            |
|                  |                   |           |            | max. Earth dist. | 8284 Aug 29 22:51 | 13°♿14'33 | 1.31676 AU |
| superior conj    | 8283 Sep 16 06:43 | 0°♿14'36  | 1°22'36    |                  |                   |           |            |
| minimum elong    | 8283 Sep 16 04:36 | 0°♿02'49  | 1°22'19    | superior conj    | 8284 Aug 30 18:18 | 15°♿02'12 | 1°05'53    |
|                  | 8283 Sep 16 04:05 | 0°♿       |            | minimum elong    | 8284 Aug 30 16:04 | 14°♿49'49 | 1°05'28    |
| max. Earth dist. | 8283 Sep 16 12:45 | 0°♿48'07  | 1.31738 AU | evening rise     | 8284 Sep 06 12:15 | 29°♿50'25 |            |
| evening rise     | 8283 Sep 23 03:01 | 15°♿10'36 |            |                  | 8284 Sep 06 14:02 | 0°♿       |            |
|                  | 8283 Sep 30 13:20 | 0°♿       |            |                  | 8284 Sep 22 21:28 | 0°♿       |            |
| desc. node       | 8283 Oct 11 15:20 | 18°♿25'32 |            | desc. node       | 8284 Sep 27 12:25 | 6°♿28'32  |            |
|                  | 8283 Oct 20 16:55 | 0°♿       |            | evening max el   | 8284 Oct 04 13:06 | 14°♿23'59 | 25°53'38   |
| evening max el   | 8283 Oct 23 15:55 | 3°♿00'20  | 26°56'40   | retrograde       | 8284 Oct 18 11:27 | 21°♿27'24 |            |
| retrograde       | 8283 Nov 06 13:44 | 10°♿10'22 |            | evening set      | 8284 Oct 24 18:16 | 19°♿54'07 |            |
| evening set      | 8283 Nov 13 11:56 | 8°♿06'02  |            | min. Earth dist. | 8284 Oct 29 01:49 | 17°♿18'35 | 0.58319 AU |
| min. Earth dist. | 8283 Nov 17 06:23 | 5°♿27'04  | 0.60392 AU | inferior conj    | 8284 Nov 01 04:35 | 15°♿04'07 | -5°02'03   |
| inferior conj    | 8283 Nov 20 10:26 | 2°♿49'41  | -4°04'21   | minimum elong    | 8284 Nov 01 11:04 | 14°♿52'24 | 5°00'46    |
| minimum elong    | 8283 Nov 20 17:36 | 2°♿34'47  | 4°02'07    | morning rise     | 8284 Nov 09 06:11 | 10°♿40'30 |            |
|                  | 8283 Nov 24 02:36 | 30°♿      |            | direct           | 8284 Nov 11 13:34 | 10°♿23'19 |            |
| morning rise     | 8283 Nov 28 01:40 | 28°♿03'38 |            | asc. node        | 8284 Nov 19 18:31 | 14°♿16'23 |            |
| direct           | 8283 Nov 30 06:33 | 27°♿44'54 |            | morning max el   | 8284 Nov 19 22:50 | 14°♿26'40 | 18°39'22   |
| asc. node        | 8283 Dec 03 21:32 | 28°♿38'07 |            |                  | 8284 Nov 30 16:00 | 0°♿       |            |
|                  | 8283 Dec 06 01:09 | 0°♿       |            | morning set      | 8284 Dec 06 03:25 | 10°♿22'46 |            |
| morning max el   | 8283 Dec 07 16:10 | 1°♿25'37  | 18°03'48   |                  |                   |           |            |
| morning set      | 8283 Dec 23 08:09 | 26°♿12'44 |            | superior conj    | 8284 Dec 14 20:46 | 27°♿10'23 | 1°07'40    |
|                  | 8283 Dec 25 08:58 | 0°♿       |            | minimum elong    | 8284 Dec 15 00:09 | 27°♿26'17 | 1°07'24    |
|                  |                   |           |            |                  | 8284 Dec 16 09:10 | 0°♿       |            |
| superior conj    | 8284 Jan 02 04:53 | 14°♿17'30 | 0°39'27    | max. Earth dist. | 8284 Dec 22 03:22 | 10°♿22'19 | 1.39831 AU |
| minimum elong    | 8284 Jan 02 07:47 | 14°♿30'21 | 0°39'11    | desc. node       | 8284 Dec 24 11:25 | 14°♿24'46 |            |
| desc. node       | 8284 Jan 07 14:24 | 23°♿40'48 |            | evening rise     | 8284 Dec 26 05:31 | 17°♿23'14 |            |
| max. Earth dist. | 8284 Jan 09 19:59 | 27°♿26'42 | 1.41914 AU |                  | 8285 Jan 03 00:19 | 0°♿       |            |
|                  | 8284 Jan 11 08:54 | 0°♿       |            |                  | 8285 Jan 24 09:08 | 0°♿       |            |
| evening rise     | 8284 Jan 15 05:46 | 6°♿17'36  |            | evening max el   | 8285 Jan 30 03:45 | 6°♿24'17  | 24°00'54   |

|                  |                   |                           |            |                     |                   |                           |            |
|------------------|-------------------|---------------------------|------------|---------------------|-------------------|---------------------------|------------|
| retrograde       | 8285 Feb 10 05:36 | 12° $\text{K}$ 54'52      |            | evening max el      | 8286 Jan 12 16:58 | 20° $\approx$ 11'59       | 25°16'58   |
| evening set      | 8285 Feb 15 12:02 | 10° $\text{K}$ 43'11      |            | retrograde          | 8286 Jan 24 18:20 | 27° $\approx$ 09'51       |            |
| asc. node        | 8285 Feb 15 17:39 | 10° $\text{K}$ 31'00      |            | evening set         | 8286 Jan 30 13:35 | 24° $\approx$ 45'44       |            |
| min. Earth dist. | 8285 Feb 20 05:46 | 5° $\text{K}$ 14'49       | 0.68195 AU | asc. node           | 8286 Feb 02 14:43 | 21° $\approx$ 35'45       |            |
| inferior conj    | 8285 Feb 20 23:21 | 4° $\text{K}$ 15'13       | 1°38'48    | min. Earth dist.    | 8286 Feb 03 23:54 | 19° $\approx$ 52'06       | 0.67572 AU |
| minimum elong    | 8285 Feb 20 21:22 | 4° $\text{K}$ 21'58       | 1°38'11    | inferior conj       | 8286 Feb 05 04:55 | 18° $\approx$ 18'00       | 0°50'52    |
|                  | 8285 Feb 24 08:26 | 30° $\text{R}$ $\approx$  |            | minimum elong       | 8286 Feb 05 03:43 | 18° $\approx$ 21'56       | 0°50'29    |
| morning rise     | 8285 Feb 26 06:42 | 28° $\approx$ 12'27       |            | morning rise        | 8286 Feb 10 18:10 | 12° $\approx$ 23'07       |            |
| direct           | 8285 Mar 02 06:51 | 26° $\approx$ 41'25       |            | direct              | 8286 Feb 14 05:59 | 11° $\approx$ 12'59       |            |
|                  | 8285 Mar 08 22:27 | 0° $\text{K}$             |            | morning max el      | 8286 Feb 21 08:06 | 15° $\approx$ 08'12       | 19°21'28   |
| morning max el   | 8285 Mar 10 04:14 | 1° $\text{K}$ 10'17       | 20°25'05   |                     | 8286 Mar 04 18:25 | 0° $\text{K}$             |            |
| desc. node       | 8285 Mar 22 11:01 | 16° $\text{K}$ 48'12      |            | greatest brilliancy | 8286 Mar 06 07:13 | 2° $\text{K}$ 16'19       | -0.7m      |
|                  | 8285 Mar 31 09:50 | 0° $\text{Y}$             |            | desc. node          | 8286 Mar 09 08:00 | 6° $\text{K}$ 50'02       |            |
| morning set      | 8285 Apr 07 17:34 | 11° $\text{Y}$ 11'23      |            | morning set         | 8286 Mar 17 16:40 | 19° $\text{K}$ 38'40      |            |
| max. Earth dist. | 8285 Apr 17 01:29 | 25° $\text{Y}$ 54'06      | 1.43602 AU |                     | 8286 Mar 24 08:58 | 0° $\text{Y}$             |            |
|                  | 8285 Apr 19 14:17 | 0° $\text{B}$             |            | max. Earth dist.    | 8286 Mar 30 15:47 | 9° $\text{Y}$ 51'00       | 1.44894 AU |
| superior conj    | 8285 Apr 23 08:12 | 6° $\text{B}$ 09'19       | -2°10'30   | superior conj       | 8286 Apr 03 06:49 | 15° $\text{Y}$ 35'58      | -2°08'09   |
| minimum elong    | 8285 Apr 23 10:33 | 6° $\text{B}$ 19'05       | 2°10'32    | minimum elong       | 8286 Apr 03 02:25 | 15° $\text{Y}$ 18'28      | 2°08'02    |
| evening rise     | 8285 May 05 20:04 | 27° $\text{B}$ 30'33      |            |                     | 8286 Apr 12 04:41 | 0° $\text{B}$             |            |
|                  | 8285 May 07 06:15 | 0° $\text{II}$            |            | evening rise        | 8286 Apr 17 12:34 | 8° $\text{B}$ 48'04       |            |
| asc. node        | 8285 May 14 16:33 | 12° $\text{II}$ 43'31     |            |                     | 8286 Apr 30 14:30 | 0° $\text{II}$            |            |
| evening max el   | 8285 May 23 01:16 | 24° $\text{II}$ 13'04     | 18°05'56   | asc. node           | 8286 May 01 13:37 | 1° $\text{II}$ 23'55      |            |
| retrograde       | 8285 May 29 12:14 | 27° $\text{II}$ 33'50     |            | evening max el      | 8286 May 06 14:26 | 7° $\text{II}$ 37'44      | 18°19'35   |
| evening set      | 8285 Jun 01 05:32 | 26° $\text{II}$ 57'21     |            | retrograde          | 8286 May 13 00:05 | 11° $\text{II}$ 03'32     |            |
| inferior conj    | 8285 Jun 07 14:12 | 21° $\text{II}$ 50'08     | 2°43'54    | evening set         | 8286 May 16 00:34 | 10° $\text{II}$ 13'49     |            |
| minimum elong    | 8285 Jun 07 16:56 | 21° $\text{II}$ 43'06     | 2°43'08    | inferior conj       | 8286 May 21 21:57 | 4° $\text{II}$ 48'25      | 3°12'48    |
| min. Earth dist. | 8285 Jun 10 13:44 | 18° $\text{II}$ 47'45     | 0.61992 AU | minimum elong       | 8286 May 21 23:32 | 4° $\text{II}$ 43'54      | 3°12'27    |
| morning rise     | 8285 Jun 14 02:24 | 15° $\text{II}$ 46'00     |            | min. Earth dist.    | 8286 May 24 07:31 | 2° $\text{II}$ 03'49      | 0.64061 AU |
| desc. node       | 8285 Jun 18 10:34 | 13° $\text{II}$ 39'50     |            |                     | 8286 May 26 06:50 | 30° $\text{R}$ $\text{B}$ |            |
| direct           | 8285 Jun 20 20:08 | 13° $\text{II}$ 21'58     |            | morning rise        | 8286 May 27 21:24 | 28° $\text{B}$ 34'13      |            |
| morning max el   | 8285 Jul 04 23:48 | 21° $\text{II}$ 23'17     | 27°55'38   | direct              | 8286 Jun 03 14:45 | 25° $\text{B}$ 52'50      |            |
|                  | 8285 Jul 12 11:24 | 0° $\text{B}$             |            | desc. node          | 8286 Jun 05 07:36 | 26° $\text{B}$ 02'11      |            |
|                  | 8285 Jul 31 14:34 | 0° $\text{Q}$             |            |                     | 8286 Jun 13 01:44 | 0° $\text{II}$            |            |
| morning set      | 8285 Aug 07 16:10 | 13° $\text{Q}$ 43'22      |            | morning max el      | 8286 Jun 17 09:05 | 3° $\text{II}$ 53'15      | 27°34'59   |
| asc. node        | 8285 Aug 10 15:54 | 19° $\text{Q}$ 56'24      |            |                     | 8286 Jul 06 23:50 | 0° $\text{B}$             |            |
| max. Earth dist. | 8285 Aug 13 06:06 | 25° $\text{Q}$ 29'38      | 1.32078 AU | morning set         | 8286 Jul 22 09:45 | 27° $\text{B}$ 27'58      |            |
|                  |                   |                           |            |                     | 8286 Jul 23 16:16 | 0° $\text{Q}$             |            |
| superior conj    | 8285 Aug 15 03:59 | 29° $\text{Q}$ 39'39      | 0°44'30    | max. Earth dist.    | 8286 Jul 27 06:37 | 7° $\text{Q}$ 22'49       | 1.32954 AU |
| minimum elong    | 8285 Aug 15 02:08 | 29° $\text{Q}$ 29'32      | 0°44'03    | asc. node           | 8286 Jul 28 12:54 | 10° $\text{Q}$ 02'00      |            |
|                  | 8285 Aug 15 07:42 | 0° $\text{P}$             |            |                     |                   |                           |            |
| evening rise     | 8285 Aug 21 23:33 | 14° $\text{P}$ 32'52      |            | superior conj       | 8286 Jul 30 09:51 | 14° $\text{Q}$ 01'20      | 0°18'55    |
|                  | 8285 Aug 29 15:20 | 0° $\text{A}$             |            | minimum elong       | 8286 Jul 30 08:56 | 13° $\text{Q}$ 56'26      | 0°18'36    |
| desc. node       | 8285 Sep 14 09:31 | 23° $\text{A}$ 16'07      |            | evening rise        | 8286 Aug 06 11:05 | 29° $\text{Q}$ 12'13      |            |
| evening max el   | 8285 Sep 16 02:49 | 25° $\text{A}$ 00'30      | 24°25'02   |                     | 8286 Aug 06 20:05 | 0° $\text{P}$             |            |
|                  | 8285 Sep 22 18:15 | 0° $\text{L}$             |            |                     | 8286 Aug 23 23:15 | 0° $\text{A}$             |            |
| retrograde       | 8285 Sep 29 21:14 | 1° $\text{L}$ 55'08       |            | evening max el      | 8286 Aug 28 14:21 | 5° $\text{A}$ 13'00       | 22°45'47   |
| evening set      | 8285 Oct 04 23:59 | 0° $\text{L}$ 57'13       |            | desc. node          | 8286 Sep 01 06:36 | 8° $\text{A}$ 20'20       |            |
|                  | 8285 Oct 07 04:59 | 30° $\text{R}$ $\text{A}$ |            | retrograde          | 8286 Sep 10 18:52 | 11° $\text{A}$ 48'08      |            |
| min. Earth dist. | 8285 Oct 10 13:44 | 28° $\text{A}$ 06'46      | 0.56474 AU | evening set         | 8286 Sep 14 09:18 | 11° $\text{A}$ 19'41      |            |
| inferior conj    | 8285 Oct 13 02:29 | 26° $\text{A}$ 31'26      | -5°33'30   | min. Earth dist.    | 8286 Sep 21 22:11 | 7° $\text{A}$ 57'10       | 0.55163 AU |
| minimum elong    | 8285 Oct 13 04:12 | 26° $\text{A}$ 28'43      | 5°33'23    | inferior conj       | 8286 Sep 23 05:37 | 7° $\text{A}$ 12'16       | -5°19'36   |
| morning rise     | 8285 Oct 21 10:33 | 22° $\text{A}$ 29'27      |            | minimum elong       | 8286 Sep 22 23:50 | 7° $\text{A}$ 20'33       | 5°18'51    |
| direct           | 8285 Oct 24 01:43 | 22° $\text{A}$ 10'52      |            | morning rise        | 8286 Oct 01 16:23 | 3° $\text{A}$ 23'44       |            |
| morning max el   | 8285 Nov 02 18:53 | 26° $\text{A}$ 46'14      | 19°37'02   | direct              | 8286 Oct 04 19:27 | 3° $\text{A}$ 01'10       |            |
|                  | 8285 Nov 05 18:15 | 0° $\text{L}$             |            | morning max el      | 8286 Oct 16 02:10 | 8° $\text{A}$ 17'57       | 20°56'57   |
| asc. node        | 8285 Nov 06 15:31 | 1° $\text{L}$ 07'01       |            | asc. node           | 8286 Oct 24 12:32 | 18° $\text{A}$ 55'04      |            |
| morning set      | 8285 Nov 20 06:25 | 24° $\text{L}$ 53'05      |            |                     | 8286 Oct 30 19:42 | 0° $\text{L}$             |            |
|                  | 8285 Nov 22 19:09 | 0° $\text{X}$             |            | morning set         | 8286 Nov 04 14:22 | 9° $\text{L}$ 35'48       |            |
| superior conj    | 8285 Nov 28 04:25 | 10° $\text{X}$ 47'54      | 1°26'51    | superior conj       | 8286 Nov 11 23:26 | 24° $\text{L}$ 57'31      | 1°37'46    |
| minimum elong    | 8285 Nov 28 07:03 | 11° $\text{X}$ 00'51      | 1°26'46    | minimum elong       | 8286 Nov 12 00:48 | 25° $\text{L}$ 04'33      | 1°37'50    |
| max. Earth dist. | 8285 Dec 04 09:18 | 22° $\text{X}$ 40'02      | 1.37667 AU |                     | 8286 Nov 14 10:53 | 0° $\text{X}$             |            |
| evening rise     | 8285 Dec 08 02:48 | 29° $\text{X}$ 25'28      |            | max. Earth dist.    | 8286 Nov 16 18:17 | 4° $\text{X}$ 35'19       | 1.35665 AU |
|                  | 8285 Dec 08 10:36 | 0° $\text{B}$             |            | evening rise        | 8286 Nov 20 18:41 | 12° $\text{X}$ 16'53      |            |
| desc. node       | 8285 Dec 11 08:27 | 5° $\text{B}$ 03'24       |            | desc. node          | 8286 Nov 28 05:29 | 25° $\text{X}$ 32'10      |            |
|                  | 8285 Dec 27 08:02 | 0° $\approx$              |            |                     | 8286 Nov 30 21:56 | 0° $\text{B}$             |            |

|                     |                   |                      |  |                     |                   |           |            |
|---------------------|-------------------|----------------------|--|---------------------|-------------------|-----------|------------|
|                     | 8286 Dec 22 11:11 | 0°♊                  |  | minimum elong       | 8287 Oct 27 02:23 | 9°♊29'27  | 1°41'30    |
| evening max el      | 8286 Dec 26 06:05 | 3°♊57'16 26°21'46    |  | max. Earth dist.    | 8287 Oct 30 10:33 | 16°♊30'26 | 1.34000 AU |
| retrograde          | 8287 Jan 08 02:05 | 11°♊11'50            |  | evening rise        | 8287 Nov 04 01:20 | 25°♊48'13 |            |
| evening set         | 8287 Jan 14 09:39 | 8°♊38'44             |  |                     | 8287 Nov 06 05:38 | 0°♊       |            |
| min. Earth dist.    | 8287 Jan 18 13:25 | 4°♊19'50 0.66571 AU  |  | desc. node          | 8287 Nov 15 02:31 | 15°♊46'02 |            |
| inferior conj       | 8287 Jan 20 06:02 | 2°♊16'23 -0°04'50    |  |                     | 8287 Nov 24 07:50 | 0°♊       |            |
| minimum elong       | 8287 Jan 20 06:09 | 2°♊16'01 0°04'39     |  | evening max el      | 8287 Dec 08 19:08 | 17°♊32'54 | 27°08'00   |
| transit middle      | 8287 Jan 20 06:09 | 2°♊16'01 0°04'39     |  | retrograde          | 8287 Dec 22 04:06 | 24°♊53'37 |            |
| transit begin       | 8287 Jan 20 03:24 | 2°♊24'26             |  | evening set         | 8287 Dec 28 22:09 | 22°♊17'15 |            |
| transit end         | 8287 Jan 20 08:55 | 2°♊07'37             |  | min. Earth dist.    | 8288 Jan 01 20:14 | 18°♊32'15 | 0.65215 AU |
| asc. node           | 8287 Jan 20 11:49 | 1°♊58'48             |  | inferior conj       | 8288 Jan 04 00:29 | 16°♊06'08 | -1°07'28   |
|                     | 8287 Jan 22 04:15 | 30°♋♊                |  | minimum elong       | 8288 Jan 04 02:29 | 16°♊00'32 | 1°06'27    |
| morning rise        | 8287 Jan 26 03:28 | 26°♊31'28            |  | asc. node           | 8288 Jan 07 08:53 | 12°♊37'44 |            |
| direct              | 8287 Jan 29 04:28 | 25°♊39'16            |  | morning rise        | 8288 Jan 10 08:10 | 10°♊33'31 |            |
| morning max el      | 8287 Feb 04 19:00 | 29°♊13'27 18°33'38   |  | direct              | 8288 Jan 13 00:13 | 9°♊55'30  |            |
|                     | 8287 Feb 05 13:10 | 0°♊                  |  | morning max el      | 8288 Jan 19 10:36 | 13°♊19'43 | 18°02'25   |
| desc. node          | 8287 Feb 24 04:57 | 27°♊09'15            |  |                     | 8288 Jan 31 07:03 | 0°♊       |            |
| morning set         | 8287 Feb 25 11:18 | 29°♊09'09            |  | morning set         | 8288 Feb 06 11:23 | 10°♊08'06 |            |
|                     | 8287 Feb 26 00:10 | 0°♋                  |  | desc. node          | 8288 Feb 11 01:55 | 17°♊41'00 |            |
|                     |                   |                      |  |                     | 8288 Feb 18 17:22 | 0°♋       |            |
| superior conj       | 8287 Mar 13 13:20 | 24°♋25'32 -1°45'36   |  | superior conj       | 8288 Feb 20 21:42 | 3°♋27'47  | -1°06'59   |
| minimum elong       | 8287 Mar 13 03:55 | 23°♋48'41 1°44'46    |  | minimum elong       | 8288 Feb 20 14:01 | 2°♋57'21  | 1°05'55    |
| max. Earth dist.    | 8287 Mar 13 10:07 | 24°♋12'58 1.45488 AU |  | max. Earth dist.    | 8288 Feb 24 05:32 | 8°♋42'23  | 1.45343 AU |
|                     | 8287 Mar 17 02:43 | 0°♌                  |  | evening rise        | 8288 Mar 08 01:57 | 28°♋41'18 |            |
| evening rise        | 8287 Mar 29 05:30 | 19°♌07'32            |  |                     | 8288 Mar 08 22:20 | 0°♌       |            |
|                     | 8287 Apr 05 01:40 | 0°♌                  |  | greatest brilliancy | 8288 Mar 21 14:21 | 19°♌18'48 | -0.7m      |
| greatest brilliancy | 8287 Apr 06 22:12 | 2°♌55'35 -0.8m       |  |                     | 8288 Mar 29 04:51 | 0°♌       |            |
| asc. node           | 8287 Apr 18 10:43 | 19°♌26'07            |  | evening max el      | 8288 Apr 02 07:51 | 4°♌48'07  | 19°39'22   |
| evening max el      | 8287 Apr 20 01:17 | 21°♌10'49 18°51'08   |  | asc. node           | 8288 Apr 04 07:48 | 6°♌38'29  |            |
| retrograde          | 8287 Apr 26 18:25 | 24°♌54'23            |  | retrograde          | 8288 Apr 09 16:02 | 9°♌00'21  |            |
| evening set         | 8287 Apr 30 02:16 | 23°♌50'35            |  | evening set         | 8288 Apr 13 08:03 | 7°♌41'47  |            |
| inferior conj       | 8287 May 05 16:06 | 18°♌08'48 3°23'16    |  | inferior conj       | 8288 Apr 18 17:26 | 1°♌45'23  | 3°19'15    |
| minimum elong       | 8287 May 05 16:20 | 18°♌08'05 3°23'08    |  | minimum elong       | 8288 Apr 18 16:30 | 1°♌48'30  | 3°19'06    |
| min. Earth dist.    | 8287 May 07 10:23 | 15°♌56'48 0.65791 AU |  | min. Earth dist.    | 8288 Apr 19 20:50 | 0°♌14'27  | 0.67100 AU |
| morning rise        | 8287 May 11 05:49 | 11°♌50'47            |  |                     | 8288 Apr 20 01:14 | 30°♋♌     |            |
| direct              | 8287 May 17 16:51 | 9°♌03'58             |  | morning rise        | 8288 Apr 24 00:37 | 25°♌27'33 |            |
| desc. node          | 8287 May 23 04:37 | 10°♌41'38            |  | direct              | 8288 Apr 30 01:11 | 22°♌46'35 |            |
| morning max el      | 8287 May 30 19:41 | 16°♌51'04 26°42'56   |  | desc. node          | 8288 May 09 01:37 | 27°♌07'04 |            |
|                     | 8287 Jun 10 17:45 | 0°♍                  |  | morning max el      | 8288 May 12 05:27 | 0°♌04'29  | 25°28'22   |
|                     | 8287 Jun 29 21:07 | 0°♍                  |  |                     | 8288 May 12 03:41 | 0°♌       |            |
| morning set         | 8287 Jul 05 16:27 | 10°♍38'37            |  |                     | 8288 Jun 03 15:25 | 0°♍       |            |
| max. Earth dist.    | 8287 Jul 09 21:00 | 18°♍47'47 1.34313 AU |  | morning set         | 8288 Jun 17 08:09 | 23°♍04'09 |            |
|                     |                   |                      |  | max. Earth dist.    | 8288 Jun 21 00:24 | 29°♍51'48 | 1.36132 AU |
| superior conj       | 8287 Jul 14 09:40 | 28°♍01'07 -0°10'11   |  |                     | 8288 Jun 21 02:08 | 0°♍       |            |
| minimum elong       | 8287 Jul 14 10:14 | 28°♍04'04 0°10'12    |  | superior conj       | 8288 Jun 27 00:40 | 11°♍31'59 | -0°41'32   |
| behind sun begin    | 8287 Jul 14 05:44 | 27°♍40'43            |  | minimum elong       | 8288 Jun 27 03:10 | 11°♍44'26 | 0°41'13    |
| behind sun end      | 8287 Jul 14 14:44 | 28°♍27'26            |  | asc. node           | 8288 Jul 01 06:55 | 20°♍08'48 |            |
| asc. node           | 8287 Jul 15 09:55 | 0°♎07'26             |  | evening rise        | 8288 Jul 05 02:46 | 27°♍58'06 |            |
|                     | 8287 Jul 15 08:29 | 0°♎                  |  |                     | 8288 Jul 06 02:49 | 0°♎       |            |
| evening rise        | 8287 Jul 21 20:52 | 13°♎42'39            |  | evening max el      | 8288 Jul 22 16:03 | 26°♎42'26 | 19°55'08   |
|                     | 8287 Jul 30 04:20 | 0°♎                  |  |                     | 8288 Jul 26 20:06 | 0°♎       |            |
| evening max el      | 8287 Aug 10 08:49 | 15°♎38'19 21°12'18   |  | retrograde          | 8288 Aug 01 22:46 | 1°♎46'38  |            |
| desc. node          | 8287 Aug 19 03:40 | 21°♎09'26            |  | evening set         | 8288 Aug 03 19:44 | 1°♎37'17  |            |
| retrograde          | 8287 Aug 22 08:06 | 21°♎34'16            |  | desc. node          | 8288 Aug 05 00:45 | 1°♎21'47  |            |
| evening set         | 8287 Aug 24 16:45 | 21°♎21'17            |  |                     | 8288 Aug 08 14:01 | 30°♋♎     |            |
| inferior conj       | 8287 Sep 02 22:32 | 17°♎24'06 -4°10'29   |  | inferior conj       | 8288 Aug 12 19:19 | 27°♎37'02 | -2°21'36   |
| minimum elong       | 8287 Sep 02 12:59 | 17°♎37'33 4°07'53    |  | minimum elong       | 8288 Aug 12 12:51 | 27°♎46'52 | 2°19'18    |
| min. Earth dist.    | 8287 Sep 03 07:05 | 17°♎12'04 0.54675 AU |  | min. Earth dist.    | 8288 Aug 14 18:13 | 26°♎25'54 | 0.55158 AU |
| morning rise        | 8287 Sep 11 09:48 | 13°♎30'37            |  | morning rise        | 8288 Aug 21 04:11 | 23°♎18'36 |            |
| direct              | 8287 Sep 15 03:41 | 13°♎00'25            |  | direct              | 8288 Aug 25 16:31 | 22°♎33'56 |            |
| morning max el      | 8287 Sep 27 21:41 | 19°♎04'22 22°35'08   |  | morning max el      | 8288 Sep 08 10:30 | 29°♎21'12 | 24°21'09   |
|                     | 8287 Oct 06 20:10 | 0°♏                  |  |                     | 8288 Sep 09 02:38 | 0°♎       |            |
| asc. node           | 8287 Oct 11 09:33 | 7°♏27'15             |  | asc. node           | 8288 Sep 27 06:31 | 26°♎31'51 |            |
| morning set         | 8287 Oct 20 01:09 | 24°♏25'00            |  |                     | 8288 Sep 29 01:20 | 0°♏       |            |
|                     | 8287 Oct 22 16:05 | 0°♐                  |  | morning set         | 8288 Oct 03 12:53 | 9°♏14'17  |            |
| superior conj       | 8287 Oct 27 02:20 | 9°♐29'10 1°41'24     |  |                     |                   |           |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj    | 8288 Oct 10 10:17 | 24°♄13'07 | 1°38'34    | superior conj    | 8289 Sep 24 21:07 | 9°♄02'55  | 1°29'58    |
| minimum elong    | 8288 Oct 10 09:13 | 24°♄07'18 | 1°38'35    | minimum elong    | 8289 Sep 24 19:16 | 8°♄52'40  | 1°29'48    |
| max. Earth dist. | 8288 Oct 12 11:05 | 28°♄37'36 | 1.32764 AU | max. Earth dist. | 8289 Sep 25 18:07 | 10°♄58'52 | 1.31986 AU |
|                  | 8288 Oct 13 02:25 | 0°♄       |            | evening rise     | 8289 Oct 01 20:41 | 24°♄09'33 |            |
| evening rise     | 8288 Oct 17 19:01 | 9°♄48'29  |            |                  | 8289 Oct 04 17:10 | 0°♄       |            |
|                  | 8288 Oct 28 14:08 | 0°♄       |            | desc. node       | 8289 Oct 18 20:37 | 24°♄57'06 |            |
| desc. node       | 8288 Oct 31 23:34 | 5°♄37'22  |            |                  | 8289 Oct 22 07:24 | 0°♄       |            |
|                  | 8288 Nov 19 11:33 | 0°♄       |            | evening max el   | 8289 Nov 02 15:03 | 13°♄25'42 | 27°18'09   |
| evening max el   | 8288 Nov 20 06:55 | 0°♄46'49  | 27°28'46   | retrograde       | 8289 Nov 16 11:18 | 20°♄38'13 |            |
| retrograde       | 8288 Dec 03 23:32 | 8°♄05'24  |            | evening set      | 8289 Nov 23 13:09 | 18°♄20'55 |            |
| evening set      | 8288 Dec 11 00:27 | 5°♄33'46  |            | min. Earth dist. | 8289 Nov 27 05:36 | 15°♄32'31 | 0.61589 AU |
| min. Earth dist. | 8288 Dec 14 18:11 | 2°♄20'07  | 0.63533 AU | inferior conj    | 8289 Nov 30 06:18 | 12°♄50'11 | -3°25'30   |
| inferior conj    | 8288 Dec 17 09:37 | 29°♄40'03 | -2°15'29   | minimum elong    | 8289 Nov 30 12:42 | 12°♄35'50 | 3°23'10    |
| minimum elong    | 8288 Dec 17 13:52 | 29°♄29'17 | 2°13'37    | morning rise     | 8289 Dec 07 14:29 | 7°♄51'39  |            |
|                  | 8288 Dec 17 01:46 | 30°♄♄     |            | direct           | 8289 Dec 09 20:08 | 7°♄30'26  |            |
| morning rise     | 8288 Dec 24 05:10 | 24°♄22'45 |            | asc. node        | 8289 Dec 11 02:59 | 7°♄37'41  |            |
| asc. node        | 8288 Dec 24 05:57 | 24°♄22'00 |            | morning max el   | 8289 Dec 16 19:52 | 11°♄02'13 | 17°52'42   |
| direct           | 8288 Dec 26 14:36 | 23°♄54'56 |            |                  | 8289 Dec 29 10:05 | 0°♄       |            |
| morning max el   | 8289 Jan 02 03:56 | 27°♄18'39 | 17°48'28   | morning set      | 8290 Jan 01 13:01 | 5°♄38'09  |            |
|                  | 8289 Jan 04 13:25 | 0°♄       |            |                  |                   |           |            |
| morning set      | 8289 Jan 18 14:08 | 22°♄24'33 |            | superior conj    | 8290 Jan 12 05:39 | 24°♄39'14 | 0°19'04    |
|                  | 8289 Jan 23 00:10 | 0°♄       |            | minimum elong    | 8290 Jan 12 07:20 | 24°♄46'26 | 0°18'58    |
| desc. node       | 8289 Jan 27 22:51 | 8°♄20'35  |            | desc. node       | 8290 Jan 14 19:48 | 29°♄04'31 |            |
|                  |                   |           |            |                  | 8290 Jan 15 08:56 | 0°♄       |            |
| superior conj    | 8289 Jan 31 00:53 | 13°♄26'36 | -0°22'21   | max. Earth dist. | 8290 Jan 19 14:47 | 7°♄02'52  | 1.42991 AU |
| minimum elong    | 8289 Jan 30 22:28 | 13°♄16'42 | 0°21'52    | evening rise     | 8290 Jan 26 06:23 | 17°♄42'01 |            |
| max. Earth dist. | 8289 Feb 05 23:46 | 23°♄03'59 | 1.44479 AU |                  | 8290 Feb 03 06:50 | 0°♄       |            |
|                  | 8289 Feb 10 09:10 | 0°♄       |            |                  | 8290 Feb 25 05:08 | 0°♄       |            |
| evening rise     | 8289 Feb 15 13:05 | 8°♄00'12  |            | evening max el   | 8290 Feb 27 04:54 | 2°♄07'23  | 21°55'28   |
|                  | 8289 Mar 02 05:15 | 0°♄       |            | retrograde       | 8290 Mar 08 12:03 | 7°♄37'49  |            |
| evening max el   | 8289 Mar 16 09:04 | 18°♄27'12 | 20°42'02   | asc. node        | 8290 Mar 09 01:57 | 7°♄36'06  |            |
| asc. node        | 8289 Mar 22 04:52 | 22°♄46'55 |            | evening set      | 8290 Mar 12 23:50 | 5°♄48'41  |            |
| retrograde       | 8289 Mar 24 14:32 | 23°♄16'20 |            |                  | 8290 Mar 17 22:42 | 30°♄♄     |            |
| evening set      | 8289 Mar 28 15:49 | 21°♄42'33 |            | inferior conj    | 8290 Mar 18 07:29 | 29°♄29'25 | 2°37'38    |
| inferior conj    | 8289 Apr 02 23:18 | 15°♄33'30 | 3°03'28    | minimum elong    | 8290 Mar 18 05:17 | 29°♄37'06 | 2°37'05    |
| minimum elong    | 8289 Apr 02 21:32 | 15°♄39'34 | 3°03'08    | min. Earth dist. | 8290 Mar 18 08:18 | 29°♄26'37 | 0.68378 AU |
| min. Earth dist. | 8289 Apr 03 12:52 | 14°♄46'50 | 0.67958 AU | morning rise     | 8290 Mar 23 10:34 | 23°♄18'01 |            |
| morning rise     | 8289 Apr 08 03:01 | 9°♄18'09  |            | direct           | 8290 Mar 28 08:11 | 21°♄12'04 |            |
| direct           | 8289 Apr 13 14:38 | 6°♄51'57  |            | morning max el   | 8290 Apr 07 01:00 | 26°♄54'58 | 22°31'54   |
| morning max el   | 8289 Apr 24 14:24 | 13°♄26'04 | 24°01'26   |                  | 8290 Apr 09 21:42 | 0°♄       |            |
| desc. node       | 8289 Apr 25 22:35 | 14°♄50'01 |            | desc. node       | 8290 Apr 12 19:32 | 3°♄28'36  |            |
|                  | 8289 May 07 23:52 | 0°♄       |            |                  | 8290 May 01 13:59 | 0°♄       |            |
|                  | 8289 May 27 11:55 | 0°♄       |            | morning set      | 8290 May 10 21:28 | 14°♄44'15 |            |
| morning set      | 8289 May 30 03:39 | 4°♄30'51  |            | max. Earth dist. | 8290 May 15 18:37 | 22°♄52'14 | 1.40533 AU |
| max. Earth dist. | 8289 Jun 02 21:12 | 11°♄02'57 | 1.38283 AU |                  | 8290 May 19 21:49 | 0°♄       |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8289 Jun 10 03:26 | 24°♄25'30 | -1°13'14   | superior conj    | 8290 May 23 13:35 | 6°♄30'08  | -1°42'12   |
| minimum elong    | 8289 Jun 10 07:58 | 24°♄47'01 | 1°12'42    | minimum elong    | 8290 May 23 19:22 | 6°♄56'17  | 1°41'42    |
|                  | 8289 Jun 13 01:04 | 0°♄       |            | evening rise     | 8290 Jun 02 15:43 | 25°♄14'13 |            |
| asc. node        | 8289 Jun 18 03:55 | 10°♄02'18 |            | asc. node        | 8290 Jun 05 00:55 | 29°♄42'49 |            |
| evening rise     | 8289 Jun 19 02:10 | 11°♄51'48 |            |                  | 8290 Jun 05 04:36 | 0°♄       |            |
|                  | 8289 Jun 28 23:27 | 0°♄       |            | evening max el   | 8290 Jun 18 17:27 | 20°♄59'25 | 18°22'23   |
| evening max el   | 8289 Jul 05 12:02 | 8°♄31'50  | 18°58'23   | retrograde       | 8290 Jun 26 03:38 | 24°♄42'19 |            |
| retrograde       | 8289 Jul 14 03:31 | 12°♄48'32 |            | evening set      | 8290 Jun 28 09:03 | 24°♄23'08 |            |
| evening set      | 8289 Jul 16 02:18 | 12°♄36'21 |            | inferior conj    | 8290 Jul 05 19:32 | 19°♄47'06 | 1°09'13    |
| desc. node       | 8289 Jul 22 21:50 | 9°♄20'28  |            | minimum elong    | 8290 Jul 05 21:47 | 19°♄42'28 | 1°08'17    |
| inferior conj    | 8289 Jul 24 08:37 | 8°♄20'34  | -0°26'30   | min. Earth dist. | 8290 Jul 09 04:49 | 17°♄01'28 | 0.58481 AU |
| minimum elong    | 8289 Jul 24 07:30 | 8°♄22'32  | 0°26'11    | desc. node       | 8290 Jul 09 18:54 | 16°♄34'30 |            |
| min. Earth dist. | 8289 Jul 27 08:48 | 6°♄15'03  | 0.56519 AU | morning rise     | 8290 Jul 13 07:12 | 14°♄17'33 |            |
| morning rise     | 8289 Aug 01 09:30 | 3°♄26'01  |            | direct           | 8290 Jul 19 09:43 | 12°♄39'19 |            |
| direct           | 8289 Aug 06 18:09 | 2°♄18'05  |            | morning max el   | 8290 Aug 02 19:05 | 20°♄22'50 | 27°12'30   |
| morning max el   | 8289 Aug 20 23:57 | 9°♄38'19  | 25°58'58   |                  | 8290 Aug 11 01:44 | 0°♄       |            |
|                  | 8289 Sep 05 09:53 | 0°♄       |            |                  | 8290 Aug 29 03:58 | 0°♄       |            |
| asc. node        | 8289 Sep 14 03:29 | 16°♄00'43 |            | asc. node        | 8290 Sep 01 00:25 | 5°♄46'33  |            |
| morning set      | 8289 Sep 17 23:57 | 23°♄59'25 |            | morning set      | 8290 Sep 02 08:43 | 8°♄35'19  |            |
|                  | 8289 Sep 20 18:42 | 0°♄       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8290 Sep 09 08:55 | 23°♄52'19 | 1°16'05    |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| minimum elong    | 8290 Sep 09 06:42 | 23° $\mathbb{M}$ 39'56        | 1°15'45    | max. Earth dist. | 8291 Aug 23 13:35 | 5° $\mathbb{M}$ 48'54         | 1.31788 AU |
| max. Earth dist. | 8290 Sep 09 04:14 | 23° $\mathbb{M}$ 26'15        | 1.31659 AU |                  |                   |                               |            |
|                  | 8290 Sep 12 03:17 | 0° $\mathbb{A}$               |            | superior conj    | 8291 Aug 24 19:55 | 8° $\mathbb{M}$ 35'52         | 0°57'20    |
| evening rise     | 8290 Sep 16 03:45 | 8° $\mathbb{A}$ 43'46         |            | minimum elong    | 8291 Aug 24 17:47 | 8° $\mathbb{M}$ 24'05         | 0°56'54    |
|                  | 8290 Sep 27 02:29 | 0° $\mathbb{M}$               |            | evening rise     | 8291 Aug 31 14:05 | 23° $\mathbb{M}$ 24'51        |            |
| desc. node       | 8290 Oct 05 17:43 | 13° $\mathbb{M}$ 32'37        |            |                  | 8291 Sep 03 17:24 | 0° $\mathbb{A}$               |            |
| evening max el   | 8290 Oct 15 16:36 | 25° $\mathbb{M}$ 17'21        | 26°33'36   |                  | 8291 Sep 21 17:14 | 0° $\mathbb{M}$               |            |
|                  | 8290 Oct 21 18:32 | 0° $\mathbb{A}$               |            | desc. node       | 8291 Sep 22 14:49 | 1° $\mathbb{M}$ 06'19         |            |
| retrograde       | 8290 Oct 29 14:30 | 2° $\mathbb{A}$ 24'16         |            | evening max el   | 8291 Sep 27 10:03 | 6° $\mathbb{M}$ 18'07         | 25°18'14   |
| evening set      | 8290 Nov 05 07:58 | 0° $\mathbb{A}$ 31'53         |            | retrograde       | 8291 Oct 11 07:40 | 13° $\mathbb{M}$ 19'23        |            |
|                  | 8290 Nov 06 06:12 | 30° $\mathbb{R}$ $\mathbb{M}$ |            | evening set      | 8291 Oct 17 04:05 | 12° $\mathbb{M}$ 00'51        |            |
| min. Earth dist. | 8290 Nov 09 06:11 | 27° $\mathbb{M}$ 56'50        | 0.59500 AU | min. Earth dist. | 8291 Oct 21 21:52 | 9° $\mathbb{M}$ 21'21         | 0.57479 AU |
| inferior conj    | 8290 Nov 12 11:04 | 25° $\mathbb{M}$ 27'07        | -4°30'55   | inferior conj    | 8291 Oct 24 20:40 | 7° $\mathbb{M}$ 21'27         | -5°19'50   |
| minimum elong    | 8290 Nov 12 18:21 | 25° $\mathbb{M}$ 12'52        | 4°28'58    | minimum elong    | 8291 Oct 25 01:41 | 7° $\mathbb{M}$ 12'55         | 5°19'06    |
| morning rise     | 8290 Nov 20 07:06 | 20° $\mathbb{M}$ 50'39        |            | morning rise     | 8291 Nov 02 01:37 | 3° $\mathbb{M}$ 07'53         |            |
| direct           | 8290 Nov 22 12:36 | 20° $\mathbb{M}$ 32'51        |            | direct           | 8291 Nov 04 11:33 | 2° $\mathbb{M}$ 50'34         |            |
| asc. node        | 8290 Nov 27 23:59 | 22° $\mathbb{M}$ 26'48        |            | morning max el   | 8291 Nov 13 09:37 | 7° $\mathbb{M}$ 06'18         | 19°01'17   |
| morning max el   | 8290 Nov 30 06:59 | 24° $\mathbb{M}$ 21'37        | 18°16'27   | asc. node        | 8291 Nov 14 21:01 | 8° $\mathbb{M}$ 37'35         |            |
|                  | 8290 Dec 04 22:02 | 0° $\mathbb{A}$               |            |                  | 8291 Nov 28 02:06 | 0° $\mathbb{A}$               |            |
| morning set      | 8290 Dec 16 02:12 | 19° $\mathbb{A}$ 31'24        |            | morning set      | 8291 Nov 30 01:07 | 3° $\mathbb{A}$ 50'39         |            |
|                  | 8290 Dec 21 15:11 | 0° $\mathbb{B}$               |            |                  |                   |                               |            |
|                  |                   |                               |            | superior conj    | 8291 Dec 08 09:22 | 20° $\mathbb{A}$ 13'25        | 1°16'51    |
| superior conj    | 8290 Dec 25 10:11 | 6° $\mathbb{B}$ 59'56         | 0°52'32    | minimum elong    | 8291 Dec 08 12:33 | 20° $\mathbb{A}$ 28'37        | 1°16'40    |
| minimum elong    | 8290 Dec 25 13:30 | 7° $\mathbb{B}$ 15'00         | 0°52'14    |                  | 8291 Dec 13 14:46 | 0° $\mathbb{B}$               |            |
| desc. node       | 8291 Jan 01 16:47 | 19° $\mathbb{B}$ 49'33        |            | max. Earth dist. | 8291 Dec 15 06:38 | 3° $\mathbb{B}$ 00'01         | 1.38892 AU |
| max. Earth dist. | 8291 Jan 02 00:48 | 20° $\mathbb{B}$ 23'42        | 1.41049 AU | evening rise     | 8291 Dec 19 02:35 | 9° $\mathbb{B}$ 43'23         |            |
| evening rise     | 8291 Jan 06 17:31 | 28° $\mathbb{B}$ 13'34        |            | desc. node       | 8291 Dec 19 13:47 | 10° $\mathbb{B}$ 31'29        |            |
|                  | 8291 Jan 07 19:41 | 0° $\mathbb{A}$               |            |                  | 8291 Dec 31 16:21 | 0° $\mathbb{A}$               |            |
|                  | 8291 Jan 27 21:18 | 0° $\mathbb{H}$               |            | evening max el   | 8292 Jan 23 10:04 | 29° $\mathbb{A}$ 35'49        | 24°34'10   |
| evening max el   | 8291 Feb 09 20:35 | 15° $\mathbb{H}$ 50'07        | 23°14'49   |                  | 8292 Jan 23 19:57 | 0° $\mathbb{H}$               |            |
| retrograde       | 8291 Feb 20 07:12 | 22° $\mathbb{H}$ 01'00        |            | retrograde       | 8292 Feb 03 22:42 | 6° $\mathbb{H}$ 20'09         |            |
| asc. node        | 8291 Feb 23 23:03 | 20° $\mathbb{H}$ 54'48        |            | evening set      | 8292 Feb 09 10:30 | 4° $\mathbb{H}$ 02'48         |            |
| evening set      | 8291 Feb 25 06:35 | 19° $\mathbb{H}$ 57'02        |            | asc. node        | 8292 Feb 10 20:09 | 2° $\mathbb{H}$ 42'32         |            |
| min. Earth dist. | 8291 Mar 02 05:03 | 14° $\mathbb{H}$ 09'04        | 0.68375 AU |                  | 8292 Feb 13 03:11 | 30° $\mathbb{R}$ $\mathbb{A}$ |            |
| inferior conj    | 8291 Mar 02 16:08 | 13° $\mathbb{H}$ 30'54        | 2°02'47    | min. Earth dist. | 8292 Feb 14 00:51 | 28° $\mathbb{A}$ 49'07        | 0.67971 AU |
| minimum elong    | 8291 Mar 02 13:55 | 13° $\mathbb{H}$ 38'30        | 2°02'07    | inferior conj    | 8292 Feb 14 23:21 | 27° $\mathbb{A}$ 34'03        | 1°19'28    |
| morning rise     | 8291 Mar 07 21:12 | 7° $\mathbb{H}$ 24'37         |            | minimum elong    | 8292 Feb 14 21:37 | 27° $\mathbb{A}$ 39'48        | 1°18'55    |
| direct           | 8291 Mar 12 04:52 | 5° $\mathbb{H}$ 41'03         |            | morning rise     | 8292 Feb 20 08:55 | 21° $\mathbb{A}$ 34'20        |            |
| morning max el   | 8291 Mar 20 16:47 | 10° $\mathbb{H}$ 34'46        | 21°08'13   | direct           | 8292 Feb 24 03:33 | 20° $\mathbb{A}$ 12'38        |            |
| desc. node       | 8291 Mar 30 16:29 | 22° $\mathbb{H}$ 47'54        |            | morning max el   | 8292 Mar 02 16:02 | 24° $\mathbb{A}$ 26'07        | 19°56'11   |
|                  | 8291 Apr 04 19:02 | 0° $\mathbb{Y}$               |            |                  | 8292 Mar 07 12:16 | 0° $\mathbb{H}$               |            |
| morning set      | 8291 Apr 20 12:14 | 23° $\mathbb{Y}$ 44'17        |            | desc. node       | 8292 Mar 16 13:26 | 12° $\mathbb{H}$ 36'21        |            |
|                  | 8291 Apr 24 10:59 | 0° $\mathbb{B}$               |            |                  | 8292 Mar 28 02:15 | 0° $\mathbb{Y}$               |            |
| max. Earth dist. | 8291 Apr 27 21:38 | 5° $\mathbb{B}$ 34'20         | 1.42600 AU | morning set      | 8292 Mar 29 10:21 | 2° $\mathbb{Y}$ 03'24         |            |
|                  |                   |                               |            | max. Earth dist. | 8292 Apr 09 07:35 | 19° $\mathbb{Y}$ 05'32        | 1.44228 AU |
| superior conj    | 8291 May 05 02:27 | 17° $\mathbb{B}$ 35'56        | -2°03'46   |                  |                   |                               |            |
| minimum elong    | 8291 May 05 07:11 | 17° $\mathbb{B}$ 56'08        | 2°03'37    | superior conj    | 8292 Apr 14 14:45 | 27° $\mathbb{Y}$ 37'09        | -2°11'53   |
|                  | 8291 May 12 05:07 | 0° $\mathbb{H}$               |            | minimum elong    | 8292 Apr 14 14:30 | 27° $\mathbb{Y}$ 36'09        | 2°11'58    |
| evening rise     | 8291 May 16 15:25 | 7° $\mathbb{H}$ 55'54         |            |                  | 8292 Apr 16 01:46 | 0° $\mathbb{B}$               |            |
| asc. node        | 8291 May 22 21:57 | 19° $\mathbb{H}$ 05'26        |            | evening rise     | 8292 Apr 27 20:32 | 19° $\mathbb{B}$ 46'10        |            |
|                  | 8291 May 29 20:10 | 0° $\mathbb{B}$               |            |                  | 8292 May 03 20:27 | 0° $\mathbb{H}$               |            |
| evening max el   | 8291 Jun 02 04:35 | 3° $\mathbb{B}$ 56'16         | 18°06'22   | asc. node        | 8292 May 08 19:02 | 8° $\mathbb{H}$ 03'42         |            |
| retrograde       | 8291 Jun 08 21:02 | 7° $\mathbb{B}$ 20'59         |            | evening max el   | 8292 May 15 17:56 | 17° $\mathbb{H}$ 13'30        | 18°09'29   |
| evening set      | 8291 Jun 11 09:57 | 6° $\mathbb{B}$ 51'37         |            | retrograde       | 8292 May 22 03:18 | 20° $\mathbb{H}$ 34'47        |            |
| inferior conj    | 8291 Jun 18 02:57 | 1° $\mathbb{B}$ 55'29         | 2°16'59    | evening set      | 8292 May 24 23:35 | 19° $\mathbb{H}$ 52'58        |            |
| minimum elong    | 8291 Jun 18 05:59 | 1° $\mathbb{B}$ 48'12         | 2°15'59    | inferior conj    | 8292 May 31 03:01 | 14° $\mathbb{H}$ 38'07        | 2°58'39    |
|                  | 8291 Jun 20 03:12 | 30° $\mathbb{R}$ $\mathbb{H}$ |            | minimum elong    | 8292 May 31 05:19 | 14° $\mathbb{H}$ 31'53        | 2°58'05    |
| min. Earth dist. | 8291 Jun 21 08:31 | 28° $\mathbb{H}$ 52'02        | 0.60712 AU | min. Earth dist. | 8292 Jun 02 21:06 | 11° $\mathbb{H}$ 40'39        | 0.62907 AU |
| morning rise     | 8291 Jun 24 23:28 | 26° $\mathbb{H}$ 00'33        |            | morning rise     | 8292 Jun 06 09:27 | 8° $\mathbb{H}$ 28'35         |            |
| desc. node       | 8291 Jun 26 15:58 | 25° $\mathbb{H}$ 02'54        |            | desc. node       | 8292 Jun 12 13:00 | 5° $\mathbb{H}$ 56'38         |            |
| direct           | 8291 Jul 01 13:46 | 23° $\mathbb{H}$ 51'17        |            | direct           | 8292 Jun 13 03:55 | 5° $\mathbb{H}$ 55'24         |            |
|                  | 8291 Jul 13 22:48 | 0° $\mathbb{B}$               |            | morning max el   | 8292 Jun 27 04:22 | 13° $\mathbb{H}$ 58'29        | 27°51'01   |
| morning max el   | 8291 Jul 15 21:06 | 1° $\mathbb{B}$ 49'28         | 27°50'52   |                  | 8292 Jul 10 02:19 | 0° $\mathbb{B}$               |            |
|                  | 8291 Aug 05 09:45 | 0° $\mathbb{B}$               |            |                  | 8292 Jul 27 22:55 | 0° $\mathbb{B}$               |            |
| morning set      | 8291 Aug 17 13:22 | 22° $\mathbb{B}$ 56'46        |            | morning set      | 8292 Jul 31 11:47 | 6° $\mathbb{B}$ 57'36         |            |
| asc. node        | 8291 Aug 18 21:23 | 25° $\mathbb{B}$ 43'56        |            | asc. node        | 8292 Aug 04 18:22 | 15° $\mathbb{B}$ 48'14        |            |
|                  | 8291 Aug 20 21:28 | 0° $\mathbb{M}$               |            | max. Earth dist. | 8292 Aug 05 18:18 | 17° $\mathbb{B}$ 55'32        | 1.32386 AU |

|                     |                   |          |            |                     |                   |          |            |
|---------------------|-------------------|----------|------------|---------------------|-------------------|----------|------------|
| superior conj       | 8292 Aug 08 04:17 | 23°08'06 | 0°34'08    | superior conj       | 8293 Jul 23 07:53 | 7°02'46  | 0°06'59    |
| minimum elong       | 8292 Aug 08 02:46 | 22°05'51 | 0°33'43    | minimum elong       | 8293 Jul 23 07:32 | 7°01'55  | 0°06'46    |
|                     | 8292 Aug 11 07:49 | 0°00     |            | behind sun begin    | 8293 Jul 23 02:29 | 6°05'30  |            |
| evening rise        | 8292 Aug 15 01:45 | 8°07'04  |            | behind sun end      | 8293 Jul 23 12:36 | 7°04'43  |            |
|                     | 8292 Aug 26 09:08 | 0°00     |            | evening rise        | 8293 Jul 30 12:46 | 22°04'41 |            |
| evening max el      | 8292 Sep 07 21:57 | 16°41'20 | 23°43'09   |                     | 8293 Aug 03 01:08 | 0°00     |            |
| desc. node          | 8292 Sep 08 11:55 | 17°14'26 |            | evening max el      | 8293 Aug 20 11:33 | 26°05'47 | 22°04'31   |
| retrograde          | 8292 Sep 21 12:37 | 23°29'58 |            |                     | 8293 Aug 24 02:27 | 0°00     |            |
| evening set         | 8292 Sep 25 23:52 | 22°46'16 |            | desc. node          | 8293 Aug 26 09:02 | 1°25'28  |            |
| min. Earth dist.    | 8292 Oct 02 08:14 | 19°43'46 | 0.55825 AU | retrograde          | 8293 Sep 02 05:18 | 3°15'46  |            |
| inferior conj       | 8292 Oct 04 10:09 | 18°28'55 | -5°34'15   | evening set         | 8293 Sep 05 05:20 | 2°55'45  |            |
| minimum elong       | 8292 Oct 04 08:43 | 18°31'04 | 5°34'09    |                     | 8293 Sep 12 08:21 | 30°00    |            |
| morning rise        | 8292 Oct 12 19:42 | 14°33'59 |            | min. Earth dist.    | 8293 Sep 13 16:34 | 29°15'24 | 0.54848 AU |
| direct              | 8292 Oct 15 15:18 | 14°14'08 |            | inferior conj       | 8293 Sep 14 07:29 | 28°05'30 | -4°56'44   |
| morning max el      | 8292 Oct 26 00:29 | 19°06'46 | 20°08'24   | minimum elong       | 8293 Sep 13 23:14 | 29°06'04 | 4°55'09    |
| asc. node           | 8292 Oct 31 18:02 | 25°54'50 |            | morning rise        | 8293 Sep 22 18:38 | 25°06'18 |            |
|                     | 8292 Nov 03 10:26 | 0°00     |            | direct              | 8293 Sep 26 03:56 | 24°40'50 |            |
| morning set         | 8292 Nov 13 06:31 | 18°27'08 |            |                     | 8293 Oct 07 18:35 | 0°00     |            |
|                     | 8292 Nov 18 21:44 | 0°00     |            | morning max el      | 8293 Oct 08 02:12 | 0°17'32  | 21°36'51   |
|                     |                   |          |            | asc. node           | 8293 Oct 18 15:01 | 14°03'04 |            |
| superior conj       | 8292 Nov 20 22:21 | 4°06'04  | 1°32'25    |                     | 8293 Oct 27 02:37 | 0°00     |            |
| minimum elong       | 8292 Nov 21 00:28 | 4°16'44  | 1°32'25    | morning set         | 8293 Oct 28 15:55 | 3°13'10  |            |
| max. Earth dist.    | 8292 Nov 26 12:56 | 15°04'18 | 1.36781 AU |                     |                   |          |            |
| evening rise        | 8292 Nov 30 08:17 | 22°08'08 |            | superior conj       | 8293 Nov 04 21:04 | 18°25'44 | 1°40'08    |
|                     | 8292 Dec 04 19:15 | 0°00     |            | minimum elong       | 8293 Nov 04 21:51 | 18°29'54 | 1°40'14    |
| desc. node          | 8292 Dec 05 10:49 | 1°06'32  |            | max. Earth dist.    | 8293 Nov 09 00:51 | 26°57'45 | 1.34914 AU |
|                     | 8292 Dec 24 12:33 | 0°00     |            |                     | 8293 Nov 10 13:27 | 0°00     |            |
| evening max el      | 8293 Jan 04 23:13 | 13°23'20 | 25°46'26   | evening rise        | 8293 Nov 13 06:56 | 5°17'40  |            |
| retrograde          | 8293 Jan 17 09:28 | 20°29'55 |            | desc. node          | 8293 Nov 22 07:51 | 21°29'42 |            |
| evening set         | 8293 Jan 23 09:55 | 18°01'42 |            |                     | 8293 Nov 27 13:55 | 0°00     |            |
| min. Earth dist.    | 8293 Jan 27 17:26 | 13°22'33 | 0.67187 AU | evening max el      | 8293 Dec 18 12:36 | 27°06'17 | 26°44'14   |
| asc. node           | 8293 Jan 27 17:15 | 13°23'04 |            |                     | 8293 Dec 21 19:07 | 0°00     |            |
| inferior conj       | 8293 Jan 29 03:17 | 11°35'27 | 0°28'09    | retrograde          | 8293 Dec 31 14:41 | 4°23'51  |            |
| minimum elong       | 8293 Jan 29 02:34 | 11°37'42 | 0°27'59    | evening set         | 8294 Jan 07 03:00 | 1°48'52  |            |
| morning rise        | 8293 Feb 03 19:42 | 5°44'13  |            |                     | 8294 Jan 09 02:43 | 30°00    |            |
| direct              | 8293 Feb 07 02:42 | 4°42'05  |            | min. Earth dist.    | 8294 Jan 11 04:22 | 27°44'26 | 0.66036 AU |
| morning max el      | 8293 Feb 13 23:00 | 8°27'10  | 18°59'03   | inferior conj       | 8294 Jan 13 01:50 | 25°30'46 | -0°30'38   |
| greatest brilliancy | 8293 Feb 28 14:49 | 28°26'16 | -0.8m      | minimum elong       | 8294 Jan 13 02:42 | 25°28'14 | 0°30'06    |
|                     | 8293 Mar 01 15:16 | 0°00     |            | asc. node           | 8294 Jan 14 14:20 | 23°45'31 |            |
| desc. node          | 8293 Mar 03 10:22 | 2°46'04  |            | morning rise        | 8294 Jan 19 03:22 | 19°50'33 |            |
| morning set         | 8293 Mar 08 15:21 | 10°50'39 |            | direct              | 8294 Jan 22 00:25 | 19°04'42 |            |
|                     | 8293 Mar 20 22:08 | 0°00     |            | morning max el      | 8294 Jan 28 12:08 | 22°33'11 | 18°18'17   |
| max. Earth dist.    | 8293 Mar 22 23:34 | 3°13'52  | 1.45237 AU |                     | 8294 Feb 03 12:09 | 0°00     |            |
|                     |                   |          |            | morning set         | 8294 Feb 16 22:17 | 20°58'49 |            |
| superior conj       | 8293 Mar 25 04:52 | 6°43'29  | -2°01'01   | desc. node          | 8294 Feb 18 07:18 | 23°11'13 |            |
| minimum elong       | 8293 Mar 24 21:40 | 6°15'09  | 2°00'37    |                     | 8294 Feb 22 13:38 | 0°00     |            |
|                     | 8293 Apr 08 17:37 | 0°00     |            |                     |                   |          |            |
| evening rise        | 8293 Apr 09 02:59 | 0°38'07  |            | superior conj       | 8294 Mar 04 09:37 | 15°31'28 | -1°30'39   |
| asc. node           | 8293 Apr 25 16:07 | 26°29'22 |            | minimum elong       | 8294 Mar 04 00:08 | 14°54'16 | 1°29'36    |
|                     | 8293 Apr 28 13:56 | 0°00     |            | max. Earth dist.    | 8294 Mar 05 19:08 | 17°42'45 | 1.45518 AU |
| evening max el      | 8293 Apr 29 06:29 | 0°43'00  | 18°30'56   |                     | 8294 Mar 13 15:46 | 0°00     |            |
| retrograde          | 8293 May 05 18:13 | 4°14'32  |            | evening rise        | 8294 Mar 20 10:21 | 10°35'49 |            |
| evening set         | 8293 May 08 21:49 | 3°18'53  |            | greatest brilliancy | 8294 Mar 31 08:18 | 27°36'13 | -0.8m      |
|                     | 8293 May 12 17:26 | 30°00    |            |                     | 8294 Apr 01 22:06 | 0°00     |            |
| inferior conj       | 8293 May 14 15:36 | 27°46'33 | 3°19'11    | evening max el      | 8294 Apr 12 15:47 | 14°18'57 | 19°09'45   |
| minimum elong       | 8293 May 14 16:36 | 27°43'34 | 3°18'58    | asc. node           | 8294 Apr 12 13:13 | 14°12'24 |            |
| min. Earth dist.    | 8293 May 16 18:46 | 25°14'20 | 0.64849 AU | retrograde          | 8294 Apr 19 14:15 | 18°13'10 |            |
| morning rise        | 8293 May 20 10:33 | 21°30'22 |            | evening set         | 8294 Apr 23 01:35 | 17°02'55 |            |
| direct              | 8293 May 27 02:02 | 18°44'59 |            | inferior conj       | 8294 Apr 28 13:09 | 11°14'41 | 3°23'07    |
| desc. node          | 8293 May 30 10:02 | 19°21'01 |            | minimum elong       | 8294 Apr 28 12:52 | 11°15'38 | 3°23'01    |
| morning max el      | 8293 Jun 09 14:16 | 26°41'06 | 27°16'08   | min. Earth dist.    | 8294 Apr 30 00:55 | 9°19'45  | 0.66402 AU |
|                     | 8293 Jun 12 16:20 | 0°00     |            | morning rise        | 8294 May 03 23:44 | 4°56'37  |            |
|                     | 8293 Jul 03 17:21 | 0°00     |            | direct              | 8294 May 10 06:44 | 2°11'16  |            |
| morning set         | 8293 Jul 15 01:09 | 20°29'04 |            | desc. node          | 8294 May 17 07:01 | 4°49'48  |            |
| max. Earth dist.    | 8293 Jul 19 14:38 | 29°36'18 | 1.33475 AU | morning max el      | 8294 May 23 00:36 | 9°47'01  | 26°13'29   |
|                     | 8293 Jul 19 19:15 | 0°00     |            |                     | 8294 Jun 07 23:04 | 0°00     |            |
| asc. node           | 8293 Jul 22 15:20 | 5°05'43  |            |                     | 8294 Jun 26 06:08 | 0°00     |            |



|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| morning set         | 8294 Jun 28 02:01 | 3°☿22'15  |            | morning set      | 8295 Jun 10 09:49 | 15°♂24'38 |            |
| max. Earth dist.    | 8294 Jul 02 00:30 | 10°☿52'14 | 1.35045 AU | max. Earth dist. | 8295 Jun 14 00:39 | 21°♂56'45 | 1.37019 AU |
|                     |                   |           |            |                  | 8295 Jun 18 07:32 | 0°☿       |            |
| superior conj       | 8294 Jul 07 04:20 | 21°☿10'42 | -0°23'15   | superior conj    | 8295 Jun 20 14:34 | 4°☿26'36  | -0°55'05   |
| minimum elong       | 8294 Jul 07 05:41 | 21°☿17'33 | 0°23'09    | minimum elong    | 8295 Jun 20 17:57 | 4°☿43'08  | 0°54'39    |
| asc. node           | 8294 Jul 09 12:20 | 25°☿58'57 |            | asc. node        | 8295 Jun 26 09:20 | 15°☿57'38 |            |
|                     | 8294 Jul 11 10:42 | 0°♊       |            | evening rise     | 8295 Jun 29 00:42 | 21°☿16'35 |            |
| evening rise        | 8294 Jul 14 21:13 | 7°♊09'13  |            |                  | 8295 Jul 03 11:09 | 0°♊       |            |
|                     | 8294 Jul 27 07:54 | 0°♊       |            | evening max el   | 8295 Jul 15 23:51 | 18°♊58'51 | 19°28'21   |
| evening max el      | 8294 Aug 02 11:03 | 7°♊35'31  | 20°36'58   | retrograde       | 8295 Jul 25 13:20 | 23°♊42'09 |            |
| desc. node          | 8294 Aug 13 06:07 | 13°♊09'23 |            | evening set      | 8295 Jul 27 09:48 | 23°♊32'16 |            |
| retrograde          | 8294 Aug 13 17:23 | 13°♊09'56 |            | desc. node       | 8295 Jul 31 03:10 | 22°♊18'55 |            |
| evening set         | 8294 Aug 15 19:08 | 12°♊59'24 |            | inferior conj    | 8295 Aug 05 02:50 | 19°♊26'13 | -1°31'39   |
| inferior conj       | 8294 Aug 25 00:08 | 9°♊02'23  | -3°27'14   | minimum elong    | 8295 Aug 04 22:42 | 19°♊32'52 | 1°30'10    |
| minimum elong       | 8294 Aug 24 15:12 | 9°♊15'12  | 3°24'24    | min. Earth dist. | 8295 Aug 07 14:17 | 17°♊50'56 | 0.55641 AU |
| min. Earth dist.    | 8294 Aug 26 01:49 | 8°♊25'28  | 0.54773 AU | morning rise     | 8295 Aug 13 09:02 | 14°♊52'47 |            |
| morning rise        | 8294 Sep 02 11:00 | 5°♊00'52  |            | direct           | 8295 Aug 18 05:40 | 13°♊59'35 |            |
| direct              | 8294 Sep 06 12:24 | 4°♊25'36  |            | morning max el   | 8295 Sep 01 06:26 | 21°♊02'25 | 25°04'50   |
| morning max el      | 8294 Sep 19 17:56 | 10°♊47'59 | 23°20'08   |                  | 8295 Sep 09 00:51 | 0°♊       |            |
|                     | 8294 Oct 03 21:58 | 0°♋       |            | asc. node        | 8295 Sep 22 08:55 | 22°♊06'21 |            |
| asc. node           | 8294 Oct 05 11:58 | 2°♋50'07  |            |                  | 8295 Sep 26 06:25 | 0°♋       |            |
| morning set         | 8294 Oct 13 03:18 | 18°♋03'07 |            | morning set      | 8295 Sep 27 14:59 | 2°♋52'04  |            |
|                     | 8294 Oct 18 16:25 | 0°♌       |            |                  |                   |           |            |
| superior conj       | 8294 Oct 20 02:23 | 3°♌03'22  | 1°40'56    | superior conj    | 8295 Oct 04 11:51 | 17°♋51'25 | 1°35'36    |
| minimum elong       | 8294 Oct 20 01:56 | 3°♌00'55  | 1°41'01    | minimum elong    | 8295 Oct 04 10:25 | 17°♋43'30 | 1°35'33    |
| max. Earth dist.    | 8294 Oct 22 20:57 | 8°♌58'10  | 1.33424 AU | max. Earth dist. | 8295 Oct 06 00:34 | 21°♋12'18 | 1.32374 AU |
| evening rise        | 8294 Oct 27 18:40 | 19°♌02'06 |            |                  | 8295 Oct 10 03:01 | 0°♌       |            |
|                     | 8294 Nov 02 12:31 | 0°♍       |            | evening rise     | 8295 Oct 11 16:06 | 3°♌12'43  |            |
| desc. node          | 8294 Nov 09 04:54 | 11°♍35'02 |            |                  | 8295 Oct 26 07:06 | 0°♍       |            |
|                     | 8294 Nov 21 17:42 | 0°♎       |            | desc. node       | 8295 Oct 27 01:57 | 1°♍14'54  |            |
| evening max el      | 8294 Dec 01 01:19 | 10°♎33'56 | 27°20'18   | evening max el   | 8295 Nov 13 11:39 | 23°♍34'24 | 27°28'14   |
| retrograde          | 8294 Dec 14 13:44 | 17°♎53'57 |            |                  | 8295 Nov 22 20:42 | 0°♎       |            |
| evening set         | 8294 Dec 21 11:28 | 15°♎18'22 |            | retrograde       | 8295 Nov 27 06:11 | 0°♎51'21  |            |
| min. Earth dist.    | 8294 Dec 25 07:27 | 11°♎47'28 | 0.64538 AU |                  | 8295 Dec 01 10:57 | 30°♏♌     |            |
| inferior conj       | 8294 Dec 27 16:38 | 9°♎14'15  | -1°35'50   | evening set      | 8295 Dec 04 08:30 | 28°♌24'09 |            |
| minimum elong       | 8294 Dec 27 19:34 | 9°♎06'23  | 1°34'27    | min. Earth dist. | 8295 Dec 08 00:58 | 25°♌22'35 | 0.62731 AU |
| asc. node           | 8295 Jan 01 11:24 | 4°♎46'59  |            | inferior conj    | 8295 Dec 10 20:53 | 22°♌39'35 | -2°45'13   |
| morning rise        | 8295 Jan 03 05:13 | 3°♎47'56  |            | minimum elong    | 8295 Dec 11 02:07 | 22°♌27'00 | 2°43'06    |
| direct              | 8295 Jan 05 18:14 | 3°♎14'38  |            | morning rise     | 8295 Dec 17 21:51 | 17°♌30'14 |            |
| morning max el      | 8295 Jan 12 04:51 | 6°♎37'12  | 17°54'24   | asc. node        | 8295 Dec 19 08:25 | 17°♌09'15 |            |
|                     | 8295 Jan 27 21:58 | 0°♏       |            | direct           | 8295 Dec 20 05:13 | 17°♌05'44 |            |
| morning set         | 8295 Jan 29 10:23 | 2°♏32'53  |            | morning max el   | 8295 Dec 26 22:06 | 20°♌31'45 | 17°48'03   |
| desc. node          | 8295 Feb 05 04:14 | 13°♏46'41 |            |                  | 8296 Jan 03 00:34 | 0°♎       |            |
|                     |                   |           |            | morning set      | 8296 Jan 11 22:32 | 15°♎16'22 |            |
| superior conj       | 8295 Feb 12 00:21 | 24°♏53'19 | -0°48'07   |                  | 8296 Jan 20 09:36 | 0°♏       |            |
| minimum elong       | 8295 Feb 11 18:49 | 24°♏31'08 | 0°47'15    | desc. node       | 8296 Jan 23 01:11 | 4°♏29'00  |            |
|                     | 8295 Feb 15 05:18 | 0°♐       |            |                  |                   |           |            |
| max. Earth dist.    | 8295 Feb 16 14:48 | 2°♐12'24  | 1.45054 AU | superior conj    | 8296 Jan 23 14:22 | 5°♏24'12  | -0°04'03   |
| evening rise        | 8295 Feb 28 01:02 | 19°♐58'37 |            | minimum elong    | 8296 Jan 23 13:58 | 5°♏22'32  | 0°03'50    |
|                     | 8295 Mar 06 14:35 | 0°♑       |            | behind sun begin | 8296 Jan 23 05:05 | 4°♏45'19  |            |
| greatest brilliancy | 8295 Mar 14 20:44 | 12°♑19'56 | -0.6m      | behind sun end   | 8296 Jan 23 22:51 | 5°♏59'41  |            |
| evening max el      | 8295 Mar 26 20:03 | 27°♑56'40 | 20°04'25   | max. Earth dist. | 8296 Jan 30 07:35 | 16°♏25'19 | 1.43908 AU |
|                     | 8295 Mar 29 01:46 | 0°♒       |            | evening rise     | 8296 Feb 07 12:58 | 29°♏22'53 |            |
| asc. node           | 8295 Mar 30 10:19 | 0°♒59'25  |            |                  | 8296 Feb 07 22:34 | 0°♒       |            |
| retrograde          | 8295 Apr 03 12:36 | 2°♒24'00  |            |                  | 8296 Feb 28 08:01 | 0°♑       |            |
| evening set         | 8295 Apr 07 08:26 | 0°♒58'51  |            | evening max el   | 8296 Mar 08 18:46 | 11°♑35'37 | 21°12'11   |
|                     | 8295 Apr 08 12:10 | 30°♓♑     |            | asc. node        | 8296 Mar 16 07:23 | 16°♑35'56 |            |
| inferior conj       | 8295 Apr 12 16:41 | 24°♑56'31 | 3°13'53    | retrograde       | 8296 Mar 17 10:59 | 16°♑42'42 |            |
| minimum elong       | 8295 Apr 12 15:21 | 25°♑01'02 | 3°13'40    | evening set      | 8296 Mar 21 16:30 | 15°♑02'27 |            |
| min. Earth dist.    | 8295 Apr 13 13:57 | 23°♑44'35 | 0.67514 AU | inferior conj    | 8296 Mar 26 23:48 | 8°♑48'31  | 2°53'41    |
| morning rise        | 8295 Apr 17 22:02 | 18°♑39'31 |            | minimum elong    | 8296 Mar 26 21:48 | 8°♑55'28  | 2°53'15    |
| direct              | 8295 Apr 23 17:11 | 16°♑04'16 |            | min. Earth dist. | 8296 Mar 27 07:50 | 8°♑20'40  | 0.68185 AU |
| desc. node          | 8295 May 04 03:59 | 21°♑51'11 |            | morning rise     | 8296 Apr 01 02:54 | 2°♑34'25  |            |
| morning max el      | 8295 May 05 10:06 | 23°♑05'10 | 24°52'26   | direct           | 8296 Apr 06 08:30 | 0°♑16'25  |            |
|                     | 8295 May 11 12:37 | 0°♒       |            | morning max el   | 8296 Apr 16 19:25 | 6°♑29'53  | 23°23'05   |
|                     | 8295 Jun 01 07:25 | 0°♓       |            | desc. node       | 8296 Apr 20 00:57 | 9°♑59'57  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8296 May 05 00:36 | 0°♄       |            | desc. node       | 8297 Apr 06 21:55 | 28°♄57'31 |            |
| morning set      | 8296 May 21 18:59 | 26°♄21'42 |            |                  | 8297 Apr 07 16:59 | 0°♄       |            |
|                  | 8296 May 23 22:23 | 0°♄       |            |                  | 8297 Apr 28 05:31 | 0°♄       |            |
| max. Earth dist. | 8296 May 25 20:23 | 3°♄18'46  | 1.39237 AU | morning set      | 8297 May 02 00:58 | 6°♄02'33  |            |
|                  |                   |           |            | max. Earth dist. | 8297 May 07 19:20 | 15°♄28'19 | 1.41446 AU |
| superior conj    | 8296 Jun 02 10:47 | 17°♄00'17 | -1°26'07   |                  |                   |           |            |
| minimum elong    | 8296 Jun 02 16:01 | 17°♄24'38 | 1°25'32    | superior conj    | 8297 May 15 12:29 | 28°♄41'34 | -1°52'36   |
|                  | 8296 Jun 09 06:46 | 0°♄       |            | minimum elong    | 8297 May 15 18:14 | 29°♄06'53 | 1°52'13    |
| evening rise     | 8296 Jun 11 20:21 | 4°♄57'54  |            |                  | 8297 May 16 06:15 | 0°♄       |            |
| asc. node        | 8296 Jun 12 06:21 | 5°♄46'13  |            | evening rise     | 8297 May 26 04:33 | 18°♄04'15 |            |
|                  | 8296 Jun 26 23:05 | 0°♄       |            | asc. node        | 8297 May 30 03:24 | 25°♄20'06 |            |
| evening max el   | 8296 Jun 28 00:20 | 1°♄05'50  | 18°40'38   |                  | 8297 Jun 01 18:10 | 0°♄       |            |
| retrograde       | 8296 Jul 06 02:07 | 5°♄06'16  |            | evening max el   | 8297 Jun 11 08:46 | 13°♄47'57 | 18°13'18   |
| evening set      | 8296 Jul 08 03:19 | 4°♄51'41  |            | retrograde       | 8297 Jun 18 09:50 | 17°♄20'52 |            |
| inferior conj    | 8296 Jul 16 01:11 | 0°♄27'52  | 0°17'19    | evening set      | 8297 Jun 20 18:34 | 16°♄57'36 |            |
| minimum elong    | 8296 Jul 16 01:50 | 0°♄26'38  | 0°16'54    | inferior conj    | 8297 Jun 27 21:12 | 12°♄13'07 | 1°41'22    |
|                  | 8296 Jul 16 16:00 | 30°♄      |            | minimum elong    | 8297 Jun 28 00:03 | 12°♄06'51 | 1°40'17    |
| desc. node       | 8296 Jul 17 00:16 | 29°♄44'25 |            | min. Earth dist. | 8297 Jul 01 06:19 | 9°♄16'56  | 0.59414 AU |
| min. Earth dist. | 8296 Jul 19 07:17 | 28°♄02'36 | 0.57293 AU | desc. node       | 8297 Jul 03 21:20 | 7°♄17'30  |            |
| morning rise     | 8296 Jul 23 20:51 | 25°♄17'21 |            | morning rise     | 8297 Jul 05 02:30 | 6°♄31'45  |            |
| direct           | 8296 Jul 29 13:41 | 23°♄56'48 |            | direct           | 8297 Jul 11 11:10 | 4°♄39'41  |            |
|                  | 8296 Aug 11 07:32 | 0°♄       |            | morning max el   | 8297 Jul 25 19:53 | 12°♄30'18 | 27°33'25   |
| morning max el   | 8296 Aug 12 21:58 | 1°♄29'01  | 26°33'59   |                  | 8297 Aug 08 15:17 | 0°♄       |            |
|                  | 8296 Sep 02 03:53 | 0°♄       |            |                  | 8297 Aug 25 08:32 | 0°♄       |            |
| asc. node        | 8296 Sep 08 05:52 | 11°♄43'22 |            | morning set      | 8297 Aug 26 08:33 | 2°♄05'01  |            |
| morning set      | 8296 Sep 11 01:17 | 17°♄34'14 |            | asc. node        | 8297 Aug 26 02:51 | 1°♄35'10  |            |
|                  | 8296 Sep 16 18:03 | 0°♄       |            |                  |                   |           |            |
| superior conj    | 8296 Sep 17 23:21 | 2°♄42'24  | 1°24'43    | superior conj    | 8297 Sep 02 11:03 | 17°♄30'37 | 1°08'44    |
| minimum elong    | 8296 Sep 17 21:17 | 2°♄30'57  | 1°24'28    | minimum elong    | 8297 Sep 02 08:49 | 17°♄18'09 | 1°08'20    |
| max. Earth dist. | 8296 Sep 18 09:10 | 3°♄36'48  | 1.31787 AU | max. Earth dist. | 8297 Sep 01 19:26 | 16°♄04'00 | 1.31661 AU |
| evening rise     | 8296 Sep 24 20:21 | 17°♄40'39 |            | evening rise     | 8297 Sep 08 03:11 | 0°♄       |            |
|                  | 8296 Sep 30 23:21 | 0°♄       |            |                  | 8297 Sep 23 23:41 | 0°♄       |            |
| desc. node       | 8296 Oct 12 23:03 | 20°♄18'04 |            | desc. node       | 8297 Sep 29 20:09 | 8°♄30'06  |            |
|                  | 8296 Oct 20 05:00 | 0°♄       |            | evening max el   | 8297 Oct 07 15:41 | 17°♄25'44 | 26°04'53   |
| evening max el   | 8296 Oct 25 17:15 | 5°♄54'41  | 27°03'21   | retrograde       | 8297 Oct 21 13:53 | 24°♄29'42 |            |
| retrograde       | 8296 Nov 08 14:53 | 13°♄05'24 |            | evening set      | 8297 Oct 27 23:55 | 22°♄51'17 |            |
| evening set      | 8296 Nov 15 14:14 | 10°♄57'29 |            | min. Earth dist. | 8297 Nov 01 04:38 | 20°♄16'26 | 0.58624 AU |
| min. Earth dist. | 8296 Nov 19 07:55 | 8°♄16'22  | 0.60704 AU | inferior conj    | 8297 Nov 04 08:15 | 17°♄57'38 | -4°54'38   |
| inferior conj    | 8296 Nov 22 11:15 | 5°♄37'13  | -3°54'23   | minimum elong    | 8297 Nov 04 15:04 | 17°♄45'03 | 4°53'08    |
| minimum elong    | 8296 Nov 22 18:17 | 5°♄22'19  | 3°52'05    | morning rise     | 8297 Nov 12 08:31 | 13°♄30'32 |            |
| morning rise     | 8296 Nov 30 00:43 | 0°♄47'46  |            | direct           | 8297 Nov 14 15:17 | 13°♄13'15 |            |
| direct           | 8296 Dec 02 05:37 | 0°♄28'30  |            | asc. node        | 8297 Nov 22 02:27 | 16°♄31'07 |            |
| asc. node        | 8296 Dec 05 05:26 | 1°♄05'35  |            | morning max el   | 8297 Nov 22 20:21 | 17°♄12'29 | 18°32'43   |
| morning max el   | 8296 Dec 09 12:28 | 4°♄06'48  | 18°00'17   |                  | 8297 Dec 01 23:39 | 0°♄       |            |
| morning set      | 8296 Dec 25 04:10 | 28°♄48'53 |            | morning set      | 8297 Dec 08 21:57 | 12°♄54'45 |            |
|                  | 8296 Dec 25 19:33 | 0°♄       |            |                  |                   |           |            |
| superior conj    | 8297 Jan 04 05:46 | 17°♄07'23 | 0°34'21    | superior conj    | 8297 Dec 17 18:49 | 29°♄52'03 | 1°03'58    |
| minimum elong    | 8297 Jan 04 08:25 | 17°♄19'03 | 0°34'07    | minimum elong    | 8297 Dec 17 22:14 | 0°♄07'56  | 1°03'42    |
| desc. node       | 8297 Jan 08 22:10 | 25°♄14'01 |            |                  | 8297 Dec 17 20:32 | 0°♄       |            |
|                  | 8297 Jan 11 18:14 | 0°♄       |            | max. Earth dist. | 8297 Dec 25 04:09 | 13°♄10'01 | 1.40152 AU |
| max. Earth dist. | 8297 Jan 11 20:01 | 0°♄07'27  | 1.42208 AU | desc. node       | 8297 Dec 26 19:10 | 15°♄58'11 |            |
| evening rise     | 8297 Jan 17 12:52 | 9°♄23'56  |            | evening rise     | 8297 Dec 29 09:16 | 20°♄20'28 |            |
|                  | 8297 Jan 31 01:21 | 0°♄       |            |                  | 8298 Jan 04 08:03 | 0°♄       |            |
| evening max el   | 8297 Feb 19 12:41 | 25°♄16'58 | 22°28'55   |                  | 8298 Jan 25 06:10 | 0°♄       |            |
|                  | 8297 Feb 25 10:49 | 0°♄       |            | evening max el   | 8298 Feb 02 03:21 | 9°♄01'39  | 23°49'04   |
| retrograde       | 8297 Mar 01 07:40 | 1°♄05'13  |            | retrograde       | 8298 Feb 13 01:14 | 15°♄27'11 |            |
| asc. node        | 8297 Mar 03 04:29 | 0°♄47'37  |            | evening set      | 8298 Feb 18 05:52 | 13°♄17'25 |            |
|                  | 8297 Mar 04 20:46 | 30°♄      |            | asc. node        | 8298 Feb 18 01:35 | 13°♄26'22 |            |
| evening set      | 8297 Mar 06 00:10 | 29°♄09'57 |            | min. Earth dist. | 8298 Feb 23 00:47 | 7°♄44'04  | 0.68255 AU |
| inferior conj    | 8297 Mar 11 08:26 | 22°♄47'23 | 2°23'56    | inferior conj    | 8298 Feb 23 16:42 | 6°♄49'54  | 1°45'24    |
| minimum elong    | 8297 Mar 11 06:11 | 22°♄55'15 | 2°23'19    | minimum elong    | 8298 Feb 23 14:38 | 6°♄56'56  | 1°44'45    |
| min. Earth dist. | 8297 Mar 11 04:12 | 23°♄02'08 | 0.68425 AU | morning rise     | 8298 Feb 28 23:23 | 0°♄46'15  |            |
| morning rise     | 8297 Mar 16 12:02 | 16°♄37'47 |            |                  | 8298 Mar 02 03:12 | 30°♄      |            |
| direct           | 8297 Mar 21 03:42 | 14°♄41'02 |            | direct           | 8298 Mar 05 01:28 | 29°♄11'58 |            |
| morning max el   | 8297 Mar 30 07:40 | 20°♄02'30 | 21°55'06   |                  | 8298 Mar 08 04:17 | 0°♄       |            |
|                  |                   |           |            | morning max el   | 8298 Mar 13 02:21 | 3°♄46'43  | 20°35'52   |

|                  |                   |                            |            |                     |                   |                           |            |
|------------------|-------------------|----------------------------|------------|---------------------|-------------------|---------------------------|------------|
| desc. node       | 8298 Mar 24 18:52 | 18° $\text{X}$ 30'18       |            | morning max el      | 8299 Feb 24 05:04 | 17° $\approx$ 43'29       | 19°30'00   |
|                  | 8298 Apr 01 15:51 | 0° $\text{Y}$              |            |                     | 8299 Mar 05 21:47 | 0° $\text{X}$             |            |
| morning set      | 8298 Apr 11 06:19 | 14° $\text{Y}$ 37'50       |            | greatest brilliancy | 8299 Mar 08 23:59 | 4° $\text{X}$ 30'42       | -0.7m      |
| max. Earth dist. | 8298 Apr 20 01:43 | 28° $\text{Y}$ 34'01       | 1.43362 AU | desc. node          | 8299 Mar 11 15:48 | 8° $\text{X}$ 28'54       |            |
|                  | 8298 Apr 20 22:58 | 0° $\text{Z}$              |            | morning set         | 8299 Mar 21 04:21 | 23° $\text{X}$ 01'02      |            |
|                  |                   |                            |            |                     | 8299 Mar 25 16:41 | 0° $\text{Y}$             |            |
| superior conj    | 8298 Apr 26 15:06 | 9° $\text{Z}$ 20'03        | -2°09'13   | max. Earth dist.    | 8299 Apr 02 15:03 | 12° $\text{Y}$ 25'20      | 1.44744 AU |
| minimum elong    | 8298 Apr 26 18:13 | 9° $\text{Z}$ 33'04        | 2°09'15    |                     |                   |                           |            |
| evening rise     | 8298 May 08 20:52 | 0° $\text{II}$ 24'59       |            | superior conj       | 8299 Apr 06 17:06 | 18° $\text{Y}$ 55'15      | -2°09'48   |
|                  | 8298 May 08 15:11 | 0° $\text{II}$             |            | minimum elong       | 8299 Apr 06 13:48 | 18° $\text{Y}$ 42'03      | 2°09'45    |
| asc. node        | 8298 May 17 00:28 | 14° $\text{II}$ 33'07      |            |                     | 8299 Apr 13 13:13 | 0° $\text{Z}$             |            |
| evening max el   | 8298 May 25 21:15 | 26° $\text{II}$ 54'20      | 18°05'25   | evening rise        | 8299 Apr 20 16:47 | 11° $\text{Z}$ 51'32      |            |
|                  | 8298 May 30 14:34 | 0° $\text{III}$            |            |                     | 8299 May 01 16:58 | 0° $\text{II}$            |            |
| retrograde       | 8298 Jun 01 09:17 | 0° $\text{III}$ 15'41      |            | asc. node           | 8299 May 03 21:33 | 3° $\text{II}$ 18'43      |            |
|                  | 8298 Jun 03 04:17 | 30° $\text{R}$ $\text{II}$ |            | evening max el      | 8299 May 09 10:31 | 10° $\text{II}$ 17'14     | 18°16'18   |
| evening set      | 8298 Jun 04 01:28 | 29° $\text{II}$ 41'05      |            | retrograde          | 8299 May 15 19:51 | 13° $\text{II}$ 41'33     |            |
| inferior conj    | 8298 Jun 10 12:09 | 24° $\text{II}$ 36'33      | 2°37'33    | evening set         | 8299 May 18 19:12 | 12° $\text{II}$ 53'58     |            |
| minimum elong    | 8298 Jun 10 15:00 | 24° $\text{II}$ 29'21      | 2°36'44    | inferior conj       | 8299 May 24 18:02 | 7° $\text{II}$ 31'10      | 3°09'38    |
| min. Earth dist. | 8298 Jun 13 13:22 | 21° $\text{II}$ 33'17      | 0.61666 AU | minimum elong       | 8299 May 24 19:48 | 7° $\text{II}$ 26'09      | 3°09'15    |
| morning rise     | 8298 Jun 17 02:28 | 18° $\text{II}$ 34'29      |            | min. Earth dist.    | 8299 May 27 05:51 | 4° $\text{II}$ 42'39      | 0.63774 AU |
| desc. node       | 8298 Jun 20 18:24 | 16° $\text{II}$ 42'41      |            | morning rise        | 8299 May 30 19:12 | 1° $\text{II}$ 17'49      |            |
| direct           | 8298 Jun 23 19:30 | 16° $\text{II}$ 14'09      |            |                     | 8299 Jun 01 16:41 | 30° $\text{R}$ $\text{Z}$ |            |
| morning max el   | 8298 Jul 08 00:16 | 24° $\text{II}$ 14'42      | 27°55'38   | direct              | 8299 Jun 06 12:58 | 28° $\text{Z}$ 38'12      |            |
|                  | 8298 Jul 13 05:02 | 0° $\text{III}$            |            | desc. node          | 8299 Jun 07 15:26 | 28° $\text{Z}$ 42'07      |            |
|                  | 8298 Aug 01 23:54 | 0° $\text{II}$             |            |                     | 8299 Jun 11 18:44 | 0° $\text{II}$            |            |
| morning set      | 8298 Aug 10 10:48 | 16° $\text{II}$ 18'04      |            | morning max el      | 8299 Jun 20 09:12 | 6° $\text{II}$ 39'53      | 27°40'10   |
| asc. node        | 8298 Aug 12 23:49 | 21° $\text{II}$ 35'49      |            |                     | 8299 Jul 08 05:01 | 0° $\text{III}$           |            |
| max. Earth dist. | 8298 Aug 16 03:24 | 28° $\text{II}$ 21'31      | 1.31989 AU | morning set         | 8299 Jul 25 05:43 | 0° $\text{II}$ 07'07      |            |
|                  | 8298 Aug 16 21:28 | 0° $\text{III}$            |            |                     | 8299 Jul 25 04:17 | 0° $\text{II}$            |            |
|                  |                   |                            |            | max. Earth dist.    | 8299 Jul 30 05:06 | 10° $\text{II}$ 18'19     | 1.32790 AU |
| superior conj    | 8298 Aug 17 21:08 | 2° $\text{III}$ 09'40      | 0°48'02    | asc. node           | 8299 Jul 30 20:48 | 11° $\text{II}$ 41'08     |            |
| minimum elong    | 8298 Aug 17 19:12 | 1° $\text{III}$ 59'01      | 0°47'34    |                     |                   |                           |            |
| evening rise     | 8298 Aug 24 16:13 | 17° $\text{III}$ 01'29     |            | superior conj       | 8299 Aug 02 03:42 | 16° $\text{II}$ 34'07     | 0°23'03    |
|                  | 8298 Aug 31 00:34 | 0° $\text{IV}$             |            | minimum elong       | 8299 Aug 02 02:36 | 16° $\text{II}$ 28'14     | 0°22'41    |
| desc. node       | 8298 Sep 16 17:15 | 25° $\text{IV}$ 30'43      |            |                     | 8299 Aug 08 08:48 | 0° $\text{III}$           |            |
| evening max el   | 8298 Sep 19 06:13 | 28° $\text{IV}$ 07'53      | 24°39'16   | evening rise        | 8299 Aug 09 03:49 | 1° $\text{III}$ 41'35     |            |
|                  | 8298 Sep 21 08:15 | 0° $\text{V}$              |            |                     | 8299 Aug 24 17:30 | 0° $\text{IV}$            |            |
| retrograde       | 8298 Oct 03 01:35 | 5° $\text{V}$ 04'31        |            | evening max el      | 8299 Aug 31 17:26 | 8° $\text{IV}$ 21'39      | 23°00'33   |
| evening set      | 8298 Oct 08 09:24 | 4° $\text{V}$ 01'16        |            | desc. node          | 8299 Sep 03 14:22 | 10° $\text{IV}$ 52'46     |            |
| min. Earth dist. | 8298 Oct 13 17:16 | 1° $\text{V}$ 14'20        | 0.56720 AU | retrograde          | 8299 Sep 14 01:14 | 15° $\text{IV}$ 01'13     |            |
|                  | 8298 Oct 15 15:55 | 30° $\text{R}$ $\text{IV}$ |            | evening set         | 8299 Sep 17 20:54 | 14° $\text{IV}$ 29'16     |            |
| inferior conj    | 8298 Oct 16 09:11 | 29° $\text{IV}$ 32'10      | -5°31'19   | min. Earth dist.    | 8299 Sep 25 02:04 | 11° $\text{IV}$ 12'22     | 0.55305 AU |
| minimum elong    | 8298 Oct 16 11:54 | 29° $\text{IV}$ 27'48      | 5°31'04    | inferior conj       | 8299 Sep 26 14:45 | 10° $\text{IV}$ 19'25     | -5°25'18   |
| morning rise     | 8298 Oct 24 16:37 | 25° $\text{IV}$ 27'31      |            | minimum elong       | 8299 Sep 26 10:02 | 10° $\text{IV}$ 26'14     | 5°24'48    |
| direct           | 8298 Oct 27 06:20 | 25° $\text{IV}$ 09'20      |            | morning rise        | 8299 Oct 05 01:16 | 6° $\text{IV}$ 29'50      |            |
| morning max el   | 8298 Nov 05 18:14 | 29° $\text{IV}$ 39'08      | 19°27'04   | direct              | 8299 Oct 08 02:13 | 6° $\text{IV}$ 08'07      |            |
|                  | 8298 Nov 06 02:52 | 0° $\text{V}$              |            | morning max el      | 8299 Oct 19 03:30 | 11° $\text{IV}$ 18'33     | 20°43'48   |
| asc. node        | 8298 Nov 08 23:28 | 3° $\text{V}$ 12'03        |            | asc. node           | 8299 Oct 26 20:28 | 20° $\text{IV}$ 52'31     |            |
| morning set      | 8298 Nov 23 00:00 | 27° $\text{V}$ 22'52       |            |                     | 8299 Nov 01 04:57 | 0° $\text{V}$             |            |
|                  | 8298 Nov 24 07:18 | 0° $\text{VI}$             |            | morning set         | 8299 Nov 07 07:22 | 12° $\text{V}$ 04'20      |            |
|                  |                   |                            |            |                     |                   |                           |            |
| superior conj    | 8298 Dec 01 00:27 | 13° $\text{VI}$ 24'11      | 1°24'29    | superior conj       | 8299 Nov 14 18:01 | 27° $\text{V}$ 30'02      | 1°36'36    |
| minimum elong    | 8298 Dec 01 03:14 | 13° $\text{VI}$ 37'50      | 1°24'22    | minimum elong       | 8299 Nov 14 19:35 | 27° $\text{V}$ 38'03      | 1°36'39    |
| max. Earth dist. | 8298 Dec 07 10:01 | 25° $\text{VI}$ 32'55      | 1.37980 AU |                     | 8299 Nov 15 23:30 | 0° $\text{VI}$            |            |
|                  | 8298 Dec 09 21:03 | 0° $\text{VII}$            |            | max. Earth dist.    | 8299 Nov 19 18:04 | 7° $\text{VI}$ 29'42      | 1.35940 AU |
| evening rise     | 8298 Dec 11 03:29 | 2° $\text{VII}$ 14'46      |            | evening rise        | 8299 Nov 23 16:49 | 14° $\text{VI}$ 59'46     |            |
| desc. node       | 8298 Dec 13 16:10 | 6° $\text{VII}$ 37'56      |            | desc. node          | 8299 Nov 30 13:11 | 27° $\text{VI}$ 08'40     |            |
|                  | 8298 Dec 28 12:02 | 0° $\text{VIII}$           |            |                     | 8299 Dec 02 06:02 | 0° $\text{VII}$           |            |
| evening max el   | 8299 Jan 15 16:34 | 22° $\text{VIII}$ 49'03    | 25°06'09   |                     | 8299 Dec 23 04:00 | 0° $\text{VIII}$          |            |
| retrograde       | 8299 Jan 27 14:44 | 29° $\text{VIII}$ 43'48    |            | evening max el      | 8299 Dec 29 05:34 | 6° $\text{VIII}$ 35'01    | 26°13'07   |
| evening set      | 8299 Feb 02 08:05 | 27° $\text{VIII}$ 21'13    |            | retrograde          | 8300 Jan 10 23:20 | 13° $\text{VIII}$ 48'11   |            |
| asc. node        | 8299 Feb 04 22:40 | 24° $\text{VIII}$ 41'34    |            | evening set         | 8300 Jan 17 05:04 | 11° $\text{VIII}$ 16'09   |            |
| min. Earth dist. | 8299 Feb 06 19:22 | 22° $\text{VIII}$ 22'30    | 0.67688 AU | min. Earth dist.    | 8300 Jan 21 09:45 | 6° $\text{VIII}$ 52'00    | 0.66743 AU |
| inferior conj    | 8299 Feb 07 22:45 | 20° $\text{VIII}$ 53'04    | 0°58'38    | asc. node           | 8300 Jan 22 19:46 | 5° $\text{VIII}$ 07'30    |            |
| minimum elong    | 8299 Feb 07 21:23 | 20° $\text{VIII}$ 57'31    | 0°58'14    | inferior conj       | 8300 Jan 23 00:38 | 4° $\text{VIII}$ 52'29    | 0°04'04    |
| morning rise     | 8299 Feb 13 10:58 | 14° $\text{VIII}$ 56'59    |            | minimum elong       | 8300 Jan 23 00:31 | 4° $\text{VIII}$ 52'50    | 0°04'11    |
| direct           | 8299 Feb 17 00:30 | 13° $\text{VIII}$ 43'59    |            | transit middle      | 8300 Jan 23 00:31 | 4° $\text{VIII}$ 52'50    | 0°04'11    |

|                     |                   |                     |            |                     |                   |                     |            |
|---------------------|-------------------|---------------------|------------|---------------------|-------------------|---------------------|------------|
| transit begin       | 8300 Jan 22 21:45 | 5° $\approx$ 01'22  |            | min. Earth dist.    | 8301 Jan 04 17:44 | 21° $\approx$ 06'59 | 0.65440 AU |
| transit end         | 8300 Jan 23 03:17 | 4° $\approx$ 44'19  |            | inferior conj       | 8301 Jan 06 20:13 | 18° $\approx$ 43'51 | -0°57'35   |
|                     | 8300 Jan 27 13:36 | 30° $\approx$ 03'   |            | minimum elong       | 8301 Jan 06 21:54 | 18° $\approx$ 39'04 | 0°56'42    |
| morning rise        | 8300 Jan 28 20:42 | 29° $\approx$ 05'52 |            | asc. node           | 8301 Jan 09 16:49 | 15° $\approx$ 40'13 |            |
| direct              | 8300 Jan 31 23:09 | 28° $\approx$ 11'17 |            | morning rise        | 8301 Jan 13 02:14 | 13° $\approx$ 09'04 |            |
|                     | 8300 Feb 05 13:25 | 0° $\approx$        |            | direct              | 8301 Jan 15 19:30 | 12° $\approx$ 29'10 |            |
| morning max el      | 8300 Feb 07 15:01 | 1° $\approx$ 48'01  | 18°39'40   | morning max el      | 8301 Jan 22 06:00 | 15° $\approx$ 54'15 | 18°05'54   |
| desc. node          | 8300 Feb 26 12:42 | 28° $\approx$ 45'42 |            |                     | 8301 Feb 01 13:07 | 0° $\approx$        |            |
|                     | 8300 Feb 27 07:36 | 0° $\approx$        |            | morning set         | 8301 Feb 09 14:33 | 13° $\approx$ 04'42 |            |
| morning set         | 8300 Feb 28 18:56 | 2° $\approx$ 18'56  |            | desc. node          | 8301 Feb 13 09:36 | 19° $\approx$ 15'39 |            |
| max. Earth dist.    | 8300 Mar 16 08:35 | 26° $\approx$ 43'25 | 1.45446 AU |                     | 8301 Feb 20 01:46 | 0° $\approx$        |            |
| superior conj       | 8300 Mar 17 01:00 | 27° $\approx$ 47'41 | -1°50'15   | superior conj       | 8301 Feb 24 07:44 | 6° $\approx$ 44'18  | -1°13'27   |
| minimum elong       | 8300 Mar 16 15:56 | 27° $\approx$ 12'13 | 1°49'31    | minimum elong       | 8301 Feb 23 23:25 | 6° $\approx$ 11'28  | 1°12'22    |
|                     | 8300 Mar 18 10:45 | 0° $\approx$        |            | max. Earth dist.    | 8301 Feb 27 03:55 | 11° $\approx$ 12'28 | 1.45414 AU |
| evening rise        | 8300 Apr 01 13:06 | 22° $\approx$ 19'01 |            |                     | 8301 Mar 11 05:35 | 0° $\approx$        |            |
|                     | 8300 Apr 06 08:17 | 0° $\approx$        |            | evening rise        | 8301 Mar 12 11:58 | 1° $\approx$ 57'38  |            |
| greatest brilliancy | 8300 Apr 09 08:59 | 4° $\approx$ 49'40  | -0.9m      | greatest brilliancy | 8301 Mar 25 09:44 | 21° $\approx$ 45'09 | -0.7m      |
| asc. node           | 8300 Apr 20 18:38 | 21° $\approx$ 27'42 |            |                     | 8301 Mar 31 02:48 | 0° $\approx$        |            |
| evening max el      | 8300 Apr 22 21:51 | 23° $\approx$ 49'46 | 18°45'23   | evening max el      | 8301 Apr 06 05:09 | 7° $\approx$ 26'46  | 19°31'18   |
| retrograde          | 8300 Apr 29 13:23 | 27° $\approx$ 29'54 |            | asc. node           | 8301 Apr 07 15:43 | 8° $\approx$ 48'31  |            |
| evening set         | 8300 May 02 20:05 | 26° $\approx$ 28'18 |            | retrograde          | 8301 Apr 13 10:36 | 11° $\approx$ 33'56 |            |
| inferior conj       | 8300 May 08 10:51 | 20° $\approx$ 49'01 | 3°22'39    | evening set         | 8301 Apr 17 01:23 | 10° $\approx$ 17'32 |            |
| minimum elong       | 8300 May 08 11:17 | 20° $\approx$ 47'41 | 3°22'30    | inferior conj       | 8301 Apr 22 11:15 | 4° $\approx$ 23'19  | 3°20'40    |
| min. Earth dist.    | 8300 May 10 07:27 | 18° $\approx$ 31'19 | 0.65558 AU | minimum elong       | 8301 Apr 22 10:29 | 4° $\approx$ 25'52  | 3°20'31    |
| morning rise        | 8300 May 14 01:49 | 14° $\approx$ 31'15 |            | min. Earth dist.    | 8301 Apr 23 16:49 | 2° $\approx$ 45'58  | 0.66932 AU |
| direct              | 8300 May 20 14:09 | 11° $\approx$ 44'20 |            |                     | 8301 Apr 25 22:32 | 30° $\approx$ 03'   |            |
| desc. node          | 8300 May 25 12:25 | 13° $\approx$ 03'09 |            | morning rise        | 8301 Apr 27 19:13 | 28° $\approx$ 05'24 |            |
| morning max el      | 8300 Jun 02 19:41 | 19° $\approx$ 34'35 | 26°52'20   | direct              | 8301 May 03 21:35 | 25° $\approx$ 22'55 |            |
|                     | 8300 Jun 11 16:44 | 0° $\approx$        |            | desc. node          | 8301 May 12 09:23 | 29° $\approx$ 14'32 |            |
|                     | 8300 Jul 01 06:14 | 0° $\approx$        |            |                     | 8301 May 13 07:07 | 0° $\approx$        |            |
| morning set         | 8300 Jul 08 14:18 | 13° $\approx$ 24'07 |            | morning max el      | 8301 May 16 05:29 | 2° $\approx$ 45'51  | 25°40'32   |
| max. Earth dist.    | 8300 Jul 12 21:01 | 21° $\approx$ 47'29 | 1.34078 AU |                     | 8301 Jun 05 21:16 | 0° $\approx$        |            |
|                     | 8300 Jul 16 21:15 | 0° $\approx$        |            | morning set         | 8301 Jun 21 08:28 | 25° $\approx$ 15'12 |            |
| superior conj       | 8300 Jul 17 04:36 | 0° $\approx$ 38'20  | -0°05'34   |                     | 8301 Jun 23 13:03 | 0° $\approx$        |            |
| minimum elong       | 8300 Jul 17 04:54 | 0° $\approx$ 39'56  | 0°05'40    | max. Earth dist.    | 8301 Jun 25 01:56 | 2° $\approx$ 53'46  | 1.35837 AU |
| behind sun begin    | 8300 Jul 16 23:31 | 0° $\approx$ 11'52  |            | superior conj       | 8301 Jun 30 21:06 | 14° $\approx$ 14'16 | -0°36'41   |
| behind sun end      | 8300 Jul 17 10:17 | 1° $\approx$ 08'02  |            | minimum elong       | 8301 Jun 30 23:17 | 14° $\approx$ 25'14 | 0°36'26    |
| asc. node           | 8300 Jul 17 17:48 | 1° $\approx$ 47'21  |            | asc. node           | 8301 Jul 04 14:47 | 21° $\approx$ 49'53 |            |
| evening rise        | 8300 Jul 24 14:00 | 16° $\approx$ 14'17 |            | evening rise        | 8301 Jul 08 20:37 | 0° $\approx$ 32'38  |            |
|                     | 8300 Jul 31 11:30 | 0° $\approx$        |            |                     | 8301 Jul 08 14:14 | 0° $\approx$        |            |
| evening max el      | 8300 Aug 13 10:27 | 18° $\approx$ 43'48 | 21°25'22   | evening max el      | 8301 Jul 26 15:42 | 29° $\approx$ 41'38 | 20°05'22   |
| desc. node          | 8300 Aug 21 11:28 | 24° $\approx$ 04'44 |            |                     | 8301 Jul 26 23:15 | 0° $\approx$        |            |
| retrograde          | 8300 Aug 25 15:03 | 24° $\approx$ 46'26 |            | retrograde          | 8301 Aug 06 04:27 | 4° $\approx$ 53'28  |            |
| evening set         | 8300 Aug 28 03:03 | 24° $\approx$ 32'06 |            | evening set         | 8301 Aug 08 02:15 | 4° $\approx$ 43'59  |            |
| inferior conj       | 8300 Sep 06 08:25 | 20° $\approx$ 34'21 | -4°24'11   | desc. node          | 8301 Aug 08 08:34 | 4° $\approx$ 41'15  |            |
| minimum elong       | 8300 Sep 05 22:56 | 20° $\approx$ 47'38 | 4°21'48    | inferior conj       | 8301 Aug 17 03:41 | 0° $\approx$ 45'06  | -2°39'18   |
| min. Earth dist.    | 8300 Sep 06 10:54 | 20° $\approx$ 30'52 | 0.54688 AU | minimum elong       | 8301 Aug 16 20:26 | 0° $\approx$ 55'54  | 2°36'47    |
| morning rise        | 8300 Sep 14 19:40 | 16° $\approx$ 42'47 |            |                     | 8301 Aug 18 09:51 | 30° $\approx$ 03'   |            |
| direct              | 8300 Sep 18 11:12 | 16° $\approx$ 13'59 |            | min. Earth dist.    | 8301 Aug 18 21:27 | 29° $\approx$ 42'47 | 0.55031 AU |
| morning max el      | 8300 Oct 01 00:29 | 22° $\approx$ 11'09 | 22°19'39   | morning rise        | 8301 Aug 25 13:13 | 26° $\approx$ 31'35 |            |
|                     | 8300 Oct 07 18:20 | 0° $\approx$        |            | direct              | 8301 Aug 29 22:46 | 25° $\approx$ 49'34 |            |
| asc. node           | 8300 Oct 13 17:26 | 9° $\approx$ 18'48  |            |                     | 8301 Sep 09 15:03 | 0° $\approx$        |            |
| morning set         | 8300 Oct 22 17:50 | 26° $\approx$ 52'53 |            | morning max el      | 8301 Sep 12 13:45 | 2° $\approx$ 30'31  | 24°05'25   |
|                     | 8300 Oct 24 05:11 | 0° $\approx$        |            | asc. node           | 8301 Sep 30 14:23 | 28° $\approx$ 19'06 |            |
| superior conj       | 8300 Oct 29 19:54 | 11° $\approx$ 58'55 | 1°41'16    |                     | 8301 Oct 01 11:32 | 0° $\approx$        |            |
| minimum elong       | 8300 Oct 29 20:09 | 12° $\approx$ 00'13 | 1°41'22    | morning set         | 8301 Oct 07 05:32 | 11° $\approx$ 42'31 |            |
| max. Earth dist.    | 8300 Nov 02 09:01 | 19° $\approx$ 23'23 | 1.34224 AU | superior conj       | 8301 Oct 14 03:15 | 26° $\approx$ 41'26 | 1°39'22    |
| evening rise        | 8300 Nov 06 21:32 | 28° $\approx$ 25'56 |            | minimum elong       | 8301 Oct 14 02:20 | 26° $\approx$ 36'28 | 1°39'25    |
|                     | 8300 Nov 07 17:00 | 0° $\approx$        |            |                     | 8301 Oct 15 15:56 | 0° $\approx$        |            |
| desc. node          | 8300 Nov 17 10:14 | 17° $\approx$ 25'21 |            | max. Earth dist.    | 8301 Oct 16 08:30 | 1° $\approx$ 28'59  | 1.32924 AU |
|                     | 8300 Nov 25 10:51 | 0° $\approx$        |            | evening rise        | 8301 Oct 21 13:47 | 12° $\approx$ 22'30 |            |
| evening max el      | 8300 Dec 11 18:44 | 20° $\approx$ 31'25 | 27°02'36   |                     | 8301 Oct 30 22:23 | 0° $\approx$        |            |
| retrograde          | 8300 Dec 25 02:13 | 27° $\approx$ 33'12 |            | desc. node          | 8301 Nov 04 07:19 | 7° $\approx$ 20'49  |            |
| evening set         | 8300 Dec 31 18:48 | 24° $\approx$ 57'04 |            |                     | 8301 Nov 20 20:25 | 0° $\approx$        |            |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| evening max el   | 8301 Nov 24 06:58 | 3° $\text{♁}$ 31'19  | 27°27'33   | retrograde       | 8302 Nov 20 11:29 | 23° $\text{♁}$ 29'43 |            |
| retrograde       | 8301 Dec 07 22:34 | 10° $\text{♁}$ 50'06 |            | evening set      | 8302 Nov 27 13:48 | 21° $\text{♁}$ 09'28 |            |
| evening set      | 8301 Dec 14 22:48 | 8° $\text{♁}$ 17'18  |            | min. Earth dist. | 8302 Dec 01 06:04 | 18° $\text{♁}$ 18'04 | 0.61889 AU |
| min. Earth dist. | 8301 Dec 18 17:06 | 4° $\text{♁}$ 59'17  | 0.63802 AU | inferior conj    | 8302 Dec 04 05:41 | 15° $\text{♁}$ 35'09 | -3°15'00   |
| inferior conj    | 8301 Dec 21 06:55 | 2° $\text{♁}$ 20'47  | -2°04'55   | minimum elong    | 8302 Dec 04 11:49 | 15° $\text{♁}$ 21'10 | 3°12'42    |
| minimum elong    | 8301 Dec 21 10:49 | 2° $\text{♁}$ 10'44  | 2°03'11    | morning rise     | 8302 Dec 11 12:00 | 10° $\text{♁}$ 33'45 |            |
|                  | 8301 Dec 23 16:02 | 30° $\text{♁}$       |            | direct           | 8302 Dec 13 18:02 | 10° $\text{♁}$ 11'46 |            |
| asc. node        | 8301 Dec 27 13:50 | 27° $\text{♁}$ 12'30 |            | asc. node        | 8302 Dec 14 10:52 | 10° $\text{♁}$ 13'58 |            |
| morning rise     | 8301 Dec 28 00:37 | 27° $\text{♁}$ 00'56 |            | morning max el   | 8302 Dec 20 15:41 | 13° $\text{♁}$ 41'40 | 17°50'57   |
| direct           | 8301 Dec 30 10:55 | 26° $\text{♁}$ 31'47 |            |                  | 8302 Dec 31 18:32 | 0° $\text{♁}$        |            |
| morning max el   | 8302 Jan 05 23:17 | 29° $\text{♁}$ 54'53 | 17°49'27   | morning set      | 8303 Jan 05 10:10 | 8° $\text{♁}$ 18'08  |            |
|                  | 8302 Jan 06 01:20 | 0° $\text{♁}$        |            |                  |                   |                      |            |
| morning set      | 8302 Jan 22 13:49 | 25° $\text{♁}$ 11'33 |            | superior conj    | 8303 Jan 16 08:31 | 27° $\text{♁}$ 35'36 | 0°13'13    |
|                  | 8302 Jan 25 09:19 | 0° $\text{♁}$        |            | minimum elong    | 8303 Jan 16 09:43 | 27° $\text{♁}$ 40'47 | 0°13'12    |
| desc. node       | 8302 Jan 31 06:34 | 9° $\text{♁}$ 54'40  |            | behind sun begin | 8303 Jan 16 04:48 | 27° $\text{♁}$ 19'43 |            |
|                  |                   |                      |            | behind sun end   | 8303 Jan 16 14:39 | 28° $\text{♁}$ 01'50 |            |
| superior conj    | 8302 Feb 04 07:29 | 16° $\text{♁}$ 33'24 | -0°29'04   |                  | 8303 Jan 17 18:27 | 0° $\text{♁}$        |            |
| minimum elong    | 8302 Feb 04 04:16 | 16° $\text{♁}$ 20'18 | 0°28'29    | desc. node       | 8303 Jan 18 03:33 | 0° $\text{♁}$ 38'28  |            |
| max. Earth dist. | 8302 Feb 09 22:55 | 25° $\text{♁}$ 38'08 | 1.44650 AU | max. Earth dist. | 8303 Jan 23 14:37 | 9° $\text{♁}$ 41'50  | 1.43243 AU |
|                  | 8302 Feb 12 17:11 | 0° $\text{♁}$        |            | evening rise     | 8303 Jan 30 15:11 | 20° $\text{♁}$ 53'44 |            |
| evening rise     | 8302 Feb 19 23:39 | 11° $\text{♁}$ 17'11 |            |                  | 8303 Feb 05 13:17 | 0° $\text{♁}$        |            |
|                  | 8302 Mar 04 09:39 | 0° $\text{♁}$        |            |                  | 8303 Feb 26 21:48 | 0° $\text{♁}$        |            |
| evening max el   | 8302 Mar 20 07:14 | 21° $\text{♁}$ 06'05 | 20°31'54   | evening max el   | 8303 Mar 03 03:47 | 4° $\text{♁}$ 46'03  | 21°43'57   |
| asc. node        | 8302 Mar 25 12:48 | 25° $\text{♁}$ 07'59 |            | retrograde       | 8303 Mar 12 06:57 | 10° $\text{♁}$ 10'30 |            |
| retrograde       | 8302 Mar 28 09:06 | 25° $\text{♁}$ 49'11 |            | asc. node        | 8303 Mar 12 09:54 | 10° $\text{♁}$ 10'26 |            |
| evening set      | 8302 Apr 01 08:59 | 24° $\text{♁}$ 17'34 |            | evening set      | 8303 Mar 16 17:06 | 8° $\text{♁}$ 23'34  |            |
| inferior conj    | 8302 Apr 06 16:36 | 18° $\text{♁}$ 10'12 | 3°06'33    | inferior conj    | 8303 Mar 22 00:36 | 2° $\text{♁}$ 05'32  | 2°42'09    |
| minimum elong    | 8302 Apr 06 14:56 | 18° $\text{♁}$ 15'54 | 3°06'14    | minimum elong    | 8303 Mar 22 02:26 | 2° $\text{♁}$ 13'03  | 2°41'38    |
| min. Earth dist. | 8302 Apr 07 08:06 | 17° $\text{♁}$ 17'04 | 0.67860 AU | min. Earth dist. | 8303 Mar 21 03:13 | 1° $\text{♁}$ 56'24  | 0.68344 AU |
| morning rise     | 8302 Apr 11 20:39 | 11° $\text{♁}$ 54'28 |            |                  | 8303 Mar 23 13:05 | 30° $\text{♁}$       |            |
| direct           | 8302 Apr 17 10:17 | 9° $\text{♁}$ 25'47  |            | morning rise     | 8303 Mar 27 03:37 | 25° $\text{♁}$ 53'24 |            |
| morning max el   | 8302 Apr 28 14:32 | 16° $\text{♁}$ 06'53 | 24°14'47   | direct           | 8303 Apr 01 03:15 | 23° $\text{♁}$ 44'20 |            |
| desc. node       | 8302 Apr 29 06:21 | 16° $\text{♁}$ 47'30 |            | morning max el   | 8303 Apr 11 00:48 | 29° $\text{♁}$ 35'10 | 22°45'02   |
|                  | 8302 May 10 01:26 | 0° $\text{♁}$        |            |                  | 8303 Apr 11 10:34 | 0° $\text{♁}$        |            |
|                  | 8302 May 29 20:30 | 0° $\text{♁}$        |            | desc. node       | 8303 Apr 16 03:18 | 5° $\text{♁}$ 18'58  |            |
| morning set      | 8302 Jun 03 07:18 | 7° $\text{♁}$ 33'28  |            |                  | 8303 May 03 20:11 | 0° $\text{♁}$        |            |
| max. Earth dist. | 8302 Jun 06 23:30 | 14° $\text{♁}$ 02'41 | 1.37952 AU | morning set      | 8303 May 15 05:16 | 17° $\text{♁}$ 58'39 |            |
|                  |                   |                      |            | max. Earth dist. | 8303 May 19 20:22 | 25° $\text{♁}$ 44'35 | 1.40203 AU |
| superior conj    | 8302 Jun 14 01:55 | 27° $\text{♁}$ 13'55 | -1°08'32   |                  | 8303 May 22 07:35 | 0° $\text{♁}$        |            |
| minimum elong    | 8302 Jun 14 06:09 | 27° $\text{♁}$ 34'13 | 1°07'59    |                  |                   |                      |            |
|                  | 8302 Jun 15 12:24 | 0° $\text{♁}$        |            | superior conj    | 8303 May 27 14:49 | 9° $\text{♁}$ 26'21  | -1°38'10   |
| asc. node        | 8302 Jun 21 11:49 | 11° $\text{♁}$ 45'05 |            | minimum elong    | 8303 May 27 20:32 | 9° $\text{♁}$ 52'20  | 1°37'39    |
| evening rise     | 8302 Jun 22 21:10 | 14° $\text{♁}$ 30'13 |            | evening rise     | 8303 Jun 06 12:27 | 27° $\text{♁}$ 57'56 |            |
|                  | 8302 Jul 01 03:08 | 0° $\text{♁}$        |            |                  | 8303 Jun 07 14:13 | 0° $\text{♁}$        |            |
| evening max el   | 8302 Jul 09 09:54 | 11° $\text{♁}$ 24'16 | 19°05'29   | asc. node        | 8303 Jun 08 08:51 | 1° $\text{♁}$ 28'02  |            |
| retrograde       | 8302 Jul 18 06:46 | 15° $\text{♁}$ 47'30 |            | evening max el   | 8303 Jun 22 14:07 | 23° $\text{♁}$ 46'35 | 18°26'28   |
| evening set      | 8302 Jul 20 04:47 | 15° $\text{♁}$ 36'03 |            | retrograde       | 8303 Jun 30 04:04 | 27° $\text{♁}$ 33'43 |            |
| desc. node       | 8302 Jul 26 05:38 | 12° $\text{♁}$ 56'08 |            | evening set      | 8303 Jul 02 08:18 | 27° $\text{♁}$ 15'53 |            |
| inferior conj    | 8302 Jul 28 13:59 | 11° $\text{♁}$ 22'49 | -0°43'03   | inferior conj    | 8303 Jul 09 21:40 | 22° $\text{♁}$ 43'00 | 0°56'27    |
| minimum elong    | 8302 Jul 28 12:08 | 11° $\text{♁}$ 25'59 | 0°42'29    | minimum elong    | 8303 Jul 09 23:36 | 22° $\text{♁}$ 39'08 | 0°55'37    |
| min. Earth dist. | 8302 Jul 31 11:18 | 9° $\text{♁}$ 24'53  | 0.56271 AU | desc. node       | 8303 Jul 13 02:42 | 20° $\text{♁}$ 09'18 |            |
| morning rise     | 8302 Aug 05 16:26 | 6° $\text{♁}$ 33'52  |            | min. Earth dist. | 8303 Jul 13 06:33 | 20° $\text{♁}$ 01'56 | 0.58158 AU |
| direct           | 8302 Aug 10 22:01 | 5° $\text{♁}$ 30'04  |            | morning rise     | 8303 Jul 17 11:29 | 17° $\text{♁}$ 18'00 |            |
| morning max el   | 8302 Aug 25 02:46 | 12° $\text{♁}$ 45'49 | 25°45'38   | direct           | 8303 Jul 23 11:34 | 15° $\text{♁}$ 44'28 |            |
|                  | 8302 Sep 07 13:35 | 0° $\text{♁}$        |            | morning max el   | 8303 Aug 06 21:01 | 23° $\text{♁}$ 25'34 | 27°03'40   |
| asc. node        | 8302 Sep 17 11:21 | 17° $\text{♁}$ 44'54 |            |                  | 8303 Aug 12 18:56 | 0° $\text{♁}$        |            |
| morning set      | 8302 Sep 21 16:49 | 26° $\text{♁}$ 28'49 |            |                  | 8303 Aug 31 14:33 | 0° $\text{♁}$        |            |
|                  | 8302 Sep 23 08:07 | 0° $\text{♁}$        |            | asc. node        | 8303 Sep 04 08:20 | 7° $\text{♁}$ 29'03  |            |
|                  |                   |                      |            | morning set      | 8303 Sep 06 02:05 | 11° $\text{♁}$ 07'00 |            |
| superior conj    | 8302 Sep 28 13:48 | 11° $\text{♁}$ 30'53 | 1°31'37    |                  |                   |                      |            |
| minimum elong    | 8302 Sep 28 12:02 | 11° $\text{♁}$ 21'11 | 1°31'30    | superior conj    | 8303 Sep 13 01:37 | 26° $\text{♁}$ 21'18 | 1°18'32    |
| max. Earth dist. | 8302 Sep 29 14:50 | 13° $\text{♁}$ 48'55 | 1.32074 AU | minimum elong    | 8303 Sep 12 23:25 | 26° $\text{♁}$ 09'06 | 1°18'13    |
| evening rise     | 8302 Oct 05 14:27 | 26° $\text{♁}$ 41'01 |            | max. Earth dist. | 8303 Sep 13 00:43 | 26° $\text{♁}$ 16'20 | 1.31673 AU |
|                  | 8302 Oct 07 05:07 | 0° $\text{♁}$        |            |                  | 8303 Sep 14 17:02 | 0° $\text{♁}$        |            |
| desc. node       | 8302 Oct 22 04:25 | 26° $\text{♁}$ 46'21 |            | evening rise     | 8303 Sep 19 20:53 | 11° $\text{♁}$ 14'08 |            |
|                  | 8302 Oct 24 07:59 | 0° $\text{♁}$        |            |                  | 8303 Sep 29 09:58 | 0° $\text{♁}$        |            |
| evening max el   | 8302 Nov 06 15:45 | 16° $\text{♁}$ 16'10 | 27°21'50   | desc. node       | 8303 Oct 09 01:30 | 15° $\text{♁}$ 30'03 |            |

|                  |                   |                            |            |                  |                   |                         |            |
|------------------|-------------------|----------------------------|------------|------------------|-------------------|-------------------------|------------|
| evening max el   | 8303 Oct 19 18:23 | 28° $\mathbb{M}$ 15'44     | 26°42'22   |                  | 8304 Sep 22 10:45 | 0° $\mathbb{M}$         |            |
|                  | 8303 Oct 21 17:04 | 0° $\mathbb{A}$            |            | desc. node       | 8304 Sep 24 22:37 | 3° $\mathbb{M}$ 14'41   |            |
| retrograde       | 8303 Nov 02 16:18 | 5° $\mathbb{A}$ 23'52      |            | evening max el   | 8304 Sep 30 13:06 | 9° $\mathbb{M}$ 24'15   | 25°31'11   |
| evening set      | 8303 Nov 09 11:42 | 3° $\mathbb{A}$ 27'00      |            | retrograde       | 8304 Oct 14 11:12 | 16° $\mathbb{M}$ 26'31  |            |
| min. Earth dist. | 8303 Nov 13 08:16 | 0° $\mathbb{A}$ 51'00      | 0.59811 AU | evening set      | 8304 Oct 20 11:30 | 15° $\mathbb{M}$ 02'43  |            |
|                  | 8303 Nov 14 10:22 | 30° $\mathbb{R}\mathbb{M}$ |            | min. Earth dist. | 8304 Oct 25 01:17 | 12° $\mathbb{M}$ 24'59  | 0.57766 AU |
| inferior conj    | 8303 Nov 16 13:06 | 28° $\mathbb{M}$ 18'09     | -4°21'47   | inferior conj    | 8304 Oct 28 01:45 | 10° $\mathbb{M}$ 19'37  | -5°14'13   |
| minimum elong    | 8303 Nov 16 20:25 | 28° $\mathbb{M}$ 03'33     | 4°19'41    | minimum elong    | 8304 Oct 28 07:24 | 10° $\mathbb{M}$ 09'49  | 5°13'17    |
| morning rise     | 8303 Nov 24 07:32 | 23° $\mathbb{M}$ 38'23     |            | morning rise     | 8304 Nov 05 05:38 | 6° $\mathbb{M}$ 02'33   |            |
| direct           | 8303 Nov 26 12:42 | 23° $\mathbb{M}$ 20'19     |            | direct           | 8304 Nov 07 14:29 | 5° $\mathbb{M}$ 45'24   |            |
| asc. node        | 8303 Dec 01 07:54 | 24° $\mathbb{M}$ 49'55     |            | morning max el   | 8304 Nov 16 07:59 | 9° $\mathbb{M}$ 56'40   | 18°53'07   |
| morning max el   | 8303 Dec 04 03:51 | 27° $\mathbb{M}$ 06'03     | 18°11'37   | asc. node        | 8304 Nov 17 04:56 | 10° $\mathbb{M}$ 49'17  |            |
|                  | 8303 Dec 06 18:02 | 0° $\mathbb{A}$            |            |                  | 8304 Nov 29 12:21 | 0° $\mathbb{A}$         |            |
| morning set      | 8303 Dec 19 21:32 | 22° $\mathbb{A}$ 06'35     |            | morning set      | 8304 Dec 02 19:13 | 6° $\mathbb{A}$ 22'35   |            |
|                  | 8303 Dec 24 02:09 | 0° $\mathbb{B}$            |            |                  |                   |                         |            |
| superior conj    | 8303 Dec 29 09:49 | 9° $\mathbb{B}$ 47'20      | 0°48'02    | superior conj    | 8304 Dec 11 06:31 | 22° $\mathbb{A}$ 53'41  | 1°13'45    |
| minimum elong    | 8303 Dec 29 13:01 | 10° $\mathbb{B}$ 01'46     | 0°47'44    | minimum elong    | 8304 Dec 11 09:47 | 23° $\mathbb{A}$ 09'13  | 1°13'31    |
| desc. node       | 8304 Jan 05 00:33 | 21° $\mathbb{B}$ 23'47     |            |                  | 8304 Dec 15 01:42 | 0° $\mathbb{B}$         |            |
| max. Earth dist. | 8304 Jan 06 01:08 | 23° $\mathbb{B}$ 08'07     | 1.41358 AU | max. Earth dist. | 8304 Dec 18 07:18 | 5° $\mathbb{B}$ 50'27   | 1.39222 AU |
|                  | 8304 Jan 10 04:19 | 0° $\approx$               |            | desc. node       | 8304 Dec 21 21:33 | 12° $\mathbb{B}$ 06'26  |            |
| evening rise     | 8304 Jan 10 23:14 | 1° $\approx$ 17'01         |            | evening rise     | 8304 Dec 22 05:01 | 12° $\mathbb{B}$ 38'18  |            |
|                  | 8304 Jan 29 23:47 | 0° $\mathbb{H}$            |            |                  | 8305 Jan 01 22:42 | 0° $\approx$            |            |
| evening max el   | 8304 Feb 13 19:57 | 18° $\mathbb{H}$ 28'15     | 23°02'49   | evening max el   | 8305 Jan 24 06:08 | 0° $\mathbb{H}$         |            |
| retrograde       | 8304 Feb 24 02:37 | 24° $\mathbb{H}$ 33'39     |            |                  | 8305 Jan 26 09:43 | 2° $\mathbb{H}$ 13'45   | 24°22'40   |
| asc. node        | 8304 Feb 27 06:59 | 23° $\mathbb{H}$ 43'16     |            | retrograde       | 8305 Feb 06 18:43 | 8° $\mathbb{H}$ 53'35   |            |
| evening set      | 8304 Feb 29 00:10 | 22° $\mathbb{H}$ 31'55     |            | evening set      | 8305 Feb 12 04:35 | 6° $\mathbb{H}$ 38'13   |            |
| inferior conj    | 8304 Mar 05 09:19 | 16° $\mathbb{H}$ 06'28     | 2°08'37    | asc. node        | 8305 Feb 13 04:05 | 5° $\mathbb{H}$ 43'55   |            |
| minimum elong    | 8304 Mar 05 07:05 | 16° $\mathbb{H}$ 14'12     | 2°07'59    | min. Earth dist. | 8305 Feb 16 20:07 | 1° $\mathbb{H}$ 19'19   | 0.68056 AU |
| min. Earth dist. | 8304 Mar 04 23:59 | 16° $\mathbb{H}$ 38'43     | 0.68402 AU | inferior conj    | 8305 Feb 17 16:52 | 0° $\mathbb{H}$ 09'37   | 1°26'34    |
| morning rise     | 8304 Mar 10 13:56 | 9° $\mathbb{H}$ 59'13      |            | minimum elong    | 8305 Feb 17 15:03 | 0° $\mathbb{H}$ 15'47   | 1°26'00    |
| direct           | 8304 Mar 14 23:37 | 8° $\mathbb{H}$ 12'17      |            |                  | 8305 Feb 17 19:44 | 30° $\mathbb{R}\approx$ |            |
| morning max el   | 8304 Mar 23 15:36 | 13° $\mathbb{H}$ 13'06     | 21°19'59   | morning rise     | 8305 Feb 23 01:36 | 24° $\approx$ 08'44     |            |
| desc. node       | 8304 Apr 02 00:16 | 24° $\mathbb{H}$ 32'54     |            | direct           | 8305 Feb 26 22:08 | 22° $\approx$ 43'46     |            |
|                  | 8304 Apr 05 22:34 | 0° $\mathbb{Y}$            |            | morning max el   | 8305 Mar 06 13:36 | 27° $\approx$ 02'29     | 20°05'59   |
| morning set      | 8304 Apr 23 23:48 | 27° $\mathbb{Y}$ 08'41     |            |                  | 8305 Mar 09 06:56 | 0° $\mathbb{H}$         |            |
|                  | 8304 Apr 25 19:01 | 0° $\mathbb{B}$            |            | desc. node       | 8305 Mar 19 21:12 | 14° $\mathbb{H}$ 17'33  |            |
| max. Earth dist. | 8304 Apr 30 22:07 | 8° $\mathbb{B}$ 17'39      | 1.42314 AU |                  | 8305 Mar 30 09:04 | 0° $\mathbb{Y}$         |            |
| superior conj    | 8304 May 08 07:10 | 20° $\mathbb{B}$ 41'34     | -2°01'13   | morning set      | 8305 Apr 02 23:06 | 5° $\mathbb{Y}$ 30'06   |            |
| minimum elong    | 8304 May 08 12:17 | 21° $\mathbb{B}$ 03'38     | 2°01'01    | max. Earth dist. | 8305 Apr 13 07:05 | 21° $\mathbb{Y}$ 42'33  | 1.44022 AU |
|                  | 8304 May 13 14:49 | 0° $\mathbb{I}$            |            |                  | 8305 Apr 18 10:18 | 0° $\mathbb{B}$         |            |
| evening rise     | 8304 May 19 14:31 | 10° $\mathbb{I}$ 46'19     |            | superior conj    | 8305 Apr 18 23:14 | 0° $\mathbb{B}$ 52'53   | -2°11'47   |
| asc. node        | 8304 May 25 05:54 | 20° $\mathbb{I}$ 53'49     |            | minimum elong    | 8305 Apr 18 23:59 | 0° $\mathbb{B}$ 55'57   | 2°11'52    |
|                  | 8304 May 30 18:22 | 0° $\mathbb{E}$            |            | evening rise     | 8305 May 01 22:42 | 22° $\mathbb{B}$ 45'06  |            |
| evening max el   | 8304 Jun 05 00:40 | 6° $\mathbb{E}$ 39'54      | 18°07'33   |                  | 8305 May 06 03:41 | 0° $\mathbb{I}$         |            |
| retrograde       | 8304 Jun 11 19:02 | 10° $\mathbb{E}$ 06'16     |            | asc. node        | 8305 May 12 02:58 | 9° $\mathbb{I}$ 56'26   |            |
| evening set      | 8304 Jun 14 06:50 | 9° $\mathbb{E}$ 38'36      |            | evening max el   | 8305 May 19 13:57 | 19° $\mathbb{I}$ 55'07  | 18°07'49   |
| inferior conj    | 8304 Jun 21 02:14 | 4° $\mathbb{E}$ 45'35      | 2°08'25    | retrograde       | 8305 May 25 23:39 | 23° $\mathbb{I}$ 15'49  |            |
| minimum elong    | 8304 Jun 21 05:17 | 4° $\mathbb{E}$ 38'27      | 2°07'24    | evening set      | 8305 May 28 18:53 | 22° $\mathbb{I}$ 35'54  |            |
| min. Earth dist. | 8304 Jun 24 09:05 | 1° $\mathbb{E}$ 43'05      | 0.60372 AU | inferior conj    | 8305 Jun 04 00:05 | 17° $\mathbb{I}$ 23'44  | 2°53'45    |
|                  | 8304 Jun 26 10:59 | 30° $\mathbb{R}\mathbb{I}$ |            | minimum elong    | 8305 Jun 04 02:33 | 17° $\mathbb{I}$ 17'10  | 2°53'07    |
| morning rise     | 8304 Jun 28 01:00 | 28° $\mathbb{I}$ 53'46     |            | min. Earth dist. | 8305 Jun 06 20:10 | 14° $\mathbb{I}$ 24'07  | 0.62595 AU |
| desc. node       | 8304 Jun 28 23:46 | 28° $\mathbb{I}$ 20'17     |            | morning rise     | 8305 Jun 10 08:30 | 11° $\mathbb{I}$ 15'58  |            |
| direct           | 8304 Jul 04 14:07 | 26° $\mathbb{I}$ 48'40     |            | desc. node       | 8305 Jun 15 20:47 | 8° $\mathbb{I}$ 50'40   |            |
|                  | 8304 Jul 13 06:54 | 0° $\mathbb{E}$            |            | direct           | 8305 Jun 17 02:55 | 8° $\mathbb{I}$ 45'42   |            |
| morning max el   | 8304 Jul 18 22:00 | 4° $\mathbb{E}$ 45'31      | 27°47'37   | morning max el   | 8305 Jul 01 04:30 | 16° $\mathbb{I}$ 48'17  | 27°53'20   |
|                  | 8304 Aug 06 15:54 | 0° $\mathbb{Q}$            |            |                  | 8305 Jul 12 02:19 | 0° $\mathbb{E}$         |            |
| morning set      | 8304 Aug 20 07:28 | 25° $\mathbb{Q}$ 31'01     |            |                  | 8305 Jul 30 09:28 | 0° $\mathbb{Q}$         |            |
| asc. node        | 8304 Aug 21 05:18 | 27° $\mathbb{Q}$ 25'10     |            | morning set      | 8305 Aug 04 06:55 | 9° $\mathbb{Q}$ 34'59   |            |
|                  | 8304 Aug 22 10:33 | 0° $\mathbb{M}$            |            | asc. node        | 8305 Aug 08 02:17 | 17° $\mathbb{Q}$ 28'36  |            |
| max. Earth dist. | 8304 Aug 26 10:21 | 8° $\mathbb{M}$ 40'09      | 1.31734 AU | max. Earth dist. | 8305 Aug 09 15:56 | 20° $\mathbb{Q}$ 49'23  | 1.32269 AU |
| superior conj    | 8304 Aug 27 12:50 | 11° $\mathbb{M}$ 06'16     | 1°00'31    |                  |                   |                         |            |
| minimum elong    | 8304 Aug 27 10:39 | 10° $\mathbb{M}$ 54'13     | 1°00'04    | superior conj    | 8305 Aug 11 21:41 | 25° $\mathbb{Q}$ 40'20  | 0°37'56    |
| evening rise     | 8304 Sep 03 06:50 | 25° $\mathbb{M}$ 54'40     |            | minimum elong    | 8305 Aug 11 20:03 | 25° $\mathbb{Q}$ 31'22  | 0°37'30    |
|                  | 8304 Sep 05 05:13 | 0° $\mathbb{Q}$            |            |                  | 8305 Aug 13 21:13 | 0° $\mathbb{M}$         |            |
|                  |                   |                            |            | evening rise     | 8305 Aug 18 18:23 | 10° $\mathbb{M}$ 36'55  |            |
|                  |                   |                            |            |                  | 8305 Aug 28 14:32 | 0° $\mathbb{Q}$         |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| desc. node          | 8305 Sep 11 19:42 | 19°♄37'10 |            | evening rise        | 8306 Aug 03 05:38 | 25°♄14'33 |            |
| evening max el      | 8305 Sep 12 01:30 | 19°♄51'14 | 23°57'58   |                     | 8306 Aug 05 12:14 | 0°♄       |            |
| retrograde          | 8305 Sep 25 17:43 | 26°♄42'06 |            | evening max el      | 8306 Aug 24 14:08 | 0°♄03'55  | 22°18'41   |
| evening set         | 8305 Sep 30 10:31 | 25°♄53'39 |            |                     | 8306 Aug 24 12:32 | 0°♄       |            |
| min. Earth dist.    | 8305 Oct 06 12:06 | 22°♄55'42 | 0.56040 AU | desc. node          | 8306 Aug 29 16:47 | 4°♄07'36  |            |
| inferior conj       | 8305 Oct 08 18:03 | 21°♄33'34 | -5°35'06   | retrograde          | 8306 Sep 06 11:53 | 6°♄29'30  |            |
| minimum elong       | 8305 Oct 08 17:47 | 21°♄33'59 | 5°35'02    | evening set         | 8306 Sep 09 16:47 | 6°♄06'50  |            |
| morning rise        | 8305 Oct 17 03:09 | 17°♄36'17 |            | min. Earth dist.    | 8306 Sep 17 20:16 | 2°♄33'04  | 0.54940 AU |
| direct              | 8305 Oct 19 21:08 | 17°♄16'56 |            | inferior conj       | 8306 Sep 18 17:08 | 2°♄03'42  | -5°06'05   |
| morning max el      | 8305 Oct 30 00:37 | 22°♄03'26 | 19°56'57   | minimum elong       | 8306 Sep 18 09:38 | 2°♄14'16  | 5°04'48    |
| asc. node           | 8305 Nov 04 01:55 | 27°♄57'00 |            |                     | 8306 Sep 22 13:18 | 30°♄      |            |
|                     | 8305 Nov 05 12:10 | 0°♄       |            | morning rise        | 8306 Sep 27 04:10 | 28°♄15'53 |            |
| morning set         | 8305 Nov 16 23:48 | 20°♄56'43 |            | direct              | 8306 Sep 30 11:19 | 27°♄51'29 |            |
|                     | 8305 Nov 21 10:16 | 0°♄       |            |                     | 8306 Oct 07 18:41 | 0°♄       |            |
| superior conj       | 8305 Nov 24 17:40 | 6°♄40'48  | 1°30'34    | morning max el      | 8306 Oct 12 04:11 | 3°♄21'06  | 21°22'36   |
| minimum elong       | 8305 Nov 24 19:59 | 6°♄52'20  | 1°30'33    | asc. node           | 8306 Oct 21 22:53 | 15°♄58'08 |            |
| max. Earth dist.    | 8305 Nov 30 13:19 | 17°♄58'39 | 1.37087 AU |                     | 8306 Oct 29 14:03 | 0°♄       |            |
| evening rise        | 8305 Dec 04 07:49 | 24°♄55'03 |            | morning set         | 8306 Nov 01 08:45 | 5°♄41'52  |            |
|                     | 8305 Dec 07 04:47 | 0°♄       |            | superior conj       | 8306 Nov 08 15:09 | 20°♄57'15 | 1°39'25    |
| desc. node          | 8305 Dec 08 18:34 | 2°♄42'37  |            | minimum elong       | 8306 Nov 08 16:09 | 21°♄02'27 | 1°39'31    |
|                     | 8305 Dec 26 13:30 | 0°♄       |            | max. Earth dist.    | 8306 Nov 13 00:16 | 29°♄53'02 | 1.35167 AU |
| evening max el      | 8306 Jan 08 22:53 | 16°♄01'19 | 25°36'26   |                     | 8306 Nov 13 01:40 | 0°♄       |            |
| retrograde          | 8306 Jan 21 06:08 | 23°♄04'56 |            | evening rise        | 8306 Nov 17 04:10 | 7°♄58'31  |            |
| evening set         | 8306 Jan 27 04:45 | 20°♄38'09 |            | desc. node          | 8306 Nov 25 15:36 | 23°♄08'02 |            |
| asc. node           | 8306 Jan 31 01:10 | 16°♄31'45 |            |                     | 8306 Nov 29 20:15 | 0°♄       |            |
| min. Earth dist.    | 8306 Jan 31 13:15 | 15°♄53'55 | 0.67329 AU | evening max el      | 8306 Dec 22 12:11 | 29°♄45'30 | 26°36'48   |
| inferior conj       | 8306 Feb 01 21:23 | 14°♄11'18 | 0°36'26    |                     | 8306 Dec 22 18:14 | 0°♄       |            |
| minimum elong       | 8306 Feb 01 20:29 | 14°♄14'11 | 0°36'12    | retrograde          | 8307 Jan 04 12:09 | 7°♄02'04  |            |
| morning rise        | 8306 Feb 07 12:38 | 8°♄18'44  |            | evening set         | 8307 Jan 10 22:54 | 4°♄27'35  |            |
| direct              | 8306 Feb 10 21:19 | 7°♄13'48  |            | min. Earth dist.    | 8307 Jan 15 01:06 | 0°♄18'10  | 0.66233 AU |
| morning max el      | 8306 Feb 17 19:26 | 11°♄02'05 | 19°06'33   |                     | 8307 Jan 15 07:17 | 30°♄      |            |
| greatest brilliancy | 8306 Mar 03 07:40 | 29°♄09'58 | -0.7m      | inferior conj       | 8307 Jan 16 20:53 | 28°♄07'56 | -0°21'14   |
|                     | 8306 Mar 03 20:52 | 0°♄       |            | minimum elong       | 8307 Jan 16 21:28 | 28°♄06'12 | 0°20'50    |
| desc. node          | 8306 Mar 06 18:06 | 4°♄24'17  |            | asc. node           | 8307 Jan 17 22:13 | 26°♄53'20 |            |
| morning set         | 8306 Mar 13 01:31 | 14°♄08'43 |            | morning rise        | 8307 Jan 22 20:56 | 22°♄26'03 |            |
|                     | 8306 Mar 23 06:01 | 0°♄       |            | direct              | 8307 Jan 25 19:21 | 21°♄38'01 |            |
| max. Earth dist.    | 8306 Mar 26 22:34 | 5°♄47'13  | 1.45132 AU | morning max el      | 8307 Feb 01 07:51 | 25°♄08'10 | 18°23'19   |
|                     |                   |           |            |                     | 8307 Feb 05 11:21 | 0°♄       |            |
| superior conj       | 8306 Mar 29 16:03 | 10°♄05'24 | -2°04'00   | morning set         | 8307 Feb 21 04:02 | 24°♄03'30 |            |
| minimum elong       | 8306 Mar 29 09:47 | 9°♄40'36  | 2°03'42    | desc. node          | 8307 Feb 21 15:02 | 24°♄47'20 |            |
|                     | 8306 Apr 11 01:30 | 0°♄       |            |                     | 8307 Feb 24 21:33 | 0°♄       |            |
| evening rise        | 8306 Apr 13 08:40 | 3°♄45'45  |            | superior conj       | 8307 Mar 08 20:59 | 18°♄52'36 | -1°36'16   |
| asc. node           | 8306 Apr 29 00:02 | 28°♄27'28 |            | minimum elong       | 8307 Mar 08 11:21 | 18°♄14'57 | 1°35'17    |
|                     | 8306 Apr 30 04:05 | 0°♄       |            | max. Earth dist.    | 8307 Mar 09 17:54 | 20°♄14'31 | 1.45525 AU |
| evening max el      | 8306 May 03 02:47 | 3°♄23'02  | 18°26'33   |                     | 8307 Mar 15 23:34 | 0°♄       |            |
| retrograde          | 8306 May 09 13:32 | 6°♄52'11  |            | evening rise        | 8307 Mar 24 19:15 | 13°♄50'34 |            |
| evening set         | 8306 May 12 16:04 | 5°♄58'35  |            | greatest brilliancy | 8307 Apr 03 23:13 | 29°♄46'41 | -0.8m      |
| inferior conj       | 8306 May 18 11:02 | 0°♄28'38  | 3°17'12    |                     | 8307 Apr 04 02:39 | 0°♄       |            |
| minimum elong       | 8306 May 18 12:14 | 0°♄25'04  | 3°16'57    | asc. node           | 8307 Apr 15 21:07 | 16°♄17'25 |            |
|                     | 8306 May 18 20:43 | 30°♄      |            | evening max el      | 8307 Apr 16 12:38 | 16°♄57'49 | 19°02'53   |
| min. Earth dist.    | 8306 May 20 16:26 | 27°♄51'51 | 0.64584 AU | retrograde          | 8307 Apr 23 09:04 | 20°♄48'06 |            |
| morning rise        | 8306 May 24 07:31 | 24°♄13'03 |            | evening set         | 8307 Apr 26 19:10 | 19°♄40'05 |            |
| direct              | 8306 May 30 23:46 | 21°♄28'54 |            | inferior conj       | 8307 May 02 07:28 | 13°♄53'59 | 3°23'27    |
| desc. node          | 8306 Jun 02 17:47 | 21°♄53'24 |            | minimum elong       | 8307 May 02 07:21 | 13°♄54'21 | 3°23'19    |
| morning max el      | 8306 Jun 13 14:11 | 29°♄26'31 | 27°23'19   | min. Earth dist.    | 8307 May 03 21:27 | 11°♄53'00 | 0.66197 AU |
|                     | 8306 Jun 14 03:18 | 0°♄       |            | morning rise        | 8307 May 07 19:05 | 7°♄35'51  |            |
| morning set         | 8306 Jul 06 00:24 | 0°♄       |            | direct              | 8307 May 14 03:31 | 4°♄49'52  |            |
|                     | 8306 Jul 18 21:48 | 23°♄11'04 |            | desc. node          | 8307 May 20 14:46 | 7°♄05'04  |            |
|                     | 8306 Jul 22 07:40 | 0°♄       |            | morning max el      | 8307 May 27 00:43 | 12°♄29'52 | 26°24'13   |
| max. Earth dist.    | 8306 Jul 23 13:50 | 2°♄34'42  | 1.33286 AU |                     | 8307 Jun 10 01:53 | 0°♄       |            |
| asc. node           | 8306 Jul 25 23:15 | 7°♄34'33  |            |                     | 8307 Jun 28 16:11 | 0°♄       |            |
| superior conj       | 8306 Jul 27 02:08 | 9°♄56'51  | 0°11'20    | morning set         | 8307 Jul 02 00:48 | 6°♄10'30  |            |
| minimum elong       | 8306 Jul 27 01:34 | 9°♄53'50  | 0°11'04    | max. Earth dist.    | 8307 Jul 06 01:21 | 13°♄53'50 | 1.34782 AU |
| behind sun begin    | 8306 Jul 26 21:34 | 9°♄32'34  |            |                     |                   |           |            |
| behind sun end      | 8306 Jul 27 05:34 | 10°♄15'07 |            | superior conj       | 8307 Jul 10 23:48 | 23°♄49'36 | -0°18'32   |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| minimum elong       | 8307 Jul 11 00:52 | 23°☿55'02 | 0°18'28    | superior conj    | 8308 Jun 23 11:48 | 7°☿11'03  | -0°50'14   |
| asc. node           | 8307 Jul 12 20:15 | 27°☿39'24 |            | minimum elong    | 8308 Jun 23 14:52 | 7°☿26'09  | 0°49'51    |
|                     | 8307 Jul 13 23:14 | 0°♊       |            | asc. node        | 8308 Jun 28 17:16 | 17°☿39'18 |            |
| evening rise        | 8307 Jul 18 14:36 | 9°♊41'55  |            | evening rise     | 8308 Jul 01 19:01 | 23°☿52'29 |            |
|                     | 8307 Jul 29 08:30 | 0°♋       |            |                  | 8308 Jul 04 20:48 | 0°♊       |            |
| evening max el      | 8307 Aug 06 11:45 | 10°♋38'00 | 20°48'53   | evening max el   | 8308 Jul 18 22:42 | 21°♊55'08 | 19°37'22   |
| desc. node          | 8307 Aug 16 13:53 | 16°♋15'07 |            | retrograde       | 8308 Jul 28 18:13 | 26°♊45'42 |            |
| retrograde          | 8307 Aug 18 00:13 | 16°♋20'14 |            | evening set      | 8308 Jul 30 14:35 | 26°♊36'08 |            |
| evening set         | 8307 Aug 20 03:58 | 16°♋09'02 |            | desc. node       | 8308 Aug 02 10:59 | 25°♊47'02 |            |
| inferior conj       | 8307 Aug 29 09:34 | 12°♋12'09 | -3°43'19   | inferior conj    | 8308 Aug 08 10:06 | 22°♊32'21 | -1°49'25   |
| minimum elong       | 8307 Aug 29 00:16 | 12°♋25'23 | 3°40'30    | minimum elong    | 8308 Aug 08 05:07 | 22°♊40'12 | 1°47'38    |
| min. Earth dist.    | 8307 Aug 30 05:19 | 11°♋44'01 | 0.54718 AU | min. Earth dist. | 8308 Aug 10 17:27 | 21°♊05'23 | 0.55454 AU |
| morning rise        | 8307 Sep 06 20:38 | 8°♋13'55  |            | morning rise     | 8308 Aug 16 17:19 | 18°♊04'16 |            |
| direct              | 8307 Sep 10 19:18 | 7°♋40'36  |            | direct           | 8308 Aug 21 10:59 | 17°♊14'13 |            |
| morning max el      | 8307 Sep 23 21:07 | 13°♋56'35 | 23°04'21   | morning max el   | 8308 Sep 04 09:42 | 24°♊11'57 | 24°49'44   |
|                     | 8307 Oct 06 03:26 | 0°♌       |            |                  | 8308 Sep 09 17:15 | 0°♋       |            |
| asc. node           | 8307 Oct 08 19:51 | 4°♌39'54  |            | asc. node        | 8308 Sep 24 16:50 | 23°♋52'15 |            |
| morning set         | 8307 Oct 16 19:57 | 20°♌31'31 |            |                  | 8308 Sep 27 18:27 | 0°♌       |            |
|                     | 8307 Oct 21 05:53 | 0°♍       |            | morning set      | 8308 Sep 30 07:43 | 5°♌20'48  |            |
| superior conj       | 8307 Oct 23 19:40 | 5°♍32'47  | 1°41'13    | superior conj    | 8308 Oct 07 04:42 | 20°♌19'47 | 1°36'47    |
| minimum elong       | 8307 Oct 23 19:23 | 5°♍31'18  | 1°41'19    | minimum elong    | 8308 Oct 07 03:23 | 20°♌12'34 | 1°36'45    |
| max. Earth dist.    | 8307 Oct 26 18:59 | 11°♍51'02 | 1.33613 AU | max. Earth dist. | 8308 Oct 08 21:32 | 24°♌02'35 | 1.32503 AU |
| evening rise        | 8307 Oct 31 14:11 | 21°♍38'18 |            |                  | 8308 Oct 11 16:07 | 0°♍       |            |
|                     | 8307 Nov 04 22:49 | 0°♎       |            | evening rise     | 8308 Oct 14 10:25 | 5°♍45'36  |            |
| desc. node          | 8307 Nov 12 12:40 | 13°♎16'29 |            |                  | 8308 Oct 27 13:05 | 0°♎       |            |
|                     | 8307 Nov 23 16:13 | 0°♏       |            | desc. node       | 8308 Oct 29 09:46 | 3°♎00'38  |            |
| evening max el      | 8307 Dec 05 00:58 | 13°♏15'45 | 27°16'33   | evening max el   | 8308 Nov 16 11:52 | 26°♎20'59 | 27°29'03   |
| retrograde          | 8307 Dec 18 12:17 | 20°♏36'20 |            |                  | 8308 Nov 20 20:33 | 0°♏       |            |
| evening set         | 8307 Dec 25 08:50 | 18°♏00'15 |            | retrograde       | 8308 Nov 30 05:53 | 3°♏38'43  |            |
| min. Earth dist.    | 8307 Dec 29 05:29 | 14°♏24'34 | 0.64782 AU | evening set      | 8308 Dec 07 07:47 | 1°♏09'46  |            |
| inferior conj       | 8307 Dec 31 13:00 | 11°♏53'32 | -1°25'35   |                  | 8308 Dec 08 20:29 | 30°♎♎     |            |
| minimum elong       | 8307 Dec 31 15:36 | 11°♏46'28 | 1°24'20    | min. Earth dist. | 8308 Dec 11 00:37 | 28°♎04'05 | 0.63017 AU |
| asc. node           | 8308 Jan 04 19:16 | 7°♏45'32  |            | inferior conj    | 8308 Dec 13 19:02 | 25°♎21'48 | -2°34'36   |
| morning rise        | 8308 Jan 06 23:51 | 6°♏25'03  |            | minimum elong    | 8308 Dec 13 23:55 | 25°♎09'49 | 2°32'33    |
| direct              | 8308 Jan 09 13:53 | 5°♏50'12  |            | morning rise     | 8308 Dec 20 18:05 | 20°♎09'36 |            |
| morning max el      | 8308 Jan 16 00:16 | 9°♏13'06  | 17°56'51   | asc. node        | 8308 Dec 21 16:18 | 19°♎53'27 |            |
|                     | 8308 Jan 30 05:55 | 0°♐       |            | direct           | 8308 Dec 23 02:05 | 19°♎44'04 |            |
| morning set         | 8308 Feb 02 12:01 | 5°♐25'24  |            | morning max el   | 8308 Dec 29 17:37 | 23°♎09'11 | 17°47'48   |
| desc. node          | 8308 Feb 08 11:58 | 15°♐21'24 |            |                  | 8309 Jan 04 03:29 | 0°♏       |            |
| superior conj       | 8308 Feb 16 09:10 | 28°♐06'40 | -0°54'55   | morning set      | 8309 Jan 14 21:01 | 17°♏59'36 |            |
| minimum elong       | 8308 Feb 16 02:49 | 27°♐41'22 | 0°53'57    |                  | 8309 Jan 21 19:13 | 0°♐       |            |
|                     | 8308 Feb 17 13:38 | 0°♑       |            | desc. node       | 8309 Jan 25 08:58 | 6°♐02'42  |            |
| max. Earth dist.    | 8308 Feb 20 13:26 | 4°♑43'55  | 1.45171 AU | superior conj    | 8309 Jan 26 19:20 | 8°♐26'01  | -0°10'29   |
| evening rise        | 8308 Mar 03 11:39 | 23°♑16'11 |            | minimum elong    | 8309 Jan 26 18:16 | 8°♐21'35  | 0°10'10    |
|                     | 8308 Mar 07 21:00 | 0°♒       |            | behind sun begin | 8309 Jan 26 11:00 | 7°♐51'24  |            |
| greatest brilliancy | 8308 Mar 17 23:07 | 15°♒10'58 | -0.6m      | behind sun end   | 8309 Jan 27 01:31 | 8°♐51'43  |            |
|                     | 8308 Mar 29 04:11 | 0°♓       |            | max. Earth dist. | 8309 Feb 02 06:39 | 18°♐59'32 | 1.44121 AU |
| evening max el      | 8308 Mar 29 17:41 | 0°♓35'05  | 19°55'24   |                  | 8309 Feb 09 06:14 | 0°♑       |            |
| asc. node           | 8308 Apr 01 18:13 | 3°♓13'34  |            | evening rise     | 8309 Feb 10 22:59 | 2°♑37'36  |            |
| retrograde          | 8308 Apr 06 07:14 | 4°♓57'06  |            |                  | 8309 Mar 01 09:50 | 0°♒       |            |
| evening set         | 8308 Apr 10 01:42 | 3°♓34'16  |            | evening max el   | 8309 Mar 12 17:17 | 14°♒13'55 | 21°01'27   |
|                     | 8308 Apr 13 13:42 | 30°♒♒     |            | asc. node        | 8309 Mar 19 15:18 | 19°♒01'36 |            |
| inferior conj       | 8308 Apr 15 10:17 | 27°♒33'56 | 3°16'02    | retrograde       | 8309 Mar 21 05:42 | 19°♒14'41 |            |
| minimum elong       | 8308 Apr 15 09:06 | 27°♒37'58 | 3°15'50    | evening set      | 8309 Mar 25 09:42 | 17°♒36'45 |            |
| min. Earth dist.    | 8308 Apr 16 09:41 | 26°♒15'15 | 0.67376 AU | inferior conj    | 8309 Mar 30 17:01 | 11°♒24'29 | 2°57'22    |
| morning rise        | 8308 Apr 20 16:13 | 21°♒16'31 |            | minimum elong    | 8309 Mar 30 15:06 | 11°♒31'10 | 2°56'59    |
| direct              | 8308 Apr 26 13:15 | 18°♒39'07 |            | min. Earth dist. | 8309 Mar 31 02:59 | 10°♒50'00 | 0.68115 AU |
| desc. node          | 8308 May 06 11:44 | 23°♒53'53 |            | morning rise     | 8309 Apr 04 20:16 | 5°♒09'52  |            |
| morning max el      | 8308 May 08 10:20 | 25°♒46'28 | 25°05'14   | direct           | 8309 Apr 10 04:00 | 2°♒48'49  |            |
|                     | 8308 May 12 07:06 | 0°♓       |            | morning max el   | 8309 Apr 20 19:27 | 9°♒09'45  | 23°36'27   |
|                     | 8308 Jun 02 14:44 | 0°♔       |            | desc. node       | 8309 Apr 23 08:42 | 11°♒53'33 |            |
| morning set         | 8308 Jun 13 11:30 | 18°♔21'31 |            |                  | 8309 May 07 04:52 | 0°♓       |            |
| max. Earth dist.    | 8308 Jun 17 02:33 | 24°♔57'41 | 1.36698 AU | morning set      | 8309 May 26 00:22 | 29°♓28'47 |            |
|                     | 8308 Jun 19 18:52 | 0°♕       |            |                  | 8309 May 26 07:43 | 0°♔       |            |
|                     |                   |           |            | max. Earth dist. | 8309 May 29 22:21 | 6°♔14'17  | 1.38900 AU |



|                  |                   |                                     |            |                  |                   |                                    |            |
|------------------|-------------------|-------------------------------------|------------|------------------|-------------------|------------------------------------|------------|
| superior conj    | 8309 Jun 06 10:23 | 19° $\Pi$ 51'30                     | -1°21'36   |                  | 8310 Apr 30 12:53 | 0° $\mathcal{B}$                   |            |
| minimum elong    | 8309 Jun 06 15:24 | 20° $\Pi$ 14'57                     | 1°21'02    | morning set      | 8310 May 06 10:31 | 9° $\mathcal{B}$ 20'58             |            |
|                  | 8309 Jun 11 17:54 | 0° $\mathcal{B}$                    |            | max. Earth dist. | 8310 May 11 20:42 | 18° $\mathcal{B}$ 16'37            | 1.41136 AU |
| evening rise     | 8309 Jun 15 16:02 | 7° $\mathcal{B}$ 37'49              |            |                  | 8310 May 18 16:17 | 0° $\Pi$                           |            |
| asc. node        | 8309 Jun 15 14:19 | 7° $\mathcal{B}$ 29'28              |            |                  |                   |                                    |            |
|                  | 8309 Jun 28 12:43 | 0° $\Omega$                         |            | superior conj    | 8310 May 19 15:10 | 1° $\Pi$ 41'12                     | -1°49'04   |
| evening max el   | 8309 Jul 01 21:42 | 3° $\Omega$ 55'51                   | 18°46'29   | minimum elong    | 8310 May 19 21:00 | 2° $\Pi$ 07'05                     | 1°48'40    |
| retrograde       | 8309 Jul 10 04:02 | 8° $\Omega$ 01'36                   |            | evening rise     | 8310 May 30 02:12 | 20° $\Pi$ 49'54                    |            |
| evening set      | 8309 Jul 12 04:20 | 7° $\Omega$ 47'55                   |            | asc. node        | 8310 Jun 02 11:22 | 27° $\Pi$ 05'43                    |            |
| inferior conj    | 8309 Jul 20 05:12 | 3° $\Omega$ 27'05                   | 0°02'10    |                  | 8310 Jun 04 01:42 | 0° $\mathcal{B}$                   |            |
| minimum elong    | 8309 Jul 20 05:16 | 3° $\Omega$ 26'57                   | 0°01'58    | evening max el   | 8310 Jun 15 05:09 | 16° $\mathcal{B}$ 32'40            | 18°16'03   |
| transit middle   | 8309 Jul 20 05:16 | 3° $\Omega$ 26'57                   | 0°01'58    | retrograde       | 8310 Jun 22 09:07 | 20° $\mathcal{B}$ 08'40            |            |
| transit begin    | 8309 Jul 20 01:37 | 3° $\Omega$ 33'38                   |            | evening set      | 8310 Jun 24 16:42 | 19° $\mathcal{B}$ 46'52            |            |
| transit end      | 8309 Jul 20 08:56 | 3° $\Omega$ 20'14                   |            | inferior conj    | 8310 Jul 01 22:01 | 15° $\mathcal{B}$ 05'15            | 1°30'26    |
| desc. node       | 8309 Jul 20 08:04 | 3° $\Omega$ 21'51                   |            | minimum elong    | 8310 Jul 02 00:42 | 14° $\mathcal{B}$ 59'29            | 1°29'24    |
| min. Earth dist. | 8309 Jul 23 09:35 | 1° $\Omega$ 08'22                   | 0.57009 AU | min. Earth dist. | 8310 Jul 05 07:25 | 12° $\mathcal{B}$ 12'20            | 0.59085 AU |
|                  | 8309 Jul 25 02:36 | 30° $\mathcal{R}$ $\mathcal{B}$     |            | desc. node       | 8310 Jul 07 05:06 | 10° $\mathcal{B}$ 45'10            |            |
| morning rise     | 8309 Jul 28 02:46 | 28° $\mathcal{B}$ 22'06             |            | morning rise     | 8310 Jul 09 05:34 | 9° $\mathcal{B}$ 27'54             |            |
| direct           | 8309 Aug 02 16:52 | 27° $\mathcal{B}$ 06'02             |            | direct           | 8310 Jul 15 12:16 | 7° $\mathcal{B}$ 40'39             |            |
|                  | 8309 Aug 11 08:49 | 0° $\Omega$                         |            | morning max el   | 8310 Jul 29 21:13 | 15° $\mathcal{B}$ 28'43            | 27°26'56   |
| morning max el   | 8309 Aug 17 00:22 | 4° $\Omega$ 34'18                   | 26°22'18   |                  | 8310 Aug 10 16:20 | 0° $\Omega$                        |            |
|                  | 8309 Sep 04 11:31 | 0° $\mathcal{M}$                    |            |                  | 8310 Aug 27 20:44 | 0° $\mathcal{M}$                   |            |
| asc. node        | 8309 Sep 11 13:49 | 13° $\mathcal{M}$ 26'25             |            | asc. node        | 8310 Aug 29 10:49 | 3° $\mathcal{M}$ 16'01             |            |
| morning set      | 8309 Sep 14 18:20 | 20° $\mathcal{M}$ 03'59             |            | morning set      | 8310 Aug 30 02:09 | 4° $\mathcal{M}$ 36'16             |            |
|                  | 8309 Sep 19 07:58 | 0° $\underline{\mathcal{A}}$        |            | max. Earth dist. | 8310 Sep 05 15:58 | 18° $\mathcal{M}$ 53'14            | 1.31648 AU |
| superior conj    | 8309 Sep 21 16:01 | 5° $\underline{\mathcal{A}}$ 10'23  | 1°26'43    | superior conj    | 8310 Sep 06 03:47 | 19° $\mathcal{M}$ 58'46            | 1°11'29    |
| minimum elong    | 8309 Sep 21 14:01 | 4° $\underline{\mathcal{A}}$ 59'19  | 1°26'30    | minimum elong    | 8310 Sep 06 01:32 | 19° $\mathcal{M}$ 46'16            | 1°11'05    |
| max. Earth dist. | 8309 Sep 22 05:41 | 6° $\underline{\mathcal{A}}$ 26'03  | 1.31849 AU |                  | 8310 Sep 10 16:38 | 0° $\underline{\mathcal{A}}$       |            |
| evening rise     | 8309 Sep 28 13:50 | 20° $\underline{\mathcal{A}}$ 11'16 |            | evening rise     | 8310 Sep 12 22:01 | 4° $\underline{\mathcal{A}}$ 48'11 |            |
|                  | 8309 Oct 03 10:00 | 0° $\mathcal{M}$                    |            |                  | 8310 Sep 26 03:48 | 0° $\mathcal{M}$                   |            |
| desc. node       | 8309 Oct 16 06:52 | 22° $\mathcal{M}$ 09'51             |            | desc. node       | 8310 Oct 03 03:57 | 10° $\mathcal{M}$ 30'28            |            |
|                  | 8309 Oct 21 22:04 | 0° $\mathcal{X}$                    |            | evening max el   | 8310 Oct 11 18:03 | 20° $\mathcal{M}$ 26'28            | 26°15'35   |
| evening max el   | 8309 Oct 29 18:29 | 8° $\mathcal{X}$ 48'06              | 27°09'13   | retrograde       | 8310 Oct 25 16:07 | 27° $\mathcal{M}$ 31'16            |            |
| retrograde       | 8309 Nov 12 15:41 | 15° $\mathcal{X}$ 59'19             |            | evening set      | 8310 Nov 01 05:04 | 25° $\mathcal{M}$ 47'50            |            |
| evening set      | 8309 Nov 19 16:04 | 13° $\mathcal{X}$ 48'01             |            | min. Earth dist. | 8310 Nov 05 07:12 | 23° $\mathcal{M}$ 13'19            | 0.58928 AU |
| min. Earth dist. | 8309 Nov 23 09:14 | 11° $\mathcal{X}$ 04'29             | 0.61016 AU | inferior conj    | 8310 Nov 08 11:30 | 20° $\mathcal{M}$ 50'24            | -4°46'39   |
| inferior conj    | 8309 Nov 26 11:42 | 8° $\mathcal{X}$ 23'59              | -3°44'16   | minimum elong    | 8310 Nov 08 18:34 | 20° $\mathcal{M}$ 37'06            | 4°44'59    |
| minimum elong    | 8309 Nov 26 18:33 | 8° $\mathcal{X}$ 09'11              | 3°41'56    | morning rise     | 8310 Nov 16 10:21 | 16° $\mathcal{M}$ 19'58            |            |
| morning rise     | 8309 Dec 03 23:20 | 3° $\mathcal{X}$ 31'13              |            | direct           | 8310 Nov 18 16:36 | 16° $\mathcal{M}$ 02'32            |            |
| direct           | 8309 Dec 06 04:24 | 3° $\mathcal{X}$ 11'20              |            | asc. node        | 8310 Nov 25 10:22 | 18° $\mathcal{M}$ 47'52            |            |
| asc. node        | 8309 Dec 08 13:20 | 3° $\mathcal{X}$ 35'08              |            | morning max el   | 8310 Nov 26 17:42 | 19° $\mathcal{M}$ 57'52            | 18°26'33   |
| morning max el   | 8309 Dec 13 08:37 | 6° $\mathcal{X}$ 47'15              | 17°57'13   |                  | 8310 Dec 04 05:29 | 0° $\mathcal{X}$                   |            |
|                  | 8309 Dec 28 05:43 | 0° $\mathcal{Z}$                    |            | morning set      | 8310 Dec 12 16:41 | 15° $\mathcal{X}$ 27'32            |            |
| morning set      | 8309 Dec 29 00:26 | 1° $\mathcal{Z}$ 25'54              |            |                  | 8310 Dec 20 07:51 | 0° $\mathcal{Z}$                   |            |
| superior conj    | 8310 Jan 08 07:07 | 19° $\mathcal{Z}$ 58'45             | 0°29'04    | superior conj    | 8310 Dec 21 17:15 | 2° $\mathcal{Z}$ 35'07             | 1°00'04    |
| minimum elong    | 8310 Jan 08 09:28 | 20° $\mathcal{Z}$ 09'01             | 0°28'52    | minimum elong    | 8310 Dec 21 20:40 | 2° $\mathcal{Z}$ 50'51             | 0°59'46    |
| desc. node       | 8310 Jan 12 05:58 | 26° $\mathcal{Z}$ 47'30             |            | max. Earth dist. | 8310 Dec 29 04:55 | 15° $\mathcal{Z}$ 57'17            | 1.40470 AU |
|                  | 8310 Jan 14 03:39 | 0° $\approx$                        |            | desc. node       | 8310 Dec 30 02:57 | 17° $\mathcal{Z}$ 31'53            |            |
| max. Earth dist. | 8310 Jan 15 20:04 | 2° $\approx$ 48'01                  | 1.42491 AU | evening rise     | 8311 Jan 02 13:31 | 23° $\mathcal{Z}$ 19'13            |            |
| evening rise     | 8310 Jan 21 20:27 | 12° $\approx$ 31'47                 |            |                  | 8311 Jan 06 16:06 | 0° $\approx$                       |            |
|                  | 8310 Feb 02 06:47 | 0° $\mathcal{H}$                    |            |                  | 8311 Jan 27 05:16 | 0° $\mathcal{H}$                   |            |
| evening max el   | 8310 Feb 23 11:54 | 27° $\mathcal{H}$ 55'16             | 22°17'06   | evening max el   | 8311 Feb 06 02:52 | 11° $\mathcal{H}$ 39'04            | 23°37'07   |
|                  | 8310 Feb 25 16:58 | 0° $\mathcal{Y}$                    |            | retrograde       | 8311 Feb 16 20:47 | 17° $\mathcal{H}$ 59'32            |            |
| retrograde       | 8310 Mar 05 02:41 | 3° $\mathcal{Y}$ 37'12              |            | asc. node        | 8311 Feb 21 09:28 | 16° $\mathcal{H}$ 20'00            |            |
| asc. node        | 8310 Mar 06 12:23 | 3° $\mathcal{Y}$ 27'12              |            | evening set      | 8311 Feb 21 23:37 | 15° $\mathcal{H}$ 51'44            |            |
| evening set      | 8310 Mar 09 17:32 | 1° $\mathcal{Y}$ 44'04              |            | inferior conj    | 8311 Feb 27 09:58 | 9° $\mathcal{H}$ 24'38             | 1°51'47    |
|                  | 8310 Mar 11 12:05 | 30° $\mathcal{R}$ $\mathcal{H}$     |            | minimum elong    | 8311 Feb 27 07:50 | 9° $\mathcal{H}$ 31'55             | 1°51'08    |
| inferior conj    | 8310 Mar 15 01:33 | 25° $\mathcal{H}$ 22'40             | 2°29'00    | min. Earth dist. | 8311 Feb 26 19:43 | 10° $\mathcal{H}$ 13'21            | 0.68308 AU |
| minimum elong    | 8310 Mar 14 23:18 | 25° $\mathcal{H}$ 30'30             | 2°28'25    | morning rise     | 8311 Mar 04 16:02 | 3° $\mathcal{H}$ 20'06             |            |
| min. Earth dist. | 8310 Mar 14 23:05 | 25° $\mathcal{H}$ 31'16             | 0.68421 AU | direct           | 8311 Mar 08 20:04 | 1° $\mathcal{H}$ 42'37             |            |
| morning rise     | 8310 Mar 20 04:55 | 19° $\mathcal{H}$ 12'26             |            | morning max el   | 8311 Mar 17 00:39 | 6° $\mathcal{H}$ 23'39             | 20°46'55   |
| direct           | 8310 Mar 24 22:42 | 17° $\mathcal{H}$ 12'22             |            | desc. node       | 8311 Mar 28 02:36 | 20° $\mathcal{H}$ 12'43            |            |
| morning max el   | 8310 Apr 03 07:02 | 22° $\mathcal{H}$ 41'07             | 22°07'48   |                  | 8311 Apr 03 21:22 | 0° $\mathcal{Y}$                   |            |
|                  | 8310 Apr 09 15:37 | 0° $\mathcal{Y}$                    |            | morning set      | 8311 Apr 15 18:53 | 18° $\mathcal{Y}$ 04'04            |            |
| desc. node       | 8310 Apr 10 05:40 | 0° $\mathcal{Y}$ 44'44              |            |                  | 8311 Apr 23 07:33 | 0° $\mathcal{B}$                   |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| max. Earth dist. | 8311 Apr 24 02:04 | 1°♄14'56  | 1.43109 AU | greatest brilliancy | 8312 Mar 11 19:39 | 6°♄55'27  | -0.7m      |
|                  |                   |           |            | desc. node          | 8312 Mar 13 23:32 | 10°♄07'40 |            |
| superior conj    | 8311 Apr 30 21:25 | 12°♄29'16 | -2°07'36   | morning set         | 8312 Mar 24 16:19 | 26°♄23'54 |            |
| minimum elong    | 8311 May 01 01:12 | 12°♄45'12 | 2°07'34    |                     | 8312 Mar 27 00:18 | 0°♄       |            |
|                  | 8311 May 11 00:26 | 0°♄       |            | max. Earth dist.    | 8312 Apr 05 14:11 | 14°♄59'07 | 1.44578 AU |
| evening rise     | 8311 May 12 21:12 | 3°♄18'13  |            |                     |                   |           |            |
| asc. node        | 8311 May 20 08:24 | 16°♄22'13 |            | superior conj       | 8312 Apr 10 02:51 | 22°♄12'53 | -2°10'58   |
| evening max el   | 8311 May 29 17:11 | 29°♄35'42 | 18°05'18   | minimum elong       | 8312 Apr 10 00:39 | 22°♄04'04 | 2°10'59    |
|                  | 8311 May 30 03:19 | 0°♄       |            |                     | 8312 Apr 14 21:54 | 0°♄       |            |
| retrograde       | 8311 Jun 05 06:33 | 2°♄57'59  |            | evening rise        | 8312 Apr 23 20:22 | 14°♄52'59 |            |
| evening set      | 8311 Jun 07 21:35 | 2°♄25'15  |            |                     | 8312 May 02 21:26 | 0°♄       |            |
|                  | 8311 Jun 11 15:21 | 30°♄      |            | asc. node           | 8312 May 06 05:26 | 5°♄12'23  |            |
| inferior conj    | 8311 Jun 14 10:24 | 27°♄23'32 | 2°30'40    | evening max el      | 8312 May 12 06:31 | 12°♄56'38 | 18°13'32   |
| minimum elong    | 8311 Jun 14 13:20 | 27°♄16'14 | 2°29'47    | retrograde          | 8312 May 18 15:43 | 16°♄19'42 |            |
| min. Earth dist. | 8311 Jun 17 13:15 | 24°♄19'44 | 0.61335 AU | evening set         | 8312 May 21 13:57 | 15°♄34'12 |            |
| morning rise     | 8311 Jun 21 02:51 | 21°♄23'42 |            | inferior conj       | 8312 May 27 14:19 | 10°♄14'10 | 3°06'06    |
| desc. node       | 8311 Jun 24 02:08 | 19°♄48'53 |            | minimum elong       | 8312 May 27 16:17 | 10°♄08'40 | 3°05'38    |
| direct           | 8311 Jun 27 19:01 | 19°♄07'08 |            | min. Earth dist.    | 8312 May 30 04:23 | 7°♄22'05  | 0.63477 AU |
| morning max el   | 8311 Jul 12 00:52 | 27°♄07'02 | 27°54'50   | morning rise        | 8312 Jun 02 17:16 | 4°♄01'53  |            |
|                  | 8311 Jul 14 18:25 | 0°♄       |            | direct              | 8312 Jun 09 11:24 | 1°♄24'16  |            |
|                  | 8311 Aug 04 08:35 | 0°♄       |            | desc. node          | 8312 Jun 09 23:08 | 1°♄25'02  |            |
| morning set      | 8311 Aug 14 05:17 | 18°♄52'21 |            | morning max el      | 8312 Jun 23 09:17 | 9°♄26'55  | 27°44'40   |
| asc. node        | 8311 Aug 16 07:48 | 23°♄15'41 |            |                     | 8312 Jul 09 09:11 | 0°♄       |            |
|                  | 8311 Aug 19 11:09 | 0°♄       |            |                     | 8312 Jul 26 16:00 | 0°♄       |            |
| max. Earth dist. | 8311 Aug 20 00:33 | 1°♄12'56  | 1.31903 AU | morning set         | 8312 Jul 28 01:26 | 2°♄45'29  |            |
|                  |                   |           |            | max. Earth dist.    | 8312 Aug 02 03:18 | 13°♄12'55 | 1.32636 AU |
| superior conj    | 8311 Aug 21 14:12 | 4°♄39'22  | 0°51'28    | asc. node           | 8312 Aug 02 04:45 | 13°♄20'34 |            |
| minimum elong    | 8311 Aug 21 12:11 | 4°♄28'15  | 0°51'00    |                     |                   |           |            |
| evening rise     | 8311 Aug 28 08:52 | 19°♄30'02 |            | superior conj       | 8312 Aug 04 21:24 | 19°♄06'25 | 0°27'05    |
|                  | 8311 Sep 02 10:45 | 0°♄       |            | minimum elong       | 8312 Aug 04 20:09 | 18°♄59'38 | 0°26'43    |
| desc. node       | 8311 Sep 20 01:01 | 27°♄43'26 |            |                     | 8312 Aug 09 21:51 | 0°♄       |            |
|                  | 8311 Sep 22 03:21 | 0°♄       |            | evening rise        | 8312 Aug 11 20:30 | 4°♄10'41  |            |
| evening max el   | 8311 Sep 23 09:32 | 1°♄14'54  | 24°53'21   |                     | 8312 Aug 25 16:13 | 0°♄       |            |
| retrograde       | 8311 Oct 07 05:48 | 8°♄13'26  |            | evening max el      | 8312 Sep 03 20:43 | 11°♄30'36 | 23°15'28   |
| evening set      | 8311 Oct 12 18:21 | 7°♄04'45  |            | desc. node          | 8312 Sep 05 22:07 | 13°♄22'12 |            |
| min. Earth dist. | 8311 Oct 17 20:46 | 4°♄20'56  | 0.56974 AU | retrograde          | 8312 Sep 17 07:19 | 18°♄13'56 |            |
| inferior conj    | 8311 Oct 20 15:30 | 2°♄32'11  | -5°28'06   | evening set         | 8312 Sep 21 08:24 | 17°♄38'09 |            |
| minimum elong    | 8311 Oct 20 19:08 | 2°♄26'14  | 5°27'43    | min. Earth dist.    | 8312 Sep 28 06:03 | 14°♄26'32 | 0.55467 AU |
|                  | 8311 Oct 24 20:00 | 30°♄      |            | inferior conj       | 8312 Sep 29 23:38 | 13°♄25'47 | -5°29'44   |
| morning rise     | 8311 Oct 28 22:11 | 28°♄24'37 |            | minimum elong       | 8312 Sep 29 20:04 | 13°♄31'00 | 5°29'26    |
| direct           | 8311 Oct 31 10:27 | 28°♄06'49 |            | morning rise        | 8312 Oct 08 09:52 | 9°♄34'38  |            |
|                  | 8311 Nov 06 12:41 | 0°♄       |            | direct              | 8312 Oct 11 08:48 | 9°♄13'42  |            |
| morning max el   | 8311 Nov 09 17:20 | 2°♄31'23  | 19°17'34   | morning max el      | 8312 Oct 22 04:33 | 14°♄17'53 | 20°31'01   |
| asc. node        | 8311 Nov 12 07:23 | 5°♄18'36  |            | asc. node           | 8312 Oct 29 04:22 | 22°♄50'44 |            |
| morning set      | 8311 Nov 26 17:43 | 29°♄53'04 |            |                     | 8312 Nov 02 12:54 | 0°♄       |            |
|                  | 8311 Nov 26 19:06 | 0°♄       |            | morning set         | 8312 Nov 10 00:25 | 14°♄32'37 |            |
|                  |                   |           |            |                     |                   |           |            |
| superior conj    | 8311 Dec 04 20:45 | 16°♄01'23 | 1°21'54    | superior conj       | 8312 Nov 17 12:46 | 0°♄02'41  | 1°35'14    |
| minimum elong    | 8311 Dec 04 23:41 | 16°♄15'40 | 1°21'46    | minimum elong       | 8312 Nov 17 14:33 | 0°♄11'41  | 1°35'16    |
| max. Earth dist. | 8311 Dec 11 10:46 | 28°♄25'13 | 1.38299 AU |                     | 8312 Nov 17 12:15 | 0°♄       |            |
|                  | 8311 Dec 12 07:43 | 0°♄       |            | max. Earth dist.    | 8312 Nov 22 17:57 | 10°♄23'23 | 1.36227 AU |
| evening rise     | 8311 Dec 15 04:35 | 5°♄05'19  |            | evening rise        | 8312 Nov 26 15:20 | 17°♄43'19 |            |
| desc. node       | 8311 Dec 16 23:57 | 8°♄12'40  |            | desc. node          | 8312 Dec 02 20:59 | 28°♄44'59 |            |
|                  | 8311 Dec 30 16:53 | 0°♄       |            |                     | 8312 Dec 03 14:44 | 0°♄       |            |
| evening max el   | 8312 Jan 19 16:06 | 25°♄25'44 | 24°55'05   |                     | 8312 Dec 24 00:02 | 0°♄       |            |
|                  | 8312 Jan 25 03:09 | 0°♄       |            | evening max el      | 8313 Jan 01 05:06 | 9°♄12'17  | 26°04'06   |
| retrograde       | 8312 Jan 31 11:01 | 2°♄17'09  |            | retrograde          | 8313 Jan 13 20:26 | 16°♄23'34 |            |
| evening set      | 8312 Feb 06 02:27 | 29°♄56'15 |            | evening set         | 8313 Jan 20 00:19 | 13°♄52'47 |            |
|                  | 8312 Feb 06 00:40 | 30°♄      |            | min. Earth dist.    | 8313 Jan 24 05:58 | 9°♄23'21  | 0.66907 AU |
| asc. node        | 8312 Feb 08 06:32 | 27°♄46'09 |            | asc. node           | 8313 Jan 25 03:36 | 8°♄16'18  |            |
| min. Earth dist. | 8312 Feb 10 14:45 | 24°♄52'19 | 0.67799 AU | inferior conj       | 8313 Jan 25 19:06 | 7°♄27'59  | 0°12'53    |
| inferior conj    | 8312 Feb 11 16:27 | 23°♄27'42 | 1°06'17    | minimum elong       | 8313 Jan 25 18:45 | 7°♄29'03  | 0°12'52    |
| minimum elong    | 8312 Feb 11 14:57 | 23°♄32'39 | 1°05'48    | transit middle      | 8313 Jan 25 18:45 | 7°♄29'03  | 0°12'52    |
| morning rise     | 8312 Feb 17 03:42 | 17°♄30'22 |            | transit begin       | 8313 Jan 25 17:03 | 7°♄34'23  |            |
| direct           | 8312 Feb 20 18:58 | 16°♄14'25 |            | transit end         | 8313 Jan 25 20:28 | 7°♄23'43  |            |
| morning max el   | 8312 Feb 28 02:10 | 20°♄18'33 | 19°38'46   | morning rise        | 8313 Jan 31 13:50 | 1°♄39'40  |            |
|                  | 8312 Mar 06 23:47 | 0°♄       |            | direct              | 8313 Feb 03 17:49 | 0°♄42'34  |            |

|                     |                   |           |            |                     |                   |            |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|------------|------------|
| morning max el      | 8313 Feb 10 11:06 | 4°≈22'02  | 18°46'03   | minimum elong       | 8314 Jan 09 17:09 | 21°316'51  | 0°47'03    |
| desc. node          | 8313 Feb 28 20:28 | 0°✕22'09  |            | asc. node           | 8314 Jan 12 00:41 | 18°343'59  |            |
|                     | 8313 Feb 28 14:48 | 0°✕       |            | morning rise        | 8314 Jan 15 20:10 | 15°344'01  |            |
| morning set         | 8313 Mar 04 03:14 | 5°✕30'17  |            | direct              | 8314 Jan 18 14:44 | 15°302'05  |            |
| max. Earth dist.    | 8313 Mar 19 07:02 | 29°✕13'30 | 1.45388 AU | morning max el      | 8314 Jan 25 01:30 | 18°328'12  | 18°09'54   |
|                     | 8313 Mar 19 18:54 | 0°∇       |            |                     | 8314 Feb 02 18:10 | 0°≈        |            |
|                     |                   |           |            | morning set         | 8314 Feb 12 18:30 | 16°≈03'12  |            |
| superior conj       | 8313 Mar 20 12:38 | 1°∇09'29  | -1°54'28   | desc. node          | 8314 Feb 15 17:26 | 20°≈50'34  |            |
| minimum elong       | 8313 Mar 20 04:06 | 0°∇36'01  | 1°53'52    |                     | 8314 Feb 21 10:15 | 0°✕        |            |
| evening rise        | 8313 Apr 04 20:13 | 25°∇28'57 |            |                     |                   |            |            |
|                     | 8313 Apr 07 15:31 | 0°8       |            | superior conj       | 8314 Feb 27 18:18 | 10°✕02'07  | -1°19'47   |
| greatest brilliancy | 8313 Apr 11 15:16 | 6°825'02  | -0.9m      | minimum elong       | 8314 Feb 27 09:27 | 9°✕27'16   | 1°18'41    |
| asc. node           | 8313 Apr 23 02:30 | 23°827'38 |            | max. Earth dist.    | 8314 Mar 02 02:36 | 13°✕43'10  | 1.45466 AU |
| evening max el      | 8313 Apr 25 18:20 | 26°828'27 | 18°39'59   |                     | 8314 Mar 12 13:10 | 0°∇        |            |
|                     | 8313 May 01 08:57 | 0°II      |            | evening rise        | 8314 Mar 15 21:53 | 5°∇13'41   |            |
| retrograde          | 8313 May 02 08:23 | 0°II05'20 |            | greatest brilliancy | 8314 Mar 28 03:39 | 24°∇05'51  | -0.7m      |
|                     | 8313 May 03 07:37 | 30°88     |            |                     | 8314 Apr 01 03:36 | 0°8        |            |
| evening set         | 8313 May 05 13:59 | 29°805'51 |            | evening max el      | 8314 Apr 09 02:25 | 10°805'16  | 19°23'27   |
| inferior conj       | 8313 May 11 05:45 | 23°829'03 | 3°21'42    | asc. node           | 8314 Apr 09 23:35 | 10°856'41  |            |
| minimum elong       | 8313 May 11 06:22 | 23°827'08 | 3°21'31    | retrograde          | 8314 Apr 16 05:14 | 14°807'34  |            |
| min. Earth dist.    | 8313 May 13 04:41 | 21°805'59 | 0.65319 AU | evening set         | 8314 Apr 19 18:49 | 12°853'19  |            |
| morning rise        | 8313 May 16 22:02 | 17°811'45 |            | inferior conj       | 8314 Apr 25 05:14 | 7°801'11   | 3°21'46    |
| direct              | 8313 May 23 11:34 | 14°825'02 |            | minimum elong       | 8314 Apr 25 04:37 | 7°803'11   | 3°21'38    |
| desc. node          | 8313 May 27 20:08 | 15°826'42 |            | min. Earth dist.    | 8314 Apr 26 12:56 | 5°817'36   | 0.66758 AU |
| morning max el      | 8313 Jun 05 19:35 | 22°817'44 | 27°01'09   | morning rise        | 8314 Apr 30 14:03 | 0°843'14   |            |
|                     | 8313 Jun 12 13:43 | 0°II      |            |                     | 8314 May 01 10:44 | 30°8∇      |            |
|                     | 8313 Jun 12 15:01 | 0°8       |            | direct              | 8314 May 06 18:08 | 27°∇59'33  |            |
| morning set         | 8313 Jun 11 11:45 | 16°807'53 |            |                     | 8314 May 12 17:16 | 0°8        |            |
| max. Earth dist.    | 8313 Jun 15 20:45 | 24°846'03 | 1.33860 AU | desc. node          | 8314 May 14 17:09 | 1°823'26   |            |
|                     | 8313 Jun 18 10:03 | 0°8       |            | morning max el      | 8314 May 19 05:35 | 5°827'08   | 25°52'21   |
|                     |                   |           |            |                     | 8314 Jun 07 02:35 | 0°II       |            |
| superior conj       | 8313 Jul 19 23:18 | 3°814'13  | -0°01'02   | morning set         | 8314 Jun 24 08:22 | 28°II48'09 |            |
| minimum elong       | 8313 Jul 19 23:22 | 3°814'34  | 0°01'09    |                     | 8314 Jun 24 23:57 | 0°8        |            |
| behind sun begin    | 8313 Jul 19 17:44 | 2°845'02  |            | max. Earth dist.    | 8314 Jun 28 03:22 | 5°855'18   | 1.35554 AU |
| behind sun end      | 8313 Jul 20 05:00 | 3°844'09  |            |                     |                   |            |            |
| asc. node           | 8313 Jul 20 01:44 | 3°827'02  |            | superior conj       | 8314 Jul 03 17:16 | 16°854'56  | -0°31'51   |
| evening rise        | 8313 Jul 27 07:03 | 18°844'57 |            | minimum elong       | 8314 Jul 03 19:08 | 17°804'25  | 0°31'39    |
|                     | 8313 Aug 01 20:17 | 0°8       |            | asc. node           | 8314 Jul 06 22:43 | 23°830'14  |            |
| evening max el      | 8313 Aug 16 12:22 | 21°849'19 | 21°38'44   |                     | 8314 Jul 10 02:13 | 0°8        |            |
| desc. node          | 8313 Aug 23 19:12 | 26°855'37 |            | evening rise        | 8314 Jul 11 14:21 | 3°805'56   |            |
| retrograde          | 8313 Aug 28 21:52 | 27°858'13 |            |                     | 8314 Jul 27 04:56 | 0°8        |            |
| evening set         | 8313 Aug 31 13:42 | 27°842'12 |            | evening max el      | 8314 Jul 29 15:37 | 2°840'43   | 20°15'59   |
| inferior conj       | 8313 Sep 09 18:15 | 23°843'34 | -4°36'50   | retrograde          | 8314 Aug 09 10:28 | 8°800'20   |            |
| minimum elong       | 8313 Sep 09 09:03 | 23°856'27 | 4°34'41    | desc. node          | 8314 Aug 10 16:18 | 7°856'22   |            |
| min. Earth dist.    | 8313 Sep 09 14:41 | 23°848'34 | 0.54726 AU | evening set         | 8314 Aug 11 09:23 | 7°850'37   |            |
| morning rise        | 8313 Sep 18 05:29 | 19°853'31 |            | inferior conj       | 8314 Aug 20 12:20 | 3°852'40   | -2°56'42   |
| direct              | 8313 Sep 21 18:50 | 19°825'56 |            | minimum elong       | 8314 Aug 20 04:24 | 4°804'19   | 2°54'01    |
| morning max el      | 8313 Oct 04 03:03 | 25°816'06 | 22°04'28   | min. Earth dist.    | 8314 Aug 22 00:42 | 2°859'14   | 0.54925 AU |
|                     | 8313 Oct 08 11:48 | 0°8       |            |                     | 8314 Aug 28 02:31 | 30°888     |            |
| asc. node           | 8313 Oct 16 01:22 | 11°810'35 |            | morning rise        | 8314 Aug 28 22:26 | 29°843'45  |            |
| morning set         | 8313 Oct 25 10:32 | 29°819'58 |            | direct              | 8314 Sep 02 05:11 | 29°804'14  |            |
|                     | 8313 Oct 25 18:10 | 0°8       |            |                     | 8314 Sep 07 04:57 | 0°8        |            |
|                     |                   |           |            | morning max el      | 8314 Sep 15 17:01 | 5°838'42   | 23°49'40   |
| superior conj       | 8313 Nov 01 13:36 | 14°828'07 | 1°40'59    | asc. node           | 8314 Oct 02 22:21 | 0°806'33   |            |
| minimum elong       | 8313 Nov 01 14:03 | 14°830'26 | 1°41'06    |                     | 8314 Oct 02 20:57 | 0°8        |            |
| max. Earth dist.    | 8313 Nov 05 07:43 | 22°815'56 | 1.34455 AU | morning set         | 8314 Oct 09 22:11 | 14°809'56  |            |
|                     | 8313 Nov 09 04:52 | 0°8       |            |                     |                   |            |            |
| evening rise        | 8313 Nov 09 17:59 | 1°803'32  |            | superior conj       | 8314 Oct 16 20:18 | 29°809'06  | 1°40'03    |
| desc. node          | 8313 Nov 19 18:02 | 19°803'49 |            | minimum elong       | 8314 Oct 16 19:33 | 29°805'00  | 1°40'06    |
|                     | 8313 Nov 26 15:14 | 0°8       |            |                     | 8314 Oct 17 05:43 | 0°8        |            |
| evening max el      | 8313 Dec 14 18:25 | 22°852'13 | 26°56'43   | max. Earth dist.    | 8314 Oct 19 06:08 | 4°820'06   | 1.33088 AU |
|                     | 8313 Dec 26 02:05 | 0°≈       |            | evening rise        | 8314 Oct 24 08:45 | 14°856'10  |            |
| retrograde          | 8313 Dec 28 00:11 | 0°≈11'41  |            |                     | 8314 Nov 01 07:29 | 0°8        |            |
|                     | 8313 Dec 29 20:47 | 30°83     |            | desc. node          | 8314 Nov 06 15:07 | 9°803'03   |            |
| evening set         | 8314 Jan 03 15:16 | 27°835'55 |            |                     | 8314 Nov 21 11:09 | 0°8        |            |
| min. Earth dist.    | 8314 Jan 07 15:04 | 23°840'47 | 0.65653 AU | evening max el      | 8314 Nov 27 06:56 | 6°814'29   | 27°25'41   |
| inferior conj       | 8314 Jan 09 15:46 | 21°820'50 | -0°47'48   | retrograde          | 8314 Dec 10 21:26 | 13°833'40  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8314 Dec 17 20:55 | 10°♄59'46 |            | min. Earth dist. | 8315 Dec 04 06:19 | 21°♄01'59 | 0.62186 AU |
| min. Earth dist. | 8314 Dec 21 15:49 | 7°♄37'21  | 0.64062 AU | inferior conj    | 8315 Dec 07 04:45 | 18°♄18'42 | -3°04'28   |
| inferior conj    | 8314 Dec 24 04:01 | 5°♄00'33  | -1°54'28   | minimum elong    | 8315 Dec 07 10:35 | 18°♄05'10 | 3°02'11    |
| minimum elong    | 8314 Dec 24 07:34 | 4°♄51'16  | 1°52'50    | morning rise     | 8315 Dec 14 09:13 | 13°♄14'34 |            |
| asc. node        | 8314 Dec 29 21:45 | 0°♄04'46  |            | direct           | 8315 Dec 16 15:40 | 12°♄51'45 |            |
|                  | 8314 Dec 30 01:19 | 30°♄♂     |            | asc. node        | 8315 Dec 16 18:49 | 12°♄51'50 |            |
| morning rise     | 8314 Dec 30 19:53 | 29°♄38'21 |            | morning max el   | 8315 Dec 23 11:27 | 16°♄20'03 | 17°49'34   |
| direct           | 8315 Jan 02 07:07 | 29°♄07'47 |            |                  | 8316 Jan 02 02:12 | 0°♄       |            |
|                  | 8315 Jan 05 12:28 | 0°♄       |            | morning set      | 8316 Jan 08 07:37 | 10°♄58'07 |            |
| morning max el   | 8315 Jan 08 18:40 | 2°♄30'26  | 17°50'52   |                  |                   |           |            |
| morning set      | 8315 Jan 25 14:03 | 27°♄59'29 |            | superior conj    | 8316 Jan 19 11:54 | 0°♄32'41  | 0°07'13    |
|                  | 8315 Jan 26 18:25 | 0°♄       |            | minimum elong    | 8316 Jan 19 12:35 | 0°♄35'37  | 0°07'16    |
| desc. node       | 8315 Feb 02 14:24 | 11°♄28'40 |            | behind sun begin | 8316 Jan 19 04:42 | 0°♄02'06  |            |
|                  |                   |           |            | behind sun end   | 8316 Jan 19 20:29 | 1°♄09'03  |            |
| superior conj    | 8315 Feb 07 14:45 | 19°♄41'32 | -0°35'52   |                  | 8316 Jan 19 04:12 | 0°♄       |            |
| minimum elong    | 8315 Feb 07 10:43 | 19°♄25'12 | 0°35'10    | desc. node       | 8316 Jan 20 11:22 | 2°♄11'56  |            |
| max. Earth dist. | 8315 Feb 12 22:06 | 28°♄11'34 | 1.44807 AU | max. Earth dist. | 8316 Jan 26 14:13 | 12°♄18'42 | 1.43485 AU |
|                  | 8315 Feb 14 01:32 | 0°♄       |            | evening rise     | 8316 Feb 03 00:21 | 24°♄05'32 |            |
| evening rise     | 8315 Feb 23 10:24 | 14°♄34'10 |            |                  | 8316 Feb 06 20:21 | 0°♄       |            |
|                  | 8315 Mar 05 14:54 | 0°♄       |            |                  | 8316 Feb 27 18:27 | 0°♄       |            |
| evening max el   | 8315 Mar 23 05:18 | 23°♄44'20 | 20°21'59   | evening max el   | 8316 Mar 05 02:34 | 7°♄23'51  | 21°32'38   |
| asc. node        | 8315 Mar 27 20:41 | 27°♄26'39 |            | asc. node        | 8316 Mar 13 17:47 | 12°♄41'43 |            |
| retrograde       | 8315 Mar 31 03:45 | 28°♄21'42 |            | retrograde       | 8316 Mar 14 01:52 | 12°♄42'17 |            |
| evening set      | 8315 Apr 04 02:14 | 26°♄52'16 |            | evening set      | 8316 Mar 18 10:22 | 10°♄57'39 |            |
| inferior conj    | 8315 Apr 09 10:01 | 20°♄46'35 | 3°09'21    | inferior conj    | 8316 Mar 23 17:45 | 4°♄40'53  | 2°46'28    |
| minimum elong    | 8315 Apr 09 08:28 | 20°♄51'53 | 3°09'05    | minimum elong    | 8316 Mar 23 15:38 | 4°♄48'15  | 2°45'59    |
| min. Earth dist. | 8315 Apr 10 03:29 | 19°♄46'57 | 0.67753 AU | min. Earth dist. | 8316 Mar 23 22:13 | 4°♄25'19  | 0.68297 AU |
| morning rise     | 8315 Apr 14 14:29 | 14°♄30'25 |            |                  | 8316 Mar 27 08:09 | 30°♄♂     |            |
| direct           | 8315 Apr 20 06:03 | 11°♄59'22 |            | morning rise     | 8316 Mar 28 20:44 | 28°♄28'02 |            |
| morning max el   | 8315 May 01 14:47 | 18°♄47'24 | 24°28'02   | direct           | 8316 Apr 02 22:26 | 26°♄15'50 |            |
| desc. node       | 8315 May 01 14:08 | 18°♄45'45 |            |                  | 8316 Apr 10 15:08 | 0°♄       |            |
|                  | 8315 May 11 01:52 | 0°♄       |            | morning max el   | 8316 Apr 13 00:43 | 2°♄14'42  | 22°58'16   |
|                  | 8315 May 31 04:59 | 0°♄       |            | desc. node       | 8316 Apr 17 11:06 | 7°♄09'34  |            |
| morning set      | 8315 Jun 06 10:27 | 10°♄33'43 |            |                  | 8316 May 04 02:09 | 0°♄       |            |
| max. Earth dist. | 8315 Jun 10 01:47 | 17°♄02'10 | 1.37625 AU | morning set      | 8316 May 17 12:29 | 21°♄10'46 |            |
|                  | 8315 Jun 16 23:59 | 0°♄       |            | max. Earth dist. | 8316 May 21 22:11 | 28°♄37'09 | 1.39866 AU |
|                  |                   |           |            |                  | 8316 May 22 17:23 | 0°♄       |            |
| superior conj    | 8315 Jun 17 00:03 | 0°♄00'20  | -1°03'45   |                  |                   |           |            |
| minimum elong    | 8315 Jun 17 04:00 | 0°♄19'22  | 1°03'16    | superior conj    | 8316 May 29 15:39 | 12°♄20'46 | -1°33'59   |
| asc. node        | 8315 Jun 23 19:44 | 13°♄26'40 |            | minimum elong    | 8316 May 29 21:14 | 12°♄46'21 | 1°33'26    |
| evening rise     | 8315 Jun 25 16:00 | 17°♄07'05 |            | evening rise     | 8316 Jun 08 08:55 | 0°♄40'13  |            |
|                  | 8315 Jul 02 09:22 | 0°♄       |            |                  | 8316 Jun 08 00:30 | 0°♄       |            |
| evening max el   | 8315 Jul 12 07:58 | 14°♄16'31 | 19°13'02   | asc. node        | 8316 Jun 09 16:46 | 3°♄12'01  |            |
| retrograde       | 8315 Jul 21 10:30 | 18°♄46'38 |            | evening max el   | 8316 Jun 24 10:58 | 26°♄34'01 | 18°31'01   |
| evening set      | 8315 Jul 23 07:48 | 18°♄35'58 |            |                  | 8316 Jun 29 14:56 | 0°♄       |            |
| desc. node       | 8315 Jul 28 13:23 | 16°♄29'32 |            | retrograde       | 8316 Jul 02 04:53 | 0°♄25'36  |            |
| inferior conj    | 8315 Jul 31 19:51 | 14°♄25'08 | -1°00'04   | evening set      | 8316 Jul 04 07:58 | 0°♄09'01  |            |
| minimum elong    | 8315 Jul 31 17:12 | 14°♄29'34 | 0°59'10    |                  | 8316 Jul 04 20:38 | 30°♄♂     |            |
| min. Earth dist. | 8315 Aug 03 14:00 | 12°♄34'59 | 0.56036 AU | inferior conj    | 8316 Jul 12 00:18 | 25°♄39'22 | 0°43'00    |
| morning rise     | 8315 Aug 08 23:43 | 9°♄41'43  |            | minimum elong    | 8316 Jul 12 01:50 | 25°♄36'22 | 0°42'18    |
| direct           | 8315 Aug 14 02:09 | 8°♄41'52  |            | desc. node       | 8316 Jul 14 10:26 | 23°♄45'14 |            |
| morning max el   | 8315 Aug 28 05:44 | 15°♄53'11 | 25°31'49   | min. Earth dist. | 8316 Jul 15 08:31 | 23°♄03'21 | 0.57844 AU |
|                  | 8315 Sep 08 15:25 | 0°♄       |            | morning rise     | 8316 Jul 19 16:12 | 20°♄19'11 |            |
| asc. node        | 8315 Sep 19 19:19 | 19°♄29'13 |            | direct           | 8316 Jul 25 13:47 | 18°♄50'16 |            |
| morning set      | 8315 Sep 24 09:39 | 28°♄57'19 |            | morning max el   | 8316 Aug 08 23:05 | 26°♄28'40 | 26°53'59   |
|                  | 8315 Sep 24 21:23 | 0°♄       |            |                  | 8316 Aug 12 07:22 | 0°♄       |            |
|                  |                   |           |            |                  | 8316 Sep 01 00:36 | 0°♄       |            |
| superior conj    | 8315 Oct 01 06:30 | 13°♄58'10 | 1°33'10    | asc. node        | 8316 Sep 05 16:17 | 9°♄11'16  |            |
| minimum elong    | 8315 Oct 01 04:51 | 13°♄49'04 | 1°33'03    | morning set      | 8316 Sep 07 19:19 | 13°♄37'28 |            |
| max. Earth dist. | 8315 Oct 02 11:37 | 16°♄38'17 | 1.32168 AU |                  |                   |           |            |
| evening rise     | 8315 Oct 08 08:19 | 29°♄11'59 |            | superior conj    | 8316 Sep 14 18:15 | 28°♄49'20 | 1°20'52    |
|                  | 8315 Oct 08 17:36 | 0°♄       |            | minimum elong    | 8316 Sep 14 16:06 | 28°♄37'21 | 1°20'34    |
| desc. node       | 8315 Oct 24 12:11 | 28°♄33'54 |            | max. Earth dist. | 8316 Sep 14 21:08 | 29°♄05'20 | 1.31703 AU |
|                  | 8315 Oct 25 10:36 | 0°♄       |            |                  | 8316 Sep 15 06:59 | 0°♄       |            |
| evening max el   | 8315 Nov 09 16:17 | 19°♄04'48 | 27°24'47   | evening rise     | 8316 Sep 21 14:02 | 13°♄43'46 |            |
| retrograde       | 8315 Nov 23 11:37 | 26°♄19'36 |            |                  | 8316 Sep 29 18:41 | 0°♄       |            |
| evening set      | 8315 Nov 30 14:07 | 23°♄56'39 |            | desc. node       | 8316 Oct 10 09:16 | 17°♄25'03 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8316 Oct 20 14:31 | 0°♊       |            |                  | 8317 Sep 23 08:29 | 0°♍       |            |
| evening max el   | 8316 Oct 21 19:57 | 1°♊11'44  | 26°50'21   | desc. node       | 8317 Sep 27 06:20 | 5°♍19'54  |            |
| retrograde       | 8316 Nov 04 17:50 | 8°♊20'55  |            | evening max el   | 8317 Oct 03 15:56 | 12°♍28'08 | 25°43'30   |
| evening set      | 8316 Nov 11 14:50 | 6°♊19'54  |            | retrograde       | 8317 Oct 17 14:14 | 19°♍31'03 |            |
| min. Earth dist. | 8316 Nov 15 10:09 | 3°♊42'26  | 0.60126 AU | evening set      | 8317 Oct 23 18:10 | 18°♍02'08 |            |
| inferior conj    | 8316 Nov 18 14:39 | 1°♊06'58  | -4°12'17   | min. Earth dist. | 8317 Oct 28 04:27 | 15°♍25'42 | 0.58061 AU |
| minimum elong    | 8316 Nov 18 21:54 | 0°♊52'09  | 4°10'06    | inferior conj    | 8317 Oct 31 06:15 | 13°♍15'20 | -5°07'51   |
|                  | 8316 Nov 19 23:59 | 30°♋♍     |            | minimum elong    | 8317 Oct 31 12:24 | 13°♍04'25 | 5°06'44    |
| morning rise     | 8316 Nov 26 07:24 | 26°♍23'49 |            | morning rise     | 8317 Nov 08 08:58 | 8°♍54'45  |            |
| direct           | 8316 Nov 28 12:20 | 26°♍05'26 |            | direct           | 8317 Nov 10 16:56 | 8°♍37'38  |            |
| asc. node        | 8316 Dec 02 15:50 | 27°♍13'47 |            | morning max el   | 8317 Nov 19 05:57 | 12°♍44'37 | 18°45'29   |
| morning max el   | 8316 Dec 06 00:27 | 29°♍48'23 | 18°07'12   | asc. node        | 8317 Nov 19 12:50 | 13°♍01'27 |            |
|                  | 8316 Dec 06 05:09 | 0°♊       |            |                  | 8317 Nov 30 21:54 | 0°♊       |            |
| morning set      | 8316 Dec 21 17:01 | 24°♊40'56 |            | morning set      | 8317 Dec 05 13:24 | 8°♊53'46  |            |
|                  | 8316 Dec 24 13:11 | 0°♋       |            |                  |                   |           |            |
| superior conj    | 8316 Dec 31 09:47 | 12°♋34'26 | 0°43'19    | superior conj    | 8317 Dec 14 03:53 | 25°♊33'34 | 1°10'25    |
| minimum elong    | 8316 Dec 31 12:50 | 12°♋48'04 | 0°43'02    | minimum elong    | 8317 Dec 14 07:14 | 25°♊49'21 | 1°10'11    |
| desc. node       | 8317 Jan 06 08:21 | 22°♋57'07 |            |                  | 8317 Dec 16 12:55 | 0°♋       |            |
| max. Earth dist. | 8317 Jan 08 01:12 | 25°♋49'50 | 1.41661 AU | max. Earth dist. | 8317 Dec 21 07:53 | 8°♋38'59  | 1.39549 AU |
|                  | 8317 Jan 10 13:23 | 0°♌       |            | desc. node       | 8317 Dec 24 05:21 | 13°♋40'33 |            |
| evening rise     | 8317 Jan 13 05:20 | 4°♌20'23  |            | evening rise     | 8317 Dec 25 07:51 | 15°♋33'17 |            |
|                  | 8317 Jan 30 03:31 | 0°♌       |            |                  | 8318 Jan 03 05:44 | 0°♌       |            |
| evening max el   | 8317 Feb 15 19:15 | 21°♌05'27 | 22°50'56   | evening max el   | 8318 Jan 24 21:56 | 0°♌       |            |
| retrograde       | 8317 Feb 25 21:55 | 27°♌05'09 |            | retrograde       | 8318 Jan 29 09:18 | 4°♌50'58  | 24°11'03   |
| asc. node        | 8317 Feb 28 14:53 | 26°♌28'28 |            |                  | 8318 Feb 09 14:31 | 11°♌26'00 |            |
| evening set      | 8317 Mar 02 17:39 | 25°♌05'41 |            | evening set      | 8318 Feb 14 22:32 | 9°♌12'38  |            |
| inferior conj    | 8317 Mar 08 02:27 | 18°♌41'08 | 2°14'17    | asc. node        | 8318 Feb 15 11:57 | 8°♌42'38  |            |
| minimum elong    | 8317 Mar 08 00:12 | 18°♌48'56 | 2°13'39    | min. Earth dist. | 8318 Feb 19 15:14 | 3°♌48'38  | 0.68132 AU |
| min. Earth dist. | 8317 Mar 07 18:54 | 19°♌07'18 | 0.68416 AU | inferior conj    | 8318 Feb 20 10:17 | 2°♌44'21  | 1°33'31    |
| morning rise     | 8317 Mar 13 06:38 | 12°♌32'57 |            | minimum elong    | 8318 Feb 20 08:21 | 2°♌50'51  | 1°32'54    |
| direct           | 8317 Mar 17 18:23 | 10°♌42'33 |            |                  | 8318 Feb 22 12:29 | 30°♋♌     |            |
| morning max el   | 8317 Mar 26 14:31 | 15°♌50'39 | 21°32'04   | morning rise     | 8318 Feb 25 18:14 | 26°♌42'25 |            |
| desc. node       | 8317 Apr 04 08:03 | 26°♌17'56 |            | direct           | 8318 Mar 01 16:42 | 25°♌14'10 |            |
|                  | 8317 Apr 07 01:17 | 0°♍       |            | morning max el   | 8318 Mar 09 11:17 | 29°♌38'15 | 20°16'09   |
| morning set      | 8317 Apr 27 10:56 | 0°♌31'24  |            |                  | 8318 Mar 09 19:56 | 0°♌       |            |
|                  | 8317 Apr 27 03:01 | 0°♌       |            | desc. node       | 8318 Mar 22 04:59 | 15°♌58'44 |            |
| max. Earth dist. | 8317 May 03 22:45 | 11°♌01'35 | 1.42015 AU |                  | 8318 Mar 31 15:42 | 0°♍       |            |
|                  |                   |           |            | morning set      | 8318 Apr 06 11:54 | 8°♍56'28  |            |
| superior conj    | 8317 May 11 11:21 | 23°♌45'26 | -1°58'24   | max. Earth dist. | 8318 Apr 16 06:48 | 24°♍20'05 | 1.43802 AU |
| minimum elong    | 8317 May 11 16:47 | 24°♌08'58 | 1°58'08    |                  | 8318 Apr 19 18:57 | 0°♌       |            |
|                  | 8317 May 15 00:44 | 0°♎       |            | superior conj    | 8318 Apr 22 07:08 | 4°♌06'30  | -2°11'15   |
| evening rise     | 8317 May 22 13:13 | 13°♎35'12 |            | minimum elong    | 8318 Apr 22 08:49 | 4°♌13'24  | 2°11'19    |
| asc. node        | 8317 May 27 13:48 | 22°♎40'54 |            | evening rise     | 8318 May 05 00:20 | 25°♌41'58 |            |
|                  | 8317 May 31 20:38 | 0°♏       |            |                  | 8318 May 07 11:45 | 0°♎       |            |
| evening max el   | 8317 Jun 07 20:51 | 9°♏23'44  | 18°09'09   | asc. node        | 8318 May 14 10:51 | 11°♎47'32 |            |
| retrograde       | 8317 Jun 14 17:19 | 12°♏51'59 |            | evening max el   | 8318 May 22 09:56 | 22°♎36'17 | 18°06'35   |
| evening set      | 8317 Jun 17 04:02 | 12°♏25'56 |            | retrograde       | 8318 May 28 20:11 | 25°♎56'50 |            |
| inferior conj    | 8317 Jun 24 01:54 | 7°♏35'59  | 1°59'18    | evening set      | 8318 May 31 14:23 | 25°♎18'46 |            |
| minimum elong    | 8317 Jun 24 04:55 | 7°♏29'05  | 1°58'14    | inferior conj    | 8318 Jun 06 21:25 | 20°♎09'14 | 2°48'23    |
| min. Earth dist. | 8317 Jun 27 09:46 | 4°♏35'07  | 0.60036 AU | minimum elong    | 8318 Jun 07 00:03 | 20°♎02'23 | 2°47'41    |
| morning rise     | 8317 Jul 01 02:57 | 1°♏47'35  |            | min. Earth dist. | 8318 Jun 09 19:25 | 17°♎07'57 | 0.62277 AU |
| desc. node       | 8317 Jul 01 07:29 | 1°♏40'43  |            | morning rise     | 8318 Jun 13 07:53 | 14°♎03'21 |            |
|                  | 8317 Jul 05 11:07 | 30°♋♎     |            | desc. node       | 8318 Jun 18 04:31 | 11°♎47'35 |            |
| direct           | 8317 Jul 07 14:43 | 29°♎46'52 |            | direct           | 8318 Jun 20 02:00 | 11°♎36'20 |            |
|                  | 8317 Jul 09 19:20 | 0°♏       |            | morning max el   | 8318 Jul 04 04:42 | 19°♎38'10 | 27°54'53   |
| morning max el   | 8317 Jul 21 22:57 | 7°♏41'51  | 27°43'27   |                  | 8318 Jul 13 00:27 | 0°♏       |            |
|                  | 8317 Aug 07 21:00 | 0°♏       |            |                  | 8318 Jul 31 19:39 | 0°♏       |            |
| morning set      | 8317 Aug 23 01:23 | 28°♏03'54 |            | morning set      | 8318 Aug 07 01:50 | 12°♏11'05 |            |
| asc. node        | 8317 Aug 23 13:14 | 29°♏05'53 |            | asc. node        | 8318 Aug 10 10:12 | 19°♏08'22 |            |
|                  | 8317 Aug 23 23:31 | 0°♐       |            | max. Earth dist. | 8318 Aug 12 13:26 | 23°♏42'19 | 1.32161 AU |
| max. Earth dist. | 8317 Aug 29 06:58 | 11°♐30'05 | 1.31697 AU |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8318 Aug 14 14:59 | 28°♏11'29 | 0°41'38    |
| superior conj    | 8317 Aug 30 05:40 | 13°♐35'37 | 1°03'33    | minimum elong    | 8318 Aug 14 13:13 | 28°♏01'50 | 0°41'12    |
| minimum elong    | 8317 Aug 30 03:27 | 13°♐23'21 | 1°03'08    |                  | 8318 Aug 15 10:49 | 0°♐       |            |
| evening rise     | 8317 Sep 05 23:35 | 28°♐23'42 |            | evening rise     | 8318 Aug 21 11:01 | 13°♐06'04 |            |
|                  | 8317 Sep 06 17:40 | 0°♑       |            |                  | 8318 Aug 29 21:41 | 0°♑       |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| desc. node          | 8318 Sep 14 03:25 | 21°♄56'32 |            | evening rise        | 8319 Aug 05 22:28 | 27°♄45'10 |            |
| evening max el      | 8318 Sep 15 05:00 | 23°♄00'06 | 24°12'37   |                     | 8319 Aug 07 00:01 | 0°♄       |            |
| retrograde          | 8318 Sep 28 22:30 | 29°♄53'02 |            |                     | 8319 Aug 24 17:23 | 0°♄       |            |
| evening set         | 8318 Oct 03 20:45 | 28°♄59'35 |            | evening max el      | 8319 Aug 27 17:00 | 3°♄12'56  | 22°33'13   |
| min. Earth dist.    | 8318 Oct 09 15:47 | 26°♄05'52 | 0.56265 AU | desc. node          | 8319 Sep 01 00:31 | 6°♄46'36  |            |
| inferior conj       | 8318 Oct 12 01:31 | 24°♄36'35 | -5°34'49   | retrograde          | 8319 Sep 09 18:32 | 9°♄43'52  |            |
| minimum elong       | 8318 Oct 12 02:23 | 24°♄35'15 | 5°34'44    | evening set         | 8319 Sep 13 04:32 | 9°♄18'12  |            |
| morning rise        | 8318 Oct 20 10:07 | 20°♄36'52 |            | min. Earth dist.    | 8319 Sep 21 00:05 | 5°♄50'40  | 0.55049 AU |
| direct              | 8318 Oct 23 02:33 | 20°♄17'56 |            | inferior conj       | 8319 Sep 22 02:45 | 5°♄12'53  | -5°14'11   |
| morning max el      | 8318 Nov 02 00:26 | 24°♄58'27 | 19°46'01   | minimum elong       | 8319 Sep 21 20:09 | 5°♄22'16  | 5°13'12    |
| asc. node           | 8318 Nov 06 09:50 | 29°♄59'59 |            | morning rise        | 8319 Sep 30 13:39 | 1°♄24'56  |            |
|                     | 8318 Nov 06 09:50 | 0°♄       |            | direct              | 8319 Oct 03 18:35 | 1°♄01'33  |            |
| morning set         | 8318 Nov 19 17:10 | 23°♄26'14 |            | morning max el      | 8319 Oct 15 06:01 | 6°♄24'13  | 21°08'39   |
|                     | 8318 Nov 22 22:43 | 0°♄       |            | asc. node           | 8319 Oct 24 06:50 | 17°♄54'26 |            |
|                     |                   |           |            |                     | 8319 Oct 31 00:44 | 0°♄       |            |
| superior conj       | 8318 Nov 27 13:11 | 9°♄15'52  | 1°28'33    | morning set         | 8319 Nov 04 01:40 | 8°♄10'52  |            |
| minimum elong       | 8318 Nov 27 15:41 | 9°♄28'13  | 1°28'29    |                     |                   |           |            |
| max. Earth dist.    | 8318 Dec 03 13:54 | 20°♄52'48 | 1.37397 AU | superior conj       | 8319 Nov 11 09:27 | 23°♄29'28 | 1°38'33    |
| evening rise        | 8318 Dec 07 07:42 | 27°♄42'34 |            | minimum elong       | 8319 Nov 11 10:39 | 23°♄35'41 | 1°38'37    |
|                     | 8318 Dec 08 14:44 | 0°♄       |            |                     | 8319 Nov 14 14:04 | 0°♄       |            |
| desc. node          | 8318 Dec 11 02:20 | 4°♄18'13  |            | max. Earth dist.    | 8319 Nov 15 23:54 | 2°♄48'30  | 1.35431 AU |
|                     | 8318 Dec 27 15:49 | 0°♄       |            | evening rise        | 8319 Nov 20 01:46 | 10°♄40'23 |            |
| evening max el      | 8319 Jan 11 22:30 | 18°♄38'49 | 25°26'06   | desc. node          | 8319 Nov 27 23:23 | 24°♄45'58 |            |
| retrograde          | 8319 Jan 24 02:37 | 25°♄39'22 |            |                     | 8319 Dec 01 03:19 | 0°♄       |            |
| evening set         | 8319 Jan 29 23:26 | 23°♄14'00 |            |                     | 8319 Dec 23 02:58 | 0°♄       |            |
| asc. node           | 8319 Feb 02 09:03 | 19°♄39'21 |            | evening max el      | 8319 Dec 25 11:42 | 2°♄24'04  | 26°28'49   |
| min. Earth dist.    | 8319 Feb 03 08:54 | 18°♄24'45 | 0.67465 AU | retrograde          | 8320 Jan 07 09:33 | 9°♄39'38  |            |
| inferior conj       | 8319 Feb 04 15:22 | 16°♄46'39 | 0°44'34    | evening set         | 8320 Jan 13 18:38 | 7°♄05'48  |            |
| minimum elong       | 8319 Feb 04 14:17 | 16°♄50'08 | 0°44'16    | min. Earth dist.    | 8320 Jan 17 21:40 | 2°♄51'19  | 0.66424 AU |
| morning rise        | 8319 Feb 10 05:31 | 10°♄52'50 |            | inferior conj       | 8320 Jan 19 15:46 | 0°♄44'39  | -0°12'00   |
| direct              | 8319 Feb 13 15:53 | 9°♄45'07  |            | minimum elong       | 8320 Jan 19 16:05 | 0°♄43'41  | 0°11'43    |
| morning max el      | 8319 Feb 20 16:03 | 13°♄36'56 | 19°14'25   | transit middle      | 8320 Jan 19 16:05 | 0°♄43'41  | 0°11'43    |
|                     | 8319 Mar 05 01:51 | 0°♄       |            | transit begin       | 8320 Jan 19 14:06 | 0°♄49'40  |            |
| greatest brilliancy | 8319 Mar 05 19:58 | 1°♄07'48  | -0.7m      | transit end         | 8320 Jan 19 18:04 | 0°♄37'42  |            |
| desc. node          | 8319 Mar 09 01:54 | 6°♄02'42  |            | asc. node           | 8320 Jan 20 06:07 | 0°♄01'37  |            |
| morning set         | 8319 Mar 16 12:14 | 17°♄28'06 |            |                     | 8320 Jan 20 06:39 | 30°♄      |            |
|                     | 8319 Mar 24 13:54 | 0°♄       |            | morning rise        | 8320 Jan 25 14:23 | 25°♄01'07 |            |
| max. Earth dist.    | 8319 Mar 29 21:43 | 8°♄20'56  | 1.45011 AU | direct              | 8320 Jan 28 14:11 | 24°♄10'53 |            |
|                     |                   |           |            | morning max el      | 8320 Feb 04 03:42 | 27°♄43'00 | 18°28'39   |
| superior conj       | 8319 Apr 02 02:54 | 13°♄26'06 | -2°06'30   |                     | 8320 Feb 06 06:04 | 0°♄       |            |
| minimum elong       | 8319 Apr 01 21:38 | 13°♄05'11 | 2°06'19    | desc. node          | 8320 Feb 23 22:52 | 26°♄23'51 |            |
|                     | 8319 Apr 12 09:40 | 0°♄       |            | morning set         | 8320 Feb 24 10:25 | 27°♄09'40 |            |
| evening rise        | 8319 Apr 16 13:47 | 6°♄51'34  |            |                     | 8320 Feb 26 05:22 | 0°♄       |            |
| asc. node           | 8319 May 01 07:55 | 0°♄23'58  |            |                     |                   |           |            |
|                     | 8319 May 01 01:06 | 0°♄       |            | superior conj       | 8320 Mar 11 08:28 | 22°♄13'57 | -1°41'34   |
| evening max el      | 8319 May 05 22:58 | 6°♄02'38  | 18°22'37   | minimum elong       | 8320 Mar 10 22:53 | 21°♄36'28 | 1°40'39    |
| retrograde          | 8319 May 12 09:01 | 9°♄29'49  |            | max. Earth dist.    | 8320 Mar 11 16:29 | 22°♄45'19 | 1.45516 AU |
| evening set         | 8319 May 15 10:28 | 8°♄38'18  |            |                     | 8320 Mar 16 07:31 | 0°♄       |            |
| inferior conj       | 8319 May 21 06:42 | 3°♄10'46  | 3°14'49    | evening rise        | 8320 Mar 27 03:42 | 17°♄03'56 |            |
| minimum elong       | 8319 May 21 08:06 | 3°♄06'39  | 3°14'31    |                     | 8320 Apr 04 08:10 | 0°♄       |            |
| min. Earth dist.    | 8319 May 23 14:20 | 0°♄29'40  | 0.64307 AU | greatest brilliancy | 8320 Apr 05 13:07 | 1°♄53'07  | -0.8m      |
|                     | 8319 May 24 00:59 | 30°♄      |            | asc. node           | 8320 Apr 17 05:00 | 18°♄20'48 |            |
| morning rise        | 8319 May 27 04:45 | 26°♄55'50 |            | evening max el      | 8320 Apr 18 09:21 | 19°♄36'24 | 18°56'26   |
| direct              | 8319 Jun 02 21:38 | 24°♄13'09 |            | retrograde          | 8320 Apr 25 03:58 | 23°♄23'02 |            |
| desc. node          | 8319 Jun 05 01:32 | 24°♄28'16 |            | evening set         | 8320 Apr 28 12:51 | 22°♄17'17 |            |
|                     | 8319 Jun 14 06:47 | 0°♄       |            | inferior conj       | 8320 May 04 01:56 | 16°♄33'28 | 3°23'24    |
| morning max el      | 8319 Jun 16 14:13 | 2°♄12'20  | 27°29'53   | minimum elong       | 8320 May 04 02:00 | 16°♄33'13 | 3°23'17    |
|                     | 8319 Jul 07 06:49 | 0°♄       |            | min. Earth dist.    | 8320 May 05 18:13 | 14°♄26'29 | 0.65980 AU |
| morning set         | 8319 Jul 21 18:14 | 25°♄52'11 |            | morning rise        | 8320 May 09 14:39 | 10°♄15'20 |            |
|                     | 8319 Jul 23 19:57 | 0°♄       |            | direct              | 8320 May 16 00:29 | 7°♄28'50  |            |
| max. Earth dist.    | 8319 Jul 26 12:50 | 5°♄32'31  | 1.33102 AU | desc. node          | 8320 May 21 22:33 | 9°♄22'20  |            |
| asc. node           | 8319 Jul 28 07:11 | 9°♄14'28  |            | morning max el      | 8320 May 29 00:49 | 15°♄12'55 | 26°34'32   |
|                     |                   |           |            |                     | 8320 Jun 10 03:30 | 0°♄       |            |
| superior conj       | 8319 Jul 29 20:15 | 12°♄31'17 | 0°15'36    |                     | 8320 Jun 29 01:54 | 0°♄       |            |
| minimum elong       | 8319 Jul 29 19:29 | 12°♄27'12 | 0°15'19    | morning set         | 8320 Jul 03 23:16 | 8°♄58'01  |            |
| behind sun begin    | 8319 Jul 29 17:53 | 12°♄18'41 |            | max. Earth dist.    | 8320 Jul 08 01:57 | 16°♄55'06 | 1.34523 AU |
| behind sun end      | 8319 Jul 29 21:04 | 12°♄35'43 |            |                     |                   |           |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj       | 8320 Jul 12 19:06 | 26°☿28'06 | -0°13'50   | max. Earth dist. | 8321 Jun 20 04:17 | 27°♄58'58 | 1.36388 AU |
| minimum elong       | 8320 Jul 12 19:53 | 26°☿32'08 | 0°13'50    |                  | 8321 Jun 21 06:02 | 0°☿       |            |
| behind sun begin    | 8320 Jul 12 16:54 | 26°☿16'40 |            |                  |                   |           |            |
| behind sun end      | 8320 Jul 12 22:53 | 26°☿47'36 |            | superior conj    | 8321 Jun 26 08:46 | 9°☿54'52  | -0°45'23   |
| asc. node           | 8320 Jul 14 04:11 | 29°☿19'48 |            | minimum elong    | 8321 Jun 26 11:31 | 10°☿08'30 | 0°45'03    |
|                     | 8320 Jul 14 11:53 | 0°♊       |            | asc. node        | 8321 Jul 01 01:11 | 19°☿20'42 |            |
| evening rise        | 8320 Jul 20 07:55 | 12°♊14'32 |            | evening rise     | 8321 Jul 04 13:10 | 26°☿27'55 |            |
|                     | 8320 Jul 29 12:11 | 0°♊       |            |                  | 8321 Jul 06 07:17 | 0°♊       |            |
| evening max el      | 8320 Aug 08 12:52 | 13°♊42'11 | 21°01'20   | evening max el   | 8321 Jul 21 21:50 | 24°♊52'29 | 19°46'46   |
| desc. node          | 8320 Aug 17 21:37 | 19°♊17'42 |            | retrograde       | 8321 Jul 31 23:22 | 29°♊50'22 |            |
| retrograde          | 8320 Aug 20 07:16 | 19°♊31'59 |            | evening set      | 8321 Aug 02 19:57 | 29°♊40'58 |            |
| evening set         | 8320 Aug 22 13:30 | 19°♊19'55 |            | desc. node       | 8321 Aug 04 18:43 | 29°♊12'12 |            |
| inferior conj       | 8320 Aug 31 19:19 | 15°♊22'58 | -3°58'42   | inferior conj    | 8321 Aug 11 17:45 | 25°♊39'13 | -2°07'18   |
| minimum elong       | 8320 Aug 31 09:48 | 15°♊36'25 | 3°55'59    | minimum elong    | 8321 Aug 11 11:56 | 25°♊48'13 | 2°05'13    |
| min. Earth dist.    | 8320 Sep 01 09:04 | 15°♊03'31 | 0.54685 AU | min. Earth dist. | 8321 Aug 13 20:41 | 24°♊20'45 | 0.55287 AU |
| morning rise        | 8320 Sep 09 06:29 | 11°♊27'28 |            | morning rise     | 8321 Aug 20 01:53 | 21°♊16'25 |            |
| direct              | 8320 Sep 13 02:32 | 10°♊55'55 |            | direct           | 8321 Aug 24 16:42 | 20°♊29'18 |            |
| morning max el      | 8320 Sep 26 00:18 | 17°♊05'27 | 22°48'35   | morning max el   | 8321 Sep 07 12:58 | 27°♊21'32 | 24°34'24   |
|                     | 8320 Oct 06 06:39 | 0°♋       |            |                  | 8321 Sep 10 03:14 | 0°♊       |            |
| asc. node           | 8320 Oct 10 03:49 | 6°♋30'51  |            | asc. node        | 8321 Sep 27 00:48 | 25°♊39'06 |            |
| morning set         | 8320 Oct 18 12:40 | 23°♋00'14 |            |                  | 8321 Sep 29 05:53 | 0°♋       |            |
|                     | 8320 Oct 21 19:14 | 0°♋       |            | morning set      | 8321 Oct 03 00:25 | 7°♋49'31  |            |
| superior conj       | 8320 Oct 25 13:08 | 8°♋02'54  | 1°41'22    | superior conj    | 8321 Oct 09 21:36 | 22°♋48'19 | 1°37'49    |
| minimum elong       | 8320 Oct 25 13:02 | 8°♋02'24  | 1°41'27    | minimum elong    | 8321 Oct 09 20:25 | 22°♋41'53 | 1°37'49    |
| max. Earth dist.    | 8320 Oct 28 17:12 | 14°♋44'17 | 1.33817 AU | max. Earth dist. | 8321 Oct 11 18:40 | 26°♋53'24 | 1.32641 AU |
| evening rise        | 8320 Nov 02 10:01 | 24°♋15'33 |            |                  | 8321 Oct 13 05:23 | 0°♋       |            |
|                     | 8320 Nov 05 09:34 | 0°♌       |            | evening rise     | 8321 Oct 17 04:53 | 8°♋19'06  |            |
| desc. node          | 8320 Nov 13 20:27 | 14°♌57'23 |            |                  | 8321 Oct 28 20:01 | 0°♌       |            |
|                     | 8320 Nov 23 16:41 | 0°♌       |            | desc. node       | 8321 Oct 31 17:30 | 4°♌45'24  |            |
| evening max el      | 8320 Dec 07 00:38 | 15°♌57'10 | 27°12'09   | evening max el   | 8321 Nov 19 12:03 | 29°♌07'11 | 27°29'12   |
| retrograde          | 8320 Dec 20 10:46 | 23°♌18'00 |            |                  | 8321 Nov 20 10:53 | 0°♌       |            |
| evening set         | 8320 Dec 27 05:58 | 20°♌41'42 |            | retrograde       | 8321 Dec 03 05:23 | 6°♌25'26  |            |
| min. Earth dist.    | 8320 Dec 31 03:22 | 17°♌01'03 | 0.65020 AU | evening set      | 8321 Dec 10 06:46 | 3°♌54'59  |            |
| inferior conj       | 8321 Jan 02 09:10 | 14°♌32'29 | -1°15'27   | min. Earth dist. | 8321 Dec 14 00:04 | 0°♌45'02  | 0.63295 AU |
| minimum elong       | 8321 Jan 02 11:26 | 14°♌26'14 | 1°14'20    |                  | 8321 Dec 14 18:29 | 30°♋♌     |            |
| asc. node           | 8321 Jan 06 03:11 | 10°♌45'49 |            | inferior conj    | 8321 Dec 16 16:54 | 28°♌03'50 | -2°24'00   |
| morning rise        | 8321 Jan 08 18:18 | 9°♌01'48  |            | minimum elong    | 8321 Dec 16 21:26 | 27°♌52'31 | 2°22'03    |
| direct              | 8321 Jan 11 09:23 | 8°♌25'18  |            | morning rise     | 8321 Dec 23 14:04 | 22°♌48'51 |            |
| morning max el      | 8321 Jan 17 19:42 | 11°♌48'48 | 17°59'40   | asc. node        | 8321 Dec 24 00:15 | 22°♌40'11 |            |
|                     | 8321 Jan 30 13:16 | 0°♍       |            | direct           | 8321 Dec 25 22:46 | 22°♌22'08 |            |
| morning set         | 8321 Feb 04 14:13 | 8°♍19'34  |            | morning max el   | 8322 Jan 01 13:05 | 25°♌46'29 | 17°47'59   |
| desc. node          | 8321 Feb 09 19:50 | 16°♍56'46 |            |                  | 8322 Jan 05 02:51 | 0°♌       |            |
|                     | 8321 Feb 17 21:58 | 0°♍       |            | morning set      | 8322 Jan 17 19:55 | 20°♌44'31 |            |
| superior conj       | 8321 Feb 18 18:30 | 1°♍21'37  | -1°01'37   |                  | 8322 Jan 23 04:38 | 0°♍       |            |
| minimum elong       | 8321 Feb 18 11:24 | 0°♍53'24  | 1°00'37    | desc. node       | 8322 Jan 27 16:47 | 7°♍37'08  |            |
| max. Earth dist.    | 8321 Feb 22 11:57 | 7°♍14'56  | 1.45271 AU | superior conj    | 8322 Jan 30 00:53 | 11°♍30'01 | -0°17'01   |
| evening rise        | 8321 Mar 06 22:10 | 26°♍33'51 |            | minimum elong    | 8322 Jan 29 23:05 | 11°♍22'36 | 0°16'37    |
|                     | 8321 Mar 09 03:45 | 0°♎       |            | max. Earth dist. | 8322 Feb 05 05:47 | 21°♍34'14 | 1.44318 AU |
| greatest brilliancy | 8321 Mar 20 22:10 | 17°♎50'30 | -0.6m      |                  | 8322 Feb 10 13:56 | 0°♍       |            |
|                     | 8321 Mar 29 18:11 | 0°♎       |            | evening rise     | 8322 Feb 14 09:17 | 5°♍53'47  |            |
| evening max el      | 8321 Apr 01 15:14 | 3°♎13'54  | 19°46'39   |                  | 8322 Mar 02 12:41 | 0°♎       |            |
| asc. node           | 8321 Apr 04 02:05 | 5°♎26'21  |            | evening max el   | 8322 Mar 15 15:42 | 16°♎53'03 | 20°50'52   |
| retrograde          | 8321 Apr 09 01:51 | 7°♎30'37  |            | asc. node        | 8322 Mar 21 23:10 | 21°♎26'05 |            |
| evening set         | 8321 Apr 12 18:59 | 6°♎10'05  |            | retrograde       | 8322 Mar 24 00:20 | 21°♎47'29 |            |
| inferior conj       | 8321 Apr 18 03:59 | 0°♎11'53  | 3°17'54    | evening set      | 8322 Mar 28 02:52 | 20°♎11'47 |            |
| minimum elong       | 8321 Apr 18 02:56 | 0°♎15'25  | 3°17'43    | inferior conj    | 8322 Apr 02 10:15 | 14°♎01'15 | 3°00'51    |
|                     | 8321 Apr 18 07:32 | 30°♎♎     |            | minimum elong    | 8322 Apr 02 08:25 | 14°♎07'36 | 3°00'29    |
| min. Earth dist.    | 8321 Apr 19 05:32 | 28°♎46'30 | 0.67229 AU | min. Earth dist. | 8322 Apr 02 22:09 | 13°♎20'11 | 0.68038 AU |
| morning rise        | 8321 Apr 23 10:33 | 23°♎54'10 |            | morning rise     | 8322 Apr 07 13:44 | 7°♎46'14  |            |
| direct              | 8321 Apr 29 09:30 | 21°♎14'47 |            | direct           | 8322 Apr 12 23:35 | 5°♎22'19  |            |
| desc. node          | 8321 May 08 19:34 | 25°♎58'37 |            | morning max el   | 8322 Apr 23 19:30 | 11°♎50'25 | 23°49'51   |
| morning max el      | 8321 May 11 10:32 | 28°♎28'06 | 25°17'48   | desc. node       | 8322 Apr 25 16:33 | 13°♎49'12 |            |
|                     | 8321 May 12 21:40 | 0°♏       |            |                  | 8322 May 08 08:06 | 0°♏       |            |
|                     | 8321 Jun 03 21:32 | 0°♐       |            |                  | 8322 May 27 16:42 | 0°♐       |            |
| morning set         | 8321 Jun 16 12:43 | 21°♐17'11 |            | morning set      | 8322 May 29 05:07 | 2°♐34'35  |            |

|                  |                   |                                 |            |                  |                   |                                 |            |
|------------------|-------------------|---------------------------------|------------|------------------|-------------------|---------------------------------|------------|
| max. Earth dist. | 8322 Jun 02 00:25 | 9° $\Pi$ 11'33                  | 1.38570 AU |                  | 8323 May 01 19:42 | 0° $\mathcal{B}$                |            |
|                  |                   |                                 |            | morning set      | 8323 May 09 19:24 | 12° $\mathcal{B}$ 38'18         |            |
| superior conj    | 8322 Jun 09 09:35 | 22° $\Pi$ 42'00                 | -1°17'00   | max. Earth dist. | 8323 May 14 22:16 | 21° $\mathcal{B}$ 07'02         | 1.40820 AU |
| minimum elong    | 8322 Jun 09 14:20 | 23° $\Pi$ 04'26                 | 1°16'27    |                  | 8323 May 20 02:07 | 0° $\Pi$                        |            |
|                  | 8322 Jun 13 05:04 | 0° $\mathcal{C}$                |            |                  |                   |                                 |            |
| asc. node        | 8322 Jun 17 22:11 | 9° $\mathcal{C}$ 12'30          |            | superior conj    | 8323 May 22 17:17 | 4° $\Pi$ 39'54                  | -1°45'21   |
| evening rise     | 8322 Jun 18 11:27 | 10° $\mathcal{C}$ 17'23         |            | minimum elong    | 8323 May 22 23:07 | 5° $\Pi$ 06'03                  | 1°44'54    |
|                  | 8322 Jun 29 10:01 | 0° $\mathcal{Q}$                |            | evening rise     | 8323 Jun 01 23:28 | 23° $\Pi$ 35'09                 |            |
| evening max el   | 8322 Jul 04 19:12 | 6° $\mathcal{Q}$ 46'40          | 18°52'42   | asc. node        | 8323 Jun 04 19:12 | 28° $\Pi$ 51'10                 |            |
| retrograde       | 8322 Jul 13 06:20 | 10° $\mathcal{Q}$ 58'08         |            |                  | 8323 Jun 05 10:06 | 0° $\mathcal{C}$                |            |
| evening set      | 8322 Jul 15 05:47 | 10° $\mathcal{Q}$ 45'19         |            | evening max el   | 8323 Jun 18 01:33 | 19° $\mathcal{C}$ 18'23         | 18°19'13   |
| desc. node       | 8322 Jul 22 15:48 | 6° $\mathcal{Q}$ 58'49          |            | retrograde       | 8323 Jun 25 08:44 | 22° $\mathcal{C}$ 57'57         |            |
| inferior conj    | 8322 Jul 23 09:36 | 6° $\mathcal{Q}$ 27'15          | -0°13'31   | evening set      | 8323 Jun 27 15:08 | 22° $\mathcal{C}$ 37'36         |            |
| minimum elong    | 8322 Jul 23 09:03 | 6° $\mathcal{Q}$ 28'15          | 0°13'26    | inferior conj    | 8323 Jul 04 23:13 | 17° $\mathcal{C}$ 58'54         | 1°18'56    |
| transit middle   | 8322 Jul 23 09:03 | 6° $\mathcal{Q}$ 28'15          | 0°13'26    | minimum elong    | 8323 Jul 05 01:41 | 17° $\mathcal{C}$ 53'44         | 1°17'56    |
| transit begin    | 8322 Jul 23 07:00 | 6° $\mathcal{Q}$ 31'54          |            | min. Earth dist. | 8323 Jul 08 08:40 | 15° $\mathcal{C}$ 09'41         | 0.58758 AU |
| transit end      | 8322 Jul 23 11:06 | 6° $\mathcal{Q}$ 24'35          |            | desc. node       | 8323 Jul 09 12:52 | 14° $\mathcal{C}$ 15'41         |            |
| min. Earth dist. | 8322 Jul 26 11:53 | 4° $\mathcal{Q}$ 15'30          | 0.56740 AU | morning rise     | 8323 Jul 12 08:59 | 12° $\mathcal{C}$ 25'41         |            |
| morning rise     | 8322 Jul 31 08:59 | 1° $\mathcal{Q}$ 27'55          |            | direct           | 8323 Jul 18 13:30 | 10° $\mathcal{C}$ 43'17         |            |
| direct           | 8322 Aug 05 20:15 | 0° $\mathcal{Q}$ 16'14          |            | morning max el   | 8323 Aug 01 22:43 | 18° $\mathcal{C}$ 28'54         | 27°19'37   |
| morning max el   | 8322 Aug 20 02:51 | 7° $\mathcal{Q}$ 40'13          | 26°10'04   |                  | 8323 Aug 11 14:55 | 0° $\mathcal{Q}$                |            |
|                  | 8322 Sep 05 17:48 | 0° $\mathcal{M}$                |            |                  | 8323 Aug 29 08:17 | 0° $\mathcal{M}$                |            |
| asc. node        | 8322 Sep 13 21:46 | 15° $\mathcal{M}$ 10'16         |            | asc. node        | 8323 Aug 31 18:42 | 4° $\mathcal{M}$ 57'41          |            |
| morning set      | 8322 Sep 17 11:17 | 22° $\mathcal{M}$ 33'43         |            | morning set      | 8323 Sep 01 19:37 | 7° $\mathcal{M}$ 07'53          |            |
|                  | 8322 Sep 20 21:41 | 0° $\mathcal{A}$                |            |                  |                   |                                 |            |
| superior conj    | 8322 Sep 24 08:39 | 7° $\mathcal{A}$ 38'30          | 1°28'34    | superior conj    | 8323 Sep 08 20:26 | 22° $\mathcal{M}$ 27'22         | 1°14'06    |
| minimum elong    | 8322 Sep 24 06:44 | 7° $\mathcal{A}$ 27'52          | 1°28'24    | minimum elong    | 8323 Sep 08 18:11 | 22° $\mathcal{M}$ 14'55         | 1°13'45    |
| max. Earth dist. | 8322 Sep 25 02:14 | 9° $\mathcal{A}$ 15'42          | 1.31915 AU | max. Earth dist. | 8323 Sep 08 12:27 | 21° $\mathcal{M}$ 43'07         | 1.31645 AU |
| evening rise     | 8322 Oct 01 07:21 | 22° $\mathcal{A}$ 42'23         |            |                  | 8323 Sep 12 06:11 | 0° $\mathcal{A}$                |            |
|                  | 8322 Oct 04 21:07 | 0° $\mathcal{M}$                |            | evening rise     | 8323 Sep 15 14:56 | 7° $\mathcal{A}$ 17'48          |            |
| desc. node       | 8322 Oct 18 14:34 | 24° $\mathcal{M}$ 00'45         |            |                  | 8323 Sep 27 09:17 | 0° $\mathcal{M}$                |            |
|                  | 8322 Oct 22 18:31 | 0° $\mathcal{X}$                |            | desc. node       | 8323 Oct 05 11:39 | 12° $\mathcal{M}$ 29'52         |            |
| evening max el   | 8322 Nov 01 19:33 | 11° $\mathcal{X}$ 41'13         | 27°14'27   | evening max el   | 8323 Oct 14 20:12 | 23° $\mathcal{M}$ 26'51         | 26°25'39   |
| retrograde       | 8322 Nov 15 16:16 | 18° $\mathcal{X}$ 53'06         |            |                  | 8323 Oct 25 01:58 | 0° $\mathcal{X}$                |            |
| evening set      | 8322 Nov 22 17:31 | 16° $\mathcal{X}$ 38'33         |            | retrograde       | 8323 Oct 28 18:11 | 0° $\mathcal{X}$ 32'44          |            |
| min. Earth dist. | 8322 Nov 26 10:15 | 13° $\mathcal{X}$ 52'29         | 0.61323 AU |                  | 8323 Nov 01 09:15 | 30° $\mathcal{R}$ $\mathcal{M}$ |            |
| inferior conj    | 8322 Nov 29 11:48 | 11° $\mathcal{X}$ 10'52         | -3°33'57   | evening set      | 8323 Nov 04 09:42 | 28° $\mathcal{M}$ 44'23         |            |
| minimum elong    | 8322 Nov 29 18:25 | 10° $\mathcal{X}$ 56'17         | 3°31'36    | min. Earth dist. | 8323 Nov 08 09:34 | 26° $\mathcal{M}$ 09'49         | 0.59234 AU |
| morning rise     | 8322 Dec 06 21:36 | 6° $\mathcal{X}$ 14'56          |            | inferior conj    | 8323 Nov 11 14:18 | 23° $\mathcal{M}$ 43'04         | -4°38'12   |
| direct           | 8322 Dec 09 02:56 | 5° $\mathcal{X}$ 54'22          |            | minimum elong    | 8323 Nov 11 21:31 | 23° $\mathcal{M}$ 29'11         | 4°36'22    |
| asc. node        | 8322 Dec 10 21:18 | 6° $\mathcal{X}$ 07'49          |            | morning rise     | 8323 Nov 19 11:41 | 19° $\mathcal{M}$ 09'22         |            |
| morning max el   | 8322 Dec 16 04:38 | 9° $\mathcal{X}$ 27'58          | 17°54'35   | direct           | 8323 Nov 21 17:28 | 18° $\mathcal{M}$ 51'46         |            |
|                  | 8322 Dec 29 15:12 | 0° $\mathcal{Z}$                |            | asc. node        | 8323 Nov 27 18:20 | 21° $\mathcal{M}$ 07'34         |            |
| morning set      | 8322 Dec 31 20:59 | 4° $\mathcal{Z}$ 04'32          |            | morning max el   | 8323 Nov 29 14:51 | 22° $\mathcal{M}$ 43'28         | 18°20'53   |
|                  |                   |                                 |            |                  | 8323 Dec 05 08:35 | 0° $\mathcal{X}$                |            |
| superior conj    | 8323 Jan 11 08:56 | 22° $\mathcal{Z}$ 52'19         | 0°23'33    | morning set      | 8323 Dec 15 11:36 | 18° $\mathcal{X}$ 01'46         |            |
| minimum elong    | 8323 Jan 11 10:56 | 23° $\mathcal{Z}$ 00'58         | 0°23'25    |                  | 8323 Dec 21 18:55 | 0° $\mathcal{Z}$                |            |
| desc. node       | 8323 Jan 14 13:43 | 28° $\mathcal{Z}$ 21'34         |            | superior conj    | 8323 Dec 24 16:05 | 5° $\mathcal{Z}$ 20'21          | 0°55'55    |
|                  | 8323 Jan 15 13:02 | 0° $\approx$                    |            | minimum elong    | 8323 Dec 24 19:28 | 5° $\mathcal{Z}$ 35'46          | 0°55'38    |
| max. Earth dist. | 8323 Jan 18 20:05 | 5° $\approx$ 28'44              | 1.42765 AU | max. Earth dist. | 8324 Jan 01 05:37 | 18° $\mathcal{Z}$ 44'32         | 1.40786 AU |
| evening rise     | 8323 Jan 25 04:27 | 15° $\approx$ 41'32             |            | desc. node       | 8324 Jan 01 10:41 | 19° $\mathcal{Z}$ 06'09         |            |
|                  | 8323 Feb 03 12:30 | 0° $\mathcal{H}$                |            | evening rise     | 8324 Jan 05 18:16 | 26° $\mathcal{Z}$ 20'13         |            |
|                  | 8323 Feb 25 21:41 | 0° $\mathcal{Y}$                |            |                  | 8324 Jan 08 00:16 | 0° $\approx$                    |            |
| evening max el   | 8323 Feb 26 11:00 | 0° $\mathcal{Y}$ 34'09          | 22°05'21   |                  | 8324 Jan 28 05:46 | 0° $\mathcal{H}$                |            |
| retrograde       | 8323 Mar 07 21:37 | 6° $\mathcal{Y}$ 09'49          |            | evening max el   | 8324 Feb 09 02:19 | 14° $\mathcal{H}$ 17'08         | 23°25'05   |
| asc. node        | 8323 Mar 08 20:17 | 6° $\mathcal{Y}$ 05'17          |            | retrograde       | 8324 Feb 19 16:17 | 20° $\mathcal{H}$ 32'27         |            |
| evening set      | 8323 Mar 12 10:50 | 4° $\mathcal{Y}$ 18'49          |            | asc. node        | 8324 Feb 23 17:23 | 19° $\mathcal{H}$ 12'13         |            |
|                  | 8323 Mar 16 07:19 | 30° $\mathcal{R}$ $\mathcal{H}$ |            | evening set      | 8324 Feb 24 17:17 | 18° $\mathcal{H}$ 26'39         |            |
| inferior conj    | 8323 Mar 17 18:38 | 27° $\mathcal{H}$ 58'34         | 2°33'54    | min. Earth dist. | 8324 Feb 29 14:37 | 12° $\mathcal{H}$ 43'08         | 0.68352 AU |
| minimum elong    | 8323 Mar 17 16:24 | 28° $\mathcal{H}$ 06'19         | 2°33'20    | inferior conj    | 8324 Mar 01 03:10 | 12° $\mathcal{H}$ 00'00         | 1°58'00    |
| min. Earth dist. | 8323 Mar 17 17:55 | 28° $\mathcal{H}$ 01'02         | 0.68407 AU | minimum elong    | 8324 Mar 01 01:00 | 12° $\mathcal{H}$ 07'28         | 1°57'20    |
| morning rise     | 8323 Mar 22 21:49 | 21° $\mathcal{H}$ 47'42         |            | morning rise     | 8324 Mar 06 08:41 | 5° $\mathcal{H}$ 54'33          |            |
| direct           | 8323 Mar 27 17:40 | 19° $\mathcal{H}$ 44'26         |            | direct           | 8324 Mar 10 14:40 | 4° $\mathcal{H}$ 13'49          |            |
| morning max el   | 8323 Apr 06 06:31 | 25° $\mathcal{H}$ 20'38         | 22°20'39   | morning max el   | 8324 Mar 18 23:07 | 9° $\mathcal{H}$ 01'31          | 20°58'13   |
|                  | 8323 Apr 10 11:26 | 0° $\mathcal{Y}$                |            | desc. node       | 8324 Mar 29 10:24 | 21° $\mathcal{H}$ 56'38         |            |
| desc. node       | 8323 Apr 12 13:29 | 2° $\mathcal{Y}$ 33'40          |            |                  | 8324 Apr 04 02:07 | 0° $\mathcal{Y}$                |            |



|                  |                   |                          |            |                     |                   |                      |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|----------------------|------------|
| morning set      | 8324 Apr 18 07:08 | 21° $\Upsilon$ 30'15     |            | greatest brilliancy | 8325 Mar 14 20:09 | 9° $\text{X}$ 38'20  | -0.6m      |
|                  | 8324 Apr 23 15:48 | 0° $\text{B}$            |            | desc. node          | 8325 Mar 16 07:20 | 11° $\text{X}$ 47'49 |            |
| max. Earth dist. | 8324 Apr 26 02:26 | 3° $\text{B}$ 57'03      | 1.42840 AU | morning set         | 8325 Mar 28 04:39 | 29° $\text{X}$ 48'47 |            |
|                  |                   |                          |            |                     | 8325 Mar 28 07:34 | 0° $\Upsilon$        |            |
| superior conj    | 8324 May 03 03:08 | 15° $\text{B}$ 37'41     | -2°05'38   | max. Earth dist.    | 8325 Apr 08 13:19 | 17° $\Upsilon$ 33'57 | 1.44394 AU |
| minimum elong    | 8324 May 03 07:29 | 15° $\text{B}$ 56'09     | 2°05'32    |                     |                   |                      |            |
|                  | 8324 May 11 09:46 | 0° $\Pi$                 |            | superior conj       | 8325 Apr 13 12:12 | 25° $\Upsilon$ 30'24 | -2°11'40   |
| evening rise     | 8324 May 14 21:04 | 6° $\Pi$ 11'01           |            | minimum elong       | 8325 Apr 13 11:05 | 25° $\Upsilon$ 25'55 | 2°11'44    |
| asc. node        | 8324 May 21 16:15 | 18° $\Pi$ 11'25          |            |                     | 8325 Apr 16 06:27 | 0° $\text{B}$        |            |
|                  | 8324 May 29 11:10 | 0° $\text{C}$            |            | evening rise        | 8325 Apr 26 23:27 | 17° $\text{B}$ 54'01 |            |
| evening max el   | 8324 May 31 13:09 | 2° $\text{C}$ 18'30      | 18°05'40   |                     | 8325 May 04 03:06 | 0° $\Pi$             |            |
| retrograde       | 8324 Jun 07 04:05 | 5° $\text{C}$ 42'00      |            | asc. node           | 8325 May 08 13:20 | 7° $\Pi$ 06'10       |            |
| evening set      | 8324 Jun 09 17:57 | 5° $\text{C}$ 11'07      |            | evening max el      | 8325 May 15 02:32 | 15° $\Pi$ 37'26      | 18°11'11   |
| inferior conj    | 8324 Jun 16 08:59 | 0° $\text{C}$ 12'23      | 2°23'14    | retrograde          | 8325 May 21 11:46 | 18° $\Pi$ 59'26      |            |
| minimum elong    | 8324 Jun 16 12:00 | 0° $\text{C}$ 05'04      | 2°22'17    | evening set         | 8325 May 24 08:55 | 18° $\Pi$ 15'58      |            |
|                  | 8324 Jun 16 14:05 | 30° $\text{R}$ $\Pi$     |            | inferior conj       | 8325 May 30 10:54 | 12° $\Pi$ 58'43      | 3°02'03    |
| min. Earth dist. | 8324 Jun 19 13:21 | 27° $\Pi$ 08'33          | 0.60998 AU | minimum elong       | 8325 May 30 13:03 | 12° $\Pi$ 52'48      | 3°01'32    |
| morning rise     | 8324 Jun 23 03:37 | 24° $\Pi$ 15'03          |            | min. Earth dist.    | 8325 Jun 02 03:09 | 10° $\Pi$ 03'33      | 0.63172 AU |
| desc. node       | 8324 Jun 25 09:54 | 22° $\Pi$ 59'51          |            | morning rise        | 8325 Jun 05 15:42 | 6° $\Pi$ 47'49       |            |
| direct           | 8324 Jun 29 18:49 | 22° $\Pi$ 02'22          |            | direct              | 8325 Jun 12 10:04 | 4° $\Pi$ 12'27       |            |
| morning max el   | 8324 Jul 14 01:35 | 0° $\text{C}$ 01'32      | 27°53'08   | desc. node          | 8325 Jun 12 06:57 | 4° $\Pi$ 12'30       |            |
|                  | 8324 Jul 14 00:58 | 0° $\text{C}$            |            | morning max el      | 8325 Jun 26 09:24 | 12° $\Pi$ 15'32      | 27°48'25   |
|                  | 8324 Aug 04 16:12 | 0° $\Omega$              |            |                     | 8325 Jul 10 11:49 | 0° $\text{C}$        |            |
| morning set      | 8324 Aug 15 23:36 | 21° $\Omega$ 27'10       |            |                     | 8325 Jul 28 03:10 | 0° $\Omega$          |            |
| asc. node        | 8324 Aug 17 15:39 | 24° $\Omega$ 56'13       |            | morning set         | 8325 Jul 30 20:57 | 5° $\Omega$ 24'11    |            |
|                  | 8324 Aug 20 00:32 | 0° $\text{M}$            |            | asc. node           | 8325 Aug 04 12:37 | 15° $\Omega$ 00'32   |            |
| max. Earth dist. | 8324 Aug 21 21:31 | 4° $\text{M}$ 04'48      | 1.31834 AU | max. Earth dist.    | 8325 Aug 05 01:18 | 16° $\Omega$ 07'54   | 1.32497 AU |
|                  |                   |                          |            |                     |                   |                      |            |
| superior conj    | 8324 Aug 23 07:11 | 7° $\text{M}$ 09'50      | 0°54'48    | superior conj       | 8325 Aug 07 15:01 | 21° $\Omega$ 39'22   | 0°31'04    |
| minimum elong    | 8324 Aug 23 05:06 | 6° $\text{M}$ 58'19      | 0°54'21    | minimum elong       | 8325 Aug 07 13:37 | 21° $\Omega$ 31'44   | 0°30'40    |
| evening rise     | 8324 Aug 30 01:33 | 21° $\text{M}$ 59'28     |            |                     | 8325 Aug 11 11:01 | 0° $\text{M}$        |            |
|                  | 8324 Sep 02 21:35 | 0° $\text{A}$            |            | evening rise        | 8325 Aug 14 13:11 | 6° $\text{M}$ 40'38  |            |
| desc. node       | 8324 Sep 21 08:45 | 29° $\text{A}$ 54'37     |            |                     | 8325 Aug 26 17:59 | 0° $\text{A}$        |            |
|                  | 8324 Sep 21 10:34 | 0° $\text{M}$            |            | evening max el      | 8325 Sep 07 00:06 | 14° $\text{A}$ 40'25 | 23°30'20   |
| evening max el   | 8324 Sep 25 12:41 | 4° $\text{M}$ 21'38      | 25°06'57   | desc. node          | 8325 Sep 08 05:52 | 15° $\text{A}$ 49'32 |            |
| retrograde       | 8324 Oct 09 09:43 | 11° $\text{M}$ 21'45     |            | retrograde          | 8325 Sep 20 13:03 | 21° $\text{A}$ 26'47 |            |
| evening set      | 8324 Oct 15 02:40 | 10° $\text{M}$ 07'41     |            | evening set         | 8325 Sep 24 19:37 | 20° $\text{A}$ 46'51 |            |
| min. Earth dist. | 8324 Oct 20 00:13 | 7° $\text{M}$ 26'24      | 0.57242 AU | min. Earth dist.    | 8325 Oct 01 10:02 | 17° $\text{A}$ 40'14 | 0.55653 AU |
| inferior conj    | 8324 Oct 22 21:17 | 5° $\text{M}$ 31'30      | -5°24'00   | inferior conj       | 8325 Oct 03 08:11 | 16° $\text{A}$ 31'53 | -5°32'49   |
| minimum elong    | 8324 Oct 23 01:44 | 5° $\text{M}$ 24'04      | 5°23'25    | minimum elong       | 8325 Oct 03 05:47 | 16° $\text{A}$ 35'27 | 5°32'40    |
| morning rise     | 8324 Oct 31 03:07 | 1° $\text{M}$ 20'46      |            | morning rise        | 8325 Oct 11 18:04 | 12° $\text{A}$ 38'49 |            |
| direct           | 8324 Nov 02 14:02 | 1° $\text{M}$ 03'17      |            | direct              | 8325 Oct 14 15:11 | 12° $\text{A}$ 18'30 |            |
| morning max el   | 8324 Nov 11 16:08 | 5° $\text{M}$ 22'58      | 19°08'35   | morning max el      | 8325 Oct 25 05:17 | 17° $\text{A}$ 16'31 | 20°18'42   |
| asc. node        | 8324 Nov 13 15:19 | 7° $\text{M}$ 27'09      |            | asc. node           | 8325 Oct 31 12:18 | 24° $\text{A}$ 50'37 |            |
|                  | 8324 Nov 27 06:24 | 0° $\text{X}$            |            |                     | 8325 Nov 03 18:59 | 0° $\text{M}$        |            |
| morning set      | 8324 Nov 28 11:32 | 2° $\text{X}$ 23'54      |            | morning set         | 8325 Nov 12 17:34 | 17° $\text{M}$ 01'32 |            |
|                  |                   |                          |            |                     | 8325 Nov 19 00:57 | 0° $\text{X}$        |            |
|                  |                   |                          |            |                     |                   |                      |            |
| superior conj    | 8324 Dec 06 17:19 | 18° $\text{X}$ 39'48     | 1°19'09    | superior conj       | 8325 Nov 20 07:44 | 2° $\text{X}$ 36'14  | 1°33'43    |
| minimum elong    | 8324 Dec 06 20:23 | 18° $\text{X}$ 54'37     | 1°18'58    | minimum elong       | 8325 Nov 20 09:42 | 2° $\text{X}$ 46'11  | 1°33'43    |
|                  | 8324 Dec 12 18:27 | 0° $\text{B}$            |            | max. Earth dist.    | 8325 Nov 25 17:56 | 13° $\text{X}$ 17'10 | 1.36520 AU |
| max. Earth dist. | 8324 Dec 13 11:22 | 1° $\text{B}$ 16'34      | 1.38620 AU | evening rise        | 8325 Nov 29 14:11 | 20° $\text{X}$ 28'15 |            |
| evening rise     | 8324 Dec 17 06:08 | 7° $\text{B}$ 57'31      |            |                     | 8325 Dec 04 23:45 | 0° $\text{B}$        |            |
| desc. node       | 8324 Dec 18 07:41 | 9° $\text{B}$ 47'29      |            | desc. node          | 8325 Dec 05 04:44 | 0° $\text{B}$ 21'16  |            |
|                  | 8324 Dec 30 22:19 | 0° $\approx$             |            |                     | 8325 Dec 24 22:13 | 0° $\approx$         |            |
| evening max el   | 8325 Jan 21 15:37 | 28° $\approx$ 03'01      | 24°43'53   | evening max el      | 8326 Jan 04 04:44 | 11° $\approx$ 50'21  | 25°54'47   |
|                  | 8325 Jan 23 17:35 | 0° $\text{X}$            |            | retrograde          | 8326 Jan 16 17:26 | 18° $\approx$ 59'19  |            |
| retrograde       | 8325 Feb 02 07:13 | 4° $\text{X}$ 50'49      |            | evening set         | 8326 Jan 22 19:27 | 16° $\approx$ 29'54  |            |
| evening set      | 8325 Feb 07 20:42 | 2° $\text{X}$ 31'46      |            | min. Earth dist.    | 8326 Jan 27 02:06 | 11° $\approx$ 55'14  | 0.67060 AU |
| asc. node        | 8325 Feb 09 14:29 | 0° $\text{X}$ 49'57      |            | asc. node           | 8326 Jan 27 11:34 | 11° $\approx$ 25'44  |            |
|                  | 8325 Feb 10 08:06 | 30° $\text{R}$ $\approx$ |            | inferior conj       | 8326 Jan 28 13:28 | 10° $\approx$ 04'13  | 0°21'29    |
| min. Earth dist. | 8325 Feb 12 10:06 | 27° $\approx$ 22'34      | 0.67897 AU | minimum elong       | 8326 Jan 28 12:55 | 10° $\approx$ 05'58  | 0°21'24    |
| inferior conj    | 8325 Feb 13 10:05 | 26° $\approx$ 03'00      | 1°13'42    | morning rise        | 8326 Feb 03 06:56 | 4° $\approx$ 14'18   |            |
| minimum elong    | 8325 Feb 13 08:27 | 26° $\approx$ 08'25      | 1°13'12    | direct              | 8326 Feb 06 12:31 | 3° $\approx$ 14'31   |            |
| morning rise     | 8325 Feb 18 20:24 | 20° $\approx$ 04'22      |            | morning max el      | 8326 Feb 13 07:21 | 6° $\approx$ 56'55   | 18°52'53   |
| direct           | 8325 Feb 22 13:27 | 18° $\approx$ 45'23      |            |                     | 8326 Mar 01 21:23 | 0° $\text{X}$        |            |
| morning max el   | 8325 Mar 01 23:26 | 22° $\approx$ 54'25      | 19°47'57   | desc. node          | 8326 Mar 03 04:17 | 1° $\text{X}$ 59'50  |            |
|                  | 8325 Mar 07 23:37 | 0° $\text{X}$            |            |                     |                   |                      |            |

|                  |                   |                      |            |                     |                   |                      |            |
|------------------|-------------------|----------------------|------------|---------------------|-------------------|----------------------|------------|
| morning set      | 8326 Mar 07 12:18 | 8° $\text{H}$ 44'48  |            | morning rise        | 8327 Jan 18 14:01 | 18° $\text{Z}$ 19'45 |            |
|                  | 8326 Mar 21 02:52 | 0° $\text{Y}$        |            | direct              | 8327 Jan 21 09:54 | 17° $\text{Z}$ 35'43 |            |
| max. Earth dist. | 8326 Mar 22 05:46 | 1° $\text{Y}$ 45'29  | 1.45314 AU | morning max el      | 8327 Jan 27 21:06 | 21° $\text{Z}$ 02'59 | 18°14'15   |
|                  |                   |                      |            |                     | 8327 Feb 03 21:28 | 0° $\approx$         |            |
| superior conj    | 8326 Mar 24 00:14 | 4° $\text{Y}$ 32'12  | -1°58'18   | morning set         | 8327 Feb 15 23:06 | 19° $\approx$ 04'24  |            |
| minimum elong    | 8326 Mar 23 16:23 | 4° $\text{Y}$ 01'20  | 1°57'47    | desc. node          | 8327 Feb 18 01:13 | 22° $\approx$ 26'19  |            |
| evening rise     | 8326 Apr 08 02:53 | 28° $\text{Y}$ 38'39 |            |                     | 8327 Feb 22 18:28 | 0° $\text{H}$        |            |
|                  | 8326 Apr 08 22:58 | 0° $\text{Z}$        |            |                     |                   |                      |            |
| asc. node        | 8326 Apr 25 10:25 | 25° $\text{Z}$ 27'26 |            | superior conj       | 8327 Mar 03 05:15 | 13° $\text{H}$ 21'47 | -1°25'54   |
| evening max el   | 8326 Apr 28 14:49 | 29° $\text{Z}$ 08'11 | 18°34'57   | minimum elong       | 8327 Mar 02 19:59 | 12° $\text{H}$ 45'26 | 1°24'49    |
|                  | 8326 Apr 29 12:36 | 0° $\text{II}$       |            | max. Earth dist.    | 8327 Mar 05 01:26 | 16° $\text{H}$ 15'03 | 1.45505 AU |
| retrograde       | 8326 May 05 03:31 | 2° $\text{II}$ 42'00 |            |                     | 8327 Mar 13 20:44 | 0° $\text{Y}$        |            |
| evening set      | 8326 May 08 08:03 | 1° $\text{II}$ 44'35 |            | evening rise        | 8327 Mar 19 07:33 | 8° $\text{Y}$ 30'03  |            |
|                  | 8326 May 10 13:55 | 30° $\text{R}$ 8     |            | greatest brilliancy | 8327 Mar 30 20:22 | 26° $\text{Y}$ 22'51 | -0.7m      |
| inferior conj    | 8326 May 14 00:52 | 26° $\text{Z}$ 10'14 | 3°20'20    |                     | 8327 Apr 02 06:08 | 0° $\text{Z}$        |            |
| minimum elong    | 8326 May 14 01:42 | 26° $\text{Z}$ 07'42 | 3°20'09    | evening max el      | 8327 Apr 11 23:34 | 12° $\text{Z}$ 44'22 | 19°15'54   |
| min. Earth dist. | 8326 May 16 02:06 | 23° $\text{Z}$ 42'04 | 0.65072 AU | asc. node           | 8327 Apr 12 07:32 | 13° $\text{Z}$ 04'14 |            |
| morning rise     | 8326 May 19 18:34 | 19° $\text{Z}$ 53'27 |            | retrograde          | 8327 Apr 18 23:57 | 16° $\text{Z}$ 42'07 |            |
| direct           | 8326 May 26 09:12 | 17° $\text{Z}$ 07'20 |            | evening set         | 8327 Apr 22 12:19 | 15° $\text{Z}$ 30'00 |            |
| desc. node       | 8326 May 30 03:58 | 17° $\text{Z}$ 53'47 |            | inferior conj       | 8327 Apr 27 23:20 | 9° $\text{Z}$ 39'56  | 3°22'34    |
| morning max el   | 8326 Jun 08 19:30 | 25° $\text{Z}$ 01'58 | 27°09'25   | minimum elong       | 8327 Apr 27 22:54 | 9° $\text{Z}$ 41'21  | 3°22'27    |
|                  | 8326 Jun 13 07:45 | 0° $\text{II}$       |            | min. Earth dist.    | 8327 Apr 29 09:13 | 7° $\text{Z}$ 50'12  | 0.66575 AU |
|                  | 8326 Jul 03 23:09 | 0° $\text{Z}$        |            | morning rise        | 8327 May 03 09:06 | 3° $\text{Z}$ 21'54  |            |
| morning set      | 8326 Jul 14 08:57 | 18° $\text{Z}$ 51'21 |            | direct              | 8327 May 09 14:47 | 0° $\text{Z}$ 37'15  |            |
| max. Earth dist. | 8326 Jul 18 20:19 | 27° $\text{Z}$ 44'54 | 1.33650 AU | desc. node          | 8327 May 17 00:58 | 3° $\text{Z}$ 34'59  |            |
|                  | 8326 Jul 19 22:41 | 0° $\text{Z}$        |            | morning max el      | 8327 May 22 05:42 | 8° $\text{Z}$ 09'16  | 26°03'50   |
| asc. node        | 8326 Jul 22 09:37 | 5° $\text{Z}$ 06'47  |            |                     | 8327 Jun 08 06:59 | 0° $\text{II}$       |            |
|                  |                   |                      |            |                     | 8327 Jun 26 10:32 | 0° $\text{Z}$        |            |
| superior conj    | 8326 Jul 22 17:52 | 5° $\text{Z}$ 50'17  | 0°03'30    | morning set         | 8327 Jun 27 07:54 | 1° $\text{Z}$ 38'24  |            |
| minimum elong    | 8326 Jul 22 17:42 | 5° $\text{Z}$ 49'21  | 0°03'18    | max. Earth dist.    | 8327 Jul 01 04:37 | 8° $\text{Z}$ 57'07  | 1.35275 AU |
| behind sun begin | 8326 Jul 22 12:12 | 5° $\text{Z}$ 20'26  |            |                     |                   |                      |            |
| behind sun end   | 8326 Jul 22 23:11 | 6° $\text{Z}$ 18'20  |            | superior conj       | 8327 Jul 06 13:12 | 19° $\text{Z}$ 35'18 | -0°27'03   |
| evening rise     | 8326 Jul 30 00:01 | 21° $\text{Z}$ 16'02 |            | minimum elong       | 8327 Jul 06 14:47 | 19° $\text{Z}$ 43'19 | 0°26'54    |
|                  | 8326 Aug 03 06:06 | 0° $\text{H}$        |            | asc. node           | 8327 Jul 09 06:38 | 25° $\text{Z}$ 10'47 |            |
| evening max el   | 8326 Aug 19 14:36 | 24° $\text{H}$ 56'26 | 21°52'27   |                     | 8327 Jul 11 14:26 | 0° $\text{Z}$        |            |
| desc. node       | 8326 Aug 26 02:59 | 29° $\text{H}$ 43'55 |            | evening rise        | 8327 Jul 14 07:58 | 5° $\text{Z}$ 39'25  |            |
|                  | 8326 Aug 26 16:59 | 0° $\text{Z}$        |            |                     | 8327 Jul 27 21:01 | 0° $\text{H}$        |            |
| retrograde       | 8326 Sep 01 04:39 | 1° $\text{Z}$ 11'20  |            | evening max el      | 8327 Aug 01 15:50 | 5° $\text{H}$ 41'33  | 20°27'07   |
| evening set      | 8326 Sep 04 00:46 | 0° $\text{Z}$ 53'19  |            | retrograde          | 8327 Aug 12 16:54 | 11° $\text{H}$ 09'11 |            |
|                  | 8326 Sep 06 23:25 | 30° $\text{R}$ 8     |            | desc. node          | 8327 Aug 13 00:03 | 11° $\text{H}$ 08'58 |            |
| inferior conj    | 8326 Sep 13 04:08 | 26° $\text{H}$ 53'25 | -4°48'20   | evening set         | 8327 Aug 14 17:12 | 10° $\text{H}$ 59'05 |            |
| minimum elong    | 8326 Sep 12 19:23 | 27° $\text{H}$ 05'40 | 4°46'30    | inferior conj       | 8327 Aug 23 21:22 | 7° $\text{H}$ 01'46  | -3°13'50   |
| min. Earth dist. | 8326 Sep 12 18:28 | 27° $\text{H}$ 06'57 | 0.54783 AU | minimum elong       | 8327 Aug 23 12:50 | 7° $\text{H}$ 14'08  | 3°11'02    |
| morning rise     | 8326 Sep 21 15:18 | 23° $\text{H}$ 04'32 |            | min. Earth dist.    | 8327 Aug 25 04:03 | 6° $\text{H}$ 17'16  | 0.54831 AU |
| direct           | 8326 Sep 25 02:31 | 22° $\text{H}$ 38'05 |            | morning rise        | 8327 Sep 01 07:53 | 2° $\text{H}$ 57'05  |            |
| morning max el   | 8326 Oct 07 05:27 | 28° $\text{H}$ 21'05 | 21°49'32   | direct              | 8327 Sep 05 11:46 | 2° $\text{H}$ 19'54  |            |
|                  | 8326 Oct 08 21:19 | 0° $\text{Z}$        |            | morning max el      | 8327 Sep 18 20:18 | 8° $\text{H}$ 47'52  | 23°33'50   |
| asc. node        | 8326 Oct 18 09:16 | 13° $\text{Z}$ 03'55 |            |                     | 8327 Oct 04 04:57 | 0° $\text{Z}$        |            |
|                  | 8326 Oct 27 06:34 | 0° $\text{H}$        |            | asc. node           | 8327 Oct 05 06:15 | 1° $\text{Z}$ 55'15  |            |
| morning set      | 8326 Oct 28 03:18 | 1° $\text{H}$ 48'04  |            | morning set         | 8327 Oct 12 14:51 | 16° $\text{Z}$ 38'22 |            |
|                  |                   |                      |            |                     | 8327 Oct 18 19:19 | 0° $\text{H}$        |            |
| superior conj    | 8326 Nov 04 07:27 | 16° $\text{H}$ 58'29 | 1°40'34    | superior conj       | 8327 Oct 19 13:26 | 1° $\text{H}$ 37'57  | 1°40'35    |
| minimum elong    | 8326 Nov 04 08:05 | 17° $\text{H}$ 01'50 | 1°40'40    | minimum elong       | 8327 Oct 19 12:51 | 1° $\text{H}$ 34'47  | 1°40'40    |
| max. Earth dist. | 8326 Nov 08 06:45 | 25° $\text{H}$ 10'11 | 1.34696 AU | max. Earth dist.    | 8327 Oct 22 03:59 | 7° $\text{H}$ 12'45  | 1.33263 AU |
|                  | 8326 Nov 10 16:51 | 0° $\text{Z}$        |            | evening rise        | 8327 Oct 27 03:55 | 17° $\text{H}$ 31'17 |            |
| evening rise     | 8326 Nov 12 14:44 | 3° $\text{Z}$ 42'44  |            |                     | 8327 Nov 02 17:01 | 0° $\text{Z}$        |            |
| desc. node       | 8326 Nov 22 01:47 | 20° $\text{Z}$ 42'29 |            | desc. node          | 8327 Nov 08 22:50 | 10° $\text{Z}$ 45'15 |            |
|                  | 8326 Nov 27 20:24 | 0° $\text{Z}$        |            |                     | 8327 Nov 22 05:33 | 0° $\text{Z}$        |            |
| evening max el   | 8326 Dec 17 18:08 | 25° $\text{Z}$ 32'03 | 26°50'15   | evening max el      | 8327 Nov 30 06:47 | 8° $\text{Z}$ 57'25  | 27°23'03   |
|                  | 8326 Dec 23 03:53 | 0° $\approx$         |            | retrograde          | 8327 Dec 13 20:10 | 16° $\text{Z}$ 17'03 |            |
| retrograde       | 8326 Dec 30 21:58 | 2° $\approx$ 50'34   |            | evening set         | 8327 Dec 20 18:46 | 13° $\text{Z}$ 42'12 |            |
| evening set      | 8327 Jan 06 11:35 | 0° $\approx$ 15'12   |            | min. Earth dist.    | 8327 Dec 24 14:14 | 10° $\text{Z}$ 15'16 | 0.64323 AU |
|                  | 8327 Jan 06 19:02 | 30° $\text{R}$ 8     |            | inferior conj       | 8327 Dec 27 00:50 | 7° $\text{Z}$ 40'17  | -1°44'02   |
| min. Earth dist. | 8327 Jan 10 12:14 | 26° $\text{Z}$ 15'04 | 0.65861 AU | minimum elong       | 8327 Dec 27 04:02 | 7° $\text{Z}$ 31'46  | 1°42'33    |
| inferior conj    | 8327 Jan 12 11:11 | 23° $\text{Z}$ 58'26 | -0°38'09   | asc. node           | 8328 Jan 01 05:41 | 2° $\text{Z}$ 59'33  |            |
| minimum elong    | 8327 Jan 12 12:16 | 23° $\text{Z}$ 55'17 | 0°37'32    | morning rise        | 8328 Jan 02 14:55 | 2° $\text{Z}$ 15'50  |            |
| asc. node        | 8327 Jan 14 08:39 | 21° $\text{Z}$ 49'52 |            |                     |                   |                      |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| direct              | 8328 Jan 05 03:06 | 1°♄43'49  |            | direct           | 8328 Dec 18 12:56 | 15°♄31'11 |            |
| morning max el      | 8328 Jan 11 14:03 | 5°♄06'15  | 17°52'36   | morning max el   | 8328 Dec 25 07:05 | 18°♄58'08 | 17°48'34   |
|                     | 8328 Jan 28 03:07 | 0°♄       |            |                  | 8329 Jan 02 08:28 | 0°♄       |            |
| morning set         | 8328 Jan 28 14:42 | 0°♄48'53  |            | morning set      | 8329 Jan 10 05:20 | 13°♄38'59 |            |
| desc. node          | 8328 Feb 04 22:11 | 13°♄02'57 |            |                  | 8329 Jan 19 13:55 | 0°♄       |            |
| superior conj       | 8328 Feb 10 22:32 | 22°♄51'30 | -0°42'39   | superior conj    | 8329 Jan 21 15:47 | 3°♄31'18  | 0°01'02    |
| minimum elong       | 8328 Feb 10 17:40 | 22°♄31'54 | 0°41'52    | minimum elong    | 8329 Jan 21 15:53 | 3°♄31'45  | 0°01'10    |
|                     | 8328 Feb 15 09:53 | 0°♄       |            | behind sun begin | 8329 Jan 21 06:58 | 2°♄54'08  |            |
| max. Earth dist.    | 8328 Feb 15 21:03 | 0°♄44'11  | 1.44951 AU | behind sun end   | 8329 Jan 22 00:49 | 4°♄09'18  |            |
| evening rise        | 8328 Feb 26 21:08 | 17°♄51'27 |            | desc. node       | 8329 Jan 21 19:08 | 3°♄45'24  |            |
|                     | 8328 Mar 05 20:38 | 0°♄       |            | max. Earth dist. | 8329 Jan 28 13:31 | 14°♄54'13 | 1.43717 AU |
| greatest brilliancy | 8328 Mar 12 15:28 | 10°♄05'03 | -0.6m      | evening rise     | 8329 Feb 05 09:47 | 27°♄18'15 |            |
| evening max el      | 8328 Mar 25 03:11 | 26°♄22'33 | 20°12'21   |                  | 8329 Feb 07 03:41 | 0°♄       |            |
| asc. node           | 8328 Mar 29 04:37 | 29°♄43'42 |            |                  | 8329 Feb 27 17:32 | 0°♄       |            |
|                     | 8328 Mar 29 16:10 | 0°♄       |            | evening max el   | 8329 Mar 08 01:13 | 10°♄01'46 | 21°21'32   |
| retrograde          | 8328 Apr 01 22:22 | 0°♄54'25  |            | asc. node        | 8329 Mar 16 01:41 | 15°♄10'56 |            |
|                     | 8328 Apr 05 00:02 | 30°♄      |            | retrograde       | 8329 Mar 16 20:42 | 15°♄14'09 |            |
| evening set         | 8328 Apr 05 19:27 | 29°♄27'14 |            | evening set      | 8329 Mar 21 03:34 | 13°♄31'52 |            |
| inferior conj       | 8328 Apr 11 03:27 | 23°♄23'19 | 3°11'57    | inferior conj    | 8329 Mar 26 10:53 | 7°♄16'34  | 2°50'36    |
| minimum elong       | 8328 Apr 11 02:01 | 23°♄28'11 | 3°11'42    | minimum elong    | 8329 Mar 26 08:49 | 7°♄23'42  | 2°50'08    |
| min. Earth dist.    | 8328 Apr 11 22:58 | 22°♄17'03 | 0.67633 AU | min. Earth dist. | 8329 Mar 26 17:15 | 6°♄54'25  | 0.68240 AU |
| morning rise        | 8328 Apr 16 08:23 | 17°♄06'39 |            | morning rise     | 8329 Mar 31 13:53 | 1°♄03'01  |            |
| direct              | 8328 Apr 22 01:52 | 14°♄33'20 |            |                  | 8329 Apr 01 22:36 | 30°♄      |            |
| desc. node          | 8328 May 02 21:57 | 20°♄45'46 |            | direct           | 8329 Apr 05 17:42 | 28°♄47'40 |            |
| morning max el      | 8328 May 03 15:03 | 21°♄28'19 | 24°41'10   |                  | 8329 Apr 09 21:48 | 0°♄       |            |
|                     | 8328 May 11 00:29 | 0°♄       |            | morning max el   | 8329 Apr 16 00:40 | 4°♄54'33  | 23°11'37   |
|                     | 8328 May 31 13:00 | 0°♄       |            | desc. node       | 8329 Apr 19 18:54 | 9°♄01'32  |            |
| morning set         | 8328 Jun 08 13:06 | 13°♄33'01 |            |                  | 8329 May 05 07:30 | 0°♄       |            |
| max. Earth dist.    | 8328 Jun 12 03:59 | 20°♄02'36 | 1.37296 AU | morning set      | 8329 May 20 19:04 | 24°♄21'22 |            |
|                     | 8328 Jun 17 11:29 | 0°♄       |            |                  | 8329 May 24 02:58 | 0°♄       |            |
| superior conj       | 8328 Jun 18 21:53 | 2°♄46'15  | -0°58'57   | max. Earth dist. | 8329 May 25 00:03 | 1°♄30'56  | 1.39529 AU |
| minimum elong       | 8328 Jun 19 01:31 | 3°♄03'55  | 0°58'29    | superior conj    | 8329 Jun 01 16:02 | 15°♄14'10 | -1°29'40   |
| asc. node           | 8328 Jun 25 03:38 | 15°♄08'22 |            | minimum elong    | 8329 Jun 01 21:26 | 15°♄39'09 | 1°29'06    |
| evening rise        | 8328 Jun 27 10:38 | 19°♄43'50 |            |                  | 8329 Jun 09 11:10 | 0°♄       |            |
|                     | 8328 Jul 02 17:10 | 0°♄       |            | evening rise     | 8329 Jun 11 05:06 | 3°♄21'44  |            |
| evening max el      | 8328 Jul 14 06:16 | 17°♄10'18 | 19°21'05   | asc. node        | 8329 Jun 12 00:39 | 4°♄55'40  |            |
| retrograde          | 8328 Jul 23 14:39 | 21°♄47'33 |            | evening max el   | 8329 Jun 27 07:57 | 29°♄22'15 | 18°35'58   |
| evening set         | 8328 Jul 25 11:25 | 21°♄37'17 |            |                  | 8329 Jun 27 23:55 | 0°♄       |            |
| desc. node          | 8328 Jul 29 21:09 | 20°♄01'38 |            | retrograde       | 8329 Jul 05 06:01 | 3°♄18'27  |            |
| inferior conj       | 8328 Aug 03 02:12 | 17°♄29'09 | -1°17'27   | evening set      | 8329 Jul 07 08:02 | 3°♄03'01  |            |
| minimum elong       | 8328 Aug 02 22:44 | 17°♄34'49 | 1°16'14    |                  | 8329 Jul 13 06:32 | 30°♄      |            |
| min. Earth dist.    | 8328 Aug 05 16:52 | 15°♄46'55 | 0.55812 AU | inferior conj    | 8329 Jul 15 03:22 | 28°♄36'32 | 0°28'59    |
| morning rise        | 8328 Aug 11 07:20 | 12°♄51'09 |            | minimum elong    | 8329 Jul 15 04:26 | 28°♄34'30 | 0°28'25    |
| direct              | 8328 Aug 16 06:38 | 11°♄54'59 |            | desc. node       | 8329 Jul 16 18:14 | 27°♄21'48 |            |
| morning max el      | 8328 Aug 30 08:51 | 19°♄01'51 | 25°17'32   | min. Earth dist. | 8329 Jul 18 10:34 | 26°♄06'06 | 0.57544 AU |
|                     | 8328 Sep 08 14:24 | 0°♄       |            | morning rise     | 8329 Jul 22 21:18 | 23°♄21'28 |            |
| asc. node           | 8328 Sep 21 03:12 | 21°♄14'11 |            | direct           | 8329 Jul 28 16:25 | 21°♄57'02 |            |
|                     | 8328 Sep 25 10:09 | 0°♄       |            | morning max el   | 8329 Aug 12 01:14 | 29°♄32'17 | 26°43'32   |
| morning set         | 8328 Sep 26 02:26 | 1°♄26'20  |            |                  | 8329 Aug 12 12:31 | 0°♄       |            |
| superior conj       | 8328 Oct 02 23:15 | 16°♄26'12 | 1°34'34    |                  | 8329 Sep 02 09:54 | 0°♄       |            |
| minimum elong       | 8328 Oct 02 21:42 | 16°♄17'44 | 1°34'30    | asc. node        | 8329 Sep 08 00:10 | 10°♄53'17 |            |
| max. Earth dist.    | 8328 Oct 04 08:28 | 19°♄28'25 | 1.32273 AU | morning set      | 8329 Sep 10 12:27 | 16°♄07'17 |            |
|                     | 8328 Oct 09 06:19 | 0°♄       |            |                  | 8329 Sep 16 20:59 | 0°♄       |            |
| evening rise        | 8328 Oct 10 02:19 | 1°♄43'55  |            | superior conj    | 8329 Sep 17 10:52 | 1°♄17'01  | 1°23'03    |
| desc. node          | 8328 Oct 25 19:54 | 0°♄20'51  |            | minimum elong    | 8329 Sep 17 08:45 | 1°♄05'18  | 1°22'48    |
|                     | 8328 Oct 25 14:35 | 0°♄       |            | max. Earth dist. | 8329 Sep 17 17:28 | 1°♄53'37  | 1.31742 AU |
| evening max el      | 8328 Nov 11 16:38 | 21°♄52'45 | 27°26'57   | evening rise     | 8329 Sep 24 07:15 | 16°♄13'18 |            |
| retrograde          | 8328 Nov 25 11:32 | 29°♄08'44 |            |                  | 8329 Oct 01 04:16 | 0°♄       |            |
| evening set         | 8328 Dec 02 14:01 | 26°♄43'22 |            | desc. node       | 8329 Oct 12 16:58 | 19°♄18'27 |            |
| min. Earth dist.    | 8328 Dec 06 06:18 | 23°♄45'06 | 0.62483 AU |                  | 8329 Oct 20 22:24 | 0°♄       |            |
| inferior conj       | 8328 Dec 09 03:27 | 21°♄01'48 | -2°53'48   | evening max el   | 8329 Oct 24 21:19 | 4°♄06'31  | 26°57'40   |
| minimum elong       | 8328 Dec 09 08:57 | 20°♄48'46 | 2°51'37    | retrograde       | 8329 Nov 07 19:06 | 11°♄16'36 |            |
| morning rise        | 8328 Dec 16 06:02 | 15°♄54'51 |            | evening set      | 8329 Nov 14 17:28 | 9°♄11'46  |            |
| asc. node           | 8328 Dec 18 02:43 | 15°♄32'01 |            | min. Earth dist. | 8329 Nov 18 11:50 | 6°♄32'26  | 0.60436 AU |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| inferior conj    | 8329 Nov 21 15:46 | 3° $\text{♊}$ 54'50  | -4°02'34   | minimum elong    | 8330 Nov 03 16:53 | 15° $\text{♍}$ 58'02 | 4°59'35    |
| minimum elong    | 8329 Nov 21 22:55 | 3° $\text{♊}$ 39'55  | 4°00'18    | morning rise     | 8330 Nov 11 11:46 | 11° $\text{♍}$ 45'50 |            |
|                  | 8329 Nov 27 03:14 | 30° $\text{♍}$       |            | direct           | 8330 Nov 13 19:01 | 11° $\text{♍}$ 28'40 |            |
| morning rise     | 8329 Nov 29 06:47 | 29° $\text{♍}$ 08'16 |            | asc. node        | 8330 Nov 21 20:45 | 15° $\text{♍}$ 15'02 |            |
| direct           | 8329 Dec 01 11:36 | 28° $\text{♍}$ 49'29 |            | morning max el   | 8330 Nov 22 03:42 | 15° $\text{♍}$ 31'30 | 18°38'24   |
| asc. node        | 8329 Dec 04 23:45 | 29° $\text{♍}$ 39'25 |            |                  | 8330 Dec 02 06:22 | 0° $\text{♊}$        |            |
|                  | 8329 Dec 05 15:32 | 0° $\text{♊}$        |            | morning set      | 8330 Dec 08 07:49 | 11° $\text{♊}$ 25'35 |            |
| morning max el   | 8329 Dec 08 20:50 | 2° $\text{♊}$ 29'51  | 18°03'15   |                  |                   |                      |            |
| morning set      | 8329 Dec 24 12:43 | 27° $\text{♊}$ 15'59 |            | superior conj    | 8330 Dec 17 01:39 | 28° $\text{♊}$ 14'34 | 1°06'53    |
|                  | 8329 Dec 25 23:59 | 0° $\text{♋}$        |            | minimum elong    | 8330 Dec 17 05:03 | 28° $\text{♊}$ 30'27 | 1°06'37    |
|                  |                   |                      |            |                  | 8330 Dec 18 00:15 | 0° $\text{♋}$        |            |
| superior conj    | 8330 Jan 03 10:10 | 15° $\text{♋}$ 22'46 | 0°38'24    | max. Earth dist. | 8330 Dec 24 08:40 | 11° $\text{♋}$ 27'32 | 1.39874 AU |
| minimum elong    | 8330 Jan 03 13:00 | 15° $\text{♋}$ 35'22 | 0°38'09    | desc. node       | 8330 Dec 26 13:03 | 15° $\text{♋}$ 14'03 |            |
| desc. node       | 8330 Jan 08 16:03 | 24° $\text{♋}$ 30'05 |            | evening rise     | 8330 Dec 28 11:12 | 18° $\text{♋}$ 29'40 |            |
| max. Earth dist. | 8330 Jan 11 01:09 | 28° $\text{♋}$ 30'41 | 1.41956 AU |                  | 8331 Jan 04 13:13 | 0° $\text{♌}$        |            |
|                  | 8330 Jan 11 22:37 | 0° $\text{♌}$        |            |                  | 8331 Jan 25 17:21 | 0° $\text{♌}$        |            |
| evening rise     | 8330 Jan 16 11:54 | 7° $\text{♌}$ 25'08  |            | evening max el   | 8331 Feb 01 08:55 | 7° $\text{♌}$ 28'13  | 23°59'15   |
|                  | 8330 Jan 31 08:01 | 0° $\text{♌}$        |            | retrograde       | 8331 Feb 12 10:13 | 13° $\text{♌}$ 58'08 |            |
| evening max el   | 8330 Feb 18 18:30 | 23° $\text{♌}$ 42'56 | 22°39'06   | evening set      | 8331 Feb 17 16:24 | 11° $\text{♌}$ 46'43 |            |
| retrograde       | 8330 Feb 28 17:04 | 29° $\text{♌}$ 36'37 |            | asc. node        | 8331 Feb 17 19:53 | 11° $\text{♌}$ 39'12 |            |
| asc. node        | 8330 Mar 02 22:47 | 29° $\text{♌}$ 11'25 |            | min. Earth dist. | 8331 Feb 22 10:17 | 6° $\text{♌}$ 17'40  | 0.68205 AU |
| evening set      | 8330 Mar 05 11:03 | 27° $\text{♌}$ 39'24 |            | inferior conj    | 8331 Feb 23 03:38 | 5° $\text{♌}$ 18'48  | 1°40'13    |
| inferior conj    | 8330 Mar 10 19:33 | 21° $\text{♌}$ 15'54 | 2°19'45    | minimum elong    | 8331 Feb 23 01:38 | 5° $\text{♌}$ 25'37  | 1°39'36    |
| minimum elong    | 8330 Mar 10 17:17 | 21° $\text{♌}$ 23'46 | 2°19'07    |                  | 8331 Feb 27 13:57 | 30° $\text{♍}$       |            |
| min. Earth dist. | 8330 Mar 10 13:47 | 21° $\text{♌}$ 35'56 | 0.68424 AU | morning rise     | 8331 Feb 28 10:53 | 29° $\text{♍}$ 15'55 |            |
| morning rise     | 8330 Mar 15 23:23 | 15° $\text{♌}$ 06'55 |            | direct           | 8331 Mar 04 11:19 | 27° $\text{♍}$ 44'24 |            |
| direct           | 8330 Mar 20 13:13 | 13° $\text{♌}$ 13'04 |            |                  | 8331 Mar 09 20:45 | 0° $\text{♌}$        |            |
| morning max el   | 8330 Mar 29 13:34 | 18° $\text{♌}$ 28'21 | 21°44'22   | morning max el   | 8331 Mar 12 09:11 | 2° $\text{♌}$ 14'03  | 20°26'36   |
| desc. node       | 8330 Apr 06 15:49 | 28° $\text{♌}$ 03'43 |            | desc. node       | 8331 Mar 24 12:45 | 17° $\text{♌}$ 39'56 |            |
|                  | 8330 Apr 08 02:44 | 0° $\text{♍}$        |            |                  | 8331 Apr 01 22:04 | 0° $\text{♍}$        |            |
|                  | 8330 Apr 28 10:49 | 0° $\text{♍}$        |            | morning set      | 8331 Apr 10 00:38 | 12° $\text{♍}$ 22'24 |            |
| morning set      | 8330 Apr 30 21:30 | 3° $\text{♍}$ 52'30  |            | max. Earth dist. | 8331 Apr 19 06:48 | 26° $\text{♍}$ 58'33 | 1.43573 AU |
| max. Earth dist. | 8330 May 06 23:36 | 13° $\text{♍}$ 46'45 | 1.41715 AU |                  | 8331 Apr 21 03:42 | 0° $\text{♍}$        |            |
|                  |                   |                      |            |                  |                   |                      |            |
| superior conj    | 8330 May 14 14:59 | 26° $\text{♍}$ 47'38 | -1°55'17   | superior conj    | 8331 Apr 25 14:26 | 7° $\text{♍}$ 17'59  | -2°10'18   |
| minimum elong    | 8330 May 14 20:37 | 27° $\text{♍}$ 12'18 | 1°54'58    | minimum elong    | 8331 Apr 25 16:57 | 7° $\text{♍}$ 28'24  | 2°10'21    |
|                  | 8330 May 16 10:43 | 0° $\text{♎}$        |            | evening rise     | 8331 May 08 01:28 | 28° $\text{♍}$ 36'58 |            |
| evening rise     | 8330 May 25 11:31 | 16° $\text{♎}$ 22'42 |            |                  | 8331 May 08 20:27 | 0° $\text{♎}$        |            |
| asc. node        | 8330 May 29 21:42 | 24° $\text{♎}$ 27'13 |            | asc. node        | 8331 May 16 18:46 | 13° $\text{♎}$ 37'27 |            |
|                  | 8330 Jun 02 01:31 | 0° $\text{♏}$        |            | evening max el   | 8331 May 25 05:54 | 25° $\text{♎}$ 17'08 | 18°05'46   |
| evening max el   | 8330 Jun 10 17:05 | 12° $\text{♏}$ 07'44 | 18°11'09   | retrograde       | 8331 May 31 17:00 | 28° $\text{♎}$ 37'56 |            |
| retrograde       | 8330 Jun 17 15:55 | 15° $\text{♏}$ 38'17 |            | evening set      | 8331 Jun 03 10:08 | 28° $\text{♎}$ 01'44 |            |
| evening set      | 8330 Jun 20 01:33 | 15° $\text{♏}$ 13'46 |            | inferior conj    | 8331 Jun 09 19:05 | 22° $\text{♎}$ 54'51 | 2°42'28    |
| inferior conj    | 8330 Jun 27 01:58 | 10° $\text{♏}$ 26'45 | 1°49'32    | minimum elong    | 8331 Jun 09 21:51 | 22° $\text{♎}$ 47'47 | 2°41'42    |
| minimum elong    | 8330 Jun 27 04:54 | 10° $\text{♏}$ 20'10 | 1°48'27    | min. Earth dist. | 8331 Jun 12 18:51 | 19° $\text{♎}$ 52'20 | 0.61952 AU |
| min. Earth dist. | 8330 Jun 30 10:37 | 7° $\text{♏}$ 28'10  | 0.59705 AU | morning rise     | 8331 Jun 16 07:37 | 16° $\text{♎}$ 50'56 |            |
| desc. node       | 8330 Jul 03 15:18 | 5° $\text{♏}$ 03'43  |            | desc. node       | 8331 Jun 20 12:20 | 14° $\text{♎}$ 47'26 |            |
| morning rise     | 8330 Jul 04 05:18 | 4° $\text{♏}$ 42'03  |            | direct           | 8331 Jun 23 01:13 | 14° $\text{♎}$ 27'27 |            |
| direct           | 8330 Jul 10 15:30 | 2° $\text{♏}$ 45'53  |            | morning max el   | 8331 Jul 07 05:03 | 22° $\text{♎}$ 28'35 | 27°55'38   |
| morning max el   | 8330 Jul 24 23:59 | 10° $\text{♏}$ 38'30 | 27°38'24   |                  | 8331 Jul 13 20:09 | 0° $\text{♏}$        |            |
|                  | 8330 Aug 09 00:51 | 0° $\text{♐}$        |            |                  | 8331 Aug 02 05:22 | 0° $\text{♐}$        |            |
| morning set      | 8330 Aug 25 19:10 | 0° $\text{♐}$ 35'43  |            | morning set      | 8331 Aug 09 20:38 | 14° $\text{♐}$ 46'14 |            |
| asc. node        | 8330 Aug 25 21:08 | 0° $\text{♐}$ 46'02  |            | asc. node        | 8331 Aug 12 18:06 | 20° $\text{♐}$ 47'35 |            |
|                  | 8330 Aug 25 12:19 | 0° $\text{♐}$        |            | max. Earth dist. | 8331 Aug 15 10:53 | 26° $\text{♐}$ 34'40 | 1.32064 AU |
| max. Earth dist. | 8330 Sep 01 03:30 | 14° $\text{♐}$ 19'09 | 1.31671 AU |                  |                   |                      |            |
|                  |                   |                      |            | superior conj    | 8331 Aug 17 08:14 | 0° $\text{♐}$ 41'53  | 0°45'16    |
| superior conj    | 8330 Sep 01 22:27 | 16° $\text{♐}$ 04'05 | 1°06'30    | minimum elong    | 8331 Aug 17 06:22 | 0° $\text{♐}$ 31'39  | 0°44'48    |
| minimum elong    | 8330 Sep 01 20:13 | 15° $\text{♐}$ 51'41 | 1°06'05    |                  | 8331 Aug 17 00:35 | 0° $\text{♐}$        |            |
|                  | 8330 Sep 08 06:38 | 0° $\text{♑}$        |            | evening rise     | 8331 Aug 24 03:42 | 15° $\text{♐}$ 34'51 |            |
| evening rise     | 8330 Sep 08 16:23 | 0° $\text{♑}$ 52'19  |            |                  | 8331 Aug 31 06:16 | 0° $\text{♑}$        |            |
|                  | 8330 Sep 24 09:16 | 0° $\text{♒}$        |            | desc. node       | 8331 Sep 16 11:13 | 24° $\text{♑}$ 13'11 |            |
| desc. node       | 8330 Sep 29 14:05 | 7° $\text{♒}$ 22'57  |            | evening max el   | 8331 Sep 18 08:31 | 26° $\text{♑}$ 08'12 | 24°27'05   |
| evening max el   | 8330 Oct 06 18:40 | 15° $\text{♒}$ 30'53 | 25°55'20   |                  | 8331 Sep 23 02:30 | 0° $\text{♒}$        |            |
| retrograde       | 8330 Oct 20 17:00 | 22° $\text{♒}$ 34'23 |            | retrograde       | 8331 Oct 02 03:05 | 3° $\text{♒}$ 03'07  |            |
| evening set      | 8330 Oct 27 00:19 | 21° $\text{♒}$ 00'22 |            | evening set      | 8331 Oct 07 06:35 | 2° $\text{♒}$ 04'25  |            |
| min. Earth dist. | 8330 Oct 31 07:26 | 18° $\text{♒}$ 24'58 | 0.58357 AU |                  | 8331 Oct 11 13:04 | 30° $\text{♒}$       |            |
| inferior conj    | 8330 Nov 03 10:19 | 16° $\text{♒}$ 09'56 | -5°00'56   | min. Earth dist. | 8331 Oct 12 19:26 | 29° $\text{♒}$ 14'33 | 0.56502 AU |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| inferior conj       | 8331 Oct 15 08:38 | 27°♄38'18 | -5°33'26   | min. Earth dist.    | 8332 Sep 23 04:00 | 9°♄06'39  | 0.55182 AU |
| minimum elong       | 8331 Oct 15 10:33 | 27°♄35'16 | 5°33'17    | inferior conj       | 8332 Sep 24 12:10 | 8°♄20'39  | -5°20'55   |
| morning rise        | 8331 Oct 23 16:39 | 23°♄36'00 |            | minimum elong       | 8332 Sep 24 06:34 | 8°♄28'41  | 5°20'14    |
| direct              | 8331 Oct 26 07:34 | 23°♄17'29 |            | morning rise        | 8332 Oct 02 22:53 | 4°♄31'59  |            |
| morning max el      | 8331 Nov 05 00:02 | 27°♄52'11 | 19°35'39   | direct              | 8332 Oct 06 01:38 | 4°♄09'33  |            |
|                     | 8331 Nov 07 01:00 | 0°♄       |            | morning max el      | 8332 Oct 17 07:38 | 9°♄25'30  | 20°55'04   |
| asc. node           | 8331 Nov 08 17:45 | 2°♄03'47  |            | asc. node           | 8332 Oct 25 14:44 | 19°♄50'33 |            |
| morning set         | 8331 Nov 22 10:43 | 25°♄55'53 |            |                     | 8332 Oct 31 10:45 | 0°♄       |            |
|                     | 8331 Nov 24 11:05 | 0°♄       |            | morning set         | 8332 Nov 05 18:38 | 10°♄38'50 |            |
| superior conj       | 8331 Nov 30 09:03 | 11°♄51'34 | 1°26'20    | superior conj       | 8332 Nov 13 03:54 | 26°♄01'03 | 1°37'30    |
| minimum elong       | 8331 Nov 30 11:43 | 12°♄04'41 | 1°26'14    | minimum elong       | 8332 Nov 13 05:19 | 26°♄08'17 | 1°37'34    |
| max. Earth dist.    | 8331 Dec 06 14:42 | 23°♄46'30 | 1.37709 AU |                     | 8332 Nov 15 02:48 | 0°♄       |            |
| evening rise        | 8331 Dec 10 08:06 | 0°♄31'02  |            | max. Earth dist.    | 8332 Nov 17 23:32 | 5°♄42'10  | 1.35704 AU |
|                     | 8331 Dec 10 01:06 | 0°♄       |            | evening rise        | 8332 Nov 21 23:40 | 13°♄21'56 |            |
| desc. node          | 8331 Dec 13 10:05 | 5°♄52'53  |            | desc. node          | 8332 Nov 29 07:08 | 26°♄22'18 |            |
|                     | 8331 Dec 28 19:19 | 0°♄       |            |                     | 8332 Dec 01 11:17 | 0°♄       |            |
| evening max el      | 8332 Jan 14 22:07 | 21°♄15'46 | 25°15'26   |                     | 8332 Dec 22 17:39 | 0°♄       |            |
| retrograde          | 8332 Jan 26 23:02 | 28°♄13'12 |            | evening max el      | 8332 Dec 27 11:12 | 5°♄01'16  | 26°20'30   |
| evening set         | 8332 Feb 01 18:01 | 25°♄49'16 |            | retrograde          | 8333 Jan 09 06:54 | 12°♄15'41 |            |
| asc. node           | 8332 Feb 04 16:59 | 22°♄45'40 |            | evening set         | 8333 Jan 15 14:12 | 9°♄42'45  |            |
| min. Earth dist.    | 8332 Feb 06 04:28 | 20°♄54'58 | 0.67593 AU | min. Earth dist.    | 8333 Jan 19 18:06 | 5°♄23'07  | 0.66601 AU |
| inferior conj       | 8332 Feb 07 09:16 | 19°♄21'27 | 0°52'30    | inferior conj       | 8333 Jan 21 10:30 | 3°♄20'08  | -0°02'58   |
| minimum elong       | 8332 Feb 07 08:02 | 19°♄25'30 | 0°52'08    | minimum elong       | 8333 Jan 21 10:34 | 3°♄19'55  | 0°02'47    |
| morning rise        | 8332 Feb 12 22:22 | 13°♄26'25 |            | transit middle      | 8333 Jan 21 10:34 | 3°♄19'55  | 0°02'47    |
| direct              | 8332 Feb 16 10:26 | 12°♄15'51 |            | transit begin       | 8333 Jan 21 07:44 | 3°♄28'35  |            |
| morning max el      | 8332 Feb 23 12:52 | 16°♄11'36 | 19°22'36   | transit end         | 8333 Jan 21 13:25 | 3°♄11'16  |            |
|                     | 8332 Mar 05 06:04 | 0°♄       |            | asc. node           | 8333 Jan 21 14:03 | 3°♄09'20  |            |
| greatest brilliancy | 8332 Mar 07 11:11 | 3°♄15'56  | -0.7m      |                     | 8333 Jan 24 08:21 | 30°♄      |            |
| desc. node          | 8332 Mar 10 09:41 | 7°♄40'43  |            | morning rise        | 8333 Jan 27 07:44 | 27°♄34'59 |            |
| morning set         | 8332 Mar 18 23:28 | 20°♄48'30 |            | direct              | 8333 Jan 30 08:57 | 26°♄42'27 |            |
|                     | 8332 Mar 24 21:51 | 0°♄       |            |                     | 8333 Feb 05 16:40 | 0°♄       |            |
| max. Earth dist.    | 8332 Mar 31 20:53 | 10°♄54'09 | 1.44874 AU | morning max el      | 8333 Feb 05 23:38 | 0°♄16'53  | 18°34'23   |
| superior conj       | 8332 Apr 04 13:26 | 16°♄45'21 | -2°08'32   | desc. node          | 8333 Feb 25 06:37 | 27°♄59'25 |            |
| minimum elong       | 8332 Apr 04 09:14 | 16°♄28'36 | 2°08'25    | morning set         | 8333 Feb 26 17:28 | 0°♄17'03  |            |
|                     | 8332 Apr 12 18:12 | 0°♄       |            |                     | 8333 Feb 26 13:09 | 0°♄       |            |
| evening rise        | 8332 Apr 18 18:23 | 9°♄55'24  |            | superior conj       | 8333 Mar 14 20:05 | 25°♄35'06 | -1°46'31   |
|                     | 8332 May 01 02:05 | 0°♄       |            | minimum elong       | 8333 Mar 14 10:43 | 24°♄58'28 | 1°45'42    |
| asc. node           | 8332 May 02 15:51 | 2°♄19'02  |            | max. Earth dist.    | 8333 Mar 14 14:59 | 25°♄15'10 | 1.45486 AU |
| evening max el      | 8332 May 07 19:06 | 8°♄41'38  | 18°19'07   |                     | 8333 Mar 17 15:43 | 0°♄       |            |
| retrograde          | 8332 May 14 04:41 | 12°♄07'13 |            | evening rise        | 8333 Mar 30 11:42 | 20°♄15'38 |            |
| evening set         | 8332 May 17 05:00 | 11°♄17'49 |            |                     | 8333 Apr 05 14:34 | 0°♄       |            |
| inferior conj       | 8332 May 23 02:35 | 5°♄52'48  | 3°12'02    | greatest brilliancy | 8333 Apr 08 01:46 | 3°♄53'59  | -0.8m      |
| minimum elong       | 8332 May 23 04:12 | 5°♄48'10  | 3°11'41    | asc. node           | 8333 Apr 19 12:56 | 20°♄22'32 |            |
| min. Earth dist.    | 8332 May 25 12:28 | 3°♄07'36  | 0.64018 AU | evening max el      | 8333 Apr 21 05:58 | 22°♄14'26 | 18°50'21   |
|                     | 8332 May 28 15:58 | 30°♄      |            | retrograde          | 8333 Apr 27 22:53 | 25°♄57'31 |            |
| morning rise        | 8332 May 29 02:18 | 29°♄38'40 |            | evening set         | 8333 May 01 06:35 | 24°♄54'00 |            |
| direct              | 8332 Jun 04 19:41 | 26°♄57'35 |            | inferior conj       | 8333 May 06 20:32 | 19°♄12'37 | 3°23'04    |
| desc. node          | 8332 Jun 06 09:22 | 27°♄05'33 |            | minimum elong       | 8333 May 06 20:48 | 19°♄11'46 | 3°22'56    |
|                     | 8332 Jun 12 19:57 | 0°♄       |            | min. Earth dist.    | 8333 May 08 15:09 | 16°♄59'43 | 0.65754 AU |
| morning max el      | 8332 Jun 18 14:19 | 4°♄58'18  | 27°35'48   | morning rise        | 8333 May 12 10:25 | 12°♄54'36 |            |
|                     | 8332 Jul 07 12:33 | 0°♄       |            | direct              | 8333 May 18 21:36 | 10°♄07'47 |            |
| morning set         | 8332 Jul 23 14:27 | 28°♄32'13 |            | desc. node          | 8333 May 24 06:22 | 11°♄41'11 |            |
|                     | 8332 Jul 24 08:07 | 0°♄       |            | morning max el      | 8333 Jun 01 00:52 | 17°♄55'28 | 26°44'21   |
| max. Earth dist.    | 8332 Jul 28 11:39 | 8°♄29'17  | 1.32928 AU |                     | 8333 Jun 11 03:49 | 0°♄       |            |
| asc. node           | 8332 Jul 29 15:06 | 10°♄53'39 |            |                     | 8333 Jun 30 11:23 | 0°♄       |            |
| superior conj       | 8332 Jul 31 14:15 | 15°♄04'45 | 0°19'49    | morning set         | 8333 Jul 06 21:22 | 11°♄43'42 |            |
| minimum elong       | 8332 Jul 31 13:18 | 14°♄59'38 | 0°19'29    | max. Earth dist.    | 8333 Jul 11 02:14 | 19°♄54'56 | 1.34276 AU |
| evening rise        | 8332 Aug 07 15:18 | 0°♄15'04  |            | superior conj       | 8333 Jul 15 14:11 | 29°♄05'07 | -0°09'12   |
|                     | 8332 Aug 07 12:28 | 0°♄       |            | minimum elong       | 8333 Jul 15 14:41 | 29°♄07'47 | 0°09'15    |
|                     | 8332 Aug 24 07:48 | 0°♄       |            | behind sun begin    | 8333 Jul 15 09:56 | 28°♄43'06 |            |
| evening max el      | 8332 Aug 29 20:02 | 6°♄21'33  | 22°47'52   | behind sun end      | 8333 Jul 15 19:26 | 29°♄32'30 |            |
| desc. node          | 8332 Sep 02 08:20 | 9°♄21'43  |            |                     | 8333 Jul 16 00:43 | 0°♄       |            |
| retrograde          | 8332 Sep 12 01:03 | 12°♄57'19 |            | asc. node           | 8333 Jul 16 12:05 | 0°♄59'16  |            |
| evening set         | 8332 Sep 15 16:16 | 12°♄28'21 |            | evening rise        | 8333 Jul 23 01:07 | 14°♄45'50 |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                     | 8333 Jul 30 18:22 | 0°♍       |            |                  | 8334 Jul 07 18:34 | 0°♎       |            |
| evening max el      | 8333 Aug 11 14:15 | 16°♍46'22 | 21°14'09   | evening max el   | 8334 Jul 24 21:11 | 27°♎49'37 | 19°56'36   |
| desc. node          | 8333 Aug 20 05:27 | 22°♍15'32 |            |                  | 8334 Jul 27 09:04 | 0°♍       |            |
| retrograde          | 8333 Aug 23 14:17 | 22°♍43'17 |            | retrograde       | 8334 Aug 04 04:46 | 2°♍54'56  |            |
| evening set         | 8333 Aug 25 23:27 | 22°♍30'06 |            | evening set      | 8334 Aug 06 01:51 | 2°♍45'33  |            |
| inferior conj       | 8333 Sep 04 05:10 | 18°♍32'51 | -4°13'14   | desc. node       | 8334 Aug 07 02:31 | 2°♍32'52  |            |
| minimum elong       | 8333 Sep 03 19:36 | 18°♍46'18 | 4°10'40    |                  | 8334 Aug 12 23:28 | 30°♎♎     |            |
| min. Earth dist.    | 8333 Sep 04 12:51 | 18°♍22'02 | 0.54679 AU | inferior conj    | 8334 Aug 15 01:42 | 28°♎45'30 | -2°25'03   |
| morning rise        | 8333 Sep 12 16:23 | 14°♍39'39 |            | minimum elong    | 8334 Aug 14 19:05 | 28°♎55'33 | 2°22'42    |
| direct              | 8333 Sep 16 09:59 | 14°♍09'38 |            | min. Earth dist. | 8334 Aug 16 23:51 | 27°♎35'42 | 0.55140 AU |
| morning max el      | 8333 Sep 29 03:19 | 20°♍12'35 | 22°32'53   | morning rise     | 8334 Aug 23 10:36 | 24°♎27'52 |            |
|                     | 8333 Oct 07 07:15 | 0°♎       |            | direct           | 8334 Aug 27 22:38 | 23°♎43'30 |            |
| asc. node           | 8333 Oct 12 11:43 | 8°♎21'18  |            |                  | 8334 Sep 10 03:18 | 0°♍       |            |
| morning set         | 8333 Oct 21 05:20 | 25°♎27'35 |            | morning max el   | 8334 Sep 10 16:09 | 0°♍29'49  | 24°18'55   |
|                     | 8333 Oct 23 08:36 | 0°♍       |            | asc. node        | 8334 Sep 29 08:41 | 27°♍25'14 |            |
|                     |                   |           |            |                  | 8334 Sep 30 16:44 | 0°♎       |            |
| superior conj       | 8333 Oct 28 06:37 | 10°♍31'57 | 1°41'20    | morning set      | 8334 Oct 05 17:04 | 10°♎17'10 |            |
| minimum elong       | 8333 Oct 28 06:43 | 10°♍32'26 | 1°41'27    |                  |                   |           |            |
| max. Earth dist.    | 8333 Oct 31 15:31 | 17°♍36'21 | 1.34033 AU | superior conj    | 8334 Oct 12 14:29 | 25°♎15'55 | 1°38'44    |
| evening rise        | 8333 Nov 05 06:00 | 26°♍52'08 |            | minimum elong    | 8334 Oct 12 13:27 | 25°♎10'18 | 1°38'45    |
|                     | 8333 Nov 06 20:54 | 0°♎       |            | max. Earth dist. | 8334 Oct 14 15:56 | 29°♎43'48 | 1.32788 AU |
| desc. node          | 8333 Nov 16 04:13 | 16°♎36'37 |            |                  | 8334 Oct 14 18:56 | 0°♍       |            |
|                     | 8333 Nov 24 19:02 | 0°♎       |            | evening rise     | 8334 Oct 19 23:29 | 10°♍52'09 |            |
| evening max el      | 8333 Dec 10 00:17 | 18°♎37'05 | 27°07'17   |                  | 8334 Oct 30 03:56 | 0°♎       |            |
| retrograde          | 8333 Dec 23 09:05 | 25°♎57'49 |            | desc. node       | 8334 Nov 03 01:16 | 6°♎29'02  |            |
| evening set         | 8333 Dec 30 02:52 | 23°♎21'33 |            |                  | 8334 Nov 20 14:56 | 0°♎       |            |
| min. Earth dist.    | 8334 Jan 03 01:05 | 19°♎35'51 | 0.65246 AU | evening max el   | 8334 Nov 22 12:09 | 1°♎51'56  | 27°28'38   |
| inferior conj       | 8334 Jan 05 05:06 | 17°♎10'05 | -1°05'26   | retrograde       | 8334 Dec 06 04:37 | 9°♎10'33  |            |
| minimum elong       | 8334 Jan 05 07:02 | 17°♎04'39 | 1°04'27    | evening set      | 8334 Dec 13 05:25 | 6°♎38'49  |            |
| asc. node           | 8334 Jan 08 11:06 | 13°♎46'44 |            | min. Earth dist. | 8334 Dec 16 23:16 | 3°♎24'30  | 0.63570 AU |
| morning rise        | 8334 Jan 11 12:32 | 11°♎37'11 |            | inferior conj    | 8334 Dec 19 14:28 | 0°♎44'40  | -2°13'23   |
| direct              | 8334 Jan 14 04:45 | 10°♎58'54 |            | minimum elong    | 8334 Dec 19 18:39 | 0°♎34'02  | 2°11'33    |
| morning max el      | 8334 Jan 20 15:08 | 14°♎23'14 | 18°02'52   |                  | 8334 Dec 20 08:12 | 30°♎♎     |            |
|                     | 8334 Jan 31 20:02 | 0°♎       |            | morning rise     | 8334 Dec 26 09:45 | 25°♎27'00 |            |
| morning set         | 8334 Feb 07 16:58 | 11°♎14'34 |            | asc. node        | 8334 Dec 26 08:09 | 25°♎28'34 |            |
| desc. node          | 8334 Feb 12 03:33 | 18°♎30'57 |            | direct           | 8334 Dec 28 19:17 | 24°♎59'02 |            |
|                     | 8334 Feb 19 06:30 | 0°♎       |            | morning max el   | 8335 Jan 04 08:28 | 28°♎22'37 | 17°48'34   |
|                     |                   |           |            |                  | 8335 Jan 05 20:42 | 0°♎       |            |
| superior conj       | 8334 Feb 22 04:17 | 4°♎37'08  | -1°08'14   | morning set      | 8335 Jan 20 19:14 | 23°♎29'54 |            |
| minimum elong       | 8334 Feb 21 20:28 | 4°♎06'13  | 1°07'11    |                  | 8335 Jan 24 14:04 | 0°♎       |            |
| max. Earth dist.    | 8334 Feb 25 10:29 | 9°♎45'16  | 1.45354 AU | desc. node       | 8335 Jan 30 00:30 | 9°♎10'32  |            |
| evening rise        | 8334 Mar 10 08:31 | 29°♎50'35 |            |                  |                   |           |            |
|                     | 8334 Mar 10 10:57 | 0°♎       |            | superior conj    | 8335 Feb 02 06:59 | 14°♎34'50 | -0°23'41   |
| greatest brilliancy | 8334 Mar 23 19:00 | 20°♎21'35 | -0.7m      | minimum elong    | 8335 Feb 02 04:25 | 14°♎24'19 | 0°23'10    |
|                     | 8334 Mar 30 14:02 | 0°♎       |            | max. Earth dist. | 8335 Feb 08 04:52 | 24°♎07'48 | 1.44504 AU |
| evening max el      | 8334 Apr 04 12:40 | 5°♎52'08  | 19°38'12   |                  | 8335 Feb 11 22:01 | 0°♎       |            |
| asc. node           | 8334 Apr 06 10:01 | 7°♎37'06  |            | evening rise     | 8335 Feb 17 19:45 | 9°♎09'50  |            |
| retrograde          | 8334 Apr 11 20:26 | 10°♎03'34 |            |                  | 8335 Mar 03 16:45 | 0°♎       |            |
| evening set         | 8334 Apr 15 12:17 | 8°♎45'18  |            | evening max el   | 8335 Mar 18 14:00 | 19°♎31'26 | 20°40'31   |
| inferior conj       | 8334 Apr 20 21:43 | 2°♎49'15  | 3°19'30    | asc. node        | 8335 Mar 24 07:07 | 23°♎48'01 |            |
| minimum elong       | 8334 Apr 20 20:49 | 2°♎52'14  | 3°19'20    | retrograde       | 8335 Mar 26 18:56 | 24°♎19'39 |            |
| min. Earth dist.    | 8334 Apr 22 01:26 | 1°♎17'20  | 0.67077 AU | evening set      | 8335 Mar 30 20:02 | 22°♎46'08 |            |
|                     | 8334 Apr 23 01:22 | 30°♎♎     |            | inferior conj    | 8335 Apr 05 03:31 | 16°♎37'19 | 3°04'05    |
| morning rise        | 8334 Apr 26 05:02 | 26°♎31'20 |            | minimum elong    | 8335 Apr 05 01:46 | 16°♎43'19 | 3°03'44    |
| direct              | 8334 May 02 05:51 | 23°♎50'11 |            | min. Earth dist. | 8335 Apr 05 17:21 | 15°♎49'43 | 0.67952 AU |
| desc. node          | 8334 May 11 03:19 | 28°♎04'03 |            | morning rise     | 8335 Apr 10 07:17 | 10°♎21'54 |            |
|                     | 8334 May 13 06:44 | 0°♎       |            | direct           | 8335 Apr 15 19:12 | 7°♎55'20  |            |
| morning max el      | 8334 May 14 10:38 | 1°♎08'53  | 25°30'06   | morning max el   | 8335 Apr 26 19:34 | 14°♎30'24 | 24°03'14   |
|                     | 8334 Jun 05 03:58 | 0°♎       |            | desc. node       | 8335 Apr 28 00:16 | 15°♎44'58 |            |
| morning set         | 8334 Jun 19 13:23 | 24°♎10'16 |            |                  | 8335 May 09 10:31 | 0°♎       |            |
|                     | 8334 Jun 22 17:13 | 0°♎       |            |                  | 8335 May 29 01:37 | 0°♎       |            |
| max. Earth dist.    | 8334 Jun 23 05:47 | 0°♎59'09  | 1.36089 AU | morning set      | 8335 Jun 01 09:17 | 5°♎37'52  |            |
|                     |                   |           |            | max. Earth dist. | 8335 Jun 05 02:34 | 12°♎09'11 | 1.38240 AU |
| superior conj       | 8334 Jun 29 05:22 | 12°♎36'41 | -0°40'33   |                  |                   |           |            |
| minimum elong       | 8334 Jun 29 07:48 | 12°♎48'51 | 0°40'15    | superior conj    | 8335 Jun 12 08:22 | 25°♎30'36 | -1°12'20   |
| asc. node           | 8334 Jul 03 09:05 | 21°♎01'06 |            | minimum elong    | 8335 Jun 12 12:51 | 25°♎51'55 | 1°11'47    |
| evening rise        | 8334 Jul 07 07:05 | 29°♎01'40 |            |                  | 8335 Jun 14 16:30 | 0°♎       |            |

|                  |                   |           |            |                  |                   |            |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|------------|------------|
| asc. node        | 8335 Jun 20 06:07 | 10°☿54'53 |            |                  | 8336 Jun 05 19:25 | 0°☿        |            |
| evening rise     | 8335 Jun 21 06:37 | 12°☿55'30 |            | asc. node        | 8336 Jun 06 03:09 | 0°☿36'11   |            |
|                  | 8335 Jun 30 11:59 | 0°♌       |            | evening max el   | 8336 Jun 19 22:06 | 22°☿04'28  | 18°22'54   |
| evening max el   | 8335 Jul 07 16:50 | 9°♌37'28  | 18°59'21   | retrograde       | 8336 Jun 27 08:48 | 25°☿48'00  |            |
| retrograde       | 8335 Jul 16 09:06 | 13°♌55'09 |            | evening set      | 8336 Jun 29 14:02 | 25°☿29'02  |            |
| evening set      | 8335 Jul 18 07:44 | 13°♌43'06 |            | inferior conj    | 8336 Jul 07 00:56 | 20°☿53'26  | 1°06'41    |
| desc. node       | 8335 Jul 24 23:33 | 10°♌34'16 |            | minimum elong    | 8336 Jul 07 03:07 | 20°☿48'57  | 1°05'46    |
| inferior conj    | 8335 Jul 26 14:28 | 9°♌27'41  | -0°29'40   | min. Earth dist. | 8336 Jul 10 10:11 | 18°☿08'24  | 0.58430 AU |
| minimum elong    | 8335 Jul 26 13:13 | 9°♌29'52  | 0°29'19    | desc. node       | 8336 Jul 10 20:38 | 17°☿48'22  |            |
| min. Earth dist. | 8335 Jul 29 14:16 | 7°♌23'14  | 0.56478 AU | morning rise     | 8336 Jul 14 12:52 | 15°☿24'32  |            |
| morning rise     | 8335 Aug 03 15:31 | 4°♌34'01  |            | direct           | 8336 Jul 20 15:04 | 13°☿46'57  |            |
| direct           | 8335 Aug 08 23:46 | 3°♌26'37  |            | morning max el   | 8336 Aug 04 00:29 | 21°☿30'13  | 27°11'29   |
| morning max el   | 8335 Aug 23 05:27 | 10°♌46'16 | 25°57'18   |                  | 8336 Aug 11 10:39 | 0°♌        |            |
|                  | 8335 Sep 06 22:41 | 0°♍       |            |                  | 8336 Aug 29 19:21 | 0°♍        |            |
| asc. node        | 8335 Sep 16 05:39 | 16°♍53'44 |            | asc. node        | 8336 Sep 02 02:37 | 6°♍39'23   |            |
| morning set      | 8335 Sep 20 04:11 | 25°♍02'51 |            | morning set      | 8336 Sep 03 13:01 | 9°♍39'07   |            |
|                  | 8335 Sep 22 11:18 | 0°♎       |            |                  |                   |            |            |
| superior conj    | 8335 Sep 27 01:18 | 10°♎06'06 | 1°30'20    | superior conj    | 8336 Sep 10 13:06 | 24°♍55'42  | 1°16'38    |
| minimum elong    | 8335 Sep 26 23:28 | 9°♎55'58  | 1°30'11    | minimum elong    | 8336 Sep 10 10:52 | 24°♍43'21  | 1°16'17    |
| max. Earth dist. | 8335 Sep 27 22:53 | 12°♎05'21 | 1.31991 AU | max. Earth dist. | 8336 Sep 10 08:58 | 24°♍32'47  | 1.31652 AU |
| evening rise     | 8335 Oct 04 01:00 | 25°♎13'16 |            |                  | 8336 Sep 12 19:58 | 0°♎        |            |
|                  | 8335 Oct 06 08:50 | 0°♏       |            | evening rise     | 8336 Sep 17 07:58 | 9°♎47'21   |            |
| desc. node       | 8335 Oct 20 22:20 | 25°♏50'29 |            |                  | 8336 Sep 27 16:12 | 0°♏        |            |
|                  | 8335 Oct 23 17:50 | 0°♐       |            | desc. node       | 8336 Oct 06 19:27 | 14°♏27'46  |            |
| evening max el   | 8335 Nov 04 20:26 | 14°♐32'34 | 27°18'48   | evening max el   | 8336 Oct 16 22:07 | 26°♏25'27  | 26°34'59   |
| retrograde       | 8335 Nov 18 16:37 | 21°♐45'16 |            |                  | 8336 Oct 21 05:55 | 0°♐        |            |
| evening set      | 8335 Nov 25 18:31 | 19°♐27'34 |            | retrograde       | 8336 Oct 30 20:02 | 3°♐32'34   |            |
| min. Earth dist. | 8335 Nov 29 10:57 | 16°♐38'46 | 0.61632 AU | evening set      | 8336 Nov 06 13:48 | 1°♐39'30   |            |
| inferior conj    | 8335 Dec 02 11:31 | 13°♐56'18 | -3°23'30   |                  | 8336 Nov 09 05:12 | 30°♑♌      |            |
| minimum elong    | 8335 Dec 02 17:53 | 13°♐42'00 | 3°21'09    | min. Earth dist. | 8336 Nov 10 11:45 | 29°♑♌04'22 | 0.59544 AU |
| morning rise     | 8335 Dec 09 19:27 | 8°♐57'21  |            | inferior conj    | 8336 Nov 13 16:39 | 26°♑♌34'10 | -4°29'20   |
| direct           | 8335 Dec 12 01:07 | 8°♐36'03  |            | minimum elong    | 8336 Nov 13 23:58 | 26°♑♌19'50 | 4°27'20    |
| asc. node        | 8335 Dec 13 05:10 | 8°♐42'03  |            | morning rise     | 8336 Nov 21 12:30 | 21°♑♌57'14 |            |
| morning max el   | 8335 Dec 19 00:32 | 12°♐07'32 | 17°52'23   | direct           | 8336 Nov 23 17:54 | 21°♑♌39'25 |            |
|                  | 8335 Dec 31 00:13 | 0°♑       |            | asc. node        | 8336 Nov 29 02:12 | 23°♑♌28'25 |            |
| morning set      | 8336 Jan 03 17:50 | 6°♑43'14  |            | morning max el   | 8336 Dec 01 11:49 | 25°♑♌27'46 | 18°15'41   |
|                  |                   |           |            |                  | 8336 Dec 05 08:03 | 0°♑        |            |
| superior conj    | 8336 Jan 14 11:18 | 25°♑46'40 | 0°17'52    | morning set      | 8336 Dec 17 06:45 | 20°♑♌35'51 |            |
| minimum elong    | 8336 Jan 14 12:53 | 25°♑53'28 | 0°17'48    |                  | 8336 Dec 22 06:06 | 0°♑        |            |
| desc. node       | 8336 Jan 16 21:28 | 29°♑54'53 |            | superior conj    | 8336 Dec 26 15:21 | 8°♑06'06   | 0°51'36    |
|                  | 8336 Jan 16 22:41 | 0°♒       |            | minimum elong    | 8336 Dec 26 18:38 | 8°♑21'02   | 0°51'17    |
| max. Earth dist. | 8336 Jan 21 20:01 | 8°♒07'51  | 1.43033 AU | desc. node       | 8337 Jan 02 18:28 | 20°♑39'57  |            |
| evening rise     | 8336 Jan 28 12:52 | 18°♒51'31 |            | max. Earth dist. | 8337 Jan 03 06:06 | 21°♑29'29  | 1.41099 AU |
|                  | 8336 Feb 04 18:55 | 0°♓       |            | evening rise     | 8337 Jan 07 23:32 | 29°♑21'52  |            |
|                  | 8336 Feb 26 11:31 | 0°♓       |            |                  | 8337 Jan 08 08:54 | 0°♓        |            |
| evening max el   | 8336 Feb 29 09:58 | 3°♓11'55  | 21°53'44   |                  | 8337 Jan 28 07:43 | 0°♓        |            |
| retrograde       | 8336 Mar 09 16:31 | 8°♓41'27  |            | evening max el   | 8337 Feb 11 01:42 | 16°♓54'35  | 23°13'06   |
| asc. node        | 8336 Mar 10 04:12 | 8°♓40'15  |            | retrograde       | 8337 Feb 21 11:46 | 23°♓04'43  |            |
| evening set      | 8336 Mar 14 04:06 | 6°♓52'36  |            | asc. node        | 8337 Feb 25 01:17 | 22°♓01'57  |            |
| inferior conj    | 8336 Mar 19 11:43 | 0°♓33'31  | 2°38'33    | evening set      | 8337 Feb 26 10:55 | 21°♓01'02  |            |
| minimum elong    | 8336 Mar 19 09:31 | 0°♓41'09  | 2°38'01    | inferior conj    | 8337 Mar 03 20:23 | 14°♓34'58  | 2°04'00    |
| min. Earth dist. | 8336 Mar 19 12:47 | 0°♓29'48  | 0.68381 AU | minimum elong    | 8337 Mar 03 18:11 | 14°♓42'36  | 2°03'21    |
|                  | 8336 Mar 19 21:21 | 30°♓♌     |            | min. Earth dist. | 8337 Mar 03 09:33 | 15°♓12'20  | 0.68384 AU |
| morning rise     | 8336 Mar 24 14:47 | 24°♓21'59 |            | morning rise     | 8337 Mar 09 01:24 | 8°♓28'34   |            |
| direct           | 8336 Mar 29 12:40 | 22°♓15'35 |            | direct           | 8337 Mar 13 09:21 | 6°♓44'30   |            |
| morning max el   | 8336 Apr 08 06:09 | 27°♓59'34 | 22°33'39   | morning max el   | 8337 Mar 21 21:49 | 11°♓39'14  | 21°09'47   |
|                  | 8336 Apr 10 03:50 | 0°♓       |            | desc. node       | 8337 Mar 31 18:10 | 23°♓40'34  |            |
| desc. node       | 8336 Apr 13 21:13 | 4°♓22'19  |            |                  | 8337 Apr 05 06:18 | 0°♓        |            |
|                  | 8336 May 02 02:20 | 0°♔       |            | morning set      | 8337 Apr 21 19:04 | 24°♓55'14  |            |
| morning set      | 8336 May 12 03:43 | 15°♔53'22 |            |                  | 8337 Apr 25 00:01 | 0°♔        |            |
| max. Earth dist. | 8336 May 16 23:59 | 23°♔58'02 | 1.40491 AU | max. Earth dist. | 8337 Apr 29 02:53 | 6°♔39'26   | 1.42560 AU |
|                  | 8336 May 20 12:03 | 0°♕       |            |                  |                   |            |            |
| superior conj    | 8336 May 24 18:56 | 7°♕36'40  | -1°41'27   | superior conj    | 8337 May 06 08:19 | 18°♕44'15  | -2°03'20   |
| minimum elong    | 8336 May 25 00:44 | 8°♕02'51  | 1°40'58    | minimum elong    | 8337 May 06 13:09 | 19°♕04'52  | 2°03'11    |
| evening rise     | 8336 Jun 03 20:27 | 26°♕19'02 |            |                  | 8337 May 12 19:25 | 0°♕        |            |
|                  |                   |           |            | evening rise     | 8337 May 17 20:32 | 9°♕02'15   |            |

|                  |                   |                              |            |                     |                   |                         |            |
|------------------|-------------------|------------------------------|------------|---------------------|-------------------|-------------------------|------------|
| asc. node        | 8337 May 24 00:12 | 19° $\Pi$ 59'56              |            | evening rise        | 8338 Apr 30 02:04 | 20° $\mathcal{B}$ 53'39 |            |
|                  | 8337 May 30 05:54 | 0° $\mathcal{E}$             |            |                     | 8338 May 05 09:53 | 0° $\Pi$                |            |
| evening max el   | 8337 Jun 03 09:13 | 5° $\mathcal{E}$ 01'29       | 18°06'30   | asc. node           | 8338 May 10 21:17 | 8° $\Pi$ 59'06          |            |
| retrograde       | 8337 Jun 10 01:56 | 8° $\mathcal{E}$ 26'26       |            | evening max el      | 8338 May 17 22:34 | 18° $\Pi$ 18'21         | 18°09'12   |
| evening set      | 8337 Jun 12 14:39 | 7° $\mathcal{E}$ 57'21       |            | retrograde          | 8338 May 24 07:57 | 21° $\Pi$ 39'31         |            |
| inferior conj    | 8337 Jun 19 08:00 | 3° $\mathcal{E}$ 01'39       | 2°15'08    | evening set         | 8338 May 27 04:05 | 20° $\Pi$ 57'59         |            |
| minimum elong    | 8337 Jun 19 11:03 | 2° $\mathcal{E}$ 54'24       | 2°14'09    | inferior conj       | 8338 Jun 02 07:46 | 15° $\Pi$ 43'30         | 2°57'33    |
| min. Earth dist. | 8337 Jun 22 13:45 | 29° $\Pi$ 58'20              | 0.60661 AU | minimum elong       | 8338 Jun 02 10:06 | 15° $\Pi$ 37'12         | 2°56'58    |
|                  | 8337 Jun 22 13:01 | 30° $\mathcal{R}\Pi$         |            | min. Earth dist.    | 8338 Jun 05 02:08 | 12° $\Pi$ 45'42         | 0.62866 AU |
| morning rise     | 8337 Jun 26 04:51 | 27° $\Pi$ 07'08              |            | morning rise        | 8338 Jun 08 14:29 | 9° $\Pi$ 34'10          |            |
| desc. node       | 8337 Jun 27 17:41 | 26° $\Pi$ 14'14              |            | desc. node          | 8338 Jun 14 14:43 | 7° $\Pi$ 03'16          |            |
| direct           | 8337 Jul 02 19:00 | 24° $\Pi$ 58'28              |            | direct              | 8338 Jun 15 08:56 | 7° $\Pi$ 01'26          |            |
|                  | 8337 Jul 13 21:02 | 0° $\mathcal{E}$             |            | morning max el      | 8338 Jun 29 09:32 | 15° $\Pi$ 04'23         | 27°51'21   |
| morning max el   | 8337 Jul 17 02:25 | 2° $\mathcal{E}$ 56'31       | 27°50'32   |                     | 8338 Jul 11 13:02 | 0° $\mathcal{E}$        |            |
|                  | 8337 Aug 05 23:05 | 0° $\Omega$                  |            |                     | 8338 Jul 29 14:03 | 0° $\Omega$             |            |
| morning set      | 8337 Aug 18 17:47 | 24° $\Omega$ 01'03           |            | morning set         | 8338 Aug 02 16:17 | 8° $\Omega$ 01'46       |            |
| asc. node        | 8337 Aug 19 23:36 | 26° $\Omega$ 36'48           |            | asc. node           | 8338 Aug 06 20:35 | 16° $\Omega$ 40'42      |            |
|                  | 8337 Aug 21 13:51 | 0° $\mathcal{M}$             |            | max. Earth dist.    | 8338 Aug 07 23:06 | 19° $\Omega$ 01'46      | 1.32369 AU |
| max. Earth dist. | 8337 Aug 24 18:20 | 6° $\mathcal{M}$ 55'29       | 1.31776 AU |                     |                   |                         |            |
|                  |                   |                              |            | superior conj       | 8338 Aug 10 08:32 | 24° $\Omega$ 11'35      | 0°34'57    |
| superior conj    | 8337 Aug 26 00:08 | 9° $\mathcal{M}$ 39'36       | 0°58'03    | minimum elong       | 8338 Aug 10 07:00 | 24° $\Omega$ 03'11      | 0°34'31    |
| minimum elong    | 8337 Aug 25 22:00 | 9° $\mathcal{M}$ 27'45       | 0°57'35    |                     | 8338 Aug 13 00:25 | 0° $\mathcal{M}$        |            |
| evening rise     | 8337 Sep 01 18:15 | 24° $\mathcal{M}$ 28'25      |            | evening rise        | 8338 Aug 17 05:52 | 9° $\mathcal{M}$ 10'09  |            |
|                  | 8337 Sep 04 09:13 | 0° $\mathcal{A}$             |            |                     | 8338 Aug 27 22:17 | 0° $\mathcal{A}$        |            |
|                  | 8337 Sep 22 01:10 | 0° $\mathcal{M}$             |            | evening max el      | 8338 Sep 10 03:38 | 17° $\mathcal{A}$ 50'11 | 23°45'15   |
| desc. node       | 8337 Sep 23 16:33 | 2° $\mathcal{M}$ 03'33       |            | desc. node          | 8338 Sep 10 13:39 | 18° $\mathcal{A}$ 14'03 |            |
| evening max el   | 8337 Sep 28 15:44 | 7° $\mathcal{M}$ 27'08       | 25°20'10   | retrograde          | 8338 Sep 23 18:30 | 24° $\mathcal{A}$ 39'06 |            |
| retrograde       | 8337 Oct 12 13:25 | 14° $\mathcal{M}$ 28'32      |            | evening set         | 8338 Sep 28 06:36 | 23° $\mathcal{A}$ 54'44 |            |
| evening set      | 8337 Oct 18 10:26 | 13° $\mathcal{M}$ 09'12      |            | min. Earth dist.    | 8338 Oct 04 13:59 | 20° $\mathcal{A}$ 52'54 | 0.55849 AU |
| min. Earth dist. | 8337 Oct 23 03:37 | 10° $\mathcal{M}$ 29'58      | 0.57518 AU | inferior conj       | 8338 Oct 06 16:25 | 19° $\mathcal{A}$ 37'07 | -5°34'42   |
| inferior conj    | 8337 Oct 26 02:39 | 8° $\mathcal{M}$ 29'19       | -5°19'01   | minimum elong       | 8338 Oct 06 15:12 | 19° $\mathcal{A}$ 38'57 | 5°34'37    |
| minimum elong    | 8337 Oct 26 07:48 | 8° $\mathcal{M}$ 20'32       | 5°18'15    | morning rise        | 8338 Oct 15 01:54 | 15° $\mathcal{A}$ 41'53 |            |
| morning rise     | 8337 Nov 03 07:30 | 4° $\mathcal{M}$ 15'16       |            | direct              | 8338 Oct 17 21:16 | 15° $\mathcal{A}$ 22'06 |            |
| direct           | 8337 Nov 05 17:13 | 3° $\mathcal{M}$ 58'00       |            | morning max el      | 8338 Oct 28 05:42 | 20° $\mathcal{A}$ 14'03 | 20°06'52   |
| morning max el   | 8337 Nov 14 14:39 | 8° $\mathcal{M}$ 13'08       | 19°00'05   | asc. node           | 8338 Nov 02 20:12 | 26° $\mathcal{A}$ 51'44 |            |
| asc. node        | 8337 Nov 15 23:12 | 9° $\mathcal{M}$ 36'40       |            |                     | 8338 Nov 04 22:37 | 0° $\mathcal{M}$        |            |
|                  | 8337 Nov 28 17:14 | 0° $\mathcal{X}$             |            | morning set         | 8338 Nov 15 10:48 | 19° $\mathcal{M}$ 30'54 |            |
| morning set      | 8337 Dec 01 05:29 | 4° $\mathcal{X}$ 54'42       |            |                     | 8338 Nov 20 13:35 | 0° $\mathcal{X}$        |            |
|                  |                   |                              |            | superior conj       | 8338 Nov 23 02:54 | 5° $\mathcal{X}$ 10'33  | 1°32'00    |
| superior conj    | 8337 Dec 09 14:11 | 21° $\mathcal{X}$ 18'38      | 1°16'11    | minimum elong       | 8338 Nov 23 05:03 | 5° $\mathcal{X}$ 21'25  | 1°32'00    |
| minimum elong    | 8337 Dec 09 17:22 | 21° $\mathcal{X}$ 33'53      | 1°15'59    | max. Earth dist.    | 8338 Nov 28 18:14 | 16° $\mathcal{X}$ 11'49 | 1.36819 AU |
|                  | 8337 Dec 14 05:26 | 0° $\mathcal{B}$             |            | evening rise        | 8338 Dec 02 13:26 | 23° $\mathcal{X}$ 14'28 |            |
| max. Earth dist. | 8337 Dec 16 11:57 | 4° $\mathcal{B}$ 06'41       | 1.38942 AU |                     | 8338 Dec 06 09:06 | 0° $\mathcal{B}$        |            |
| evening rise     | 8337 Dec 20 08:08 | 10° $\mathcal{B}$ 50'40      |            | desc. node          | 8338 Dec 07 12:31 | 1° $\mathcal{B}$ 57'42  |            |
| desc. node       | 8337 Dec 20 15:30 | 11° $\mathcal{B}$ 22'11      |            |                     | 8338 Dec 25 22:13 | 0° $\mathcal{B}$        |            |
|                  | 8338 Jan 01 04:28 | 0° $\mathcal{A}$             |            | evening max el      | 8339 Jan 07 04:25 | 14° $\mathcal{A}$ 28'39 | 25°45'03   |
|                  | 8338 Jan 23 23:06 | 0° $\mathcal{H}$             |            | retrograde          | 8339 Jan 19 14:16 | 21° $\mathcal{A}$ 34'52 |            |
| evening max el   | 8338 Jan 24 15:13 | 0° $\mathcal{H}$ 40'30       | 24°32'33   | evening set         | 8339 Jan 25 14:26 | 19° $\mathcal{A}$ 06'52 |            |
| retrograde       | 8338 Feb 05 03:22 | 7° $\mathcal{H}$ 24'14       |            | asc. node           | 8339 Jan 29 19:26 | 14° $\mathcal{A}$ 35'15 |            |
| evening set      | 8338 Feb 10 14:54 | 5° $\mathcal{H}$ 07'09       |            | min. Earth dist.    | 8339 Jan 29 22:04 | 14° $\mathcal{A}$ 27'02 | 0.67210 AU |
| asc. node        | 8338 Feb 11 22:23 | 3° $\mathcal{H}$ 52'34       |            | inferior conj       | 8339 Jan 31 07:42 | 12° $\mathcal{A}$ 40'29 | 0°29'58    |
| min. Earth dist. | 8338 Feb 15 05:25 | 29° $\mathcal{A}$ 52'44      | 0.67987 AU | minimum elong       | 8339 Jan 31 06:57 | 12° $\mathcal{A}$ 42'53 | 0°29'47    |
|                  | 8338 Feb 15 03:14 | 30° $\mathcal{R}\mathcal{A}$ |            | morning rise        | 8339 Feb 05 23:57 | 6° $\mathcal{A}$ 49'05  |            |
| inferior conj    | 8338 Feb 16 03:41 | 28° $\mathcal{A}$ 38'23      | 1°20'59    | direct              | 8339 Feb 09 07:12 | 5° $\mathcal{A}$ 46'31  |            |
| minimum elong    | 8338 Feb 16 01:56 | 28° $\mathcal{A}$ 44'13      | 1°20'26    | morning max el      | 8339 Feb 16 03:43 | 9° $\mathcal{A}$ 31'59  | 19°00'04   |
| morning rise     | 8338 Feb 21 13:07 | 22° $\mathcal{A}$ 38'30      |            | greatest brilliancy | 8339 Mar 02 04:31 | 28° $\mathcal{A}$ 32'39 | -0.8m      |
| direct           | 8338 Feb 25 08:01 | 21° $\mathcal{A}$ 16'20      |            |                     | 8339 Mar 03 03:23 | 0° $\mathcal{H}$        |            |
| morning max el   | 8338 Mar 04 20:53 | 25° $\mathcal{A}$ 30'28      | 19°57'28   | desc. node          | 8339 Mar 05 12:03 | 3° $\mathcal{H}$ 37'53  |            |
|                  | 8338 Mar 08 20:40 | 0° $\mathcal{H}$             |            | morning set         | 8339 Mar 10 22:01 | 12° $\mathcal{H}$ 01'23 |            |
| desc. node       | 8338 Mar 18 15:06 | 13° $\mathcal{H}$ 28'19      |            |                     | 8339 Mar 22 10:48 | 0° $\mathcal{Y}$        |            |
|                  | 8338 Mar 29 14:38 | 0° $\mathcal{Y}$             |            | max. Earth dist.    | 8339 Mar 25 04:42 | 4° $\mathcal{Y}$ 18'21  | 1.45229 AU |
| morning set      | 8338 Mar 31 17:17 | 3° $\mathcal{Y}$ 14'36       |            |                     |                   |                         |            |
| max. Earth dist. | 8338 Apr 11 12:39 | 20° $\mathcal{Y}$ 09'43      | 1.44202 AU | superior conj       | 8339 Mar 27 11:40 | 7° $\mathcal{Y}$ 54'38  | -2°01'38   |
|                  |                   |                              |            | minimum elong       | 8339 Mar 27 04:38 | 7° $\mathcal{Y}$ 26'55  | 2°01'16    |
| superior conj    | 8338 Apr 16 21:07 | 28° $\mathcal{Y}$ 46'48      | -2°11'56   |                     | 8339 Apr 10 06:43 | 0° $\mathcal{B}$        |            |
| minimum elong    | 8338 Apr 16 21:03 | 28° $\mathcal{Y}$ 46'34      | 2°12'00    | evening rise        | 8339 Apr 11 09:03 | 1° $\mathcal{B}$ 47'16  |            |
|                  | 8338 Apr 17 15:04 | 0° $\mathcal{B}$             |            |                     |                   |                         |            |



|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node        | 8339 Apr 27 18:21 | 27°♄26'02 |            | superior conj       | 8340 Mar 05 16:25 | 16°♄42'27 | -1°31'45   |
|                  | 8339 Apr 29 19:32 | 0°♄       |            | minimum elong       | 8340 Mar 05 06:54 | 16°♄05'07 | 1°30'43    |
| evening max el   | 8339 May 01 11:11 | 1°♄47'50  | 18°30'13   | max. Earth dist.    | 8340 Mar 07 00:11 | 18°♄46'50 | 1.45527 AU |
| retrograde       | 8339 May 07 22:43 | 5°♄18'56  |            |                     | 8340 Mar 14 04:24 | 0°♄       |            |
| evening set      | 8339 May 11 02:11 | 4°♄23'34  |            | evening rise        | 8340 Mar 21 16:49 | 11°♄45'46 |            |
|                  | 8339 May 15 20:54 | 30°♄      |            | greatest brilliancy | 8340 Apr 01 12:08 | 28°♄36'38 | -0.8m      |
| inferior conj    | 8339 May 16 20:08 | 28°♄51'34 | 3°18'41    |                     | 8340 Apr 02 09:57 | 0°♄       |            |
| minimum elong    | 8339 May 16 21:10 | 28°♄48'27 | 3°18'26    | asc. node           | 8340 Apr 13 15:24 | 15°♄10'27 |            |
| min. Earth dist. | 8339 May 18 23:37 | 26°♄18'39 | 0.64818 AU | evening max el      | 8340 Apr 13 20:31 | 15°♄23'30 | 19°08'43   |
| morning rise     | 8339 May 22 15:19 | 22°♄35'23 |            | retrograde          | 8340 Apr 20 18:41 | 19°♄17'05 |            |
| direct           | 8339 May 29 06:53 | 19°♄50'14 |            | evening set         | 8340 Apr 24 05:51 | 18°♄07'09 |            |
| desc. node       | 8339 Jun 01 11:44 | 20°♄23'30 |            | inferior conj       | 8340 Apr 29 17:31 | 12°♄19'12 | 3°23'08    |
| morning max el   | 8339 Jun 11 19:25 | 27°♄46'33 | 27°17'06   | minimum elong       | 8340 Apr 29 17:15 | 12°♄20'01 | 3°23'00    |
|                  | 8339 Jun 13 22:02 | 0°♄       |            | min. Earth dist.    | 8340 May 01 05:36 | 10°♄23'22 | 0.66378 AU |
|                  | 8339 Jul 05 06:41 | 0°♄       |            | morning rise        | 8340 May 05 04:16 | 6°♄01'05  |            |
| morning set      | 8339 Jul 17 05:51 | 21°♄33'51 |            | direct              | 8340 May 11 11:26 | 3°♄15'40  |            |
|                  | 8339 Jul 21 11:13 | 0°♄       |            | desc. node          | 8340 May 18 08:42 | 5°♄48'49  |            |
| max. Earth dist. | 8339 Jul 21 19:39 | 0°♄43'10  | 1.33448 AU | morning max el      | 8340 May 24 05:48 | 10°♄52'04 | 26°14'59   |
| asc. node        | 8339 Jul 24 17:34 | 6°♄46'58  |            |                     | 8340 Jun 08 10:21 | 0°♄       |            |
|                  |                   |           |            |                     | 8340 Jun 26 20:42 | 0°♄       |            |
| superior conj    | 8339 Jul 25 12:16 | 8°♄25'42  | 0°07'53    | morning set         | 8340 Jun 29 07:02 | 4°♄28'05  |            |
| minimum elong    | 8339 Jul 25 11:52 | 8°♄23'36  | 0°07'40    | max. Earth dist.    | 8340 Jul 03 05:45 | 11°♄59'42 | 1.35004 AU |
| behind sun begin | 8339 Jul 25 06:58 | 7°♄57'40  |            |                     |                   |           |            |
| behind sun end   | 8339 Jul 25 16:46 | 8°♄49'33  |            | superior conj       | 8340 Jul 08 08:54 | 22°♄15'21 | -0°22'17   |
| evening rise     | 8339 Aug 01 16:56 | 23°♄46'57 |            | minimum elong       | 8340 Jul 08 10:11 | 22°♄21'55 | 0°22'11    |
|                  | 8339 Aug 04 16:46 | 0°♄       |            | asc. node           | 8340 Jul 10 14:34 | 26°♄51'46 |            |
| evening max el   | 8339 Aug 22 17:04 | 28°♄04'20 | 22°06'29   |                     | 8340 Jul 12 02:46 | 0°♄       |            |
|                  | 8339 Aug 24 20:18 | 0°♄       |            | evening rise        | 8340 Jul 16 01:28 | 8°♄12'58  |            |
| desc. node       | 8339 Aug 28 10:45 | 2°♄28'59  |            |                     | 8340 Jul 27 18:57 | 0°♄       |            |
| retrograde       | 8339 Sep 04 11:22 | 4°♄25'06  |            | evening max el      | 8340 Aug 03 16:19 | 8°♄43'41  | 20°38'41   |
| evening set      | 8339 Sep 07 12:07 | 4°♄04'42  |            | desc. node          | 8340 Aug 14 07:50 | 14°♄18'16 |            |
| min. Earth dist. | 8339 Sep 15 22:14 | 0°♄25'17  | 0.54856 AU | retrograde          | 8340 Aug 14 23:35 | 14°♄19'21 |            |
| inferior conj    | 8339 Sep 16 13:57 | 0°♄03'14  | -4°58'45   | evening set         | 8340 Aug 17 01:36 | 14°♄08'43 |            |
| minimum elong    | 8339 Sep 16 05:49 | 0°♄14'39  | 4°57'12    | inferior conj       | 8340 Aug 26 06:40 | 10°♄11'45 | -3°30'25   |
|                  | 8339 Sep 16 16:16 | 30°♄      |            | minimum elong       | 8340 Aug 25 21:39 | 10°♄24'41 | 3°27'35    |
| morning rise     | 8339 Sep 25 01:02 | 26°♄15'09 |            | min. Earth dist.    | 8340 Aug 27 07:30 | 9°♄36'07  | 0.54760 AU |
| direct           | 8339 Sep 28 10:05 | 25°♄49'49 |            | morning rise        | 8340 Sep 03 17:29 | 6°♄10'47  |            |
|                  | 8339 Oct 08 16:21 | 0°♄       |            | direct              | 8340 Sep 07 18:32 | 5°♄35'46  |            |
| morning max el   | 8339 Oct 10 07:38 | 1°♄25'36  | 21°34'56   | morning max el      | 8340 Sep 20 23:35 | 11°♄57'16 | 23°17'56   |
| asc. node        | 8339 Oct 20 17:11 | 14°♄58'36 |            |                     | 8340 Oct 04 11:24 | 0°♄       |            |
|                  | 8339 Oct 28 18:22 | 0°♄       |            | asc. node           | 8340 Oct 06 14:10 | 3°♄44'58  |            |
| morning set      | 8339 Oct 30 20:06 | 4°♄16'47  |            | morning set         | 8340 Oct 14 07:29 | 19°♄06'57 |            |
|                  |                   |           |            |                     | 8340 Oct 19 08:50 | 0°♄       |            |
| superior conj    | 8339 Nov 07 01:24 | 19°♄29'41 | 1°39'57    |                     |                   |           |            |
| minimum elong    | 8339 Nov 07 02:15 | 19°♄34'05 | 1°40'04    | superior conj       | 8340 Oct 21 06:38 | 4°♄07'14  | 1°40'59    |
| max. Earth dist. | 8339 Nov 11 06:01 | 28°♄05'25 | 1.34943 AU | minimum elong       | 8340 Oct 21 06:13 | 4°♄05'00  | 1°41'04    |
|                  | 8339 Nov 12 04:58 | 0°♄       |            | max. Earth dist.    | 8340 Oct 24 01:54 | 10°♄05'35 | 1.33448 AU |
| evening rise     | 8339 Nov 15 11:44 | 6°♄23'04  |            | evening rise        | 8340 Oct 28 23:14 | 20°♄07'00 |            |
| desc. node       | 8339 Nov 24 09:33 | 22°♄21'17 |            |                     | 8340 Nov 03 03:02 | 0°♄       |            |
|                  | 8339 Nov 29 02:17 | 0°♄       |            | desc. node          | 8340 Nov 10 06:37 | 12°♄27'16 |            |
| evening max el   | 8339 Dec 20 17:45 | 28°♄11'41 | 26°43'14   |                     | 8340 Nov 22 02:42 | 0°♄       |            |
|                  | 8339 Dec 22 16:57 | 0°♄       |            | evening max el      | 8340 Dec 02 06:29 | 11°♄39'38 | 27°19'48   |
| retrograde       | 8340 Jan 02 19:32 | 5°♄29'12  |            | retrograde          | 8340 Dec 15 18:46 | 18°♄59'47 |            |
| evening set      | 8340 Jan 09 07:38 | 2°♄54'18  |            | evening set         | 8340 Dec 22 16:18 | 16°♄24'09 |            |
|                  | 8340 Jan 12 08:02 | 30°♄      |            | min. Earth dist.    | 8340 Dec 26 12:23 | 12°♄52'35 | 0.64574 AU |
| min. Earth dist. | 8340 Jan 13 09:07 | 28°♄49'11 | 0.66066 AU | inferior conj       | 8340 Dec 28 21:21 | 10°♄19'36 | -1°33'44   |
| inferior conj    | 8340 Jan 15 06:22 | 26°♄35'56 | -0°28'38   | minimum elong       | 8340 Dec 29 00:13 | 10°♄11'54 | 1°32'23    |
| minimum elong    | 8340 Jan 15 07:10 | 26°♄33'34 | 0°28'08    | asc. node           | 8341 Jan 02 13:33 | 5°♄56'19  |            |
| asc. node        | 8340 Jan 16 16:30 | 24°♄57'08 |            | morning rise        | 8341 Jan 04 09:41 | 4°♄52'59  |            |
| morning rise     | 8340 Jan 21 07:41 | 20°♄55'30 |            | direct              | 8341 Jan 06 22:50 | 4°♄19'29  |            |
| direct           | 8340 Jan 24 04:56 | 20°♄09'20 |            | morning max el      | 8341 Jan 13 09:23 | 7°♄42'01  | 17°54'42   |
| morning max el   | 8340 Jan 30 16:44 | 23°♄37'57 | 18°18'57   |                     | 8341 Jan 28 11:21 | 0°♄       |            |
|                  | 8340 Feb 04 22:27 | 0°♄       |            | morning set         | 8341 Jan 30 15:47 | 3°♄39'48  |            |
| morning set      | 8340 Feb 19 04:17 | 22°♄07'34 |            | desc. node          | 8341 Feb 06 05:54 | 14°♄37'39 |            |
| desc. node       | 8340 Feb 20 08:59 | 24°♄02'31 |            |                     |                   |           |            |
|                  | 8340 Feb 24 02:29 | 0°♄       |            | superior conj       | 8341 Feb 13 06:47 | 26°♄03'14 | -0°49'28   |
|                  |                   |           |            | minimum elong       | 8341 Feb 13 01:06 | 25°♄40'27 | 0°48'34    |

|                     |                   |                           |            |                  |                   |                           |            |
|---------------------|-------------------|---------------------------|------------|------------------|-------------------|---------------------------|------------|
|                     | 8341 Feb 15 18:10 | 0° $\text{H}$             |            | superior conj    | 8342 Jan 24 20:13 | 6° $\approx$ 32'10        | -0°05'19   |
| max. Earth dist.    | 8341 Feb 17 19:47 | 3° $\text{H}$ 16'21       | 1.45075 AU | minimum elong    | 8342 Jan 24 19:42 | 6° $\approx$ 29'59        | 0°05'05    |
| evening rise        | 8341 Mar 01 07:43 | 21° $\text{H}$ 08'59      |            | behind sun begin | 8342 Jan 24 10:59 | 5° $\approx$ 53'31        |            |
|                     | 8341 Mar 07 02:41 | 0° $\text{Y}$             |            | behind sun end   | 8342 Jan 25 04:25 | 7° $\approx$ 06'24        |            |
| greatest brilliancy | 8341 Mar 16 02:31 | 13° $\text{Y}$ 27'28      | -0.6m      | max. Earth dist. | 8342 Jan 31 12:39 | 17° $\approx$ 29'32       | 1.43936 AU |
| evening max el      | 8341 Mar 28 00:54 | 29° $\text{Y}$ 01'20      | 20°03'05   |                  | 8342 Feb 08 11:04 | 0° $\text{H}$             |            |
|                     | 8341 Mar 29 00:57 | 0° $\text{B}$             |            | evening rise     | 8342 Feb 08 19:32 | 0° $\text{H}$ 32'41       |            |
| asc. node           | 8341 Mar 31 12:29 | 1° $\text{B}$ 59'32       |            |                  | 8342 Feb 28 18:14 | 0° $\text{Y}$             |            |
| retrograde          | 8341 Apr 04 17:00 | 3° $\text{B}$ 27'51       |            | evening max el   | 8342 Mar 10 23:46 | 12° $\text{Y}$ 40'35      | 21°10'38   |
| evening set         | 8341 Apr 08 12:40 | 2° $\text{B}$ 03'00       |            | asc. node        | 8342 Mar 18 09:35 | 17° $\text{Y}$ 38'51      |            |
|                     | 8341 Apr 10 17:19 | 30° $\text{R}$ $\text{Y}$ |            | retrograde       | 8342 Mar 19 15:27 | 17° $\text{Y}$ 46'46      |            |
| inferior conj       | 8341 Apr 13 20:57 | 26° $\text{Y}$ 00'57      | 3°14'17    | evening set      | 8342 Mar 23 20:46 | 16° $\text{Y}$ 06'49      |            |
| minimum elong       | 8341 Apr 13 19:39 | 26° $\text{Y}$ 05'22      | 3°14'04    | inferior conj    | 8342 Mar 29 04:03 | 9° $\text{Y}$ 53'08       | 2°54'26    |
| min. Earth dist.    | 8341 Apr 14 18:32 | 24° $\text{Y}$ 48'00      | 0.67498 AU | minimum elong    | 8342 Mar 29 02:03 | 10° $\text{Y}$ 00'01      | 2°54'01    |
| morning rise        | 8341 Apr 19 02:24 | 19° $\text{Y}$ 43'50      |            | min. Earth dist. | 8342 Mar 29 12:21 | 9° $\text{Y}$ 24'20       | 0.68176 AU |
| direct              | 8341 Apr 24 21:47 | 17° $\text{Y}$ 08'18      |            | morning rise     | 8342 Apr 03 07:09 | 3° $\text{Y}$ 38'57       |            |
| desc. node          | 8341 May 05 05:40 | 22° $\text{Y}$ 47'47      |            | direct           | 8342 Apr 08 13:04 | 1° $\text{Y}$ 20'28       |            |
| morning max el      | 8341 May 06 15:19 | 24° $\text{Y}$ 10'08      | 24°54'12   | morning max el   | 8342 Apr 19 00:39 | 7° $\text{Y}$ 35'05       | 23°24'59   |
|                     | 8341 May 11 20:32 | 0° $\text{B}$             |            | desc. node       | 8342 Apr 22 02:37 | 10° $\text{Y}$ 54'56      |            |
|                     | 8341 Jun 01 20:25 | 0° $\text{II}$            |            |                  | 8342 May 06 12:01 | 0° $\text{B}$             |            |
| morning set         | 8341 Jun 11 15:13 | 16° $\text{II}$ 31'39     |            | morning set      | 8342 May 24 00:58 | 27° $\text{B}$ 30'38      |            |
| max. Earth dist.    | 8341 Jun 15 06:05 | 23° $\text{II}$ 04'16     | 1.36974 AU |                  | 8342 May 25 12:13 | 0° $\text{II}$            |            |
|                     | 8341 Jun 18 22:44 | 0° $\text{B}$             |            | max. Earth dist. | 8342 May 28 01:53 | 4° $\text{II}$ 26'03      | 1.39194 AU |
| superior conj       | 8341 Jun 21 19:22 | 5° $\text{B}$ 31'57       | -0°54'07   | superior conj    | 8342 Jun 04 15:58 | 18° $\text{II}$ 06'57     | -1°25'13   |
| minimum elong       | 8341 Jun 21 22:41 | 5° $\text{B}$ 48'13       | 0°53'42    | minimum elong    | 8342 Jun 04 21:10 | 18° $\text{II}$ 31'10     | 1°24'40    |
| asc. node           | 8341 Jun 27 11:33 | 16° $\text{B}$ 50'36      |            |                  | 8342 Jun 10 22:00 | 0° $\text{B}$             |            |
| evening rise        | 8341 Jun 30 05:05 | 22° $\text{B}$ 20'43      |            | evening rise     | 8342 Jun 14 00:59 | 6° $\text{B}$ 02'56       |            |
|                     | 8341 Jul 04 02:05 | 0° $\text{O}$             |            | asc. node        | 8342 Jun 14 08:35 | 6° $\text{B}$ 39'41       |            |
| evening max el      | 8341 Jul 17 04:50 | 20° $\text{O}$ 05'50      | 19°29'36   |                  | 8342 Jun 28 04:57 | 0° $\text{O}$             |            |
| retrograde          | 8341 Jul 26 19:11 | 24° $\text{O}$ 50'13      |            | evening max el   | 8342 Jun 30 05:08 | 2° $\text{O}$ 11'55       | 18°41'22   |
| evening set         | 8341 Jul 28 15:37 | 24° $\text{O}$ 40'24      |            | retrograde       | 8342 Jul 08 07:32 | 6° $\text{O}$ 13'03       |            |
| desc. node          | 8341 Aug 01 04:55 | 23° $\text{O}$ 32'00      |            | evening set      | 8342 Jul 10 08:34 | 5° $\text{O}$ 58'37       |            |
| inferior conj       | 8341 Aug 06 09:01 | 20° $\text{O}$ 34'41      | -1°35'02   | inferior conj    | 8342 Jul 18 06:54 | 1° $\text{O}$ 35'12       | 0°14'19    |
| minimum elong       | 8341 Aug 06 04:43 | 20° $\text{O}$ 41'34      | 1°33'31    | minimum elong    | 8342 Jul 18 07:27 | 1° $\text{O}$ 34'11       | 0°13'58    |
| min. Earth dist.    | 8341 Aug 08 19:53 | 19° $\text{O}$ 00'36      | 0.55613 AU | transit middle   | 8342 Jul 18 07:27 | 1° $\text{O}$ 34'11       | 0°13'58    |
| morning rise        | 8341 Aug 14 15:18 | 16° $\text{O}$ 02'04      |            | transit begin    | 8342 Jul 18 05:37 | 1° $\text{O}$ 37'35       |            |
| direct              | 8341 Aug 19 11:35 | 15° $\text{O}$ 09'16      |            | transit end      | 8342 Jul 18 09:16 | 1° $\text{O}$ 30'47       |            |
| morning max el      | 8341 Sep 02 12:04 | 22° $\text{O}$ 11'23      | 25°02'45   | desc. node       | 8342 Jul 19 01:58 | 0° $\text{O}$ 59'26       |            |
|                     | 8341 Sep 09 09:41 | 0° $\text{H}$             |            |                  | 8342 Jul 20 09:44 | 30° $\text{R}$ $\text{B}$ |            |
| asc. node           | 8341 Sep 23 11:08 | 23° $\text{H}$ 00'06      |            | min. Earth dist. | 8342 Jul 21 12:46 | 29° $\text{B}$ 10'51      | 0.57256 AU |
|                     | 8341 Sep 26 22:26 | 0° $\text{B}$             |            | morning rise     | 8342 Jul 26 02:49 | 26° $\text{B}$ 25'29      |            |
| morning set         | 8341 Sep 28 19:10 | 3° $\text{B}$ 55'26       |            | direct           | 8342 Jul 31 19:20 | 25° $\text{B}$ 05'30      |            |
|                     |                   |                           |            |                  | 8342 Aug 12 04:50 | 0° $\text{O}$             |            |
| superior conj       | 8341 Oct 05 16:01 | 18° $\text{B}$ 54'38      | 1°35'51    | morning max el   | 8342 Aug 15 03:28 | 2° $\text{O}$ 37'05       | 26°32'25   |
| minimum elong       | 8341 Oct 05 14:36 | 18° $\text{B}$ 46'52      | 1°35'48    |                  | 8342 Sep 03 18:07 | 0° $\text{H}$             |            |
| max. Earth dist.    | 8341 Oct 07 05:20 | 22° $\text{B}$ 18'43      | 1.32391 AU | asc. node        | 8342 Sep 10 08:07 | 12° $\text{H}$ 36'25      |            |
|                     | 8341 Oct 10 19:14 | 0° $\text{H}$             |            | morning set      | 8342 Sep 13 05:32 | 18° $\text{H}$ 37'31      |            |
| evening rise        | 8341 Oct 12 20:28 | 4° $\text{H}$ 16'34       |            |                  | 8342 Sep 18 10:51 | 0° $\text{B}$             |            |
|                     | 8341 Oct 26 19:48 | 0° $\text{A}$             |            |                  |                   |                           |            |
| desc. node          | 8341 Oct 28 03:42 | 2° $\text{A}$ 07'33       |            | superior conj    | 8342 Sep 20 03:31 | 3° $\text{B}$ 45'23       | 1°25'09    |
| evening max el      | 8341 Nov 14 16:52 | 24° $\text{A}$ 40'12      | 27°28'25   | minimum elong    | 8342 Sep 20 01:28 | 3° $\text{B}$ 34'01       | 1°24'54    |
|                     | 8341 Nov 21 17:14 | 0° $\text{B}$             |            | max. Earth dist. | 8342 Sep 20 13:51 | 4° $\text{B}$ 42'39       | 1.31793 AU |
| retrograde          | 8341 Nov 28 11:21 | 1° $\text{B}$ 57'17       |            | evening rise     | 8342 Sep 27 00:37 | 18° $\text{B}$ 43'58      |            |
|                     | 8341 Dec 04 19:06 | 30° $\text{R}$ $\text{A}$ |            |                  | 8342 Oct 02 14:28 | 0° $\text{H}$             |            |
| evening set         | 8341 Dec 05 13:35 | 29° $\text{A}$ 29'52      |            | desc. node       | 8342 Oct 15 00:47 | 21° $\text{H}$ 11'42      |            |
| min. Earth dist.    | 8341 Dec 09 06:07 | 26° $\text{A}$ 27'41      | 0.62769 AU |                  | 8342 Oct 21 12:22 | 0° $\text{A}$             |            |
| inferior conj       | 8341 Dec 12 01:50 | 23° $\text{A}$ 44'47      | -2°43'13   | evening max el   | 8342 Oct 27 22:38 | 7° $\text{A}$ 01'22       | 27°04'16   |
| minimum elong       | 8341 Dec 12 07:01 | 23° $\text{A}$ 32'18      | 2°41'05    | retrograde       | 8342 Nov 10 20:12 | 14° $\text{A}$ 12'08      |            |
| morning rise        | 8341 Dec 19 02:32 | 18° $\text{A}$ 35'02      |            | evening set      | 8342 Nov 17 19:42 | 12° $\text{A}$ 03'47      |            |
| asc. node           | 8341 Dec 20 10:36 | 18° $\text{A}$ 14'51      |            | min. Earth dist. | 8342 Nov 21 13:20 | 9° $\text{A}$ 22'19       | 0.60745 AU |
| direct              | 8341 Dec 21 09:58 | 18° $\text{A}$ 10'25      |            | inferior conj    | 8342 Nov 24 16:33 | 6° $\text{A}$ 42'59       | -3°52'36   |
| morning max el      | 8341 Dec 28 02:39 | 21° $\text{A}$ 36'18      | 17°47'59   | minimum elong    | 8342 Nov 24 23:33 | 6° $\text{A}$ 28'05       | 3°50'16    |
|                     | 8342 Jan 03 12:45 | 0° $\text{B}$             |            | morning rise     | 8342 Dec 02 05:47 | 1° $\text{A}$ 53'03       |            |
| morning set         | 8342 Jan 13 03:28 | 16° $\text{B}$ 21'36      |            | direct           | 8342 Dec 04 10:40 | 1° $\text{A}$ 33'44       |            |
|                     | 8342 Jan 20 23:27 | 0° $\approx$              |            | asc. node        | 8342 Dec 07 07:39 | 2° $\text{A}$ 08'03       |            |
| desc. node          | 8342 Jan 24 02:53 | 5° $\approx$ 19'33        |            | morning max el   | 8342 Dec 11 17:08 | 5° $\text{A}$ 11'42       | 17°59'49   |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| morning set      | 8342 Dec 27 08:48 | 29° $\text{♄}$ 53'08 |            | morning set      | 8343 Dec 11 02:27 | 13° $\text{♄}$ 58'58 |            |
|                  | 8342 Dec 27 10:17 | 0° $\text{♄}$        |            |                  | 8343 Dec 19 11:27 | 0° $\text{♄}$        |            |
| superior conj    | 8343 Jan 06 11:07 | 18° $\text{♄}$ 13'40 | 0°33'17    | superior conj    | 8343 Dec 19 23:50 | 0° $\text{♄}$ 57'41  | 1°03'08    |
| minimum elong    | 8343 Jan 06 13:42 | 18° $\text{♄}$ 25'04 | 0°33'03    | minimum elong    | 8343 Dec 20 03:15 | 1° $\text{♄}$ 13'32  | 1°02'51    |
| desc. node       | 8343 Jan 10 23:52 | 26° $\text{♄}$ 04'19 |            | max. Earth dist. | 8343 Dec 27 09:34 | 14° $\text{♄}$ 16'35 | 1.40200 AU |
|                  | 8343 Jan 13 07:50 | 0° $\text{♄}$        |            | desc. node       | 8343 Dec 28 20:54 | 16° $\text{♄}$ 48'45 |            |
| max. Earth dist. | 8343 Jan 14 01:12 | 1° $\text{♄}$ 12'18  | 1.42247 AU | evening rise     | 8343 Dec 31 15:07 | 21° $\text{♄}$ 28'18 |            |
| evening rise     | 8343 Jan 19 19:05 | 10° $\text{♄}$ 32'31 |            |                  | 8344 Jan 05 20:54 | 0° $\text{♄}$        |            |
|                  | 8343 Feb 01 12:56 | 0° $\text{♄}$        |            |                  | 8344 Jan 26 15:05 | 0° $\text{♄}$        |            |
| evening max el   | 8343 Feb 21 17:47 | 26° $\text{♄}$ 21'40 | 22°27'14   | evening max el   | 8344 Feb 04 08:31 | 10° $\text{♄}$ 06'12 | 23°47'19   |
|                  | 8343 Feb 25 22:15 | 0° $\text{♄}$        |            | retrograde       | 8344 Feb 15 05:49 | 16° $\text{♄}$ 30'58 |            |
| retrograde       | 8343 Mar 03 12:10 | 2° $\text{♄}$ 09'02  |            | evening set      | 8344 Feb 20 10:13 | 14° $\text{♄}$ 21'27 |            |
| asc. node        | 8343 Mar 05 06:41 | 1° $\text{♄}$ 53'11  |            | asc. node        | 8344 Feb 20 03:46 | 14° $\text{♄}$ 34'47 |            |
| evening set      | 8343 Mar 08 04:27 | 0° $\text{♄}$ 14'02  |            | min. Earth dist. | 8344 Feb 25 05:17 | 8° $\text{♄}$ 47'24  | 0.68270 AU |
|                  | 8343 Mar 08 11:00 | 30° $\text{♄}$       |            | inferior conj    | 8344 Feb 25 20:58 | 7° $\text{♄}$ 53'57  | 1°46'46    |
| inferior conj    | 8343 Mar 13 12:40 | 23° $\text{♄}$ 51'39 | 2°24'58    | minimum elong    | 8344 Feb 25 18:53 | 8° $\text{♄}$ 01'02  | 1°46'08    |
| minimum elong    | 8343 Mar 13 10:25 | 23° $\text{♄}$ 59'30 | 2°24'23    | morning rise     | 8344 Mar 02 03:34 | 1° $\text{♄}$ 50'11  |            |
| min. Earth dist. | 8343 Mar 13 08:41 | 24° $\text{♄}$ 05'31 | 0.68427 AU | direct           | 8344 Mar 06 05:57 | 0° $\text{♄}$ 15'26  |            |
| morning rise     | 8343 Mar 18 16:13 | 17° $\text{♄}$ 41'57 |            | morning max el   | 8344 Mar 14 07:18 | 4° $\text{♄}$ 50'59  | 20°37'20   |
| direct           | 8343 Mar 23 08:11 | 15° $\text{♄}$ 44'42 |            | desc. node       | 8344 Mar 25 20:32 | 19° $\text{♄}$ 22'25 |            |
| morning max el   | 8343 Apr 01 12:46 | 21° $\text{♄}$ 07'10 | 21°56'52   |                  | 8344 Apr 02 03:48 | 0° $\text{♄}$        |            |
| desc. node       | 8343 Apr 08 23:34 | 29° $\text{♄}$ 50'50 |            | morning set      | 8344 Apr 12 13:17 | 15° $\text{♄}$ 48'54 |            |
|                  | 8343 Apr 09 02:23 | 0° $\text{♄}$        |            | max. Earth dist. | 8344 Apr 21 06:57 | 29° $\text{♄}$ 38'40 | 1.43329 AU |
|                  | 8343 Apr 29 18:12 | 0° $\text{♄}$        |            |                  | 8344 Apr 21 12:14 | 0° $\text{♄}$        |            |
| morning set      | 8343 May 04 07:32 | 7° $\text{♄}$ 12'47  |            | superior conj    | 8344 Apr 27 21:10 | 10° $\text{♄}$ 28'37 | -2°08'59   |
| max. Earth dist. | 8343 May 10 00:43 | 16° $\text{♄}$ 34'13 | 1.41407 AU | minimum elong    | 8344 Apr 28 00:26 | 10° $\text{♄}$ 42'14 | 2°08'59    |
|                  |                   |                      |            |                  | 8344 May 09 05:22 | 0° $\text{♄}$        |            |
| superior conj    | 8343 May 17 18:05 | 29° $\text{♄}$ 49'05 | -1°51'57   | evening rise     | 8344 May 10 02:08 | 1° $\text{♄}$ 31'26  |            |
| minimum elong    | 8343 May 17 23:52 | 0° $\text{♄}$ 14'34  | 1°51'35    | asc. node        | 8344 May 18 02:40 | 15° $\text{♄}$ 27'26 |            |
|                  | 8343 May 17 20:34 | 0° $\text{♄}$        |            | evening max el   | 8344 May 27 01:52 | 27° $\text{♄}$ 58'56 | 18°05'23   |
| evening rise     | 8343 May 28 09:27 | 19° $\text{♄}$ 09'48 |            |                  | 8344 May 29 12:40 | 0° $\text{♄}$        |            |
| asc. node        | 8343 Jun 01 05:38 | 26° $\text{♄}$ 13'50 |            | retrograde       | 8344 Jun 02 14:04 | 1° $\text{♄}$ 20'25  |            |
|                  | 8343 Jun 03 08:02 | 0° $\text{♄}$        |            | evening set      | 8344 Jun 05 06:05 | 0° $\text{♄}$ 46'05  |            |
| evening max el   | 8343 Jun 13 13:25 | 14° $\text{♄}$ 52'59 | 18°13'36   |                  | 8344 Jun 06 17:12 | 30° $\text{♄}$       |            |
| retrograde       | 8343 Jun 20 14:53 | 18° $\text{♄}$ 26'18 |            | inferior conj    | 8344 Jun 11 17:04 | 25° $\text{♄}$ 41'57 | 2°36'04    |
| evening set      | 8343 Jun 22 23:25 | 18° $\text{♄}$ 03'16 |            | minimum elong    | 8344 Jun 11 19:56 | 25° $\text{♄}$ 34'43 | 2°35'14    |
| inferior conj    | 8343 Jun 30 02:27 | 13° $\text{♄}$ 19'08 | 1°39'07    | min. Earth dist. | 8344 Jun 14 18:31 | 22° $\text{♄}$ 38'35 | 0.61617 AU |
| minimum elong    | 8343 Jun 30 05:16 | 13° $\text{♄}$ 12'58 | 1°38'03    | morning rise     | 8344 Jun 18 07:41 | 19° $\text{♄}$ 40'09 |            |
| min. Earth dist. | 8343 Jul 03 11:37 | 10° $\text{♄}$ 23'24 | 0.59370 AU | desc. node       | 8344 Jun 21 20:04 | 17° $\text{♄}$ 51'37 |            |
| desc. node       | 8343 Jul 05 23:01 | 8° $\text{♄}$ 30'28  |            | direct           | 8344 Jun 25 00:36 | 17° $\text{♄}$ 20'22 |            |
| morning rise     | 8343 Jul 07 08:03 | 7° $\text{♄}$ 38'20  |            | morning max el   | 8344 Jul 09 05:32 | 25° $\text{♄}$ 20'53 | 27°55'38   |
| direct           | 8343 Jul 13 16:28 | 5° $\text{♄}$ 46'56  |            |                  | 8344 Jul 13 12:06 | 0° $\text{♄}$        |            |
| morning max el   | 8343 Jul 28 01:13 | 13° $\text{♄}$ 37'07 | 27°32'38   |                  | 8344 Aug 02 14:14 | 0° $\text{♄}$        |            |
|                  | 8343 Aug 10 02:49 | 0° $\text{♄}$        |            | morning set      | 8344 Aug 11 15:16 | 17° $\text{♄}$ 21'56 |            |
|                  | 8343 Aug 27 00:34 | 0° $\text{♄}$        |            | asc. node        | 8344 Aug 14 02:04 | 22° $\text{♄}$ 28'10 |            |
| asc. node        | 8343 Aug 28 05:07 | 2° $\text{♄}$ 27'44  |            | max. Earth dist. | 8344 Aug 17 08:13 | 29° $\text{♄}$ 27'47 | 1.31973 AU |
| morning set      | 8343 Aug 28 12:54 | 3° $\text{♄}$ 08'27  |            |                  | 8344 Aug 17 14:08 | 0° $\text{♄}$        |            |
| max. Earth dist. | 8343 Sep 04 00:08 | 17° $\text{♄}$ 09'48 | 1.31652 AU |                  |                   |                      |            |
|                  |                   |                      |            | superior conj    | 8344 Aug 19 01:23 | 3° $\text{♄}$ 12'55  | 0°48'47    |
| superior conj    | 8343 Sep 04 15:16 | 18° $\text{♄}$ 33'37 | 1°09'20    | minimum elong    | 8344 Aug 18 23:25 | 3° $\text{♄}$ 02'10  | 0°48'19    |
| minimum elong    | 8343 Sep 04 13:01 | 18° $\text{♄}$ 21'08 | 1°08'56    | evening rise     | 8344 Aug 25 20:23 | 18° $\text{♄}$ 04'31 |            |
|                  | 8343 Sep 09 19:44 | 0° $\text{♄}$        |            |                  | 8344 Aug 31 15:42 | 0° $\text{♄}$        |            |
| evening rise     | 8343 Sep 11 09:19 | 3° $\text{♄}$ 22'22  |            | desc. node       | 8344 Sep 17 18:59 | 26° $\text{♄}$ 28'28 |            |
|                  | 8343 Sep 25 12:01 | 0° $\text{♄}$        |            | evening max el   | 8344 Sep 20 11:57 | 29° $\text{♄}$ 16'39 | 24°41'20   |
| desc. node       | 8343 Oct 01 21:53 | 9° $\text{♄}$ 25'32  |            |                  | 8344 Sep 21 06:29 | 0° $\text{♄}$        |            |
| evening max el   | 8343 Oct 09 21:18 | 18° $\text{♄}$ 33'52 | 26°06'33   | retrograde       | 8344 Oct 04 07:26 | 6° $\text{♄}$ 13'30  |            |
| retrograde       | 8343 Oct 23 19:30 | 25° $\text{♄}$ 37'58 |            | evening set      | 8344 Oct 09 15:59 | 5° $\text{♄}$ 09'25  |            |
| evening set      | 8343 Oct 30 05:58 | 23° $\text{♄}$ 58'50 |            | min. Earth dist. | 8344 Oct 14 23:02 | 2° $\text{♄}$ 22'58  | 0.56754 AU |
| min. Earth dist. | 8343 Nov 03 10:16 | 21° $\text{♄}$ 24'06 | 0.58661 AU | inferior conj    | 8344 Oct 17 15:20 | 0° $\text{♄}$ 39'55  | -5°30'58   |
| inferior conj    | 8343 Nov 06 14:00 | 19° $\text{♄}$ 04'43 | -4°53'18   | minimum elong    | 8344 Oct 17 18:15 | 0° $\text{♄}$ 35'14  | 5°30'42    |
| minimum elong    | 8343 Nov 06 20:53 | 18° $\text{♄}$ 51'59 | 4°51'47    |                  | 8344 Oct 18 16:20 | 30° $\text{♄}$       |            |
| morning rise     | 8343 Nov 14 14:07 | 14° $\text{♄}$ 37'09 |            | morning rise     | 8344 Oct 25 22:42 | 26° $\text{♄}$ 34'51 |            |
| direct           | 8343 Nov 16 20:45 | 14° $\text{♄}$ 19'53 |            | direct           | 8344 Oct 28 12:10 | 26° $\text{♄}$ 16'45 |            |
| asc. node        | 8343 Nov 24 04:41 | 17° $\text{♄}$ 31'21 |            |                  | 8344 Nov 06 03:12 | 0° $\text{♄}$        |            |
| morning max el   | 8343 Nov 25 01:16 | 18° $\text{♄}$ 18'38 | 18°31'48   | morning max el   | 8344 Nov 06 23:23 | 0° $\text{♄}$ 45'50  | 19°25'41   |
|                  | 8343 Dec 03 13:08 | 0° $\text{♄}$        |            |                  |                   |                      |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node           | 8344 Nov 10 01:41 | 4°♍09'48  |            | direct              | 8345 Oct 09 08:24 | 7°♌16'25  |            |
| morning set         | 8344 Nov 24 04:21 | 28°♍26'21 |            | morning max el      | 8345 Oct 20 08:54 | 12°♌25'57 | 20°41'55   |
|                     | 8344 Nov 24 23:02 | 0°♌       |            |                     | 8345 Oct 27 22:41 | 21°♌48'18 |            |
|                     |                   |           |            | asc. node           | 8345 Nov 01 19:29 | 0°♍       |            |
| superior conj       | 8344 Dec 02 05:09 | 14°♌28'36 | 1°23'54    | morning set         | 8345 Nov 08 11:35 | 13°♍07'07 |            |
| minimum elong       | 8344 Dec 02 07:58 | 14°♌42'23 | 1°23'48    |                     |                   |           |            |
| max. Earth dist.    | 8344 Dec 08 15:24 | 26°♌39'42 | 1.38028 AU | superior conj       | 8345 Nov 15 22:28 | 28°♍33'24 | 1°36'16    |
|                     | 8344 Dec 10 11:34 | 0°♌       |            |                     | 8345 Nov 16 00:05 | 28°♍41'38 | 1°36'20    |
| evening rise        | 8344 Dec 12 08:52 | 3°♌21'06  |            | minimum elong       | 8345 Nov 16 15:29 | 0°♌       |            |
| desc. node          | 8344 Dec 14 17:55 | 7°♌28'23  |            |                     | 8345 Nov 20 23:14 | 8°♌35'54  | 1.35983 AU |
|                     | 8344 Dec 28 23:33 | 0°♌       |            | max. Earth dist.    | 8345 Nov 24 21:50 | 16°♌04'42 |            |
| evening max el      | 8345 Jan 16 21:41 | 23°♌53'05 | 25°04'33   | evening rise        | 8345 Dec 01 14:56 | 27°♌59'03 |            |
|                     | 8345 Jan 25 04:46 | 0°♌       |            |                     | 8345 Dec 02 19:39 | 0°♌       |            |
| retrograde          | 8345 Jan 28 19:24 | 0°♌47'24  |            | desc. node          | 8345 Dec 23 11:51 | 0°♌       |            |
|                     | 8345 Feb 01 03:36 | 30°♌      |            |                     | 8345 Dec 30 10:42 | 7°♌38'54  | 26°11'52   |
| evening set         | 8345 Feb 03 12:30 | 28°♌25'02 |            | evening max el      | 8346 Jan 12 04:08 | 14°♌51'52 |            |
| asc. node           | 8345 Feb 06 00:50 | 25°♌51'51 |            | retrograde          | 8346 Jan 18 09:35 | 12°♌20'01 |            |
| min. Earth dist.    | 8345 Feb 07 23:56 | 23°♌25'36 | 0.67710 AU | evening set         | 8346 Jan 22 14:24 | 7°♌55'09  | 0.66768 AU |
| inferior conj       | 8345 Feb 09 03:05 | 21°♌56'47 | 1°00'18    | min. Earth dist.    | 8346 Jan 23 21:55 | 6°♌18'13  |            |
| minimum elong       | 8345 Feb 09 01:41 | 22°♌01'20 | 0°59'52    | asc. node           | 8346 Jan 24 05:04 | 5°♌56'08  | 0°05'58    |
| morning rise        | 8345 Feb 14 15:09 | 16°♌00'31 |            | inferior conj       | 8346 Jan 24 04:54 | 5°♌56'38  | 0°06'02    |
| direct              | 8345 Feb 18 04:56 | 14°♌47'06 |            | minimum elong       | 8346 Jan 24 04:54 | 5°♌56'38  | 0°06'02    |
| morning max el      | 8345 Feb 25 09:51 | 18°♌47'10 | 19°31'08   | transit middle      | 8346 Jan 24 02:15 | 6°♌04'50  |            |
|                     | 8345 Mar 06 08:51 | 0°♌       |            | transit begin       | 8346 Jan 24 07:34 | 5°♌48'27  |            |
| greatest brilliancy | 8345 Mar 10 04:26 | 5°♌32'24  | -0.7m      | transit end         | 8346 Jan 30 00:56 | 0°♌09'18  |            |
| desc. node          | 8345 Mar 12 17:30 | 9°♌20'03  |            | morning rise        | 8346 Jan 30 07:34 | 30°♌      |            |
| morning set         | 8345 Mar 22 11:10 | 24°♌11'09 |            | direct              | 8346 Feb 02 03:37 | 29°♌14'21 |            |
|                     | 8345 Mar 26 05:25 | 0°♌       |            |                     | 8346 Feb 05 01:46 | 0°♌       |            |
| max. Earth dist.    | 8345 Apr 03 20:02 | 13°♌28'26 | 1.44721 AU | morning max el      | 8346 Feb 08 19:38 | 2°♌51'25  | 18°40'30   |
|                     |                   |           |            |                     | 8346 Feb 27 14:26 | 29°♌36'20 |            |
| superior conj       | 8345 Apr 07 23:36 | 20°♌04'37 | -2°10'04   | desc. node          | 8346 Feb 27 20:28 | 0°♌       |            |
| minimum elong       | 8345 Apr 07 20:30 | 19°♌52'12 | 2°10'04    | morning set         | 8346 Mar 02 01:15 | 3°♌27'22  |            |
|                     | 8345 Apr 14 02:40 | 0°♌       |            |                     | 8346 Mar 17 13:32 | 27°♌46'05 | 1.45441 AU |
| evening rise        | 8345 Apr 21 22:28 | 12°♌58'48 |            | max. Earth dist.    |                   |           |            |
|                     | 8345 May 02 05:18 | 0°♌       |            |                     |                   |           |            |
| asc. node           | 8345 May 04 23:43 | 4°♌13'47  |            | superior conj       | 8346 Mar 18 07:48 | 28°♌57'35 | -1°51'05   |
| evening max el      | 8345 May 10 15:08 | 11°♌21'24 | 18°15'56   | minimum elong       | 8346 Mar 17 22:49 | 28°♌22'26 | 1°50'23    |
| retrograde          | 8345 May 17 00:27 | 14°♌45'34 |            |                     | 8346 Mar 18 23:43 | 0°♌       |            |
| evening set         | 8345 May 19 23:38 | 13°♌58'17 |            | evening rise        | 8346 Apr 02 19:18 | 23°♌27'17 |            |
| inferior conj       | 8345 May 25 22:40 | 8°♌35'55  | 3°08'50    |                     | 8346 Apr 06 21:20 | 0°♌       |            |
| minimum elong       | 8345 May 26 00:29 | 8°♌30'47  | 3°08'25    | greatest brilliancy | 8346 Apr 10 12:11 | 5°♌46'38  | -0.9m      |
| min. Earth dist.    | 8345 May 28 10:49 | 5°♌46'50  | 0.63727 AU | asc. node           | 8346 Apr 21 20:47 | 22°♌23'45 |            |
| morning rise        | 8345 Jun 01 00:06 | 2°♌22'40  |            | evening max el      | 8346 Apr 24 02:32 | 24°♌53'26 | 18°44'34   |
|                     | 8345 Jun 05 12:41 | 30°♌      |            | retrograde          | 8346 Apr 30 17:49 | 28°♌33'02 |            |
| direct              | 8345 Jun 07 17:54 | 29°♌43'22 |            | evening set         | 8346 May 04 00:22 | 27°♌31'43 |            |
| desc. node          | 8345 Jun 08 17:05 | 29°♌46'22 |            | inferior conj       | 8346 May 09 15:16 | 21°♌52'49 | 3°22'22    |
|                     | 8345 Jun 10 01:05 | 0°♌       |            | minimum elong       | 8346 May 09 15:44 | 21°♌51'21 | 3°22'12    |
| morning max el      | 8345 Jun 21 14:23 | 7°♌45'18  | 27°40'56   | min. Earth dist.    | 8346 May 11 12:13 | 19°♌34'16 | 0.65526 AU |
|                     | 8345 Jul 08 17:13 | 0°♌       |            | morning rise        | 8346 May 15 06:26 | 15°♌35'03 |            |
| morning set         | 8345 Jul 25 19:53 | 0°♌       |            | direct              | 8346 May 21 18:55 | 12°♌48'11 |            |
|                     | 8345 Jul 26 10:20 | 1°♌11'37  |            | desc. node          | 8346 May 26 14:06 | 14°♌03'02 |            |
| max. Earth dist.    | 8345 Jul 31 10:05 | 11°♌25'12 | 1.32765 AU | morning max el      | 8346 Jun 04 00:49 | 20°♌38'50 | 26°53'35   |
| asc. node           | 8345 Jul 31 23:02 | 12°♌33'28 |            |                     | 8346 Jun 12 02:05 | 0°♌       |            |
|                     |                   |           |            |                     | 8346 Jul 01 20:23 | 0°♌       |            |
| superior conj       | 8345 Aug 03 08:02 | 17°♌37'47 | 0°23'55    | morning set         | 8346 Jul 09 19:05 | 14°♌28'27 |            |
| minimum elong       | 8345 Aug 03 06:54 | 17°♌31'42 | 0°23'34    | max. Earth dist.    | 8346 Jul 14 02:07 | 22°♌53'48 | 1.34046 AU |
|                     | 8345 Aug 09 01:13 | 0°♌       |            |                     | 8346 Jul 17 13:30 | 0°♌       |            |
| evening rise        | 8345 Aug 10 07:59 | 2°♌44'45  |            | superior conj       | 8346 Jul 18 09:01 | 1°♌41'37  | -0°04'38   |
|                     | 8345 Aug 25 03:48 | 0°♌       |            |                     | 8346 Jul 18 09:16 | 1°♌42'59  | 0°04'44    |
| evening max el      | 8345 Sep 01 23:08 | 9°♌30'33  | 23°02'41   | minimum elong       | 8346 Jul 18 03:47 | 1°♌14'22  |            |
| desc. node          | 8345 Sep 04 16:02 | 11°♌53'46 |            | behind sun begin    | 8346 Jul 18 14:45 | 2°♌11'37  |            |
| retrograde          | 8345 Sep 15 07:18 | 16°♌10'36 |            | behind sun end      | 8346 Jul 18 20:00 | 2°♌39'07  |            |
| evening set         | 8345 Sep 19 03:51 | 15°♌38'03 |            | asc. node           | 8346 Jul 25 18:10 | 17°♌16'46 |            |
| min. Earth dist.    | 8345 Sep 26 07:53 | 12°♌21'53 | 0.55330 AU | evening rise        | 8346 Aug 01 02:14 | 0°♌       |            |
| inferior conj       | 8345 Sep 27 21:15 | 11°♌27'51 | -5°26'26   |                     | 8346 Aug 14 15:52 | 19°♌51'19 | 21°27'15   |
| minimum elong       | 8345 Sep 27 16:44 | 11°♌34'23 | 5°25'57    | evening max el      | 8346 Aug 22 13:07 | 25°♌09'23 |            |
| morning rise        | 8345 Oct 06 07:44 | 7°♌38'01  |            | desc. node          | 8346 Aug 26 21:11 | 25°♌54'51 |            |
|                     |                   |           |            | retrograde          |                   |           |            |

|                     |                   |                                   |                  |                   |                                   |
|---------------------|-------------------|-----------------------------------|------------------|-------------------|-----------------------------------|
| evening set         | 8346 Aug 29 09:44 | 25° $\mathbb{M}$ 40'16            | evening set      | 8347 Aug 09 08:22 | 5° $\mathbb{M}$ 51'17             |
| inferior conj       | 8346 Sep 07 14:57 | 21° $\mathbb{M}$ 42'27 -4°26'45   | desc. node       | 8347 Aug 09 10:13 | 5° $\mathbb{M}$ 50'31             |
| minimum elong       | 8346 Sep 07 05:30 | 21° $\mathbb{M}$ 55'41 4°24'23    | inferior conj    | 8347 Aug 18 10:00 | 1° $\mathbb{M}$ 52'33 -2°42'38    |
| min. Earth dist.    | 8346 Sep 07 16:35 | 21° $\mathbb{M}$ 40'09 0.54691 AU | minimum elong    | 8347 Aug 18 02:38 | 2° $\mathbb{M}$ 03'32 2°40'05     |
| morning rise        | 8346 Sep 16 02:09 | 17° $\mathbb{M}$ 51'09            | min. Earth dist. | 8347 Aug 20 03:03 | 0° $\mathbb{M}$ 51'29 0.55011 AU  |
| direct              | 8346 Sep 19 17:27 | 17° $\mathbb{M}$ 22'27            |                  | 8347 Aug 21 14:50 | 30° $\mathbb{R}$ 0                |
| morning max el      | 8346 Oct 02 06:01 | 23° $\mathbb{M}$ 18'42 22°17'33   | morning rise     | 8347 Aug 26 19:33 | 27° $\mathbb{J}$ 39'48            |
|                     | 8346 Oct 08 03:49 | 0° $\mathbb{L}$                   | direct           | 8347 Aug 31 04:46 | 26° $\mathbb{J}$ 58'04            |
| asc. node           | 8346 Oct 14 19:40 | 10° $\mathbb{L}$ 13'05            |                  | 8347 Sep 09 06:22 | 0° $\mathbb{M}$                   |
| morning set         | 8346 Oct 23 22:00 | 27° $\mathbb{L}$ 55'17            | morning max el   | 8347 Sep 13 19:20 | 3° $\mathbb{M}$ 38'07 24°03'20    |
|                     | 8346 Oct 24 21:37 | 0° $\mathbb{M}$                   | asc. node        | 8347 Oct 01 16:38 | 29° $\mathbb{M}$ 12'30            |
|                     |                   |                                   |                  | 8347 Oct 02 02:40 | 0° $\mathbb{L}$                   |
| superior conj       | 8346 Oct 31 00:12 | 13° $\mathbb{M}$ 01'34 1°41'11    | morning set      | 8347 Oct 08 09:42 | 12° $\mathbb{L}$ 44'55            |
| minimum elong       | 8346 Oct 31 00:29 | 13° $\mathbb{M}$ 03'05 1°41'18    |                  |                   |                                   |
| max. Earth dist.    | 8346 Nov 03 14:02 | 20° $\mathbb{M}$ 29'28 1.34254 AU | superior conj    | 8347 Oct 15 07:27 | 27° $\mathbb{L}$ 43'48 1°39'31    |
| evening rise        | 8346 Nov 08 02:13 | 29° $\mathbb{M}$ 29'51            | minimum elong    | 8347 Oct 15 06:34 | 27° $\mathbb{L}$ 39'01 1°39'33    |
|                     | 8346 Nov 08 08:27 | 0° $\mathbb{X}$                   |                  | 8347 Oct 16 08:35 | 0° $\mathbb{M}$                   |
| desc. node          | 8346 Nov 18 11:57 | 18° $\mathbb{X}$ 15'56            | max. Earth dist. | 8347 Oct 17 13:23 | 2° $\mathbb{M}$ 34'53 1.32941 AU  |
|                     | 8346 Nov 25 22:33 | 0° $\mathbb{Z}$                   | evening rise     | 8347 Oct 22 18:15 | 13° $\mathbb{M}$ 25'47            |
| evening max el      | 8346 Dec 12 23:56 | 21° $\mathbb{Z}$ 17'17 27°01'51   |                  | 8347 Oct 31 12:33 | 0° $\mathbb{X}$                   |
| retrograde          | 8346 Dec 26 07:11 | 28° $\mathbb{Z}$ 37'30            | desc. node       | 8347 Nov 05 09:00 | 8° $\mathbb{X}$ 12'00             |
| evening set         | 8347 Jan 01 23:32 | 26° $\mathbb{Z}$ 01'28            |                  | 8347 Nov 21 02:20 | 0° $\mathbb{Z}$                   |
| min. Earth dist.    | 8347 Jan 05 22:35 | 22° $\mathbb{Z}$ 10'40 0.65468 AU | evening max el   | 8347 Nov 25 12:11 | 4° $\mathbb{Z}$ 36'11 27°27'22    |
| inferior conj       | 8347 Jan 08 00:50 | 19° $\mathbb{Z}$ 47'56 -0°55'33   | retrograde       | 8347 Dec 09 03:39 | 11° $\mathbb{Z}$ 55'04            |
| minimum elong       | 8347 Jan 08 02:27 | 19° $\mathbb{Z}$ 43'19 0°54'42    | evening set      | 8347 Dec 16 03:46 | 9° $\mathbb{Z}$ 22'10             |
| asc. node           | 8347 Jan 10 19:00 | 16° $\mathbb{Z}$ 49'51            | min. Earth dist. | 8347 Dec 19 22:09 | 6° $\mathbb{Z}$ 03'31 0.63839 AU  |
| morning rise        | 8347 Jan 14 06:36 | 14° $\mathbb{Z}$ 12'53            | inferior conj    | 8347 Dec 22 11:46 | 3° $\mathbb{Z}$ 25'12 -2°02'52    |
| direct              | 8347 Jan 17 00:03 | 13° $\mathbb{Z}$ 32'41            | minimum elong    | 8347 Dec 22 15:36 | 3° $\mathbb{Z}$ 15'18 2°01'08     |
| morning max el      | 8347 Jan 23 10:35 | 16° $\mathbb{Z}$ 57'53 18°06'28   |                  | 8347 Dec 26 02:27 | 30° $\mathbb{R}$ 2                |
|                     | 8347 Feb 02 01:43 | 0° $\mathbb{A}$                   | asc. node        | 8347 Dec 28 16:04 | 28° $\mathbb{X}$ 19'24            |
| morning set         | 8347 Feb 10 20:20 | 14° $\mathbb{A}$ 11'48            | morning rise     | 8347 Dec 29 05:13 | 28° $\mathbb{X}$ 05'01            |
| desc. node          | 8347 Feb 14 11:22 | 20° $\mathbb{A}$ 06'06            | direct           | 8347 Dec 31 15:39 | 27° $\mathbb{X}$ 35'40            |
|                     | 8347 Feb 20 14:55 | 0° $\mathbb{H}$                   |                  | 8348 Jan 06 02:23 | 0° $\mathbb{Z}$                   |
| superior conj       | 8347 Feb 25 14:29 | 7° $\mathbb{H}$ 54'16 -1°14'42    | morning max el   | 8348 Jan 07 03:51 | 0° $\mathbb{Z}$ 58'38 17°49'35    |
| minimum elong       | 8347 Feb 25 06:04 | 7° $\mathbb{H}$ 21'01 1°13'37     | morning set      | 8348 Jan 23 19:01 | 26° $\mathbb{Z}$ 16'43            |
| max. Earth dist.    | 8347 Feb 28 09:02 | 12° $\mathbb{H}$ 15'52 1.45424 AU |                  | 8348 Jan 25 23:17 | 0° $\mathbb{A}$                   |
|                     | 8347 Mar 11 18:18 | 0° $\mathbb{Y}$                   | desc. node       | 8348 Feb 01 08:18 | 10° $\mathbb{A}$ 44'30            |
| evening rise        | 8347 Mar 13 18:39 | 3° $\mathbb{Y}$ 07'19             | superior conj    | 8348 Feb 05 13:41 | 17° $\mathbb{A}$ 41'24 -0°30'24   |
| greatest brilliancy | 8347 Mar 26 14:07 | 22° $\mathbb{Y}$ 46'50 -0.7m      | minimum elong    | 8348 Feb 05 10:19 | 17° $\mathbb{A}$ 27'42 0°29'47    |
|                     | 8347 Mar 31 13:13 | 0° $\mathbb{B}$                   | max. Earth dist. | 8348 Feb 11 04:00 | 26° $\mathbb{A}$ 41'17 1.44678 AU |
| evening max el      | 8347 Apr 07 09:59 | 8° $\mathbb{B}$ 30'46 19°30'04    |                  | 8348 Feb 13 06:15 | 0° $\mathbb{H}$                   |
| asc. node           | 8347 Apr 08 17:52 | 9° $\mathbb{B}$ 46'34             | evening rise     | 8348 Feb 21 06:21 | 12° $\mathbb{H}$ 26'18            |
| retrograde          | 8347 Apr 14 15:01 | 12° $\mathbb{B}$ 37'07            |                  | 8348 Mar 03 21:35 | 0° $\mathbb{Y}$                   |
| evening set         | 8347 Apr 18 05:38 | 11° $\mathbb{B}$ 21'01            | evening max el   | 8348 Mar 20 12:10 | 22° $\mathbb{Y}$ 09'40 20°30'26   |
| inferior conj       | 8347 Apr 23 15:35 | 5° $\mathbb{B}$ 27'05 3°20'48     | asc. node        | 8348 Mar 25 14:59 | 26° $\mathbb{Y}$ 08'01            |
| minimum elong       | 8347 Apr 23 14:50 | 5° $\mathbb{B}$ 29'31 3°20'39     | retrograde       | 8348 Mar 28 13:32 | 26° $\mathbb{Y}$ 51'55            |
| min. Earth dist.    | 8347 Apr 24 21:27 | 3° $\mathbb{B}$ 48'48 0.66915 AU  | evening set      | 8348 Apr 01 13:15 | 25° $\mathbb{Y}$ 20'34            |
|                     | 8347 Apr 28 02:32 | 30° $\mathbb{R}$ Y                | inferior conj    | 8348 Apr 06 20:52 | 19° $\mathbb{Y}$ 13'26 3°07'04    |
| morning rise        | 8347 Apr 28 23:42 | 29° $\mathbb{Y}$ 09'07            | minimum elong    | 8348 Apr 06 19:13 | 19° $\mathbb{Y}$ 19'04 3°06'46    |
| direct              | 8347 May 05 02:18 | 26° $\mathbb{Y}$ 26'28            | min. Earth dist. | 8348 Apr 07 12:39 | 18° $\mathbb{Y}$ 19'21 0.67850 AU |
| desc. node          | 8347 May 13 11:06 | 0° $\mathbb{B}$ 11'40             | morning rise     | 8348 Apr 12 00:59 | 12° $\mathbb{Y}$ 57'37            |
|                     | 8347 May 13 05:13 | 0° $\mathbb{B}$                   | direct           | 8348 Apr 17 14:52 | 10° $\mathbb{Y}$ 28'37            |
| morning max el      | 8347 May 17 10:41 | 3° $\mathbb{B}$ 50'01 25°42'08    | morning max el   | 8348 Apr 28 19:45 | 17° $\mathbb{Y}$ 10'41 24°16'35   |
|                     | 8347 Jun 06 09:41 | 0° $\mathbb{I}$                   | desc. node       | 8348 Apr 29 08:04 | 17° $\mathbb{Y}$ 42'13            |
| morning set         | 8347 Jun 22 13:37 | 27° $\mathbb{I}$ 02'17            |                  | 8348 May 09 11:47 | 0° $\mathbb{B}$                   |
|                     | 8347 Jun 24 04:11 | 0° $\mathbb{D}$                   |                  | 8348 May 29 10:13 | 0° $\mathbb{I}$                   |
| max. Earth dist.    | 8347 Jun 26 07:12 | 3° $\mathbb{D}$ 59'56 1.35799 AU  | morning set      | 8348 Jun 03 12:56 | 8° $\mathbb{I}$ 39'55             |
|                     |                   |                                   | max. Earth dist. | 8348 Jun 07 04:57 | 15° $\mathbb{I}$ 08'47 1.37907 AU |
| superior conj       | 8347 Jul 02 01:44 | 15° $\mathbb{D}$ 18'00 -0°35'42   | superior conj    | 8348 Jun 14 06:52 | 28° $\mathbb{I}$ 18'31 -1°07'35   |
| minimum elong       | 8347 Jul 02 03:51 | 15° $\mathbb{D}$ 28'40 0°35'28    | minimum elong    | 8348 Jun 14 11:03 | 28° $\mathbb{I}$ 38'36 1°07'04    |
| asc. node           | 8347 Jul 05 16:59 | 22° $\mathbb{D}$ 41'29            |                  | 8348 Jun 15 03:57 | 0° $\mathbb{D}$                   |
|                     | 8347 Jul 09 06:18 | 0° $\mathbb{J}$                   | asc. node        | 8348 Jun 21 14:01 | 12° $\mathbb{D}$ 36'57            |
| evening rise        | 8347 Jul 10 00:54 | 1° $\mathbb{J}$ 35'14             | evening rise     | 8348 Jun 23 01:39 | 15° $\mathbb{D}$ 33'27            |
|                     | 8347 Jul 27 02:08 | 0° $\mathbb{M}$                   |                  | 8348 Jun 30 16:49 | 0° $\mathbb{J}$                   |
| evening max el      | 8347 Jul 27 20:49 | 0° $\mathbb{M}$ 47'49 20°06'49    | evening max el   | 8348 Jul 09 14:46 | 12° $\mathbb{J}$ 29'36 19°06'31   |
| retrograde          | 8347 Aug 07 10:26 | 6° $\mathbb{M}$ 00'47             |                  |                   |                                   |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| retrograde       | 8348 Jul 18 12:28 | 16°♎53'54 |            | evening max el   | 8349 Jun 22 18:52 | 24°♊51'21 | 18°27'03   |
| evening set      | 8348 Jul 20 10:20 | 16°♎42'34 |            | retrograde       | 8349 Jun 30 09:22 | 28°♊39'07 |            |
| desc. node       | 8348 Jul 26 07:18 | 14°♎09'26 |            | evening set      | 8349 Jul 02 13:23 | 28°♊21'30 |            |
| inferior conj    | 8348 Jul 28 19:58 | 12°♎29'42 | -0°46'23   | inferior conj    | 8349 Jul 10 03:12 | 23°♊49'03 | 0°53'46    |
| minimum elong    | 8348 Jul 28 17:57 | 12°♎33'07 | 0°45'43    | minimum elong    | 8349 Jul 10 05:02 | 23°♊45'22 | 0°52'57    |
| min. Earth dist. | 8348 Jul 31 16:51 | 10°♎32'51 | 0.56232 AU | desc. node       | 8349 Jul 13 04:24 | 21°♊23'12 |            |
| morning rise     | 8348 Aug 05 22:33 | 7°♎41'36  |            | min. Earth dist. | 8349 Jul 13 11:58 | 21°♊08'43 | 0.58113 AU |
| direct           | 8348 Aug 11 03:43 | 6°♎38'21  |            | morning rise     | 8349 Jul 17 17:16 | 18°♊24'44 |            |
| morning max el   | 8348 Aug 25 08:20 | 13°♎53'31 | 25°43'51   | direct           | 8349 Jul 23 17:02 | 16°♊51'49 |            |
|                  | 8348 Sep 07 01:47 | 0°♏       |            | morning max el   | 8349 Aug 07 02:28 | 24°♊32'34 | 27°02'25   |
| asc. node        | 8348 Sep 17 13:36 | 18°♏37'45 |            |                  | 8349 Aug 12 02:28 | 0°♏       |            |
| morning set      | 8348 Sep 21 21:03 | 27°♏31'38 |            |                  | 8349 Aug 31 05:52 | 0°♏       |            |
|                  | 8348 Sep 23 00:44 | 0°♏       |            | asc. node        | 8349 Sep 04 10:34 | 8°♏21'06  |            |
|                  |                   |           |            | morning set      | 8349 Sep 06 06:21 | 12°♏09'40 |            |
| superior conj    | 8348 Sep 28 17:59 | 12°♏33'27 | 1°31'58    | superior conj    | 8349 Sep 13 05:47 | 27°♏23'33 | 1°19'03    |
| minimum elong    | 8348 Sep 28 16:15 | 12°♏23'53 | 1°31'50    | minimum elong    | 8349 Sep 13 03:35 | 27°♏11'23 | 1°18'44    |
| max. Earth dist. | 8348 Sep 29 19:39 | 14°♏54'53 | 1.32081 AU | max. Earth dist. | 8349 Sep 13 05:25 | 27°♏21'33 | 1.31675 AU |
| evening rise     | 8348 Oct 05 18:47 | 27°♏44'08 |            |                  | 8349 Sep 14 09:58 | 0°♏       |            |
|                  | 8348 Oct 06 21:06 | 0°♏       |            | evening rise     | 8349 Sep 20 01:06 | 12°♏16'34 |            |
| desc. node       | 8348 Oct 22 06:05 | 27°♏38'39 |            |                  | 8349 Sep 29 00:24 | 0°♏       |            |
|                  | 8348 Oct 23 19:23 | 0°♏       |            | desc. node       | 8349 Oct 09 03:11 | 16°♏23'23 |            |
| evening max el   | 8348 Nov 06 21:06 | 17°♏22'02 | 27°22'20   | evening max el   | 8349 Oct 19 23:49 | 29°♏21'59 | 26°43'33   |
| retrograde       | 8348 Nov 20 16:47 | 24°♏35'44 |            |                  | 8349 Oct 20 16:13 | 0°♏       |            |
| evening set      | 8348 Nov 27 19:06 | 22°♏15'07 |            | retrograde       | 8349 Nov 02 21:43 | 6°♏30'17  |            |
| min. Earth dist. | 8348 Dec 01 11:22 | 19°♏23'16 | 0.61934 AU | evening set      | 8349 Nov 09 17:21 | 4°♏32'50  |            |
| inferior conj    | 8348 Dec 04 10:50 | 16°♏40'14 | -3°13'00   | min. Earth dist. | 8349 Nov 13 13:46 | 1°♏56'37  | 0.59854 AU |
| minimum elong    | 8348 Dec 04 16:55 | 16°♏26'20 | 3°10'41    |                  | 8349 Nov 16 00:24 | 30°♏      |            |
| morning rise     | 8348 Dec 11 16:55 | 11°♏38'26 |            | inferior conj    | 8349 Nov 16 18:32 | 29°♏23'25 | -4°20'06   |
| direct           | 8348 Dec 13 22:58 | 11°♏16'21 |            | minimum elong    | 8349 Nov 17 01:51 | 29°♏08'46 | 4°18'00    |
| asc. node        | 8348 Dec 14 13:07 | 11°♏17'54 |            | morning rise     | 8349 Nov 24 12:46 | 24°♏43'11 |            |
| morning max el   | 8348 Dec 20 20:20 | 14°♏45'58 | 17°50'40   | direct           | 8349 Nov 26 17:51 | 24°♏25'08 |            |
|                  | 8348 Dec 31 08:33 | 0°♏       |            | asc. node        | 8349 Dec 01 10:08 | 25°♏50'29 |            |
| morning set      | 8349 Jan 05 14:58 | 9°♏22'12  |            | morning max el   | 8349 Dec 04 08:35 | 28°♏10'29 | 18°10'58   |
|                  |                   |           |            |                  | 8349 Dec 06 01:29 | 0°♏       |            |
| superior conj    | 8349 Jan 16 14:11 | 28°♏42'05 | 0°12'01    | morning set      | 8349 Dec 20 02:04 | 23°♏09'42 |            |
| minimum elong    | 8349 Jan 16 15:17 | 28°♏46'49 | 0°12'00    |                  | 8349 Dec 23 17:17 | 0°♏       |            |
| behind sun begin | 8349 Jan 16 09:31 | 28°♏22'10 |            | superior conj    | 8349 Dec 29 15:00 | 10°♏52'18 | 0°47'03    |
| behind sun end   | 8349 Jan 16 21:03 | 29°♏11'26 |            | minimum elong    | 8349 Dec 29 18:10 | 11°♏06'34 | 0°46'46    |
|                  | 8349 Jan 17 08:28 | 0°♏       |            | desc. node       | 8350 Jan 05 02:17 | 22°♏13'19 |            |
| desc. node       | 8349 Jan 18 05:17 | 1°♏28'07  |            | max. Earth dist. | 8350 Jan 06 06:20 | 24°♏12'20 | 1.41401 AU |
| max. Earth dist. | 8349 Jan 23 19:47 | 10°♏45'30 | 1.43284 AU |                  | 8350 Jan 09 17:53 | 0°♏       |            |
| evening rise     | 8349 Jan 30 21:39 | 22°♏02'04 |            | evening rise     | 8350 Jan 11 05:15 | 2°♏24'12  |            |
|                  | 8349 Feb 05 01:48 | 0°♏       |            |                  | 8350 Jan 29 10:52 | 0°♏       |            |
|                  | 8349 Feb 26 06:11 | 0°♏       |            | evening max el   | 8350 Feb 14 01:02 | 19°♏31'49 | 23°01'09   |
| evening max el   | 8349 Mar 03 08:49 | 5°♏49'32  | 21°42'20   | retrograde       | 8350 Feb 24 07:10 | 25°♏36'30 |            |
| retrograde       | 8349 Mar 12 11:27 | 11°♏13'06 |            | asc. node        | 8350 Feb 27 09:11 | 24°♏49'08 |            |
| asc. node        | 8349 Mar 12 12:06 | 11°♏13'06 |            | evening set      | 8350 Mar 01 04:28 | 23°♏35'03 |            |
| evening set      | 8349 Mar 16 21:23 | 9°♏26'27  |            | min. Earth dist. | 8350 Mar 06 04:29 | 17°♏41'07 | 0.68406 AU |
| inferior conj    | 8349 Mar 22 04:51 | 3°♏08'33  | 2°43'02    | inferior conj    | 8350 Mar 06 13:34 | 17°♏09'44 | 2°09'51    |
| minimum elong    | 8349 Mar 22 02:42 | 3°♏16'03  | 2°42'32    | minimum elong    | 8350 Mar 06 11:20 | 17°♏17'28 | 2°09'12    |
| min. Earth dist. | 8349 Mar 22 07:43 | 2°♏58'32  | 0.68341 AU | morning rise     | 8350 Mar 11 18:06 | 11°♏02'19 |            |
|                  | 8349 Mar 24 12:35 | 30°♏      |            | direct           | 8350 Mar 16 04:05 | 9°♏14'53  |            |
| morning rise     | 8349 Mar 27 07:51 | 26°♏56'20 |            | morning max el   | 8350 Mar 24 20:39 | 14°♏16'44 | 21°21'39   |
| direct           | 8349 Apr 01 07:47 | 24°♏46'49 |            | desc. node       | 8350 Apr 03 01:59 | 25°♏25'04 |            |
|                  | 8349 Apr 10 14:16 | 0°♏       |            |                  | 8350 Apr 06 09:42 | 0°♏       |            |
| morning max el   | 8349 Apr 11 05:59 | 0°♏38'49  | 22°46'50   | morning set      | 8350 Apr 25 06:36 | 28°♏18'46 |            |
| desc. node       | 8349 Apr 16 05:02 | 6°♏12'04  |            |                  | 8350 Apr 26 08:10 | 0°♏       |            |
|                  | 8349 May 03 08:35 | 0°♏       |            | max. Earth dist. | 8350 May 02 03:24 | 9°♏22'08  | 1.42273 AU |
| morning set      | 8349 May 15 11:29 | 19°♏06'54 |            |                  |                   |           |            |
| max. Earth dist. | 8349 May 20 01:49 | 26°♏50'04 | 1.40156 AU | superior conj    | 8350 May 09 12:59 | 21°♏48'57 | -2°00'44   |
|                  | 8349 May 21 21:55 | 0°♏       |            | minimum elong    | 8350 May 09 18:11 | 22°♏11'21 | 2°00'31    |
| superior conj    | 8349 May 27 20:10 | 10°♏32'11 | -1°37'23   |                  | 8350 May 14 05:19 | 0°♏       |            |
| minimum elong    | 8349 May 28 01:52 | 10°♏58'09 | 1°36'52    | evening rise     | 8350 May 20 19:35 | 11°♏51'43 |            |
| evening rise     | 8349 Jun 06 17:12 | 29°♏02'10 |            | asc. node        | 8350 May 26 08:06 | 21°♏47'02 |            |
|                  | 8349 Jun 07 05:23 | 0°♏       |            |                  | 8350 May 31 06:09 | 0°♏       |            |
| asc. node        | 8349 Jun 08 11:03 | 2°♏20'25  |            |                  |                   |           |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| evening max el   | 8350 Jun 06 05:20 | 7°♄44'19  | 18°07'43   | asc. node           | 8351 May 13 05:08 | 10°♂50'18 |            |
| retrograde       | 8350 Jun 12 23:59 | 11°♄10'55 |            | evening max el      | 8351 May 20 18:33 | 20°♂58'47 | 18°07'37   |
| evening set      | 8350 Jun 15 11:36 | 10°♄43'31 |            | retrograde          | 8351 May 27 04:18 | 24°♂19'26 |            |
| inferior conj    | 8350 Jun 22 07:22 | 5°♄50'54  | 2°06'31    | evening set         | 8351 May 29 23:24 | 23°♂39'47 |            |
| minimum elong    | 8350 Jun 22 10:24 | 5°♄43'49  | 2°05'29    | inferior conj       | 8351 Jun 05 04:51 | 18°♂27'59 | 2°52'34    |
| min. Earth dist. | 8350 Jun 25 14:21 | 2°♄48'38  | 0.60327 AU | minimum elong       | 8351 Jun 05 07:21 | 18°♂21'21 | 2°51'55    |
| morning rise     | 8350 Jun 29 06:27 | 29°♂59'33 |            | min. Earth dist.    | 8351 Jun 08 01:13 | 15°♂28'05 | 0.62551 AU |
|                  | 8350 Jun 29 06:10 | 30°♂♂     |            | morning rise        | 8351 Jun 11 13:34 | 12°♂20'26 |            |
| desc. node       | 8350 Jun 30 01:27 | 29°♂31'23 |            | desc. node          | 8351 Jun 16 22:29 | 9°♂56'47  |            |
| direct           | 8350 Jul 05 19:23 | 27°♂55'03 |            | direct              | 8351 Jun 18 07:55 | 9°♂50'39  |            |
|                  | 8350 Jul 12 18:02 | 0°♄       |            | morning max el      | 8351 Jul 02 09:41 | 17°♂53'10 | 27°53'38   |
| morning max el   | 8350 Jul 20 03:18 | 5°♄51'35  | 27°47'04   |                     | 8351 Jul 12 12:38 | 0°♄       |            |
|                  | 8350 Aug 07 05:04 | 0°♂       |            |                     | 8351 Jul 31 00:36 | 0°♂       |            |
| morning set      | 8350 Aug 21 11:49 | 26°♂33'49 |            | morning set         | 8351 Aug 05 11:24 | 10°♂38'16 |            |
| asc. node        | 8350 Aug 22 07:32 | 28°♂16'50 |            | asc. node           | 8351 Aug 09 04:30 | 18°♂20'09 |            |
|                  | 8350 Aug 23 03:04 | 0°♂       |            | max. Earth dist.    | 8351 Aug 10 20:45 | 21°♂54'53 | 1.32248 AU |
| max. Earth dist. | 8350 Aug 27 15:02 | 9°♂45'07  | 1.31728 AU |                     |                   |           |            |
|                  |                   |           |            | superior conj       | 8351 Aug 13 01:57 | 26°♂42'59 | 0°38'44    |
| superior conj    | 8350 Aug 28 17:02 | 12°♂08'35 | 1°01'10    | minimum elong       | 8351 Aug 13 00:16 | 26°♂33'51 | 0°38'18    |
| minimum elong    | 8350 Aug 28 14:50 | 11°♂56'28 | 1°00'44    |                     | 8351 Aug 14 14:00 | 0°♂       |            |
| evening rise     | 8350 Sep 04 11:00 | 26°♂56'51 |            | evening rise        | 8351 Aug 19 22:31 | 11°♂39'14 |            |
|                  | 8350 Sep 05 21:31 | 0°♂       |            |                     | 8351 Aug 29 04:32 | 0°♂       |            |
|                  | 8350 Sep 22 20:44 | 0°♂       |            | desc. node          | 8351 Sep 12 21:21 | 20°♂35'32 |            |
| desc. node       | 8350 Sep 26 00:17 | 4°♂09'49  |            | evening max el      | 8351 Sep 13 07:14 | 20°♂59'39 | 24°00'08   |
| evening max el   | 8350 Oct 01 18:41 | 10°♂31'23 | 25°32'57   | retrograde          | 8351 Sep 26 23:38 | 27°♂50'48 |            |
| retrograde       | 8350 Oct 15 16:50 | 17°♂33'42 |            | evening set         | 8351 Oct 01 17:17 | 27°♂01'36 |            |
| evening set      | 8350 Oct 21 17:38 | 16°♂09'12 |            | min. Earth dist.    | 8351 Oct 07 17:51 | 24°♂04'20 | 0.56066 AU |
| min. Earth dist. | 8350 Oct 26 06:55 | 13°♂31'39 | 0.57803 AU | inferior conj       | 8351 Oct 10 00:21 | 22°♂41'14 | -5°35'23   |
| inferior conj    | 8350 Oct 29 07:33 | 11°♂25'39 | -5°13'17   | minimum elong       | 8351 Oct 10 00:17 | 22°♂41'19 | 5°35'19    |
| minimum elong    | 8350 Oct 29 13:19 | 11°♂15'37 | 5°12'19    | morning rise        | 8351 Oct 18 09:23 | 18°♂43'38 |            |
| morning rise     | 8350 Nov 06 11:19 | 7°♂08'06  |            | direct              | 8351 Oct 21 03:06 | 18°♂24'21 |            |
| direct           | 8350 Nov 08 20:00 | 6°♂50'58  |            | morning max el      | 8351 Oct 31 05:50 | 23°♂10'06 | 19°55'24   |
| morning max el   | 8350 Nov 17 12:54 | 11°♂01'46 | 18°52'03   | asc. node           | 8351 Nov 05 04:09 | 28°♂53'45 |            |
| asc. node        | 8350 Nov 18 07:09 | 11°♂47'23 |            |                     | 8351 Nov 05 23:02 | 0°♂       |            |
|                  | 8350 Nov 30 03:25 | 0°♂       |            | morning set         | 8351 Nov 18 04:05 | 21°♂59'55 |            |
| morning set      | 8350 Dec 03 23:35 | 7°♂25'21  |            |                     | 8351 Nov 22 02:13 | 0°♂       |            |
|                  |                   |           |            | superior conj       | 8351 Nov 25 22:14 | 7°♂44'46  | 1°30'07    |
| superior conj    | 8350 Dec 12 11:19 | 23°♂57'41 | 1°13'01    | minimum elong       | 8351 Nov 26 00:35 | 7°♂56'28  | 1°30'05    |
| minimum elong    | 8350 Dec 12 14:36 | 24°♂13'16 | 1°12'48    | max. Earth dist.    | 8351 Dec 01 18:42 | 19°♂05'46 | 1.37130 AU |
|                  | 8350 Dec 15 16:40 | 0°♂       |            | evening rise        | 8351 Dec 05 13:02 | 26°♂00'54 |            |
| max. Earth dist. | 8350 Dec 19 12:34 | 6°♂55'47  | 1.39265 AU |                     | 8351 Dec 07 18:58 | 0°♂       |            |
| desc. node       | 8350 Dec 22 23:15 | 12°♂56'06 |            | desc. node          | 8351 Dec 09 20:16 | 3°♂32'58  |            |
| evening rise     | 8350 Dec 23 10:35 | 13°♂44'28 |            |                     | 8351 Dec 26 23:57 | 0°♂       |            |
|                  | 8351 Jan 02 11:17 | 0°♂       |            | evening max el      | 8352 Jan 10 04:03 | 17°♂05'42 | 25°34'56   |
|                  | 8351 Jan 24 12:04 | 0°♂       |            | retrograde          | 8352 Jan 22 10:51 | 24°♂08'53 |            |
| evening max el   | 8351 Jan 27 14:50 | 3°♂17'31  | 24°21'02   | evening set         | 8352 Jan 28 09:13 | 21°♂42'18 |            |
| retrograde       | 8351 Feb 07 23:19 | 9°♂56'42  |            | asc. node           | 8352 Feb 01 03:20 | 17°♂42'46 |            |
| evening set      | 8351 Feb 13 08:56 | 7°♂41'37  |            | min. Earth dist.    | 8352 Feb 01 17:50 | 16°♂57'22 | 0.67355 AU |
| asc. node        | 8351 Feb 14 06:16 | 6°♂52'38  |            | inferior conj       | 8352 Feb 03 01:46 | 15°♂15'21 | 0°38'13    |
| min. Earth dist. | 8351 Feb 18 00:37 | 2°♂22'02  | 0.68071 AU | minimum elong       | 8352 Feb 03 00:49 | 15°♂18'22 | 0°37'57    |
| inferior conj    | 8351 Feb 18 21:09 | 1°♂13'02  | 1°28'05    | morning rise        | 8352 Feb 08 16:51 | 9°♂22'36  |            |
| minimum elong    | 8351 Feb 18 19:18 | 1°♂19'16  | 1°27'30    | direct              | 8352 Feb 12 01:47 | 8°♂17'15  |            |
|                  | 8351 Feb 19 19:02 | 30°♂♂     |            | morning max el      | 8352 Feb 19 00:09 | 12°♂05'56 | 19°07'35   |
| morning rise     | 8351 Feb 24 05:45 | 25°♂12'00 |            |                     | 8352 Mar 03 08:59 | 0°♂       |            |
| direct           | 8351 Feb 28 02:35 | 23°♂46'32 |            | greatest brilliancy | 8352 Mar 03 11:11 | 0°♂08'22  | -0.7m      |
| morning max el   | 8351 Mar 07 18:27 | 28°♂05'57 | 20°07'21   | desc. node          | 8352 Mar 06 19:51 | 5°♂15'29  |            |
|                  | 8351 Mar 09 13:37 | 0°♂       |            | morning set         | 8352 Mar 13 08:12 | 15°♂18'31 |            |
| desc. node       | 8351 Mar 20 22:55 | 15°♂08'56 |            |                     | 8352 Mar 22 18:53 | 0°♂       |            |
|                  | 8351 Mar 30 21:35 | 0°♂       |            | max. Earth dist.    | 8352 Mar 27 03:38 | 6°♂50'30  | 1.45123 AU |
| morning set      | 8351 Apr 04 06:03 | 6°♂40'24  |            |                     |                   |           |            |
| max. Earth dist. | 8351 Apr 14 12:12 | 22°♂46'01 | 1.43997 AU | superior conj       | 8352 Mar 29 22:45 | 11°♂15'13 | -2°04'31   |
|                  | 8351 Apr 18 23:48 | 0°♂       |            | minimum elong       | 8352 Mar 29 16:39 | 10°♂51'05 | 2°04'15    |
| superior conj    | 8351 Apr 20 05:29 | 2°♂01'16  | -2°11'44   |                     | 8352 Apr 10 14:52 | 0°♂       |            |
| minimum elong    | 8351 Apr 20 06:25 | 2°♂05'05  | 2°11'49    | evening rise        | 8352 Apr 13 14:35 | 4°♂53'26  |            |
| evening rise     | 8351 May 03 04:07 | 23°♂51'12 |            | asc. node           | 8352 Apr 29 02:11 | 29°♂22'40 |            |
|                  | 8351 May 06 17:38 | 0°♂       |            |                     | 8352 Apr 29 13:14 | 0°♂       |            |

|                  |                   |                           |            |                     |                   |                      |            |
|------------------|-------------------|---------------------------|------------|---------------------|-------------------|----------------------|------------|
| evening max el   | 8352 May 03 07:24 | 4° $\Pi$ 26'43            | 18°25'57   | max. Earth dist.    | 8353 Mar 09 22:52 | 21° $\text{X}$ 17'31 | 1.45526 AU |
| retrograde       | 8352 May 09 18:02 | 7° $\Pi$ 55'31            |            |                     | 8353 Mar 15 12:26 | 0° $\Upsilon$        |            |
| evening set      | 8352 May 12 20:25 | 7° $\Pi$ 02'13            |            | evening rise        | 8353 Mar 25 01:39 | 14° $\Upsilon$ 59'40 |            |
| inferior conj    | 8352 May 18 15:34 | 1° $\Pi$ 32'35            | 3°16'36    |                     | 8353 Apr 03 15:01 | 0° $\text{B}$        |            |
| minimum elong    | 8352 May 18 16:49 | 1° $\Pi$ 28'54            | 3°16'20    | greatest brilliancy | 8353 Apr 04 03:06 | 0° $\text{B}$ 46'45  | -0.8m      |
|                  | 8352 May 19 22:56 | 30° $\text{R}$ $\text{B}$ |            | asc. node           | 8353 Apr 15 23:16 | 17° $\text{B}$ 14'31 |            |
| min. Earth dist. | 8352 May 20 21:17 | 28° $\text{B}$ 55'10      | 0.64547 AU | evening max el      | 8353 Apr 16 17:21 | 18° $\text{B}$ 01'51 | 19°01'55   |
| morning rise     | 8352 May 24 12:17 | 25° $\text{B}$ 17'03      |            | retrograde          | 8353 Apr 23 13:30 | 21° $\text{B}$ 51'34 |            |
| direct           | 8352 May 31 04:37 | 22° $\text{B}$ 33'09      |            | evening set         | 8353 Apr 26 23:26 | 20° $\text{B}$ 43'51 |            |
| desc. node       | 8352 Jun 02 19:30 | 22° $\text{B}$ 55'23      |            | inferior conj       | 8353 May 02 11:50 | 14° $\text{B}$ 58'06 | 3°23'20    |
|                  | 8352 Jun 13 06:54 | 0° $\Pi$                  |            | minimum elong       | 8353 May 02 11:46 | 14° $\text{B}$ 58'20 | 3°23'13    |
| morning max el   | 8352 Jun 13 19:20 | 0° $\Pi$ 31'02            | 27°24'16   | min. Earth dist.    | 8353 May 04 02:10 | 12° $\text{B}$ 56'11 | 0.66167 AU |
|                  | 8352 Jul 05 13:40 | 0° $\text{B}$             |            | morning rise        | 8353 May 07 23:37 | 8° $\text{B}$ 39'54  |            |
| morning set      | 8352 Jul 19 02:28 | 24° $\text{B}$ 15'07      |            | direct              | 8353 May 14 08:13 | 5° $\text{B}$ 53'52  |            |
|                  | 8352 Jul 21 23:40 | 0° $\Omega$               |            | desc. node          | 8353 May 20 16:30 | 8° $\text{B}$ 04'08  |            |
| max. Earth dist. | 8352 Jul 23 18:50 | 3° $\Omega$ 40'56         | 1.33255 AU | morning max el      | 8353 May 27 05:54 | 13° $\text{B}$ 34'32 | 26°25'42   |
| asc. node        | 8352 Jul 26 01:27 | 8° $\Omega$ 26'15         |            |                     | 8353 Jun 09 12:49 | 0° $\Pi$             |            |
|                  |                   |                           |            |                     | 8353 Jun 28 06:42 | 0° $\text{B}$        |            |
| superior conj    | 8352 Jul 27 06:29 | 11° $\Omega$ 00'06        | 0°12'14    | morning set         | 8353 Jul 02 05:47 | 7° $\text{B}$ 15'54  |            |
| minimum elong    | 8352 Jul 27 05:53 | 10° $\Omega$ 56'51        | 0°11'58    | max. Earth dist.    | 8353 Jul 06 06:38 | 15° $\text{B}$ 01'09 | 1.34743 AU |
| behind sun begin | 8352 Jul 27 02:12 | 10° $\Omega$ 37'18        |            |                     |                   |                      |            |
| behind sun end   | 8352 Jul 27 09:33 | 11° $\Omega$ 16'25        |            | superior conj       | 8353 Jul 11 04:21 | 24° $\text{B}$ 53'50 | -0°17'33   |
| evening rise     | 8352 Aug 03 09:47 | 26° $\Omega$ 17'14        |            | minimum elong       | 8353 Jul 11 05:21 | 24° $\text{B}$ 58'58 | 0°17'31    |
|                  | 8352 Aug 05 04:16 | 0° $\text{B}$             |            | asc. node           | 8353 Jul 12 22:26 | 28° $\text{B}$ 31'32 |            |
|                  | 8352 Aug 23 15:20 | 0° $\text{B}$             |            |                     | 8353 Jul 13 15:25 | 0° $\Omega$          |            |
| evening max el   | 8352 Aug 24 19:45 | 1° $\text{B}$ 12'26       | 22°20'50   | evening rise        | 8353 Jul 18 18:51 | 10° $\Omega$ 45'16   |            |
| desc. node       | 8352 Aug 29 18:28 | 5° $\text{B}$ 10'12       |            |                     | 8353 Jul 28 21:02 | 0° $\text{B}$        |            |
| retrograde       | 8352 Sep 06 18:03 | 7° $\text{B}$ 38'51       |            | evening max el      | 8353 Aug 06 17:05 | 11° $\text{B}$ 45'56 | 20°50'39   |
| evening set      | 8352 Sep 09 23:46 | 7° $\text{B}$ 15'43       |            | desc. node          | 8353 Aug 16 15:33 | 17° $\text{B}$ 22'46 |            |
| min. Earth dist. | 8352 Sep 18 02:02 | 3° $\text{B}$ 42'55       | 0.54952 AU | retrograde          | 8353 Aug 18 06:26 | 17° $\text{B}$ 29'20 |            |
| inferior conj    | 8352 Sep 18 23:43 | 3° $\text{B}$ 12'21       | -5°07'52   | evening set         | 8353 Aug 20 10:33 | 17° $\text{B}$ 18'00 |            |
| minimum elong    | 8352 Sep 18 16:22 | 3° $\text{B}$ 22'43       | 5°06'39    | inferior conj       | 8353 Aug 29 16:09 | 13° $\text{B}$ 21'09 | -3°46'22   |
|                  | 8352 Sep 25 11:52 | 30° $\text{R}$ $\text{B}$ |            | minimum elong       | 8353 Aug 29 06:48 | 13° $\text{B}$ 34'27 | 3°43'34    |
| morning rise     | 8352 Sep 27 10:43 | 29° $\text{B}$ 24'34      |            | min. Earth dist.    | 8353 Aug 30 11:03 | 12° $\text{B}$ 54'15 | 0.54712 AU |
| direct           | 8352 Sep 30 17:34 | 29° $\text{B}$ 00'19      |            | morning rise        | 8353 Sep 07 03:10 | 9° $\text{B}$ 23'21  |            |
|                  | 8352 Oct 05 17:15 | 0° $\text{B}$             |            | direct              | 8353 Sep 11 01:32 | 8° $\text{B}$ 50'16  |            |
| morning max el   | 8352 Oct 12 09:41 | 4° $\text{B}$ 28'57       | 21°20'36   | morning max el      | 8353 Sep 24 02:48 | 15° $\text{B}$ 05'21 | 23°02'08   |
| asc. node        | 8352 Oct 22 01:07 | 16° $\text{B}$ 53'35      |            |                     | 8353 Oct 05 16:13 | 0° $\text{B}$        |            |
|                  | 8352 Oct 29 05:38 | 0° $\text{B}$             |            | asc. node           | 8353 Oct 08 22:07 | 5° $\text{B}$ 34'26  |            |
| morning set      | 8352 Nov 01 12:57 | 6° $\text{B}$ 44'55       |            | morning set         | 8353 Oct 17 00:09 | 21° $\text{B}$ 34'39 |            |
|                  |                   |                           |            |                     | 8353 Oct 20 22:26 | 0° $\text{B}$        |            |
| superior conj    | 8352 Nov 08 19:32 | 22° $\text{B}$ 00'42      | 1°39'13    |                     |                   |                      |            |
| minimum elong    | 8352 Nov 08 20:35 | 22° $\text{B}$ 06'07      | 1°39'18    | superior conj       | 8353 Oct 23 23:57 | 6° $\text{B}$ 36'02  | 1°41'14    |
|                  | 8352 Nov 12 17:26 | 0° $\text{X}$             |            | minimum elong       | 8353 Oct 23 23:43 | 6° $\text{B}$ 34'46  | 1°41'20    |
| max. Earth dist. | 8352 Nov 13 05:27 | 0° $\text{X}$ 59'59       | 1.35205 AU | max. Earth dist.    | 8353 Oct 26 23:58 | 12° $\text{B}$ 57'41 | 1.33643 AU |
| evening rise     | 8352 Nov 17 09:03 | 9° $\text{X}$ 03'24       |            | evening rise        | 8353 Oct 31 18:49 | 22° $\text{B}$ 42'36 |            |
| desc. node       | 8352 Nov 25 17:17 | 23° $\text{X}$ 58'38      |            |                     | 8353 Nov 04 13:45 | 0° $\text{X}$        |            |
|                  | 8352 Nov 29 09:09 | 0° $\text{B}$             |            | desc. node          | 8353 Nov 12 14:20 | 14° $\text{X}$ 07'34 |            |
|                  | 8352 Dec 21 21:04 | 0° $\approx$              |            |                     | 8353 Nov 23 02:18 | 0° $\text{B}$        |            |
| evening max el   | 8352 Dec 22 17:19 | 0° $\approx$ 49'46        | 26°35'39   | evening max el      | 8353 Dec 05 06:08 | 14° $\text{B}$ 20'30 | 27°15'58   |
| retrograde       | 8353 Jan 04 17:00 | 8° $\approx$ 06'15        |            | retrograde          | 8353 Dec 18 17:18 | 21° $\text{B}$ 41'09 |            |
| evening set      | 8353 Jan 11 03:30 | 5° $\approx$ 31'53        |            | evening set         | 8353 Dec 25 13:38 | 19° $\text{B}$ 05'05 |            |
| min. Earth dist. | 8353 Jan 15 05:49 | 1° $\approx$ 21'47        | 0.66263 AU | min. Earth dist.    | 8353 Dec 29 10:24 | 15° $\text{B}$ 28'41 | 0.64816 AU |
|                  | 8353 Jan 16 09:20 | 30° $\text{R}$ $\text{B}$ |            | inferior conj       | 8353 Dec 31 17:41 | 12° $\text{B}$ 57'57 | -1°23'33   |
| inferior conj    | 8353 Jan 17 01:22 | 29° $\text{B}$ 11'58      | -0°19'18   | minimum elong       | 8353 Dec 31 20:13 | 12° $\text{B}$ 51'03 | 1°22'18    |
| minimum elong    | 8353 Jan 17 01:54 | 29° $\text{B}$ 10'24      | 0°18'55    | asc. node           | 8354 Jan 04 21:31 | 8° $\text{B}$ 54'13  |            |
| asc. node        | 8353 Jan 18 00:25 | 28° $\text{B}$ 03'55      |            | morning rise        | 8354 Jan 07 04:17 | 7° $\text{B}$ 29'10  |            |
| morning rise     | 8353 Jan 23 01:13 | 23° $\text{B}$ 29'53      |            | direct              | 8354 Jan 09 18:27 | 6° $\text{B}$ 54'06  |            |
| direct           | 8353 Jan 25 23:50 | 22° $\text{B}$ 41'33      |            | morning max el      | 8354 Jan 16 04:49 | 10° $\text{B}$ 17'03 | 17°57'12   |
| morning max el   | 8353 Feb 01 12:27 | 26° $\text{B}$ 11'53      | 18°24'00   |                     | 8354 Jan 29 19:18 | 0° $\approx$         |            |
|                  | 8353 Feb 04 20:23 | 0° $\approx$              |            | morning set         | 8354 Feb 02 17:28 | 6° $\approx$ 31'45   |            |
| morning set      | 8353 Feb 21 10:05 | 25° $\approx$ 11'28       |            | desc. node          | 8354 Feb 08 13:43 | 16° $\approx$ 11'59  |            |
| desc. node       | 8353 Feb 21 16:47 | 25° $\approx$ 38'10       |            |                     |                   |                      |            |
|                  | 8353 Feb 24 10:34 | 0° $\text{X}$             |            | superior conj       | 8354 Feb 16 15:39 | 29° $\approx$ 16'05  | -0°56'13   |
|                  |                   |                           |            | minimum elong       | 8354 Feb 16 09:10 | 28° $\approx$ 50'14  | 0°55'15    |
| superior conj    | 8353 Mar 09 03:47 | 20° $\text{X}$ 02'46      | -1°37'19   |                     | 8354 Feb 17 02:41 | 0° $\text{X}$        |            |
| minimum elong    | 8353 Mar 08 18:09 | 19° $\text{X}$ 25'06      | 1°36'20    | max. Earth dist.    | 8354 Feb 20 18:26 | 5° $\text{X}$ 47'17  | 1.45185 AU |



|                     |                   |                           |            |                  |                   |                           |            |
|---------------------|-------------------|---------------------------|------------|------------------|-------------------|---------------------------|------------|
| evening rise        | 8354 Mar 04 18:19 | 24° $\text{H}$ 26'00      |            | minimum elong    | 8355 Jan 28 00:07 | 9° $\approx$ 29'25        | 0°11'27    |
|                     | 8354 Mar 08 09:22 | 0° $\text{Y}$             |            | behind sun begin | 8355 Jan 27 17:31 | 9° $\approx$ 02'02        |            |
| greatest brilliancy | 8354 Mar 19 04:31 | 16° $\text{Y}$ 16'44      | -0.6m      | behind sun end   | 8355 Jan 28 06:42 | 9° $\approx$ 56'46        |            |
|                     | 8354 Mar 29 09:34 | 0° $\text{B}$             |            | max. Earth dist. | 8355 Feb 03 11:46 | 20° $\approx$ 03'54       | 1.44149 AU |
| evening max el      | 8354 Mar 30 22:33 | 1° $\text{B}$ 39'31       | 19°54'06   |                  | 8355 Feb 09 18:50 | 0° $\text{H}$             |            |
| asc. node           | 8354 Apr 02 20:23 | 4° $\text{B}$ 13'04       |            | evening rise     | 8355 Feb 12 05:39 | 3° $\text{H}$ 47'42       |            |
| retrograde          | 8354 Apr 07 11:40 | 6° $\text{B}$ 00'44       |            |                  | 8355 Mar 01 20:34 | 0° $\text{Y}$             |            |
| evening set         | 8354 Apr 11 05:57 | 4° $\text{B}$ 38'13       |            | evening max el   | 8355 Mar 13 22:18 | 15° $\text{Y}$ 18'54      | 20°59'53   |
|                     | 8354 Apr 15 14:00 | 30° $\text{R}$ $\text{Y}$ |            | asc. node        | 8355 Mar 20 17:31 | 20° $\text{Y}$ 04'06      |            |
| inferior conj       | 8354 Apr 16 14:34 | 28° $\text{Y}$ 38'13      | 3°16'22    | retrograde       | 8355 Mar 22 10:09 | 20° $\text{Y}$ 18'44      |            |
| minimum elong       | 8354 Apr 16 13:25 | 28° $\text{Y}$ 42'07      | 3°16'10    | evening set      | 8355 Mar 26 13:58 | 18° $\text{Y}$ 41'05      |            |
| min. Earth dist.    | 8354 Apr 17 14:17 | 27° $\text{Y}$ 18'32      | 0.67358 AU | inferior conj    | 8355 Mar 31 21:17 | 12° $\text{Y}$ 29'06      | 2°58'06    |
| morning rise        | 8354 Apr 21 20:36 | 22° $\text{Y}$ 20'42      |            | minimum elong    | 8355 Mar 31 19:23 | 12° $\text{Y}$ 35'42      | 2°57'42    |
| direct              | 8354 Apr 27 17:54 | 19° $\text{Y}$ 43'02      |            | min. Earth dist. | 8355 Apr 01 07:32 | 11° $\text{Y}$ 53'39      | 0.68109 AU |
| desc. node          | 8354 May 07 13:30 | 24° $\text{Y}$ 50'48      |            | morning rise     | 8355 Apr 06 00:34 | 6° $\text{Y}$ 14'25       |            |
| morning max el      | 8354 May 09 15:34 | 26° $\text{Y}$ 51'18      | 25°06'59   | direct           | 8355 Apr 11 08:36 | 3° $\text{Y}$ 52'56       |            |
|                     | 8354 May 12 13:45 | 0° $\text{B}$             |            | morning max el   | 8355 Apr 22 00:40 | 10° $\text{Y}$ 14'52      | 23°38'18   |
|                     | 8354 Jun 03 03:36 | 0° $\text{II}$            |            | desc. node       | 8355 Apr 24 10:28 | 12° $\text{Y}$ 48'57      |            |
| morning set         | 8354 Jun 14 16:51 | 19° $\text{II}$ 28'03     |            |                  | 8355 May 07 15:59 | 0° $\text{B}$             |            |
| max. Earth dist.    | 8354 Jun 18 07:57 | 26° $\text{II}$ 04'54     | 1.36659 AU |                  | 8355 May 26 21:28 | 0° $\text{II}$            |            |
|                     | 8354 Jun 20 10:04 | 0° $\text{E}$             |            | morning set      | 8355 May 27 06:14 | 0° $\text{II}$ 37'13      |            |
|                     |                   |                           |            | max. Earth dist. | 8355 May 31 03:49 | 7° $\text{II}$ 21'21      | 1.38859 AU |
| superior conj       | 8354 Jun 24 16:34 | 8° $\text{E}$ 15'57       | -0°49'15   | superior conj    | 8355 Jun 07 15:30 | 20° $\text{II}$ 57'46     | -1°20'42   |
| minimum elong       | 8354 Jun 24 19:35 | 8° $\text{E}$ 30'46       | 0°48'53    | minimum elong    | 8355 Jun 07 20:27 | 21° $\text{II}$ 21'03     | 1°20'08    |
| asc. node           | 8354 Jun 29 19:27 | 18° $\text{E}$ 31'33      |            |                  | 8355 Jun 12 09:11 | 0° $\text{E}$             |            |
| evening rise        | 8354 Jul 02 23:23 | 24° $\text{E}$ 56'08      |            | evening rise     | 8355 Jun 16 20:36 | 8° $\text{E}$ 42'29       |            |
|                     | 8354 Jul 05 12:11 | 0° $\text{O}$             |            | asc. node        | 8355 Jun 16 16:28 | 8° $\text{E}$ 22'23       |            |
| evening max el      | 8354 Jul 20 03:42 | 23° $\text{O}$ 01'35      | 19°38'35   |                  | 8355 Jun 28 22:16 | 0° $\text{O}$             |            |
| retrograde          | 8354 Jul 30 00:04 | 27° $\text{O}$ 53'09      |            | evening max el   | 8355 Jul 03 02:29 | 5° $\text{O}$ 01'44       | 18°47'16   |
| evening set         | 8354 Jul 31 20:25 | 27° $\text{O}$ 43'38      |            | retrograde       | 8355 Jul 11 09:28 | 9° $\text{O}$ 08'15       |            |
| desc. node          | 8354 Aug 03 12:40 | 26° $\text{O}$ 58'45      |            | evening set      | 8355 Jul 13 09:38 | 8° $\text{O}$ 54'43       |            |
| inferior conj       | 8354 Aug 09 16:17 | 23° $\text{O}$ 40'08      | -1°52'51   | inferior conj    | 8355 Jul 21 10:56 | 4° $\text{O}$ 34'14       | -0°00'53   |
| minimum elong       | 8354 Aug 09 11:08 | 23° $\text{O}$ 48'13      | 1°51'00    | minimum elong    | 8355 Jul 21 10:53 | 4° $\text{O}$ 34'19       | 0°01'01    |
| min. Earth dist.    | 8354 Aug 11 23:02 | 22° $\text{O}$ 14'21      | 0.55430 AU | transit middle   | 8355 Jul 21 10:53 | 4° $\text{O}$ 34'19       | 0°01'01    |
| morning rise        | 8354 Aug 17 23:34 | 19° $\text{O}$ 12'51      |            | transit begin    | 8355 Jul 21 07:12 | 4° $\text{O}$ 41'02       |            |
| direct              | 8354 Aug 22 16:56 | 18° $\text{O}$ 23'08      |            | transit end      | 8355 Jul 21 14:35 | 4° $\text{O}$ 27'35       |            |
| morning max el      | 8354 Sep 05 15:18 | 25° $\text{O}$ 20'08      | 24°47'44   | desc. node       | 8355 Jul 21 09:46 | 4° $\text{O}$ 36'22       |            |
|                     | 8354 Sep 10 00:15 | 0° $\text{H}$             |            | min. Earth dist. | 8355 Jul 24 15:03 | 2° $\text{O}$ 16'29       | 0.56973 AU |
| asc. node           | 8354 Sep 25 19:05 | 24° $\text{H}$ 45'47      |            |                  | 8355 Jul 28 07:42 | 30° $\text{R}$ $\text{E}$ |            |
|                     | 8354 Sep 28 10:21 | 0° $\text{E}$             |            | morning rise     | 8355 Jul 29 08:43 | 29° $\text{E}$ 30'05      |            |
| morning set         | 8354 Oct 01 11:55 | 6° $\text{E}$ 23'48       |            | direct           | 8355 Aug 03 22:30 | 28° $\text{E}$ 14'33      |            |
| superior conj       | 8354 Oct 08 08:54 | 21° $\text{E}$ 22'41      | 1°36'59    |                  | 8355 Aug 10 15:02 | 0° $\text{O}$             |            |
| minimum elong       | 8354 Oct 08 07:37 | 21° $\text{E}$ 15'39      | 1°36'59    | morning max el   | 8355 Aug 18 05:50 | 5° $\text{O}$ 42'09       | 26°20'42   |
| max. Earth dist.    | 8354 Oct 10 02:20 | 25° $\text{E}$ 08'39      | 1.32515 AU |                  | 8355 Sep 05 01:16 | 0° $\text{H}$             |            |
|                     | 8354 Oct 12 08:30 | 0° $\text{H}$             |            | asc. node        | 8355 Sep 12 16:02 | 14° $\text{H}$ 19'23      |            |
| evening rise        | 8354 Oct 15 14:49 | 6° $\text{H}$ 49'14       |            | morning set      | 8355 Sep 15 22:34 | 21° $\text{H}$ 07'14      |            |
|                     | 8354 Oct 28 02:16 | 0° $\text{X}$             |            |                  | 8355 Sep 20 00:43 | 0° $\text{E}$             |            |
| desc. node          | 8354 Oct 30 11:25 | 3° $\text{X}$ 52'34       |            | superior conj    | 8355 Sep 22 20:11 | 6° $\text{E}$ 13'23       | 1°27'07    |
| evening max el      | 8354 Nov 17 17:07 | 27° $\text{X}$ 26'49      | 27°29'13   | minimum elong    | 8355 Sep 22 18:12 | 6° $\text{E}$ 02'25       | 1°26'55    |
|                     | 8354 Nov 20 15:07 | 0° $\text{B}$             |            | max. Earth dist. | 8355 Sep 23 10:22 | 7° $\text{E}$ 31'58       | 1.31851 AU |
| retrograde          | 8354 Dec 01 11:06 | 4° $\text{B}$ 44'44       |            | evening rise     | 8355 Sep 29 18:06 | 21° $\text{E}$ 14'42      |            |
| evening set         | 8354 Dec 08 12:54 | 2° $\text{B}$ 15'37       |            |                  | 8355 Oct 04 01:20 | 0° $\text{H}$             |            |
|                     | 8354 Dec 11 07:58 | 30° $\text{R}$ $\text{X}$ |            | desc. node       | 8355 Oct 17 08:31 | 23° $\text{H}$ 03'13      |            |
| min. Earth dist.    | 8354 Dec 12 05:48 | 29° $\text{X}$ 09'21      | 0.63051 AU |                  | 8355 Oct 22 06:49 | 0° $\text{X}$             |            |
| inferior conj       | 8354 Dec 15 00:00 | 26° $\text{X}$ 27'10      | -2°32'32   | evening max el   | 8355 Oct 30 23:54 | 9° $\text{X}$ 55'13       | 27°10'08   |
| minimum elong       | 8354 Dec 15 04:50 | 26° $\text{X}$ 15'18      | 2°30'30    | retrograde       | 8355 Nov 13 21:04 | 17° $\text{X}$ 06'35      |            |
| morning rise        | 8354 Dec 21 22:48 | 21° $\text{X}$ 14'36      |            | evening set      | 8355 Nov 20 21:33 | 14° $\text{X}$ 54'51      |            |
| asc. node           | 8354 Dec 22 18:35 | 20° $\text{X}$ 59'46      |            | min. Earth dist. | 8355 Nov 24 14:38 | 12° $\text{X}$ 11'02      | 0.61055 AU |
| direct              | 8354 Dec 24 06:52 | 20° $\text{X}$ 48'55      |            | inferior conj    | 8355 Nov 27 17:00 | 9° $\text{X}$ 30'19       | -3°42'21   |
| morning max el      | 8354 Dec 30 22:14 | 24° $\text{X}$ 13'55      | 17°47'48   | minimum elong    | 8355 Nov 27 23:49 | 9° $\text{X}$ 15'33       | 3°40'01    |
|                     | 8355 Jan 04 14:26 | 0° $\text{B}$             |            | morning rise     | 8355 Dec 05 04:24 | 4° $\text{X}$ 37'06       |            |
| morning set         | 8355 Jan 16 02:03 | 19° $\text{B}$ 05'13      |            | direct           | 8355 Dec 07 09:28 | 4° $\text{X}$ 17'09       |            |
|                     | 8355 Jan 22 09:05 | 0° $\approx$              |            | asc. node        | 8355 Dec 09 15:37 | 4° $\text{X}$ 38'45       |            |
| desc. node          | 8355 Jan 26 10:40 | 6° $\approx$ 53'18        |            | morning max el   | 8355 Dec 14 13:19 | 7° $\text{X}$ 52'46       | 17°56'48   |
| superior conj       | 8355 Jan 28 01:19 | 9° $\approx$ 34'26        | -0°11'47   |                  | 8355 Dec 28 20:13 | 0° $\text{B}$             |            |

|                  |                   |                           |            |                   |                   |                                  |
|------------------|-------------------|---------------------------|------------|-------------------|-------------------|----------------------------------|
| morning set      | 8355 Dec 30 05:09 | 2° $\text{Z}$ 30'52       |            | 8356 Dec 19 22:43 | 0° $\text{Z}$     |                                  |
| superior conj    | 8356 Jan 09 12:35 | 21° $\text{Z}$ 05'49      | 0°27'55    | superior conj     | 8356 Dec 21 22:19 | 3° $\text{Z}$ 41'16 0°59'11      |
| minimum elong    | 8356 Jan 09 14:51 | 21° $\text{Z}$ 15'45      | 0°27'45    | minimum elong     | 8356 Dec 22 01:43 | 3° $\text{Z}$ 56'55 0°58'54      |
| desc. node       | 8356 Jan 13 07:38 | 27° $\text{Z}$ 37'58      |            | max. Earth dist.  | 8356 Dec 29 10:18 | 17° $\text{Z}$ 03'53 1.40519 AU  |
|                  | 8356 Jan 14 17:16 | 0° $\approx$              |            | desc. node        | 8356 Dec 30 04:37 | 18° $\text{Z}$ 22'31             |
| max. Earth dist. | 8356 Jan 17 01:20 | 3° $\approx$ 53'26        | 1.42534 AU | evening rise      | 8357 Jan 02 19:25 | 24° $\text{Z}$ 27'33             |
| evening rise     | 8356 Jan 23 02:46 | 13° $\approx$ 41'00       |            |                   | 8357 Jan 06 05:02 | 0° $\approx$                     |
|                  | 8356 Feb 02 18:32 | 0° $\text{H}$             |            |                   | 8357 Jan 26 14:47 | 0° $\text{H}$                    |
| evening max el   | 8356 Feb 24 16:59 | 29° $\text{H}$ 00'01      | 22°15'24   | evening max el    | 8357 Feb 06 07:59 | 12° $\text{H}$ 43'48 23°35'21    |
|                  | 8356 Feb 25 17:30 | 0° $\text{Y}$             |            | retrograde        | 8357 Feb 17 01:20 | 19° $\text{H}$ 03'31             |
| retrograde       | 8356 Mar 05 07:11 | 4° $\text{Y}$ 40'59       |            | asc. node         | 8357 Feb 21 11:42 | 17° $\text{H}$ 28'04             |
| asc. node        | 8356 Mar 06 14:37 | 4° $\text{Y}$ 32'17       |            | evening set       | 8357 Feb 22 03:56 | 16° $\text{H}$ 55'56             |
| evening set      | 8356 Mar 09 21:48 | 2° $\text{Y}$ 48'08       |            | min. Earth dist.  | 8357 Feb 27 00:12 | 11° $\text{H}$ 16'51 0.68321 AU  |
|                  | 8356 Mar 12 14:07 | 30° $\text{R}$ $\text{H}$ |            | inferior conj     | 8357 Feb 27 14:12 | 10° $\text{H}$ 28'54 1°53'07     |
| inferior conj    | 8356 Mar 15 05:47 | 26° $\text{H}$ 26'52      | 2°30'02    | minimum elong     | 8357 Feb 27 12:04 | 10° $\text{H}$ 36'12 1°52'28     |
| minimum elong    | 8356 Mar 15 03:32 | 26° $\text{H}$ 34'41      | 2°29'27    | morning rise      | 8357 Mar 04 20:12 | 4° $\text{H}$ 24'14              |
| min. Earth dist. | 8356 Mar 15 03:34 | 26° $\text{H}$ 34'37      | 0.68425 AU | direct            | 8357 Mar 09 00:31 | 2° $\text{H}$ 46'15              |
| morning rise     | 8356 Mar 20 09:07 | 20° $\text{H}$ 16'33      |            | morning max el    | 8357 Mar 17 05:37 | 7° $\text{H}$ 28'10 20°48'25     |
| direct           | 8356 Mar 25 03:12 | 18° $\text{H}$ 16'01      |            | desc. node        | 8357 Mar 28 04:20 | 21° $\text{H}$ 05'29             |
| morning max el   | 8356 Apr 03 12:09 | 23° $\text{H}$ 45'48      | 22°09'31   |                   | 8357 Apr 03 09:01 | 0° $\text{Y}$                    |
|                  | 8356 Apr 09 00:06 | 0° $\text{Y}$             |            | morning set       | 8357 Apr 16 01:45 | 19° $\text{Y}$ 15'12             |
| desc. node       | 8356 Apr 10 07:24 | 1° $\text{Y}$ 38'29       |            |                   | 8357 Apr 22 20:39 | 0° $\text{B}$                    |
|                  | 8356 Apr 30 01:23 | 0° $\text{B}$             |            | max. Earth dist.  | 8357 Apr 24 07:14 | 2° $\text{B}$ 19'41 1.43072 AU   |
| morning set      | 8356 May 06 16:57 | 10° $\text{B}$ 30'59      |            |                   |                   |                                  |
| max. Earth dist. | 8356 May 12 02:05 | 19° $\text{B}$ 22'46      | 1.41091 AU | superior conj     | 8357 May 01 03:22 | 13° $\text{B}$ 37'54 -2°07'17    |
|                  | 8356 May 18 06:29 | 0° $\text{II}$            |            | minimum elong     | 8357 May 01 07:17 | 13° $\text{B}$ 54'22 2°07'15     |
|                  |                   |                           |            |                   | 8357 May 10 14:36 | 0° $\text{II}$                   |
| superior conj    | 8356 May 19 20:40 | 2° $\text{II}$ 48'40      | -1°48'24   | evening rise      | 8357 May 13 02:22 | 4° $\text{II}$ 24'50             |
| minimum elong    | 8356 May 20 02:30 | 3° $\text{II}$ 14'40      | 1°47'58    | asc. node         | 8357 May 20 10:33 | 17° $\text{II}$ 16'45            |
| evening rise     | 8356 May 30 07:02 | 21° $\text{II}$ 55'34     |            |                   | 8357 May 29 05:52 | 0° $\text{E}$                    |
| asc. node        | 8356 Jun 02 13:31 | 27° $\text{II}$ 59'26     |            | evening max el    | 8357 May 29 21:47 | 0° $\text{E}$ 40'54 18°05'21     |
|                  | 8356 Jun 03 15:54 | 0° $\text{E}$             |            | retrograde        | 8357 Jun 05 11:23 | 4° $\text{E}$ 03'23              |
| evening max el   | 8356 Jun 15 09:49 | 17° $\text{E}$ 38'23      | 18°16'29   | evening set       | 8357 Jun 08 02:13 | 3° $\text{E}$ 30'57              |
| retrograde       | 8356 Jun 22 14:14 | 21° $\text{E}$ 14'56      |            |                   | 8357 Jun 13 01:50 | 30° $\text{R}$ $\text{II}$       |
| evening set      | 8356 Jun 24 21:38 | 20° $\text{E}$ 53'22      |            | inferior conj     | 8357 Jun 14 15:21 | 28° $\text{II}$ 29'40 2°29'05    |
| inferior conj    | 8356 Jul 02 03:21 | 16° $\text{E}$ 12'09      | 1°28'06    | minimum elong     | 8357 Jun 14 18:18 | 28° $\text{II}$ 22'22 2°28'11    |
| minimum elong    | 8356 Jul 02 05:59 | 16° $\text{E}$ 06'30      | 1°27'03    | min. Earth dist.  | 8357 Jun 17 18:24 | 25° $\text{II}$ 25'53 0.61282 AU |
| min. Earth dist. | 8356 Jul 05 12:45 | 13° $\text{E}$ 19'47      | 0.59035 AU | morning rise      | 8357 Jun 21 08:07 | 22° $\text{II}$ 30'10            |
| desc. node       | 8356 Jul 07 06:49 | 11° $\text{E}$ 59'19      |            | desc. node        | 8357 Jun 24 03:52 | 20° $\text{II}$ 59'07            |
| morning rise     | 8356 Jul 09 11:12 | 10° $\text{E}$ 35'24      |            | direct            | 8357 Jun 28 00:08 | 20° $\text{II}$ 14'11            |
| direct           | 8356 Jul 15 17:36 | 8° $\text{E}$ 48'52       |            | morning max el    | 8357 Jul 12 06:07 | 28° $\text{II}$ 14'04 27°54'43   |
| morning max el   | 8356 Jul 30 02:36 | 16° $\text{E}$ 36'35      | 27°26'01   |                   | 8357 Jul 13 23:08 | 0° $\text{E}$                    |
|                  | 8356 Aug 10 02:51 | 0° $\text{O}$             |            |                   | 8357 Aug 03 22:24 | 0° $\text{O}$                    |
|                  | 8356 Aug 27 12:24 | 0° $\text{M}$             |            | morning set       | 8357 Aug 14 09:41 | 19° $\text{O}$ 56'51             |
| asc. node        | 8356 Aug 29 12:58 | 4° $\text{M}$ 08'58       |            | asc. node         | 8357 Aug 16 09:55 | 24° $\text{O}$ 08'19             |
| morning set      | 8356 Aug 30 06:28 | 5° $\text{M}$ 40'26       |            |                   | 8357 Aug 19 03:37 | 0° $\text{M}$                    |
|                  |                   |                           |            | max. Earth dist.  | 8357 Aug 20 05:19 | 2° $\text{M}$ 19'54 1.31893 AU   |
| superior conj    | 8356 Sep 06 07:58 | 21° $\text{M}$ 02'29      | 1°12'03    |                   |                   |                                  |
| minimum elong    | 8356 Sep 06 05:43 | 20° $\text{M}$ 49'59      | 1°11'41    | superior conj     | 8357 Aug 21 18:24 | 5° $\text{M}$ 43'15 0°52'12      |
| max. Earth dist. | 8356 Sep 05 20:43 | 20° $\text{M}$ 00'03      | 1.31645 AU | minimum elong     | 8357 Aug 21 16:22 | 5° $\text{M}$ 32'03 0°51'44      |
|                  | 8356 Sep 10 09:10 | 0° $\text{A}$             |            | evening rise      | 8357 Aug 28 13:01 | 20° $\text{M}$ 33'42             |
| evening rise     | 8356 Sep 13 02:13 | 5° $\text{A}$ 52'02       |            |                   | 8357 Sep 02 02:05 | 0° $\text{A}$                    |
|                  | 8356 Sep 25 16:38 | 0° $\text{M}$             |            | desc. node        | 8357 Sep 20 02:42 | 28° $\text{A}$ 41'08             |
| desc. node       | 8356 Oct 03 05:37 | 11° $\text{M}$ 25'56      |            |                   | 8357 Sep 21 06:54 | 0° $\text{M}$                    |
| evening max el   | 8356 Oct 11 23:38 | 21° $\text{M}$ 34'55      | 26°17'05   | evening max el    | 8357 Sep 23 15:10 | 2° $\text{M}$ 23'47 24°55'15     |
| retrograde       | 8356 Oct 25 21:39 | 28° $\text{M}$ 39'49      |            | retrograde        | 8357 Oct 07 11:30 | 9° $\text{M}$ 22'26              |
| evening set      | 8356 Nov 01 11:00 | 26° $\text{M}$ 55'39      |            | evening set       | 8357 Oct 13 00:45 | 8° $\text{M}$ 12'57              |
| min. Earth dist. | 8356 Nov 05 12:49 | 24° $\text{M}$ 21'08      | 0.58971 AU | min. Earth dist.  | 8357 Oct 18 02:28 | 5° $\text{M}$ 29'28 0.57014 AU   |
| inferior conj    | 8356 Nov 08 17:09 | 21° $\text{M}$ 57'43      | -4°45'13   | inferior conj     | 8357 Oct 20 21:30 | 3° $\text{M}$ 39'54 -5°27'36     |
| minimum elong    | 8356 Nov 09 00:16 | 21° $\text{M}$ 44'17      | 4°43'30    | minimum elong     | 8357 Oct 21 01:17 | 3° $\text{M}$ 33'40 5°27'10      |
| morning rise     | 8356 Nov 16 15:51 | 17° $\text{M}$ 26'48      |            |                   | 8357 Oct 27 14:14 | 30° $\text{R}$ $\text{A}$        |
| direct           | 8356 Nov 18 21:59 | 17° $\text{M}$ 09'22      |            | morning rise      | 8357 Oct 29 04:06 | 29° $\text{A}$ 31'52             |
| asc. node        | 8356 Nov 25 12:36 | 19° $\text{M}$ 48'53      |            | direct            | 8357 Oct 31 16:09 | 29° $\text{A}$ 14'08             |
| morning max el   | 8356 Nov 26 22:33 | 21° $\text{M}$ 04'11      | 18°25'43   |                   | 8357 Nov 04 13:33 | 0° $\text{M}$                    |
|                  | 8356 Dec 03 17:58 | 0° $\text{A}$             |            | morning max el    | 8357 Nov 09 22:22 | 3° $\text{M}$ 38'03 19°16'16     |
| morning set      | 8356 Dec 12 21:11 | 16° $\text{A}$ 32'06      |            | asc. node         | 8357 Nov 12 09:34 | 6° $\text{M}$ 16'52              |

|                     |                   |           |            |                     |                   |                      |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|----------------------|
|                     | 8357 Nov 26 10:37 | 0°♊       |            | 8358 Nov 03 02:37   | 0°♎               |                      |
| morning set         | 8357 Nov 26 22:01 | 0°♊56'43  |            | morning set         | 8358 Nov 11 04:37 | 15°♎36'04            |
|                     |                   |           |            |                     | 8358 Nov 18 04:06 | 0°♊                  |
| superior conj       | 8357 Dec 05 01:26 | 17°♊06'06 | 1°21'19    |                     |                   |                      |
| minimum elong       | 8357 Dec 05 04:24 | 17°♊20'29 | 1°21'10    | superior conj       | 8358 Nov 18 17:13 | 1°♊06'45 1°34'54     |
| max. Earth dist.    | 8357 Dec 11 15:59 | 29°♊31'36 | 1.38344 AU | minimum elong       | 8358 Nov 18 19:02 | 1°♊15'57 1°34'55     |
|                     | 8357 Dec 11 22:15 | 0°♊       |            | max. Earth dist.    | 8358 Nov 23 23:06 | 11°♊30'20 1.36268 AU |
| evening rise        | 8357 Dec 15 09:59 | 6°♊12'01  |            | evening rise        | 8358 Nov 27 20:20 | 18°♊49'02            |
| desc. node          | 8357 Dec 17 01:37 | 9°♊03'11  |            | desc. node          | 8358 Dec 03 22:38 | 29°♊35'44            |
|                     | 8357 Dec 30 04:34 | 0°♊       |            |                     | 8358 Dec 04 04:21 | 0°♊                  |
| evening max el      | 8358 Jan 19 21:12 | 26°♊30'27 | 24°53'32   |                     | 8358 Dec 24 08:35 | 0°♊                  |
|                     | 8358 Jan 23 20:03 | 0°♊       |            | evening max el      | 8359 Jan 02 10:15 | 10°♊17'08 26°02'50   |
| retrograde          | 8358 Jan 31 15:42 | 3°♊21'29  |            | retrograde          | 8359 Jan 15 01:14 | 17°♊28'11            |
| evening set         | 8358 Feb 06 06:51 | 1°♊00'50  |            | evening set         | 8359 Jan 21 04:50 | 14°♊57'36            |
|                     | 8358 Feb 07 09:04 | 30°♊      |            | min. Earth dist.    | 8359 Jan 25 10:37 | 10°♊27'27 0.66928 AU |
| asc. node           | 8358 Feb 08 08:46 | 28°♊56'48 |            | asc. node           | 8359 Jan 26 05:52 | 9°♊27'49             |
| min. Earth dist.    | 8358 Feb 10 19:17 | 25°♊56'12 | 0.67813 AU | inferior conj       | 8359 Jan 26 23:31 | 8°♊32'39 0°14'41     |
| inferior conj       | 8358 Feb 11 20:46 | 24°♊32'13 | 1°07'52    | minimum elong       | 8359 Jan 26 23:08 | 8°♊33'51 0°14'41     |
| minimum elong       | 8358 Feb 11 19:14 | 24°♊37'17 | 1°07'24    | transit middle      | 8359 Jan 26 23:08 | 8°♊33'51 0°14'41     |
| morning rise        | 8358 Feb 17 07:52 | 18°♊34'44 |            | transit begin       | 8359 Jan 26 21:58 | 8°♊37'30             |
| direct              | 8358 Feb 20 23:24 | 17°♊18'20 |            | transit end         | 8359 Jan 27 00:18 | 8°♊30'12             |
| morning max el      | 8358 Feb 28 06:59 | 21°♊23'08 | 19°40'04   | morning rise        | 8359 Feb 01 18:04 | 2°♊44'07             |
|                     | 8358 Mar 07 09:54 | 0°♊       |            | direct              | 8359 Feb 04 22:17 | 1°♊46'36             |
| greatest brilliancy | 8358 Mar 13 00:32 | 7°♊59'33  | -0.7m      | morning max el      | 8359 Feb 11 15:46 | 5°♊26'28 18°47'00    |
| desc. node          | 8358 Mar 15 01:16 | 10°♊59'54 |            |                     | 8359 Mar 01 03:17 | 0°♊                  |
| morning set         | 8358 Mar 25 23:17 | 27°♊35'30 |            | desc. node          | 8359 Mar 01 22:10 | 1°♊13'41             |
|                     | 8358 Mar 27 12:45 | 0°♊       |            | morning set         | 8359 Mar 05 09:42 | 6°♊40'15             |
| max. Earth dist.    | 8358 Apr 06 19:16 | 16°♊03'31 | 1.44554 AU |                     | 8359 Mar 20 07:36 | 0°♊                  |
|                     |                   |           |            | max. Earth dist.    | 8359 Mar 20 12:07 | 0°♊17'41 1.45381 AU  |
| superior conj       | 8358 Apr 11 09:23 | 23°♊23'19 | -2°11'10   |                     |                   |                      |
| minimum elong       | 8358 Apr 11 07:24 | 23°♊15'18 | 2°11'12    | superior conj       | 8359 Mar 21 19:28 | 2°♊20'36 -1°55'16    |
|                     | 8358 Apr 15 11:09 | 0°♊       |            | minimum elong       | 8359 Mar 21 11:03 | 1°♊47'34 1°54'39     |
| evening rise        | 8358 Apr 25 02:03 | 16°♊01'11 |            | evening rise        | 8359 Apr 06 02:24 | 26°♊38'14            |
|                     | 8358 May 03 10:09 | 0°♊       |            |                     | 8359 Apr 08 04:27 | 0°♊                  |
| asc. node           | 8358 May 07 07:38 | 6°♊08'09  |            | greatest brilliancy | 8359 Apr 12 17:02 | 7°♊17'10 -0.9m       |
| evening max el      | 8358 May 13 11:09 | 14°♊01'41 | 18°13'09   | asc. node           | 8359 Apr 24 04:43 | 24°♊24'40            |
| retrograde          | 8358 May 19 20:20 | 17°♊24'33 |            | evening max el      | 8359 Apr 26 23:03 | 27°♊33'11 18°39'12   |
| evening set         | 8358 May 22 18:24 | 16°♊39'22 |            |                     | 8359 Apr 29 22:24 | 0°♊                  |
| inferior conj       | 8358 May 28 19:00 | 11°♊19'43 | 3°05'08    | retrograde          | 8359 May 03 12:52 | 1°♊09'31             |
| minimum elong       | 8358 May 28 21:00 | 11°♊14'08 | 3°04'41    | evening set         | 8359 May 06 18:19 | 0°♊10'20             |
| min. Earth dist.    | 8358 May 31 09:23 | 8°♊27'08  | 0.63434 AU |                     | 8359 May 07 00:53 | 30°♊                 |
| morning rise        | 8358 Jun 03 22:13 | 5°♊07'36  |            | inferior conj       | 8359 May 12 10:13 | 24°♊33'53 3°21'17    |
| direct              | 8358 Jun 10 16:22 | 2°♊30'19  |            | minimum elong       | 8359 May 12 10:54 | 24°♊31'49 3°21'07    |
| desc. node          | 8358 Jun 11 00:54 | 2°♊30'44  |            | min. Earth dist.    | 8359 May 14 09:29 | 22°♊10'01 0.65289 AU |
| morning max el      | 8358 Jun 24 14:29 | 10°♊33'05 | 27°45'15   | morning rise        | 8359 May 18 02:44 | 18°♊16'34            |
|                     | 8358 Jul 09 20:45 | 0°♊       |            | direct              | 8359 May 24 16:25 | 15°♊29'58            |
|                     | 8358 Jul 27 07:19 | 0°♊       |            | desc. node          | 8359 May 28 21:54 | 16°♊28'06            |
| morning set         | 8358 Jul 29 06:00 | 3°♊50'21  |            | morning max el      | 8359 Jun 07 00:45 | 23°♊22'57 27°02'18   |
| asc. node           | 8358 Aug 03 06:54 | 14°♊13'06 |            |                     | 8359 Jun 12 21:51 | 0°♊                  |
| max. Earth dist.    | 8358 Aug 03 08:13 | 14°♊20'04 | 1.32614 AU |                     | 8359 Jul 03 04:47 | 0°♊                  |
|                     |                   |           |            | morning set         | 8359 Jul 12 16:32 | 17°♊12'58            |
| superior conj       | 8358 Aug 06 01:42 | 20°♊10'29 | 0°27'57    | max. Earth dist.    | 8359 Jul 17 01:48 | 25°♊52'53 1.33825 AU |
| minimum elong       | 8358 Aug 06 00:24 | 20°♊03'31 | 0°27'33    |                     | 8359 Jul 19 02:07 | 0°♊                  |
|                     | 8358 Aug 10 14:16 | 0°♊       |            |                     |                   |                      |
| evening rise        | 8358 Aug 13 00:38 | 5°♊14'15  |            | superior conj       | 8359 Jul 21 03:44 | 4°♊18'25 -0°00'04    |
|                     | 8358 Aug 26 03:44 | 0°♊       |            | minimum elong       | 8359 Jul 21 03:45 | 4°♊18'28 0°00'14     |
| evening max el      | 8358 Sep 05 02:23 | 12°♊39'57 | 23°17'36   | behind sun begin    | 8359 Jul 20 22:07 | 3°♊48'58             |
| desc. node          | 8358 Sep 06 23:48 | 14°♊23'09 |            | behind sun end      | 8359 Jul 21 09:22 | 4°♊48'00             |
| retrograde          | 8358 Sep 18 13:20 | 19°♊23'40 |            | asc. node           | 8359 Jul 21 03:55 | 4°♊19'20             |
| evening set         | 8358 Sep 22 15:15 | 18°♊47'16 |            | evening rise        | 8359 Jul 28 11:13 | 19°♊48'19            |
| min. Earth dist.    | 8358 Sep 29 11:49 | 15°♊36'23 | 0.55493 AU |                     | 8359 Aug 02 11:19 | 0°♊                  |
| inferior conj       | 8358 Oct 01 06:02 | 14°♊34'34 | -5°30'35   | evening max el      | 8359 Aug 17 17:53 | 22°♊58'13 21°40'45   |
| minimum elong       | 8358 Oct 01 02:41 | 14°♊39'30 | 5°30'19    | desc. node          | 8359 Aug 24 20:54 | 28°♊00'52            |
| morning rise        | 8358 Oct 09 16:13 | 10°♊43'09 |            | retrograde          | 8359 Aug 30 04:04 | 29°♊08'04            |
| direct              | 8358 Oct 12 14:54 | 10°♊22'17 |            | evening set         | 8359 Sep 01 20:32 | 28°♊51'45            |
| morning max el      | 8358 Oct 23 09:52 | 15°♊25'40 | 20°29'14   | inferior conj       | 8359 Sep 11 00:53 | 24°♊53'03 -4°39'14   |
| asc. node           | 8358 Oct 30 06:34 | 23°♊47'22 |            | minimum elong       | 8359 Sep 10 15:44 | 25°♊05'50 4°37'09    |

|                     |                   |                              |            |                  |                   |                              |            |
|---------------------|-------------------|------------------------------|------------|------------------|-------------------|------------------------------|------------|
| min. Earth dist.    | 8359 Sep 10 20:26 | 24° $\cap$ 59'15             | 0.54727 AU | evening set      | 8360 Aug 11 15:39 | 8° $\cap$ 59'26              |            |
| morning rise        | 8359 Sep 19 12:02 | 21° $\cap$ 03'16             |            | inferior conj    | 8360 Aug 20 18:47 | 5° $\cap$ 01'38              | -3°00'04   |
| direct              | 8359 Sep 23 01:06 | 20° $\cap$ 35'49             |            | minimum elong    | 8360 Aug 20 10:43 | 5° $\cap$ 13'27              | 2°57'20    |
| morning max el      | 8359 Oct 05 08:37 | 26° $\cap$ 25'03             | 22°02'22   | min. Earth dist. | 8360 Aug 22 06:21 | 4° $\cap$ 09'28              | 0.54905 AU |
|                     | 8359 Oct 08 18:22 | 0° $\underline{\cap}$        |            | morning rise     | 8360 Aug 29 04:52 | 0° $\cap$ 53'26              |            |
| asc. node           | 8359 Oct 17 03:33 | 12° $\underline{\cap}$ 06'13 |            | direct           | 8360 Sep 02 11:15 | 0° $\cap$ 14'13              |            |
|                     | 8359 Oct 26 10:11 | 0° $\cap$                    |            | morning max el   | 8360 Sep 15 22:39 | 6° $\cap$ 47'48              | 23°47'32   |
| morning set         | 8359 Oct 26 14:45 | 0° $\cap$ 23'57              |            |                  | 8360 Oct 02 11:22 | 0° $\underline{\cap}$        |            |
|                     |                   |                              |            | asc. node        | 8360 Oct 03 00:32 | 1° $\underline{\cap}$ 00'58  |            |
| superior conj       | 8359 Nov 02 17:57 | 15° $\cap$ 32'20             | 1°40'52    | morning set      | 8360 Oct 10 02:24 | 15° $\underline{\cap}$ 13'44 |            |
| minimum elong       | 8359 Nov 02 18:26 | 15° $\cap$ 34'53             | 1°40'59    |                  | 8360 Oct 16 22:10 | 0° $\cap$                    |            |
| max. Earth dist.    | 8359 Nov 06 12:53 | 23° $\cap$ 23'59             | 1.34488 AU |                  |                   |                              |            |
|                     | 8359 Nov 09 20:10 | 0° $\mathcal{N}$             |            | superior conj    | 8360 Oct 17 00:33 | 0° $\cap$ 12'52              | 1°40'09    |
| evening rise        | 8359 Nov 10 22:45 | 2° $\mathcal{N}$ 09'09       |            | minimum elong    | 8360 Oct 16 23:50 | 0° $\cap$ 08'59              | 1°40'13    |
| desc. node          | 8359 Nov 20 19:41 | 19° $\mathcal{N}$ 55'27      |            | max. Earth dist. | 8360 Oct 19 11:06 | 5° $\cap$ 27'34              | 1.33110 AU |
|                     | 8359 Nov 27 03:01 | 0° $\mathcal{B}$             |            | evening rise     | 8360 Oct 24 13:17 | 16° $\cap$ 00'53             |            |
| evening max el      | 8359 Dec 15 23:37 | 23° $\mathcal{B}$ 57'50      | 26°55'47   |                  | 8360 Oct 31 21:40 | 0° $\mathcal{N}$             |            |
|                     | 8359 Dec 24 02:50 | 0° $\approx$                 |            | desc. node       | 8360 Nov 06 16:46 | 9° $\mathcal{N}$ 55'09       |            |
| retrograde          | 8359 Dec 29 05:07 | 1° $\approx$ 17'10           |            |                  | 8360 Nov 20 18:24 | 0° $\mathcal{B}$             |            |
|                     | 8360 Jan 02 21:39 | 30° $\mathcal{R}$            |            | evening max el   | 8360 Nov 27 12:09 | 7° $\mathcal{B}$ 20'14       | 27°25'19   |
| evening set         | 8360 Jan 04 19:59 | 28° $\mathcal{B}$ 41'30      |            | retrograde       | 8360 Dec 11 02:29 | 14° $\mathcal{B}$ 39'26      |            |
| min. Earth dist.    | 8360 Jan 08 19:55 | 24° $\mathcal{B}$ 45'39      | 0.65687 AU | evening set      | 8360 Dec 18 01:50 | 12° $\mathcal{B}$ 05'26      |            |
| inferior conj       | 8360 Jan 10 20:23 | 22° $\mathcal{B}$ 26'06      | -0°45'47   | min. Earth dist. | 8360 Dec 21 20:48 | 8° $\mathcal{B}$ 42'23       | 0.64105 AU |
| minimum elong       | 8360 Jan 10 21:42 | 22° $\mathcal{B}$ 22'18      | 0°45'03    | inferior conj    | 8360 Dec 24 08:49 | 6° $\mathcal{B}$ 05'46       | -1°52'20   |
| asc. node           | 8360 Jan 13 02:55 | 19° $\mathcal{B}$ 55'04      |            | minimum elong    | 8360 Dec 24 12:18 | 5° $\mathcal{B}$ 56'38       | 1°50'45    |
| morning rise        | 8360 Jan 17 00:33 | 16° $\mathcal{B}$ 49'01      |            | asc. node        | 8360 Dec 29 23:59 | 1° $\mathcal{B}$ 13'01       |            |
| direct              | 8360 Jan 19 19:18 | 16° $\mathcal{B}$ 06'46      |            | morning rise     | 8360 Dec 31 00:26 | 0° $\mathcal{B}$ 43'14       |            |
| morning max el      | 8360 Jan 26 06:06 | 19° $\mathcal{B}$ 32'57      | 18°10'25   | direct           | 8361 Jan 02 11:48 | 0° $\mathcal{B}$ 12'29       |            |
|                     | 8360 Feb 03 05:57 | 0° $\approx$                 |            | morning max el   | 8361 Jan 08 23:14 | 3° $\mathcal{B}$ 35'01       | 17°51'00   |
| morning set         | 8360 Feb 14 00:19 | 17° $\approx$ 11'18          |            | morning set      | 8361 Jan 25 19:16 | 29° $\mathcal{B}$ 05'30      |            |
| desc. node          | 8360 Feb 16 19:07 | 21° $\approx$ 41'42          |            |                  | 8361 Jan 26 08:06 | 0° $\approx$                 |            |
|                     | 8360 Feb 21 23:11 | 0° $\mathcal{H}$             |            | desc. node       | 8361 Feb 02 16:05 | 12° $\approx$ 19'08          |            |
|                     |                   |                              |            |                  |                   |                              |            |
| superior conj       | 8360 Feb 29 01:03 | 11° $\mathcal{H}$ 12'49      | -1°20'58   | superior conj    | 8361 Feb 07 20:59 | 20° $\approx$ 50'25          | -0°37'11   |
| minimum elong       | 8360 Feb 28 16:06 | 10° $\mathcal{H}$ 37'39      | 1°19'53    | minimum elong    | 8361 Feb 07 16:48 | 20° $\approx$ 33'28          | 0°36'28    |
| max. Earth dist.    | 8360 Mar 02 07:38 | 14° $\mathcal{H}$ 47'03      | 1.45478 AU | max. Earth dist. | 8361 Feb 13 03:07 | 29° $\approx$ 15'11          | 1.44832 AU |
|                     | 8360 Mar 12 01:44 | 0° $\mathcal{Y}$             |            |                  | 8361 Feb 13 14:26 | 0° $\mathcal{H}$             |            |
| evening rise        | 8360 Mar 16 04:28 | 6° $\mathcal{Y}$ 23'53       |            | evening rise     | 8361 Feb 23 17:02 | 15° $\mathcal{H}$ 43'56      |            |
| greatest brilliancy | 8360 Mar 28 07:57 | 25° $\mathcal{Y}$ 08'00      | -0.7m      |                  | 8361 Mar 05 02:49 | 0° $\mathcal{Y}$             |            |
|                     | 8360 Mar 31 14:37 | 0° $\mathcal{B}$             |            | evening max el   | 8361 Mar 23 10:12 | 24° $\mathcal{Y}$ 48'44      | 20°20'37   |
| evening max el      | 8360 Apr 09 07:14 | 11° $\mathcal{B}$ 09'58      | 19°22'19   | asc. node        | 8361 Mar 27 22:55 | 28° $\mathcal{Y}$ 27'13      |            |
| asc. node           | 8360 Apr 10 01:50 | 11° $\mathcal{B}$ 55'24      |            | retrograde       | 8361 Mar 31 08:10 | 29° $\mathcal{Y}$ 25'17      |            |
| retrograde          | 8360 Apr 16 09:40 | 15° $\mathcal{B}$ 11'33      |            | evening set      | 8361 Apr 04 06:29 | 27° $\mathcal{Y}$ 56'08      |            |
| evening set         | 8360 Apr 19 23:06 | 13° $\mathcal{B}$ 57'33      |            | inferior conj    | 8361 Apr 09 14:16 | 21° $\mathcal{Y}$ 50'43      | 3°09'53    |
| inferior conj       | 8360 Apr 25 09:35 | 8° $\mathcal{B}$ 05'43       | 3°21'51    | minimum elong    | 8361 Apr 09 12:45 | 21° $\mathcal{Y}$ 55'55      | 3°09'36    |
| minimum elong       | 8360 Apr 25 09:00 | 8° $\mathcal{B}$ 07'35       | 3°21'43    | min. Earth dist. | 8361 Apr 10 08:02 | 20° $\mathcal{Y}$ 50'06      | 0.67736 AU |
| min. Earth dist.    | 8360 Apr 26 17:37 | 6° $\mathcal{B}$ 21'13       | 0.66737 AU | morning rise     | 8361 Apr 14 18:48 | 15° $\mathcal{Y}$ 34'27      |            |
| morning rise        | 8360 Apr 30 18:33 | 1° $\mathcal{B}$ 47'42       |            | direct           | 8361 Apr 20 10:38 | 13° $\mathcal{Y}$ 03'06      |            |
|                     | 8360 May 03 06:59 | 30° $\mathcal{R}$            |            | desc. node       | 8361 May 01 15:52 | 19° $\mathcal{Y}$ 41'46      |            |
| direct              | 8360 May 06 22:51 | 29° $\mathcal{Y}$ 03'54      |            | morning max el   | 8361 May 01 20:01 | 19° $\mathcal{Y}$ 52'12      | 24°29'54   |
|                     | 8360 May 10 22:10 | 0° $\mathcal{B}$             |            |                  | 8361 May 10 11:18 | 0° $\mathcal{B}$             |            |
| desc. node          | 8360 May 14 18:54 | 2° $\mathcal{B}$ 21'48       |            |                  | 8361 May 30 18:16 | 0° $\mathcal{H}$             |            |
| morning max el      | 8360 May 19 10:46 | 6° $\mathcal{B}$ 32'04       | 25°53'56   | morning set      | 8361 Jun 06 16:03 | 11° $\mathcal{H}$ 41'18      |            |
|                     | 8360 Jun 06 14:28 | 0° $\mathcal{H}$             |            | max. Earth dist. | 8361 Jun 10 07:20 | 18° $\mathcal{H}$ 09'56      | 1.37578 AU |
| morning set         | 8360 Jun 24 13:30 | 29° $\mathcal{H}$ 54'09      |            |                  | 8361 Jun 16 15:17 | 0° $\mathcal{B}$             |            |
|                     | 8360 Jun 24 14:46 | 0° $\mathcal{B}$             |            |                  |                   |                              |            |
| max. Earth dist.    | 8360 Jun 28 08:40 | 7° $\mathcal{B}$ 02'33       | 1.35514 AU | superior conj    | 8361 Jun 17 05:00 | 1° $\mathcal{B}$ 06'08       | -1°02'48   |
|                     |                   |                              |            | minimum elong    | 8361 Jun 17 08:53 | 1° $\mathcal{B}$ 24'55       | 1°02'18    |
| superior conj       | 8360 Jul 03 21:55 | 17° $\mathcal{B}$ 59'41      | -0°30'53   | asc. node        | 8361 Jun 23 21:57 | 14° $\mathcal{B}$ 19'40      |            |
| minimum elong       | 8360 Jul 03 23:44 | 18° $\mathcal{B}$ 08'52      | 0°30'41    | evening rise     | 8361 Jun 25 20:29 | 18° $\mathcal{B}$ 11'35      |            |
| asc. node           | 8360 Jul 07 00:56 | 24° $\mathcal{B}$ 22'46      |            |                  | 8361 Jul 01 23:31 | 0° $\mathcal{B}$             |            |
|                     | 8360 Jul 09 18:13 | 0° $\mathcal{B}$             |            | evening max el   | 8361 Jul 12 12:54 | 15° $\mathcal{B}$ 23'16      | 19°14'07   |
| evening rise        | 8360 Jul 11 18:39 | 4° $\mathcal{B}$ 09'40       |            | retrograde       | 8361 Jul 21 16:16 | 19° $\mathcal{B}$ 54'26      |            |
|                     | 8360 Jul 26 12:17 | 0° $\cap$                    |            | evening set      | 8361 Jul 23 13:28 | 19° $\mathcal{B}$ 43'43      |            |
| evening max el      | 8360 Jul 29 20:49 | 3° $\cap$ 48'22              | 20°17'32   | desc. node       | 8361 Jul 28 15:07 | 17° $\mathcal{B}$ 43'36      |            |
| retrograde          | 8360 Aug 09 16:33 | 9° $\cap$ 09'13              |            | inferior conj    | 8361 Aug 01 01:55 | 15° $\mathcal{B}$ 33'23      | -1°03'27   |
| desc. node          | 8360 Aug 10 18:01 | 9° $\cap$ 06'19              |            | minimum elong    | 8361 Jul 31 23:07 | 15° $\mathcal{B}$ 38'03      | 1°02'29    |

|                  |                   |                                   |            |                  |                   |                                   |            |
|------------------|-------------------|-----------------------------------|------------|------------------|-------------------|-----------------------------------|------------|
| min. Earth dist. | 8361 Aug 03 19:34 | 13° $\Omega$ 44'21                | 0.56003 AU | inferior conj    | 8362 Jul 13 05:51 | 26° $\mathfrak{D}$ 45'55          | 0°40'16    |
| morning rise     | 8361 Aug 09 05:54 | 10° $\Omega$ 50'46                |            | minimum elong    | 8362 Jul 13 07:18 | 26° $\mathfrak{D}$ 43'06          | 0°39'34    |
| direct           | 8361 Aug 14 07:58 | 9° $\Omega$ 51'24                 |            | desc. node       | 8362 Jul 15 12:11 | 24° $\mathfrak{D}$ 59'30          |            |
| morning max el   | 8361 Aug 28 11:22 | 17° $\Omega$ 02'04                | 25°29'54   | min. Earth dist. | 8362 Jul 16 13:55 | 24° $\mathfrak{D}$ 10'42          | 0.57804 AU |
|                  | 8361 Sep 08 02:27 | 0° $\mathfrak{M}$                 |            | morning rise     | 8362 Jul 20 22:01 | 21° $\mathfrak{D}$ 26'27          |            |
| asc. node        | 8361 Sep 19 21:31 | 20° $\mathfrak{M}$ 22'40          |            | direct           | 8362 Jul 26 19:19 | 19° $\mathfrak{D}$ 58'06          |            |
| morning set      | 8361 Sep 24 13:53 | 0° $\mathfrak{A}$ 00'54           |            | morning max el   | 8362 Aug 10 04:30 | 27° $\mathfrak{D}$ 36'00          | 26°52'37   |
|                  | 8361 Sep 24 13:42 | 0° $\mathfrak{A}$                 |            |                  | 8362 Aug 12 12:29 | 0° $\Omega$                       |            |
|                  |                   |                                   |            |                  | 8362 Sep 01 15:31 | 0° $\mathfrak{M}$                 |            |
| superior conj    | 8361 Oct 01 10:42 | 15° $\mathfrak{A}$ 01'30          | 1°33'27    | asc. node        | 8362 Sep 06 18:28 | 10° $\mathfrak{M}$ 03'34          |            |
| minimum elong    | 8361 Oct 01 09:04 | 14° $\mathfrak{A}$ 52'33          | 1°33'22    | morning set      | 8362 Sep 08 23:33 | 14° $\mathfrak{M}$ 40'22          |            |
| max. Earth dist. | 8361 Oct 02 16:25 | 17° $\mathfrak{A}$ 44'53          | 1.32180 AU |                  |                   |                                   |            |
|                  | 8361 Oct 08 09:37 | 0° $\mathfrak{M}$                 |            | superior conj    | 8362 Sep 15 22:24 | 29° $\mathfrak{M}$ 51'54          | 1°21'20    |
| evening rise     | 8361 Oct 08 12:41 | 0° $\mathfrak{M}$ 15'52           |            | minimum elong    | 8362 Sep 15 20:15 | 29° $\mathfrak{M}$ 39'58          | 1°21'03    |
| desc. node       | 8361 Oct 24 13:51 | 29° $\mathfrak{M}$ 26'37          |            |                  | 8362 Sep 15 23:51 | 0° $\mathfrak{A}$                 |            |
|                  | 8361 Oct 24 22:28 | 0° $\mathfrak{X}$                 |            | max. Earth dist. | 8362 Sep 16 01:46 | 0° $\mathfrak{A}$ 10'34           | 1.31703 AU |
| evening max el   | 8361 Nov 09 21:33 | 20° $\mathfrak{X}$ 10'57          | 27°25'08   | evening rise     | 8362 Sep 22 18:15 | 14° $\mathfrak{A}$ 46'33          |            |
| retrograde       | 8361 Nov 23 16:49 | 27° $\mathfrak{X}$ 25'56          |            |                  | 8362 Sep 30 09:22 | 0° $\mathfrak{M}$                 |            |
| evening set      | 8361 Nov 30 19:18 | 25° $\mathfrak{X}$ 02'40          |            | desc. node       | 8362 Oct 11 10:57 | 18° $\mathfrak{M}$ 18'43          |            |
| min. Earth dist. | 8361 Dec 04 11:32 | 22° $\mathfrak{X}$ 07'28          | 0.62228 AU |                  | 8362 Oct 20 18:01 | 0° $\mathfrak{X}$                 |            |
| inferior conj    | 8361 Dec 07 09:48 | 19° $\mathfrak{X}$ 24'10          | -3°02'24   | evening max el   | 8362 Oct 23 01:21 | 2° $\mathfrak{X}$ 18'31           | 26°51'32   |
| minimum elong    | 8361 Dec 07 15:35 | 19° $\mathfrak{X}$ 10'43          | 3°00'09    | retrograde       | 8362 Nov 05 23:16 | 9° $\mathfrak{X}$ 27'55           |            |
| morning rise     | 8361 Dec 14 14:01 | 14° $\mathfrak{X}$ 19'38          |            | evening set      | 8362 Nov 12 20:27 | 7° $\mathfrak{X}$ 26'23           |            |
| direct           | 8361 Dec 16 20:30 | 13° $\mathfrak{X}$ 56'44          |            | min. Earth dist. | 8362 Nov 16 15:37 | 4° $\mathfrak{X}$ 48'41           | 0.60162 AU |
| asc. node        | 8361 Dec 16 21:01 | 13° $\mathfrak{X}$ 56'44          |            | inferior conj    | 8362 Nov 19 20:02 | 2° $\mathfrak{X}$ 12'54           | -4°10'36   |
| morning max el   | 8361 Dec 23 16:03 | 17° $\mathfrak{X}$ 24'47          | 17°49'22   | minimum elong    | 8362 Nov 20 03:18 | 1° $\mathfrak{X}$ 58'03           | 4°08'23    |
|                  | 8362 Jan 01 15:35 | 0° $\mathfrak{Z}$                 |            |                  | 8362 Nov 22 16:17 | 30° $\mathfrak{R}$ $\mathfrak{M}$ |            |
| morning set      | 8362 Jan 08 12:26 | 12° $\mathfrak{Z}$ 02'53          |            | morning rise     | 8362 Nov 27 12:35 | 27° $\mathfrak{M}$ 29'18          |            |
|                  | 8362 Jan 18 18:04 | 0° $\mathfrak{A}$                 |            | direct           | 8362 Nov 29 17:27 | 27° $\mathfrak{M}$ 10'54          |            |
|                  |                   |                                   |            | asc. node        | 8362 Dec 03 18:02 | 28° $\mathfrak{M}$ 15'30          |            |
| superior conj    | 8362 Jan 19 17:36 | 1° $\mathfrak{A}$ 39'59           | 0°05'59    |                  | 8362 Dec 06 05:49 | 0° $\mathfrak{X}$                 |            |
| minimum elong    | 8362 Jan 19 18:11 | 1° $\mathfrak{A}$ 42'27           | 0°06'03    | morning max el   | 8362 Dec 07 05:10 | 0° $\mathfrak{X}$ 53'34           | 18°06'39   |
| behind sun begin | 8362 Jan 19 09:58 | 1° $\mathfrak{A}$ 07'36           |            | morning set      | 8362 Dec 22 21:37 | 25° $\mathfrak{X}$ 45'09          |            |
| behind sun end   | 8362 Jan 20 02:23 | 2° $\mathfrak{A}$ 17'12           |            |                  | 8362 Dec 25 04:05 | 0° $\mathfrak{Z}$                 |            |
| desc. node       | 8362 Jan 20 13:01 | 3° $\mathfrak{A}$ 02'04           |            | superior conj    | 8363 Jan 01 15:03 | 13° $\mathfrak{Z}$ 40'37          | 0°42'18    |
| max. Earth dist. | 8362 Jan 26 19:18 | 13° $\mathfrak{A}$ 22'47          | 1.43521 AU | minimum elong    | 8363 Jan 01 18:03 | 13° $\mathfrak{Z}$ 54'02          | 0°42'01    |
| evening rise     | 8362 Feb 03 06:48 | 25° $\mathfrak{A}$ 14'38          |            | desc. node       | 8363 Jan 07 10:00 | 23° $\mathfrak{Z}$ 47'12          |            |
|                  | 8362 Feb 06 08:46 | 0° $\mathfrak{X}$                 |            | max. Earth dist. | 8363 Jan 09 06:26 | 26° $\mathfrak{Z}$ 55'07          | 1.41702 AU |
|                  | 8362 Feb 27 03:39 | 0° $\mathfrak{Y}$                 |            |                  | 8363 Jan 11 02:50 | 0° $\mathfrak{A}$                 |            |
| evening max el   | 8362 Mar 06 07:33 | 8° $\mathfrak{Y}$ 28'04           | 21°31'03   | evening rise     | 8363 Jan 14 11:28 | 5° $\mathfrak{A}$ 28'52           |            |
| asc. node        | 8362 Mar 14 20:00 | 13° $\mathfrak{Y}$ 44'44          |            |                  | 8363 Jan 30 14:41 | 0° $\mathfrak{X}$                 |            |
| retrograde       | 8362 Mar 15 06:18 | 13° $\mathfrak{Y}$ 45'40          |            | evening max el   | 8363 Feb 17 00:20 | 22° $\mathfrak{X}$ 09'56          | 22°49'12   |
| evening set      | 8362 Mar 19 14:36 | 12° $\mathfrak{Y}$ 01'19          |            | retrograde       | 8363 Feb 27 02:25 | 28° $\mathfrak{X}$ 08'45          |            |
| inferior conj    | 8362 Mar 24 21:57 | 5° $\mathfrak{Y}$ 44'46           | 2°47'20    | asc. node        | 8363 Mar 01 17:05 | 27° $\mathfrak{X}$ 34'38          |            |
| minimum elong    | 8362 Mar 24 19:51 | 5° $\mathfrak{Y}$ 52'04           | 2°46'50    | evening set      | 8363 Mar 03 21:55 | 26° $\mathfrak{X}$ 09'36          |            |
| min. Earth dist. | 8362 Mar 25 02:42 | 5° $\mathfrak{Y}$ 28'15           | 0.68293 AU | inferior conj    | 8363 Mar 09 06:40 | 19° $\mathfrak{X}$ 45'10          | 2°15'27    |
|                  | 8362 Mar 29 12:45 | 30° $\mathfrak{R}$ $\mathfrak{X}$ |            | minimum elong    | 8363 Mar 09 04:25 | 19° $\mathfrak{X}$ 53'00          | 2°14'49    |
| morning rise     | 8362 Mar 30 00:56 | 29° $\mathfrak{X}$ 31'47          |            | min. Earth dist. | 8363 Mar 08 23:22 | 20° $\mathfrak{X}$ 10'29          | 0.68425 AU |
| direct           | 8362 Apr 04 02:56 | 27° $\mathfrak{X}$ 19'08          |            | morning rise     | 8363 Mar 14 10:48 | 13° $\mathfrak{X}$ 36'51          |            |
|                  | 8362 Apr 10 12:29 | 0° $\mathfrak{Y}$                 |            | direct           | 8363 Mar 18 22:52 | 11° $\mathfrak{X}$ 45'57          |            |
| morning max el   | 8362 Apr 14 05:53 | 3° $\mathfrak{Y}$ 19'10           | 23°00'06   | morning max el   | 8363 Mar 27 19:34 | 16° $\mathfrak{X}$ 54'58          | 21°33'41   |
| desc. node       | 8362 Apr 18 12:49 | 8° $\mathfrak{Y}$ 03'43           |            | desc. node       | 8363 Apr 05 09:44 | 27° $\mathfrak{X}$ 10'49          |            |
|                  | 8362 May 04 14:07 | 0° $\mathfrak{Z}$                 |            |                  | 8363 Apr 07 11:47 | 0° $\mathfrak{Y}$                 |            |
| morning set      | 8362 May 18 18:34 | 22° $\mathfrak{Z}$ 19'23          |            |                  | 8363 Apr 27 15:57 | 0° $\mathfrak{Z}$                 |            |
| max. Earth dist. | 8362 May 23 03:35 | 29° $\mathfrak{Z}$ 43'23          | 1.39822 AU | morning set      | 8363 Apr 28 17:34 | 1° $\mathfrak{Z}$ 41'22           |            |
|                  | 8362 May 23 07:27 | 0° $\mathfrak{I}$                 |            | max. Earth dist. | 8363 May 05 03:59 | 12° $\mathfrak{Z}$ 06'22          | 1.41980 AU |
| superior conj    | 8362 May 30 20:53 | 13° $\mathfrak{I}$ 26'59          | -1°33'10   | superior conj    | 8363 May 12 17:00 | 24° $\mathfrak{Z}$ 52'37          | -1°57'50   |
| minimum elong    | 8362 May 31 02:26 | 13° $\mathfrak{I}$ 52'30          | 1°32'38    | minimum elong    | 8363 May 12 22:29 | 25° $\mathfrak{Z}$ 16'26          | 1°57'35    |
|                  | 8362 Jun 08 15:40 | 0° $\mathfrak{D}$                 |            |                  | 8363 May 15 15:08 | 0° $\mathfrak{I}$                 |            |
| evening rise     | 8362 Jun 09 13:35 | 1° $\mathfrak{D}$ 44'50           |            | evening rise     | 8363 May 23 18:09 | 14° $\mathfrak{I}$ 40'23          |            |
| asc. node        | 8362 Jun 10 18:58 | 4° $\mathfrak{D}$ 05'02           |            | asc. node        | 8363 May 28 15:59 | 23° $\mathfrak{I}$ 34'15          |            |
| evening max el   | 8362 Jun 25 15:41 | 27° $\mathfrak{D}$ 39'20          | 18°31'39   |                  | 8363 Jun 01 09:29 | 0° $\mathfrak{D}$                 |            |
|                  | 8362 Jun 28 13:14 | 0° $\Omega$                       |            | evening max el   | 8363 Jun 09 01:27 | 10° $\mathfrak{D}$ 28'09          | 18°09'23   |
| retrograde       | 8362 Jul 03 10:12 | 1° $\Omega$ 31'34                 |            | retrograde       | 8363 Jun 15 22:14 | 13° $\mathfrak{D}$ 56'42          |            |
| evening set      | 8362 Jul 05 13:04 | 1° $\Omega$ 15'11                 |            | evening set      | 8363 Jun 18 08:47 | 13° $\mathfrak{D}$ 30'53          |            |
|                  | 8362 Jul 08 14:08 | 30° $\mathfrak{R}$ $\mathfrak{D}$ |            |                  |                   |                                   |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| inferior conj    | 8363 Jun 25 07:02 | 8°♄41'19  | 1°57'17    | minimum elong       | 8364 Jun 07 04:52 | 21°♂06'55 | 2°46'23    |
| minimum elong    | 8363 Jun 25 10:02 | 8°♄34'29  | 1°56'13    | min. Earth dist.    | 8364 Jun 10 00:27 | 18°♂12'19 | 0.62229 AU |
| min. Earth dist. | 8363 Jun 28 15:01 | 5°♄40'46  | 0.59990 AU | morning rise        | 8364 Jun 13 12:58 | 15°♂08'11 |            |
| morning rise     | 8363 Jul 02 08:23 | 2°♄53'26  |            | desc. node          | 8364 Jun 18 06:16 | 12°♂54'37 |            |
| desc. node       | 8363 Jul 02 09:14 | 2°♄52'08  |            | direct              | 8364 Jun 20 07:01 | 12°♂41'42 |            |
| direct           | 8363 Jul 08 19:57 | 0°♄53'19  |            | morning max el      | 8364 Jul 04 09:53 | 20°♂43'30 | 27°55'07   |
| morning max el   | 8363 Jul 23 04:13 | 8°♄47'57  | 27°42'50   |                     | 8364 Jul 12 09:46 | 0°♄       |            |
|                  | 8363 Aug 08 09:38 | 0°♂       |            |                     | 8364 Jul 31 10:28 | 0°♂       |            |
| morning set      | 8363 Aug 24 05:42 | 29°♂06'51 |            | morning set         | 8364 Aug 07 06:19 | 13°♂14'44 |            |
| asc. node        | 8363 Aug 24 15:25 | 29°♂57'40 |            | asc. node           | 8364 Aug 10 12:23 | 20°♂00'08 |            |
|                  | 8363 Aug 24 15:51 | 0°♂       |            | max. Earth dist.    | 8364 Aug 12 18:16 | 24°♂48'21 | 1.32142 AU |
| max. Earth dist. | 8363 Aug 30 11:38 | 12°♂35'18 | 1.31688 AU |                     |                   |           |            |
|                  |                   |           |            | superior conj       | 8364 Aug 14 19:15 | 29°♂14'32 | 0°42'26    |
| superior conj    | 8363 Aug 31 09:50 | 14°♂38'06 | 1°04'12    | minimum elong       | 8364 Aug 14 17:27 | 29°♂04'46 | 0°41'59    |
| minimum elong    | 8363 Aug 31 07:37 | 14°♂25'48 | 1°03'46    |                     | 8364 Aug 15 03:33 | 0°♂       |            |
| evening rise     | 8363 Sep 07 03:44 | 29°♂26'11 |            | evening rise        | 8364 Aug 21 15:11 | 14°♂08'51 |            |
|                  | 8363 Sep 07 10:04 | 0°♂       |            |                     | 8364 Aug 29 12:10 | 0°♂       |            |
|                  | 8363 Sep 23 19:32 | 0°♂       |            | desc. node          | 8364 Sep 14 05:09 | 22°♂54'58 |            |
| desc. node       | 8363 Sep 28 08:03 | 6°♂15'21  |            | evening max el      | 8364 Sep 15 10:46 | 24°♂08'54 | 24°14'46   |
| evening max el   | 8363 Oct 04 21:34 | 13°♂35'56 | 25°45'19   |                     | 8364 Sep 23 23:08 | 0°♂       |            |
| retrograde       | 8363 Oct 18 19:53 | 20°♂38'54 |            | retrograde          | 8364 Sep 29 04:23 | 1°♂02'04  |            |
| evening set      | 8363 Oct 25 00:18 | 19°♂09'14 |            | evening set         | 8364 Oct 04 03:29 | 0°♂07'48  |            |
| min. Earth dist. | 8363 Oct 29 10:06 | 16°♂33'00 | 0.58096 AU |                     | 8364 Oct 04 12:02 | 30°♂      |            |
| inferior conj    | 8363 Nov 01 12:03 | 14°♂22'01 | -5°06'51   | min. Earth dist.    | 8364 Oct 09 21:35 | 27°♂14'40 | 0.56297 AU |
| minimum elong    | 8363 Nov 01 18:18 | 14°♂10'53 | 5°05'39    | inferior conj       | 8364 Oct 12 07:48 | 25°♂44'25 | -5°34'51   |
| morning rise     | 8363 Nov 09 14:37 | 10°♂00'55 |            | minimum elong       | 8364 Oct 12 08:52 | 25°♂42'47 | 5°34'45    |
| direct           | 8363 Nov 11 22:26 | 9°♂43'49  |            | morning rise        | 8364 Oct 20 16:20 | 21°♂44'20 |            |
| morning max el   | 8363 Nov 20 10:52 | 13°♂50'18 | 18°44'29   | direct              | 8364 Oct 23 08:32 | 21°♂25'28 |            |
| asc. node        | 8363 Nov 20 15:02 | 14°♂00'26 |            | morning max el      | 8364 Nov 02 05:39 | 26°♂05'10 | 19°44'31   |
|                  | 8363 Dec 01 12:27 | 0°♂       |            |                     | 8364 Nov 05 18:28 | 0°♂       |            |
| morning set      | 8363 Dec 06 17:50 | 9°♂57'22  |            | asc. node           | 8364 Nov 06 12:02 | 0°♂56'57  |            |
|                  |                   |           |            | morning set         | 8364 Nov 19 21:29 | 24°♂29'27 |            |
| superior conj    | 8363 Dec 15 08:47 | 26°♂38'30 | 1°09'40    |                     | 8364 Nov 22 14:39 | 0°♂       |            |
| minimum elong    | 8363 Dec 15 12:08 | 26°♂54'17 | 1°09'25    |                     |                   |           |            |
|                  | 8363 Dec 17 03:51 | 0°♂       |            | superior conj       | 8364 Nov 27 17:50 | 10°♂19'54 | 1°28'03    |
| max. Earth dist. | 8363 Dec 22 13:18 | 9°♂45'21  | 1.39595 AU | minimum elong       | 8364 Nov 27 20:22 | 10°♂32'24 | 1°27'59    |
| desc. node       | 8363 Dec 25 06:59 | 14°♂30'28 |            | max. Earth dist.    | 8364 Dec 03 19:17 | 21°♂59'31 | 1.37443 AU |
| evening rise     | 8363 Dec 26 13:33 | 16°♂40'27 |            | evening rise        | 8364 Dec 07 13:01 | 28°♂48'28 |            |
|                  | 8364 Jan 03 18:23 | 0°♂       |            |                     | 8364 Dec 08 05:07 | 0°♂       |            |
|                  | 8364 Jan 25 05:17 | 0°♂       |            | desc. node          | 8364 Dec 11 04:00 | 5°♂08'10  |            |
| evening max el   | 8364 Jan 30 14:27 | 5°♂55'14  | 24°09'19   |                     | 8364 Dec 27 02:48 | 0°♂       |            |
| retrograde       | 8364 Feb 10 19:06 | 12°♂29'31 |            | evening max el      | 8365 Jan 12 03:40 | 19°♂42'51 | 25°24'33   |
| evening set      | 8364 Feb 16 02:52 | 10°♂16'24 |            | retrograde          | 8365 Jan 24 07:20 | 26°♂42'58 |            |
| asc. node        | 8364 Feb 16 14:10 | 9°♂51'20  |            | evening set         | 8365 Jan 30 03:53 | 24°♂17'49 |            |
| min. Earth dist. | 8364 Feb 20 19:44 | 4°♂51'41  | 0.68151 AU | asc. node           | 8365 Feb 02 11:16 | 20°♂49'48 |            |
| inferior conj    | 8364 Feb 21 14:33 | 3°♂48'09  | 1°34'56    | min. Earth dist.    | 8365 Feb 03 13:29 | 19°♂27'51 | 0.67487 AU |
| minimum elong    | 8364 Feb 21 12:36 | 3°♂54'42  | 1°34'20    | inferior conj       | 8365 Feb 04 19:44 | 17°♂50'21 | 0°46'16    |
|                  | 8364 Feb 24 14:12 | 30°♂      |            | minimum elong       | 8365 Feb 04 18:37 | 17°♂53'57 | 0°45'57    |
| morning rise     | 8364 Feb 26 22:23 | 27°♂46'04 |            | morning rise        | 8365 Feb 10 09:43 | 11°♂56'22 |            |
| direct           | 8364 Mar 01 21:09 | 26°♂17'19 |            | direct              | 8365 Feb 13 20:21 | 10°♂48'13 |            |
|                  | 8364 Mar 08 22:42 | 0°♂       |            | morning max el      | 8365 Feb 20 20:47 | 14°♂40'30 | 19°15'30   |
| morning max el   | 8364 Mar 09 16:10 | 0°♂42'06  | 20°17'31   |                     | 8365 Mar 04 13:42 | 0°♂       |            |
| desc. node       | 8364 Mar 22 06:39 | 16°♂50'21 |            | greatest brilliancy | 8365 Mar 05 23:39 | 2°♂06'31  | -0.7m      |
|                  | 8364 Mar 31 04:01 | 0°♂       |            | desc. node          | 8365 Mar 09 03:35 | 6°♂53'28  |            |
| morning set      | 8364 Apr 06 18:51 | 10°♂07'01 |            | morning set         | 8365 Mar 16 19:00 | 18°♂37'58 |            |
| max. Earth dist. | 8364 Apr 16 11:56 | 25°♂23'50 | 1.43776 AU |                     | 8365 Mar 24 02:47 | 0°♂       |            |
|                  | 8364 Apr 19 08:22 | 0°♂       |            | max. Earth dist.    | 8365 Mar 30 02:47 | 9°♂24'02  | 1.44996 AU |
|                  |                   |           |            |                     |                   |           |            |
| superior conj    | 8364 Apr 22 13:19 | 5°♂14'52  | -2°11'08   | superior conj       | 8365 Apr 02 09:35 | 14°♂35'43 | -2°06'57   |
| minimum elong    | 8364 Apr 22 15:09 | 5°♂22'28  | 2°11'12    | minimum elong       | 8365 Apr 02 04:30 | 14°♂15'33 | 2°06'46    |
| evening rise     | 8364 May 05 05:41 | 26°♂48'06 |            |                     | 8365 Apr 11 23:08 | 0°♂       |            |
|                  | 8364 May 07 01:49 | 0°♂       |            | evening rise        | 8365 Apr 16 19:40 | 7°♂59'04  |            |
| asc. node        | 8364 May 14 13:03 | 12°♂41'34 |            |                     | 8365 Apr 30 12:00 | 0°♂       |            |
| evening max el   | 8364 May 22 14:31 | 23°♂40'13 | 18°06'26   | asc. node           | 8365 May 01 10:08 | 1°♂19'05  |            |
| retrograde       | 8364 May 29 00:52 | 27°♂00'46 |            | evening max el      | 8365 May 06 03:36 | 7°♂06'17  | 18°22'03   |
| evening set      | 8364 May 31 18:54 | 26°♂22'59 |            | retrograde          | 8365 May 12 13:33 | 10°♂33'12 |            |
| inferior conj    | 8364 Jun 07 02:13 | 21°♂13'49 | 2°47'06    | evening set         | 8365 May 15 14:50 | 9°♂41'59  |            |

|                  |                   |                         |            |                     |                   |                         |            |
|------------------|-------------------|-------------------------|------------|---------------------|-------------------|-------------------------|------------|
| inferior conj    | 8365 May 21 11:15 | 4° $\Pi$ 14'48          | 3°14'09    | greatest brilliancy | 8366 Apr 06 16:58 | 2° $\mathcal{S}$ 52'48  | -0.8m      |
| minimum elong    | 8365 May 21 12:42 | 4° $\Pi$ 10'34          | 3°13'50    | asc. node           | 8366 Apr 18 07:14 | 19° $\mathcal{B}$ 17'46 |            |
| min. Earth dist. | 8365 May 23 19:13 | 1° $\Pi$ 33'04          | 0.64267 AU | evening max el      | 8366 Apr 19 14:07 | 20° $\mathcal{B}$ 40'27 | 18°55'30   |
|                  | 8365 May 25 05:42 | 30° $\mathcal{R}$ 8     |            | retrograde          | 8366 Apr 26 08:27 | 24° $\mathcal{B}$ 26'30 |            |
| morning rise     | 8365 May 27 09:34 | 27° $\mathcal{B}$ 59'56 |            | evening set         | 8366 Apr 29 17:10 | 23° $\mathcal{B}$ 21'04 |            |
| direct           | 8365 Jun 03 02:29 | 25° $\mathcal{B}$ 17'30 |            | inferior conj       | 8366 May 05 06:21 | 17° $\mathcal{B}$ 37'36 | 3°23'15    |
| desc. node       | 8365 Jun 05 03:17 | 25° $\mathcal{B}$ 30'53 |            | minimum elong       | 8366 May 05 06:29 | 17° $\mathcal{B}$ 37'13 | 3°23'07    |
|                  | 8365 Jun 13 06:04 | 0° $\Pi$                |            | min. Earth dist.    | 8366 May 06 22:59 | 15° $\mathcal{B}$ 29'43 | 0.65951 AU |
| morning max el   | 8365 Jun 16 19:23 | 3° $\Pi$ 16'55          | 27°30'46   | morning rise        | 8366 May 10 19:16 | 11° $\mathcal{B}$ 19'24 |            |
|                  | 8365 Jul 06 19:46 | 0° $\mathcal{B}$        |            | direct              | 8366 May 17 05:16 | 8° $\mathcal{B}$ 32'54  |            |
| morning set      | 8365 Jul 21 22:52 | 26° $\mathcal{B}$ 56'02 |            | desc. node          | 8366 May 23 00:16 | 10° $\mathcal{B}$ 21'41 |            |
|                  | 8365 Jul 23 11:53 | 0° $\Omega$             |            | morning max el      | 8366 May 30 06:03 | 16° $\mathcal{B}$ 17'32 | 26°35'54   |
| max. Earth dist. | 8365 Jul 26 17:51 | 6° $\Omega$ 38'40       | 1.33075 AU |                     | 8366 Jun 10 13:59 | 0° $\Pi$                |            |
| asc. node        | 8365 Jul 28 09:22 | 10° $\Omega$ 05'53      |            |                     | 8366 Jun 29 16:20 | 0° $\mathcal{B}$        |            |
|                  |                   |                         |            | morning set         | 8366 Jul 05 04:11 | 10° $\mathcal{B}$ 02'43 |            |
| superior conj    | 8365 Jul 30 00:35 | 13° $\Omega$ 34'16      | 0°16'30    | max. Earth dist.    | 8366 Jul 09 07:10 | 18° $\mathcal{B}$ 01'42 | 1.34492 AU |
| minimum elong    | 8365 Jul 29 23:47 | 13° $\Omega$ 29'57      | 0°16'11    |                     |                   |                         |            |
| evening rise     | 8365 Aug 06 02:37 | 28° $\Omega$ 47'35      |            | superior conj       | 8366 Jul 13 23:37 | 27° $\mathcal{B}$ 31'37 | -0°12'52   |
|                  | 8365 Aug 06 16:18 | 0° $\mathcal{M}$        |            | minimum elong       | 8366 Jul 14 00:20 | 27° $\mathcal{B}$ 35'21 | 0°12'53    |
|                  | 8365 Aug 24 00:24 | 0° $\mathcal{B}$        |            | behind sun begin    | 8366 Jul 13 20:50 | 27° $\mathcal{B}$ 17'12 |            |
| evening max el   | 8365 Aug 27 22:36 | 4° $\mathcal{B}$ 20'54  | 22°35'18   | behind sun end      | 8366 Jul 14 03:51 | 27° $\mathcal{B}$ 53'31 |            |
| desc. node       | 8365 Sep 01 02:17 | 7° $\mathcal{B}$ 48'09  |            | asc. node           | 8366 Jul 15 06:23 | 0° $\Omega$ 11'24       |            |
| retrograde       | 8365 Sep 10 00:38 | 10° $\mathcal{B}$ 52'32 |            |                     | 8366 Jul 15 04:12 | 0° $\Omega$             |            |
| evening set      | 8365 Sep 13 11:26 | 10° $\mathcal{B}$ 26'22 |            | evening rise        | 8366 Jul 21 12:09 | 13° $\Omega$ 17'08      |            |
| min. Earth dist. | 8365 Sep 21 05:49 | 6° $\mathcal{B}$ 59'42  | 0.55067 AU |                     | 8366 Jul 30 01:52 | 0° $\mathcal{M}$        |            |
| inferior conj    | 8365 Sep 22 09:16 | 6° $\mathcal{B}$ 20'46  | -5°15'41   | evening max el      | 8366 Aug 09 18:12 | 14° $\mathcal{M}$ 49'13 | 21°03'04   |
| minimum elong    | 8365 Sep 22 02:49 | 6° $\mathcal{B}$ 29'55  | 5°14'46    | desc. node          | 8366 Aug 18 23:23 | 20° $\mathcal{M}$ 23'30 |            |
| morning rise     | 8365 Sep 30 20:07 | 2° $\mathcal{B}$ 32'45  |            | retrograde          | 8366 Aug 21 13:24 | 20° $\mathcal{M}$ 40'00 |            |
| direct           | 8365 Oct 04 00:47 | 2° $\mathcal{B}$ 09'29  |            | evening set         | 8366 Aug 23 20:02 | 20° $\mathcal{M}$ 27'47 |            |
| morning max el   | 8365 Oct 15 11:28 | 7° $\mathcal{B}$ 31'14  | 21°06'44   | inferior conj       | 8366 Sep 02 01:50 | 16° $\mathcal{M}$ 30'49 | -4°01'34   |
| asc. node        | 8365 Oct 24 09:02 | 18° $\mathcal{B}$ 49'15 |            | minimum elong       | 8366 Sep 01 16:18 | 16° $\mathcal{M}$ 44'18 | 3°58'52    |
|                  | 8365 Oct 30 16:08 | 0° $\mathcal{M}$        |            | min. Earth dist.    | 8366 Sep 02 14:45 | 16° $\mathcal{M}$ 12'34 | 0.54684 AU |
| morning set      | 8365 Nov 04 05:53 | 9° $\mathcal{M}$ 13'11  |            | morning rise        | 8366 Sep 10 12:57 | 12° $\mathcal{M}$ 35'41 |            |
|                  |                   |                         |            | direct              | 8366 Sep 14 08:44 | 12° $\mathcal{M}$ 04'18 |            |
| superior conj    | 8365 Nov 11 13:51 | 24° $\mathcal{M}$ 32'12 | 1°38'17    | morning max el      | 8366 Sep 27 05:54 | 18° $\mathcal{M}$ 12'58 | 22°46'26   |
| minimum elong    | 8365 Nov 11 15:06 | 24° $\mathcal{M}$ 38'39 | 1°38'23    |                     | 8366 Oct 06 18:39 | 0° $\mathcal{B}$        |            |
|                  | 8365 Nov 14 06:03 | 0° $\mathcal{X}$        |            | asc. node           | 8366 Oct 11 06:01 | 7° $\mathcal{B}$ 24'23  |            |
| max. Earth dist. | 8365 Nov 16 05:02 | 3° $\mathcal{X}$ 54'22  | 1.35468 AU | morning set         | 8366 Oct 19 16:50 | 24° $\mathcal{B}$ 02'23 |            |
| evening rise     | 8365 Nov 20 06:40 | 11° $\mathcal{X}$ 44'33 |            |                     | 8366 Oct 22 11:52 | 0° $\mathcal{M}$        |            |
| desc. node       | 8365 Nov 28 01:04 | 25° $\mathcal{X}$ 35'50 |            |                     |                   |                         |            |
|                  | 8365 Nov 30 16:39 | 0° $\mathcal{Z}$        |            | superior conj       | 8366 Oct 26 17:23 | 9° $\mathcal{M}$ 05'13  | 1°41'20    |
|                  | 8365 Dec 22 08:32 | 0° $\approx$            |            | minimum elong       | 8366 Oct 26 17:20 | 9° $\mathcal{M}$ 04'56  | 1°41'27    |
| evening max el   | 8365 Dec 25 16:51 | 3° $\approx$ 27'48      | 26°27'44   | max. Earth dist.    | 8366 Oct 29 22:09 | 15° $\mathcal{M}$ 49'57 | 1.33844 AU |
| retrograde       | 8366 Jan 07 14:26 | 10° $\approx$ 43'18     |            | evening rise        | 8366 Nov 03 14:37 | 25° $\mathcal{M}$ 18'58 |            |
| evening set      | 8366 Jan 13 23:14 | 8° $\approx$ 09'37      |            |                     | 8366 Nov 06 00:50 | 0° $\mathcal{X}$        |            |
| min. Earth dist. | 8366 Jan 18 02:23 | 3° $\approx$ 54'27      | 0.66446 AU | desc. node          | 8366 Nov 14 22:09 | 15° $\mathcal{X}$ 47'48 |            |
| inferior conj    | 8366 Jan 19 20:16 | 1° $\approx$ 48'12      | -0°10'06   |                     | 8366 Nov 24 03:37 | 0° $\mathcal{Z}$        |            |
| minimum elong    | 8366 Jan 19 20:32 | 1° $\approx$ 47'23      | 0°09'50    | evening max el      | 8366 Dec 08 05:47 | 17° $\mathcal{Z}$ 01'14 | 27°11'35   |
| transit middle   | 8366 Jan 19 20:32 | 1° $\approx$ 47'23      | 0°09'50    | retrograde          | 8366 Dec 21 15:46 | 24° $\mathcal{Z}$ 22'10 |            |
| transit begin    | 8366 Jan 19 18:15 | 1° $\approx$ 54'19      |            | evening set         | 8366 Dec 28 10:46 | 21° $\mathcal{Z}$ 45'54 |            |
| transit end      | 8366 Jan 19 22:50 | 1° $\approx$ 40'28      |            | min. Earth dist.    | 8367 Jan 01 08:17 | 18° $\mathcal{Z}$ 04'33 | 0.65049 AU |
| asc. node        | 8366 Jan 20 08:21 | 1° $\approx$ 11'51      |            | inferior conj       | 8367 Jan 03 13:51 | 15° $\mathcal{Z}$ 36'18 | -1°13'24   |
|                  | 8366 Jan 21 08:53 | 30° $\mathcal{R}$ 3     |            | minimum elong       | 8367 Jan 03 16:03 | 15° $\mathcal{Z}$ 30'13 | 1°12'18    |
| morning rise     | 8366 Jan 25 18:40 | 26° $\mathcal{Z}$ 04'29 |            | asc. node           | 8367 Jan 07 05:26 | 11° $\mathcal{Z}$ 54'22 |            |
| direct           | 8366 Jan 28 18:41 | 25° $\mathcal{Z}$ 13'55 |            | morning rise        | 8367 Jan 09 22:44 | 10° $\mathcal{Z}$ 05'19 |            |
| morning max el   | 8366 Feb 04 08:20 | 28° $\mathcal{Z}$ 46'19 | 18°29'27   | direct              | 8367 Jan 12 13:58 | 9° $\mathcal{Z}$ 28'35  |            |
|                  | 8366 Feb 05 12:31 | 0° $\approx$            |            | morning max el      | 8367 Jan 19 00:17 | 12° $\mathcal{Z}$ 52'09 | 18°00'04   |
| desc. node       | 8366 Feb 24 00:31 | 27° $\approx$ 13'56     |            |                     | 8367 Jan 31 02:33 | 0° $\approx$            |            |
| morning set      | 8366 Feb 24 16:37 | 28° $\approx$ 17'46     |            | morning set         | 8367 Feb 05 19:45 | 9° $\approx$ 25'35      |            |
|                  | 8366 Feb 25 18:24 | 0° $\mathcal{X}$        |            | desc. node          | 8367 Feb 10 21:28 | 17° $\approx$ 46'18     |            |
|                  |                   |                         |            |                     | 8367 Feb 18 11:11 | 0° $\mathcal{X}$        |            |
| superior conj    | 8366 Mar 12 15:21 | 23° $\mathcal{X}$ 24'08 | -1°42'33   |                     |                   |                         |            |
| minimum elong    | 8366 Mar 12 05:48 | 22° $\mathcal{X}$ 46'46 | 1°41'40    | superior conj       | 8367 Feb 20 01:03 | 2° $\mathcal{X}$ 30'37  | -1°02'55   |
| max. Earth dist. | 8366 Mar 12 21:33 | 23° $\mathcal{X}$ 48'27 | 1.45510 AU | minimum elong       | 8367 Feb 19 17:49 | 2° $\mathcal{X}$ 01'52  | 1°01'53    |
|                  | 8366 Mar 16 20:28 | 0° $\mathcal{Y}$        |            | max. Earth dist.    | 8367 Feb 23 16:58 | 8° $\mathcal{X}$ 17'44  | 1.45283 AU |
| evening rise     | 8366 Mar 28 10:06 | 18° $\mathcal{Y}$ 12'56 |            | evening rise        | 8367 Mar 08 04:50 | 27° $\mathcal{X}$ 43'02 |            |
|                  | 8366 Apr 04 20:51 | 0° $\mathcal{B}$        |            |                     | 8367 Mar 09 16:23 | 0° $\mathcal{Y}$        |            |

|                     |                   |                              |            |                  |                   |                         |            |
|---------------------|-------------------|------------------------------|------------|------------------|-------------------|-------------------------|------------|
| greatest brilliancy | 8367 Mar 22 03:13 | 18° $\Upsilon$ 54'23         | -0.7m      | minimum elong    | 8368 Jan 31 05:01 | 12° $\approx$ 29'46     | 0°17'55    |
|                     | 8367 Mar 30 02:28 | 0° $\mathcal{B}$             |            | max. Earth dist. | 8368 Feb 06 10:52 | 22° $\approx$ 37'31     | 1.44351 AU |
| evening max el      | 8367 Apr 02 20:05 | 4° $\mathcal{B}$ 17'43       | 19°45'25   |                  | 8368 Feb 11 02:52 | 0° $\mathcal{H}$        |            |
| asc. node           | 8367 Apr 05 04:21 | 6° $\mathcal{B}$ 25'01       |            | evening rise     | 8368 Feb 15 15:57 | 7° $\mathcal{H}$ 02'57  |            |
| retrograde          | 8367 Apr 10 06:18 | 8° $\mathcal{B}$ 33'38       |            |                  | 8368 Mar 02 00:08 | 0° $\Upsilon$           |            |
| evening set         | 8367 Apr 13 23:16 | 7° $\mathcal{B}$ 13'24       |            | evening max el   | 8368 Mar 15 20:40 | 17° $\Upsilon$ 56'46    | 20°49'22   |
| inferior conj       | 8367 Apr 19 08:18 | 1° $\mathcal{B}$ 15'31       | 3°18'10    | asc. node        | 8368 Mar 22 01:25 | 22° $\Upsilon$ 26'53    |            |
| minimum elong       | 8367 Apr 19 07:16 | 1° $\mathcal{B}$ 18'55       | 3°17'59    | retrograde       | 8368 Mar 24 04:46 | 22° $\Upsilon$ 50'13    |            |
|                     | 8367 Apr 20 06:54 | 30° $\mathcal{R}\Upsilon$    |            | evening set      | 8368 Mar 28 07:07 | 21° $\Upsilon$ 14'48    |            |
| min. Earth dist.    | 8367 Apr 20 10:10 | 29° $\Upsilon$ 49'10         | 0.67212 AU | inferior conj    | 8368 Apr 02 14:30 | 15° $\Upsilon$ 04'31    | 3°01'29    |
| morning rise        | 8367 Apr 24 14:59 | 24° $\Upsilon$ 57'43         |            | minimum elong    | 8368 Apr 02 12:41 | 15° $\Upsilon$ 10'48    | 3°01'07    |
| direct              | 8367 Apr 30 14:10 | 22° $\Upsilon$ 18'05         |            | min. Earth dist. | 8368 Apr 03 02:41 | 14° $\Upsilon$ 22'29    | 0.68031 AU |
| desc. node          | 8367 May 09 21:14 | 26° $\Upsilon$ 54'55         |            | morning rise     | 8368 Apr 07 18:01 | 8° $\Upsilon$ 49'24     |            |
| morning max el      | 8367 May 12 15:45 | 29° $\Upsilon$ 32'11         | 25°19'29   | direct           | 8368 Apr 13 04:10 | 6° $\Upsilon$ 25'07     |            |
|                     | 8367 May 13 02:36 | 0° $\mathcal{B}$             |            | morning max el   | 8368 Apr 24 00:41 | 12° $\Upsilon$ 54'11    | 23°51'41   |
|                     | 8367 Jun 04 10:21 | 0° $\Pi$                     |            | desc. node       | 8368 Apr 25 18:11 | 14° $\Upsilon$ 43'18    |            |
| morning set         | 8367 Jun 17 17:59 | 22° $\Pi$ 22'45              |            |                  | 8368 May 07 19:09 | 0° $\mathcal{B}$        |            |
| max. Earth dist.    | 8367 Jun 21 09:37 | 29° $\Pi$ 05'13              | 1.36348 AU |                  | 8368 May 27 06:35 | 0° $\Pi$                |            |
|                     | 8367 Jun 21 21:17 | 0° $\mathcal{E}$             |            | morning set      | 8368 May 29 10:54 | 3° $\Pi$ 41'40          |            |
|                     |                   |                              |            | max. Earth dist. | 8368 Jun 02 05:52 | 10° $\Pi$ 17'40         | 1.38522 AU |
| superior conj       | 8367 Jun 27 13:29 | 10° $\mathcal{E}$ 58'55      | -0°44'25   | superior conj    | 8368 Jun 09 14:37 | 23° $\Pi$ 47'08         | -1°16'05   |
| minimum elong       | 8367 Jun 27 16:10 | 11° $\mathcal{E}$ 12'16      | 0°44'04    | minimum elong    | 8368 Jun 09 19:20 | 24° $\Pi$ 09'23         | 1°15'32    |
| asc. node           | 8367 Jul 02 03:25 | 20° $\mathcal{E}$ 12'31      |            |                  | 8368 Jun 12 20:34 | 0° $\mathcal{E}$        |            |
| evening rise        | 8367 Jul 05 17:30 | 27° $\mathcal{E}$ 30'47      |            | asc. node        | 8368 Jun 18 00:25 | 10° $\mathcal{E}$ 04'53 |            |
|                     | 8367 Jul 06 23:03 | 0° $\mathcal{Q}$             |            | evening rise     | 8368 Jun 18 15:58 | 11° $\mathcal{E}$ 21'02 |            |
| evening max el      | 8367 Jul 23 02:53 | 25° $\mathcal{Q}$ 58'28      | 19°48'05   |                  | 8368 Jun 28 21:47 | 0° $\mathcal{Q}$        |            |
|                     | 8367 Jul 28 18:14 | 0° $\mathcal{M}$             |            | evening max el   | 8368 Jul 05 00:02 | 7° $\mathcal{Q}$ 52'05  | 18°53'37   |
| retrograde          | 8367 Aug 02 05:16 | 0° $\mathcal{M}$ 57'24       |            | retrograde       | 8368 Jul 13 11:53 | 12° $\mathcal{Q}$ 04'29 |            |
| evening set         | 8367 Aug 04 01:52 | 0° $\mathcal{M}$ 48'01       |            | evening set      | 8368 Jul 15 11:11 | 11° $\mathcal{Q}$ 51'46 |            |
| desc. node          | 8367 Aug 05 20:26 | 0° $\mathcal{M}$ 22'38       |            | desc. node       | 8368 Jul 22 17:30 | 8° $\mathcal{Q}$ 12'47  |            |
|                     | 8367 Aug 06 22:30 | 30° $\mathcal{R}\mathcal{Q}$ |            | inferior conj    | 8368 Jul 23 15:27 | 7° $\mathcal{Q}$ 34'05  | -0°16'40   |
| inferior conj       | 8367 Aug 12 23:59 | 26° $\mathcal{Q}$ 46'33      | -2°10'41   | minimum elong    | 8368 Jul 23 14:45 | 7° $\mathcal{Q}$ 35'19  | 0°16'33    |
| minimum elong       | 8367 Aug 12 18:01 | 26° $\mathcal{Q}$ 55'45      | 2°08'33    | min. Earth dist. | 8368 Jul 26 17:22 | 5° $\mathcal{Q}$ 23'24  | 0.56699 AU |
| min. Earth dist.    | 8367 Aug 15 02:17 | 25° $\mathcal{Q}$ 29'16      | 0.55264 AU | morning rise     | 8368 Jul 31 15:01 | 2° $\mathcal{Q}$ 35'37  |            |
| morning rise        | 8367 Aug 21 08:09 | 22° $\mathcal{Q}$ 24'32      |            | direct           | 8368 Aug 06 01:54 | 1° $\mathcal{Q}$ 24'31  |            |
| direct              | 8367 Aug 25 22:39 | 21° $\mathcal{Q}$ 37'45      |            | morning max el   | 8368 Aug 20 08:22 | 8° $\mathcal{Q}$ 47'51  | 26°08'22   |
| morning max el      | 8367 Sep 08 18:33 | 28° $\mathcal{Q}$ 29'10      | 24°32'21   |                  | 8368 Sep 05 07:05 | 0° $\mathcal{M}$        |            |
|                     | 8367 Sep 10 07:19 | 0° $\mathcal{M}$             |            | asc. node        | 8368 Sep 13 23:56 | 16° $\mathcal{M}$ 02'38 |            |
| asc. node           | 8367 Sep 28 02:59 | 26° $\mathcal{M}$ 31'53      |            | morning set      | 8368 Sep 17 15:30 | 23° $\mathcal{M}$ 36'30 |            |
|                     | 8367 Sep 29 21:35 | 0° $\mathcal{L}$             |            |                  | 8368 Sep 20 14:27 | 0° $\mathcal{L}$        |            |
| morning set         | 8367 Oct 04 04:36 | 8° $\mathcal{L}$ 52'01       |            |                  |                   |                         |            |
| superior conj       | 8367 Oct 11 01:47 | 23° $\mathcal{L}$ 50'45      | 1°38'01    | superior conj    | 8368 Sep 24 12:49 | 8° $\mathcal{L}$ 40'59  | 1°28'58    |
| minimum elong       | 8367 Oct 11 00:39 | 23° $\mathcal{L}$ 44'30      | 1°38'01    | minimum elong    | 8368 Sep 24 10:55 | 8° $\mathcal{L}$ 30'28  | 1°28'47    |
| max. Earth dist.    | 8367 Oct 12 23:29 | 27° $\mathcal{L}$ 59'08      | 1.32655 AU | max. Earth dist. | 8368 Sep 25 06:59 | 10° $\mathcal{L}$ 21'28 | 1.31924 AU |
|                     | 8367 Oct 13 21:56 | 0° $\mathcal{M}$             |            | evening rise     | 8368 Oct 01 11:39 | 23° $\mathcal{L}$ 45'22 |            |
| evening rise        | 8367 Oct 18 09:19 | 9° $\mathcal{M}$ 22'23       |            |                  | 8368 Oct 04 12:48 | 0° $\mathcal{M}$        |            |
|                     | 8367 Oct 29 09:41 | 0° $\mathcal{J}$             |            | desc. node       | 8368 Oct 18 16:18 | 24° $\mathcal{M}$ 53'31 |            |
| desc. node          | 8367 Nov 01 19:13 | 5° $\mathcal{J}$ 37'05       |            |                  | 8368 Oct 22 04:38 | 0° $\mathcal{J}$        |            |
| evening max el      | 8367 Nov 20 17:18 | 0° $\mathcal{Z}$ 12'28       | 27°29'13   | evening max el   | 8368 Nov 02 00:54 | 12° $\mathcal{J}$ 47'10 | 27°15'06   |
|                     | 8367 Nov 20 12:04 | 0° $\mathcal{Z}$             |            | retrograde       | 8368 Nov 15 21:31 | 19° $\mathcal{J}$ 59'07 |            |
| retrograde          | 8367 Dec 04 10:34 | 7° $\mathcal{Z}$ 30'50       |            | evening set      | 8368 Nov 22 22:51 | 17° $\mathcal{J}$ 44'08 |            |
| evening set         | 8367 Dec 11 11:49 | 5° $\mathcal{Z}$ 00'15       |            | min. Earth dist. | 8368 Nov 26 15:34 | 14° $\mathcal{J}$ 57'40 | 0.61368 AU |
| min. Earth dist.    | 8367 Dec 15 05:13 | 1° $\mathcal{Z}$ 49'41       | 0.63334 AU | inferior conj    | 8368 Nov 29 16:59 | 12° $\mathcal{J}$ 15'57 | -3°32'00   |
|                     | 8367 Dec 17 01:24 | 30° $\mathcal{R}\mathcal{J}$ |            | minimum elong    | 8368 Nov 29 23:34 | 12° $\mathcal{J}$ 01'24 | 3°29'39    |
| inferior conj       | 8367 Dec 17 21:50 | 29° $\mathcal{J}$ 08'37      | -2°21'52   | morning rise     | 8368 Dec 07 02:32 | 7° $\mathcal{J}$ 19'34  |            |
| minimum elong       | 8367 Dec 18 02:18 | 28° $\mathcal{J}$ 57'25      | 2°19'57    | direct           | 8368 Dec 09 07:53 | 6° $\mathcal{J}$ 58'56  |            |
| morning rise        | 8367 Dec 24 18:44 | 23° $\mathcal{J}$ 53'14      |            | asc. node        | 8368 Dec 10 23:27 | 7° $\mathcal{J}$ 10'41  |            |
| asc. node           | 8367 Dec 25 02:26 | 23° $\mathcal{J}$ 46'31      |            | morning max el   | 8368 Dec 16 09:16 | 10° $\mathcal{J}$ 32'13 | 17°54'14   |
| direct              | 8367 Dec 27 03:33 | 23° $\mathcal{J}$ 26'21      |            |                  | 8368 Dec 29 05:43 | 0° $\mathcal{Z}$        |            |
| morning max el      | 8368 Jan 02 17:41 | 26° $\mathcal{J}$ 50'34      | 17°48'01   | morning set      | 8369 Jan 01 01:43 | 5° $\mathcal{Z}$ 08'26  |            |
|                     | 8368 Jan 05 12:02 | 0° $\mathcal{Z}$             |            |                  |                   |                         |            |
| morning set         | 8368 Jan 19 01:01 | 21° $\mathcal{Z}$ 49'33      |            | superior conj    | 8369 Jan 11 14:28 | 23° $\mathcal{Z}$ 58'27 | 0°22'25    |
|                     | 8368 Jan 23 18:40 | 0° $\approx$                 |            | minimum elong    | 8369 Jan 11 16:22 | 24° $\mathcal{Z}$ 06'43 | 0°22'16    |
| desc. node          | 8368 Jan 28 18:27 | 8° $\approx$ 26'46           |            | desc. node       | 8369 Jan 14 15:26 | 29° $\mathcal{Z}$ 11'08 |            |
|                     |                   |                              |            |                  | 8369 Jan 15 02:59 | 0° $\approx$            |            |
| superior conj       | 8368 Jan 31 06:57 | 12° $\approx$ 37'47          | -0°18'21   | max. Earth dist. | 8369 Jan 19 01:18 | 6° $\approx$ 32'44      | 1.42808 AU |



|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| evening rise     | 8369 Jan 25 10:48 | 16° $\approx$ 49'42           |            | desc. node       | 8370 Jan 01 12:24 | 19° $\approx$ 55'50           |            |
|                  | 8369 Feb 03 00:44 | 0° $\mathbb{H}$               |            | evening rise     | 8370 Jan 06 00:10 | 27° $\approx$ 27'14           |            |
|                  | 8369 Feb 25 02:56 | 0° $\mathbb{Y}$               |            |                  | 8370 Jan 07 13:38 | 0° $\approx$                  |            |
| evening max el   | 8369 Feb 26 16:02 | 1° $\mathbb{Y}$ 37'41         | 22°03'41   |                  | 8370 Jan 27 16:08 | 0° $\mathbb{H}$               |            |
| retrograde       | 8369 Mar 08 02:04 | 7° $\mathbb{Y}$ 12'27         |            | evening max el   | 8370 Feb 09 07:24 | 15° $\mathbb{H}$ 20'47        | 23°23'24   |
| asc. node        | 8369 Mar 08 22:28 | 7° $\mathbb{Y}$ 08'47         |            | retrograde       | 8370 Feb 19 20:50 | 21° $\mathbb{H}$ 35'26        |            |
| evening set      | 8369 Mar 12 15:05 | 5° $\mathbb{Y}$ 21'43         |            | asc. node        | 8370 Feb 23 19:33 | 20° $\mathbb{H}$ 19'02        |            |
|                  | 8369 Mar 17 06:02 | 30° $\mathbb{R}$ $\mathbb{H}$ |            | evening set      | 8370 Feb 24 21:35 | 19° $\mathbb{H}$ 29'54        |            |
| inferior conj    | 8369 Mar 17 22:51 | 29° $\mathbb{H}$ 01'38        | 2°34'52    | inferior conj    | 8370 Mar 02 07:25 | 13° $\mathbb{H}$ 03'20        | 1°59'17    |
| minimum elong    | 8369 Mar 17 20:38 | 29° $\mathbb{H}$ 09'21        | 2°34'19    | minimum elong    | 8370 Mar 02 05:14 | 13° $\mathbb{H}$ 10'50        | 1°58'38    |
| min. Earth dist. | 8369 Mar 17 22:23 | 29° $\mathbb{H}$ 03'14        | 0.68407 AU | min. Earth dist. | 8370 Mar 01 19:05 | 13° $\mathbb{H}$ 45'41        | 0.68359 AU |
| morning rise     | 8369 Mar 23 02:01 | 22° $\mathbb{H}$ 50'40        |            | morning rise     | 8370 Mar 07 12:51 | 6° $\mathbb{H}$ 57'45         |            |
| direct           | 8369 Mar 27 22:09 | 20° $\mathbb{H}$ 46'57        |            | direct           | 8370 Mar 11 19:07 | 5° $\mathbb{H}$ 16'32         |            |
| morning max el   | 8369 Apr 06 11:39 | 26° $\mathbb{H}$ 24'16        | 22°22'27   | morning max el   | 8370 Mar 20 04:07 | 10° $\mathbb{H}$ 05'12        | 20°59'48   |
|                  | 8369 Apr 09 18:59 | 0° $\mathbb{Y}$               |            | desc. node       | 8370 Mar 30 12:05 | 22° $\mathbb{H}$ 48'30        |            |
| desc. node       | 8369 Apr 12 15:09 | 3° $\mathbb{Y}$ 26'19         |            |                  | 8370 Apr 04 13:46 | 0° $\mathbb{Y}$               |            |
|                  | 8369 May 01 08:19 | 0° $\mathbb{B}$               |            | morning set      | 8370 Apr 19 13:59 | 22° $\mathbb{Y}$ 40'29        |            |
| morning set      | 8369 May 10 01:47 | 13° $\mathbb{B}$ 47'11        |            |                  | 8370 Apr 24 05:03 | 0° $\mathbb{B}$               |            |
| max. Earth dist. | 8369 May 15 03:40 | 22° $\mathbb{B}$ 12'23        | 1.40771 AU | max. Earth dist. | 8370 Apr 27 07:40 | 5° $\mathbb{B}$ 01'13         | 1.42804 AU |
|                  | 8369 May 19 16:30 | 0° $\mathbb{I}$               |            |                  |                   |                               |            |
| superior conj    | 8369 May 22 22:43 | 5° $\mathbb{I}$ 46'17         | -1°44'38   | superior conj    | 8370 May 04 09:02 | 16° $\mathbb{B}$ 45'11        | -2°05'15   |
| minimum elong    | 8369 May 23 04:34 | 6° $\mathbb{I}$ 12'30         | 1°44'10    | minimum elong    | 8370 May 04 13:29 | 17° $\mathbb{B}$ 04'07        | 2°05'09    |
| evening rise     | 8369 Jun 02 04:16 | 24° $\mathbb{I}$ 39'49        |            |                  | 8370 May 12 00:12 | 0° $\mathbb{I}$               |            |
| asc. node        | 8369 Jun 04 21:26 | 29° $\mathbb{I}$ 44'16        |            | evening rise     | 8370 May 16 02:12 | 7° $\mathbb{I}$ 16'30         |            |
|                  | 8369 Jun 05 00:50 | 0° $\mathbb{E}$               |            | asc. node        | 8370 May 22 18:29 | 19° $\mathbb{I}$ 04'59        |            |
| evening max el   | 8369 Jun 18 06:16 | 20° $\mathbb{E}$ 23'26        | 18°19'46   |                  | 8370 May 29 19:31 | 0° $\mathbb{E}$               |            |
| retrograde       | 8369 Jun 25 13:58 | 24° $\mathbb{E}$ 03'38        |            | evening max el   | 8370 Jun 01 17:46 | 3° $\mathbb{E}$ 22'36         | 18°05'45   |
| evening set      | 8369 Jun 27 20:10 | 23° $\mathbb{E}$ 43'30        |            | retrograde       | 8370 Jun 08 08:57 | 6° $\mathbb{E}$ 46'19         |            |
| inferior conj    | 8369 Jul 05 04:39 | 19° $\mathbb{E}$ 05'15        | 1°16'24    | evening set      | 8370 Jun 10 22:38 | 6° $\mathbb{E}$ 15'43         |            |
| minimum elong    | 8369 Jul 05 07:04 | 19° $\mathbb{E}$ 00'13        | 1°15'25    | inferior conj    | 8370 Jun 17 14:00 | 1° $\mathbb{E}$ 17'24         | 2°21'31    |
| min. Earth dist. | 8369 Jul 08 14:04 | 16° $\mathbb{E}$ 16'41        | 0.58706 AU | minimum elong    | 8370 Jun 17 17:01 | 1° $\mathbb{E}$ 10'05         | 2°20'34    |
| desc. node       | 8369 Jul 09 14:33 | 15° $\mathbb{E}$ 29'41        |            |                  | 8370 Jun 18 21:48 | 30° $\mathbb{R}$ $\mathbb{I}$ |            |
| morning rise     | 8369 Jul 12 14:43 | 13° $\mathbb{E}$ 32'41        |            | min. Earth dist. | 8370 Jun 20 18:34 | 28° $\mathbb{I}$ 13'36        | 0.60950 AU |
| direct           | 8369 Jul 18 18:55 | 11° $\mathbb{E}$ 50'59        |            | morning rise     | 8370 Jun 24 08:56 | 25° $\mathbb{I}$ 20'26        |            |
| morning max el   | 8369 Aug 02 04:10 | 19° $\mathbb{E}$ 36'16        | 27°18'33   | desc. node       | 8370 Jun 26 11:36 | 24° $\mathbb{I}$ 09'34        |            |
|                  | 8369 Aug 11 00:39 | 0° $\mathbb{Q}$               |            | direct           | 8370 Jun 30 23:59 | 23° $\mathbb{I}$ 08'19        |            |
|                  | 8369 Aug 28 23:54 | 0° $\mathbb{P}$               |            |                  | 8370 Jul 14 02:57 | 0° $\mathbb{E}$               |            |
| asc. node        | 8369 Aug 31 20:55 | 5° $\mathbb{P}$ 50'04         |            | morning max el   | 8370 Jul 15 06:51 | 1° $\mathbb{E}$ 07'21         | 27°52'52   |
| morning set      | 8369 Sep 01 23:54 | 8° $\mathbb{P}$ 11'10         |            |                  | 8370 Aug 05 06:01 | 0° $\mathbb{Q}$               |            |
| max. Earth dist. | 8369 Sep 08 17:12 | 22° $\mathbb{P}$ 49'06        | 1.31645 AU | morning set      | 8370 Aug 17 03:59 | 22° $\mathbb{Q}$ 30'19        |            |
|                  |                   |                               |            | asc. node        | 8370 Aug 18 17:53 | 25° $\mathbb{Q}$ 48'11        |            |
| superior conj    | 8369 Sep 09 00:36 | 23° $\mathbb{P}$ 30'11        | 1°14'40    |                  | 8370 Aug 20 17:10 | 0° $\mathbb{P}$               |            |
| minimum elong    | 8369 Sep 08 22:22 | 23° $\mathbb{P}$ 17'45        | 1°14'18    | max. Earth dist. | 8370 Aug 23 02:15 | 5° $\mathbb{P}$ 10'14         | 1.31821 AU |
|                  | 8369 Sep 11 22:57 | 0° $\mathbb{A}$               |            |                  |                   |                               |            |
| evening rise     | 8369 Sep 15 19:09 | 8° $\mathbb{A}$ 20'45         |            | superior conj    | 8370 Aug 24 11:23 | 8° $\mathbb{P}$ 12'23         | 0°55'30    |
|                  | 8369 Sep 26 22:54 | 0° $\mathbb{L}$               |            | minimum elong    | 8370 Aug 24 09:17 | 8° $\mathbb{P}$ 00'48         | 0°55'03    |
| desc. node       | 8369 Oct 05 13:22 | 13° $\mathbb{L}$ 24'12        |            | evening rise     | 8370 Aug 31 05:41 | 23° $\mathbb{P}$ 01'52        |            |
| evening max el   | 8369 Oct 15 01:42 | 24° $\mathbb{L}$ 33'47        | 26°26'59   |                  | 8370 Sep 03 13:27 | 0° $\mathbb{A}$               |            |
|                  | 8369 Oct 22 11:55 | 0° $\mathbb{J}$               |            |                  | 8370 Sep 21 17:31 | 0° $\mathbb{L}$               |            |
| retrograde       | 8369 Oct 28 23:37 | 1° $\mathbb{J}$ 39'46         |            | desc. node       | 8370 Sep 22 10:28 | 0° $\mathbb{L}$ 51'05         |            |
|                  | 8369 Nov 04 08:22 | 30° $\mathbb{R}$ $\mathbb{L}$ |            | evening max el   | 8370 Sep 26 18:20 | 5° $\mathbb{L}$ 29'38         | 25°08'56   |
| evening set      | 8369 Nov 04 15:29 | 29° $\mathbb{L}$ 50'44        |            | retrograde       | 8370 Oct 10 15:31 | 12° $\mathbb{L}$ 29'56        |            |
| min. Earth dist. | 8369 Nov 08 15:06 | 27° $\mathbb{L}$ 16'03        | 0.59280 AU | evening set      | 8370 Oct 16 09:04 | 11° $\mathbb{L}$ 15'06        |            |
| inferior conj    | 8369 Nov 11 19:50 | 24° $\mathbb{L}$ 48'51        | -4°36'41   | min. Earth dist. | 8370 Oct 21 05:55 | 8° $\mathbb{L}$ 34'09         | 0.57278 AU |
| minimum elong    | 8369 Nov 12 03:06 | 24° $\mathbb{L}$ 34'52        | 4°34'48    | inferior conj    | 8370 Oct 24 03:17 | 6° $\mathbb{L}$ 38'27         | -5°23'19   |
| morning rise     | 8369 Nov 19 17:03 | 20° $\mathbb{L}$ 14'41        |            | minimum elong    | 8370 Oct 24 07:53 | 6° $\mathbb{L}$ 30'45         | 5°22'43    |
| direct           | 8369 Nov 21 22:45 | 19° $\mathbb{L}$ 57'05        |            | morning rise     | 8370 Nov 01 09:01 | 2° $\mathbb{L}$ 27'15         |            |
| asc. node        | 8369 Nov 27 20:28 | 22° $\mathbb{L}$ 07'29        |            | direct           | 8370 Nov 03 19:42 | 2° $\mathbb{L}$ 09'50         |            |
| morning max el   | 8369 Nov 29 19:37 | 23° $\mathbb{L}$ 48'17        | 18°20'05   | morning max el   | 8370 Nov 12 21:10 | 6° $\mathbb{L}$ 28'58         | 19°07'20   |
|                  | 8369 Dec 04 20:02 | 0° $\mathbb{J}$               |            | asc. node        | 8370 Nov 14 17:30 | 8° $\mathbb{L}$ 25'05         |            |
| morning set      | 8369 Dec 15 16:04 | 19° $\mathbb{J}$ 04'55        |            |                  | 8370 Nov 27 21:51 | 0° $\mathbb{J}$               |            |
|                  | 8369 Dec 21 10:04 | 0° $\mathbb{B}$               |            | morning set      | 8370 Nov 29 15:52 | 3° $\mathbb{J}$ 27'03         |            |
| superior conj    | 8369 Dec 24 21:09 | 6° $\mathbb{B}$ 25'10         | 0°55'02    |                  |                   |                               |            |
| minimum elong    | 8369 Dec 25 00:30 | 6° $\mathbb{B}$ 40'29         | 0°54'44    | superior conj    | 8370 Dec 07 22:04 | 19° $\mathbb{J}$ 44'07        | 1°18'30    |
| max. Earth dist. | 8370 Jan 01 10:50 | 19° $\mathbb{B}$ 49'09        | 1.40832 AU | minimum elong    | 8370 Dec 08 01:10 | 19° $\mathbb{J}$ 59'01        | 1°18'20    |
|                  |                   |                               |            |                  | 8370 Dec 13 09:13 | 0° $\mathbb{B}$               |            |
|                  |                   |                               |            | max. Earth dist. | 8370 Dec 14 16:41 | 2° $\mathbb{B}$ 22'42         | 1.38665 AU |

|                     |                   |                          |            |                  |                   |                           |            |
|---------------------|-------------------|--------------------------|------------|------------------|-------------------|---------------------------|------------|
| evening rise        | 8370 Dec 18 11:37 | 9° $\text{Z}$ 03'56      |            | evening rise     | 8371 Nov 30 19:19 | 21° $\text{Z}$ 34'02      |            |
| desc. node          | 8370 Dec 19 09:24 | 10° $\text{Z}$ 37'39     |            |                  | 8371 Dec 05 13:38 | 0° $\text{Z}$             |            |
|                     | 8370 Dec 31 10:27 | 0° $\approx$             |            | desc. node       | 8371 Dec 06 06:26 | 1° $\text{Z}$ 11'53       |            |
| evening max el      | 8371 Jan 22 20:47 | 29° $\approx$ 07'17      | 24°42'16   |                  | 8371 Dec 25 07:42 | 0° $\approx$              |            |
|                     | 8371 Jan 23 18:36 | 0° $\text{H}$            |            | evening max el   | 8372 Jan 05 09:54 | 12° $\approx$ 54'49       | 25°53'22   |
| retrograde          | 8371 Feb 03 11:55 | 5° $\text{H}$ 54'34      |            | retrograde       | 8372 Jan 17 22:13 | 20° $\approx$ 03'24       |            |
| evening set         | 8371 Feb 09 01:06 | 3° $\text{H}$ 35'48      |            | evening set      | 8372 Jan 23 23:57 | 17° $\approx$ 34'13       |            |
| asc. node           | 8371 Feb 10 16:39 | 2° $\text{H}$ 00'01      |            | min. Earth dist. | 8372 Jan 28 06:45 | 12° $\approx$ 58'49       | 0.67088 AU |
|                     | 8371 Feb 12 09:31 | 30° $\text{R}$ $\approx$ |            | asc. node        | 8372 Jan 28 13:45 | 12° $\approx$ 36'59       |            |
| min. Earth dist.    | 8371 Feb 13 14:39 | 28° $\approx$ 25'54      | 0.67913 AU | inferior conj    | 8372 Jan 29 17:53 | 11° $\approx$ 08'23       | 0°23'18    |
| inferior conj       | 8371 Feb 14 14:24 | 27° $\approx$ 07'01      | 1°15'18    | minimum elong    | 8372 Jan 29 17:17 | 11° $\approx$ 10'16       | 0°23'12    |
| minimum elong       | 8371 Feb 14 12:44 | 27° $\approx$ 12'31      | 1°14'46    | morning rise     | 8372 Feb 04 11:10 | 5° $\approx$ 18'15        |            |
| morning rise        | 8371 Feb 20 00:34 | 21° $\approx$ 08'12      |            | direct           | 8372 Feb 07 17:00 | 4° $\approx$ 18'03        |            |
| direct              | 8371 Feb 23 17:54 | 19° $\approx$ 48'44      |            | morning max el   | 8372 Feb 14 12:02 | 8° $\approx$ 00'47        | 18°53'48   |
| morning max el      | 8371 Mar 03 04:17 | 23° $\approx$ 58'28      | 19°49'15   |                  | 8372 Mar 01 09:51 | 0° $\text{H}$             |            |
|                     | 8371 Mar 08 08:56 | 0° $\text{H}$            |            | desc. node       | 8372 Mar 03 05:58 | 2° $\text{H}$ 50'46       |            |
| greatest brilliancy | 8371 Mar 16 01:59 | 10° $\text{H}$ 45'14     | -0.6m      | morning set      | 8372 Mar 07 18:49 | 9° $\text{H}$ 54'10       |            |
| desc. node          | 8371 Mar 17 09:02 | 12° $\text{H}$ 39'24     |            |                  | 8372 Mar 20 15:44 | 0° $\text{Y}$             |            |
|                     | 8371 Mar 28 20:08 | 0° $\text{Y}$            |            | max. Earth dist. | 8372 Mar 22 10:45 | 2° $\text{Y}$ 48'35       | 1.45308 AU |
| morning set         | 8371 Mar 29 11:40 | 0° $\text{Y}$ 59'48      |            | superior conj    | 8372 Mar 24 07:00 | 5° $\text{Y}$ 42'23       | -1°58'58   |
| max. Earth dist.    | 8371 Apr 09 18:29 | 18° $\text{Y}$ 37'56     | 1.44374 AU | minimum elong    | 8372 Mar 23 23:18 | 5° $\text{Y}$ 12'03       | 1°58'30    |
| superior conj       | 8371 Apr 14 18:41 | 26° $\text{Y}$ 39'56     | -2°11'47   | evening rise     | 8372 Apr 08 08:58 | 29° $\text{Y}$ 46'59      |            |
| minimum elong       | 8371 Apr 14 17:47 | 26° $\text{Y}$ 36'16     | 2°11'51    |                  | 8372 Apr 08 12:11 | 0° $\text{B}$             |            |
|                     | 8371 Apr 16 19:53 | 0° $\text{B}$            |            | asc. node        | 8372 Apr 25 12:38 | 26° $\text{B}$ 23'29      |            |
| evening rise        | 8371 Apr 28 05:05 | 19° $\text{B}$ 01'14     |            |                  | 8372 Apr 28 14:40 | 0° $\text{II}$            |            |
|                     | 8371 May 04 16:28 | 0° $\text{II}$           |            | evening max el   | 8372 Apr 28 19:29 | 0° $\text{II}$ 12'14      | 18°34'14   |
| asc. node           | 8371 May 09 15:33 | 8° $\text{II}$ 00'53     |            | retrograde       | 8372 May 05 08:00 | 3° $\text{II}$ 45'37      |            |
| evening max el      | 8371 May 16 07:10 | 16° $\text{II}$ 41'30    | 18°10'49   | evening set      | 8372 May 08 12:23 | 2° $\text{II}$ 48'29      |            |
| retrograde          | 8371 May 22 16:23 | 20° $\text{II}$ 03'18    |            |                  | 8372 May 11 19:49 | 30° $\text{R}$ $\text{B}$ |            |
| evening set         | 8371 May 25 13:23 | 19° $\text{II}$ 20'07    |            | inferior conj    | 8372 May 14 05:21 | 27° $\text{B}$ 14'28      | 3°19'55    |
| inferior conj       | 8371 May 31 15:36 | 14° $\text{II}$ 03'15    | 3°01'02    | minimum elong    | 8372 May 14 06:14 | 27° $\text{B}$ 11'49      | 3°19'42    |
| minimum elong       | 8371 May 31 17:48 | 13° $\text{II}$ 57'15    | 3°00'30    | min. Earth dist. | 8372 May 16 06:55 | 24° $\text{B}$ 45'35      | 0.65037 AU |
| min. Earth dist.    | 8371 Jun 03 08:10 | 11° $\text{II}$ 07'38    | 0.63133 AU | morning rise     | 8372 May 19 23:17 | 20° $\text{B}$ 57'45      |            |
| morning rise        | 8371 Jun 06 20:42 | 7° $\text{II}$ 52'29     |            | direct           | 8372 May 26 14:02 | 18° $\text{B}$ 11'48      |            |
| desc. node          | 8371 Jun 13 08:39 | 5° $\text{II}$ 17'44     |            | desc. node       | 8372 May 30 05:39 | 18° $\text{B}$ 55'08      |            |
| direct              | 8371 Jun 13 15:05 | 5° $\text{II}$ 17'30     |            | morning max el   | 8372 Jun 09 00:40 | 26° $\text{B}$ 06'42      | 27°10'33   |
| morning max el      | 8371 Jun 27 14:35 | 13° $\text{II}$ 20'36    | 27°48'51   |                  | 8372 Jun 12 14:44 | 0° $\text{II}$            |            |
|                     | 8371 Jul 10 23:10 | 0° $\text{E}$            |            |                  | 8372 Jul 03 12:46 | 0° $\text{E}$             |            |
|                     | 8371 Jul 28 18:34 | 0° $\Omega$              |            | morning set      | 8372 Jul 14 13:44 | 19° $\text{E}$ 56'06      |            |
| morning set         | 8371 Aug 01 01:30 | 6° $\Omega$ 27'47        |            | max. Earth dist. | 8372 Jul 19 01:24 | 28° $\text{E}$ 51'33      | 1.33616 AU |
| asc. node           | 8371 Aug 05 14:53 | 15° $\Omega$ 52'30       |            |                  | 8372 Jul 19 14:47 | 0° $\Omega$               |            |
| max. Earth dist.    | 8371 Aug 06 06:08 | 17° $\Omega$ 13'28       | 1.32473 AU | asc. node        | 8372 Jul 22 11:52 | 5° $\Omega$ 59'06         |            |
| superior conj       | 8371 Aug 08 19:19 | 22° $\Omega$ 42'18       | 0°31'53    | superior conj    | 8372 Jul 22 22:19 | 6° $\Omega$ 54'07         | 0°04'25    |
| minimum elong       | 8371 Aug 08 17:52 | 22° $\Omega$ 34'30       | 0°31'29    | minimum elong    | 8372 Jul 22 22:06 | 6° $\Omega$ 52'58         | 0°04'14    |
|                     | 8371 Aug 12 03:43 | 0° $\text{P}$            |            | behind sun begin | 8372 Jul 22 16:41 | 6° $\Omega$ 24'26         |            |
| evening rise        | 8371 Aug 15 17:20 | 7° $\text{P}$ 43'06      |            | behind sun end   | 8372 Jul 23 03:31 | 7° $\Omega$ 21'32         |            |
|                     | 8371 Aug 27 06:46 | 0° $\Omega$              |            | evening rise     | 8372 Jul 30 04:14 | 22° $\Omega$ 19'11        |            |
| evening max el      | 8371 Sep 08 05:50 | 15° $\Omega$ 49'05       | 23°32'33   |                  | 8372 Aug 02 21:36 | 0° $\text{P}$             |            |
| desc. node          | 8371 Sep 09 07:35 | 16° $\Omega$ 49'11       |            | evening max el   | 8372 Aug 19 20:11 | 26° $\text{P}$ 05'08      | 21°54'29   |
| retrograde          | 8371 Sep 21 19:05 | 22° $\Omega$ 35'51       |            |                  | 8372 Aug 24 17:54 | 0° $\Omega$               |            |
| evening set         | 8371 Sep 26 02:30 | 21° $\Omega$ 55'16       |            | desc. node       | 8372 Aug 26 04:41 | 0° $\Omega$ 48'09         |            |
| min. Earth dist.    | 8371 Oct 02 15:50 | 18° $\Omega$ 49'25       | 0.55673 AU | retrograde       | 8372 Sep 01 10:51 | 2° $\Omega$ 20'56         |            |
| inferior conj       | 8371 Oct 04 14:35 | 17° $\Omega$ 40'03       | -5°33'32   | evening set      | 8372 Sep 04 07:40 | 2° $\Omega$ 02'34         |            |
| minimum elong       | 8371 Oct 04 12:24 | 17° $\Omega$ 43'18       | 5°33'22    |                  | 8372 Sep 09 19:48 | 30° $\text{R}$ $\text{P}$ |            |
| morning rise        | 8371 Oct 13 00:25 | 13° $\Omega$ 46'43       |            | inferior conj    | 8372 Sep 13 10:46 | 28° $\text{P}$ 02'33      | -4°50'35   |
| direct              | 8371 Oct 15 21:14 | 13° $\Omega$ 26'29       |            | minimum elong    | 8372 Sep 13 02:07 | 28° $\text{P}$ 14'41      | 4°48'47    |
| morning max el      | 8371 Oct 26 10:36 | 18° $\Omega$ 23'46       | 20°17'01   | min. Earth dist. | 8372 Sep 13 00:15 | 28° $\text{P}$ 17'17      | 0.54787 AU |
| asc. node           | 8371 Nov 01 14:31 | 25° $\Omega$ 47'11       |            | morning rise     | 8372 Sep 21 21:53 | 24° $\text{P}$ 13'53      |            |
|                     | 8371 Nov 04 07:55 | 0° $\text{M}$            |            | direct           | 8372 Sep 25 08:50 | 23° $\text{P}$ 47'35      |            |
| morning set         | 8371 Nov 13 21:50 | 18° $\text{M}$ 04'52     |            | morning max el   | 8372 Oct 07 11:02 | 29° $\text{P}$ 29'37      | 21°47'29   |
|                     | 8371 Nov 19 16:54 | 0° $\text{Z}$            |            |                  | 8372 Oct 07 23:47 | 0° $\Omega$               |            |
| superior conj       | 8371 Nov 21 12:15 | 3° $\text{Z}$ 40'14      | 1°33'19    | asc. node        | 8372 Oct 18 11:31 | 13° $\Omega$ 59'30        |            |
| minimum elong       | 8371 Nov 21 14:16 | 3° $\text{Z}$ 50'23      | 1°33'20    |                  | 8372 Oct 26 22:30 | 0° $\text{M}$             |            |
| max. Earth dist.    | 8371 Nov 26 23:16 | 14° $\text{Z}$ 24'28     | 1.36562 AU | morning set      | 8372 Oct 28 07:33 | 2° $\text{M}$ 51'42       |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| superior conj       | 8372 Nov 04 11:49 | 18°♍02'23 | 1°40'24    | superior conj       | 8373 Oct 19 17:40 | 2°♍41'05  | 1°40'40    |
| minimum elong       | 8372 Nov 04 12:30 | 18°♍05'58 | 1°40'31    | minimum elong       | 8373 Oct 19 17:07 | 2°♍38'07  | 1°40'44    |
| max. Earth dist.    | 8372 Nov 08 11:56 | 26°♍17'49 | 1.34730 AU | max. Earth dist.    | 8373 Oct 22 08:54 | 8°♍19'20  | 1.33286 AU |
|                     | 8372 Nov 10 08:23 | 0°♌       |            | evening rise        | 8373 Oct 27 08:26 | 18°♍35'21 |            |
| evening rise        | 8372 Nov 12 19:33 | 4°♌48'01  |            |                     | 8373 Nov 02 07:34 | 0°♌       |            |
| desc. node          | 8372 Nov 22 03:29 | 21°♌33'47 |            | desc. node          | 8373 Nov 09 00:34 | 11°♌37'01 |            |
|                     | 8372 Nov 27 08:40 | 0°♋       |            |                     | 8373 Nov 21 14:09 | 0°♋       |            |
| evening max el      | 8372 Dec 17 23:18 | 26°♋37'00 | 26°49'14   | evening max el      | 8373 Nov 30 11:57 | 10°♋02'37 | 27°22'41   |
|                     | 8372 Dec 21 20:54 | 0°♊       |            | retrograde          | 8373 Dec 14 01:12 | 17°♋22'23 |            |
| retrograde          | 8372 Dec 31 02:51 | 3°♊55'20  |            | evening set         | 8373 Dec 20 23:37 | 14°♋47'28 |            |
| evening set         | 8373 Jan 06 16:14 | 1°♊20'05  |            | min. Earth dist.    | 8373 Dec 24 19:11 | 11°♋19'54 | 0.64357 AU |
|                     | 8373 Jan 08 04:33 | 30°♋♋     |            | inferior conj       | 8373 Dec 27 05:35 | 8°♋45'08  | -1°41'58   |
| min. Earth dist.    | 8373 Jan 10 17:00 | 27°♋19'15 | 0.65897 AU | minimum elong       | 8373 Dec 27 08:43 | 8°♋36'48  | 1°40'30    |
| inferior conj       | 8373 Jan 12 15:45 | 25°♋03'01 | -0°36'09   | asc. node           | 8374 Jan 01 07:52 | 4°♋07'58  |            |
| minimum elong       | 8373 Jan 12 16:47 | 25°♋00'01 | 0°35'33    | morning rise        | 8374 Jan 02 19:24 | 3°♋20'25  |            |
| asc. node           | 8373 Jan 14 10:50 | 23°♋00'40 |            | direct              | 8374 Jan 05 07:43 | 2°♋48'12  |            |
| morning rise        | 8373 Jan 18 18:21 | 19°♋24'05 |            | morning max el      | 8374 Jan 11 18:36 | 6°♋10'37  | 17°52'51   |
| direct              | 8373 Jan 21 14:27 | 18°♋39'44 |            |                     | 8374 Jan 27 16:42 | 0°♊       |            |
| morning max el      | 8373 Jan 28 01:41 | 22°♋07'05 | 18°14'47   | morning set         | 8374 Jan 28 20:00 | 1°♊55'09  |            |
|                     | 8373 Feb 03 08:37 | 0°♊       |            | desc. node          | 8374 Feb 04 23:52 | 13°♊53'37 |            |
| morning set         | 8373 Feb 16 04:56 | 20°♊11'59 |            |                     |                   |           |            |
| desc. node          | 8373 Feb 18 02:54 | 23°♊17'00 |            | superior conj       | 8374 Feb 11 04:51 | 24°♊00'45 | -0°44'00   |
|                     | 8373 Feb 22 07:30 | 0°♑       |            | minimum elong       | 8374 Feb 10 23:50 | 23°♊40'33 | 0°43'10    |
|                     |                   |           |            |                     | 8374 Feb 14 22:48 | 0°♑       |            |
| superior conj       | 8373 Mar 03 11:56 | 14°♑31'46 | -1°27'02   | max. Earth dist.    | 8374 Feb 16 02:06 | 1°♑48'05  | 1.44970 AU |
| minimum elong       | 8373 Mar 03 02:37 | 13°♑55'11 | 1°25'57    | evening rise        | 8374 Feb 27 03:46 | 19°♑01'27 |            |
| max. Earth dist.    | 8373 Mar 05 06:24 | 17°♑18'11 | 1.45513 AU |                     | 8374 Mar 06 08:40 | 0°♑       |            |
|                     | 8373 Mar 13 09:29 | 0°♑       |            | greatest brilliancy | 8374 Mar 13 23:43 | 11°♑21'17 | -0.6m      |
| evening rise        | 8373 Mar 19 14:00 | 9°♑39'19  |            | evening max el      | 8374 Mar 26 08:03 | 27°♑27'10 | 20°11'00   |
| greatest brilliancy | 8373 Mar 31 00:32 | 27°♑24'03 | -0.7m      |                     | 8374 Mar 29 04:48 | 0°♑       |            |
|                     | 8373 Apr 01 17:49 | 0°♑       |            | asc. node           | 8374 Mar 30 06:47 | 0°♑44'01  |            |
| evening max el      | 8373 Apr 12 04:19 | 13°♑48'31 | 19°14'52   | retrograde          | 8374 Apr 03 02:48 | 1°♑58'15  |            |
| asc. node           | 8373 Apr 12 09:42 | 14°♑02'01 |            | evening set         | 8374 Apr 06 23:41 | 0°♑31'22  |            |
| retrograde          | 8373 Apr 19 04:21 | 17°♑45'37 |            |                     | 8374 Apr 07 15:09 | 30°♑♑     |            |
| evening set         | 8373 Apr 22 16:35 | 16°♑33'47 |            | inferior conj       | 8374 Apr 12 07:43 | 24°♑27'43 | 3°12'22    |
| inferior conj       | 8373 Apr 28 03:40 | 10°♑44'02 | 3°22'37    | minimum elong       | 8374 Apr 12 06:19 | 24°♑32'29 | 3°12'08    |
| minimum elong       | 8373 Apr 28 03:16 | 10°♑45'20 | 3°22'29    | min. Earth dist.    | 8374 Apr 13 03:31 | 23°♑20'29 | 0.67617 AU |
| min. Earth dist.    | 8373 Apr 29 13:52 | 8°♑53'24  | 0.66548 AU | morning rise        | 8374 Apr 17 12:43 | 18°♑10'58 |            |
| morning rise        | 8373 May 03 13:34 | 4°♑25'57  |            | direct              | 8374 Apr 23 06:27 | 15°♑37'20 |            |
| direct              | 8373 May 09 19:26 | 1°♑41'15  |            | desc. node          | 8374 May 03 23:36 | 21°♑42'06 |            |
| desc. node          | 8373 May 17 02:39 | 4°♑33'19  |            | morning max el      | 8374 May 04 20:16 | 22°♑33'22 | 24°42'59   |
| morning max el      | 8373 May 22 10:52 | 9°♑13'56  | 26°05'25   |                     | 8374 May 11 09:00 | 0°♑       |            |
|                     | 8373 Jun 07 18:32 | 0°♐       |            |                     | 8374 Jun 01 02:04 | 0°♐       |            |
|                     | 8373 Jun 26 01:13 | 0°♏       |            | morning set         | 8374 Jun 09 18:33 | 14°♐40'14 |            |
| morning set         | 8373 Jun 27 12:57 | 2°♏44'08  |            | max. Earth dist.    | 8374 Jun 13 09:27 | 21°♐10'16 | 1.37254 AU |
| max. Earth dist.    | 8373 Jul 01 09:58 | 10°♏04'44 | 1.35237 AU |                     | 8374 Jun 18 02:41 | 0°♏       |            |
|                     |                   |           |            |                     |                   |           |            |
| superior conj       | 8373 Jul 06 17:48 | 20°♏39'49 | -0°26'05   | superior conj       | 8374 Jun 20 02:42 | 3°♏51'43  | -0°57'59   |
| minimum elong       | 8373 Jul 06 19:19 | 20°♏47'32 | 0°25'56    | minimum elong       | 8374 Jun 20 06:17 | 4°♏09'08  | 0°57'32    |
| asc. node           | 8373 Jul 09 08:51 | 26°♏03'15 |            | asc. node           | 8374 Jun 26 05:50 | 16°♏01'19 |            |
|                     | 8373 Jul 11 06:31 | 0°♏       |            | evening rise        | 8374 Jun 28 15:03 | 20°♏48'04 |            |
| evening rise        | 8373 Jul 14 12:15 | 6°♏42'58  |            |                     | 8374 Jul 03 07:50 | 0°♏       |            |
|                     | 8373 Jul 27 07:04 | 0°♏       |            | evening max el      | 8374 Jul 15 11:12 | 18°♏16'57 | 19°22'13   |
| evening max el      | 8373 Aug 01 21:03 | 6°♏49'03  | 20°28'41   | retrograde          | 8374 Jul 24 20:25 | 22°♏55'12 |            |
| retrograde          | 8373 Aug 12 22:59 | 12°♏17'51 |            | evening set         | 8374 Jul 26 17:07 | 22°♏45'02 |            |
| desc. node          | 8373 Aug 13 01:47 | 12°♏17'49 |            | desc. node          | 8374 Jul 30 22:50 | 21°♏14'55 |            |
| evening set         | 8373 Aug 14 23:32 | 12°♏07'41 |            | inferior conj       | 8374 Aug 04 08:17 | 18°♏37'11 | -1°20'49   |
| inferior conj       | 8373 Aug 24 03:49 | 8°♏10'25  | -3°17'00   | minimum elong       | 8374 Aug 04 04:40 | 18°♏43'06 | 1°19'32    |
| minimum elong       | 8373 Aug 23 19:11 | 8°♏22'55  | 3°14'12    | min. Earth dist.    | 8374 Aug 06 22:25 | 16°♏56'06 | 0.55787 AU |
| min. Earth dist.    | 8373 Aug 25 09:41 | 7°♏27'10  | 0.54820 AU | morning rise        | 8374 Aug 12 13:31 | 13°♏59'59 |            |
| morning rise        | 8373 Sep 01 14:19 | 4°♏06'20  |            | direct              | 8374 Aug 17 12:28 | 13°♏04'13 |            |
| direct              | 8373 Sep 05 17:53 | 3°♏29'24  |            | morning max el      | 8374 Aug 31 14:26 | 20°♏10'21 | 25°15'32   |
| morning max el      | 8373 Sep 19 01:56 | 9°♏56'27  | 23°31'40   |                     | 8374 Sep 09 00:18 | 0°♏       |            |
|                     | 8373 Oct 03 18:55 | 0°♏       |            | asc. node           | 8374 Sep 22 05:26 | 22°♏07'39 |            |
| asc. node           | 8373 Oct 05 08:29 | 2°♏49'28  |            |                     | 8374 Sep 26 02:21 | 0°♏       |            |
| morning set         | 8373 Oct 12 19:02 | 17°♏41'30 |            | morning set         | 8374 Sep 27 06:36 | 2°♏29'28  |            |
|                     | 8373 Oct 18 11:54 | 0°♏       |            |                     |                   |           |            |

|                  |                   |                                 |            |                  |                   |                                 |            |
|------------------|-------------------|---------------------------------|------------|------------------|-------------------|---------------------------------|------------|
| superior conj    | 8374 Oct 04 03:24 | 17° $\Omega$ 29'10              | 1°34'51    | morning max el   | 8375 Aug 13 06:39 | 0° $\Omega$ 40'07               | 26°42'08   |
| minimum elong    | 8374 Oct 04 01:54 | 17° $\Omega$ 20'52              | 1°34'46    |                  | 8375 Sep 03 00:18 | 0° $\Pi$                        |            |
| max. Earth dist. | 8374 Oct 05 13:11 | 20° $\Omega$ 34'22              | 1.32286 AU | asc. node        | 8375 Sep 09 02:24 | 11° $\Pi$ 46'31                 |            |
|                  | 8374 Oct 09 22:30 | 0° $\Pi$                        |            | morning set      | 8375 Sep 11 16:41 | 17° $\Pi$ 10'55                 |            |
| evening rise     | 8374 Oct 11 06:41 | 2° $\Pi$ 47'30                  |            |                  | 8375 Sep 17 13:43 | 0° $\Omega$                     |            |
|                  | 8374 Oct 26 03:02 | 0° $\mathcal{A}$                |            |                  |                   |                                 |            |
| desc. node       | 8374 Oct 26 21:38 | 1° $\mathcal{A}$ 13'33          |            | superior conj    | 8375 Sep 18 15:01 | 2° $\Omega$ 20'22               | 1°23'31    |
| evening max el   | 8374 Nov 12 21:52 | 22° $\mathcal{A}$ 58'44         | 27°27'17   | minimum elong    | 8375 Sep 18 12:56 | 2° $\Omega$ 08'44               | 1°23'16    |
|                  | 8374 Nov 24 08:21 | 0° $\mathcal{B}$                |            | max. Earth dist. | 8375 Sep 18 22:09 | 2° $\Omega$ 59'53               | 1.31743 AU |
| retrograde       | 8374 Nov 26 16:46 | 0° $\mathcal{B}$ 14'59          |            | evening rise     | 8375 Sep 25 11:30 | 17° $\Omega$ 17'00              |            |
|                  | 8374 Nov 28 23:48 | 30° $\mathcal{R}$ $\mathcal{A}$ |            |                  | 8375 Oct 01 19:08 | 0° $\Pi$                        |            |
| evening set      | 8374 Dec 03 19:10 | 27° $\mathcal{A}$ 49'23         |            | desc. node       | 8375 Oct 13 18:42 | 20° $\Pi$ 12'48                 |            |
| min. Earth dist. | 8374 Dec 07 11:30 | 24° $\mathcal{A}$ 50'34         | 0.62517 AU |                  | 8375 Oct 21 04:20 | 0° $\mathcal{A}$                |            |
| inferior conj    | 8374 Dec 10 08:27 | 22° $\mathcal{A}$ 07'17         | -2°51'49   | evening max el   | 8375 Oct 26 02:46 | 5° $\mathcal{A}$ 14'10          | 26°58'45   |
| minimum elong    | 8374 Dec 10 13:54 | 21° $\mathcal{A}$ 54'21         | 2°49'37    | retrograde       | 8375 Nov 09 00:34 | 12° $\mathcal{A}$ 24'23         |            |
| morning rise     | 8374 Dec 17 10:47 | 16° $\mathcal{A}$ 59'59         |            | evening set      | 8375 Nov 15 23:04 | 10° $\mathcal{A}$ 19'04         |            |
| asc. node        | 8374 Dec 19 04:55 | 16° $\mathcal{A}$ 37'31         |            | min. Earth dist. | 8375 Nov 19 17:18 | 7° $\mathcal{A}$ 39'27          | 0.60475 AU |
| direct           | 8374 Dec 19 17:44 | 16° $\mathcal{A}$ 36'12         |            | inferior conj    | 8375 Nov 22 21:08 | 5° $\mathcal{A}$ 01'35          | -4°00'45   |
| morning max el   | 8374 Dec 26 11:40 | 20° $\mathcal{A}$ 03'01         | 17°48'29   | minimum elong    | 8375 Nov 23 04:17 | 4° $\mathcal{A}$ 46'39          | 3°58'29    |
|                  | 8375 Jan 02 21:08 | 0° $\mathcal{B}$                |            | morning rise     | 8375 Nov 30 11:56 | 0° $\mathcal{A}$ 14'32          |            |
| morning set      | 8375 Jan 11 10:16 | 14° $\mathcal{B}$ 44'25         |            |                  | 8375 Dec 01 15:41 | 30° $\mathcal{R}$ $\Pi$         |            |
|                  | 8375 Jan 20 03:44 | 0° $\approx$                    |            | direct           | 8375 Dec 02 16:43 | 29° $\Pi$ 55'42                 |            |
|                  |                   |                                 |            |                  | 8375 Dec 03 17:30 | 0° $\mathcal{A}$                |            |
| superior conj    | 8375 Jan 22 21:36 | 4° $\approx$ 39'22              | -0°00'14   | asc. node        | 8375 Dec 06 01:56 | 0° $\mathcal{A}$ 42'23          |            |
| minimum elong    | 8375 Jan 22 21:36 | 4° $\approx$ 39'21              | 0°00'06    | morning max el   | 8375 Dec 10 01:35 | 3° $\mathcal{A}$ 35'48          | 18°02'46   |
| behind sun begin | 8375 Jan 22 12:45 | 4° $\approx$ 02'07              |            | morning set      | 8375 Dec 25 17:25 | 28° $\mathcal{A}$ 21'12         |            |
| behind sun end   | 8375 Jan 23 06:26 | 5° $\approx$ 16'31              |            |                  | 8375 Dec 26 14:40 | 0° $\mathcal{B}$                |            |
| desc. node       | 8375 Jan 22 20:49 | 4° $\approx$ 36'04              |            |                  |                   |                                 |            |
| max. Earth dist. | 8375 Jan 29 18:38 | 15° $\approx$ 58'50             | 1.43749 AU | superior conj    | 8376 Jan 04 15:34 | 16° $\mathcal{B}$ 30'01         | 0°37'20    |
| evening rise     | 8375 Feb 06 16:20 | 28° $\approx$ 28'11             |            | minimum elong    | 8376 Jan 04 18:21 | 16° $\mathcal{B}$ 42'22         | 0°37'05    |
|                  | 8375 Feb 07 16:06 | 0° $\mathcal{H}$                |            | desc. node       | 8376 Jan 09 17:49 | 25° $\mathcal{B}$ 21'16         |            |
|                  | 8375 Feb 28 03:22 | 0° $\mathcal{Y}$                |            | max. Earth dist. | 8376 Jan 12 06:28 | 29° $\mathcal{B}$ 36'47         | 1.42000 AU |
| evening max el   | 8375 Mar 09 06:11 | 11° $\mathcal{Y}$ 06'31         | 21°19'55   |                  | 8376 Jan 12 12:02 | 0° $\approx$                    |            |
| asc. node        | 8375 Mar 17 03:52 | 16° $\mathcal{Y}$ 13'57         |            | evening rise     | 8376 Jan 17 18:12 | 8° $\approx$ 34'41              |            |
| retrograde       | 8375 Mar 18 01:07 | 16° $\mathcal{Y}$ 17'58         |            |                  | 8376 Jan 31 19:18 | 0° $\mathcal{H}$                |            |
| evening set      | 8375 Mar 22 07:48 | 14° $\mathcal{Y}$ 35'59         |            | evening max el   | 8376 Feb 19 23:37 | 24° $\mathcal{H}$ 48'06         | 22°37'19   |
| inferior conj    | 8375 Mar 27 15:05 | 8° $\mathcal{Y}$ 20'55          | 2°51'21    |                  | 8376 Feb 26 20:41 | 0° $\mathcal{Y}$                |            |
| minimum elong    | 8375 Mar 27 13:03 | 8° $\mathcal{Y}$ 28'00          | 2°50'54    | retrograde       | 8376 Feb 29 21:35 | 0° $\mathcal{Y}$ 40'49          |            |
| min. Earth dist. | 8375 Mar 27 21:44 | 7° $\mathcal{Y}$ 57'48          | 0.68239 AU | asc. node        | 8376 Mar 03 00:57 | 0° $\mathcal{Y}$ 17'46          |            |
| morning rise     | 8375 Apr 01 18:07 | 2° $\mathcal{Y}$ 07'14          |            |                  | 8376 Mar 03 17:32 | 30° $\mathcal{R}$ $\mathcal{H}$ |            |
|                  | 8375 Apr 05 14:10 | 30° $\mathcal{R}$ $\mathcal{H}$ |            | evening set      | 8376 Mar 05 15:20 | 28° $\mathcal{H}$ 43'53         |            |
| direct           | 8375 Apr 06 22:13 | 29° $\mathcal{H}$ 51'26         |            | inferior conj    | 8376 Mar 10 23:47 | 22° $\mathcal{H}$ 20'33         | 2°20'52    |
|                  | 8375 Apr 08 07:21 | 0° $\mathcal{Y}$                |            | minimum elong    | 8376 Mar 10 21:32 | 22° $\mathcal{H}$ 28'23         | 2°20'15    |
| morning max el   | 8375 Apr 17 05:50 | 5° $\mathcal{Y}$ 59'22          | 23°13'23   | min. Earth dist. | 8376 Mar 10 18:16 | 22° $\mathcal{H}$ 39'41         | 0.68433 AU |
| desc. node       | 8375 Apr 20 20:34 | 9° $\mathcal{Y}$ 56'06          |            | morning rise     | 8376 Mar 16 03:35 | 16° $\mathcal{H}$ 11'26         |            |
|                  | 8375 May 05 19:08 | 0° $\mathcal{B}$                |            | direct           | 8376 Mar 20 17:45 | 14° $\mathcal{H}$ 17'03         |            |
| morning set      | 8375 May 22 01:00 | 25° $\mathcal{B}$ 29'44         |            | morning max el   | 8376 Mar 29 18:39 | 19° $\mathcal{H}$ 33'17         | 21°46'01   |
|                  | 8375 May 24 16:52 | 0° $\Pi$                        |            | desc. node       | 8376 Apr 06 17:32 | 28° $\mathcal{H}$ 57'18         |            |
| max. Earth dist. | 8375 May 26 05:21 | 2° $\Pi$ 37'04                  | 1.39487 AU |                  | 8376 Apr 07 12:30 | 0° $\mathcal{Y}$                |            |
|                  |                   |                                 |            |                  | 8376 Apr 27 23:31 | 0° $\mathcal{B}$                |            |
| superior conj    | 8375 Jun 02 21:09 | 16° $\Pi$ 20'16                 | -1°28'50   | morning set      | 8376 May 01 04:04 | 5° $\mathcal{B}$ 02'51          |            |
| minimum elong    | 8375 Jun 03 02:32 | 16° $\Pi$ 45'08                 | 1°28'17    | max. Earth dist. | 8376 May 07 04:52 | 14° $\mathcal{B}$ 52'17         | 1.41677 AU |
|                  | 8375 Jun 10 02:22 | 0° $\mathcal{B}$                |            |                  |                   |                                 |            |
| evening rise     | 8375 Jun 12 09:40 | 4° $\mathcal{B}$ 26'14          |            | superior conj    | 8376 May 14 20:35 | 27° $\mathcal{B}$ 55'14         | -1°54'42   |
| asc. node        | 8375 Jun 13 02:51 | 5° $\mathcal{B}$ 48'51          |            | minimum elong    | 8376 May 15 02:15 | 28° $\mathcal{B}$ 20'07         | 1°54'22    |
|                  | 8375 Jun 28 01:39 | 0° $\Omega$                     |            |                  | 8376 May 16 00:58 | 0° $\Pi$                        |            |
| evening max el   | 8375 Jun 28 12:40 | 0° $\Omega$ 27'51               | 18°36'42   | evening rise     | 8376 May 25 16:25 | 17° $\Pi$ 28'19                 |            |
| retrograde       | 8375 Jul 06 11:21 | 4° $\Omega$ 24'47               |            | asc. node        | 8376 May 29 23:53 | 25° $\Pi$ 21'03                 |            |
| evening set      | 8375 Jul 08 13:11 | 4° $\Omega$ 09'30               |            |                  | 8376 Jun 01 14:59 | 0° $\mathcal{B}$                |            |
| inferior conj    | 8375 Jul 16 08:57 | 29° $\mathcal{B}$ 43'28         | 0°26'05    | evening max el   | 8376 Jun 10 21:42 | 13° $\mathcal{B}$ 12'54         | 18°11'28   |
| minimum elong    | 8375 Jul 16 09:55 | 29° $\mathcal{B}$ 41'37         | 0°25'35    | retrograde       | 8376 Jun 17 20:53 | 16° $\mathcal{B}$ 43'50         |            |
|                  | 8375 Jul 16 00:15 | 30° $\mathcal{R}$ $\mathcal{B}$ |            | evening set      | 8376 Jun 20 06:21 | 16° $\mathcal{B}$ 19'33         |            |
| desc. node       | 8375 Jul 17 19:53 | 28° $\mathcal{B}$ 36'32         |            | inferior conj    | 8376 Jun 27 07:08 | 11° $\mathcal{B}$ 32'56         | 1°47'25    |
| min. Earth dist. | 8375 Jul 19 16:00 | 27° $\mathcal{B}$ 13'52         | 0.57501 AU | minimum elong    | 8376 Jun 27 10:03 | 11° $\mathcal{B}$ 26'26         | 1°46'20    |
| morning rise     | 8375 Jul 24 03:08 | 24° $\mathcal{B}$ 29'12         |            | min. Earth dist. | 8376 Jun 30 15:52 | 8° $\mathcal{B}$ 34'44          | 0.59655 AU |
| direct           | 8375 Jul 29 21:54 | 23° $\mathcal{B}$ 05'21         |            | desc. node       | 8376 Jul 03 16:57 | 6° $\mathcal{B}$ 16'33          |            |
|                  | 8375 Aug 12 13:47 | 0° $\Omega$                     |            | morning rise     | 8376 Jul 04 10:47 | 5° $\mathcal{B}$ 48'47          |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| direct           | 8376 Jul 10 20:46 | 3°☿53'18  |            | morning max el      | 8377 Jul 07 10:17 | 23°♊35'14 | 27°55'43   |
| morning max el   | 8376 Jul 25 05:17 | 11°☿45'38 | 27°37'45   |                     | 8377 Jul 13 03:57 | 0°☿       |            |
|                  | 8376 Aug 08 12:39 | 0°♊       |            |                     | 8377 Aug 01 19:43 | 0°♊       |            |
|                  | 8376 Aug 25 04:18 | 0°♊       |            | morning set         | 8377 Aug 10 01:05 | 15°♊50'43 |            |
| morning set      | 8376 Aug 25 23:29 | 1°♊39'45  |            | asc. node           | 8377 Aug 12 20:20 | 21°♊40'35 |            |
| asc. node        | 8376 Aug 25 23:21 | 1°♊39'07  |            | max. Earth dist.    | 8377 Aug 15 15:42 | 27°♊41'35 | 1.32048 AU |
| max. Earth dist. | 8376 Sep 01 08:13 | 15°♊25'45 | 1.31662 AU |                     | 8377 Aug 16 17:08 | 0°♊       |            |
| superior conj    | 8376 Sep 02 02:38 | 17°♊07'41 | 1°07'07    | superior conj       | 8377 Aug 17 12:28 | 1°♊45'42  | 0°46'01    |
| minimum elong    | 8376 Sep 02 00:23 | 16°♊55'15 | 1°06'42    | minimum elong       | 8377 Aug 17 10:34 | 1°♊35'21  | 0°45'34    |
|                  | 8376 Sep 07 22:59 | 0°♊       |            | evening rise        | 8377 Aug 24 07:51 | 16°♊38'25 |            |
| evening rise     | 8376 Sep 08 20:34 | 1°♊55'58  |            |                     | 8377 Aug 30 21:02 | 0°♊       |            |
|                  | 8376 Sep 23 20:58 | 0°♊       |            | desc. node          | 8377 Sep 16 12:53 | 25°♊11'39 |            |
| desc. node       | 8376 Sep 29 15:47 | 8°♊19'05  |            | evening max el      | 8377 Sep 18 14:13 | 27°♊17'26 | 24°29'09   |
| evening max el   | 8376 Oct 07 00:17 | 16°♊39'33 | 25°57'02   |                     | 8377 Sep 21 17:27 | 0°♊       |            |
| retrograde       | 8376 Oct 20 22:34 | 23°♊43'04 |            | retrograde          | 8377 Oct 02 08:54 | 4°♊12'34  |            |
| evening set      | 8376 Oct 27 06:23 | 22°♊08'18 |            | evening set         | 8377 Oct 07 13:12 | 3°♊13'04  |            |
| min. Earth dist. | 8376 Oct 31 13:06 | 19°♊33'01 | 0.58399 AU | min. Earth dist.    | 8377 Oct 13 01:10 | 0°♊23'43  | 0.56538 AU |
| inferior conj    | 8376 Nov 03 16:05 | 17°♊17'24 | -4°59'41   |                     | 8377 Oct 13 16:25 | 30°♊      |            |
| minimum elong    | 8376 Nov 03 22:44 | 17°♊05'19 | 4°58'18    | inferior conj       | 8377 Oct 15 14:48 | 28°♊46'30 | -5°33'16   |
| morning rise     | 8376 Nov 11 17:23 | 12°♊52'46 |            | minimum elong       | 8377 Oct 15 16:55 | 28°♊43'10 | 5°33'05    |
| direct           | 8376 Nov 14 00:30 | 12°♊35'37 |            | morning rise        | 8377 Oct 23 22:46 | 24°♊43'49 |            |
| asc. node        | 8376 Nov 21 22:59 | 16°♊15'13 |            | direct              | 8377 Oct 26 13:28 | 24°♊25'23 |            |
| morning max el   | 8376 Nov 22 08:36 | 16°♊37'53 | 18°37'25   | morning max el      | 8377 Nov 05 05:11 | 28°♊59'18 | 19°34'10   |
|                  | 8376 Dec 01 20:13 | 0°♊       |            |                     | 8377 Nov 06 05:32 | 0°♊       |            |
| morning set      | 8376 Dec 08 12:15 | 12°♊29'51 |            | asc. node           | 8377 Nov 08 20:00 | 3°♊01'47  |            |
|                  |                   |           |            | morning set         | 8377 Nov 22 15:00 | 26°♊59'30 |            |
| superior conj    | 8376 Dec 17 06:36 | 29°♊20'12 | 1°06'05    |                     | 8377 Nov 24 02:48 | 0°♊       |            |
| minimum elong    | 8376 Dec 17 10:00 | 29°♊36'04 | 1°05'50    |                     |                   |           |            |
|                  | 8376 Dec 17 15:07 | 0°♊       |            | superior conj       | 8377 Nov 30 13:40 | 12°♊56'03 | 1°25'47    |
| max. Earth dist. | 8376 Dec 24 14:01 | 12°♊34'01 | 1.39922 AU | minimum elong       | 8377 Nov 30 16:22 | 13°♊09'18 | 1°25'43    |
| desc. node       | 8376 Dec 26 14:49 | 16°♊05'01 |            | max. Earth dist.    | 8377 Dec 06 19:57 | 24°♊53'15 | 1.37755 AU |
| evening rise     | 8376 Dec 28 16:58 | 19°♊37'30 |            |                     | 8377 Dec 09 15:29 | 0°♊       |            |
|                  | 8377 Jan 04 01:55 | 0°♊       |            | evening rise        | 8377 Dec 10 13:22 | 1°♊37'21  |            |
|                  | 8377 Jan 25 01:37 | 0°♊       |            | desc. node          | 8377 Dec 13 11:49 | 6°♊43'44  |            |
| evening max el   | 8377 Feb 01 14:04 | 8°♊33'09  | 23°57'34   |                     | 8377 Dec 28 06:31 | 0°♊       |            |
| retrograde       | 8377 Feb 12 14:49 | 15°♊02'23 |            | evening max el      | 8378 Jan 15 03:16 | 22°♊20'25 | 25°13'58   |
| evening set      | 8377 Feb 17 20:45 | 12°♊51'13 |            | retrograde          | 8378 Jan 27 03:46 | 29°♊17'30 |            |
| asc. node        | 8377 Feb 17 22:04 | 12°♊48'26 |            | evening set         | 8378 Feb 01 22:29 | 26°♊53'46 |            |
| min. Earth dist. | 8377 Feb 22 14:48 | 7°♊21'29  | 0.68216 AU | asc. node           | 8378 Feb 04 19:11 | 23°♊56'41 |            |
| inferior conj    | 8377 Feb 23 07:56 | 6°♊23'22  | 1°41'40    | min. Earth dist.    | 8378 Feb 06 09:02 | 21°♊58'47 | 0.67609 AU |
| minimum elong    | 8377 Feb 23 05:54 | 6°♊30'14  | 1°41'02    | inferior conj       | 8378 Feb 07 13:38 | 20°♊25'51 | 0°54'11    |
| morning rise     | 8377 Feb 28 15:03 | 0°♊20'22  |            | minimum elong       | 8378 Feb 07 12:21 | 20°♊30'00 | 0°53'48    |
|                  | 8377 Mar 01 02:21 | 30°♊      |            | morning rise        | 8378 Feb 13 02:33 | 14°♊30'41 |            |
| direct           | 8377 Mar 04 15:47 | 28°♊48'22 |            | direct              | 8378 Feb 16 14:53 | 13°♊19'42 |            |
|                  | 8377 Mar 08 11:46 | 0°♊       |            | morning max el      | 8378 Feb 23 17:38 | 17°♊16'00 | 19°23'46   |
| morning max el   | 8377 Mar 12 14:07 | 3°♊18'48  | 20°28'05   |                     | 8378 Mar 05 17:15 | 0°♊       |            |
| desc. node       | 8377 Mar 24 14:29 | 18°♊32'45 |            | greatest brilliancy | 8378 Mar 08 14:46 | 4°♊15'11  | -0.7m      |
|                  | 8377 Apr 01 09:58 | 0°♊       |            | desc. node          | 8378 Mar 11 11:25 | 8°♊32'45  |            |
| morning set      | 8377 Apr 10 07:41 | 13°♊34'16 |            | morning set         | 8378 Mar 20 06:20 | 21°♊59'39 |            |
| max. Earth dist. | 8377 Apr 19 12:01 | 28°♊03'42 | 1.43541 AU |                     | 8378 Mar 25 10:25 | 0°♊       |            |
|                  | 8377 Apr 20 16:51 | 0°♊       |            | max. Earth dist.    | 8378 Apr 02 02:02 | 11°♊58'44 | 1.44854 AU |
| superior conj    | 8377 Apr 25 20:38 | 8°♊27'31  | -2°10'07   | superior conj       | 8378 Apr 05 20:06 | 17°♊56'04 | -2°08'53   |
| minimum elong    | 8377 Apr 25 23:18 | 8°♊38'36  | 2°10'09    | minimum elong       | 8378 Apr 05 16:06 | 17°♊40'07 | 2°08'49    |
| evening rise     | 8377 May 08 06:50 | 29°♊44'18 |            |                     | 8378 Apr 13 07:25 | 0°♊       |            |
|                  | 8377 May 08 10:25 | 0°♊       |            | evening rise        | 8378 Apr 20 00:15 | 11°♊04'04 |            |
| asc. node        | 8377 May 16 20:57 | 14°♊32'23 |            |                     | 8378 May 01 13:45 | 0°♊       |            |
| evening max el   | 8377 May 25 10:31 | 26°♊22'20 | 18°05'39   | asc. node           | 8378 May 03 18:02 | 3°♊15'00  |            |
| retrograde       | 8377 May 31 21:45 | 29°♊43'13 |            | evening max el      | 8378 May 08 23:45 | 9°♊46'34  | 18°18'34   |
| evening set      | 8377 Jun 03 14:42 | 29°♊07'18 |            | retrograde          | 8378 May 15 09:16 | 13°♊11'52 |            |
| inferior conj    | 8377 Jun 09 23:58 | 24°♊00'47 | 2°41'06    | evening set         | 8378 May 18 09:24 | 12°♊22'47 |            |
| minimum elong    | 8377 Jun 10 02:44 | 23°♊53'41 | 2°40'18    | inferior conj       | 8378 May 24 07:12 | 6°♊58'08  | 3°11'16    |
| min. Earth dist. | 8377 Jun 12 23:58 | 20°♊58'08 | 0.61904 AU | minimum elong       | 8378 May 24 08:51 | 6°♊53'23  | 3°10'53    |
| morning rise     | 8377 Jun 16 12:48 | 17°♊57'09 |            | min. Earth dist.    | 8378 May 26 17:25 | 4°♊12'20  | 0.63981 AU |
| desc. node       | 8377 Jun 20 14:00 | 15°♊56'28 |            | morning rise        | 8378 May 30 07:10 | 0°♊44'01  |            |
| direct           | 8377 Jun 23 06:18 | 15°♊34'13 |            |                     | 8378 May 31 06:49 | 30°♊      |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| direct              | 8378 Jun 06 00:35 | 28°♄03'15 |            | inferior conj       | 8379 May 08 00:59 | 20°♄17'45 | 3°22'48    |
| desc. node          | 8378 Jun 07 11:02 | 28°♄09'54 |            | minimum elong       | 8379 May 08 01:18 | 20°♄16'45 | 3°22'40    |
|                     | 8378 Jun 12 07:53 | 0°♄       |            | min. Earth dist.    | 8379 May 09 19:56 | 18°♄04'00 | 0.65726 AU |
| morning max el      | 8378 Jun 19 19:30 | 6°♄04'07  | 27°36'30   | morning rise        | 8379 May 13 15:05 | 13°♄59'41 |            |
|                     | 8378 Jul 08 00:54 | 0°♄       |            | direct              | 8379 May 20 02:26 | 11°♄12'53 |            |
| morning set         | 8378 Jul 24 19:02 | 29°♄36'39 |            | desc. node          | 8379 May 25 08:03 | 12°♄41'56 |            |
|                     | 8378 Jul 24 23:45 | 0°♄       |            | morning max el      | 8379 Jun 02 06:04 | 19°♄01'00 | 26°45'38   |
| max. Earth dist.    | 8378 Jul 29 16:34 | 9°♄35'50  | 1.32906 AU |                     | 8379 Jun 11 13:20 | 0°♄       |            |
| asc. node           | 8378 Jul 30 17:19 | 11°♄46'04 |            |                     | 8379 Jul 01 01:27 | 0°♄       |            |
|                     |                   |           |            | morning set         | 8379 Jul 08 02:15 | 12°♄49'07 |            |
| superior conj       | 8378 Aug 01 18:33 | 16°♄08'19 | 0°20'41    | max. Earth dist.    | 8379 Jul 12 07:21 | 21°♄02'00 | 1.34246 AU |
| minimum elong       | 8378 Aug 01 17:33 | 16°♄03'00 | 0°20'21    |                     |                   |           |            |
|                     | 8378 Aug 08 04:46 | 0°♄       |            | superior conj       | 8379 Jul 16 18:40 | 0°♄09'25  | -0°08'14   |
| evening rise        | 8378 Aug 08 19:25 | 1°♄18'05  |            | minimum elong       | 8379 Jul 16 19:07 | 0°♄11'48  | 0°08'19    |
|                     | 8378 Aug 24 17:01 | 0°♄       |            | behind sun begin    | 8379 Jul 16 14:09 | 29°♄45'59 |            |
| evening max el      | 8378 Aug 31 01:36 | 7°♄30'06  | 22°49'56   | behind sun end      | 8379 Jul 17 00:05 | 0°♄37'39  |            |
| desc. node          | 8378 Sep 03 09:58 | 10°♄23'01 |            |                     | 8379 Jul 16 16:51 | 0°♄       |            |
| retrograde          | 8378 Sep 13 07:06 | 14°♄06'30 |            | asc. node           | 8379 Jul 17 14:17 | 1°♄51'43  |            |
| evening set         | 8378 Sep 16 23:05 | 13°♄37'01 |            | evening rise        | 8379 Jul 24 05:20 | 15°♄49'14 |            |
| min. Earth dist.    | 8378 Sep 24 09:42 | 10°♄16'09 | 0.55198 AU |                     | 8379 Jul 31 08:35 | 0°♄       |            |
| inferior conj       | 8378 Sep 25 18:34 | 9°♄29'04  | -5°22'16   | evening max el      | 8379 Aug 12 19:36 | 17°♄54'20 | 21°15'54   |
| minimum elong       | 8378 Sep 25 13:09 | 9°♄36'50  | 5°21'36    | desc. node          | 8379 Aug 21 07:04 | 23°♄21'17 |            |
| morning rise        | 8378 Oct 04 05:15 | 5°♄40'18  |            | retrograde          | 8379 Aug 24 20:23 | 23°♄52'09 |            |
| direct              | 8378 Oct 07 07:42 | 5°♄17'59  |            | evening set         | 8379 Aug 27 06:02 | 23°♄38'47 |            |
| morning max el      | 8378 Oct 18 13:00 | 10°♄33'09 | 20°53'16   | inferior conj       | 8379 Sep 05 11:39 | 19°♄41'30 | -4°15'54   |
| asc. node           | 8378 Oct 26 17:00 | 20°♄46'47 |            | minimum elong       | 8379 Sep 05 02:05 | 19°♄54'57 | 4°13'22    |
|                     | 8378 Nov 01 01:29 | 0°♄       |            | min. Earth dist.    | 8379 Sep 05 18:32 | 19°♄31'49 | 0.54678 AU |
| morning set         | 8378 Nov 06 22:50 | 11°♄42'13 |            | morning rise        | 8379 Sep 13 22:48 | 15°♄48'37 |            |
|                     |                   |           |            | direct              | 8379 Sep 17 16:08 | 15°♄18'44 |            |
| superior conj       | 8378 Nov 14 08:18 | 27°♄04'58 | 1°37'13    | morning max el      | 8379 Sep 30 08:51 | 21°♄20'50 | 22°30'49   |
| minimum elong       | 8378 Nov 14 09:46 | 27°♄12'25 | 1°37'17    |                     | 8379 Oct 07 17:37 | 0°♄       |            |
|                     | 8378 Nov 15 18:36 | 0°♄       |            | asc. node           | 8379 Oct 13 13:57 | 9°♄16'15  |            |
| max. Earth dist.    | 8378 Nov 19 04:43 | 6°♄49'25  | 1.35739 AU | morning set         | 8379 Oct 22 09:30 | 26°♄30'51 |            |
| evening rise        | 8378 Nov 23 04:35 | 14°♄27'24 |            |                     | 8379 Oct 24 00:56 | 0°♄       |            |
| desc. node          | 8378 Nov 30 08:50 | 27°♄13'22 |            |                     |                   |           |            |
|                     | 8378 Dec 02 00:34 | 0°♄       |            | superior conj       | 8379 Oct 29 10:53 | 11°♄35'25 | 1°41'18    |
|                     | 8378 Dec 23 00:25 | 0°♄       |            | minimum elong       | 8379 Oct 29 11:02 | 11°♄36'09 | 1°41'24    |
| evening max el      | 8378 Dec 28 16:20 | 6°♄06'13  | 26°19'21   | max. Earth dist.    | 8379 Nov 01 20:30 | 18°♄43'18 | 1.34059 AU |
| retrograde          | 8379 Jan 10 11:46 | 13°♄20'34 |            | evening rise        | 8379 Nov 06 10:39 | 27°♄56'50 |            |
| evening set         | 8379 Jan 16 18:47 | 10°♄47'47 |            |                     | 8379 Nov 07 12:04 | 0°♄       |            |
| min. Earth dist.    | 8379 Jan 20 22:49 | 6°♄27'25  | 0.66624 AU | desc. node          | 8379 Nov 17 05:52 | 17°♄28'01 |            |
| inferior conj       | 8379 Jan 22 14:59 | 4°♄24'56  | -0°01'04   |                     | 8379 Nov 25 06:12 | 0°♄       |            |
| minimum elong       | 8379 Jan 22 15:00 | 4°♄24'52  | 0°00'54    | evening max el      | 8379 Dec 11 05:25 | 19°♄42'15 | 27°06'34   |
| transit middle      | 8379 Jan 22 15:00 | 4°♄24'52  | 0°00'54    | retrograde          | 8379 Dec 24 14:02 | 27°♄02'58 |            |
| transit begin       | 8379 Jan 22 12:08 | 4°♄33'40  |            | evening set         | 8379 Dec 31 07:36 | 24°♄26'48 |            |
| transit end         | 8379 Jan 22 17:53 | 4°♄16'05  |            | min. Earth dist.    | 8380 Jan 04 05:55 | 20°♄40'23 | 0.65280 AU |
| asc. node           | 8379 Jan 22 16:16 | 4°♄21'01  |            | inferior conj       | 8380 Jan 06 09:44 | 18°♄14'57 | -1°03'25   |
|                     | 8379 Jan 26 15:53 | 30°♄      |            | minimum elong       | 8380 Jan 06 11:36 | 18°♄09'41 | 1°02'27    |
| morning rise        | 8379 Jan 28 12:00 | 28°♄39'33 |            | asc. node           | 8380 Jan 09 13:19 | 14°♄56'44 |            |
| direct              | 8379 Jan 31 13:25 | 27°♄46'40 |            | morning rise        | 8380 Jan 12 16:56 | 12°♄41'45 |            |
|                     | 8379 Feb 05 16:13 | 0°♄       |            | direct              | 8380 Jan 15 09:19 | 12°♄03'12 |            |
| morning max el      | 8379 Feb 07 04:17 | 1°♄21'26  | 18°35'13   | morning max el      | 8380 Jan 21 19:41 | 15°♄27'34 | 18°03'18   |
| desc. node          | 8379 Feb 26 08:21 | 28°♄51'02 |            |                     | 8380 Feb 01 08:45 | 0°♄       |            |
|                     | 8379 Feb 27 01:50 | 0°♄       |            | morning set         | 8380 Feb 08 22:34 | 12°♄21'40 |            |
| morning set         | 8379 Feb 27 23:47 | 1°♄26'36  |            | desc. node          | 8380 Feb 13 05:17 | 19°♄21'49 |            |
|                     |                   |           |            |                     | 8380 Feb 19 19:31 | 0°♄       |            |
| superior conj       | 8379 Mar 16 02:59 | 26°♄46'27 | -1°47'26   | superior conj       | 8380 Feb 23 10:51 | 5°♄46'58  | -1°09'29   |
| minimum elong       | 8379 Mar 15 17:40 | 26°♄10'02 | 1°46'38    | minimum elong       | 8380 Feb 23 02:55 | 5°♄15'36  | 1°08'25    |
| max. Earth dist.    | 8379 Mar 15 20:02 | 26°♄19'18 | 1.45481 AU | max. Earth dist.    | 8380 Feb 26 15:23 | 10°♄48'24 | 1.45369 AU |
|                     | 8379 Mar 18 04:24 | 0°♄       |            |                     | 8380 Mar 09 23:30 | 0°♄       |            |
| evening rise        | 8379 Mar 31 18:04 | 21°♄25'33 |            | evening rise        | 8380 Mar 10 15:04 | 1°♄00'12  |            |
|                     | 8379 Apr 06 03:12 | 0°♄       |            | greatest brilliancy | 8380 Mar 23 23:40 | 21°♄24'46 | -0.7m      |
| greatest brilliancy | 8379 Apr 09 05:22 | 4°♄53'40  | -0.8m      |                     | 8380 Mar 29 23:39 | 0°♄       |            |
| asc. node           | 8379 Apr 20 15:06 | 21°♄20'02 |            |                     |                   |           |            |
| evening max el      | 8379 Apr 22 10:44 | 23°♄19'28 | 18°49'27   | evening max el      | 8380 Apr 04 17:28 | 6°♄56'30  | 19°37'04   |
| retrograde          | 8379 Apr 29 03:23 | 27°♄01'59 |            | asc. node           | 8380 Apr 06 12:11 | 8°♄35'52  |            |
| evening set         | 8379 May 02 10:54 | 25°♄58'47 |            | retrograde          | 8380 Apr 12 00:50 | 11°♄07'10 |            |

|                  |                   |                           |            |                  |                   |                       |            |
|------------------|-------------------|---------------------------|------------|------------------|-------------------|-----------------------|------------|
| evening set      | 8380 Apr 15 16:33 | 9° $\text{8}$ 49'10       |            | evening max el   | 8381 Mar 18 18:54 | 20° $\text{Y}$ 35'32  | 20°39'05   |
| inferior conj    | 8380 Apr 21 02:02 | 3° $\text{8}$ 53'27       | 3°19'41    | asc. node        | 8381 Mar 24 09:16 | 24° $\text{Y}$ 48'49  |            |
| minimum elong    | 8380 Apr 21 01:10 | 3° $\text{8}$ 56'19       | 3°19'32    | retrograde       | 8381 Mar 26 23:19 | 25° $\text{Y}$ 22'50  |            |
| min. Earth dist. | 8380 Apr 22 06:05 | 2° $\text{8}$ 20'34       | 0.67054 AU | evening set      | 8381 Mar 31 00:15 | 23° $\text{Y}$ 49'34  |            |
|                  | 8380 Apr 24 02:40 | 30° $\text{R}$ $\text{Y}$ |            | inferior conj    | 8381 Apr 05 07:45 | 17° $\text{Y}$ 41'00  | 3°04'40    |
| morning rise     | 8380 Apr 26 09:28 | 27° $\text{Y}$ 35'30      |            | minimum elong    | 8381 Apr 05 06:01 | 17° $\text{Y}$ 46'55  | 3°04'21    |
| direct           | 8380 May 02 10:31 | 24° $\text{Y}$ 54'09      |            | min. Earth dist. | 8381 Apr 05 21:52 | 16° $\text{Y}$ 52'28  | 0.67940 AU |
| desc. node       | 8380 May 11 05:03 | 29° $\text{Y}$ 01'30      |            | morning rise     | 8381 Apr 10 11:34 | 11° $\text{Y}$ 25'31  |            |
|                  | 8380 May 12 08:04 | 0° $\text{8}$             |            | direct           | 8381 Apr 15 23:46 | 8° $\text{Y}$ 58'37   |            |
| morning max el   | 8380 May 14 15:50 | 2° $\text{8}$ 13'37       | 25°31'50   | morning max el   | 8381 Apr 27 00:46 | 15° $\text{Y}$ 34'42  | 24°05'06   |
|                  | 8380 Jun 04 16:19 | 0° $\text{II}$            |            | desc. node       | 8381 Apr 28 02:01 | 16° $\text{Y}$ 40'07  |            |
| morning set      | 8380 Jun 19 18:38 | 25° $\text{II}$ 16'51     |            |                  | 8381 May 08 20:59 | 0° $\text{8}$         |            |
|                  | 8380 Jun 22 08:10 | 0° $\text{8}$             |            |                  | 8381 May 28 15:12 | 0° $\text{II}$        |            |
| max. Earth dist. | 8380 Jun 23 11:11 | 2° $\text{8}$ 06'51       | 1.36044 AU | morning set      | 8381 Jun 01 14:58 | 6° $\text{II}$ 45'23  |            |
|                  |                   |                           |            | max. Earth dist. | 8381 Jun 05 08:04 | 13° $\text{II}$ 16'19 | 1.38190 AU |
| superior conj    | 8380 Jun 29 10:05 | 13° $\text{8}$ 41'52      | -0°39'33   | superior conj    | 8381 Jun 12 13:22 | 26° $\text{II}$ 36'17 | -1°11'24   |
| minimum elong    | 8380 Jun 29 12:28 | 13° $\text{8}$ 53'44      | 0°39'17    | minimum elong    | 8381 Jun 12 17:47 | 26° $\text{II}$ 57'23 | 1°10'52    |
| asc. node        | 8380 Jul 03 11:16 | 21° $\text{8}$ 53'43      |            |                  | 8381 Jun 14 07:51 | 0° $\text{8}$         |            |
| evening rise     | 8380 Jul 07 11:26 | 0° $\text{8}$ 05'41       |            | asc. node        | 8381 Jun 20 08:16 | 11° $\text{8}$ 47'29  |            |
|                  | 8380 Jul 07 10:19 | 0° $\text{8}$             |            | evening rise     | 8381 Jun 21 11:07 | 13° $\text{8}$ 59'49  |            |
| evening max el   | 8380 Jul 25 02:20 | 28° $\text{8}$ 57'14      | 19°58'03   |                  | 8381 Jun 30 00:51 | 0° $\text{8}$         |            |
|                  | 8380 Jul 26 05:08 | 0° $\text{8}$             |            | evening max el   | 8381 Jul 07 21:45 | 10° $\text{8}$ 43'56  | 19°00'24   |
| retrograde       | 8380 Aug 04 10:45 | 4° $\text{8}$ 03'41       |            | retrograde       | 8381 Jul 16 14:48 | 15° $\text{8}$ 02'37  |            |
| evening set      | 8380 Aug 06 07:58 | 3° $\text{8}$ 54'18       |            | evening set      | 8381 Jul 18 13:17 | 14° $\text{8}$ 50'41  |            |
| desc. node       | 8380 Aug 07 04:10 | 3° $\text{8}$ 44'17       |            | desc. node       | 8381 Jul 25 01:16 | 11° $\text{8}$ 49'04  |            |
| inferior conj    | 8380 Aug 15 08:06 | 29° $\text{8}$ 54'27      | -2°28'30   | inferior conj    | 8381 Jul 26 20:28 | 10° $\text{8}$ 35'36  | -0°32'58   |
| minimum elong    | 8380 Aug 15 01:19 | 0° $\text{8}$ 04'42       | 2°26'07    | minimum elong    | 8381 Jul 26 19:04 | 10° $\text{8}$ 38'02  | 0°32'34    |
|                  | 8380 Aug 15 04:26 | 30° $\text{R}$ $\text{8}$ |            | min. Earth dist. | 8381 Jul 29 19:48 | 8° $\text{8}$ 32'19   | 0.56441 AU |
| min. Earth dist. | 8380 Aug 17 05:30 | 28° $\text{8}$ 45'55      | 0.55119 AU | morning rise     | 8381 Aug 03 21:41 | 5° $\text{8}$ 42'48   |            |
| morning rise     | 8380 Aug 23 17:01 | 25° $\text{8}$ 37'34      |            | direct           | 8381 Aug 09 05:33 | 4° $\text{8}$ 35'58   |            |
| direct           | 8380 Aug 28 04:44 | 24° $\text{8}$ 53'33      |            | morning max el   | 8381 Aug 23 11:03 | 11° $\text{8}$ 54'52  | 25°55'26   |
|                  | 8380 Sep 09 01:14 | 0° $\text{8}$             |            |                  | 8381 Sep 06 11:11 | 0° $\text{8}$         |            |
| morning max el   | 8380 Sep 10 21:49 | 1° $\text{8}$ 38'55       | 24°16'44   | asc. node        | 8381 Sep 16 07:52 | 17° $\text{8}$ 46'54  |            |
| asc. node        | 8380 Sep 29 10:54 | 28° $\text{8}$ 19'26      |            | morning set      | 8381 Sep 20 08:24 | 26° $\text{8}$ 06'02  |            |
|                  | 8380 Sep 30 07:53 | 0° $\text{8}$             |            |                  | 8381 Sep 22 03:54 | 0° $\text{8}$         |            |
| morning set      | 8380 Oct 05 21:15 | 11° $\text{8}$ 20'37      |            |                  |                   |                       |            |
| superior conj    | 8380 Oct 12 18:42 | 26° $\text{8}$ 19'19      | 1°38'54    | superior conj    | 8381 Sep 27 05:28 | 11° $\text{8}$ 08'59  | 1°30'41    |
| minimum elong    | 8380 Oct 12 17:42 | 26° $\text{8}$ 13'54      | 1°38'55    | minimum elong    | 8381 Sep 27 03:39 | 10° $\text{8}$ 58'59  | 1°30'32    |
|                  | 8380 Oct 14 11:24 | 0° $\text{8}$             |            | max. Earth dist. | 8381 Sep 28 03:39 | 13° $\text{8}$ 11'30  | 1.32005 AU |
| max. Earth dist. | 8380 Oct 14 20:48 | 0° $\text{8}$ 50'38       | 1.32809 AU | evening rise     | 8381 Oct 04 05:19 | 26° $\text{8}$ 16'40  |            |
| evening rise     | 8380 Oct 20 03:57 | 11° $\text{8}$ 56'25      |            |                  | 8381 Oct 06 00:40 | 0° $\text{8}$         |            |
|                  | 8380 Oct 29 17:45 | 0° $\text{8}$             |            | desc. node       | 8381 Oct 21 00:01 | 26° $\text{8}$ 43'02  |            |
| desc. node       | 8380 Nov 03 02:55 | 7° $\text{8}$ 21'00       |            |                  | 8381 Oct 23 04:46 | 0° $\text{8}$         |            |
|                  | 8380 Nov 19 19:13 | 0° $\text{8}$             |            | evening max el   | 8381 Nov 05 01:43 | 15° $\text{8}$ 38'24  | 27°19'19   |
| evening max el   | 8380 Nov 22 17:22 | 2° $\text{8}$ 57'37       | 27°28'28   | retrograde       | 8381 Nov 18 21:49 | 22° $\text{8}$ 51'12  |            |
| retrograde       | 8380 Dec 06 09:42 | 10° $\text{8}$ 16'13      |            | evening set      | 8381 Nov 25 23:46 | 20° $\text{8}$ 33'08  |            |
| evening set      | 8380 Dec 13 10:22 | 7° $\text{8}$ 44'22       |            | min. Earth dist. | 8381 Nov 29 16:13 | 17° $\text{8}$ 43'51  | 0.61674 AU |
| min. Earth dist. | 8380 Dec 17 04:19 | 4° $\text{8}$ 29'26       | 0.63610 AU | inferior conj    | 8381 Dec 02 16:37 | 15° $\text{8}$ 01'20  | -3°21'32   |
| inferior conj    | 8380 Dec 19 19:18 | 1° $\text{8}$ 49'46       | -2°11'19   | minimum elong    | 8381 Dec 02 22:56 | 14° $\text{8}$ 47'06  | 3°19'12    |
| minimum elong    | 8380 Dec 19 23:26 | 1° $\text{8}$ 39'17       | 2°09'29    | morning rise     | 8381 Dec 10 00:19 | 10° $\text{8}$ 01'59  |            |
|                  | 8380 Dec 21 15:44 | 30° $\text{R}$ $\text{8}$ |            | direct           | 8381 Dec 12 06:01 | 9° $\text{8}$ 40'36   |            |
| asc. node        | 8380 Dec 26 10:21 | 26° $\text{8}$ 35'42      |            | asc. node        | 8381 Dec 13 07:24 | 9° $\text{8}$ 45'31   |            |
| morning rise     | 8380 Dec 26 14:20 | 26° $\text{8}$ 31'44      |            | morning max el   | 8381 Dec 19 05:08 | 13° $\text{8}$ 11'48  | 17°52'07   |
| direct           | 8380 Dec 28 23:59 | 26° $\text{8}$ 03'34      |            |                  | 8381 Dec 30 14:24 | 0° $\text{8}$         |            |
| morning max el   | 8381 Jan 04 13:01 | 29° $\text{8}$ 27'02      | 17°48'39   | morning set      | 8382 Jan 03 22:35 | 7° $\text{8}$ 47'27   |            |
|                  | 8381 Jan 05 01:57 | 0° $\text{8}$             |            |                  |                   |                       |            |
| morning set      | 8381 Jan 21 00:21 | 24° $\text{8}$ 35'28      |            | superior conj    | 8382 Jan 14 16:52 | 26° $\text{8}$ 53'18  | 0°16'42    |
|                  | 8381 Jan 24 03:56 | 0° $\text{8}$             |            | minimum elong    | 8382 Jan 14 18:22 | 26° $\text{8}$ 59'42  | 0°16'38    |
| desc. node       | 8381 Jan 30 02:13 | 10° $\text{8}$ 01'01      |            | desc. node       | 8382 Jan 16 23:12 | 0° $\text{8}$ 44'57   |            |
|                  |                   |                           |            |                  | 8382 Jan 16 12:35 | 0° $\text{8}$         |            |
| superior conj    | 8381 Feb 02 13:05 | 15° $\text{8}$ 43'10      | -0°24'59   | max. Earth dist. | 8382 Jan 22 01:11 | 9° $\text{8}$ 12'03   | 1.43068 AU |
| minimum elong    | 8381 Feb 02 10:22 | 15° $\text{8}$ 32'03      | 0°24'28    | evening rise     | 8382 Jan 28 19:16 | 20° $\text{8}$ 00'14  |            |
| max. Earth dist. | 8381 Feb 08 09:56 | 25° $\text{8}$ 11'31      | 1.44534 AU |                  | 8382 Feb 04 07:09 | 0° $\text{8}$         |            |
|                  | 8381 Feb 11 10:52 | 0° $\text{8}$             |            |                  | 8382 Feb 25 18:43 | 0° $\text{Y}$         |            |
| evening rise     | 8381 Feb 18 02:22 | 10° $\text{8}$ 19'21      |            | evening max el   | 8382 Mar 01 14:59 | 4° $\text{Y}$ 16'10   | 21°52'05   |
|                  | 8381 Mar 03 04:20 | 0° $\text{Y}$             |            | retrograde       | 8382 Mar 10 20:59 | 9° $\text{Y}$ 44'52   |            |

|                  |                   |                        |            |                  |                   |                        |            |
|------------------|-------------------|------------------------|------------|------------------|-------------------|------------------------|------------|
| asc. node        | 8382 Mar 11 06:22 | 9° $\Upsilon$ 44'06    |            | retrograde       | 8383 Feb 22 16:19 | 24° $\Upsilon$ 07'55   |            |
| evening set      | 8382 Mar 15 08:21 | 7° $\Upsilon$ 56'17    |            | asc. node        | 8383 Feb 26 03:30 | 23° $\Upsilon$ 08'28   |            |
| inferior conj    | 8382 Mar 20 15:56 | 1° $\Upsilon$ 37'22    | 2°39'31    | evening set      | 8383 Feb 27 15:12 | 22° $\Upsilon$ 04'32   |            |
| minimum elong    | 8382 Mar 20 13:45 | 1° $\Upsilon$ 44'58    | 2°38'59    | min. Earth dist. | 8383 Mar 04 14:01 | 16° $\Upsilon$ 15'06   | 0.68392 AU |
| min. Earth dist. | 8382 Mar 20 17:15 | 1° $\Upsilon$ 32'45    | 0.68379 AU | inferior conj    | 8383 Mar 05 00:37 | 15° $\Upsilon$ 38'33   | 2°05'15    |
|                  | 8382 Mar 21 20:06 | 30° $\Re$ $\Upsilon$   |            | minimum elong    | 8383 Mar 04 22:24 | 15° $\Upsilon$ 46'12   | 2°04'37    |
| morning rise     | 8382 Mar 25 18:59 | 25° $\Upsilon$ 25'43   |            | morning rise     | 8383 Mar 10 05:33 | 9° $\Upsilon$ 32'00    |            |
| direct           | 8382 Mar 30 17:10 | 23° $\Upsilon$ 18'53   |            | direct           | 8383 Mar 14 13:48 | 7° $\Upsilon$ 47'26    |            |
| morning max el   | 8382 Apr 09 11:20 | 29° $\Upsilon$ 03'59   | 22°35'30   | morning max el   | 8383 Mar 23 02:50 | 12° $\Upsilon$ 43'08   | 21°11'24   |
|                  | 8382 Apr 10 09:06 | 0° $\Upsilon$          |            | desc. node       | 8383 Apr 01 19:54 | 24° $\Upsilon$ 32'56   |            |
| desc. node       | 8382 Apr 14 22:58 | 5° $\Upsilon$ 16'06    |            |                  | 8383 Apr 05 17:35 | 0° $\Upsilon$          |            |
|                  | 8382 May 02 14:38 | 0° $\Re$               |            | morning set      | 8383 Apr 23 01:52 | 26° $\Upsilon$ 05'26   |            |
| morning set      | 8382 May 13 10:01 | 17° $\Re$ 02'32        |            |                  | 8383 Apr 25 13:10 | 0° $\Re$               |            |
| max. Earth dist. | 8382 May 18 05:25 | 25° $\Re$ 04'03        | 1.40447 AU | max. Earth dist. | 8383 Apr 30 08:08 | 7° $\Re$ 43'51         | 1.42526 AU |
|                  | 8382 May 21 02:16 | 0° $\Pi$               |            |                  |                   |                        |            |
| superior conj    | 8382 May 26 00:19 | 8° $\Pi$ 43'15         | -1°40'42   | superior conj    | 8383 May 07 14:09 | 19° $\Re$ 51'38        | -2°02'53   |
| minimum elong    | 8382 May 26 06:06 | 9° $\Pi$ 09'26         | 1°40'12    | minimum elong    | 8383 May 07 19:04 | 20° $\Re$ 12'40        | 2°02'44    |
| evening rise     | 8382 Jun 05 01:13 | 27° $\Pi$ 23'55        |            |                  | 8383 May 13 09:53 | 0° $\Pi$               |            |
|                  | 8382 Jun 06 10:20 | 0° $\Im$               |            | evening rise     | 8383 May 19 01:37 | 10° $\Pi$ 07'33        |            |
| asc. node        | 8382 Jun 07 05:19 | 1° $\Im$ 29'06         |            | asc. node        | 8383 May 25 02:23 | 20° $\Pi$ 53'07        |            |
| evening max el   | 8382 Jun 21 02:50 | 23° $\Im$ 09'39        | 18°23'27   |                  | 8383 May 30 16:46 | 0° $\Im$               |            |
| retrograde       | 8382 Jun 28 14:04 | 26° $\Im$ 53'49        |            | evening max el   | 8383 Jun 04 13:49 | 6° $\Im$ 05'30         | 18°06'36   |
| evening set      | 8382 Jun 30 19:05 | 26° $\Im$ 35'05        |            | retrograde       | 8383 Jun 11 06:47 | 9° $\Im$ 30'38         |            |
| inferior conj    | 8382 Jul 08 06:25 | 21° $\Im$ 59'53        | 1°04'06    | evening set      | 8383 Jun 13 19:20 | 9° $\Im$ 01'49         |            |
| minimum elong    | 8382 Jul 08 08:32 | 21° $\Im$ 55'34        | 1°03'12    | inferior conj    | 8383 Jun 20 13:02 | 4° $\Im$ 06'34         | 2°13'22    |
| min. Earth dist. | 8382 Jul 11 15:36 | 19° $\Im$ 15'31        | 0.58385 AU | minimum elong    | 8383 Jun 20 16:05 | 3° $\Im$ 59'21         | 2°12'22    |
| desc. node       | 8382 Jul 11 22:20 | 19° $\Im$ 02'36        |            | min. Earth dist. | 8383 Jun 23 18:59 | 1° $\Im$ 03'19         | 0.60613 AU |
| morning rise     | 8382 Jul 15 18:38 | 16° $\Im$ 31'38        |            |                  | 8383 Jun 25 00:13 | 30° $\Re$ $\Pi$        |            |
| direct           | 8382 Jul 21 20:30 | 14° $\Im$ 54'41        |            | morning rise     | 8383 Jun 27 10:11 | 28° $\Pi$ 12'27        |            |
| morning max el   | 8382 Aug 05 05:56 | 22° $\Im$ 37'34        | 27°10'18   | desc. node       | 8383 Jun 28 19:24 | 27° $\Pi$ 24'21        |            |
|                  | 8382 Aug 11 19:07 | 0° $\Omega$            |            | direct           | 8383 Jul 04 00:10 | 26° $\Pi$ 04'22        |            |
|                  | 8382 Aug 30 10:44 | 0° $\P$                |            |                  | 8383 Jul 13 16:58 | 0° $\Im$               |            |
| asc. node        | 8382 Sep 03 04:50 | 7° $\P$ 31'45          |            | morning max el   | 8383 Jul 18 07:42 | 4° $\Im$ 02'19         | 27°50'13   |
| morning set      | 8382 Sep 04 17:19 | 10° $\P$ 42'15         |            |                  | 8383 Aug 06 12:31 | 0° $\Omega$            |            |
| superior conj    | 8382 Sep 11 17:17 | 25° $\P$ 58'23         | 1°17'09    | morning set      | 8383 Aug 19 22:11 | 25° $\Omega$ 04'20     |            |
| minimum elong    | 8382 Sep 11 15:04 | 25° $\P$ 46'05         | 1°16'50    | asc. node        | 8383 Aug 21 01:49 | 27° $\Omega$ 28'39     |            |
| max. Earth dist. | 8382 Sep 11 13:41 | 25° $\P$ 38'25         | 1.31652 AU |                  | 8383 Aug 22 06:24 | 0° $\P$                |            |
|                  | 8382 Sep 13 12:49 | 0° $\Delta$            |            | max. Earth dist. | 8383 Aug 25 23:05 | 8° $\P$ 01'01          | 1.31759 AU |
| evening rise     | 8382 Sep 18 12:12 | 10° $\Delta$ 50'12     |            | superior conj    | 8383 Aug 27 04:22 | 10° $\P$ 42'20         | 0°58'43    |
|                  | 8382 Sep 28 06:19 | 0° $\mathbb{M}$        |            | minimum elong    | 8383 Aug 27 02:13 | 10° $\P$ 30'26         | 0°58'17    |
| desc. node       | 8382 Oct 07 21:06 | 15° $\mathbb{M}$ 21'36 |            | evening rise     | 8383 Sep 02 22:26 | 25° $\P$ 31'02         |            |
| evening max el   | 8382 Oct 18 03:36 | 27° $\mathbb{M}$ 32'17 | 26°36'16   |                  | 8383 Sep 05 01:19 | 0° $\Delta$            |            |
|                  | 8382 Oct 20 23:35 | 0° $\Re$               |            |                  | 8383 Sep 22 10:01 | 0° $\mathbb{M}$        |            |
| retrograde       | 8382 Nov 01 01:30 | 4° $\Re$ 39'31         |            | desc. node       | 8383 Sep 24 18:12 | 2° $\mathbb{M}$ 59'43  |            |
| evening set      | 8382 Nov 07 19:32 | 2° $\Re$ 45'49         |            | evening max el   | 8383 Sep 29 21:27 | 8° $\mathbb{M}$ 35'32  | 25°22'11   |
| min. Earth dist. | 8382 Nov 11 17:15 | 0° $\Re$ 10'33         | 0.59586 AU | retrograde       | 8383 Oct 13 19:14 | 15° $\mathbb{M}$ 37'06 |            |
|                  | 8382 Nov 11 22:49 | 30° $\Re$ $\mathbb{M}$ |            | evening set      | 8383 Oct 19 16:51 | 14° $\mathbb{M}$ 16'59 |            |
| inferior conj    | 8382 Nov 14 22:09 | 27° $\mathbb{M}$ 39'55 | -4°27'44   | min. Earth dist. | 8383 Oct 24 09:24 | 11° $\mathbb{M}$ 38'05 | 0.57554 AU |
| minimum elong    | 8382 Nov 15 05:29 | 27° $\mathbb{M}$ 25'30 | 4°25'43    | inferior conj    | 8383 Oct 27 08:40 | 9° $\mathbb{M}$ 36'39  | -5°18'13   |
| morning rise     | 8382 Nov 22 17:48 | 23° $\mathbb{M}$ 02'30 |            | minimum elong    | 8383 Oct 27 13:57 | 9° $\mathbb{M}$ 27'37  | 5°17'24    |
| direct           | 8382 Nov 24 23:07 | 22° $\mathbb{M}$ 44'41 |            | morning rise     | 8383 Nov 04 13:24 | 5° $\mathbb{M}$ 22'05  |            |
| asc. node        | 8382 Nov 30 04:27 | 24° $\mathbb{M}$ 29'02 |            | direct           | 8383 Nov 06 22:54 | 5° $\mathbb{M}$ 04'54  |            |
| morning max el   | 8382 Dec 02 16:35 | 26° $\mathbb{M}$ 32'38 | 18°14'58   | morning max el   | 8383 Nov 15 19:43 | 9° $\mathbb{M}$ 19'28  | 18°58'52   |
|                  | 8382 Dec 05 17:22 | 0° $\Re$               |            | asc. node        | 8383 Nov 17 01:28 | 10° $\mathbb{M}$ 35'26 |            |
| morning set      | 8382 Dec 18 11:15 | 21° $\Re$ 39'15        |            |                  | 8383 Nov 29 08:24 | 0° $\Re$               |            |
|                  | 8382 Dec 22 21:11 | 0° $\Re$               |            | morning set      | 8383 Dec 02 09:53 | 5° $\Re$ 58'13         |            |
| superior conj    | 8382 Dec 27 20:28 | 9° $\Re$ 11'17         | 0°50'38    | superior conj    | 8383 Dec 10 19:01 | 22° $\Re$ 23'20        | 1°15'29    |
| minimum elong    | 8382 Dec 27 23:44 | 9° $\Re$ 26'04         | 0°50'22    | minimum elong    | 8383 Dec 10 22:13 | 22° $\Re$ 38'39        | 1°15'18    |
| desc. node       | 8383 Jan 03 20:10 | 21° $\Re$ 29'43        |            |                  | 8383 Dec 14 20:17 | 0° $\Re$               |            |
| max. Earth dist. | 8383 Jan 04 11:20 | 22° $\Re$ 34'18        | 1.41142 AU | max. Earth dist. | 8383 Dec 17 17:20 | 5° $\Re$ 13'06         | 1.38992 AU |
|                  | 8383 Jan 08 22:20 | 0° $\approx$           |            | evening rise     | 8383 Dec 21 13:44 | 11° $\Re$ 57'28        |            |
| evening rise     | 8383 Jan 09 05:30 | 0° $\approx$ 29'16     |            | desc. node       | 8383 Dec 21 17:10 | 12° $\Re$ 12'09        |            |
|                  | 8383 Jan 28 18:28 | 0° $\Re$               |            |                  | 8384 Jan 01 16:51 | 0° $\approx$           |            |
| evening max el   | 8383 Feb 12 06:47 | 17° $\Re$ 58'31        | 23°11'23   |                  | 8384 Jan 24 03:39 | 0° $\Re$               |            |
|                  |                   |                        |            | evening max el   | 8384 Jan 25 20:22 | 1° $\Re$ 44'29         | 24°30'50   |



|                  |                   |                          |            |                     |                   |                           |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|---------------------------|------------|
| retrograde       | 8384 Feb 06 08:00 | 8° $\text{H}$ 27'34      |            | evening set         | 8385 Jan 25 18:54 | 20° $\approx$ 10'20       |            |
| evening set      | 8384 Feb 11 19:16 | 6° $\text{H}$ 10'45      |            | asc. node           | 8385 Jan 29 21:41 | 15° $\approx$ 45'25       |            |
| asc. node        | 8384 Feb 13 00:36 | 5° $\text{H}$ 01'42      |            | min. Earth dist.    | 8385 Jan 30 02:41 | 15° $\approx$ 29'47       | 0.67236 AU |
| min. Earth dist. | 8384 Feb 16 09:57 | 0° $\text{H}$ 55'35      | 0.68007 AU | inferior conj       | 8385 Jan 31 12:05 | 13° $\approx$ 43'49       | 0°31'42    |
| inferior conj    | 8384 Feb 17 07:58 | 29° $\approx$ 41'58      | 1°22'31    | minimum elong       | 8385 Jan 31 11:17 | 13° $\approx$ 46'20       | 0°31'31    |
| minimum elong    | 8384 Feb 17 06:12 | 29° $\approx$ 47'54      | 1°21'57    | morning rise        | 8385 Feb 06 04:09 | 7° $\approx$ 52'14        |            |
|                  | 8384 Feb 17 02:35 | 30° $\text{R}$ $\approx$ |            | direct              | 8385 Feb 09 11:40 | 6° $\approx$ 49'15        |            |
| morning rise     | 8384 Feb 22 17:16 | 23° $\approx$ 41'54      |            | morning max el      | 8385 Feb 16 08:23 | 10° $\approx$ 35'03       | 19°01'00   |
| direct           | 8384 Feb 26 12:28 | 22° $\approx$ 19'14      |            | greatest brilliancy | 8385 Mar 02 06:02 | 29° $\approx$ 22'48       | -0.8m      |
| morning max el   | 8384 Mar 05 01:44 | 26° $\approx$ 34'02      | 19°58'45   |                     | 8385 Mar 02 15:48 | 0° $\text{H}$             |            |
|                  | 8384 Mar 08 04:37 | 0° $\text{H}$            |            | desc. node          | 8385 Mar 05 13:46 | 4° $\text{H}$ 28'24       |            |
| desc. node       | 8384 Mar 18 16:50 | 14° $\text{H}$ 19'43     |            | morning set         | 8385 Mar 11 04:32 | 13° $\text{H}$ 10'10      |            |
|                  | 8384 Mar 29 03:13 | 0° $\text{Y}$            |            |                     | 8385 Mar 21 23:47 | 0° $\text{Y}$             |            |
| morning set      | 8384 Apr 01 00:14 | 4° $\text{Y}$ 24'56      |            | max. Earth dist.    | 8385 Mar 25 09:39 | 5° $\text{Y}$ 20'47       | 1.45216 AU |
| max. Earth dist. | 8384 Apr 11 17:43 | 21° $\text{Y}$ 12'57     | 1.44179 AU |                     |                   |                           |            |
|                  |                   |                          |            | superior conj       | 8385 Mar 27 18:21 | 9° $\text{Y}$ 03'55       | -2°02'14   |
| superior conj    | 8384 Apr 17 03:27 | 29° $\text{Y}$ 55'28     | -2°11'57   | minimum elong       | 8385 Mar 27 11:28 | 8° $\text{Y}$ 36'48       | 2°01'53    |
| minimum elong    | 8384 Apr 17 03:35 | 29° $\text{Y}$ 56'00     | 2°12'03    |                     | 8385 Apr 09 20:07 | 0° $\text{B}$             |            |
|                  | 8384 Apr 17 04:34 | 0° $\text{B}$            |            | evening rise        | 8385 Apr 11 15:00 | 2° $\text{B}$ 54'41       |            |
| evening rise     | 8384 Apr 30 07:34 | 22° $\text{B}$ 00'03     |            | asc. node           | 8385 Apr 27 20:31 | 28° $\text{B}$ 21'21      |            |
|                  | 8384 May 04 23:39 | 0° $\text{II}$           |            |                     | 8385 Apr 29 03:05 | 0° $\text{II}$            |            |
| asc. node        | 8384 May 10 23:27 | 9° $\text{II}$ 53'09     |            | evening max el      | 8385 May 01 15:50 | 2° $\text{II}$ 51'28      | 18°29'37   |
| evening max el   | 8384 May 18 03:10 | 19° $\text{II}$ 22'03    | 18°08'56   | retrograde          | 8385 May 08 03:13 | 6° $\text{II}$ 22'12      |            |
| retrograde       | 8384 May 24 12:35 | 22° $\text{II}$ 43'06    |            | evening set         | 8385 May 11 06:32 | 5° $\text{II}$ 27'07      |            |
| evening set      | 8384 May 27 08:33 | 22° $\text{II}$ 01'51    |            |                     | 8385 May 16 23:06 | 30° $\text{R}$ $\text{B}$ |            |
| inferior conj    | 8384 Jun 02 12:28 | 16° $\text{II}$ 47'43    | 2°56'26    | inferior conj       | 8385 May 17 00:38 | 29° $\text{B}$ 55'28      | 3°18'07    |
| minimum elong    | 8384 Jun 02 14:51 | 16° $\text{II}$ 41'21    | 2°55'50    | minimum elong       | 8385 May 17 01:43 | 29° $\text{B}$ 52'14      | 3°17'53    |
| min. Earth dist. | 8384 Jun 05 07:08 | 13° $\text{II}$ 49'36    | 0.62822 AU | min. Earth dist.    | 8385 May 19 04:27 | 27° $\text{B}$ 21'52      | 0.64778 AU |
| morning rise     | 8384 Jun 08 19:30 | 10° $\text{II}$ 38'36    |            | morning rise        | 8385 May 22 20:03 | 23° $\text{B}$ 39'20      |            |
| desc. node       | 8384 Jun 14 16:26 | 8° $\text{II}$ 08'50     |            | direct              | 8385 May 29 11:42 | 20° $\text{B}$ 54'25      |            |
| direct           | 8384 Jun 15 13:56 | 8° $\text{II}$ 06'17     |            | desc. node          | 8385 Jun 01 13:26 | 21° $\text{B}$ 25'04      |            |
| morning max el   | 8384 Jun 29 14:41 | 16° $\text{II}$ 09'13    | 27°51'47   | morning max el      | 8385 Jun 12 00:33 | 28° $\text{B}$ 50'59      | 27°18'11   |
|                  | 8384 Jul 10 23:48 | 0° $\text{E}$            |            |                     | 8385 Jun 13 03:15 | 0° $\text{II}$            |            |
|                  | 8384 Jul 29 05:17 | 0° $\text{Q}$            |            |                     | 8385 Jul 04 20:06 | 0° $\text{E}$             |            |
| morning set      | 8384 Aug 02 20:48 | 9° $\text{Q}$ 05'16      |            | morning set         | 8385 Jul 17 10:34 | 22° $\text{E}$ 38'02      |            |
| asc. node        | 8384 Aug 06 22:46 | 17° $\text{Q}$ 32'09     |            |                     | 8385 Jul 21 03:17 | 0° $\text{Q}$             |            |
| max. Earth dist. | 8384 Aug 08 03:56 | 20° $\text{Q}$ 07'22     | 1.32345 AU | max. Earth dist.    | 8385 Jul 22 00:44 | 1° $\text{Q}$ 49'42       | 1.33420 AU |
|                  |                   |                          |            | asc. node           | 8385 Jul 24 19:44 | 7° $\text{Q}$ 38'26       |            |
| superior conj    | 8384 Aug 10 12:49 | 25° $\text{Q}$ 14'26     | 0°35'46    |                     |                   |                           |            |
| minimum elong    | 8384 Aug 10 11:15 | 25° $\text{Q}$ 05'52     | 0°35'20    | superior conj       | 8385 Jul 25 16:40 | 9° $\text{Q}$ 29'00       | 0°08'49    |
|                  | 8384 Aug 12 17:10 | 0° $\text{M}$            |            | minimum elong       | 8385 Jul 25 16:13 | 9° $\text{Q}$ 26'39       | 0°08'35    |
| evening rise     | 8384 Aug 17 10:01 | 10° $\text{M}$ 12'36     |            | behind sun begin    | 8385 Jul 25 11:30 | 9° $\text{Q}$ 01'43       |            |
|                  | 8384 Aug 27 11:52 | 0° $\text{A}$            |            | behind sun end      | 8385 Jul 25 20:55 | 9° $\text{Q}$ 51'37       |            |
| evening max el   | 8384 Sep 10 09:23 | 18° $\text{A}$ 58'50     | 23°47'28   | evening rise        | 8385 Aug 01 21:07 | 24° $\text{Q}$ 49'36      |            |
| desc. node       | 8384 Sep 10 15:19 | 19° $\text{A}$ 13'03     |            |                     | 8385 Aug 04 08:40 | 0° $\text{M}$             |            |
| retrograde       | 8384 Sep 24 00:29 | 25° $\text{A}$ 48'05     |            | evening max el      | 8385 Aug 22 22:38 | 29° $\text{M}$ 12'24      | 22°08'30   |
| evening set      | 8384 Sep 28 13:28 | 25° $\text{A}$ 02'59     |            |                     | 8385 Aug 23 18:41 | 0° $\text{A}$             |            |
| min. Earth dist. | 8384 Oct 04 19:48 | 22° $\text{A}$ 01'53     | 0.55876 AU | desc. node          | 8385 Aug 28 12:24 | 3° $\text{A}$ 31'45       |            |
| inferior conj    | 8384 Oct 06 22:49 | 20° $\text{A}$ 45'05     | -5°35'10   | retrograde          | 8385 Sep 04 17:30 | 5° $\text{A}$ 33'57       |            |
| minimum elong    | 8384 Oct 06 21:48 | 20° $\text{A}$ 46'36     | 5°35'05    | evening set         | 8385 Sep 07 19:01 | 5° $\text{A}$ 13'08       |            |
| morning rise     | 8384 Oct 15 08:15 | 16° $\text{A}$ 49'32     |            | min. Earth dist.    | 8385 Sep 16 03:58 | 1° $\text{A}$ 34'41       | 0.54869 AU |
| direct           | 8384 Oct 18 03:22 | 16° $\text{A}$ 29'50     |            | inferior conj       | 8385 Sep 16 20:32 | 1° $\text{A}$ 11'26       | -5°00'40   |
| morning max el   | 8384 Oct 28 11:00 | 21° $\text{A}$ 20'58     | 20°05'11   | minimum elong       | 8385 Sep 16 12:31 | 1° $\text{A}$ 22'41       | 4°59'11    |
| asc. node        | 8384 Nov 02 22:27 | 27° $\text{A}$ 48'18     |            |                     | 8385 Sep 19 00:13 | 30° $\text{R}$ $\text{M}$ |            |
|                  | 8384 Nov 04 10:27 | 0° $\text{M}$            |            | morning rise        | 8385 Sep 25 07:34 | 27° $\text{M}$ 23'27      |            |
| morning set      | 8384 Nov 15 15:05 | 20° $\text{M}$ 33'51     |            | direct              | 8385 Sep 28 16:22 | 26° $\text{M}$ 58'14      |            |
|                  | 8384 Nov 20 05:37 | 0° $\text{J}$            |            |                     | 8385 Oct 07 09:58 | 0° $\text{A}$             |            |
| superior conj    | 8384 Nov 23 07:27 | 6° $\text{J}$ 14'09      | 1°31'35    | morning max el      | 8385 Oct 10 13:09 | 2° $\text{A}$ 33'02       | 21°32'55   |
| minimum elong    | 8384 Nov 23 09:39 | 6° $\text{J}$ 25'11      | 1°31'34    | asc. node           | 8385 Oct 20 19:25 | 15° $\text{A}$ 53'21      |            |
| max. Earth dist. | 8384 Nov 28 23:33 | 17° $\text{J}$ 18'23     | 1.36866 AU |                     | 8385 Oct 28 10:13 | 0° $\text{M}$             |            |
| evening rise     | 8384 Dec 02 18:36 | 24° $\text{J}$ 19'50     |            | morning set         | 8385 Oct 31 00:19 | 5° $\text{M}$ 19'19       |            |
|                  | 8384 Dec 05 23:17 | 0° $\text{Z}$            |            |                     |                   |                           |            |
| desc. node       | 8384 Dec 07 14:11 | 2° $\text{Z}$ 47'33      |            | superior conj       | 8385 Nov 07 05:47 | 20° $\text{M}$ 32'35      | 1°39'47    |
|                  | 8384 Dec 25 08:31 | 0° $\approx$             |            | minimum elong       | 8385 Nov 07 06:40 | 20° $\text{M}$ 37'12      | 1°39'53    |
| evening max el   | 8385 Jan 07 09:34 | 15° $\approx$ 32'21      | 25°43'35   | max. Earth dist.    | 8385 Nov 11 11:10 | 29° $\text{M}$ 11'48      | 1.34980 AU |
| retrograde       | 8385 Jan 19 19:00 | 22° $\approx$ 38'06      |            |                     | 8385 Nov 11 20:49 | 0° $\text{J}$             |            |
|                  |                   |                          |            | evening rise        | 8385 Nov 15 16:34 | 7° $\text{J}$ 27'20       |            |

|                     |                   |                      |  |                     |                   |                      |
|---------------------|-------------------|----------------------|--|---------------------|-------------------|----------------------|
| desc. node          | 8385 Nov 24 11:13 | 23°♊11'19            |  | 8386 Nov 03 18:00   | 0°♊               |                      |
|                     | 8385 Nov 28 15:08 | 0°♊                  |  | desc. node          | 8386 Nov 11 08:16 | 13°♊17'51            |
| evening max el      | 8385 Dec 20 22:54 | 29°♊15'33 26°42'10   |  | 8386 Nov 22 12:27   | 0°♊               |                      |
|                     | 8385 Dec 21 17:42 | 0°♊                  |  | evening max el      | 8386 Dec 03 11:39 | 12°♊44'10 27°19'22   |
| retrograde          | 8386 Jan 03 00:24 | 6°♊32'55             |  | retrograde          | 8386 Dec 16 23:50 | 20°♊04'33            |
| evening set         | 8386 Jan 09 12:15 | 3°♊58'07             |  | evening set         | 8386 Dec 23 21:10 | 17°♊28'55            |
|                     | 8386 Jan 13 11:12 | 30°♊                 |  | min. Earth dist.    | 8386 Dec 27 17:20 | 13°♊56'42 0.64605 AU |
| min. Earth dist.    | 8386 Jan 13 13:52 | 29°♊52'19 0.66096 AU |  | inferior conj       | 8386 Dec 30 02:06 | 11°♊23'57 -1°31'39   |
| inferior conj       | 8386 Jan 15 10:54 | 27°♊39'29 -0°26'42   |  | minimum elong       | 8386 Dec 30 04:54 | 11°♊16'24 1°30'18    |
| minimum elong       | 8386 Jan 15 11:39 | 27°♊37'17 0°26'12    |  | asc. node           | 8387 Jan 03 15:47 | 7°♊04'39             |
| asc. node           | 8386 Jan 16 18:44 | 26°♊06'59            |  | morning rise        | 8387 Jan 05 14:10 | 5°♊57'04             |
| morning rise        | 8386 Jan 21 11:59 | 21°♊58'49            |  | direct              | 8387 Jan 08 03:29 | 5°♊23'20             |
| direct              | 8386 Jan 24 09:26 | 21°♊12'20            |  | morning max el      | 8387 Jan 14 13:59 | 8°♊45'54 17°55'04    |
| morning max el      | 8386 Jan 30 21:19 | 24°♊41'07 18°19'36   |  |                     | 8387 Jan 29 00:58 | 0°♊                  |
|                     | 8386 Feb 04 08:41 | 0°♊                  |  | morning set         | 8387 Jan 31 21:15 | 4°♊46'00             |
| morning set         | 8386 Feb 19 10:14 | 23°♊14'37            |  | desc. node          | 8387 Feb 07 07:38 | 15°♊27'46            |
| desc. node          | 8386 Feb 20 10:42 | 24°♊52'34            |  |                     |                   |                      |
|                     | 8386 Feb 23 15:40 | 0°♊                  |  | superior conj       | 8387 Feb 14 13:18 | 27°♊12'28 -0°50'47   |
| superior conj       | 8386 Mar 06 23:09 | 17°♊51'46 -1°32'50   |  | minimum elong       | 8387 Feb 14 07:28 | 26°♊49'05 0°49'54    |
| minimum elong       | 8386 Mar 06 13:36 | 17°♊14'20 1°31'49    |  |                     | 8387 Feb 16 07:18 | 0°♊                  |
| max. Earth dist.    | 8386 Mar 08 05:12 | 19°♊49'28 1.45530 AU |  | max. Earth dist.    | 8387 Feb 19 00:53 | 4°♊19'40 1.45095 AU  |
|                     | 8386 Mar 14 17:23 | 0°♊                  |  | evening rise        | 8387 Mar 02 14:29 | 22°♊18'39            |
| evening rise        | 8386 Mar 22 23:13 | 12°♊54'13            |  |                     | 8387 Mar 07 15:06 | 0°♊                  |
| greatest brilliancy | 8386 Apr 02 16:07 | 29°♊36'29 -0.8m      |  | greatest brilliancy | 8387 Mar 17 08:09 | 14°♊33'25 -0.6m      |
|                     | 8386 Apr 02 22:15 | 0°♊                  |  | evening max el      | 8387 Mar 29 05:47 | 0°♊05'05 20°01'43    |
| asc. node           | 8386 Apr 14 17:35 | 16°♊07'13            |  |                     | 8387 Mar 29 03:47 | 0°♊                  |
| evening max el      | 8386 Apr 15 01:15 | 16°♊26'53 19°07'43   |  | asc. node           | 8387 Apr 01 14:41 | 2°♊58'38             |
| retrograde          | 8386 Apr 21 23:06 | 20°♊19'52            |  | retrograde          | 8387 Apr 05 21:26 | 4°♊30'46             |
| evening set         | 8386 Apr 25 10:06 | 19°♊10'14            |  | evening set         | 8387 Apr 09 16:55 | 3°♊06'13             |
| inferior conj       | 8386 Apr 30 21:51 | 13°♊22'35 3°23'04    |  |                     | 8387 Apr 12 19:21 | 30°♊                 |
| minimum elong       | 8386 Apr 30 21:39 | 13°♊23'16 3°22'57    |  | inferior conj       | 8387 Apr 15 01:14 | 27°♊04'28 3°14'40    |
| min. Earth dist.    | 8386 May 02 10:16 | 11°♊25'51 0.66351 AU |  | minimum elong       | 8387 Apr 14 23:58 | 27°♊08'45 3°14'26    |
| morning rise        | 8386 May 06 08:46 | 7°♊04'23             |  | min. Earth dist.    | 8387 Apr 15 23:08 | 25°♊50'29 0.67487 AU |
| direct              | 8386 May 12 16:07 | 4°♊18'57             |  | morning rise        | 8387 Apr 20 06:47 | 20°♊47'13            |
| desc. node          | 8386 May 19 10:26 | 6°♊46'54             |  | direct              | 8387 Apr 26 02:26 | 18°♊11'23            |
| morning max el      | 8386 May 25 10:57 | 11°♊55'59 26°16'28   |  | desc. node          | 8387 May 06 07:26 | 23°♊43'38            |
|                     | 8386 Jun 08 21:43 | 0°♊                  |  | morning max el      | 8387 May 07 20:32 | 25°♊14'06 24°55'54   |
|                     | 8386 Jun 27 11:26 | 0°♊                  |  |                     | 8387 May 12 04:20 | 0°♊                  |
| morning set         | 8386 Jun 30 11:59 | 5°♊32'34             |  | morning set         | 8387 Jun 02 09:35 | 0°♊                  |
| max. Earth dist.    | 8386 Jul 04 11:00 | 13°♊06'02 1.34969 AU |  |                     | 8387 Jun 12 20:34 | 17°♊37'18            |
|                     |                   |                      |  | max. Earth dist.    | 8387 Jun 16 11:25 | 24°♊10'15 1.36932 AU |
|                     |                   |                      |  |                     | 8387 Jun 19 14:08 | 0°♊                  |
| superior conj       | 8386 Jul 09 13:25 | 23°♊18'39 -0°21'19   |  | superior conj       | 8387 Jun 23 00:08 | 6°♊35'56 -0°53'09    |
| minimum elong       | 8386 Jul 09 14:38 | 23°♊24'55 0°21'14    |  | minimum elong       | 8387 Jun 23 03:24 | 6°♊51'56 0°52'45     |
| asc. node           | 8386 Jul 11 16:42 | 27°♊42'59            |  |                     | 8387 Jun 28 13:43 | 17°♊42'04            |
| evening rise        | 8386 Jul 12 19:04 | 9°♊15'21             |  | asc. node           | 8387 Jul 01 09:26 | 23°♊23'29            |
|                     | 8386 Jul 28 06:58 | 0°♊                  |  | evening rise        | 8387 Jul 04 17:25 | 0°♊                  |
| evening max el      | 8386 Aug 04 21:32 | 9°♊50'09 20°40'18    |  | evening max el      | 8387 Jul 18 09:47 | 21°♊11'23 19°30'50   |
| desc. node          | 8386 Aug 15 09:30 | 15°♊25'08            |  | retrograde          | 8387 Jul 28 00:59 | 25°♊56'50            |
| retrograde          | 8386 Aug 16 05:39 | 15°♊26'54            |  | evening set         | 8387 Jul 29 21:23 | 25°♊47'04            |
| evening set         | 8386 Aug 18 07:57 | 15°♊16'11            |  | desc. node          | 8387 Aug 02 06:37 | 24°♊43'28            |
| inferior conj       | 8386 Aug 27 13:05 | 11°♊19'15 -3°33'30   |  | inferior conj       | 8387 Aug 07 15:09 | 21°♊41'40 -1°38'28   |
| minimum elong       | 8386 Aug 27 03:59 | 11°♊32'16 3°30'40    |  | minimum elong       | 8387 Aug 07 10:41 | 21°♊48'48 1°36'52    |
| min. Earth dist.    | 8386 Aug 28 13:06 | 10°♊44'48 0.54752 AU |  | min. Earth dist.    | 8387 Aug 10 01:27 | 20°♊08'44 0.55584 AU |
| morning rise        | 8386 Sep 04 23:51 | 7°♊18'46             |  | morning rise        | 8387 Aug 15 21:30 | 17°♊09'51            |
| direct              | 8386 Sep 09 00:37 | 6°♊43'58             |  | direct              | 8387 Aug 20 17:25 | 16°♊17'26            |
| morning max el      | 8386 Sep 22 05:09 | 13°♊04'36 23°15'51   |  | morning max el      | 8387 Sep 03 17:38 | 23°♊18'52 25°00'47   |
|                     | 8386 Oct 05 00:54 | 0°♊                  |  |                     | 8387 Sep 09 18:14 | 0°♊                  |
| asc. node           | 8386 Oct 07 16:22 | 4°♊38'14             |  | asc. node           | 8387 Sep 24 13:20 | 23°♊52'42            |
| morning set         | 8386 Oct 15 11:40 | 20°♊09'12            |  |                     | 8387 Sep 27 14:34 | 0°♊                  |
|                     | 8386 Oct 20 01:32 | 0°♊                  |  | morning set         | 8387 Sep 29 23:20 | 4°♊57'47             |
| superior conj       | 8386 Oct 22 10:53 | 5°♊09'35 1°41'01     |  | superior conj       | 8387 Oct 06 20:12 | 19°♊56'54 1°36'05    |
| minimum elong       | 8386 Oct 22 10:30 | 5°♊07'34 1°41'07     |  | minimum elong       | 8387 Oct 06 18:48 | 19°♊49'18 1°36'03    |
| max. Earth dist.    | 8386 Oct 25 06:50 | 11°♊11'19 1.33469 AU |  | max. Earth dist.    | 8387 Oct 08 10:06 | 23°♊24'08 1.32402 AU |
| evening rise        | 8386 Oct 30 03:48 | 21°♊10'24            |  |                     | 8387 Oct 11 11:40 | 0°♊                  |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| evening rise     | 8387 Oct 14 00:51 | 5° $\mathbb{M}$ 19'32         |            | morning set      | 8388 Sep 13 09:46 | 19° $\mathbb{M}$ 40'31        |            |
|                  | 8387 Oct 27 08:54 | 0° $\mathbb{A}$               |            |                  | 8388 Sep 18 03:41 | 0° $\mathbb{A}$               |            |
| desc. node       | 8387 Oct 29 05:20 | 2° $\mathbb{A}$ 59'03         |            |                  |                   |                               |            |
| evening max el   | 8387 Nov 15 22:09 | 25° $\mathbb{A}$ 45'35        | 27°28'39   | superior conj    | 8388 Sep 20 07:41 | 4° $\mathbb{A}$ 48'05         | 1°25'34    |
|                  | 8387 Nov 21 03:26 | 0° $\mathbb{B}$               |            | minimum elong    | 8388 Sep 20 05:39 | 4° $\mathbb{A}$ 36'48         | 1°25'21    |
| retrograde       | 8387 Nov 29 16:36 | 3° $\mathbb{B}$ 02'53         |            | max. Earth dist. | 8388 Sep 20 18:36 | 5° $\mathbb{A}$ 48'35         | 1.31797 AU |
| evening set      | 8387 Dec 06 18:44 | 0° $\mathbb{B}$ 35'17         |            | evening rise     | 8388 Sep 27 04:54 | 19° $\mathbb{A}$ 47'04        |            |
|                  | 8387 Dec 07 14:16 | 30° $\mathbb{R}$ $\mathbb{A}$ |            |                  | 8388 Oct 02 05:45 | 0° $\mathbb{M}$               |            |
| min. Earth dist. | 8387 Dec 10 11:19 | 27° $\mathbb{A}$ 32'32        | 0.62806 AU | desc. node       | 8388 Oct 15 02:27 | 22° $\mathbb{M}$ 04'44        |            |
| inferior conj    | 8387 Dec 13 06:50 | 24° $\mathbb{A}$ 49'40        | -2°41'07   |                  | 8388 Oct 20 20:26 | 0° $\mathbb{A}$               |            |
| minimum elong    | 8387 Dec 13 11:57 | 24° $\mathbb{A}$ 37'18        | 2°39'00    | evening max el   | 8388 Oct 28 04:04 | 8° $\mathbb{A}$ 07'58         | 27°05'11   |
| morning rise     | 8387 Dec 20 07:16 | 19° $\mathbb{A}$ 39'31        |            | retrograde       | 8388 Nov 11 01:35 | 15° $\mathbb{A}$ 18'48        |            |
| asc. node        | 8387 Dec 21 12:51 | 19° $\mathbb{A}$ 20'15        |            | evening set      | 8388 Nov 18 01:13 | 13° $\mathbb{A}$ 09'59        |            |
| direct           | 8387 Dec 22 14:46 | 19° $\mathbb{A}$ 14'47        |            | min. Earth dist. | 8388 Nov 21 18:48 | 10° $\mathbb{A}$ 28'08        | 0.60790 AU |
| morning max el   | 8387 Dec 29 07:17 | 22° $\mathbb{A}$ 40'34        | 17°47'57   | inferior conj    | 8388 Nov 24 21:52 | 7° $\mathbb{A}$ 48'37         | -3°50'42   |
|                  | 8388 Jan 04 00:39 | 0° $\mathbb{B}$               |            | minimum elong    | 8388 Nov 25 04:52 | 7° $\mathbb{A}$ 33'44         | 3°48'22    |
| morning set      | 8388 Jan 14 08:29 | 17° $\mathbb{B}$ 26'32        |            | morning rise     | 8388 Dec 02 10:52 | 2° $\mathbb{A}$ 58'12         |            |
|                  | 8388 Jan 21 13:30 | 0° $\approx$                  |            | direct           | 8388 Dec 04 15:45 | 2° $\mathbb{A}$ 38'49         |            |
| desc. node       | 8388 Jan 25 04:34 | 6° $\approx$ 09'20            |            | asc. node        | 8388 Dec 07 09:53 | 3° $\mathbb{A}$ 10'27         |            |
|                  |                   |                               |            | morning max el   | 8388 Dec 11 21:50 | 6° $\mathbb{A}$ 16'26         | 17°59'20   |
| superior conj    | 8388 Jan 26 02:12 | 7° $\approx$ 39'51            | -0°06'37   |                  | 8388 Dec 27 01:05 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8388 Jan 26 01:32 | 7° $\approx$ 37'06            | 0°06'22    | morning set      | 8388 Dec 27 13:28 | 0° $\mathbb{B}$ 57'08         |            |
| behind sun begin | 8388 Jan 25 17:04 | 7° $\approx$ 01'41            |            |                  |                   |                               |            |
| behind sun end   | 8388 Jan 26 10:01 | 8° $\approx$ 12'26            |            | superior conj    | 8389 Jan 06 16:32 | 19° $\mathbb{B}$ 19'47        | 0°32'10    |
| max. Earth dist. | 8388 Feb 01 17:48 | 18° $\approx$ 33'17           | 1.43971 AU | minimum elong    | 8389 Jan 06 19:03 | 19° $\mathbb{B}$ 30'52        | 0°31'58    |
|                  | 8388 Feb 08 23:50 | 0° $\mathbb{H}$               |            | desc. node       | 8389 Jan 11 01:32 | 26° $\mathbb{B}$ 53'58        |            |
| evening rise     | 8388 Feb 10 02:11 | 1° $\mathbb{H}$ 41'59         |            |                  | 8389 Jan 12 21:37 | 0° $\approx$                  |            |
|                  | 8388 Feb 29 04:57 | 0° $\mathbb{Y}$               |            | max. Earth dist. | 8389 Jan 14 06:26 | 2° $\approx$ 16'51            | 1.42291 AU |
| evening max el   | 8388 Mar 11 04:47 | 13° $\mathbb{Y}$ 44'25        | 21°09'02   | evening rise     | 8389 Jan 20 01:23 | 11° $\approx$ 40'53           |            |
| asc. node        | 8388 Mar 18 11:48 | 18° $\mathbb{Y}$ 40'29        |            |                  | 8389 Feb 01 00:47 | 0° $\mathbb{H}$               |            |
| retrograde       | 8388 Mar 19 19:54 | 18° $\mathbb{Y}$ 49'37        |            | evening max el   | 8389 Feb 21 22:53 | 27° $\mathbb{H}$ 25'43        | 22°25'31   |
| evening set      | 8388 Mar 24 01:01 | 17° $\mathbb{Y}$ 09'59        |            |                  | 8389 Feb 24 17:55 | 0° $\mathbb{Y}$               |            |
| inferior conj    | 8388 Mar 29 08:18 | 10° $\mathbb{Y}$ 56'32        | 2°55'12    | retrograde       | 8389 Mar 03 16:41 | 3° $\mathbb{Y}$ 12'10         |            |
| minimum elong    | 8388 Mar 29 06:20 | 11° $\mathbb{Y}$ 03'22        | 2°54'46    | asc. node        | 8389 Mar 05 08:56 | 2° $\mathbb{Y}$ 57'58         |            |
| min. Earth dist. | 8388 Mar 29 16:53 | 10° $\mathbb{Y}$ 26'45        | 0.68174 AU | evening set      | 8389 Mar 08 08:44 | 1° $\mathbb{Y}$ 17'26         |            |
| morning rise     | 8388 Apr 03 11:26 | 4° $\mathbb{Y}$ 42'15         |            |                  | 8389 Mar 09 17:25 | 30° $\mathbb{R}$ $\mathbb{H}$ |            |
| direct           | 8388 Apr 08 17:39 | 2° $\mathbb{Y}$ 23'20         |            | inferior conj    | 8389 Mar 13 16:55 | 24° $\mathbb{H}$ 55'13        | 2°26'04    |
| morning max el   | 8388 Apr 19 05:51 | 8° $\mathbb{Y}$ 38'58         | 23°26'46   | minimum elong    | 8389 Mar 13 14:40 | 25° $\mathbb{H}$ 03'04        | 2°25'28    |
| desc. node       | 8388 Apr 22 04:24 | 11° $\mathbb{Y}$ 49'02        |            | min. Earth dist. | 8389 Mar 13 13:11 | 25° $\mathbb{H}$ 08'13        | 0.68432 AU |
|                  | 8388 May 05 23:39 | 0° $\mathbb{B}$               |            | morning rise     | 8389 Mar 18 20:26 | 18° $\mathbb{H}$ 45'26        |            |
| morning set      | 8388 May 24 06:53 | 28° $\mathbb{B}$ 38'01        |            | direct           | 8389 Mar 23 12:42 | 16° $\mathbb{H}$ 47'41        |            |
|                  | 8388 May 25 02:15 | 0° $\mathbb{I}$               |            | morning max el   | 8389 Apr 01 17:53 | 22° $\mathbb{H}$ 11'10        | 21°58'35   |
| max. Earth dist. | 8388 May 28 07:16 | 5° $\mathbb{I}$ 31'34         | 1.39148 AU |                  | 8389 Apr 08 11:42 | 0° $\mathbb{Y}$               |            |
|                  |                   |                               |            | desc. node       | 8389 Apr 09 01:20 | 0° $\mathbb{Y}$ 43'49         |            |
| superior conj    | 8388 Jun 04 21:05 | 19° $\mathbb{I}$ 12'10        | -1°24'22   |                  | 8389 Apr 29 06:59 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8388 Jun 05 02:15 | 19° $\mathbb{I}$ 36'15        | 1°23'48    | morning set      | 8389 May 04 14:04 | 8° $\mathbb{B}$ 22'17         |            |
|                  | 8388 Jun 10 13:27 | 0° $\mathbb{B}$               |            | max. Earth dist. | 8389 May 10 06:05 | 17° $\mathbb{B}$ 39'20        | 1.41366 AU |
| evening rise     | 8388 Jun 14 05:33 | 7° $\mathbb{B}$ 06'35         |            |                  | 8389 May 17 10:58 | 0° $\mathbb{I}$               |            |
| asc. node        | 8388 Jun 14 10:45 | 7° $\mathbb{B}$ 31'46         |            |                  |                   |                               |            |
|                  | 8388 Jun 27 12:50 | 0° $\mathbb{Q}$               |            | superior conj    | 8389 May 17 23:40 | 0° $\mathbb{I}$ 55'57         | -1°51'18   |
| evening max el   | 8388 Jun 30 09:55 | 3° $\mathbb{Q}$ 17'03         | 18°42'12   | minimum elong    | 8389 May 18 05:29 | 1° $\mathbb{I}$ 21'35         | 1°50'56    |
| retrograde       | 8388 Jul 08 12:58 | 7° $\mathbb{Q}$ 19'00         |            | evening rise     | 8389 May 28 14:21 | 20° $\mathbb{I}$ 14'46        |            |
| evening set      | 8388 Jul 10 13:51 | 7° $\mathbb{Q}$ 04'43         |            | asc. node        | 8389 Jun 01 07:49 | 27° $\mathbb{I}$ 06'48        |            |
| inferior conj    | 8388 Jul 18 12:37 | 2° $\mathbb{Q}$ 41'45         | 0°11'21    |                  | 8389 Jun 02 22:12 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8388 Jul 18 13:03 | 2° $\mathbb{Q}$ 40'57         | 0°11'01    | evening max el   | 8389 Jun 13 18:05 | 15° $\mathbb{B}$ 57'36        | 18°13'56   |
| transit middle   | 8388 Jul 18 13:03 | 2° $\mathbb{Q}$ 40'57         | 0°11'01    | retrograde       | 8389 Jun 20 19:57 | 19° $\mathbb{B}$ 31'21        |            |
| transit begin    | 8388 Jul 18 10:23 | 2° $\mathbb{Q}$ 45'55         |            | evening set      | 8389 Jun 23 04:17 | 19° $\mathbb{B}$ 08'34        |            |
| transit end      | 8388 Jul 18 15:44 | 2° $\mathbb{Q}$ 35'58         |            | inferior conj    | 8389 Jun 30 07:43 | 14° $\mathbb{B}$ 24'48        | 1°36'54    |
| desc. node       | 8388 Jul 19 03:43 | 2° $\mathbb{Q}$ 13'34         |            | minimum elong    | 8389 Jun 30 10:29 | 14° $\mathbb{B}$ 18'45        | 1°35'49    |
| min. Earth dist. | 8388 Jul 21 18:14 | 0° $\mathbb{Q}$ 18'21         | 0.57210 AU | min. Earth dist. | 8389 Jul 03 16:55 | 11° $\mathbb{B}$ 29'33        | 0.59323 AU |
|                  | 8388 Jul 22 04:41 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | desc. node       | 8389 Jul 06 00:47 | 9° $\mathbb{B}$ 43'01         |            |
| morning rise     | 8388 Jul 26 08:45 | 27° $\mathbb{B}$ 32'54        |            | morning rise     | 8389 Jul 07 13:37 | 8° $\mathbb{B}$ 44'36         |            |
| direct           | 8388 Aug 01 00:56 | 26° $\mathbb{B}$ 13'31        |            | direct           | 8389 Jul 13 21:46 | 6° $\mathbb{B}$ 53'52         |            |
|                  | 8388 Aug 10 23:02 | 0° $\mathbb{Q}$               |            | morning max el   | 8389 Jul 28 06:32 | 14° $\mathbb{B}$ 43'39        | 27°31'48   |
| morning max el   | 8388 Aug 15 08:57 | 3° $\mathbb{Q}$ 44'35         | 26°30'54   |                  | 8389 Aug 09 14:08 | 0° $\mathbb{Q}$               |            |
|                  | 8388 Sep 03 08:14 | 0° $\mathbb{M}$               |            |                  | 8389 Aug 26 16:34 | 0° $\mathbb{M}$               |            |
| asc. node        | 8388 Sep 10 10:18 | 13° $\mathbb{M}$ 28'51        |            | asc. node        | 8389 Aug 28 07:16 | 3° $\mathbb{M}$ 19'33         |            |

|                  |                   |                               |            |                     |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| morning set      | 8389 Aug 28 17:11 | 4° $\mathbb{M}$ 11'25         |            |                     | 8390 Aug 18 06:49 | 0° $\mathbb{M}$               |            |
| max. Earth dist. | 8389 Sep 04 04:49 | 18° $\mathbb{M}$ 15'15        | 1.31648 AU | max. Earth dist.    | 8390 Aug 18 12:58 | 0° $\mathbb{M}$ 33'27         | 1.31961 AU |
| superior conj    | 8389 Sep 04 19:24 | 19° $\mathbb{M}$ 36'07        | 1°09'56    | superior conj       | 8390 Aug 20 05:35 | 4° $\mathbb{M}$ 15'40         | 0°49'31    |
| minimum elong    | 8389 Sep 04 17:09 | 19° $\mathbb{M}$ 23'37        | 1°09'32    | minimum elong       | 8390 Aug 20 03:37 | 4° $\mathbb{M}$ 04'49         | 0°49'03    |
|                  | 8389 Sep 09 12:24 | 0° $\mathbb{L}$               |            | evening rise        | 8390 Aug 27 00:31 | 19° $\mathbb{M}$ 07'02        |            |
| evening rise     | 8389 Sep 11 13:28 | 4° $\mathbb{L}$ 24'55         |            |                     | 8390 Sep 01 07:03 | 0° $\mathbb{L}$               |            |
|                  | 8389 Sep 25 00:44 | 0° $\mathbb{M}$               |            | desc. node          | 8390 Sep 18 20:40 | 27° $\mathbb{L}$ 25'30        |            |
| desc. node       | 8389 Oct 01 23:33 | 10° $\mathbb{M}$ 20'07        |            |                     | 8390 Sep 21 07:26 | 0° $\mathbb{M}$               |            |
| evening max el   | 8389 Oct 10 02:50 | 19° $\mathbb{M}$ 41'00        | 26°08'06   | evening max el      | 8390 Sep 21 17:35 | 0° $\mathbb{M}$ 24'37         | 24°43'20   |
| retrograde       | 8389 Oct 24 00:59 | 26° $\mathbb{M}$ 45'09        |            | retrograde          | 8390 Oct 05 13:11 | 7° $\mathbb{M}$ 21'42         |            |
| evening set      | 8389 Oct 30 11:54 | 25° $\mathbb{M}$ 05'19        |            | evening set         | 8390 Oct 10 22:27 | 6° $\mathbb{M}$ 16'50         |            |
| min. Earth dist. | 8389 Nov 03 15:50 | 22° $\mathbb{M}$ 30'38        | 0.58704 AU | min. Earth dist.    | 8390 Oct 16 04:41 | 3° $\mathbb{M}$ 30'52         | 0.56786 AU |
| inferior conj    | 8389 Nov 06 19:38 | 20° $\mathbb{M}$ 10'42        | -4°52'01   | inferior conj       | 8390 Oct 18 21:22 | 1° $\mathbb{M}$ 46'55         | -5°30'40   |
| minimum elong    | 8389 Nov 07 02:36 | 19° $\mathbb{M}$ 57'49        | 4°50'26    | minimum elong       | 8390 Oct 19 00:27 | 1° $\mathbb{M}$ 41'57         | 5°30'21    |
| morning rise     | 8389 Nov 14 19:36 | 15° $\mathbb{M}$ 42'40        |            |                     | 8390 Oct 21 18:21 | 30° $\mathbb{R}$ $\mathbb{L}$ |            |
| direct           | 8389 Nov 17 02:07 | 15° $\mathbb{M}$ 25'24        |            | morning rise        | 8390 Oct 27 04:40 | 27° $\mathbb{L}$ 41'28        |            |
| asc. node        | 8389 Nov 24 06:54 | 18° $\mathbb{M}$ 30'43        |            | direct              | 8390 Oct 29 17:52 | 27° $\mathbb{L}$ 23'27        |            |
| morning max el   | 8389 Nov 25 06:05 | 19° $\mathbb{M}$ 23'38        | 18°30'55   |                     | 8390 Nov 05 23:10 | 0° $\mathbb{M}$               |            |
|                  | 8389 Dec 03 02:28 | 0° $\mathbb{X}$               |            | morning max el      | 8390 Nov 08 04:26 | 1° $\mathbb{M}$ 51'54         | 19°24'22   |
| morning set      | 8389 Dec 11 06:51 | 15° $\mathbb{X}$ 02'05        |            | asc. node           | 8390 Nov 11 03:53 | 5° $\mathbb{M}$ 07'10         |            |
|                  | 8389 Dec 19 02:33 | 0° $\mathbb{Z}$               |            | morning set         | 8390 Nov 25 08:37 | 29° $\mathbb{M}$ 29'21        |            |
|                  |                   |                               |            |                     | 8390 Nov 25 14:44 | 0° $\mathbb{X}$               |            |
| superior conj    | 8389 Dec 20 04:46 | 2° $\mathbb{Z}$ 02'18         | 1°02'19    | superior conj       | 8390 Dec 03 09:46 | 15° $\mathbb{X}$ 32'35        | 1°23'21    |
| minimum elong    | 8389 Dec 20 08:11 | 2° $\mathbb{Z}$ 18'05         | 1°02'02    | minimum elong       | 8390 Dec 03 12:37 | 15° $\mathbb{X}$ 46'29        | 1°23'14    |
| max. Earth dist. | 8389 Dec 27 14:50 | 15° $\mathbb{Z}$ 21'46        | 1.40243 AU | max. Earth dist.    | 8390 Dec 09 20:41 | 27° $\mathbb{X}$ 46'00        | 1.38069 AU |
| desc. node       | 8389 Dec 28 22:32 | 17° $\mathbb{Z}$ 38'17        |            |                     | 8390 Dec 11 02:10 | 0° $\mathbb{Z}$               |            |
| evening rise     | 8389 Dec 31 20:52 | 22° $\mathbb{Z}$ 35'08        |            | evening rise        | 8390 Dec 13 14:10 | 4° $\mathbb{Z}$ 26'58         |            |
|                  | 8390 Jan 05 09:59 | 0° $\mathbb{A}$               |            | desc. node          | 8390 Dec 15 19:31 | 8° $\mathbb{Z}$ 18'15         |            |
|                  | 8390 Jan 26 00:25 | 0° $\mathbb{H}$               |            |                     | 8390 Dec 29 11:12 | 0° $\mathbb{A}$               |            |
| evening max el   | 8390 Feb 04 13:39 | 11° $\mathbb{H}$ 10'23        | 23°45'40   | evening max el      | 8391 Jan 18 02:47 | 24° $\mathbb{A}$ 57'14        | 25°03'03   |
| retrograde       | 8390 Feb 15 10:25 | 17° $\mathbb{H}$ 34'31        |            | retrograde          | 8391 Jan 24 07:52 | 0° $\mathbb{H}$               |            |
| asc. node        | 8390 Feb 20 06:01 | 15° $\mathbb{H}$ 42'45        |            |                     | 8391 Jan 30 00:05 | 1° $\mathbb{H}$ 51'12         |            |
| evening set      | 8390 Feb 20 14:33 | 15° $\mathbb{H}$ 25'15        |            | evening set         | 8391 Feb 04 01:25 | 30° $\mathbb{R}$ $\mathbb{A}$ |            |
| min. Earth dist. | 8390 Feb 25 09:47 | 9° $\mathbb{H}$ 50'32         | 0.68276 AU | asc. node           | 8391 Feb 04 16:54 | 29° $\mathbb{A}$ 29'03        |            |
| inferior conj    | 8390 Feb 26 01:14 | 8° $\mathbb{H}$ 57'49         | 1°48'08    | min. Earth dist.    | 8391 Feb 07 03:06 | 27° $\mathbb{A}$ 01'59        |            |
| minimum elong    | 8390 Feb 25 23:09 | 9° $\mathbb{H}$ 04'57         | 1°47'30    | inferior conj       | 8391 Feb 09 04:27 | 24° $\mathbb{A}$ 28'55        | 0.67725 AU |
| morning rise     | 8390 Mar 03 07:43 | 2° $\mathbb{H}$ 53'57         |            | minimum elong       | 8391 Feb 10 07:23 | 23° $\mathbb{A}$ 00'42        | 1°01'53    |
| direct           | 8390 Mar 07 10:23 | 1° $\mathbb{H}$ 18'44         |            | morning rise        | 8391 Feb 10 05:58 | 23° $\mathbb{A}$ 05'23        | 1°01'28    |
| morning max el   | 8390 Mar 15 12:17 | 5° $\mathbb{H}$ 55'10         | 20°38'55   | direct              | 8391 Feb 15 19:19 | 17° $\mathbb{A}$ 04'18        |            |
| desc. node       | 8390 Mar 26 22:15 | 20° $\mathbb{H}$ 14'39        |            | morning max el      | 8391 Feb 19 09:21 | 15° $\mathbb{A}$ 50'26        |            |
|                  | 8390 Apr 02 15:41 | 0° $\mathbb{Y}$               |            |                     | 8391 Feb 26 14:37 | 19° $\mathbb{A}$ 51'09        | 19°32'21   |
| morning set      | 8390 Apr 13 20:21 | 17° $\mathbb{Y}$ 00'25        |            | greatest brilliancy | 8391 Mar 06 19:35 | 0° $\mathbb{H}$               |            |
|                  | 8390 Apr 22 01:27 | 0° $\mathbb{B}$               |            | desc. node          | 8391 Mar 11 08:45 | 6° $\mathbb{H}$ 33'56         | -0.7m      |
| max. Earth dist. | 8390 Apr 22 12:18 | 0° $\mathbb{B}$ 43'46         | 1.43295 AU | morning set         | 8391 Mar 13 19:08 | 10° $\mathbb{H}$ 11'24        |            |
|                  |                   |                               |            |                     | 8391 Mar 23 18:04 | 25° $\mathbb{Y}$ 21'57        |            |
| superior conj    | 8390 Apr 29 03:21 | 11° $\mathbb{B}$ 37'37        | -2°08'42   | max. Earth dist.    | 8391 Mar 26 18:03 | 0° $\mathbb{Y}$               |            |
| minimum elong    | 8390 Apr 29 06:44 | 11° $\mathbb{B}$ 51'51        | 2°08'43    |                     | 8391 Apr 05 01:10 | 14° $\mathbb{Y}$ 32'28        | 1.44700 AU |
|                  | 8390 May 09 19:34 | 0° $\mathbb{I}$               |            | superior conj       | 8391 Apr 09 06:10 | 21° $\mathbb{Y}$ 14'35        | -2°10'21   |
| evening rise     | 8390 May 11 07:29 | 2° $\mathbb{I}$ 38'16         |            | minimum elong       | 8391 Apr 09 03:17 | 21° $\mathbb{Y}$ 02'58        | 2°10'20    |
| asc. node        | 8390 May 19 04:54 | 16° $\mathbb{I}$ 21'48        |            |                     | 8391 Apr 14 16:01 | 0° $\mathbb{B}$               |            |
| evening max el   | 8390 May 28 06:30 | 29° $\mathbb{I}$ 03'37        | 18°05'15   | evening rise        | 8391 Apr 23 04:13 | 14° $\mathbb{B}$ 06'38        |            |
|                  | 8390 May 29 06:58 | 0° $\mathbb{E}$               |            |                     | 8391 May 02 17:48 | 0° $\mathbb{I}$               |            |
| retrograde       | 8390 Jun 03 18:52 | 2° $\mathbb{E}$ 25'11         |            | asc. node           | 8391 May 06 01:57 | 5° $\mathbb{I}$ 09'18         |            |
| evening set      | 8390 Jun 06 10:41 | 1° $\mathbb{E}$ 51'10         |            | evening max el      | 8391 May 11 19:47 | 12° $\mathbb{I}$ 25'52        | 18°15'30   |
|                  | 8390 Jun 09 10:31 | 30° $\mathbb{R}$ $\mathbb{I}$ |            | retrograde          | 8391 May 18 05:04 | 15° $\mathbb{I}$ 49'48        |            |
| inferior conj    | 8390 Jun 12 22:00 | 26° $\mathbb{I}$ 47'24        | 2°34'32    | evening set         | 8391 May 21 04:04 | 15° $\mathbb{I}$ 02'50        |            |
| minimum elong    | 8390 Jun 13 00:53 | 26° $\mathbb{I}$ 40'09        | 2°33'41    | inferior conj       | 8391 May 27 03:19 | 9° $\mathbb{I}$ 40'51         | 3°07'56    |
| min. Earth dist. | 8390 Jun 15 23:40 | 23° $\mathbb{I}$ 43'57        | 0.61574 AU | minimum elong       | 8391 May 27 05:11 | 9° $\mathbb{I}$ 35'37         | 3°07'31    |
| morning rise     | 8390 Jun 19 12:56 | 20° $\mathbb{I}$ 45'51        |            | min. Earth dist.    | 8391 May 29 15:47 | 6° $\mathbb{I}$ 51'15         | 0.63687 AU |
| desc. node       | 8390 Jun 22 21:49 | 19° $\mathbb{I}$ 00'38        |            | morning rise        | 8391 Jun 02 05:01 | 3° $\mathbb{I}$ 27'42         |            |
| direct           | 8390 Jun 26 05:42 | 18° $\mathbb{I}$ 26'39        |            | direct              | 8391 Jun 08 22:51 | 0° $\mathbb{I}$ 48'43         |            |
| morning max el   | 8390 Jul 10 10:48 | 26° $\mathbb{I}$ 27'00        | 27°55'31   | desc. node          | 8391 Jun 09 18:49 | 0° $\mathbb{I}$ 50'57         |            |
|                  | 8390 Jul 13 18:31 | 0° $\mathbb{E}$               |            | morning max el      | 8391 Jun 22 19:36 | 8° $\mathbb{I}$ 50'50         | 27°41'34   |
|                  | 8390 Aug 03 04:30 | 0° $\mathbb{Q}$               |            |                     | 8391 Jul 09 05:15 | 0° $\mathbb{E}$               |            |
| morning set      | 8390 Aug 12 19:40 | 18° $\mathbb{Q}$ 25'21        |            |                     |                   |                               |            |
| asc. node        | 8390 Aug 15 04:14 | 23° $\mathbb{Q}$ 19'54        |            |                     |                   |                               |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8391 Jul 26 11:25 | 0°♊       |            |                     | 8392 Jun 11 10:51 | 0°♊       |            |
| morning set         | 8391 Jul 27 14:56 | 2°♊15'55  |            |                     | 8392 Jul 01 10:14 | 0°♊       |            |
| max. Earth dist.    | 8391 Aug 01 14:59 | 12°♊31'31 | 1.32741 AU | morning set         | 8392 Jul 09 23:56 | 15°♊33'54 |            |
| asc. node           | 8391 Aug 02 01:13 | 13°♊25'28 |            | max. Earth dist.    | 8392 Jul 14 07:16 | 24°♊01'13 | 1.34011 AU |
|                     |                   |           |            |                     | 8392 Jul 17 05:33 | 0°♊       |            |
| superior conj       | 8391 Aug 04 12:21 | 18°♊41'17 | 0°24'48    |                     |                   |           |            |
| minimum elong       | 8391 Aug 04 11:11 | 18°♊35'01 | 0°24'25    | superior conj       | 8392 Jul 18 13:30 | 2°♊46'07  | -0°03'40   |
|                     | 8391 Aug 09 17:41 | 0°♊       |            | minimum elong       | 8392 Jul 18 13:42 | 2°♊47'10  | 0°03'47    |
| evening rise        | 8391 Aug 11 12:08 | 3°♊47'43  |            | behind sun begin    | 8392 Jul 18 08:09 | 2°♊18'08  |            |
|                     | 8391 Aug 25 14:41 | 0°♊       |            | behind sun end      | 8392 Jul 18 19:16 | 3°♊16'15  |            |
| evening max el      | 8391 Sep 03 04:48 | 10°♊39'24 | 23°04'50   | asc. node           | 8392 Jul 18 22:11 | 3°♊31'35  |            |
| desc. node          | 8391 Sep 05 17:46 | 12°♊54'45 |            | evening rise        | 8392 Jul 25 22:24 | 18°♊20'27 |            |
| retrograde          | 8391 Sep 16 13:24 | 17°♊20'01 |            |                     | 8392 Jul 31 16:58 | 0°♊       |            |
| evening set         | 8391 Sep 20 10:45 | 16°♊46'54 |            | evening max el      | 8392 Aug 14 21:22 | 21°♊00'13 | 21°29'11   |
| min. Earth dist.    | 8391 Sep 27 13:41 | 13°♊31'32 | 0.55348 AU | desc. node          | 8392 Aug 22 14:52 | 26°♊15'17 |            |
| inferior conj       | 8391 Sep 29 03:42 | 12°♊36'27 | -5°27'29   | retrograde          | 8392 Aug 27 03:22 | 27°♊04'39 |            |
| minimum elong       | 8391 Sep 28 23:24 | 12°♊42'43 | 5°27'04    | evening set         | 8392 Aug 29 16:32 | 26°♊49'49 |            |
| morning rise        | 8391 Oct 07 14:08 | 8°♊46'27  |            | inferior conj       | 8392 Sep 07 21:35 | 22°♊51'55 | -4°29'18   |
| direct              | 8391 Oct 10 14:30 | 8°♊24'58  |            | minimum elong       | 8392 Sep 07 12:11 | 23°♊05'06 | 4°27'00    |
| morning max el      | 8391 Oct 21 14:17 | 13°♊33'45 | 20°40'08   | min. Earth dist.    | 8392 Sep 07 22:22 | 22°♊50'50 | 0.54695 AU |
| asc. node           | 8391 Oct 29 00:51 | 22°♊44'31 |            | morning rise        | 8392 Sep 16 08:44 | 19°♊00'52 |            |
|                     | 8391 Nov 02 09:38 | 0°♊       |            | direct              | 8392 Sep 19 23:47 | 18°♊32'20 |            |
| morning set         | 8391 Nov 09 15:50 | 14°♊10'44 |            | morning max el      | 8392 Oct 02 11:38 | 24°♊27'35 | 22°15'22   |
|                     |                   |           |            |                     | 8392 Oct 07 12:08 | 0°♊       |            |
| superior conj       | 8391 Nov 17 02:56 | 29°♊37'36 | 1°35'58    | asc. node           | 8392 Oct 14 21:49 | 11°♊08'07 |            |
| minimum elong       | 8391 Nov 17 04:35 | 29°♊46'02 | 1°36'00    | morning set         | 8392 Oct 24 02:12 | 28°♊58'48 |            |
|                     | 8391 Nov 17 07:20 | 0°♊       |            |                     | 8392 Oct 24 13:49 | 0°♊       |            |
| max. Earth dist.    | 8391 Nov 22 04:28 | 9°♊43'25  | 1.36021 AU |                     |                   |           |            |
| evening rise        | 8391 Nov 26 02:50 | 17°♊10'33 |            | superior conj       | 8392 Oct 31 04:31 | 14°♊05'20 | 1°41'06    |
| desc. node          | 8391 Dec 02 16:34 | 28°♊49'54 |            | minimum elong       | 8392 Oct 31 04:51 | 14°♊07'05 | 1°41'13    |
|                     | 8391 Dec 03 09:09 | 0°♊       |            | max. Earth dist.    | 8392 Nov 03 19:06 | 21°♊36'42 | 1.34288 AU |
|                     | 8391 Dec 23 19:49 | 0°♊       |            |                     | 8392 Nov 07 23:46 | 0°♊       |            |
| evening max el      | 8391 Dec 31 15:49 | 8°♊43'44  | 26°10'33   | evening rise        | 8392 Nov 08 06:57 | 0°♊34'53  |            |
| retrograde          | 8392 Jan 13 08:57 | 15°♊56'30 |            | desc. node          | 8392 Nov 18 13:38 | 19°♊07'19 |            |
| evening set         | 8392 Jan 19 14:08 | 13°♊24'51 |            |                     | 8392 Nov 25 10:13 | 0°♊       |            |
| min. Earth dist.    | 8392 Jan 23 19:05 | 8°♊59'14  | 0.66796 AU | evening max el      | 8392 Dec 13 05:05 | 22°♊22'20 | 27°00'59   |
| inferior conj       | 8392 Jan 25 09:31 | 7°♊00'44  | 0°07'49    | retrograde          | 8392 Dec 26 12:07 | 29°♊42'25 |            |
| minimum elong       | 8392 Jan 25 09:18 | 7°♊01'23  | 0°07'52    | evening set         | 8393 Jan 02 04:13 | 27°♊06'29 |            |
| transit middle      | 8392 Jan 25 09:18 | 7°♊01'23  | 0°07'52    | min. Earth dist.    | 8393 Jan 06 03:24 | 23°♊14'58 | 0.65502 AU |
| transit begin       | 8392 Jan 25 06:48 | 7°♊09'06  |            | inferior conj       | 8393 Jan 08 05:25 | 20°♊52'38 | -0°53'31   |
| transit end         | 8392 Jan 25 11:48 | 6°♊53'40  |            | minimum elong       | 8393 Jan 08 06:58 | 20°♊48'11 | 0°52'42    |
| asc. node           | 8392 Jan 25 00:08 | 7°♊29'46  |            | asc. node           | 8393 Jan 10 21:11 | 18°♊00'07 |            |
| morning rise        | 8392 Jan 31 05:11 | 1°♊13'39  |            | morning rise        | 8393 Jan 14 10:57 | 15°♊17'17 |            |
| direct              | 8392 Feb 03 08:05 | 0°♊18'20  |            | direct              | 8393 Jan 17 04:35 | 14°♊36'47 |            |
| morning max el      | 8392 Feb 10 00:17 | 3°♊55'41  | 18°41'19   | morning max el      | 8393 Jan 23 15:08 | 18°♊02'06 | 18°06'58   |
|                     | 8392 Feb 28 09:06 | 0°♊       |            |                     | 8393 Feb 01 13:58 | 0°♊       |            |
| desc. node          | 8392 Feb 28 16:05 | 0°♊27'20  |            | morning set         | 8393 Feb 11 02:02 | 15°♊19'10 |            |
| morning set         | 8392 Mar 02 07:34 | 4°♊36'33  |            | desc. node          | 8393 Feb 14 13:02 | 20°♊56'49 |            |
| max. Earth dist.    | 8392 Mar 17 18:26 | 28°♊49'14 | 1.45438 AU |                     | 8393 Feb 20 03:56 | 0°♊       |            |
|                     |                   |           |            |                     |                   |           |            |
| superior conj       | 8392 Mar 18 14:34 | 0°♊08'07  | -1°51'55   | superior conj       | 8393 Feb 25 21:07 | 9°♊04'18  | -1°15'54   |
| minimum elong       | 8392 Mar 18 05:41 | 29°♊33'18 | 1°51'14    | minimum elong       | 8393 Feb 25 12:35 | 8°♊30'40  | 1°14'50    |
|                     | 8392 Mar 18 12:30 | 0°♊       |            | max. Earth dist.    | 8393 Feb 28 13:59 | 13°♊19'15 | 1.45435 AU |
| evening rise        | 8392 Apr 03 01:28 | 24°♊36'08 |            |                     | 8393 Mar 11 06:53 | 0°♊       |            |
|                     | 8392 Apr 06 10:15 | 0°♊       |            | evening rise        | 8393 Mar 14 01:10 | 4°♊17'00  |            |
| greatest brilliancy | 8392 Apr 10 15:10 | 6°♊43'26  | -0.9m      | greatest brilliancy | 8393 Mar 26 18:31 | 23°♊49'12 | -0.7m      |
| asc. node           | 8392 Apr 21 23:00 | 23°♊20'41 |            |                     | 8393 Mar 30 23:47 | 0°♊       |            |
| evening max el      | 8392 Apr 24 07:13 | 25°♊57'52 | 18°43'48   | evening max el      | 8393 Apr 07 14:47 | 9°♊35'17  | 19°28'58   |
| retrograde          | 8392 Apr 30 22:17 | 29°♊36'59 |            | asc. node           | 8393 Apr 08 20:05 | 10°♊45'20 |            |
| evening set         | 8392 May 04 04:42 | 28°♊35'57 |            | retrograde          | 8393 Apr 14 19:25 | 13°♊40'55 |            |
| inferior conj       | 8392 May 09 19:43 | 22°♊57'25 | 3°22'03    | evening set         | 8393 Apr 18 09:54 | 12°♊25'05 |            |
| minimum elong       | 8392 May 09 20:14 | 22°♊55'49 | 3°21'53    | inferior conj       | 8393 Apr 23 19:53 | 6°♊31'28  | 3°20'59    |
| min. Earth dist.    | 8392 May 11 17:02 | 20°♊38'03 | 0.65492 AU | minimum elong       | 8393 Apr 23 19:11 | 6°♊33'47  | 3°20'49    |
| morning rise        | 8392 May 15 11:06 | 16°♊39'41 |            | min. Earth dist.    | 8393 Apr 25 02:05 | 4°♊52'15  | 0.66889 AU |
| direct              | 8392 May 21 23:43 | 13°♊52'53 |            | morning rise        | 8393 Apr 29 04:08 | 0°♊13'28  |            |
| desc. node          | 8392 May 26 15:49 | 15°♊03'52 |            |                     | 8393 Apr 29 10:14 | 30°♊      |            |
| morning max el      | 8392 Jun 04 05:59 | 21°♊43'55 | 26°54'51   | direct              | 8393 May 05 06:59 | 27°♊30'41 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8393 May 11 23:03 | 0°♄       |            | morning rise     | 8394 Apr 13 05:17 | 14°♄01'58 |            |
| desc. node       | 8393 May 13 12:49 | 1°♄09'40  |            | direct           | 8394 Apr 18 19:27 | 11°♄32'38 |            |
| morning max el   | 8393 May 17 15:53 | 4°♄55'00  | 25°43'51   | morning max el   | 8394 Apr 30 00:58 | 18°♄15'41 | 24°18'26   |
|                  | 8393 Jun 05 21:40 | 0°♄       |            | desc. node       | 8394 Apr 30 09:47 | 18°♄38'12 |            |
| morning set      | 8393 Jun 22 18:49 | 28°♄09'00 |            |                  | 8394 May 09 21:32 | 0°♄       |            |
|                  | 8393 Jun 23 18:57 | 0°♄       |            |                  | 8394 May 29 23:32 | 0°♄       |            |
| max. Earth dist. | 8393 Jun 26 12:38 | 5°♄08'11  | 1.35755 AU | morning set      | 8394 Jun 04 18:31 | 9°♄47'30  |            |
|                  |                   |           |            | max. Earth dist. | 8394 Jun 08 10:25 | 16°♄16'12 | 1.37863 AU |
| superior conj    | 8393 Jul 02 06:26 | 16°♄23'25 | -0°34'43   |                  |                   |           |            |
| minimum elong    | 8393 Jul 02 08:29 | 16°♄33'48 | 0°34'29    | superior conj    | 8394 Jun 15 11:47 | 29°♄24'14 | -1°06'39   |
| asc. node        | 8393 Jul 05 19:12 | 23°♄34'33 |            | minimum elong    | 8394 Jun 15 15:55 | 29°♄44'06 | 1°06'09    |
|                  | 8393 Jul 08 22:07 | 0°♄       |            |                  | 8394 Jun 15 19:13 | 0°♄       |            |
| evening rise     | 8393 Jul 10 05:14 | 2°♄39'36  |            | asc. node        | 8394 Jun 22 16:13 | 13°♄30'02 |            |
|                  | 8393 Jul 26 06:38 | 0°♄       |            | evening rise     | 8394 Jun 24 06:06 | 16°♄37'50 |            |
| evening max el   | 8393 Jul 28 02:02 | 1°♄56'05  | 20°08'22   |                  | 8394 Jul 01 06:32 | 0°♄       |            |
| retrograde       | 8393 Aug 07 16:33 | 7°♄10'14  |            | evening max el   | 8394 Jul 10 19:38 | 13°♄36'02 | 19°07'33   |
| desc. node       | 8393 Aug 09 11:58 | 7°♄01'45  |            | retrograde       | 8394 Jul 19 18:09 | 18°♄01'22 |            |
| evening set      | 8393 Aug 09 14:39 | 7°♄00'41  |            | evening set      | 8394 Jul 21 15:53 | 17°♄50'08 |            |
| inferior conj    | 8393 Aug 18 16:30 | 3°♄02'05  | -2°46'06   | desc. node       | 8394 Jul 27 09:04 | 15°♄23'31 |            |
| minimum elong    | 8393 Aug 18 08:59 | 3°♄13'15  | 2°43'30    | inferior conj    | 8394 Jul 30 01:56 | 13°♄37'37 | -0°49'38   |
| min. Earth dist. | 8393 Aug 20 08:43 | 2°♄02'22  | 0.54996 AU | minimum elong    | 8394 Jul 29 23:46 | 13°♄41'17 | 0°48'57    |
|                  | 8393 Aug 24 03:12 | 30°♄      |            | min. Earth dist. | 8394 Aug 01 22:22 | 11°♄41'53 | 0.56198 AU |
| morning rise     | 8393 Aug 27 02:04 | 28°♄50'04 |            | morning rise     | 8394 Aug 07 04:39 | 8°♄50'22  |            |
| direct           | 8393 Aug 31 10:58 | 28°♄08'39 |            | direct           | 8394 Aug 12 09:26 | 7°♄47'36  |            |
|                  | 8393 Sep 07 12:31 | 0°♄       |            | morning max el   | 8394 Aug 26 13:54 | 15°♄02'08 | 25°42'02   |
| morning max el   | 8393 Sep 14 01:03 | 4°♄47'41  | 24°01'04   |                  | 8394 Sep 07 13:26 | 0°♄       |            |
| asc. node        | 8393 Oct 01 18:49 | 0°♄06'51  |            | asc. node        | 8394 Sep 18 15:49 | 19°♄31'18 |            |
|                  | 8393 Oct 01 17:22 | 0°♄       |            | morning set      | 8394 Sep 23 01:17 | 28°♄35'16 |            |
| morning set      | 8393 Oct 08 13:54 | 13°♄48'40 |            |                  | 8394 Sep 23 17:08 | 0°♄       |            |
| superior conj    | 8393 Oct 15 11:42 | 28°♄47'28 | 1°39'38    | superior conj    | 8394 Sep 29 22:10 | 13°♄36'51 | 1°32'17    |
| minimum elong    | 8393 Oct 15 10:51 | 28°♄42'54 | 1°39'42    | minimum elong    | 8394 Sep 29 20:27 | 13°♄27'25 | 1°32'10    |
|                  | 8393 Oct 16 01:04 | 0°♄       |            | max. Earth dist. | 8394 Oct 01 00:24 | 16°♄01'26 | 1.32089 AU |
| max. Earth dist. | 8393 Oct 17 18:18 | 3°♄42'03  | 1.32968 AU | evening rise     | 8394 Oct 06 23:07 | 28°♄48'04 |            |
| evening rise     | 8393 Oct 22 22:47 | 14°♄30'22 |            |                  | 8394 Oct 07 13:01 | 0°♄       |            |
|                  | 8393 Oct 31 02:38 | 0°♄       |            | desc. node       | 8394 Oct 23 07:48 | 28°♄31'54 |            |
| desc. node       | 8393 Nov 05 10:42 | 9°♄04'09  |            |                  | 8394 Oct 24 06:50 | 0°♄       |            |
|                  | 8393 Nov 20 08:43 | 0°♄       |            | evening max el   | 8394 Nov 08 02:25 | 18°♄28'45 | 27°22'51   |
| evening max el   | 8393 Nov 25 17:24 | 5°♄41'46  | 27°27'04   | retrograde       | 8394 Nov 21 22:03 | 25°♄42'42 |            |
| retrograde       | 8393 Dec 09 08:41 | 13°♄00'40 |            | evening set      | 8394 Nov 29 00:23 | 23°♄21'43 |            |
| evening set      | 8393 Dec 16 08:40 | 10°♄27'40 |            | min. Earth dist. | 8394 Dec 02 16:38 | 20°♄29'25 | 0.61973 AU |
| min. Earth dist. | 8393 Dec 20 03:11 | 7°♄08'21  | 0.63877 AU | inferior conj    | 8394 Dec 05 15:58 | 17°♄46'18 | -3°10'59   |
| inferior conj    | 8393 Dec 22 16:34 | 4°♄30'16  | -2°00'45   | minimum elong    | 8394 Dec 05 22:00 | 17°♄32'28 | 3°08'40    |
| minimum elong    | 8393 Dec 22 20:20 | 4°♄20'31  | 1°59'03    | morning rise     | 8394 Dec 12 21:48 | 12°♄44'08 |            |
|                  | 8393 Dec 27 18:57 | 30°♄      |            | direct           | 8394 Dec 15 03:53 | 12°♄21'58 |            |
| asc. node        | 8393 Dec 28 18:16 | 29°♄27'05 |            | asc. node        | 8394 Dec 15 15:20 | 12°♄22'59 |            |
| morning rise     | 8393 Dec 29 09:45 | 29°♄09'46 |            | morning max el   | 8394 Dec 22 00:58 | 15°♄51'21 | 17°50'26   |
| direct           | 8393 Dec 31 20:19 | 28°♄40'14 |            |                  | 8394 Dec 31 22:08 | 0°♄       |            |
|                  | 8394 Jan 04 20:38 | 0°♄       |            | morning set      | 8395 Jan 06 19:48 | 10°♄27'36 |            |
| morning max el   | 8394 Jan 07 08:23 | 2°♄03'04  | 17°49'45   |                  |                   |           |            |
| morning set      | 8394 Jan 24 00:12 | 27°♄22'45 |            | superior conj    | 8395 Jan 17 19:52 | 29°♄50'00 | 0°10'47    |
|                  | 8394 Jan 25 13:02 | 0°♄       |            | minimum elong    | 8395 Jan 17 20:53 | 29°♄54'17 | 0°10'48    |
| desc. node       | 8394 Feb 01 09:59 | 11°♄35'07 |            | behind sun begin | 8395 Jan 17 14:25 | 29°♄26'45 |            |
|                  |                   |           |            | behind sun end   | 8395 Jan 18 03:20 | 0°♄21'46  |            |
| superior conj    | 8394 Feb 05 19:53 | 18°♄50'22 | -0°31'44   |                  | 8395 Jan 17 22:13 | 0°♄       |            |
| minimum elong    | 8394 Feb 05 16:22 | 18°♄36'02 | 0°31'05    | desc. node       | 8395 Jan 19 06:57 | 2°♄18'50  |            |
| max. Earth dist. | 8394 Feb 11 09:04 | 27°♄45'23 | 1.44700 AU | max. Earth dist. | 8395 Jan 25 00:58 | 11°♄50'38 | 1.43319 AU |
|                  | 8394 Feb 12 19:04 | 0°♄       |            | evening rise     | 8395 Feb 01 04:09 | 23°♄11'59 |            |
| evening rise     | 8394 Feb 21 13:01 | 13°♄36'27 |            |                  | 8395 Feb 05 13:58 | 0°♄       |            |
|                  | 8394 Mar 04 09:16 | 0°♄       |            |                  | 8395 Feb 26 14:32 | 0°♄       |            |
| evening max el   | 8394 Mar 21 17:04 | 23°♄14'26 | 20°29'00   | evening max el   | 8395 Mar 04 13:51 | 6°♄54'36  | 21°40'39   |
| asc. node        | 8394 Mar 26 17:12 | 27°♄09'13 |            | retrograde       | 8395 Mar 13 15:55 | 12°♄17'17 |            |
| retrograde       | 8394 Mar 29 17:56 | 27°♄55'50 |            | asc. node        | 8395 Mar 13 14:19 | 12°♄17'16 |            |
| evening set      | 8394 Apr 02 17:28 | 26°♄24'45 |            | evening set      | 8395 Mar 18 01:38 | 10°♄30'55 |            |
| inferior conj    | 8394 Apr 08 01:06 | 20°♄17'53 | 3°07'38    | inferior conj    | 8395 Mar 23 09:04 | 4°♄13'13  | 2°43'56    |
| minimum elong    | 8394 Apr 07 23:29 | 20°♄23'24 | 3°07'20    | minimum elong    | 8395 Mar 23 06:56 | 4°♄20'40  | 2°43'26    |
| min. Earth dist. | 8394 Apr 08 17:10 | 19°♄22'50 | 0.67838 AU | min. Earth dist. | 8395 Mar 23 12:13 | 4°♄02'16  | 0.68341 AU |

|                  |                   |                        |            |                  |                   |                         |            |
|------------------|-------------------|------------------------|------------|------------------|-------------------|-------------------------|------------|
|                  | 8395 Mar 26 13:53 | 30° $\text{R}\text{H}$ |            | min. Earth dist. | 8396 Mar 06 08:58 | 18° $\text{H}44'34$     | 0.68416 AU |
| morning rise     | 8395 Mar 28 12:04 | 28° $\text{H}00'51$    |            | morning rise     | 8396 Mar 11 22:16 | 12° $\text{H}06'29$     |            |
| direct           | 8395 Apr 02 12:17 | 25° $\text{H}50'53$    |            | direct           | 8396 Mar 16 08:32 | 10° $\text{H}18'31$     |            |
|                  | 8395 Apr 10 15:29 | 0° $\text{Y}$          |            | morning max el   | 8396 Mar 25 01:40 | 15° $\text{H}21'22$     | 21°23'14   |
| morning max el   | 8395 Apr 12 11:10 | 1° $\text{Y}43'59$     | 22°48'38   | desc. node       | 8396 Apr 03 03:39 | 26° $\text{H}18'07$     |            |
| desc. node       | 8395 Apr 17 06:44 | 7° $\text{Y}06'38$     |            |                  | 8396 Apr 05 20:22 | 0° $\text{Y}$           |            |
|                  | 8395 May 03 20:31 | 0° $\text{B}$          |            | morning set      | 8396 Apr 25 13:18 | 29° $\text{Y}29'30$     |            |
| morning set      | 8395 May 16 17:38 | 20° $\text{B}16'13$    |            |                  | 8396 Apr 25 21:01 | 0° $\text{B}$           |            |
| max. Earth dist. | 8395 May 21 07:13 | 27° $\text{B}56'34$    | 1.40115 AU | max. Earth dist. | 8396 May 02 08:35 | 10° $\text{B}27'15$     | 1.42234 AU |
|                  | 8395 May 22 11:55 | 0° $\text{II}$         |            |                  |                   |                         |            |
| superior conj    | 8395 May 29 01:26 | 11° $\text{II}38'57$   | -1°36'35   | superior conj    | 8396 May 09 18:43 | 22° $\text{B}57'01$     | -2°00'13   |
| minimum elong    | 8395 May 29 07:07 | 12° $\text{II}04'52$   | 1°36'04    | minimum elong    | 8396 May 09 23:59 | 23° $\text{B}19'44$     | 2°00'01    |
| evening rise     | 8395 Jun 07 21:52 | 0° $\text{E}07'12$     |            |                  | 8396 May 13 19:34 | 0° $\text{II}$          |            |
|                  | 8395 Jun 07 20:21 | 0° $\text{E}$          |            | evening rise     | 8396 May 21 00:35 | 12° $\text{II}57'48$    |            |
| asc. node        | 8395 Jun 09 13:15 | 3° $\text{E}13'57$     |            | asc. node        | 8396 May 26 10:18 | 22° $\text{II}41'21$    |            |
| evening max el   | 8395 Jun 23 23:32 | 25° $\text{E}56'48$    | 18°27'38   |                  | 8396 May 30 18:10 | 0° $\text{E}$           |            |
| retrograde       | 8395 Jul 01 14:34 | 29° $\text{E}45'13$    |            | evening max el   | 8396 Jun 06 09:56 | 8° $\text{E}49'33$      | 18°07'55   |
| evening set      | 8395 Jul 03 18:24 | 29° $\text{E}27'47$    |            | retrograde       | 8396 Jun 13 04:53 | 12° $\text{E}16'25$     |            |
| inferior conj    | 8395 Jul 11 08:40 | 24° $\text{E}55'47$    | 0°51'07    | evening set      | 8396 Jun 15 16:19 | 11° $\text{E}49'16$     |            |
| minimum elong    | 8395 Jul 11 10:26 | 24° $\text{E}52'15$    | 0°50'19    | inferior conj    | 8396 Jun 22 12:26 | 6° $\text{E}57'06$      | 2°04'35    |
| desc. node       | 8395 Jul 14 06:08 | 22° $\text{E}37'34$    |            | minimum elong    | 8396 Jun 22 15:28 | 6° $\text{E}50'03$      | 2°03'33    |
| min. Earth dist. | 8395 Jul 14 17:22 | 22° $\text{E}16'06$    | 0.58068 AU | min. Earth dist. | 8396 Jun 25 19:34 | 3° $\text{E}55'03$      | 0.60276 AU |
| morning rise     | 8395 Jul 18 22:59 | 19° $\text{E}32'08$    |            | morning rise     | 8396 Jun 29 11:50 | 1° $\text{E}06'13$      |            |
| direct           | 8395 Jul 24 22:27 | 17° $\text{E}59'50$    |            | desc. node       | 8396 Jun 30 03:09 | 0° $\text{E}43'20$      |            |
| morning max el   | 8395 Aug 08 07:52 | 25° $\text{E}40'14$    | 27°01'14   |                  | 8396 Jul 01 13:41 | 30° $\text{R}\text{II}$ |            |
|                  | 8395 Aug 12 08:59 | 0° $\text{Q}$          |            | direct           | 8396 Jul 06 00:36 | 29° $\text{II}02'20$    |            |
|                  | 8395 Aug 31 20:49 | 0° $\text{P}$          |            |                  | 8396 Jul 10 16:04 | 0° $\text{E}$           |            |
| asc. node        | 8395 Sep 05 12:46 | 9° $\text{P}14'09$     |            | morning max el   | 8396 Jul 20 08:34 | 6° $\text{E}58'40$      | 27°46'38   |
| morning set      | 8395 Sep 07 10:37 | 13° $\text{P}13'24$    |            |                  | 8396 Aug 06 17:45 | 0° $\text{Q}$           |            |
|                  |                   |                        |            | morning set      | 8396 Aug 21 16:11 | 27° $\text{Q}38'10$     |            |
| superior conj    | 8395 Sep 14 09:56 | 28° $\text{P}26'55$    | 1°19'33    | asc. node        | 8396 Aug 22 09:43 | 29° $\text{Q}09'47$     |            |
| minimum elong    | 8395 Sep 14 07:45 | 28° $\text{P}14'48$    | 1°19'14    |                  | 8396 Aug 22 19:15 | 0° $\text{P}$           |            |
| max. Earth dist. | 8395 Sep 14 10:06 | 28° $\text{P}27'53$    | 1.31669 AU | max. Earth dist. | 8396 Aug 27 19:45 | 10° $\text{P}51'48$     | 1.31715 AU |
|                  | 8395 Sep 15 02:42 | 0° $\text{Q}$          |            |                  |                   |                         |            |
| evening rise     | 8395 Sep 21 05:18 | 13° $\text{Q}20'10$    |            | superior conj    | 8396 Aug 28 21:14 | 13° $\text{P}12'26$     | 1°01'51    |
|                  | 8395 Sep 29 14:43 | 0° $\text{M}$          |            | minimum elong    | 8396 Aug 28 19:02 | 13° $\text{P}00'17$     | 1°01'24    |
| desc. node       | 8395 Oct 10 04:54 | 17° $\text{M}18'14$    |            | evening rise     | 8396 Sep 04 15:09 | 28° $\text{P}00'37$     |            |
|                  | 8395 Oct 20 16:47 | 0° $\text{J}$          |            |                  | 8396 Sep 05 13:35 | 0° $\text{Q}$           |            |
| evening max el   | 8395 Oct 21 05:18 | 0° $\text{J}29'59$     | 26°44'52   | desc. node       | 8396 Sep 22 06:44 | 0° $\text{M}$           |            |
| retrograde       | 8395 Nov 04 03:14 | 7° $\text{J}38'31$     |            |                  | 8396 Sep 26 02:00 | 5° $\text{M}06'52$      |            |
| evening set      | 8395 Nov 10 23:06 | 5° $\text{J}40'28$     |            | evening max el   | 8396 Oct 02 00:22 | 11° $\text{M}40'38$     | 25°34'51   |
| min. Earth dist. | 8395 Nov 14 19:18 | 3° $\text{J}04'05$     | 0.59894 AU | retrograde       | 8396 Oct 15 22:32 | 18° $\text{M}43'01$     |            |
| inferior conj    | 8395 Nov 18 00:03 | 0° $\text{J}30'29$     | -4°18'27   | evening set      | 8396 Oct 21 23:55 | 17° $\text{M}17'46$     |            |
| minimum elong    | 8395 Nov 18 07:23 | 0° $\text{J}15'46$     | 4°16'18    | min. Earth dist. | 8396 Oct 26 12:40 | 14° $\text{M}40'26$     | 0.57843 AU |
|                  | 8395 Nov 18 15:17 | 30° $\text{R}\text{M}$ |            | inferior conj    | 8396 Oct 29 13:29 | 12° $\text{M}33'44$     | -5°12'18   |
| morning rise     | 8395 Nov 25 18:05 | 25° $\text{M}49'46$    |            | minimum elong    | 8396 Oct 29 19:21 | 12° $\text{M}23'29$     | 5°11'17    |
| direct           | 8395 Nov 27 23:04 | 25° $\text{M}31'42$    |            | morning rise     | 8396 Nov 06 17:07 | 8° $\text{M}15'40$      |            |
| asc. node        | 8395 Dec 02 12:22 | 26° $\text{M}52'49$    |            | direct           | 8396 Nov 09 01:37 | 7° $\text{M}58'34$      |            |
| morning max el   | 8395 Dec 05 13:23 | 29° $\text{M}16'41$    | 18°10'16   | morning max el   | 8396 Nov 17 17:53 | 12° $\text{M}08'47$     | 18°50'54   |
|                  | 8395 Dec 06 06:26 | 0° $\text{J}$          |            | asc. node        | 8396 Nov 18 09:20 | 12° $\text{M}47'11$     |            |
| morning set      | 8395 Dec 21 06:38 | 24° $\text{J}14'28$    |            |                  | 8396 Nov 29 18:02 | 0° $\text{J}$           |            |
|                  | 8395 Dec 24 08:07 | 0° $\text{B}$          |            | morning set      | 8396 Dec 04 03:59 | 8° $\text{J}29'46$      |            |
|                  |                   |                        |            |                  |                   |                         |            |
| superior conj    | 8395 Dec 30 20:12 | 11° $\text{B}58'54$    | 0°46'03    | superior conj    | 8396 Dec 12 16:11 | 25° $\text{J}03'19$     | 1°12'18    |
| minimum elong    | 8395 Dec 30 23:20 | 12° $\text{B}12'59$    | 0°45'46    | minimum elong    | 8396 Dec 12 19:29 | 25° $\text{J}18'56$     | 1°12'04    |
| desc. node       | 8396 Jan 06 03:55 | 23° $\text{B}03'55$    |            |                  | 8396 Dec 15 07:25 | 0° $\text{B}$           |            |
| max. Earth dist. | 8396 Jan 07 11:37 | 25° $\text{B}18'21$    | 1.41449 AU | max. Earth dist. | 8396 Dec 19 17:54 | 8° $\text{B}02'39$      | 1.39318 AU |
|                  | 8396 Jan 10 07:11 | 0° $\approx$           |            | desc. node       | 8396 Dec 23 00:55 | 13° $\text{B}46'51$     |            |
| evening rise     | 8396 Jan 12 11:20 | 3° $\approx33'00$      |            | evening rise     | 8396 Dec 23 16:15 | 14° $\text{B}52'15$     |            |
|                  | 8396 Jan 29 21:44 | 0° $\text{H}$          |            |                  | 8397 Jan 01 23:41 | 0° $\approx$            |            |
| evening max el   | 8396 Feb 15 06:08 | 20° $\text{H}36'34$    | 22°59'24   |                  | 8397 Jan 23 18:21 | 0° $\text{H}$           |            |
| retrograde       | 8396 Feb 25 11:41 | 26° $\text{H}40'24$    |            | evening max el   | 8397 Jan 27 19:58 | 4° $\text{H}22'14$      | 24°19'19   |
| asc. node        | 8396 Feb 28 11:25 | 25° $\text{H}55'55$    |            | retrograde       | 8397 Feb 08 03:55 | 11° $\text{H}00'42$     |            |
| evening set      | 8396 Mar 01 08:45 | 24° $\text{H}39'15$    |            | evening set      | 8397 Feb 13 13:17 | 8° $\text{H}45'53$      |            |
| inferior conj    | 8396 Mar 06 17:47 | 18° $\text{H}14'01$    | 2°11'00    | asc. node        | 8397 Feb 14 08:29 | 8° $\text{H}02'07$      |            |
| minimum elong    | 8396 Mar 06 15:33 | 18° $\text{H}21'47$    | 2°10'23    | min. Earth dist. | 8397 Feb 18 05:08 | 3° $\text{H}25'34$      | 0.68090 AU |
|                  |                   |                        |            | inferior conj    | 8397 Feb 19 01:26 | 2° $\text{H}17'19$      | 1°29'32    |

|                  |                   |                          |            |                     |                   |                           |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|---------------------------|------------|
| minimum elong    | 8397 Feb 18 23:33 | 2° $\text{H}$ 23'37      | 1°28'57    | morning rise        | 8398 Feb 08 21:03 | 10° $\approx$ 26'55       |            |
|                  | 8397 Feb 20 19:11 | 30° $\text{R}$ $\approx$ |            | direct              | 8398 Feb 12 06:15 | 9° $\approx$ 21'08        |            |
| morning rise     | 8397 Feb 24 09:55 | 26° $\approx$ 16'07      |            | morning max el      | 8398 Feb 19 04:53 | 13° $\approx$ 10'17       | 19°08'40   |
| direct           | 8397 Feb 28 07:01 | 24° $\approx$ 50'11      |            |                     | 8398 Mar 03 20:50 | 0° $\text{H}$             |            |
| morning max el   | 8397 Mar 07 23:18 | 29° $\approx$ 10'13      | 20°08'39   | greatest brilliancy | 8398 Mar 04 14:32 | 1° $\text{H}$ 06'34       | -0.7m      |
|                  | 8397 Mar 08 18:46 | 0° $\text{H}$            |            | desc. node          | 8398 Mar 07 21:30 | 6° $\text{H}$ 06'56       |            |
| desc. node       | 8397 Mar 21 00:34 | 16° $\text{H}$ 00'58     |            | morning set         | 8398 Mar 14 14:55 | 16° $\text{H}$ 29'04      |            |
|                  | 8397 Mar 30 09:49 | 0° $\text{Y}$            |            |                     | 8398 Mar 23 07:34 | 0° $\text{Y}$             |            |
| morning set      | 8397 Apr 04 12:58 | 7° $\text{Y}$ 51'29      |            | max. Earth dist.    | 8398 Mar 28 08:46 | 7° $\text{Y}$ 54'45       | 1.45108 AU |
| max. Earth dist. | 8397 Apr 14 17:15 | 23° $\text{Y}$ 50'05     | 1.43968 AU |                     |                   |                           |            |
|                  | 8397 Apr 18 13:03 | 0° $\text{B}$            |            | superior conj       | 8398 Mar 31 05:28 | 12° $\text{Y}$ 25'50      | -2°05'02   |
|                  |                   |                          |            | minimum elong       | 8398 Mar 30 23:33 | 12° $\text{Y}$ 02'25      | 2°04'48    |
| superior conj    | 8397 Apr 20 11:43 | 3° $\text{B}$ 10'31      | -2°11'42   |                     | 8398 Apr 11 04:04 | 0° $\text{B}$             |            |
| minimum elong    | 8397 Apr 20 12:50 | 3° $\text{B}$ 15'03      | 2°11'46    | evening rise        | 8398 Apr 14 20:32 | 6° $\text{B}$ 02'04       |            |
| evening rise     | 8397 May 03 09:32 | 24° $\text{B}$ 58'18     |            |                     | 8398 Apr 29 22:55 | 0° $\text{II}$            |            |
|                  | 8397 May 06 07:23 | 0° $\text{II}$           |            | asc. node           | 8398 Apr 30 04:25 | 0° $\text{II}$ 18'58      |            |
| asc. node        | 8397 May 13 07:21 | 11° $\text{II}$ 45'23    |            | evening max el      | 8398 May 04 12:04 | 5° $\text{II}$ 31'26      | 18°25'21   |
| evening max el   | 8397 May 20 23:09 | 22° $\text{II}$ 03'35    | 18°07'25   | retrograde          | 8398 May 10 22:35 | 8° $\text{II}$ 59'54      |            |
| retrograde       | 8397 May 27 08:57 | 25° $\text{II}$ 24'12    |            | evening set         | 8398 May 14 00:48 | 8° $\text{II}$ 06'54      |            |
| evening set      | 8397 May 30 03:53 | 24° $\text{II}$ 44'49    |            | inferior conj       | 8398 May 19 20:07 | 2° $\text{II}$ 37'36      | 3°16'00    |
| inferior conj    | 8397 Jun 05 09:36 | 19° $\text{II}$ 33'23    | 2°51'22    | minimum elong       | 8398 May 19 21:25 | 2° $\text{II}$ 33'48      | 3°15'43    |
| minimum elong    | 8397 Jun 05 12:08 | 19° $\text{II}$ 26'42    | 2°50'41    | min. Earth dist.    | 8398 May 22 02:10 | 29° $\text{B}$ 59'32      | 0.64509 AU |
| min. Earth dist. | 8397 Jun 08 06:14 | 16° $\text{II}$ 33'14    | 0.62505 AU |                     | 8398 May 22 02:00 | 30° $\text{R}$ $\text{B}$ |            |
| morning rise     | 8397 Jun 11 18:37 | 13° $\text{II}$ 26'04    |            | morning rise        | 8398 May 25 17:05 | 26° $\text{B}$ 22'06      |            |
| desc. node       | 8397 Jun 17 00:11 | 11° $\text{II}$ 04'10    |            | direct              | 8398 Jun 01 09:29 | 23° $\text{B}$ 38'28      |            |
| direct           | 8397 Jun 18 12:54 | 10° $\text{II}$ 56'47    |            | desc. node          | 8398 Jun 03 21:11 | 23° $\text{B}$ 58'32      |            |
| morning max el   | 8397 Jul 02 14:49 | 18° $\text{II}$ 59'10    | 27°53'55   |                     | 8398 Jun 13 08:45 | 0° $\text{II}$            |            |
|                  | 8397 Jul 11 22:16 | 0° $\text{B}$            |            | morning max el      | 8398 Jun 15 00:31 | 1° $\text{II}$ 36'34      | 27°25'12   |
|                  | 8397 Jul 30 15:23 | 0° $\text{B}$            |            |                     | 8398 Jul 06 02:35 | 0° $\text{B}$             |            |
| morning set      | 8397 Aug 05 15:51 | 11° $\text{B}$ 42'31     |            | morning set         | 8398 Jul 20 07:08 | 25° $\text{B}$ 19'48      |            |
| asc. node        | 8397 Aug 09 06:40 | 19° $\text{B}$ 12'35     |            |                     | 8398 Jul 22 15:30 | 0° $\text{B}$             |            |
| max. Earth dist. | 8397 Aug 11 01:33 | 23° $\text{B}$ 01'26     | 1.32232 AU | max. Earth dist.    | 8398 Jul 24 23:51 | 4° $\text{B}$ 47'53       | 1.33230 AU |
|                  |                   |                          |            | asc. node           | 8398 Jul 27 03:39 | 9° $\text{B}$ 18'36       |            |
| superior conj    | 8397 Aug 13 06:11 | 27° $\text{B}$ 46'35     | 0°39'32    |                     |                   |                           |            |
| minimum elong    | 8397 Aug 13 04:29 | 27° $\text{B}$ 37'18     | 0°39'05    | superior conj       | 8398 Jul 28 10:50 | 12° $\text{B}$ 03'53      | 0°13'08    |
|                  | 8397 Aug 14 06:36 | 0° $\text{B}$            |            | minimum elong       | 8398 Jul 28 10:11 | 12° $\text{B}$ 00'25      | 0°12'51    |
| evening rise     | 8397 Aug 20 02:39 | 12° $\text{B}$ 42'28     |            | behind sun begin    | 8398 Jul 28 06:54 | 11° $\text{B}$ 42'54      |            |
|                  | 8397 Aug 28 18:34 | 0° $\text{B}$            |            | behind sun end      | 8398 Jul 28 13:29 | 12° $\text{B}$ 17'58      |            |
| desc. node       | 8397 Sep 12 23:06 | 21° $\text{B}$ 34'41     |            | evening rise        | 8398 Aug 04 13:57 | 27° $\text{B}$ 20'24      |            |
| evening max el   | 8397 Sep 13 12:54 | 22° $\text{B}$ 08'31     | 24°02'11   |                     | 8398 Aug 05 20:16 | 0° $\text{B}$             |            |
| retrograde       | 8397 Sep 27 05:27 | 28° $\text{B}$ 59'53     |            |                     | 8398 Aug 23 19:52 | 0° $\text{B}$             |            |
| evening set      | 8397 Oct 01 23:56 | 28° $\text{B}$ 09'56     |            | evening max el      | 8398 Aug 26 01:18 | 2° $\text{B}$ 20'56       | 22°22'49   |
| min. Earth dist. | 8397 Oct 07 23:33 | 25° $\text{B}$ 13'16     | 0.56096 AU | desc. node          | 8398 Aug 30 20:12 | 6° $\text{B}$ 12'47       |            |
| inferior conj    | 8397 Oct 10 06:32 | 23° $\text{B}$ 49'14     | -5°35'33   | retrograde          | 8398 Sep 08 00:06 | 8° $\text{B}$ 48'01       |            |
| minimum elong    | 8397 Oct 10 06:41 | 23° $\text{B}$ 49'00     | 5°35'30    | evening set         | 8398 Sep 11 06:35 | 8° $\text{B}$ 24'26       |            |
| morning rise     | 8397 Oct 18 15:32 | 19° $\text{B}$ 51'17     |            | min. Earth dist.    | 8398 Sep 19 07:43 | 4° $\text{B}$ 52'28       | 0.54966 AU |
| direct           | 8397 Oct 21 09:02 | 19° $\text{B}$ 32'04     |            | inferior conj       | 8398 Sep 20 06:11 | 4° $\text{B}$ 20'46       | -5°09'34   |
| morning max el   | 8397 Oct 31 11:01 | 24° $\text{B}$ 17'04     | 19°53'54   | minimum elong       | 8398 Sep 19 22:59 | 4° $\text{B}$ 30'57       | 5°08'24    |
| asc. node        | 8397 Nov 05 06:18 | 29° $\text{B}$ 50'45     |            | morning rise        | 8398 Sep 28 17:08 | 0° $\text{B}$ 32'59       |            |
|                  | 8397 Nov 05 09:01 | 0° $\text{B}$            |            | direct              | 8398 Oct 01 23:42 | 0° $\text{B}$ 08'51       |            |
| morning set      | 8397 Nov 18 08:22 | 23° $\text{B}$ 03'26     |            | morning max el      | 8398 Oct 13 15:05 | 5° $\text{B}$ 36'33       | 21°18'43   |
|                  | 8397 Nov 21 18:06 | 0° $\text{B}$            |            | asc. node           | 8398 Oct 23 03:17 | 17° $\text{B}$ 48'53      |            |
|                  |                   |                          |            |                     | 8398 Oct 29 21:04 | 0° $\text{B}$             |            |
| superior conj    | 8397 Nov 26 02:48 | 8° $\text{B}$ 49'03      | 1°29'40    | morning set         | 8398 Nov 02 17:09 | 7° $\text{B}$ 48'04       |            |
| minimum elong    | 8397 Nov 26 05:12 | 9° $\text{B}$ 00'55      | 1°29'37    |                     |                   |                           |            |
| max. Earth dist. | 8397 Dec 01 23:59 | 20° $\text{B}$ 12'48     | 1.37172 AU | superior conj       | 8398 Nov 09 23:54 | 23° $\text{B}$ 04'13      | 1°39'00    |
| evening rise     | 8397 Dec 05 18:13 | 27° $\text{B}$ 07'00     |            | minimum elong       | 8398 Nov 10 00:59 | 23° $\text{B}$ 09'52      | 1°39'06    |
|                  | 8397 Dec 07 09:08 | 0° $\text{B}$            |            |                     | 8398 Nov 13 09:13 | 0° $\text{B}$             |            |
| desc. node       | 8397 Dec 09 21:58 | 4° $\text{B}$ 23'43      |            | max. Earth dist.    | 8398 Nov 14 10:36 | 2° $\text{B}$ 06'56       | 1.35237 AU |
|                  | 8397 Dec 26 10:29 | 0° $\approx$             |            | evening rise        | 8398 Nov 18 13:53 | 10° $\text{B}$ 08'23      |            |
| evening max el   | 8398 Jan 10 09:12 | 18° $\approx$ 10'27      | 25°33'30   | desc. node          | 8398 Nov 26 19:00 | 24° $\text{B}$ 49'41      |            |
| retrograde       | 8398 Jan 22 15:35 | 25° $\approx$ 13'14      |            |                     | 8398 Nov 29 22:05 | 0° $\text{B}$             |            |
| evening set      | 8398 Jan 28 13:41 | 22° $\approx$ 46'52      |            |                     | 8398 Dec 22 00:51 | 0° $\approx$              |            |
| asc. node        | 8398 Feb 01 05:32 | 18° $\approx$ 54'06      |            | evening max el      | 8398 Dec 23 22:27 | 1° $\approx$ 54'35        | 26°34'37   |
| min. Earth dist. | 8398 Feb 01 22:26 | 18° $\approx$ 01'16      | 0.67375 AU | retrograde          | 8399 Jan 05 21:52 | 9° $\approx$ 11'03        |            |
| inferior conj    | 8398 Feb 03 06:09 | 16° $\approx$ 19'48      | 0°39'57    | evening set         | 8399 Jan 12 08:07 | 6° $\approx$ 36'49        |            |
| minimum elong    | 8398 Feb 03 05:10 | 16° $\approx$ 22'57      | 0°39'41    | min. Earth dist.    | 8399 Jan 16 10:32 | 2° $\approx$ 26'02        | 0.66288 AU |



|                     |                   |                              |            |                     |                   |                              |            |
|---------------------|-------------------|------------------------------|------------|---------------------|-------------------|------------------------------|------------|
| inferior conj       | 8399 Jan 18 05:54 | 0° $\approx$ 16'38           | -0°17'21   | inferior conj       | 8400 Jan 01 22:25 | 14° $\mathcal{Z}$ 03'02      | -1°21'25   |
| minimum elong       | 8399 Jan 18 06:22 | 0° $\approx$ 15'13           | 0°16'59    | minimum elong       | 8400 Jan 02 00:52 | 13° $\mathcal{Z}$ 56'18      | 1°20'13    |
|                     | 8399 Jan 18 11:28 | 30° $\mathcal{R}\mathcal{Z}$ |            | asc. node           | 8400 Jan 05 23:40 | 10° $\mathcal{Z}$ 03'52      |            |
| asc. node           | 8399 Jan 19 02:37 | 29° $\mathcal{Z}$ 15'15      |            | morning rise        | 8400 Jan 08 08:45 | 8° $\mathcal{Z}$ 33'57       |            |
| morning rise        | 8399 Jan 24 05:31 | 24° $\mathcal{Z}$ 34'21      |            | direct              | 8400 Jan 10 23:04 | 7° $\mathcal{Z}$ 58'39       |            |
| direct              | 8399 Jan 27 04:20 | 23° $\mathcal{Z}$ 45'41      |            | morning max el      | 8400 Jan 17 09:24 | 11° $\mathcal{Z}$ 21'38      | 17°57'35   |
| morning max el      | 8399 Feb 02 17:05 | 27° $\mathcal{Z}$ 16'14      | 18°24'45   |                     | 8400 Jan 30 08:32 | 0° $\approx$                 |            |
|                     | 8399 Feb 05 04:21 | 0° $\approx$                 |            | morning set         | 8400 Feb 03 23:01 | 7° $\approx$ 38'45           |            |
| morning set         | 8399 Feb 22 16:12 | 26° $\approx$ 20'09          |            | desc. node          | 8400 Feb 09 15:25 | 17° $\approx$ 02'40          |            |
| desc. node          | 8399 Feb 22 18:27 | 26° $\approx$ 29'03          |            |                     |                   |                              |            |
|                     | 8399 Feb 24 23:27 | 0° $\mathcal{H}$             |            | superior conj       | 8400 Feb 17 22:14 | 0° $\mathcal{H}$ 26'05       | -0°57'33   |
|                     |                   |                              |            | minimum elong       | 8400 Feb 17 15:36 | 29° $\approx$ 59'39          | 0°56'33    |
| superior conj       | 8399 Mar 10 10:37 | 21° $\mathcal{H}$ 13'29      | -1°38'21   |                     | 8400 Feb 17 15:42 | 0° $\mathcal{H}$             |            |
| minimum elong       | 8399 Mar 10 00:59 | 20° $\mathcal{H}$ 35'49      | 1°37'23    | max. Earth dist.    | 8400 Feb 21 23:29 | 6° $\mathcal{H}$ 50'59       | 1.45205 AU |
| max. Earth dist.    | 8399 Mar 11 03:56 | 22° $\mathcal{H}$ 21'18      | 1.45530 AU | evening rise        | 8400 Mar 05 01:04 | 25° $\mathcal{H}$ 36'10      |            |
|                     | 8399 Mar 16 01:11 | 0° $\mathcal{Y}$             |            |                     | 8400 Mar 07 21:46 | 0° $\mathcal{Y}$             |            |
| evening rise        | 8399 Mar 26 08:04 | 16° $\mathcal{Y}$ 09'10      |            | greatest brilliancy | 8400 Mar 19 09:37 | 17° $\mathcal{Y}$ 21'20      | -0.6m      |
|                     | 8399 Apr 04 03:24 | 0° $\mathcal{B}$             |            |                     | 8400 Mar 28 16:18 | 0° $\mathcal{B}$             |            |
| greatest brilliancy | 8399 Apr 05 06:48 | 1° $\mathcal{B}$ 46'24       | -0.8m      | evening max el      | 8400 Mar 31 03:25 | 2° $\mathcal{B}$ 43'47       | 19°52'46   |
| asc. node           | 8399 Apr 17 01:30 | 18° $\mathcal{B}$ 11'58      |            | asc. node           | 8400 Apr 02 22:36 | 5° $\mathcal{B}$ 12'20       |            |
| evening max el      | 8399 Apr 17 22:05 | 19° $\mathcal{B}$ 06'05      | 19°00'56   | retrograde          | 8400 Apr 07 16:05 | 7° $\mathcal{B}$ 04'07       |            |
| retrograde          | 8399 Apr 24 17:58 | 22° $\mathcal{B}$ 55'13      |            | evening set         | 8400 Apr 11 10:12 | 5° $\mathcal{B}$ 41'55       |            |
| evening set         | 8399 Apr 28 03:44 | 21° $\mathcal{B}$ 47'49      |            | inferior conj       | 8400 Apr 16 18:53 | 29° $\mathcal{Y}$ 42'13      | 3°16'40    |
| inferior conj       | 8399 May 03 16:14 | 16° $\mathcal{B}$ 02'22      | 3°23'14    | minimum elong       | 8400 Apr 16 17:45 | 29° $\mathcal{Y}$ 46'01      | 3°16'28    |
| minimum elong       | 8399 May 03 16:12 | 16° $\mathcal{B}$ 02'27      | 3°23'06    |                     | 8400 Apr 16 13:35 | 30° $\mathcal{R}\mathcal{Y}$ |            |
| min. Earth dist.    | 8399 May 05 06:55 | 13° $\mathcal{B}$ 59'34      | 0.66143 AU | min. Earth dist.    | 8400 Apr 17 18:55 | 28° $\mathcal{Y}$ 21'31      | 0.67345 AU |
| morning rise        | 8399 May 09 04:12 | 9° $\mathcal{B}$ 44'06       |            | morning rise        | 8400 Apr 22 01:01 | 23° $\mathcal{Y}$ 24'36      |            |
| direct              | 8399 May 15 12:59 | 6° $\mathcal{B}$ 58'02       |            | direct              | 8400 Apr 27 22:35 | 20° $\mathcal{Y}$ 46'39      |            |
| desc. node          | 8399 May 21 18:11 | 9° $\mathcal{B}$ 03'17       |            | desc. node          | 8400 May 07 15:10 | 25° $\mathcal{Y}$ 47'12      |            |
| morning max el      | 8399 May 28 11:06 | 14° $\mathcal{B}$ 39'16      | 26°27'05   | morning max el      | 8400 May 09 20:47 | 27° $\mathcal{Y}$ 55'44      | 25°08'39   |
|                     | 8399 Jun 09 23:33 | 0° $\mathcal{I}$             |            |                     | 8400 May 11 19:50 | 0° $\mathcal{B}$             |            |
|                     | 8399 Jun 28 21:08 | 0° $\mathcal{E}$             |            |                     | 8400 Jun 02 16:28 | 0° $\mathcal{I}$             |            |
| morning set         | 8399 Jul 03 10:42 | 8° $\mathcal{E}$ 21'00       |            | morning set         | 8400 Jun 14 22:10 | 20° $\mathcal{I}$ 34'08      |            |
| max. Earth dist.    | 8399 Jul 07 11:48 | 16° $\mathcal{E}$ 07'54      | 1.34705 AU | max. Earth dist.    | 8400 Jun 18 13:17 | 27° $\mathcal{I}$ 11'28      | 1.36615 AU |
|                     |                   |                              |            |                     | 8400 Jun 20 01:17 | 0° $\mathcal{E}$             |            |
| superior conj       | 8399 Jul 12 08:52 | 25° $\mathcal{E}$ 57'46      | -0°16'36   | superior conj       | 8400 Jun 24 21:20 | 9° $\mathcal{E}$ 20'30       | -0°48'18   |
| minimum elong       | 8399 Jul 12 09:48 | 26° $\mathcal{E}$ 02'37      | 0°16'34    | minimum elong       | 8400 Jun 25 00:17 | 9° $\mathcal{E}$ 35'02       | 0°47'56    |
| asc. node           | 8399 Jul 14 00:40 | 29° $\mathcal{E}$ 23'48      |            | asc. node           | 8400 Jun 29 21:41 | 19° $\mathcal{E}$ 23'55      |            |
|                     | 8399 Jul 14 07:38 | 0° $\mathcal{Q}$             |            | evening rise        | 8400 Jul 03 03:44 | 25° $\mathcal{E}$ 59'29      |            |
| evening rise        | 8399 Jul 19 23:04 | 11° $\mathcal{Q}$ 48'21      |            |                     | 8400 Jul 05 03:42 | 0° $\mathcal{Q}$             |            |
|                     | 8399 Jul 29 10:01 | 0° $\mathcal{M}$             |            | evening max el      | 8400 Jul 20 08:45 | 24° $\mathcal{Q}$ 08'09      | 19°39'55   |
| evening max el      | 8399 Aug 07 22:24 | 12° $\mathcal{M}$ 53'38      | 20°52'26   | retrograde          | 8400 Jul 30 05:58 | 29° $\mathcal{Q}$ 00'50      |            |
| desc. node          | 8399 Aug 17 17:17 | 18° $\mathcal{M}$ 30'03      |            | evening set         | 8400 Aug 01 02:20 | 28° $\mathcal{Q}$ 51'20      |            |
| retrograde          | 8399 Aug 19 12:36 | 18° $\mathcal{M}$ 38'11      |            | desc. node          | 8400 Aug 03 14:23 | 28° $\mathcal{Q}$ 10'33      |            |
| evening set         | 8399 Aug 21 17:05 | 18° $\mathcal{M}$ 26'44      |            | inferior conj       | 8400 Aug 09 22:31 | 24° $\mathcal{Q}$ 48'11      | -1°56'16   |
| inferior conj       | 8399 Aug 30 22:42 | 14° $\mathcal{M}$ 29'55      | -3°49'24   | minimum elong       | 8400 Aug 09 17:13 | 24° $\mathcal{Q}$ 56'30      | 1°54'22    |
| minimum elong       | 8399 Aug 30 13:17 | 14° $\mathcal{M}$ 43'17      | 3°46'36    | min. Earth dist.    | 8400 Aug 12 04:39 | 23° $\mathcal{Q}$ 23'37      | 0.55401 AU |
| min. Earth dist.    | 8399 Aug 31 16:45 | 14° $\mathcal{M}$ 04'14      | 0.54702 AU | morning rise        | 8400 Aug 18 05:52 | 20° $\mathcal{Q}$ 21'44      |            |
| morning rise        | 8399 Sep 08 09:39 | 10° $\mathcal{M}$ 32'33      |            | direct              | 8400 Aug 22 22:54 | 19° $\mathcal{Q}$ 32'23      |            |
| direct              | 8399 Sep 12 07:42 | 9° $\mathcal{M}$ 59'41       |            | morning max el      | 8400 Sep 05 20:55 | 26° $\mathcal{Q}$ 28'38      | 24°45'39   |
| morning max el      | 8399 Sep 25 08:25 | 16° $\mathcal{M}$ 13'56      | 22°59'59   |                     | 8400 Sep 09 06:12 | 0° $\mathcal{M}$             |            |
|                     | 8399 Oct 06 04:37 | 0° $\mathcal{L}$             |            | asc. node           | 8400 Sep 25 21:17 | 25° $\mathcal{M}$ 39'15      |            |
| asc. node           | 8399 Oct 10 00:17 | 6° $\mathcal{L}$ 28'47       |            |                     | 8400 Sep 28 02:05 | 0° $\mathcal{L}$             |            |
| morning set         | 8399 Oct 18 04:20 | 22° $\mathcal{L}$ 37'58      |            | morning set         | 8400 Oct 01 16:06 | 7° $\mathcal{L}$ 26'53       |            |
|                     | 8399 Oct 21 14:54 | 0° $\mathcal{M}$             |            |                     |                   |                              |            |
| superior conj       | 8399 Oct 25 04:14 | 7° $\mathcal{M}$ 39'30       | 1°41'15    | superior conj       | 8400 Oct 08 13:05 | 22° $\mathcal{L}$ 25'39      | 1°37'13    |
| minimum elong       | 8399 Oct 25 04:02 | 7° $\mathcal{M}$ 38'27       | 1°41'21    | minimum elong       | 8400 Oct 08 11:50 | 22° $\mathcal{L}$ 18'48      | 1°37'12    |
| max. Earth dist.    | 8399 Oct 28 04:57 | 14° $\mathcal{M}$ 04'37      | 1.33666 AU | max. Earth dist.    | 8400 Oct 10 07:10 | 26° $\mathcal{L}$ 15'02      | 1.32533 AU |
| evening rise        | 8399 Nov 01 23:26 | 23° $\mathcal{M}$ 47'09      |            |                     | 8400 Oct 12 00:55 | 0° $\mathcal{M}$             |            |
|                     | 8399 Nov 05 04:41 | 0° $\mathcal{X}$             |            | evening rise        | 8400 Oct 15 19:14 | 7° $\mathcal{M}$ 52'57       |            |
| desc. node          | 8399 Nov 13 16:05 | 14° $\mathcal{X}$ 59'23      |            |                     | 8400 Oct 27 15:39 | 0° $\mathcal{X}$             |            |
|                     | 8399 Nov 23 12:33 | 0° $\mathcal{Z}$             |            | desc. node          | 8400 Oct 30 13:09 | 4° $\mathcal{X}$ 44'46       |            |
| evening max el      | 8399 Dec 06 11:20 | 15° $\mathcal{Z}$ 25'53      | 27°15'23   | evening max el      | 8400 Nov 17 22:21 | 28° $\mathcal{X}$ 32'17      | 27°29'15   |
| retrograde          | 8399 Dec 19 22:22 | 22° $\mathcal{Z}$ 46'40      |            |                     | 8400 Nov 19 12:59 | 0° $\mathcal{Z}$             |            |
| evening set         | 8399 Dec 26 18:28 | 20° $\mathcal{Z}$ 10'36      |            | retrograde          | 8400 Dec 01 16:14 | 5° $\mathcal{Z}$ 50'15       |            |
| min. Earth dist.    | 8399 Dec 30 15:20 | 16° $\mathcal{Z}$ 33'30      | 0.64849 AU | evening set         | 8400 Dec 08 17:56 | 3° $\mathcal{Z}$ 20'58       |            |

|                  |                   |                       |            |                  |                   |                       |            |
|------------------|-------------------|-----------------------|------------|------------------|-------------------|-----------------------|------------|
| min. Earth dist. | 8400 Dec 12 10:56 | 0° $\text{S}$ 14'02   | 0.63092 AU |                  | 8401 Oct 03 16:53 | 0° $\text{M}$         |            |
|                  | 8400 Dec 12 16:49 | 30° $\text{R}$ 27     |            | desc. node       | 8401 Oct 17 10:13 | 23° $\text{M}$ 56'07  |            |
| inferior conj    | 8400 Dec 15 04:55 | 27° $\text{S}$ 32'00  | -2°30'28   |                  | 8401 Oct 21 16:17 | 0° $\text{S}$         |            |
| minimum elong    | 8400 Dec 15 09:41 | 27° $\text{S}$ 20'16  | 2°28'26    | evening max el   | 8401 Oct 31 05:14 | 11° $\text{S}$ 01'15  | 27°10'53   |
| morning rise     | 8400 Dec 22 03:27 | 22° $\text{S}$ 19'00  |            | retrograde       | 8401 Nov 14 02:19 | 18° $\text{S}$ 12'38  |            |
| asc. node        | 8400 Dec 22 20:44 | 22° $\text{S}$ 05'39  |            | evening set      | 8401 Nov 21 02:55 | 16° $\text{S}$ 00'29  |            |
| direct           | 8400 Dec 24 11:36 | 21° $\text{S}$ 53'11  |            | min. Earth dist. | 8401 Nov 24 19:58 | 13° $\text{S}$ 16'15  | 0.61099 AU |
| morning max el   | 8400 Dec 31 02:47 | 25° $\text{S}$ 18'02  | 17°47'47   | inferior conj    | 8401 Nov 27 22:13 | 10° $\text{S}$ 35'24  | -3°40'29   |
|                  | 8401 Jan 04 00:50 | 0° $\text{S}$         |            | minimum elong    | 8401 Nov 28 05:00 | 10° $\text{S}$ 20'39  | 3°38'07    |
| morning set      | 8401 Jan 16 07:04 | 20° $\text{S}$ 10'12  |            | morning rise     | 8401 Dec 05 09:22 | 5° $\text{S}$ 41'43   |            |
|                  | 8401 Jan 21 23:05 | 0° $\text{S}$         |            | direct           | 8401 Dec 07 14:27 | 5° $\text{S}$ 21'41   |            |
| desc. node       | 8401 Jan 26 12:23 | 7° $\text{S}$ 43'25   |            | asc. node        | 8401 Dec 09 17:47 | 5° $\text{S}$ 41'09   |            |
|                  |                   |                       |            | morning max el   | 8401 Dec 14 17:56 | 8° $\text{S}$ 56'56   | 17°56'22   |
|                  |                   |                       |            |                  | 8401 Dec 28 10:52 | 0° $\text{S}$         |            |
| superior conj    | 8401 Jan 28 07:18 | 10° $\text{S}$ 42'12  | -0°13'05   | morning set      | 8401 Dec 30 09:47 | 3° $\text{S}$ 34'30   |            |
| minimum elong    | 8401 Jan 28 05:57 | 10° $\text{S}$ 36'36  | 0°12'44    |                  |                   |                       |            |
| behind sun begin | 8401 Jan 28 00:12 | 10° $\text{S}$ 12'45  |            |                  |                   |                       |            |
| behind sun end   | 8401 Jan 28 11:42 | 11° $\text{S}$ 00'26  |            | superior conj    | 8402 Jan 09 17:58 | 22° $\text{S}$ 11'34  | 0°26'49    |
| max. Earth dist. | 8401 Feb 03 16:50 | 21° $\text{S}$ 07'27  | 1.44179 AU | minimum elong    | 8402 Jan 09 20:10 | 22° $\text{S}$ 21'11  | 0°26'39    |
|                  | 8401 Feb 09 07:37 | 0° $\text{H}$         |            | desc. node       | 8402 Jan 13 09:20 | 28° $\text{S}$ 27'41  |            |
| evening rise     | 8401 Feb 12 12:16 | 4° $\text{H}$ 57'04   |            |                  | 8402 Jan 14 07:09 | 0° $\text{S}$         |            |
|                  | 8401 Mar 01 07:39 | 0° $\text{Y}$         |            | max. Earth dist. | 8402 Jan 17 06:27 | 4° $\text{S}$ 57'18   | 1.42572 AU |
| evening max el   | 8401 Mar 14 03:16 | 16° $\text{Y}$ 23'06  | 20°58'22   | evening rise     | 8402 Jan 23 09:00 | 14° $\text{S}$ 48'57  |            |
| asc. node        | 8401 Mar 20 19:41 | 21° $\text{Y}$ 05'43  |            |                  | 8402 Feb 02 06:35 | 0° $\text{H}$         |            |
| retrograde       | 8401 Mar 22 14:35 | 21° $\text{Y}$ 22'01  |            |                  | 8402 Feb 24 20:28 | 0° $\text{Y}$         |            |
| evening set      | 8401 Mar 26 18:12 | 19° $\text{Y}$ 44'38  |            | evening max el   | 8402 Feb 24 22:02 | 0° $\text{Y}$ 03'57   | 22°13'46   |
| inferior conj    | 8401 Apr 01 01:31 | 13° $\text{Y}$ 32'56  | 2°58'46    | retrograde       | 8402 Mar 06 11:38 | 5° $\text{Y}$ 44'05   |            |
| minimum elong    | 8401 Mar 31 23:38 | 13° $\text{Y}$ 39'27  | 2°58'23    | asc. node        | 8402 Mar 07 16:47 | 5° $\text{Y}$ 36'37   |            |
| min. Earth dist. | 8401 Apr 01 12:03 | 12° $\text{Y}$ 56'30  | 0.68100 AU | evening set      | 8402 Mar 11 02:03 | 3° $\text{Y}$ 51'29   |            |
| morning rise     | 8401 Apr 06 04:50 | 7° $\text{Y}$ 18'09   |            |                  | 8402 Mar 14 14:13 | 30° $\text{R}$ 11     |            |
| direct           | 8401 Apr 11 13:10 | 4° $\text{Y}$ 56'15   |            | inferior conj    | 8402 Mar 16 09:59 | 27° $\text{H}$ 30'25  | 2°31'03    |
| morning max el   | 8401 Apr 22 05:53 | 11° $\text{Y}$ 19'15  | 23°40'12   | minimum elong    | 8402 Mar 16 07:45 | 27° $\text{H}$ 38'12  | 2°30'29    |
| desc. node       | 8401 Apr 24 12:09 | 13° $\text{Y}$ 43'29  |            | min. Earth dist. | 8402 Mar 16 08:01 | 27° $\text{H}$ 37'17  | 0.68423 AU |
|                  | 8401 May 07 03:08 | 0° $\text{S}$         |            | morning rise     | 8402 Mar 21 13:17 | 21° $\text{H}$ 20'00  |            |
|                  | 8401 May 26 11:17 | 0° $\text{II}$        |            | direct           | 8402 Mar 26 07:40 | 19° $\text{H}$ 19'00  |            |
| morning set      | 8401 May 27 12:08 | 1° $\text{II}$ 45'09  |            | morning max el   | 8402 Apr 04 17:15 | 24° $\text{H}$ 49'49  | 22°11'21   |
| max. Earth dist. | 8401 May 31 09:17 | 8° $\text{II}$ 27'54  | 1.38814 AU |                  | 8402 Apr 09 08:20 | 0° $\text{Y}$         |            |
|                  |                   |                       |            | desc. node       | 8402 Apr 11 09:04 | 2° $\text{Y}$ 31'28   |            |
| superior conj    | 8401 Jun 07 20:37 | 22° $\text{II}$ 03'35 | -1°19'48   |                  | 8402 Apr 30 14:00 | 0° $\text{S}$         |            |
| minimum elong    | 8401 Jun 08 01:33 | 22° $\text{II}$ 26'43 | 1°19'15    | morning set      | 8402 May 07 23:25 | 11° $\text{S}$ 40'25  |            |
|                  | 8401 Jun 12 00:35 | 0° $\text{S}$         |            | max. Earth dist. | 8402 May 13 07:33 | 20° $\text{S}$ 28'31  | 1.41051 AU |
| asc. node        | 8401 Jun 16 18:43 | 9° $\text{S}$ 15'13   |            |                  | 8402 May 18 20:49 | 0° $\text{II}$        |            |
| evening rise     | 8401 Jun 17 01:12 | 9° $\text{S}$ 46'45   |            |                  |                   |                       |            |
|                  | 8401 Jun 28 08:51 | 0° $\text{Q}$         |            | superior conj    | 8402 May 21 02:10 | 3° $\text{II}$ 55'24  | -1°47'42   |
| evening max el   | 8401 Jul 03 07:19 | 6° $\text{Q}$ 07'25   | 18°48'05   | minimum elong    | 8402 May 21 08:02 | 4° $\text{II}$ 21'30  | 1°47'16    |
| retrograde       | 8401 Jul 11 14:59 | 10° $\text{Q}$ 14'46  |            | evening rise     | 8402 May 31 11:53 | 23° $\text{II}$ 00'25 |            |
| evening set      | 8401 Jul 13 14:58 | 10° $\text{Q}$ 01'23  |            | asc. node        | 8402 Jun 03 15:44 | 28° $\text{II}$ 52'28 |            |
| desc. node       | 8401 Jul 21 11:26 | 5° $\text{Q}$ 50'52   |            |                  | 8402 Jun 04 06:27 | 0° $\text{S}$         |            |
| inferior conj    | 8401 Jul 21 16:44 | 5° $\text{Q}$ 41'17   | -0°04'00   | evening max el   | 8402 Jun 16 14:28 | 18° $\text{S}$ 42'53  | 18°16'50   |
| minimum elong    | 8401 Jul 21 16:33 | 5° $\text{Q}$ 41'35   | 0°04'05    | retrograde       | 8402 Jun 23 19:20 | 22° $\text{S}$ 19'56  |            |
| transit middle   | 8401 Jul 21 16:33 | 5° $\text{Q}$ 41'35   | 0°04'05    | evening set      | 8402 Jun 26 02:31 | 21° $\text{S}$ 58'35  |            |
| transit begin    | 8401 Jul 21 12:59 | 5° $\text{Q}$ 48'05   |            | inferior conj    | 8402 Jul 03 08:39 | 17° $\text{S}$ 17'45  | 1°25'43    |
| transit end      | 8401 Jul 21 20:08 | 5° $\text{Q}$ 35'04   |            | minimum elong    | 8402 Jul 03 11:15 | 17° $\text{S}$ 12'13  | 1°24'41    |
| min. Earth dist. | 8401 Jul 24 20:32 | 3° $\text{Q}$ 24'33   | 0.56934 AU | min. Earth dist. | 8402 Jul 06 18:04 | 14° $\text{S}$ 25'53  | 0.58993 AU |
| morning rise     | 8401 Jul 29 14:44 | 0° $\text{Q}$ 38'00   |            | desc. node       | 8402 Jul 08 08:30 | 13° $\text{S}$ 12'11  |            |
|                  | 8401 Jul 31 06:55 | 30° $\text{R}$ 28     |            | morning rise     | 8402 Jul 10 16:49 | 11° $\text{S}$ 41'33  |            |
| direct           | 8401 Aug 04 04:10 | 29° $\text{S}$ 23'03  |            | direct           | 8402 Jul 16 22:55 | 9° $\text{S}$ 55'41   |            |
|                  | 8401 Aug 08 02:15 | 0° $\text{Q}$         |            | morning max el   | 8402 Jul 31 07:57 | 17° $\text{S}$ 42'58  | 27°25'02   |
| morning max el   | 8401 Aug 18 11:21 | 6° $\text{Q}$ 49'58   | 26°19'03   |                  | 8402 Aug 10 13:25 | 0° $\text{Q}$         |            |
|                  | 8401 Sep 04 14:52 | 0° $\text{M}$         |            |                  | 8402 Aug 28 04:16 | 0° $\text{M}$         |            |
| asc. node        | 8401 Sep 12 18:16 | 15° $\text{M}$ 12'14  |            | asc. node        | 8402 Aug 30 15:14 | 5° $\text{M}$ 00'57   |            |
| morning set      | 8401 Sep 16 02:47 | 22° $\text{M}$ 10'10  |            | morning set      | 8402 Aug 31 10:44 | 6° $\text{M}$ 42'57   |            |
|                  | 8401 Sep 19 17:29 | 0° $\text{S}$         |            | max. Earth dist. | 8402 Sep 07 01:22 | 21° $\text{M}$ 04'58  | 1.31640 AU |
| superior conj    | 8401 Sep 23 00:20 | 7° $\text{S}$ 16'00   | 1°27'31    | superior conj    | 8402 Sep 07 12:06 | 22° $\text{M}$ 04'32  | 1°12'37    |
| minimum elong    | 8401 Sep 22 22:22 | 7° $\text{S}$ 05'08   | 1°27'19    | minimum elong    | 8402 Sep 07 09:51 | 21° $\text{M}$ 52'03  | 1°12'15    |
| max. Earth dist. | 8401 Sep 23 15:05 | 8° $\text{S}$ 37'43   | 1.31859 AU |                  | 8402 Sep 11 02:00 | 0° $\text{S}$         |            |
| evening rise     | 8401 Sep 29 22:22 | 22° $\text{S}$ 17'43  |            | evening rise     | 8402 Sep 14 06:23 | 6° $\text{S}$ 54'12   |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8402 Sep 26 06:02 | 0°♍       |            | desc. node          | 8403 Sep 21 04:24 | 29°♊37'32 |            |
| desc. node       | 8402 Oct 04 07:18 | 12°♍20'05 |            |                     | 8403 Sep 21 12:13 | 0°♍       |            |
| evening max el   | 8402 Oct 13 05:09 | 22°♍41'51 | 26°18'38   | evening max el      | 8403 Sep 24 20:51 | 3°♍31'34  | 24°57'16   |
| retrograde       | 8402 Oct 27 03:11 | 29°♍46'56 |            | retrograde          | 8403 Oct 08 17:18 | 10°♍30'29 |            |
| evening set      | 8402 Nov 02 16:54 | 28°♍02'04 |            | evening set         | 8403 Oct 14 07:13 | 9°♍20'12  |            |
| min. Earth dist. | 8402 Nov 06 18:21 | 25°♍27'37 | 0.59008 AU | min. Earth dist.    | 8403 Oct 19 08:12 | 6°♍37'07  | 0.57045 AU |
| inferior conj    | 8402 Nov 09 22:46 | 23°♍03'39 | -4°43'49   | inferior conj       | 8403 Oct 22 03:32 | 4°♍46'44  | -5°27'05   |
| minimum elong    | 8402 Nov 10 05:56 | 22°♍50'06 | 4°42'03    | minimum elong       | 8403 Oct 22 07:30 | 4°♍40'13  | 5°26'37    |
| morning rise     | 8402 Nov 17 21:18 | 18°♍32'18 |            | morning rise        | 8403 Oct 30 10:03 | 0°♍38'18  |            |
| direct           | 8402 Nov 20 03:19 | 18°♍14'53 |            | direct              | 8403 Nov 01 21:51 | 0°♍20'39  |            |
| asc. node        | 8402 Nov 26 14:48 | 20°♍48'41 |            | morning max el      | 8403 Nov 11 03:27 | 4°♍43'58  | 19°15'01   |
| morning max el   | 8402 Nov 28 03:22 | 22°♍09'15 | 18°24'54   | asc. node           | 8403 Nov 13 11:48 | 7°♍14'28  |            |
|                  | 8402 Dec 04 06:14 | 0°♊       |            |                     | 8403 Nov 27 02:14 | 0°♊       |            |
| morning set      | 8402 Dec 14 01:39 | 17°♊35'28 |            | morning set         | 8403 Nov 28 02:22 | 1°♊59'46  |            |
|                  | 8402 Dec 20 13:49 | 0°♊       |            |                     |                   |           |            |
| superior conj    | 8402 Dec 23 03:20 | 4°♊46'12  | 0°58'18    | superior conj       | 8403 Dec 06 06:10 | 18°♊10'15 | 1°20'41    |
| minimum elong    | 8402 Dec 23 06:43 | 5°♊01'47  | 0°58'01    | minimum elong       | 8403 Dec 06 09:10 | 18°♊24'44 | 1°20'33    |
| max. Earth dist. | 8402 Dec 30 15:39 | 18°♊09'24 | 1.40563 AU | max. Earth dist.    | 8403 Dec 12 13:01 | 0°♊       |            |
| desc. node       | 8402 Dec 31 06:19 | 19°♊12'21 |            | evening rise        | 8403 Dec 12 21:22 | 0°♊37'56  | 1.38389 AU |
| evening rise     | 8403 Jan 04 01:16 | 25°♊34'42 |            | desc. node          | 8403 Dec 16 15:26 | 7°♊18'09  |            |
|                  | 8403 Jan 06 18:15 | 0°♊       |            |                     | 8403 Dec 18 03:20 | 9°♊53'08  |            |
|                  | 8403 Jan 27 00:46 | 0°♊       |            | evening max el      | 8403 Dec 30 16:37 | 0°♊       |            |
| evening max el   | 8403 Feb 07 13:07 | 13°♊47'49 | 23°33'39   |                     | 8404 Jan 21 02:19 | 27°♊34'09 | 24°51'53   |
| retrograde       | 8403 Feb 18 05:55 | 20°♊06'50 |            | retrograde          | 8404 Jan 23 17:41 | 0°♊       |            |
| asc. node        | 8403 Feb 22 13:51 | 18°♊35'34 |            | evening set         | 8404 Feb 01 20:21 | 4°♊24'40  |            |
| evening set      | 8403 Feb 23 08:15 | 17°♊59'30 |            | asc. node           | 8404 Feb 07 11:14 | 2°♊04'17  |            |
| min. Earth dist. | 8403 Feb 28 04:40 | 12°♊19'42 | 0.68330 AU |                     | 8404 Feb 09 10:56 | 0°♊06'25  |            |
| inferior conj    | 8403 Feb 28 18:27 | 11°♊32'29 | 1°54'27    | min. Earth dist.    | 8404 Feb 09 13:13 | 30°♊      |            |
| minimum elong    | 8403 Feb 28 16:19 | 11°♊39'50 | 1°53'48    | inferior conj       | 8404 Feb 11 23:50 | 26°♊58'53 | 0.67834 AU |
| morning rise     | 8403 Mar 06 00:21 | 5°♊27'43  |            | minimum elong       | 8404 Feb 13 01:04 | 25°♊35'35 | 1°09'29    |
| direct           | 8403 Mar 10 04:58 | 3°♊49'15  |            | morning rise        | 8404 Feb 12 23:31 | 25°♊40'44 | 1°08'59    |
| morning max el   | 8403 Mar 18 10:36 | 8°♊32'05  | 20°49'58   | direct              | 8404 Feb 18 12:02 | 19°♊37'53 |            |
| desc. node       | 8403 Mar 29 06:00 | 21°♊57'24 |            | morning max el      | 8404 Feb 22 03:50 | 18°♊21'03 |            |
|                  | 8403 Apr 03 20:46 | 0°♊       |            |                     | 8404 Feb 29 11:46 | 22°♊26'27 | 19°41'15   |
| morning set      | 8403 Apr 17 08:42 | 20°♊25'55 |            | greatest brilliancy | 8404 Mar 06 20:03 | 0°♊       |            |
|                  | 8403 Apr 23 09:54 | 0°♊       |            | desc. node          | 8404 Mar 13 05:45 | 9°♊03'39  | -0.6m      |
| max. Earth dist. | 8403 Apr 25 12:32 | 3°♊24'18  | 1.43038 AU | morning set         | 8404 Mar 15 02:57 | 11°♊50'45 |            |
|                  |                   |           |            |                     | 8404 Mar 26 06:09 | 28°♊45'22 |            |
| superior conj    | 8403 May 02 09:22 | 14°♊45'56 | -2°06'57   | max. Earth dist.    | 8404 Mar 27 01:31 | 0°♊       |            |
| minimum elong    | 8403 May 02 13:24 | 15°♊02'55 | 2°06'54    |                     | 8404 Apr 07 00:13 | 17°♊06'08 | 1.44531 AU |
|                  | 8403 May 11 04:57 | 0°♊       |            | superior conj       | 8404 Apr 11 15:49 | 24°♊32'03 | -2°11'21   |
| evening rise     | 8403 May 14 07:35 | 5°♊30'45  |            | minimum elong       | 8404 Apr 11 14:02 | 24°♊24'51 | 2°11'23    |
| asc. node        | 8403 May 21 12:45 | 18°♊10'25 |            |                     | 8404 Apr 15 00:41 | 0°♊       |            |
|                  | 8403 May 29 11:35 | 0°♊       |            | evening rise        | 8404 Apr 25 07:39 | 17°♊07'47 |            |
| evening max el   | 8403 May 31 02:24 | 1°♊45'04  | 18°05'21   |                     | 8404 May 02 23:21 | 0°♊       |            |
| retrograde       | 8403 Jun 06 16:12 | 5°♊07'42  |            | asc. node           | 8404 May 07 09:48 | 7°♊02'33  |            |
| evening set      | 8403 Jun 09 06:52 | 4°♊35'33  |            | evening max el      | 8404 May 13 15:46 | 15°♊05'25 | 18°12'51   |
|                  | 8403 Jun 15 09:58 | 30°♊      |            | retrograde          | 8404 May 20 00:57 | 18°♊28'09 |            |
| inferior conj    | 8403 Jun 15 20:19 | 29°♊34'39 | 2°27'28    | evening set         | 8404 May 22 22:51 | 17°♊43'16 |            |
| minimum elong    | 8403 Jun 15 23:17 | 29°♊27'21 | 2°26'32    | inferior conj       | 8404 May 28 23:41 | 12°♊24'03 | 3°04'14    |
| min. Earth dist. | 8403 Jun 18 23:35 | 26°♊30'51 | 0.61238 AU | minimum elong       | 8404 May 29 01:43 | 12°♊18'22 | 3°03'44    |
| morning rise     | 8403 Jun 22 13:24 | 23°♊35'27 |            | min. Earth dist.    | 8404 May 31 14:23 | 9°♊30'59  | 0.63387 AU |
| desc. node       | 8403 Jun 25 05:32 | 22°♊08'21 |            | morning rise        | 8404 Jun 04 03:11 | 6°♊12'05  |            |
| direct           | 8403 Jun 29 05:17 | 21°♊20'02 |            | direct              | 8404 Jun 10 21:20 | 3°♊35'09  |            |
| morning max el   | 8403 Jul 13 11:24 | 29°♊19'47 | 27°54'29   | desc. node          | 8404 Jun 11 02:34 | 3°♊35'18  |            |
|                  | 8403 Jul 14 03:20 | 0°♊       |            | morning max el      | 8404 Jun 24 19:40 | 11°♊38'05 | 27°45'53   |
|                  | 8403 Aug 04 12:27 | 0°♊       |            |                     | 8404 Jul 09 08:25 | 0°♊       |            |
| morning set      | 8403 Aug 15 14:05 | 20°♊59'47 |            |                     | 8404 Jul 26 22:46 | 0°♊       |            |
| asc. node        | 8403 Aug 17 12:10 | 25°♊00'01 |            | morning set         | 8404 Jul 29 10:37 | 4°♊54'22  |            |
|                  | 8403 Aug 19 20:20 | 0°♊       |            | asc. node           | 8404 Aug 03 09:08 | 15°♊05'00 |            |
| max. Earth dist. | 8403 Aug 21 10:03 | 3°♊25'01  | 1.31880 AU | max. Earth dist.    | 8404 Aug 03 13:10 | 15°♊26'21 | 1.32590 AU |
|                  |                   |           |            |                     |                   |           |            |
| superior conj    | 8403 Aug 22 22:37 | 6°♊45'36  | 0°52'55    | superior conj       | 8404 Aug 06 06:02 | 21°♊13'45 | 0°28'48    |
| minimum elong    | 8403 Aug 22 20:34 | 6°♊34'18  | 0°52'27    | minimum elong       | 8404 Aug 06 04:43 | 21°♊06'36 | 0°28'25    |
| evening rise     | 8403 Aug 29 17:10 | 21°♊35'52 |            |                     | 8404 Aug 10 06:55 | 0°♊       |            |
|                  | 8403 Sep 02 17:51 | 0°♊       |            | evening rise        | 8404 Aug 13 04:50 | 6°♊17'03  |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8404 Aug 25 15:56 | 0°♄       |            | asc. node           | 8405 Jul 21 06:06 | 5°♄10'56  |            |
| evening max el      | 8404 Sep 05 08:08 | 13°♄48'40 | 23°19'45   | evening rise        | 8405 Jul 28 15:25 | 20°♄50'59 |            |
| desc. node          | 8404 Sep 07 01:30 | 15°♄23'12 |            |                     | 8405 Aug 02 02:42 | 0°♄       |            |
| retrograde          | 8404 Sep 18 19:24 | 20°♄32'46 |            | evening max el      | 8405 Aug 17 23:25 | 24°♄06'10 | 21°42'42   |
| evening set         | 8404 Sep 22 22:12 | 19°♄55'44 |            | desc. node          | 8405 Aug 24 22:37 | 29°♄04'56 |            |
| min. Earth dist.    | 8404 Sep 29 17:40 | 16°♄45'36 | 0.55519 AU |                     | 8405 Aug 27 18:14 | 0°♄       |            |
| inferior conj       | 8404 Oct 01 12:31 | 15°♄42'43 | -5°31'27   | retrograde          | 8405 Aug 30 10:14 | 0°♄16'49  |            |
| minimum elong       | 8404 Oct 01 09:22 | 15°♄47'21 | 5°31'11    | evening set         | 8405 Sep 02 03:22 | 0°♄00'13  |            |
| morning rise        | 8404 Oct 09 22:40 | 11°♄51'02 |            |                     | 8405 Sep 02 03:47 | 30°♄♄     |            |
| direct              | 8404 Oct 12 21:05 | 11°♄30'15 |            | inferior conj       | 8405 Sep 11 07:30 | 26°♄01'19 | -4°41'34   |
| morning max el      | 8404 Oct 23 15:15 | 16°♄32'49 | 20°27'27   | minimum elong       | 8405 Sep 10 22:25 | 26°♄14'01 | 4°39'31    |
| asc. node           | 8404 Oct 30 08:48 | 24°♄43'20 |            | min. Earth dist.    | 8405 Sep 11 02:11 | 26°♄08'46 | 0.54737 AU |
|                     | 8404 Nov 02 16:13 | 0°♄       |            | morning rise        | 8405 Sep 19 18:36 | 22°♄11'44 |            |
| morning set         | 8404 Nov 11 08:54 | 16°♄38'55 |            | direct              | 8405 Sep 23 07:26 | 21°♄44'24 |            |
|                     | 8404 Nov 17 20:11 | 0°♄♄      |            | morning max el      | 8405 Oct 05 14:11 | 27°♄32'36 | 22°00'13   |
|                     |                   |           |            |                     | 8405 Oct 08 00:07 | 0°♄       |            |
| superior conj       | 8404 Nov 18 21:45 | 2°♄10'14  | 1°34'31    | asc. node           | 8405 Oct 17 05:48 | 13°♄00'37 |            |
| minimum elong       | 8404 Nov 18 23:37 | 2°♄19'38  | 1°34'34    |                     | 8405 Oct 26 02:27 | 0°♄       |            |
| max. Earth dist.    | 8404 Nov 24 04:22 | 12°♄36'43 | 1.36312 AU | morning set         | 8405 Oct 26 18:57 | 1°♄26'15  |            |
| evening rise        | 8404 Nov 28 01:27 | 19°♄54'13 |            |                     |                   |           |            |
|                     | 8404 Dec 03 18:18 | 0°♄       |            | superior conj       | 8405 Nov 02 22:17 | 16°♄34'52 | 1°40'45    |
| desc. node          | 8404 Dec 04 00:22 | 0°♄25'54  |            | minimum elong       | 8405 Nov 02 22:48 | 16°♄37'39 | 1°40'52    |
|                     | 8404 Dec 23 17:49 | 0°♄       |            | max. Earth dist.    | 8405 Nov 06 17:57 | 24°♄29'55 | 1.34523 AU |
| evening max el      | 8405 Jan 02 15:24 | 11°♄20'59 | 26°01'27   |                     | 8405 Nov 09 11:53 | 0°♄♄      |            |
| retrograde          | 8405 Jan 15 06:02 | 18°♄31'41 |            | evening rise        | 8405 Nov 11 03:31 | 3°♄12'59  |            |
| evening set         | 8405 Jan 21 09:21 | 16°♄01'20 |            | desc. node          | 8405 Nov 20 21:26 | 20°♄45'45 |            |
| min. Earth dist.    | 8405 Jan 25 15:17 | 11°♄30'28 | 0.66955 AU |                     | 8405 Nov 26 15:24 | 0°♄       |            |
| asc. node           | 8405 Jan 26 08:02 | 10°♄38'29 |            | evening max el      | 8405 Dec 16 04:48 | 25°♄01'46 | 26°54'55   |
| inferior conj       | 8405 Jan 27 03:57 | 9°♄36'11  | 0°16'32    |                     | 8405 Dec 22 09:30 | 0°♄       |            |
| minimum elong       | 8405 Jan 27 03:31 | 9°♄37'32  | 0°16'30    | retrograde          | 8405 Dec 29 10:02 | 2°♄21'01  |            |
| morning rise        | 8405 Feb 01 22:18 | 3°♄47'26  |            |                     | 8406 Jan 04 17:10 | 30°♄♄     |            |
| direct              | 8405 Feb 05 02:46 | 2°♄49'31  |            | evening set         | 8406 Jan 05 00:40 | 29°♄45'28 |            |
| morning max el      | 8405 Feb 11 20:26 | 6°♄29'43  | 18°47'52   | min. Earth dist.    | 8406 Jan 09 00:44 | 25°♄48'54 | 0.65715 AU |
|                     | 8405 Feb 28 16:02 | 0°♄♄      |            | inferior conj       | 8406 Jan 11 00:58 | 23°♄29'48 | -0°43'47   |
| desc. node          | 8405 Mar 01 23:54 | 2°♄04'08  |            | minimum elong       | 8406 Jan 11 02:14 | 23°♄26'10 | 0°43'05    |
| morning set         | 8405 Mar 05 16:08 | 7°♄48'44  |            | asc. node           | 8406 Jan 13 05:08 | 21°♄04'41 |            |
|                     | 8405 Mar 19 20:38 | 0°♄♄      |            | morning rise        | 8406 Jan 17 04:54 | 17°♄52'28 |            |
| max. Earth dist.    | 8405 Mar 20 17:03 | 1°♄19'59  | 1.45375 AU | direct              | 8406 Jan 19 23:50 | 17°♄09'56 |            |
|                     |                   |           |            | morning max el      | 8406 Jan 26 10:41 | 20°♄36'14 | 18°11'01   |
| superior conj       | 8405 Mar 22 02:14 | 3°♄30'07  | -1°55'59   |                     | 8406 Feb 02 17:49 | 0°♄       |            |
| minimum elong       | 8405 Mar 21 17:56 | 2°♄57'31  | 1°55'26    | morning set         | 8406 Feb 14 06:10 | 18°♄18'19 |            |
| evening rise        | 8405 Apr 06 08:29 | 27°♄45'56 |            | desc. node          | 8406 Feb 16 20:51 | 22°♄31'54 |            |
|                     | 8405 Apr 07 17:44 | 0°♄♄      |            |                     | 8406 Feb 21 12:23 | 0°♄♄      |            |
| greatest brilliancy | 8405 Apr 12 18:37 | 8°♄07'18  | -0.9m      |                     |                   |           |            |
| asc. node           | 8405 Apr 24 06:52 | 25°♄20'09 |            | superior conj       | 8406 Mar 01 07:48 | 12°♄22'32 | -1°22'10   |
| evening max el      | 8405 Apr 27 03:43 | 28°♄36'38 | 18°38'29   | minimum elong       | 8406 Feb 28 22:47 | 11°♄47'04 | 1°21'04    |
|                     | 8405 Apr 28 16:05 | 0°♄♄      |            | max. Earth dist.    | 8406 Mar 03 12:43 | 15°♄50'11 | 1.45484 AU |
| retrograde          | 8405 May 03 17:19 | 2°♄12'30  |            |                     | 8406 Mar 12 14:33 | 0°♄♄      |            |
| evening set         | 8405 May 06 22:38 | 1°♄13'35  |            | evening rise        | 8406 Mar 17 11:03 | 7°♄33'09  |            |
|                     | 8405 May 08 14:17 | 30°♄♄     |            | greatest brilliancy | 8406 Mar 29 12:09 | 26°♄08'53 | -0.7m      |
| inferior conj       | 8405 May 12 14:41 | 25°♄37'31 | 3°20'57    |                     | 8406 Apr 01 02:04 | 0°♄♄      |            |
| minimum elong       | 8405 May 12 15:24 | 25°♄35'20 | 3°20'45    | evening max el      | 8406 Apr 10 12:02 | 12°♄13'51 | 19°21'11   |
| min. Earth dist.    | 8405 May 14 14:18 | 23°♄12'52 | 0.65252 AU | asc. node           | 8406 Apr 11 03:59 | 12°♄53'01 |            |
| morning rise        | 8405 May 18 07:24 | 19°♄20'14 |            | retrograde          | 8406 Apr 17 14:06 | 16°♄14'42 |            |
| direct              | 8405 May 24 21:13 | 16°♄33'46 |            | evening set         | 8406 Apr 21 03:21 | 15°♄01'00 |            |
| desc. node          | 8405 May 28 23:36 | 17°♄28'28 |            | inferior conj       | 8406 Apr 26 13:55 | 9°♄09'28  | 3°21'55    |
| morning max el      | 8405 Jun 07 05:54 | 24°♄27'08 | 27°03'32   | minimum elong       | 8406 Apr 26 13:23 | 9°♄11'12  | 3°21'47    |
|                     | 8405 Jun 12 05:49 | 0°♄♄      |            | min. Earth dist.    | 8406 Apr 27 22:16 | 7°♄24'02  | 0.66715 AU |
|                     | 8405 Jul 02 18:37 | 0°♄♄      |            | morning rise        | 8406 May 01 23:03 | 2°♄51'24  |            |
| morning set         | 8405 Jul 12 21:21 | 18°♄17'21 |            | direct              | 8406 May 08 03:33 | 0°♄07'29  |            |
| max. Earth dist.    | 8405 Jul 17 06:57 | 26°♄59'30 | 1.33792 AU | desc. node          | 8406 May 15 20:36 | 3°♄19'24  |            |
|                     | 8405 Jul 18 18:17 | 0°♄♄      |            | morning max el      | 8406 May 20 15:58 | 7°♄36'17  | 25°55'32   |
|                     |                   |           |            |                     | 8406 Jun 07 02:24 | 0°♄♄      |            |
| superior conj       | 8405 Jul 21 08:10 | 5°♄21'50  | 0°00'53    |                     | 8406 Jun 25 05:40 | 0°♄♄      |            |
| minimum elong       | 8405 Jul 21 08:08 | 5°♄21'38  | 0°00'43    | morning set         | 8406 Jun 25 18:35 | 0°♄59'18  |            |
| behind sun begin    | 8405 Jul 21 02:31 | 4°♄52'07  |            | max. Earth dist.    | 8406 Jun 29 13:59 | 8°♄09'11  | 1.35476 AU |
| behind sun end      | 8405 Jul 21 13:46 | 5°♄51'12  |            |                     |                   |           |            |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| superior conj    | 8406 Jul 05 02:31 | 19° $\text{☿}$ 03'31 | -0°29'54   | superior conj    | 8407 Jun 18 09:51 | 2° $\text{☿}$ 10'31  | -1°01'51   |
| minimum elong    | 8406 Jul 05 04:17 | 19° $\text{☿}$ 12'25 | 0°29'44    | minimum elong    | 8407 Jun 18 13:40 | 2° $\text{☿}$ 29'03  | 1°01'23    |
| asc. node        | 8406 Jul 08 03:07 | 25° $\text{☿}$ 14'27 |            | asc. node        | 8407 Jun 25 00:08 | 15° $\text{☿}$ 11'32 |            |
|                  | 8406 Jul 10 10:22 | 0° $\text{♄}$        |            | evening rise     | 8407 Jun 27 00:53 | 19° $\text{☿}$ 14'39 |            |
| evening rise     | 8406 Jul 12 22:55 | 5° $\text{♄}$ 12'29  |            |                  | 8407 Jul 02 14:06 | 0° $\text{♄}$        |            |
|                  | 8406 Jul 26 21:05 | 0° $\text{♅}$        |            | evening max el   | 8407 Jul 13 17:46 | 16° $\text{♄}$ 28'39 | 19°15'13   |
| evening max el   | 8406 Jul 31 02:00 | 4° $\text{♅}$ 55'02  | 20°19'05   | retrograde       | 8407 Jul 22 21:58 | 21° $\text{♄}$ 00'54 |            |
| retrograde       | 8406 Aug 10 22:37 | 10° $\text{♅}$ 17'03 |            | evening set      | 8407 Jul 24 19:03 | 20° $\text{♄}$ 50'17 |            |
| desc. node       | 8406 Aug 11 19:42 | 10° $\text{♅}$ 15'04 |            | desc. node       | 8407 Jul 29 16:46 | 18° $\text{♄}$ 56'15 |            |
| evening set      | 8406 Aug 12 21:55 | 10° $\text{♅}$ 07'13 |            | inferior conj    | 8407 Aug 02 07:54 | 16° $\text{♄}$ 40'20 | -1°06'48   |
| inferior conj    | 8406 Aug 22 01:12 | 6° $\text{♅}$ 09'30  | -3°03'19   | minimum elong    | 8407 Aug 02 04:57 | 16° $\text{♄}$ 45'15 | 1°05'46    |
| minimum elong    | 8406 Aug 21 17:02 | 6° $\text{♅}$ 21'27  | 3°00'35    | min. Earth dist. | 8407 Aug 05 01:05 | 14° $\text{♄}$ 52'23 | 0.55966 AU |
| min. Earth dist. | 8406 Aug 23 11:59 | 5° $\text{♅}$ 18'36  | 0.54891 AU | morning rise     | 8407 Aug 10 12:00 | 11° $\text{♄}$ 58'33 |            |
| morning rise     | 8406 Aug 30 11:17 | 2° $\text{♅}$ 01'57  |            | direct           | 8407 Aug 15 13:40 | 10° $\text{♄}$ 59'39 |            |
| direct           | 8406 Sep 03 17:20 | 1° $\text{♅}$ 23'01  |            | morning max el   | 8407 Aug 29 16:55 | 18° $\text{♄}$ 09'47 | 25°28'05   |
| morning max el   | 8406 Sep 17 04:17 | 7° $\text{♅}$ 55'38  | 23°45'21   |                  | 8407 Sep 08 13:17 | 0° $\text{♅}$        |            |
|                  | 8406 Oct 03 01:50 | 0° $\text{♆}$        |            | asc. node        | 8407 Sep 20 23:44 | 21° $\text{♅}$ 15'41 |            |
| asc. node        | 8406 Oct 04 02:47 | 1° $\text{♆}$ 54'28  |            |                  | 8407 Sep 25 06:04 | 0° $\text{♆}$        |            |
| morning set      | 8406 Oct 11 06:34 | 16° $\text{♆}$ 16'06 |            | morning set      | 8407 Sep 25 18:05 | 1° $\text{♆}$ 03'49  |            |
|                  | 8406 Oct 17 14:53 | 0° $\text{♇}$        |            |                  |                   |                      |            |
| superior conj    | 8406 Oct 18 04:46 | 1° $\text{♇}$ 15'13  | 1°40'16    | superior conj    | 8407 Oct 02 14:52 | 16° $\text{♆}$ 04'14 | 1°33'46    |
| minimum elong    | 8406 Oct 18 04:05 | 1° $\text{♇}$ 11'32  | 1°40'19    | minimum elong    | 8407 Oct 02 13:16 | 15° $\text{♆}$ 55'25 | 1°33'40    |
| max. Earth dist. | 8406 Oct 20 16:00 | 6° $\text{♇}$ 33'23  | 1.33132 AU | max. Earth dist. | 8407 Oct 03 21:12 | 18° $\text{♆}$ 50'58 | 1.32186 AU |
| evening rise     | 8406 Oct 25 17:47 | 17° $\text{♇}$ 04'10 |            |                  | 8407 Oct 09 01:48 | 0° $\text{♇}$        |            |
|                  | 8406 Nov 01 12:16 | 0° $\text{♈}$        |            | evening rise     | 8407 Oct 09 17:02 | 1° $\text{♇}$ 19'12  |            |
| desc. node       | 8406 Nov 07 18:29 | 10° $\text{♈}$ 46'12 |            |                  | 8407 Oct 25 10:39 | 0° $\text{♈}$        |            |
|                  | 8406 Nov 21 02:34 | 0° $\text{♉}$        |            | desc. node       | 8407 Oct 25 15:32 | 0° $\text{♈}$ 19'05  |            |
| evening max el   | 8406 Nov 28 17:21 | 8° $\text{♉}$ 24'49  | 27°25'01   | evening max el   | 8407 Nov 11 02:51 | 21° $\text{♈}$ 17'00 | 27°25'34   |
| retrograde       | 8406 Dec 12 07:33 | 15° $\text{♉}$ 44'10 |            | retrograde       | 8407 Nov 24 22:05 | 28° $\text{♈}$ 32'13 |            |
| evening set      | 8406 Dec 19 06:45 | 13° $\text{♉}$ 10'05 |            | evening set      | 8407 Dec 02 00:33 | 26° $\text{♈}$ 08'38 |            |
| min. Earth dist. | 8406 Dec 23 01:48 | 9° $\text{♉}$ 46'25  | 0.64139 AU | min. Earth dist. | 8407 Dec 05 16:47 | 23° $\text{♈}$ 12'56 | 0.62270 AU |
| inferior conj    | 8406 Dec 25 13:36 | 7° $\text{♉}$ 09'59  | -1°50'18   | inferior conj    | 8407 Dec 08 14:54 | 20° $\text{♈}$ 29'34 | -3°00'21   |
| minimum elong    | 8406 Dec 25 17:02 | 7° $\text{♉}$ 01'00  | 1°48'42    | minimum elong    | 8407 Dec 08 20:37 | 20° $\text{♈}$ 16'12 | 2°58'06    |
| asc. node        | 8406 Dec 31 02:13 | 2° $\text{♉}$ 20'21  |            | morning rise     | 8407 Dec 15 18:52 | 15° $\text{♈}$ 24'38 |            |
| morning rise     | 8407 Jan 01 04:59 | 1° $\text{♉}$ 47'10  |            | asc. node        | 8407 Dec 17 23:14 | 15° $\text{♈}$ 01'40 |            |
| direct           | 8407 Jan 03 16:28 | 1° $\text{♉}$ 16'13  |            | direct           | 8407 Dec 18 01:23 | 15° $\text{♈}$ 01'38 |            |
| morning max el   | 8407 Jan 10 03:47 | 4° $\text{♉}$ 38'41  | 17°51'13   | morning max el   | 8407 Dec 24 20:41 | 18° $\text{♈}$ 29'29 | 17°49'10   |
|                  | 8407 Jan 26 21:58 | 0° $\text{♊}$        |            |                  | 8408 Jan 02 04:48 | 0° $\text{♉}$        |            |
| morning set      | 8407 Jan 27 00:32 | 0° $\text{♊}$ 10'54  |            | morning set      | 8408 Jan 09 17:19 | 13° $\text{♉}$ 07'38 |            |
| desc. node       | 8407 Feb 03 17:47 | 13° $\text{♊}$ 09'05 |            |                  | 8408 Jan 19 08:03 | 0° $\text{♊}$        |            |
| superior conj    | 8407 Feb 09 03:16 | 21° $\text{♊}$ 58'49 | -0°38'31   | superior conj    | 8408 Jan 20 23:23 | 2° $\text{♊}$ 47'17  | 0°04'44    |
| minimum elong    | 8407 Feb 08 22:56 | 21° $\text{♊}$ 41'14 | 0°37'46    | minimum elong    | 8408 Jan 20 23:51 | 2° $\text{♊}$ 49'16  | 0°04'49    |
|                  | 8407 Feb 14 03:32 | 0° $\text{♋}$        |            | behind sun begin | 8408 Jan 20 15:22 | 2° $\text{♊}$ 13'22  |            |
| max. Earth dist. | 8407 Feb 14 08:12 | 0° $\text{♋}$ 18'28  | 1.44854 AU | behind sun end   | 8408 Jan 21 08:19 | 3° $\text{♊}$ 25'05  |            |
| evening rise     | 8407 Feb 24 23:44 | 16° $\text{♋}$ 53'19 |            | desc. node       | 8408 Jan 21 14:45 | 3° $\text{♊}$ 52'12  |            |
|                  | 8407 Mar 05 14:57 | 0° $\text{♌}$        |            | max. Earth dist. | 8408 Jan 28 00:27 | 14° $\text{♊}$ 26'52 | 1.43561 AU |
| evening max el   | 8407 Mar 24 15:06 | 25° $\text{♌}$ 52'32 | 20°19'10   | evening rise     | 8408 Feb 04 13:21 | 26° $\text{♊}$ 23'46 |            |
| asc. node        | 8407 Mar 29 01:06 | 29° $\text{♌}$ 27'02 |            |                  | 8408 Feb 06 21:20 | 0° $\text{♋}$        |            |
|                  | 8407 Mar 30 04:45 | 0° $\text{♍}$        |            |                  | 8408 Feb 27 13:17 | 0° $\text{♌}$        |            |
| retrograde       | 8407 Apr 01 12:35 | 0° $\text{♍}$ 28'15  |            | evening max el   | 8408 Mar 06 12:33 | 9° $\text{♌}$ 31'59  | 21°29'24   |
|                  | 8407 Apr 03 17:58 | 30° $\text{♍}$ 00'00 |            | asc. node        | 8408 Mar 14 22:11 | 14° $\text{♌}$ 47'16 |            |
| evening set      | 8407 Apr 05 10:42 | 28° $\text{♌}$ 59'23 |            | retrograde       | 8408 Mar 15 10:46 | 14° $\text{♌}$ 48'40 |            |
| inferior conj    | 8407 Apr 10 18:31 | 22° $\text{♌}$ 54'13 | 3°10'18    | evening set      | 8408 Mar 19 18:51 | 13° $\text{♌}$ 04'38 |            |
| minimum elong    | 8407 Apr 10 17:01 | 22° $\text{♌}$ 59'19 | 3°10'03    | inferior conj    | 8408 Mar 25 02:10 | 6° $\text{♌}$ 48'16  | 2°48'08    |
| min. Earth dist. | 8407 Apr 11 12:35 | 21° $\text{♌}$ 52'37 | 0.67727 AU | minimum elong    | 8408 Mar 25 00:05 | 6° $\text{♌}$ 55'31  | 2°47'40    |
| morning rise     | 8407 Apr 15 23:07 | 16° $\text{♌}$ 37'49 |            | min. Earth dist. | 8408 Mar 25 07:11 | 6° $\text{♌}$ 30'48  | 0.68293 AU |
| direct           | 8407 Apr 21 15:12 | 14° $\text{♌}$ 06'10 |            | morning rise     | 8408 Mar 30 05:10 | 0° $\text{♌}$ 35'10  |            |
| desc. node       | 8407 May 02 17:33 | 20° $\text{♌}$ 36'58 |            |                  | 8408 Mar 30 22:15 | 30° $\text{♌}$ 00'00 |            |
| morning max el   | 8407 May 03 01:13 | 20° $\text{♌}$ 56'14 | 24°31'39   | direct           | 8408 Apr 04 07:28 | 28° $\text{♌}$ 22'04 |            |
|                  | 8407 May 10 20:39 | 0° $\text{♎}$        |            |                  | 8408 Apr 09 04:39 | 0° $\text{♍}$        |            |
|                  | 8407 May 31 07:41 | 0° $\text{♎}$        |            | morning max el   | 8408 Apr 14 11:03 | 4° $\text{♍}$ 23'14  | 23°01'52   |
| morning set      | 8407 Jun 07 21:32 | 12° $\text{♎}$ 47'27 |            | desc. node       | 8408 Apr 18 14:30 | 8° $\text{♍}$ 57'26  |            |
| max. Earth dist. | 8407 Jun 11 12:42 | 19° $\text{♎}$ 16'01 | 1.37535 AU |                  | 8408 May 04 02:06 | 0° $\text{♎}$        |            |
|                  | 8407 Jun 17 06:44 | 0° $\text{♏}$        |            | morning set      | 8408 May 19 00:38 | 23° $\text{♎}$ 27'30 |            |
|                  |                   |                      |            |                  | 8408 May 22 21:34 | 0° $\text{♏}$        |            |
|                  |                   |                      |            | max. Earth dist. | 8408 May 23 08:57 | 0° $\text{♏}$ 48'57  | 1.39777 AU |

|                  |                   |                                 |            |                  |                   |                             |            |
|------------------|-------------------|---------------------------------|------------|------------------|-------------------|-----------------------------|------------|
| superior conj    | 8408 May 31 02:06 | 14° $\Pi$ 32'45                 | -1°32'21   | superior conj    | 8409 May 12 22:43 | 26° $\mathcal{B}$ 00'10     | -1°57'18   |
| minimum elong    | 8408 May 31 07:38 | 14° $\Pi$ 58'11                 | 1°31'49    | minimum elong    | 8409 May 13 04:15 | 26° $\mathcal{B}$ 24'15     | 1°57'00    |
|                  | 8408 Jun 08 06:56 | 0° $\mathcal{E}$                |            |                  | 8409 May 15 05:29 | 0° $\Pi$                    |            |
| evening rise     | 8408 Jun 09 18:13 | 2° $\mathcal{E}$ 48'59          |            | evening rise     | 8409 May 23 23:09 | 15° $\Pi$ 45'59             |            |
| asc. node        | 8408 Jun 10 21:09 | 4° $\mathcal{E}$ 57'34          |            | asc. node        | 8409 May 28 18:10 | 24° $\Pi$ 27'50             |            |
| evening max el   | 8408 Jun 25 20:23 | 28° $\mathcal{E}$ 44'16         | 18°32'18   |                  | 8409 May 31 22:34 | 0° $\mathcal{E}$            |            |
|                  | 8408 Jun 27 06:00 | 0° $\Omega$                     |            | evening max el   | 8409 Jun 09 06:06 | 11° $\mathcal{E}$ 33'10     | 18°09'39   |
| retrograde       | 8408 Jul 03 15:29 | 2° $\Omega$ 37'10               |            | retrograde       | 8409 Jun 16 03:13 | 15° $\mathcal{E}$ 02'04     |            |
| evening set      | 8408 Jul 05 18:10 | 2° $\Omega$ 20'58               |            | evening set      | 8409 Jun 18 13:35 | 14° $\mathcal{E}$ 36'29     |            |
|                  | 8408 Jul 10 14:09 | 30° $\mathcal{R}$ $\mathcal{E}$ |            | inferior conj    | 8409 Jun 25 12:12 | 9° $\mathcal{E}$ 47'20      | 1°55'14    |
| inferior conj    | 8408 Jul 13 11:23 | 27° $\mathcal{E}$ 52'11         | 0°37'28    | minimum elong    | 8409 Jun 25 15:11 | 9° $\mathcal{E}$ 40'33      | 1°54'10    |
| minimum elong    | 8408 Jul 13 12:44 | 27° $\mathcal{E}$ 49'33         | 0°36'49    | min. Earth dist. | 8409 Jun 28 20:18 | 6° $\mathcal{E}$ 47'07      | 0.59942 AU |
| desc. node       | 8408 Jul 15 13:50 | 26° $\mathcal{E}$ 13'37         |            | desc. node       | 8409 Jul 02 10:53 | 4° $\mathcal{E}$ 04'35      |            |
| min. Earth dist. | 8408 Jul 16 19:19 | 25° $\mathcal{E}$ 17'43         | 0.57758 AU | morning rise     | 8409 Jul 02 13:53 | 3° $\mathcal{E}$ 59'59      |            |
| morning rise     | 8408 Jul 21 03:47 | 22° $\mathcal{E}$ 33'29         |            | direct           | 8409 Jul 09 01:14 | 2° $\mathcal{E}$ 00'31      |            |
| direct           | 8408 Jul 27 00:47 | 21° $\mathcal{E}$ 05'42         |            | morning max el   | 8409 Jul 23 09:31 | 9° $\mathcal{E}$ 54'46      | 27°42'11   |
| morning max el   | 8408 Aug 10 09:55 | 28° $\mathcal{E}$ 43'14         | 26°51'20   |                  | 8409 Aug 07 21:54 | 0° $\Omega$                 |            |
|                  | 8408 Aug 11 16:31 | 0° $\Omega$                     |            | morning set      | 8409 Aug 24 10:01 | 0° $\mathcal{N}$ 10'21      |            |
|                  | 8408 Sep 01 06:15 | 0° $\mathcal{N}$                |            |                  | 8409 Aug 24 08:02 | 0° $\mathcal{N}$            |            |
| asc. node        | 8408 Sep 06 20:41 | 10° $\mathcal{N}$ 56'10         |            | asc. node        | 8409 Aug 24 17:38 | 0° $\mathcal{N}$ 50'08      |            |
| morning set      | 8408 Sep 09 03:48 | 15° $\mathcal{N}$ 43'30         |            | max. Earth dist. | 8409 Aug 30 16:20 | 13° $\mathcal{N}$ 41'10     | 1.31683 AU |
|                  | 8408 Sep 15 16:41 | 0° $\mathcal{E}$                |            |                  |                   |                             |            |
| superior conj    | 8408 Sep 16 02:33 | 0° $\mathcal{E}$ 54'42          | 1°21'49    | superior conj    | 8409 Aug 31 14:01 | 15° $\mathcal{N}$ 41'07     | 1°04'49    |
| minimum elong    | 8408 Sep 16 00:24 | 0° $\mathcal{E}$ 42'50          | 1°21'32    | minimum elong    | 8409 Aug 31 11:47 | 15° $\mathcal{N}$ 28'47     | 1°04'25    |
| max. Earth dist. | 8408 Sep 16 06:27 | 1° $\mathcal{E}$ 16'21          | 1.31702 AU | evening rise     | 8409 Sep 07 07:54 | 0° $\mathcal{E}$ 29'10      |            |
| evening rise     | 8408 Sep 22 22:28 | 15° $\mathcal{E}$ 49'36         |            |                  | 8409 Sep 07 02:27 | 0° $\mathcal{E}$            |            |
|                  | 8408 Sep 30 00:10 | 0° $\mathcal{N}$                |            |                  | 8409 Sep 23 06:53 | 0° $\mathcal{N}$            |            |
| desc. node       | 8408 Oct 11 12:37 | 19° $\mathcal{N}$ 12'26         |            | desc. node       | 8409 Sep 28 09:42 | 7° $\mathcal{N}$ 10'50      |            |
|                  | 8408 Oct 19 22:38 | 0° $\mathcal{E}$                |            | evening max el   | 8409 Oct 05 03:09 | 14° $\mathcal{N}$ 43'48     | 25°47'01   |
| evening max el   | 8408 Oct 23 06:45 | 3° $\mathcal{E}$ 25'24          | 26°52'40   | retrograde       | 8409 Oct 19 01:28 | 21° $\mathcal{N}$ 46'46     |            |
| retrograde       | 8408 Nov 06 04:40 | 10° $\mathcal{E}$ 34'57         |            | evening set      | 8409 Oct 25 06:23 | 20° $\mathcal{N}$ 16'24     |            |
| evening set      | 8408 Nov 13 02:02 | 8° $\mathcal{E}$ 32'54          |            | min. Earth dist. | 8409 Oct 29 15:44 | 17° $\mathcal{N}$ 40'18     | 0.58137 AU |
| min. Earth dist. | 8408 Nov 16 21:05 | 5° $\mathcal{E}$ 54'55          | 0.60206 AU | inferior conj    | 8409 Nov 01 17:48 | 15° $\mathcal{N}$ 28'42     | -5°05'42   |
| inferior conj    | 8408 Nov 20 01:25 | 3° $\mathcal{E}$ 18'50          | -4°08'48   | minimum elong    | 8409 Nov 02 00:09 | 15° $\mathcal{N}$ 17'23     | 5°04'29    |
| minimum elong    | 8408 Nov 20 08:41 | 3° $\mathcal{E}$ 03'57          | 4°06'35    | morning rise     | 8409 Nov 09 20:15 | 11° $\mathcal{N}$ 07'05     |            |
|                  | 8408 Nov 24 13:17 | 30° $\mathcal{R}$ $\mathcal{N}$ |            | direct           | 8409 Nov 12 03:55 | 10° $\mathcal{N}$ 50'00     |            |
| morning rise     | 8408 Nov 27 17:46 | 28° $\mathcal{N}$ 34'44         |            | morning max el   | 8409 Nov 20 15:45 | 14° $\mathcal{N}$ 55'59     | 18°43'28   |
| direct           | 8408 Nov 29 22:34 | 28° $\mathcal{N}$ 16'19         |            | asc. node        | 8409 Nov 20 17:15 | 14° $\mathcal{N}$ 59'36     |            |
| asc. node        | 8408 Dec 03 20:15 | 29° $\mathcal{N}$ 17'15         |            |                  | 8409 Dec 01 02:47 | 0° $\mathcal{E}$            |            |
|                  | 8408 Dec 05 00:43 | 0° $\mathcal{E}$                |            | morning set      | 8409 Dec 06 22:13 | 11° $\mathcal{E}$ 00'48     |            |
| morning max el   | 8408 Dec 07 09:53 | 1° $\mathcal{E}$ 58'36          | 18°06'03   | superior conj    | 8409 Dec 15 13:39 | 27° $\mathcal{E}$ 43'13     | 1°08'54    |
| morning set      | 8408 Dec 23 02:11 | 26° $\mathcal{E}$ 49'02         |            | minimum elong    | 8409 Dec 15 17:00 | 27° $\mathcal{E}$ 59'01     | 1°08'40    |
|                  | 8408 Dec 24 19:03 | 0° $\mathcal{E}$                |            |                  | 8409 Dec 16 18:50 | 0° $\mathcal{E}$            |            |
| superior conj    | 8409 Jan 01 20:18 | 14° $\mathcal{E}$ 46'23         | 0°41'16    | max. Earth dist. | 8409 Dec 22 18:34 | 10° $\mathcal{E}$ 51'06     | 1.39641 AU |
| minimum elong    | 8409 Jan 01 23:15 | 14° $\mathcal{E}$ 59'35         | 0°41'00    | desc. node       | 8409 Dec 25 08:42 | 15° $\mathcal{E}$ 20'43     |            |
| desc. node       | 8409 Jan 07 11:43 | 24° $\mathcal{E}$ 37'18         |            | evening rise     | 8409 Dec 26 19:11 | 17° $\mathcal{E}$ 47'19     |            |
| max. Earth dist. | 8409 Jan 09 11:36 | 27° $\mathcal{E}$ 59'40         | 1.41749 AU |                  | 8410 Jan 03 07:08 | 0° $\approx$                |            |
|                  | 8409 Jan 10 16:27 | 0° $\approx$                    |            |                  | 8410 Jan 24 13:08 | 0° $\mathcal{H}$            |            |
| evening rise     | 8409 Jan 14 17:35 | 6° $\approx$ 36'49              |            | evening max el   | 8410 Jan 30 19:35 | 6° $\mathcal{H}$ 59'29      | 24°07'41   |
|                  | 8409 Jan 30 02:05 | 0° $\mathcal{H}$                |            | retrograde       | 8410 Feb 10 23:42 | 13° $\mathcal{H}$ 33'03     |            |
| evening max el   | 8409 Feb 17 05:25 | 23° $\mathcal{H}$ 13'55         | 22°47'31   | evening set      | 8410 Feb 16 07:12 | 11° $\mathcal{H}$ 20'12     |            |
| retrograde       | 8409 Feb 27 06:56 | 29° $\mathcal{H}$ 11'55         |            | asc. node        | 8410 Feb 16 16:21 | 11° $\mathcal{H}$ 00'05     |            |
| asc. node        | 8409 Mar 01 19:16 | 28° $\mathcal{H}$ 40'16         |            | min. Earth dist. | 8410 Feb 21 00:14 | 5° $\mathcal{H}$ 54'49      | 0.68163 AU |
| evening set      | 8409 Mar 04 02:12 | 27° $\mathcal{H}$ 13'02         |            | inferior conj    | 8410 Feb 21 18:49 | 4° $\mathcal{H}$ 51'58      | 1°36'25    |
| inferior conj    | 8409 Mar 09 10:54 | 20° $\mathcal{H}$ 48'47         | 2°16'37    | minimum elong    | 8410 Feb 21 16:52 | 4° $\mathcal{H}$ 58'37      | 1°35'47    |
| minimum elong    | 8409 Mar 09 08:39 | 20° $\mathcal{H}$ 56'36         | 2°15'59    |                  | 8410 Feb 25 18:26 | 30° $\mathcal{R}$ $\approx$ |            |
| min. Earth dist. | 8409 Mar 09 03:52 | 21° $\mathcal{H}$ 13'12         | 0.68430 AU | morning rise     | 8410 Feb 27 02:33 | 28° $\approx$ 49'48         |            |
| morning rise     | 8409 Mar 14 14:59 | 14° $\mathcal{H}$ 40'20         |            | direct           | 8410 Mar 03 01:37 | 27° $\approx$ 20'34         |            |
| direct           | 8409 Mar 19 03:20 | 12° $\mathcal{H}$ 48'56         |            |                  | 8410 Mar 08 22:31 | 0° $\mathcal{H}$            |            |
| morning max el   | 8409 Mar 28 00:37 | 17° $\mathcal{H}$ 58'57         | 21°35'22   | morning max el   | 8410 Mar 10 21:04 | 1° $\mathcal{H}$ 46'04      | 20°18'56   |
| desc. node       | 8409 Apr 05 11:28 | 28° $\mathcal{H}$ 03'36         |            | desc. node       | 8410 Mar 23 08:24 | 17° $\mathcal{H}$ 42'29     |            |
|                  | 8409 Apr 06 22:08 | 0° $\mathcal{Y}$                |            |                  | 8410 Mar 31 16:12 | 0° $\mathcal{Y}$            |            |
|                  | 8409 Apr 27 04:51 | 0° $\mathcal{B}$                |            | morning set      | 8410 Apr 08 01:48 | 11° $\mathcal{Y}$ 17'56     |            |
| morning set      | 8409 Apr 29 00:15 | 2° $\mathcal{B}$ 51'33          |            | max. Earth dist. | 8410 Apr 17 17:09 | 26° $\mathcal{Y}$ 28'16     | 1.43747 AU |
| max. Earth dist. | 8409 May 05 09:15 | 13° $\mathcal{B}$ 11'18         | 1.41938 AU |                  | 8410 Apr 19 21:40 | 0° $\mathcal{B}$            |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj       | 8410 Apr 23 19:29 | 6°♄23'40  | -2°11'00   | superior conj    | 8411 Apr 03 16:17 | 15°♄46'19 | -2°07'21   |
| minimum elong       | 8410 Apr 23 21:29 | 6°♄31'57  | 2°11'04    | minimum elong    | 8411 Apr 03 11:24 | 15°♄26'54 | 2°07'13    |
| evening rise        | 8410 May 06 11:03 | 27°♄54'44 |            |                  | 8411 Apr 12 12:22 | 0°♄       |            |
|                     | 8410 May 07 15:50 | 0°♄       |            | evening rise     | 8411 Apr 18 01:34 | 9°♄07'31  |            |
| asc. node           | 8410 May 15 15:13 | 13°♄35'55 |            |                  | 8411 Apr 30 23:08 | 0°♄       |            |
| evening max el      | 8410 May 23 19:08 | 24°♄44'41 | 18°06'17   | asc. node        | 8411 May 02 12:18 | 2°♄14'49  |            |
| retrograde          | 8410 May 30 05:36 | 28°♄05'15 |            | evening max el   | 8411 May 07 08:15 | 8°♄10'49  | 18°21'29   |
| evening set         | 8410 Jun 01 23:28 | 27°♄27'45 |            | retrograde       | 8411 May 13 18:08 | 11°♄37'26 |            |
| inferior conj       | 8410 Jun 08 07:03 | 22°♄18'56 | 2°45'47    | evening set      | 8411 May 16 19:14 | 10°♄46'32 |            |
| minimum elong       | 8410 Jun 08 09:44 | 22°♄11'59 | 2°45'02    | inferior conj    | 8411 May 22 15:51 | 5°♄19'41  | 3°13'26    |
| min. Earth dist.    | 8410 Jun 11 05:32 | 19°♄17'17 | 0.62186 AU | minimum elong    | 8411 May 22 17:21 | 5°♄15'21  | 3°13'06    |
| morning rise        | 8410 Jun 14 18:07 | 16°♄13'32 |            | min. Earth dist. | 8411 May 25 00:08 | 2°♄37'20  | 0.64232 AU |
| desc. node          | 8410 Jun 19 07:57 | 14°♄02'21 |            |                  | 8411 May 27 13:02 | 30°♄      |            |
| direct              | 8410 Jun 21 12:04 | 13°♄47'36 |            | morning rise     | 8411 May 28 14:25 | 29°♄04'51 |            |
| morning max el      | 8410 Jul 05 15:05 | 21°♄49'16 | 27°55'13   | direct           | 8411 Jun 04 07:23 | 26°♄22'42 |            |
|                     | 8410 Jul 12 18:34 | 0°♄       |            | desc. node       | 8411 Jun 06 05:00 | 26°♄34'24 |            |
|                     | 8410 Aug 01 01:08 | 0°♄       |            |                  | 8411 Jun 13 02:10 | 0°♄       |            |
| morning set         | 8410 Aug 08 10:45 | 14°♄18'19 |            | morning max el   | 8411 Jun 18 00:34 | 4°♄22'19  | 27°31'33   |
| asc. node           | 8410 Aug 11 14:36 | 20°♄52'14 |            |                  | 8411 Jul 07 08:25 | 0°♄       |            |
| max. Earth dist.    | 8410 Aug 13 23:03 | 25°♄54'11 | 1.32127 AU | morning set      | 8411 Jul 23 03:31 | 28°♄00'30 |            |
|                     |                   |           |            |                  | 8411 Jul 24 03:37 | 0°♄       |            |
| superior conj       | 8410 Aug 15 23:28 | 0°♄17'29  | 0°43'11    | max. Earth dist. | 8411 Jul 27 22:48 | 7°♄45'14  | 1.33049 AU |
| minimum elong       | 8410 Aug 15 21:39 | 0°♄07'35  | 0°42'45    | asc. node        | 8411 Jul 29 11:35 | 10°♄58'07 |            |
|                     | 8410 Aug 15 20:16 | 0°♄       |            |                  |                   |           |            |
| evening rise        | 8410 Aug 22 19:18 | 15°♄11'32 |            | superior conj    | 8411 Jul 31 04:56 | 14°♄37'54 | 0°17'23    |
|                     | 8410 Aug 30 02:50 | 0°♄       |            | minimum elong    | 8411 Jul 31 04:05 | 14°♄33'22 | 0°17'04    |
| desc. node          | 8410 Sep 15 06:48 | 23°♄52'57 |            | evening rise     | 8411 Aug 07 06:47 | 29°♄50'40 |            |
| evening max el      | 8410 Sep 16 16:27 | 25°♄17'20 | 24°16'51   |                  | 8411 Aug 07 08:33 | 0°♄       |            |
|                     | 8410 Sep 22 19:43 | 0°♄       |            |                  | 8411 Aug 24 08:13 | 0°♄       |            |
| retrograde          | 8410 Sep 30 10:13 | 2°♄10'46  |            | evening max el   | 8411 Aug 29 04:12 | 5°♄29'38  | 22°37'22   |
| evening set         | 8410 Oct 05 10:06 | 1°♄15'43  |            | desc. node       | 8411 Sep 02 03:55 | 8°♄50'05  |            |
|                     | 8410 Oct 08 06:58 | 30°♄      |            | retrograde       | 8411 Sep 11 06:43 | 12°♄02'00 |            |
| min. Earth dist.    | 8410 Oct 11 03:17 | 28°♄23'10 | 0.56325 AU | evening set      | 8411 Sep 14 18:20 | 11°♄35'20 |            |
| inferior conj       | 8410 Oct 13 13:57 | 26°♄52'02 | -5°34'54   | min. Earth dist. | 8411 Sep 22 11:34 | 8°♄09'31  | 0.55080 AU |
| minimum elong       | 8410 Oct 13 15:13 | 26°♄50'04 | 5°34'46    | inferior conj    | 8411 Sep 23 15:45 | 7°♄29'28  | -5°17'13   |
| morning rise        | 8410 Oct 21 22:26 | 22°♄51'36 |            | minimum elong    | 8411 Sep 23 09:29 | 7°♄38'24  | 5°16'20    |
| direct              | 8410 Oct 24 14:23 | 22°♄32'49 |            | morning rise     | 8411 Oct 02 02:34 | 3°♄41'24  |            |
| morning max el      | 8410 Nov 03 10:47 | 27°♄11'49 | 19°43'06   | direct           | 8411 Oct 05 06:55 | 3°♄18'17  |            |
|                     | 8410 Nov 06 01:47 | 0°♄       |            | morning max el   | 8411 Oct 16 16:53 | 8°♄39'11  | 21°04'52   |
| asc. node           | 8410 Nov 07 14:16 | 1°♄54'17  |            | asc. node        | 8411 Oct 25 11:17 | 19°♄45'22 |            |
| morning set         | 8410 Nov 21 01:47 | 25°♄32'59 |            |                  | 8411 Oct 31 07:07 | 0°♄       |            |
|                     | 8410 Nov 23 06:29 | 0°♄       |            | morning set      | 8411 Nov 05 10:05 | 10°♄16'44 |            |
|                     |                   |           |            |                  |                   |           |            |
| superior conj       | 8410 Nov 28 22:27 | 11°♄24'18 | 1°27'33    | superior conj    | 8411 Nov 12 18:15 | 25°♄36'14 | 1°38'03    |
| minimum elong       | 8410 Nov 29 01:00 | 11°♄36'57 | 1°27'30    | minimum elong    | 8411 Nov 12 19:33 | 25°♄42'54 | 1°38'08    |
| max. Earth dist.    | 8410 Dec 05 00:39 | 23°♄06'49 | 1.37482 AU |                  | 8411 Nov 14 21:50 | 0°♄       |            |
| evening rise        | 8410 Dec 08 18:16 | 29°♄54'48 |            | max. Earth dist. | 8411 Nov 17 10:13 | 5°♄01'47  | 1.35503 AU |
|                     | 8410 Dec 08 19:26 | 0°♄       |            | evening rise     | 8411 Nov 21 11:34 | 12°♄50'05 |            |
| desc. node          | 8410 Dec 12 05:43 | 5°♄58'57  |            | desc. node       | 8411 Nov 29 02:44 | 26°♄26'55 |            |
|                     | 8410 Dec 27 13:45 | 0°♄       |            |                  | 8411 Dec 01 05:47 | 0°♄       |            |
| evening max el      | 8411 Jan 13 08:50 | 20°♄47'46 | 25°23'04   |                  | 8411 Dec 22 14:22 | 0°♄       |            |
| retrograde          | 8411 Jan 25 12:03 | 27°♄47'32 |            | evening max el   | 8411 Dec 26 21:59 | 4°♄32'47  | 26°26'33   |
| evening set         | 8411 Jan 31 08:21 | 25°♄22'35 |            | retrograde       | 8412 Jan 08 19:17 | 11°♄48'12 |            |
| asc. node           | 8411 Feb 03 13:27 | 22°♄01'19 |            | evening set      | 8412 Jan 15 03:49 | 9°♄14'40  |            |
| min. Earth dist.    | 8411 Feb 04 18:04 | 20°♄31'57 | 0.67508 AU | min. Earth dist. | 8412 Jan 19 07:04 | 4°♄58'48  | 0.66475 AU |
| inferior conj       | 8411 Feb 06 00:06 | 18°♄55'02 | 0°48'00    | inferior conj    | 8412 Jan 21 00:45 | 2°♄52'59  | -0°08'12   |
| minimum elong       | 8411 Feb 05 22:57 | 18°♄58'45 | 0°47'40    | minimum elong    | 8412 Jan 21 00:58 | 2°♄52'19  | 0°07'57    |
| morning rise        | 8411 Feb 11 13:55 | 13°♄00'53 |            | transit middle   | 8412 Jan 21 00:58 | 2°♄52'19  | 0°07'57    |
| direct              | 8411 Feb 15 00:49 | 11°♄52'19 |            | transit begin    | 8412 Jan 20 22:27 | 2°♄59'56  |            |
| morning max el      | 8411 Feb 22 01:34 | 15°♄45'06 | 19°16'38   | transit end      | 8412 Jan 21 03:29 | 2°♄44'43  |            |
|                     | 8411 Mar 05 01:11 | 0°♄       |            | asc. node        | 8412 Jan 21 10:33 | 2°♄23'23  |            |
| greatest brilliancy | 8411 Mar 07 03:35 | 3°♄07'04  | -0.7m      |                  | 8412 Jan 23 12:45 | 30°♄      |            |
| desc. node          | 8411 Mar 10 05:21 | 7°♄45'32  |            | morning rise     | 8412 Jan 26 22:56 | 27°♄09'03 |            |
| morning set         | 8411 Mar 18 01:50 | 19°♄48'56 |            | direct           | 8412 Jan 29 23:10 | 26°♄18'09 |            |
|                     | 8411 Mar 24 15:26 | 0°♄       |            | morning max el   | 8412 Feb 05 12:57 | 29°♄50'49 | 18°30'13   |
| max. Earth dist.    | 8411 Mar 31 07:56 | 10°♄28'24 | 1.44984 AU |                  | 8412 Feb 05 16:39 | 0°♄       |            |
|                     |                   |           |            | desc. node       | 8412 Feb 25 02:17 | 28°♄05'29 |            |

|                     |                   |                        |            |                     |                   |                               |            |
|---------------------|-------------------|------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| morning set         | 8412 Feb 25 22:48 | 29° $\approx$ 26'48    |            | morning set         | 8413 Feb 06 01:17 | 10° $\approx$ 32'41           |            |
|                     | 8412 Feb 26 07:11 | 0° $\mathbb{H}$        |            | desc. node          | 8413 Feb 10 23:11 | 18° $\approx$ 37'24           |            |
|                     |                   |                        |            |                     | 8413 Feb 18 00:09 | 0° $\mathbb{H}$               |            |
| superior conj       | 8412 Mar 12 22:11 | 24° $\mathbb{H}$ 35'01 | -1°43'32   | superior conj       | 8413 Feb 20 07:35 | 3° $\mathbb{H}$ 40'41         | -1°04'11   |
| minimum elong       | 8412 Mar 12 12:40 | 23° $\mathbb{H}$ 57'46 | 1°42'39    | minimum elong       | 8413 Feb 20 00:13 | 3° $\mathbb{H}$ 11'25         | 1°03'09    |
| max. Earth dist.    | 8412 Mar 13 02:31 | 24° $\mathbb{H}$ 52'01 | 1.45512 AU | max. Earth dist.    | 8413 Feb 23 21:54 | 9° $\mathbb{H}$ 21'23         | 1.45297 AU |
|                     | 8412 Mar 16 09:12 | 0° $\mathbb{Y}$        |            | evening rise        | 8413 Mar 08 11:26 | 28° $\mathbb{H}$ 53'10        |            |
| evening rise        | 8412 Mar 28 16:26 | 19° $\mathbb{Y}$ 22'25 |            |                     | 8413 Mar 09 04:46 | 0° $\mathbb{Y}$               |            |
|                     | 8412 Apr 04 09:25 | 0° $\mathbb{B}$        |            | greatest brilliancy | 8413 Mar 22 08:04 | 19° $\mathbb{Y}$ 58'37        | -0.7m      |
| greatest brilliancy | 8412 Apr 06 20:37 | 3° $\mathbb{B}$ 52'30  | -0.8m      |                     | 8413 Mar 29 11:05 | 0° $\mathbb{B}$               |            |
| asc. node           | 8412 Apr 18 09:23 | 20° $\mathbb{B}$ 15'00 |            | evening max el      | 8413 Apr 03 00:54 | 5° $\mathbb{B}$ 22'28         | 19°44'12   |
| evening max el      | 8412 Apr 19 18:49 | 21° $\mathbb{B}$ 44'54 | 18°54'35   | asc. node           | 8413 Apr 05 06:30 | 7° $\mathbb{B}$ 24'25         |            |
| retrograde          | 8412 Apr 26 12:53 | 25° $\mathbb{B}$ 30'24 |            | retrograde          | 8413 Apr 10 10:41 | 9° $\mathbb{B}$ 37'34         |            |
| evening set         | 8412 Apr 29 21:27 | 24° $\mathbb{B}$ 25'17 |            | evening set         | 8413 Apr 14 03:29 | 8° $\mathbb{B}$ 17'39         |            |
| inferior conj       | 8412 May 05 10:45 | 18° $\mathbb{B}$ 42'10 | 3°23'03    | inferior conj       | 8413 Apr 19 12:34 | 2° $\mathbb{B}$ 20'06         | 3°18'25    |
| minimum elong       | 8412 May 05 10:55 | 18° $\mathbb{B}$ 41'40 | 3°22'55    | minimum elong       | 8413 Apr 19 11:35 | 2° $\mathbb{B}$ 23'22         | 3°18'15    |
| min. Earth dist.    | 8412 May 07 03:44 | 16° $\mathbb{B}$ 33'22 | 0.65922 AU | min. Earth dist.    | 8413 Apr 20 14:45 | 0° $\mathbb{B}$ 52'45         | 0.67192 AU |
| morning rise        | 8412 May 10 23:51 | 12° $\mathbb{B}$ 23'56 |            |                     | 8413 Apr 21 06:52 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| direct              | 8412 May 17 10:01 | 9° $\mathbb{B}$ 37'25  |            | morning rise        | 8413 Apr 24 19:22 | 26° $\mathbb{Y}$ 02'13        |            |
| desc. node          | 8412 May 23 02:01 | 11° $\mathbb{B}$ 21'43 |            | direct              | 8413 Apr 30 18:49 | 23° $\mathbb{Y}$ 22'21        |            |
| morning max el      | 8412 May 30 11:14 | 17° $\mathbb{B}$ 22'38 | 26°37'18   | desc. node          | 8413 May 09 23:00 | 27° $\mathbb{Y}$ 52'33        |            |
|                     | 8412 Jun 09 24:00 | 0° $\mathbb{II}$       |            |                     | 8413 May 12 06:01 | 0° $\mathbb{B}$               |            |
|                     | 8412 Jun 29 06:30 | 0° $\mathbb{E}$        |            | morning max el      | 8413 May 12 20:56 | 0° $\mathbb{B}$ 37'17         | 25°21'14   |
| morning set         | 8412 Jul 05 09:07 | 11° $\mathbb{E}$ 08'23 |            |                     | 8413 Jun 03 22:46 | 0° $\mathbb{II}$              |            |
| max. Earth dist.    | 8412 Jul 09 12:22 | 19° $\mathbb{E}$ 09'10 | 1.34453 AU | morning set         | 8413 Jun 17 23:15 | 23° $\mathbb{II}$ 29'34       |            |
|                     |                   |                        |            | max. Earth dist.    | 8413 Jun 21 14:59 | 0° $\mathbb{E}$ 12'57         | 1.36307 AU |
| superior conj       | 8412 Jul 14 04:08 | 28° $\mathbb{E}$ 36'11 | -0°11'54   |                     | 8413 Jun 21 12:14 | 0° $\mathbb{E}$               |            |
| minimum elong       | 8412 Jul 14 04:48 | 28° $\mathbb{E}$ 39'38 | 0°11'56    | superior conj       | 8413 Jun 27 18:12 | 12° $\mathbb{E}$ 04'14        | -0°43'25   |
| behind sun begin    | 8412 Jul 14 00:53 | 28° $\mathbb{E}$ 19'19 |            | minimum elong       | 8413 Jun 27 20:50 | 12° $\mathbb{E}$ 17'18        | 0°43'07    |
| behind sun end      | 8412 Jul 14 08:44 | 28° $\mathbb{E}$ 59'58 |            | asc. node           | 8413 Jul 02 05:33 | 21° $\mathbb{E}$ 05'09        |            |
|                     | 8412 Jul 14 20:18 | 0° $\mathbb{Q}$        |            | evening rise        | 8413 Jul 05 21:50 | 28° $\mathbb{E}$ 34'55        |            |
| asc. node           | 8412 Jul 15 08:34 | 1° $\mathbb{Q}$ 03'55  |            |                     | 8413 Jul 06 14:39 | 0° $\mathbb{Q}$               |            |
| evening rise        | 8412 Jul 21 16:23 | 14° $\mathbb{Q}$ 20'50 |            | evening max el      | 8413 Jul 23 07:57 | 27° $\mathbb{Q}$ 05'52        | 19°49'26   |
|                     | 8412 Jul 29 15:36 | 0° $\mathbb{P}$        |            |                     | 8413 Jul 26 21:09 | 0° $\mathbb{P}$               |            |
| evening max el      | 8412 Aug 09 23:35 | 15° $\mathbb{P}$ 57'49 | 21°04'54   | retrograde          | 8413 Aug 02 11:11 | 2° $\mathbb{P}$ 05'52         |            |
| desc. node          | 8412 Aug 19 01:02 | 21° $\mathbb{P}$ 30'41 |            | evening set         | 8413 Aug 04 07:51 | 1° $\mathbb{P}$ 56'29         |            |
| retrograde          | 8412 Aug 21 19:38 | 21° $\mathbb{P}$ 49'41 |            | desc. node          | 8413 Aug 05 22:09 | 1° $\mathbb{P}$ 34'23         |            |
| evening set         | 8412 Aug 24 02:42 | 21° $\mathbb{P}$ 37'19 |            |                     | 8413 Aug 09 16:21 | 30° $\mathbb{R}$ $\mathbb{Q}$ |            |
| inferior conj       | 8412 Sep 02 08:27 | 17° $\mathbb{P}$ 40'22 | -4°04'26   | inferior conj       | 8413 Aug 13 06:17 | 27° $\mathbb{Q}$ 55'15        | -2°14'07   |
| minimum elong       | 8412 Sep 01 22:53 | 17° $\mathbb{P}$ 53'52 | 4°01'46    | minimum elong       | 8413 Aug 13 00:09 | 28° $\mathbb{Q}$ 04'40        | 2°11'56    |
| min. Earth dist.    | 8412 Sep 02 20:29 | 17° $\mathbb{P}$ 23'21 | 0.54679 AU | min. Earth dist.    | 8413 Aug 15 07:53 | 26° $\mathbb{Q}$ 39'13        | 0.55244 AU |
| morning rise        | 8412 Sep 10 19:30 | 13° $\mathbb{P}$ 45'39 |            | morning rise        | 8413 Aug 21 14:29 | 23° $\mathbb{Q}$ 34'03        |            |
| direct              | 8412 Sep 14 15:00 | 13° $\mathbb{P}$ 14'27 |            | direct              | 8413 Aug 26 04:40 | 22° $\mathbb{Q}$ 47'35        |            |
| morning max el      | 8412 Sep 27 11:33 | 19° $\mathbb{P}$ 22'15 | 22°44'12   | morning max el      | 8413 Sep 09 00:10 | 29° $\mathbb{Q}$ 38'07        | 24°30'12   |
|                     | 8412 Oct 06 05:46 | 0° $\mathbb{L}$        |            |                     | 8413 Sep 09 09:20 | 0° $\mathbb{P}$               |            |
| asc. node           | 8412 Oct 11 08:16 | 8° $\mathbb{L}$ 19'44  |            | asc. node           | 8413 Sep 28 05:12 | 27° $\mathbb{P}$ 26'01        |            |
| morning set         | 8412 Oct 19 21:01 | 25° $\mathbb{L}$ 06'07 |            |                     | 8413 Sep 29 12:56 | 0° $\mathbb{L}$               |            |
|                     | 8412 Oct 22 04:12 | 0° $\mathbb{M}$        |            | morning set         | 8413 Oct 04 08:46 | 9° $\mathbb{L}$ 55'23         |            |
| superior conj       | 8412 Oct 26 21:40 | 10° $\mathbb{M}$ 09'06 | 1°41'19    | superior conj       | 8413 Oct 11 05:58 | 24° $\mathbb{L}$ 54'02        | 1°38'12    |
| minimum elong       | 8412 Oct 26 21:39 | 10° $\mathbb{M}$ 09'03 | 1°41'25    | minimum elong       | 8413 Oct 11 04:51 | 24° $\mathbb{L}$ 47'58        | 1°38'12    |
| max. Earth dist.    | 8412 Oct 30 03:10 | 16° $\mathbb{M}$ 57'20 | 1.33874 AU | max. Earth dist.    | 8413 Oct 13 04:17 | 29° $\mathbb{L}$ 05'41        | 1.32675 AU |
| evening rise        | 8412 Nov 03 19:16 | 26° $\mathbb{M}$ 23'59 |            |                     | 8413 Oct 13 14:21 | 0° $\mathbb{M}$               |            |
|                     | 8412 Nov 05 15:52 | 0° $\mathbb{X}$        |            | evening rise        | 8413 Oct 18 13:44 | 10° $\mathbb{M}$ 26'26        |            |
| desc. node          | 8412 Nov 14 23:47 | 16° $\mathbb{X}$ 39'21 |            |                     | 8413 Oct 28 23:18 | 0° $\mathbb{X}$               |            |
|                     | 8412 Nov 23 14:26 | 0° $\mathbb{Z}$        |            | desc. node          | 8413 Nov 01 20:51 | 6° $\mathbb{X}$ 29'09         |            |
| evening max el      | 8412 Dec 08 10:56 | 18° $\mathbb{Z}$ 06'33 | 27°10'53   |                     | 8413 Nov 19 14:31 | 0° $\mathbb{Z}$               |            |
| retrograde          | 8412 Dec 21 20:45 | 25° $\mathbb{Z}$ 27'29 |            | evening max el      | 8413 Nov 20 22:30 | 1° $\mathbb{Z}$ 18'10         | 27°29'12   |
| evening set         | 8412 Dec 28 15:31 | 22° $\mathbb{Z}$ 51'16 |            | retrograde          | 8413 Dec 04 15:40 | 8° $\mathbb{Z}$ 36'37         |            |
| min. Earth dist.    | 8413 Jan 01 13:09 | 19° $\mathbb{Z}$ 09'11 | 0.65084 AU | evening set         | 8413 Dec 11 16:48 | 6° $\mathbb{Z}$ 05'56         |            |
| inferior conj       | 8413 Jan 03 18:29 | 16° $\mathbb{Z}$ 41'17 | -1°11'23   | min. Earth dist.    | 8413 Dec 15 10:18 | 2° $\mathbb{Z}$ 54'44         | 0.63370 AU |
| minimum elong       | 8413 Jan 03 20:37 | 16° $\mathbb{Z}$ 35'22 | 1°10'18    | inferior conj       | 8413 Dec 18 02:41 | 0° $\mathbb{Z}$ 13'50         | -2°19'49   |
| asc. node           | 8413 Jan 07 07:39 | 13° $\mathbb{Z}$ 04'05 |            | minimum elong       | 8413 Dec 18 07:06 | 0° $\mathbb{Z}$ 02'46         | 2°17'54    |
| morning rise        | 8413 Jan 10 03:07 | 11° $\mathbb{Z}$ 09'59 |            |                     | 8413 Dec 18 08:13 | 30° $\mathbb{R}$ $\mathbb{X}$ |            |
| direct              | 8413 Jan 12 18:31 | 10° $\mathbb{Z}$ 33'00 |            | morning rise        | 8413 Dec 24 23:20 | 24° $\mathbb{X}$ 58'05        |            |
| morning max el      | 8413 Jan 19 04:48 | 13° $\mathbb{Z}$ 56'38 | 18°00'28   |                     |                   |                               |            |
|                     | 8413 Jan 30 15:26 | 0° $\mathbb{A}$        |            |                     |                   |                               |            |



|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| asc. node        | 8413 Dec 25 04:41 | 24° $\text{♊}$ 53'18 |            | morning max el   | 8414 Dec 17 13:54 | 11° $\text{♊}$ 37'23 | 17°53'54   |
| direct           | 8413 Dec 27 08:15 | 24° $\text{♊}$ 31'03 |            |                  | 8414 Dec 29 19:55 | 0° $\text{♊}$        |            |
| morning max el   | 8414 Jan 02 22:12 | 27° $\text{♊}$ 55'07 | 17°48'03   | morning set      | 8415 Jan 02 06:26 | 6° $\text{♊}$ 13'19  |            |
|                  | 8414 Jan 04 19:45 | 0° $\text{♊}$        |            |                  |                   |                      |            |
| morning set      | 8414 Jan 19 06:03 | 22° $\text{♊}$ 55'15 |            | superior conj    | 8415 Jan 12 19:58 | 25° $\text{♊}$ 05'35 | 0°21'15    |
|                  | 8414 Jan 23 08:28 | 0° $\text{♊}$        |            | minimum elong    | 8415 Jan 12 21:47 | 25° $\text{♊}$ 13'29 | 0°21'09    |
| desc. node       | 8414 Jan 28 20:07 | 9° $\text{♋}$ 17'28  |            | desc. node       | 8415 Jan 15 17:04 | 0° $\text{♋}$ 01'36  |            |
|                  |                   |                      |            |                  | 8415 Jan 15 16:41 | 0° $\text{♋}$        |            |
| superior conj    | 8414 Jan 31 12:57 | 13° $\text{♋}$ 46'20 | -0°19'39   | max. Earth dist. | 8415 Jan 20 06:30 | 7° $\text{♋}$ 37'56  | 1.42845 AU |
| minimum elong    | 8414 Jan 31 10:52 | 13° $\text{♋}$ 37'44 | 0°19'12    | evening rise     | 8415 Jan 26 17:08 | 17° $\text{♋}$ 58'56 |            |
| max. Earth dist. | 8414 Feb 06 15:53 | 23° $\text{♋}$ 41'43 | 1.44375 AU |                  | 8415 Feb 03 12:42 | 0° $\text{♋}$        |            |
|                  | 8414 Feb 10 15:31 | 0° $\text{♋}$        |            |                  | 8415 Feb 25 08:44 | 0° $\text{♋}$        |            |
| evening rise     | 8414 Feb 15 22:33 | 8° $\text{♋}$ 13'05  |            | evening max el   | 8415 Feb 27 21:05 | 2° $\text{♋}$ 42'32  | 22°02'02   |
|                  | 8414 Mar 02 11:19 | 0° $\text{♋}$        |            | retrograde       | 8415 Mar 09 06:32 | 8° $\text{♋}$ 16'25  |            |
| evening max el   | 8414 Mar 17 01:38 | 19° $\text{♋}$ 01'57 | 20°47'53   | asc. node        | 8415 Mar 10 00:42 | 8° $\text{♋}$ 13'31  |            |
| asc. node        | 8414 Mar 23 03:36 | 23° $\text{♋}$ 29'09 |            | evening set      | 8415 Mar 13 19:20 | 6° $\text{♋}$ 25'56  |            |
| retrograde       | 8414 Mar 25 09:11 | 23° $\text{♋}$ 54'31 |            | inferior conj    | 8415 Mar 19 03:03 | 0° $\text{♋}$ 06'01  | 2°35'51    |
| evening set      | 8414 Mar 29 11:21 | 22° $\text{♋}$ 19'22 |            | minimum elong    | 8415 Mar 19 00:51 | 0° $\text{♋}$ 13'43  | 2°35'17    |
| inferior conj    | 8414 Apr 03 18:44 | 16° $\text{♋}$ 09'22 | 3°02'08    | min. Earth dist. | 8415 Mar 19 02:50 | 0° $\text{♋}$ 06'45  | 0.68407 AU |
| minimum elong    | 8414 Apr 03 16:56 | 16° $\text{♋}$ 15'33 | 3°01'47    |                  | 8415 Mar 19 04:47 | 30° $\text{♋}$       |            |
| min. Earth dist. | 8414 Apr 04 07:12 | 15° $\text{♋}$ 26'22 | 0.68019 AU | morning rise     | 8415 Mar 24 06:12 | 23° $\text{♋}$ 54'57 |            |
| morning rise     | 8414 Apr 08 22:17 | 9° $\text{♋}$ 54'11  |            | direct           | 8415 Mar 29 02:38 | 21° $\text{♋}$ 50'47 |            |
| direct           | 8414 Apr 14 08:43 | 7° $\text{♋}$ 29'31  |            | morning max el   | 8415 Apr 07 16:47 | 27° $\text{♋}$ 29'11 | 22°24'14   |
| morning max el   | 8414 Apr 25 05:53 | 13° $\text{♋}$ 59'35 | 23°53'36   |                  | 8415 Apr 10 01:23 | 0° $\text{♋}$        |            |
| desc. node       | 8414 Apr 26 19:55 | 15° $\text{♋}$ 39'16 |            | desc. node       | 8415 Apr 13 16:52 | 4° $\text{♋}$ 20'26  |            |
|                  | 8414 May 08 05:36 | 0° $\text{♋}$        |            |                  | 8415 May 01 20:32 | 0° $\text{♋}$        |            |
|                  | 8414 May 27 20:01 | 0° $\text{♋}$        |            | morning set      | 8415 May 11 08:07 | 14° $\text{♋}$ 57'04 |            |
| morning set      | 8414 May 30 16:41 | 4° $\text{♋}$ 50'17  |            | max. Earth dist. | 8415 May 16 09:06 | 23° $\text{♋}$ 18'56 | 1.40727 AU |
| max. Earth dist. | 8414 Jun 03 11:23 | 11° $\text{♋}$ 25'34 | 1.38480 AU |                  | 8415 May 20 06:34 | 0° $\text{♋}$        |            |
|                  |                   |                      |            |                  |                   |                      |            |
| superior conj    | 8414 Jun 10 19:40 | 24° $\text{♋}$ 53'41 | -1°15'10   | superior conj    | 8415 May 24 04:08 | 6° $\text{♋}$ 53'35  | -1°43'55   |
| minimum elong    | 8414 Jun 11 00:19 | 25° $\text{♋}$ 15'44 | 1°14'37    | minimum elong    | 8415 May 24 09:59 | 7° $\text{♋}$ 19'51  | 1°43'26    |
|                  | 8414 Jun 13 11:46 | 0° $\text{♋}$        |            | evening rise     | 8415 Jun 03 09:02 | 25° $\text{♋}$ 45'22 |            |
| asc. node        | 8414 Jun 19 02:33 | 10° $\text{♋}$ 58'05 |            | asc. node        | 8415 Jun 05 23:36 | 0° $\text{♋}$ 37'57  |            |
| evening rise     | 8414 Jun 19 20:30 | 12° $\text{♋}$ 26'04 |            |                  | 8415 Jun 05 15:26 | 0° $\text{♋}$        |            |
|                  | 8414 Jun 29 09:49 | 0° $\text{♋}$        |            | evening max el   | 8415 Jun 19 10:56 | 21° $\text{♋}$ 29'07 | 18°20'15   |
| evening max el   | 8414 Jul 06 04:51 | 8° $\text{♋}$ 58'33  | 18°54'28   | retrograde       | 8415 Jun 26 19:08 | 25° $\text{♋}$ 09'53 |            |
| retrograde       | 8414 Jul 14 17:25 | 13° $\text{♋}$ 11'49 |            | evening set      | 8415 Jun 29 01:08 | 24° $\text{♋}$ 49'59 |            |
| evening set      | 8414 Jul 16 16:35 | 12° $\text{♋}$ 59'14 |            | inferior conj    | 8415 Jul 06 10:03 | 20° $\text{♋}$ 12'09 | 1°13'56    |
| desc. node       | 8414 Jul 23 19:13 | 9° $\text{♋}$ 27'34  |            | minimum elong    | 8415 Jul 06 12:24 | 20° $\text{♋}$ 07'15 | 1°12'57    |
| inferior conj    | 8414 Jul 24 21:17 | 8° $\text{♋}$ 41'51  | -0°19'50   | min. Earth dist. | 8415 Jul 09 19:24 | 17° $\text{♋}$ 24'11 | 0.58659 AU |
| minimum elong    | 8414 Jul 24 20:27 | 8° $\text{♋}$ 43'19  | 0°19'40    | desc. node       | 8415 Jul 10 16:16 | 16° $\text{♋}$ 44'04 |            |
| min. Earth dist. | 8414 Jul 27 22:51 | 6° $\text{♋}$ 32'13  | 0.56667 AU | morning rise     | 8415 Jul 13 20:23 | 14° $\text{♋}$ 40'11 |            |
| morning rise     | 8414 Aug 01 21:02 | 3° $\text{♋}$ 44'13  |            | direct           | 8415 Jul 20 00:17 | 12° $\text{♋}$ 59'09 |            |
| direct           | 8414 Aug 07 07:34 | 2° $\text{♋}$ 33'39  |            | morning max el   | 8415 Aug 03 09:34 | 20° $\text{♋}$ 44'07 | 27°17'32   |
| morning max el   | 8414 Aug 21 13:52 | 9° $\text{♋}$ 56'14  | 26°06'37   |                  | 8415 Aug 11 09:46 | 0° $\text{♋}$        |            |
|                  | 8414 Sep 05 19:58 | 0° $\text{♋}$        |            |                  | 8415 Aug 29 15:16 | 0° $\text{♋}$        |            |
| asc. node        | 8414 Sep 15 02:08 | 16° $\text{♋}$ 55'54 |            | asc. node        | 8415 Sep 01 23:05 | 6° $\text{♋}$ 42'59  |            |
| morning set      | 8414 Sep 18 19:42 | 24° $\text{♋}$ 39'53 |            | morning set      | 8415 Sep 03 04:13 | 9° $\text{♋}$ 15'11  |            |
|                  | 8414 Sep 21 07:03 | 0° $\text{♋}$        |            |                  |                   |                      |            |
|                  |                   |                      |            | superior conj    | 8415 Sep 10 04:48 | 24° $\text{♋}$ 33'46 | 1°15'13    |
| superior conj    | 8414 Sep 25 16:57 | 9° $\text{♋}$ 44'06  | 1°29'20    | minimum elong    | 8415 Sep 10 02:34 | 24° $\text{♋}$ 21'21 | 1°14'52    |
| minimum elong    | 8414 Sep 25 15:05 | 9° $\text{♋}$ 33'42  | 1°29'10    | max. Earth dist. | 8415 Sep 09 21:56 | 23° $\text{♋}$ 55'40 | 1.31641 AU |
| max. Earth dist. | 8414 Sep 26 11:40 | 11° $\text{♋}$ 27'36 | 1.31931 AU |                  | 8415 Sep 12 15:37 | 0° $\text{♋}$        |            |
| evening rise     | 8414 Oct 02 15:56 | 24° $\text{♋}$ 48'57 |            | evening rise     | 8415 Sep 16 23:23 | 9° $\text{♋}$ 24'31  |            |
|                  | 8414 Oct 05 04:27 | 0° $\text{♋}$        |            |                  | 8415 Sep 27 12:31 | 0° $\text{♋}$        |            |
| desc. node       | 8414 Oct 19 17:57 | 25° $\text{♋}$ 46'41 |            | desc. node       | 8415 Oct 06 15:02 | 14° $\text{♋}$ 19'20 |            |
|                  | 8414 Oct 22 14:54 | 0° $\text{♋}$        |            | evening max el   | 8415 Oct 16 07:14 | 25° $\text{♋}$ 42'03 | 26°28'25   |
| evening max el   | 8414 Nov 03 06:14 | 13° $\text{♋}$ 53'53 | 27°15'48   |                  | 8415 Oct 21 17:09 | 0° $\text{♋}$        |            |
| retrograde       | 8414 Nov 17 02:48 | 21° $\text{♋}$ 05'58 |            | retrograde       | 8415 Oct 30 05:09 | 2° $\text{♋}$ 48'14  |            |
| evening set      | 8414 Nov 24 04:12 | 18° $\text{♋}$ 50'35 |            | evening set      | 8415 Nov 05 21:21 | 0° $\text{♋}$ 58'31  |            |
| min. Earth dist. | 8414 Nov 27 20:52 | 16° $\text{♋}$ 03'45 | 0.61407 AU |                  | 8415 Nov 07 13:13 | 30° $\text{♋}$       |            |
| inferior conj    | 8414 Nov 30 22:10 | 13° $\text{♋}$ 21'54 | -3°30'03   | min. Earth dist. | 8415 Nov 09 20:41 | 28° $\text{♋}$ 23'47 | 0.59320 AU |
| minimum elong    | 8414 Dec 01 04:43 | 13° $\text{♋}$ 07'24 | 3°27'42    | inferior conj    | 8415 Nov 13 01:26 | 25° $\text{♋}$ 56'07 | -4°35'08   |
| morning rise     | 8414 Dec 08 07:29 | 8° $\text{♋}$ 25'06  |            | minimum elong    | 8415 Nov 13 08:44 | 25° $\text{♋}$ 42'01 | 4°33'13    |
| direct           | 8414 Dec 10 12:51 | 8° $\text{♋}$ 04'23  |            | morning rise     | 8415 Nov 20 22:29 | 21° $\text{♋}$ 21'30 |            |
| asc. node        | 8414 Dec 12 01:43 | 8° $\text{♋}$ 14'37  |            | direct           | 8415 Nov 23 04:04 | 21° $\text{♋}$ 03'54 |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node        | 8415 Nov 28 22:43 | 23°♍09'05 |            | morning max el      | 8416 Nov 13 02:14 | 7°♍35'48  | 19°06'05   |
| morning max el   | 8415 Dec 01 00:28 | 24°♍54'40 | 18°19'21   | asc. node           | 8416 Nov 14 19:43 | 9°♍23'56  |            |
|                  | 8415 Dec 05 06:24 | 0°♊       |            |                     | 8416 Nov 27 13:05 | 0°♊       |            |
| morning set      | 8415 Dec 16 20:38 | 20°♊09'45 |            | morning set         | 8416 Nov 29 20:14 | 4°♊30'55  |            |
|                  | 8415 Dec 22 00:57 | 0°♊       |            |                     |                   |           |            |
| superior conj    | 8415 Dec 26 02:19 | 7°♊31'43  | 0°54'06    | superior conj       | 8416 Dec 08 02:51 | 20°♊49'06 | 1°17'51    |
| minimum elong    | 8415 Dec 26 05:38 | 7°♊46'54  | 0°53'49    | minimum elong       | 8416 Dec 08 05:58 | 21°♊04'05 | 1°17'40    |
| max. Earth dist. | 8416 Jan 02 16:13 | 20°♊55'44 | 1.40881 AU |                     | 8416 Dec 12 23:57 | 0°♊       |            |
| desc. node       | 8416 Jan 02 14:05 | 20°♊46'35 |            | max. Earth dist.    | 8416 Dec 14 21:58 | 3°♊29'06  | 1.38714 AU |
| evening rise     | 8416 Jan 07 06:11 | 28°♊35'57 |            | evening rise        | 8416 Dec 18 17:08 | 10°♊10'55 |            |
|                  | 8416 Jan 08 02:45 | 0°♋       |            | desc. node          | 8416 Dec 19 11:06 | 11°♊28'08 |            |
|                  | 8416 Jan 28 02:21 | 0°♋       |            |                     | 8416 Dec 30 22:35 | 0°♋       |            |
| evening max el   | 8416 Feb 10 12:30 | 16°♋25'35 | 23°21'36   |                     | 8417 Jan 22 21:09 | 0°♋       |            |
| retrograde       | 8416 Feb 21 01:23 | 22°♋39'28 |            | evening max el      | 8417 Jan 23 01:55 | 0°♋11'48  | 24°40'38   |
| asc. node        | 8416 Feb 24 21:47 | 21°♋26'41 |            | retrograde          | 8417 Feb 03 16:35 | 6°♋58'32  |            |
| evening set      | 8416 Feb 26 01:53 | 20°♋34'11 |            | evening set         | 8417 Feb 09 05:30 | 4°♋40'03  |            |
| inferior conj    | 8416 Mar 02 11:39 | 14°♋07'41 | 2°00'34    | asc. node           | 8417 Feb 10 18:53 | 3°♋10'02  |            |
| minimum elong    | 8416 Mar 02 09:28 | 14°♋15'12 | 1°59'55    |                     | 8417 Feb 13 09:53 | 30°♋      |            |
| min. Earth dist. | 8416 Mar 01 23:35 | 14°♋49'13 | 0.68372 AU | min. Earth dist.    | 8417 Feb 13 19:11 | 29°♋29'25 | 0.67930 AU |
| morning rise     | 8416 Mar 07 17:01 | 8°♋01'56  |            | inferior conj       | 8417 Feb 14 18:43 | 28°♋11'12 | 1°16'51    |
| direct           | 8416 Mar 11 23:34 | 6°♋20'13  |            | minimum elong       | 8417 Feb 14 17:02 | 28°♋16'48 | 1°16'19    |
| morning max el   | 8416 Mar 20 09:08 | 11°♋09'49 | 21°01'19   | morning rise        | 8417 Feb 20 04:45 | 22°♋12'14 |            |
| desc. node       | 8416 Mar 30 13:49 | 23°♋41'24 |            | direct              | 8417 Feb 23 22:22 | 20°♋52'18 |            |
|                  | 8416 Apr 04 01:04 | 0°♌       |            | morning max el      | 8417 Mar 03 09:07 | 25°♋02'41 | 19°50'31   |
| morning set      | 8416 Apr 19 20:49 | 23°♌51'27 |            |                     | 8417 Mar 07 17:39 | 0°♋       |            |
|                  | 8416 Apr 23 18:03 | 0°♌       |            | greatest brilliancy | 8417 Mar 16 08:20 | 11°♋54'19 | -0.6m      |
| max. Earth dist. | 8416 Apr 27 12:49 | 6°♌05'58  | 1.42766 AU | desc. node          | 8417 Mar 17 10:46 | 13°♋31'25 |            |
|                  |                   |           |            |                     | 8417 Mar 28 08:35 | 0°♌       |            |
| superior conj    | 8416 May 04 14:54 | 17°♌53'30 | -2°04'51   | morning set         | 8417 Mar 29 18:37 | 2°♌10'50  |            |
| minimum elong    | 8416 May 04 19:28 | 18°♌12'53 | 2°04'45    | max. Earth dist.    | 8417 Apr 09 23:30 | 19°♌41'42 | 1.44348 AU |
|                  | 8416 May 11 14:25 | 0°♍       |            |                     |                   |           |            |
| evening rise     | 8416 May 16 07:18 | 8°♍22'48  |            | superior conj       | 8417 Apr 15 01:05 | 27°♌49'33 | -2°11'53   |
| asc. node        | 8416 May 22 20:39 | 19°♍59'18 |            | minimum elong       | 8417 Apr 15 00:23 | 27°♌46'40 | 2°11'58    |
|                  | 8416 May 29 04:44 | 0°♎       |            |                     | 8417 Apr 16 09:11 | 0°♌       |            |
| evening max el   | 8416 Jun 01 22:23 | 4°♎27'44  | 18°05'54   | evening rise        | 8417 Apr 28 10:38 | 20°♌08'37 |            |
| retrograde       | 8416 Jun 08 13:50 | 7°♎51'42  |            |                     | 8417 May 04 05:49 | 0°♍       |            |
| evening set      | 8416 Jun 11 03:19 | 7°♎21'23  |            | asc. node           | 8417 May 09 17:44 | 8°♍56'05  |            |
| inferior conj    | 8416 Jun 17 19:01 | 2°♎23'29  | 2°19'48    | evening max el      | 8417 May 16 11:48 | 17°♍46'15 | 18°10'33   |
| minimum elong    | 8416 Jun 17 22:02 | 2°♎16'12  | 2°18'50    | retrograde          | 8417 May 22 21:01 | 21°♍07'56 |            |
|                  | 8416 Jun 20 06:29 | 30°♎      |            | evening set         | 8417 May 25 17:52 | 20°♍25'02 |            |
| min. Earth dist. | 8416 Jun 20 23:47 | 29°♍19'46 | 0.60896 AU | inferior conj       | 8417 May 31 20:20 | 15°♍08'35 | 2°59'58    |
| morning rise     | 8416 Jun 24 14:16 | 26°♍26'55 |            | minimum elong       | 8417 May 31 22:33 | 15°♍02'30 | 2°59'26    |
| desc. node       | 8416 Jun 26 13:20 | 25°♍20'28 |            | min. Earth dist.    | 8417 Jun 03 13:13 | 12°♍12'33 | 0.63085 AU |
| direct           | 8416 Jul 01 05:09 | 24°♍15'22 |            | morning rise        | 8417 Jun 07 01:42 | 8°♍58'01  |            |
|                  | 8416 Jul 13 02:41 | 0°♏       |            | desc. node          | 8417 Jun 13 10:23 | 6°♍23'58  |            |
| morning max el   | 8416 Jul 15 12:08 | 2°♏14'21  | 27°52'38   | direct              | 8417 Jun 13 20:04 | 6°♍23'27  |            |
|                  | 8416 Aug 04 19:23 | 0°♐       |            | morning max el      | 8417 Jun 27 19:47 | 14°♍26'37 | 27°49'23   |
| morning set      | 8416 Aug 17 08:23 | 23°♐34'48 |            |                     | 8417 Jul 10 10:00 | 0°♏       |            |
| asc. node        | 8416 Aug 18 20:03 | 26°♐40'51 |            |                     | 8417 Jul 28 09:39 | 0°♐       |            |
|                  | 8416 Aug 20 09:32 | 0°♑       |            | morning set         | 8417 Aug 01 06:04 | 7°♐32'34  |            |
| max. Earth dist. | 8416 Aug 23 07:02 | 6°♑17'07  | 1.31808 AU | asc. node           | 8417 Aug 05 17:02 | 16°♐45'00 |            |
|                  |                   |           |            | max. Earth dist.    | 8417 Aug 06 11:03 | 18°♐20'39 | 1.32451 AU |
| superior conj    | 8416 Aug 24 15:37 | 9°♑16'16  | 0°56'13    |                     |                   |           |            |
| minimum elong    | 8416 Aug 24 13:30 | 9°♑04'37  | 0°55'46    | superior conj       | 8417 Aug 08 23:37 | 23°♐46'20 | 0°32'44    |
| evening rise     | 8416 Aug 31 09:52 | 24°♑05'36 |            | minimum elong       | 8417 Aug 08 22:08 | 23°♐38'22 | 0°32'19    |
|                  | 8416 Sep 03 05:13 | 0°♒       |            |                     | 8417 Aug 11 20:14 | 0°♑       |            |
|                  | 8416 Sep 21 00:57 | 0°♒       |            | evening rise        | 8417 Aug 15 21:30 | 8°♑46'41  |            |
| desc. node       | 8416 Sep 22 12:10 | 1°♒48'27  |            |                     | 8417 Aug 26 19:40 | 0°♒       |            |
| evening max el   | 8416 Sep 27 00:02 | 6°♒38'42  | 25°10'51   | evening max el      | 8417 Sep 08 11:35 | 16°♒58'39 | 23°34'44   |
| retrograde       | 8416 Oct 10 21:16 | 13°♒39'07 |            | desc. node          | 8417 Sep 09 09:16 | 17°♒49'31 |            |
| evening set      | 8416 Oct 16 15:28 | 12°♒23'30 |            | retrograde          | 8417 Sep 22 01:06 | 23°♒45'39 |            |
| min. Earth dist. | 8416 Oct 21 11:41 | 9°♒42'50  | 0.57318 AU | evening set         | 8417 Sep 26 09:23 | 23°♒04'23 |            |
| inferior conj    | 8416 Oct 24 09:18 | 7°♒46'20  | -5°22'37   | min. Earth dist.    | 8417 Oct 02 21:39 | 19°♒59'14 | 0.55704 AU |
| minimum elong    | 8416 Oct 24 14:02 | 7°♒38'22  | 5°21'58    | inferior conj       | 8417 Oct 04 21:00 | 18°♒48'48 | -5°34'06   |
| morning rise     | 8416 Nov 01 14:56 | 3°♒34'39  |            | minimum elong       | 8417 Oct 04 19:02 | 18°♒51'44 | 5°33'58    |
| direct           | 8416 Nov 04 01:25 | 3°♒17'17  |            | morning rise        | 8417 Oct 13 06:48 | 14°♒55'06 |            |
|                  |                   |           |            | direct              | 8417 Oct 16 03:22 | 14°♒34'57 |            |



































































































































|                  |                   |                                 |            |                     |                   |                                 |            |
|------------------|-------------------|---------------------------------|------------|---------------------|-------------------|---------------------------------|------------|
| morning max el   | 8417 Oct 26 15:54 | 19° $\Omega$ 31'22              | 20°15'15   | minimum elong       | 8418 Sep 14 08:45 | 29° $\Pi$ 23'08                 | 4°50'58    |
| asc. node        | 8417 Nov 01 16:43 | 26° $\Omega$ 43'58              |            | morning rise        | 8418 Sep 23 04:22 | 25° $\Pi$ 22'39                 |            |
|                  | 8417 Nov 03 20:21 | 0° $\Pi$                        |            | direct              | 8418 Sep 26 15:02 | 24° $\Pi$ 56'29                 |            |
| morning set      | 8417 Nov 14 02:04 | 19° $\Pi$ 08'09                 |            |                     | 8418 Oct 07 23:58 | 0° $\Omega$                     |            |
|                  | 8417 Nov 19 08:51 | 0° $\mathcal{A}$                |            | morning max el      | 8418 Oct 08 16:31 | 0° $\Omega$ 37'33               | 21°45'28   |
|                  |                   |                                 |            | asc. node           | 8418 Oct 19 13:42 | 14° $\Omega$ 54'38              |            |
| superior conj    | 8417 Nov 21 16:46 | 4° $\mathcal{A}$ 44'12          | 1°32'56    |                     | 8418 Oct 27 14:22 | 0° $\Pi$                        |            |
| minimum elong    | 8417 Nov 21 18:49 | 4° $\mathcal{A}$ 54'31          | 1°32'56    | morning set         | 8418 Oct 29 11:44 | 3° $\Pi$ 54'52                  |            |
| max. Earth dist. | 8417 Nov 27 04:30 | 15° $\mathcal{A}$ 31'14         | 1.36608 AU |                     |                   |                                 |            |
| evening rise     | 8417 Dec 01 00:25 | 22° $\mathcal{A}$ 39'43         |            | superior conj       | 8418 Nov 05 16:09 | 19° $\Pi$ 05'50                 | 1°40'15    |
|                  | 8417 Dec 05 03:37 | 0° $\mathcal{Z}$                |            | minimum elong       | 8418 Nov 05 16:53 | 19° $\Pi$ 09'39                 | 1°40'22    |
| desc. node       | 8417 Dec 06 08:07 | 2° $\mathcal{Z}$ 02'20          |            | max. Earth dist.    | 8418 Nov 09 17:04 | 27° $\Pi$ 24'56                 | 1.34762 AU |
|                  | 8417 Dec 24 17:28 | 0° $\approx$                    |            |                     | 8418 Nov 11 00:01 | 0° $\mathcal{A}$                |            |
| evening max el   | 8418 Jan 05 15:03 | 13° $\approx$ 59'13             | 25°52'01   | evening rise        | 8418 Nov 14 00:20 | 5° $\mathcal{A}$ 52'52          |            |
| retrograde       | 8418 Jan 18 02:59 | 21° $\approx$ 07'27             |            | desc. node          | 8418 Nov 23 05:08 | 22° $\mathcal{A}$ 24'36         |            |
| evening set      | 8418 Jan 24 04:27 | 18° $\approx$ 38'28             |            |                     | 8418 Nov 27 21:09 | 0° $\mathcal{Z}$                |            |
| min. Earth dist. | 8418 Jan 28 11:23 | 14° $\approx$ 02'22             | 0.67110 AU | evening max el      | 8418 Dec 19 04:29 | 27° $\mathcal{Z}$ 41'51         | 26°48'16   |
| asc. node        | 8418 Jan 28 15:59 | 13° $\approx$ 48'00             |            |                     | 8418 Dec 21 17:43 | 0° $\approx$                    |            |
| inferior conj    | 8418 Jan 29 22:17 | 12° $\approx$ 12'30             | 0°25'04    | retrograde          | 8419 Jan 01 07:45 | 5° $\approx$ 00'06              |            |
| minimum elong    | 8418 Jan 29 21:39 | 12° $\approx$ 14'31             | 0°24'58    | evening set         | 8419 Jan 07 20:54 | 2° $\approx$ 24'57              |            |
| morning rise     | 8418 Feb 04 15:23 | 6° $\approx$ 22'10              |            |                     | 8419 Jan 10 10:51 | 30° $\mathcal{R}$ $\mathcal{Z}$ |            |
| direct           | 8418 Feb 07 21:27 | 5° $\approx$ 21'34              |            | min. Earth dist.    | 8419 Jan 11 21:47 | 28° $\mathcal{Z}$ 23'25         | 0.65927 AU |
| morning max el   | 8418 Feb 14 16:42 | 9° $\approx$ 04'41              | 18°54'46   | inferior conj       | 8419 Jan 13 20:19 | 26° $\mathcal{Z}$ 07'35         | -0°34'10   |
|                  | 8418 Mar 01 22:13 | 0° $\mathcal{H}$                |            | minimum elong       | 8419 Jan 13 21:17 | 26° $\mathcal{Z}$ 04'46         | 0°33'35    |
| desc. node       | 8418 Mar 04 07:41 | 3° $\mathcal{H}$ 42'02          |            | asc. node           | 8419 Jan 15 13:03 | 24° $\mathcal{Z}$ 11'24         |            |
| morning set      | 8418 Mar 09 01:21 | 11° $\mathcal{H}$ 03'52         |            | morning rise        | 8419 Jan 19 22:41 | 20° $\mathcal{Z}$ 28'25         |            |
|                  | 8418 Mar 21 04:33 | 0° $\mathcal{Y}$                |            | direct              | 8419 Jan 22 18:59 | 19° $\mathcal{Z}$ 43'46         |            |
| max. Earth dist. | 8418 Mar 23 15:50 | 3° $\mathcal{Y}$ 52'20          | 1.45299 AU | morning max el      | 8419 Jan 29 06:16 | 23° $\mathcal{Z}$ 11'13         | 18°15'26   |
|                  |                   |                                 |            |                     | 8419 Feb 03 19:21 | 0° $\approx$                    |            |
| superior conj    | 8418 Mar 25 13:48 | 6° $\mathcal{Y}$ 52'52          | -1°59'39   | morning set         | 8419 Feb 17 10:53 | 21° $\approx$ 20'00             |            |
| minimum elong    | 8418 Mar 25 06:13 | 6° $\mathcal{Y}$ 23'05          | 1°59'11    | desc. node          | 8419 Feb 19 04:36 | 24° $\approx$ 07'49             |            |
|                  | 8418 Apr 09 01:20 | 0° $\mathcal{B}$                |            |                     | 8419 Feb 22 20:31 | 0° $\mathcal{H}$                |            |
| evening rise     | 8418 Apr 09 15:03 | 0° $\mathcal{B}$ 55'35          |            | superior conj       | 8419 Mar 04 18:45 | 15° $\mathcal{H}$ 42'17         | -1°28'10   |
| asc. node        | 8418 Apr 26 14:50 | 27° $\mathcal{B}$ 19'42         |            | minimum elong       | 8419 Mar 04 09:23 | 15° $\mathcal{H}$ 05'30         | 1°27'07    |
|                  | 8418 Apr 28 19:27 | 0° $\Pi$                        |            | max. Earth dist.    | 8419 Mar 06 11:29 | 18° $\mathcal{H}$ 21'52         | 1.45521 AU |
| evening max el   | 8418 Apr 30 00:09 | 1° $\Pi$ 16'29                  | 18°33'30   |                     | 8419 Mar 13 22:13 | 0° $\mathcal{Y}$                |            |
| retrograde       | 8418 May 06 12:28 | 4° $\Pi$ 49'24                  |            | evening rise        | 8419 Mar 20 20:34 | 10° $\mathcal{Y}$ 49'07         |            |
| evening set      | 8418 May 09 16:42 | 3° $\Pi$ 52'33                  |            | greatest brilliancy | 8419 Apr 01 04:39 | 28° $\mathcal{Y}$ 25'06         | -0.7m      |
|                  | 8418 May 13 23:30 | 30° $\mathcal{R}$ $\mathcal{B}$ |            |                     | 8419 Apr 02 05:40 | 0° $\mathcal{B}$                |            |
| inferior conj    | 8418 May 15 09:49 | 28° $\mathcal{B}$ 18'51         | 3°19'25    | asc. node           | 8419 Apr 13 11:55 | 14° $\mathcal{B}$ 59'51         |            |
| minimum elong    | 8418 May 15 10:45 | 28° $\mathcal{B}$ 16'04         | 3°19'13    | evening max el      | 8419 Apr 13 09:05 | 14° $\mathcal{B}$ 52'44         | 19°13'44   |
| min. Earth dist. | 8418 May 17 11:43 | 25° $\mathcal{B}$ 49'16         | 0.65005 AU | retrograde          | 8419 Apr 20 08:46 | 18° $\mathcal{B}$ 49'09         |            |
| morning rise     | 8418 May 21 03:59 | 22° $\mathcal{B}$ 02'09         |            | evening set         | 8419 Apr 23 20:50 | 17° $\mathcal{B}$ 37'36         |            |
| direct           | 8418 May 27 18:51 | 19° $\mathcal{B}$ 16'22         |            | inferior conj       | 8419 Apr 29 08:01 | 11° $\mathcal{B}$ 48'09         | 3°22'37    |
| desc. node       | 8418 May 31 07:24 | 19° $\mathcal{B}$ 56'46         |            | minimum elong       | 8419 Apr 29 07:39 | 11° $\mathcal{B}$ 49'18         | 3°22'29    |
| morning max el   | 8418 Jun 10 05:48 | 27° $\mathcal{B}$ 11'31         | 27°11'37   | min. Earth dist.    | 8419 Apr 30 18:32 | 9° $\mathcal{B}$ 56'35          | 0.66528 AU |
|                  | 8418 Jun 12 21:02 | 0° $\Pi$                        |            | morning rise        | 8419 May 04 18:05 | 5° $\mathcal{B}$ 29'58          |            |
|                  | 8418 Jul 04 02:15 | 0° $\mathcal{G}$                |            | direct              | 8419 May 11 00:08 | 2° $\mathcal{B}$ 45'11          |            |
| morning set      | 8418 Jul 15 18:27 | 21° $\mathcal{G}$ 00'29         |            | desc. node          | 8419 May 18 04:23 | 5° $\mathcal{B}$ 31'44          |            |
|                  | 8418 Jul 20 06:48 | 0° $\Omega$                     |            | morning max el      | 8419 May 23 16:02 | 10° $\mathcal{B}$ 18'26         | 26°06'54   |
| max. Earth dist. | 8418 Jul 20 06:23 | 29° $\mathcal{G}$ 57'53         | 1.33586 AU |                     | 8419 Jun 08 06:03 | 0° $\Pi$                        |            |
| asc. node        | 8418 Jul 23 14:02 | 6° $\Omega$ 50'55               |            |                     | 8419 Jun 26 15:57 | 0° $\mathcal{G}$                |            |
| superior conj    | 8418 Jul 24 02:41 | 7° $\Omega$ 57'39               | 0°05'21    | morning set         | 8419 Jun 28 17:58 | 3° $\mathcal{G}$ 49'12          |            |
| minimum elong    | 8418 Jul 24 02:25 | 7° $\Omega$ 56'12               | 0°05'08    | max. Earth dist.    | 8419 Jul 02 15:12 | 11° $\mathcal{G}$ 11'15         | 1.35201 AU |
| behind sun begin | 8418 Jul 23 21:06 | 7° $\Omega$ 28'11               |            | superior conj       | 8419 Jul 07 22:22 | 21° $\mathcal{G}$ 43'37         | -0°25'06   |
| behind sun end   | 8418 Jul 24 07:44 | 8° $\Omega$ 24'17               |            | minimum elong       | 8419 Jul 07 23:49 | 21° $\mathcal{G}$ 51'03         | 0°24'59    |
| evening rise     | 8418 Jul 31 08:22 | 23° $\Omega$ 21'58              |            | asc. node           | 8419 Jul 10 11:01 | 26° $\mathcal{G}$ 54'59         |            |
|                  | 8418 Aug 03 13:14 | 0° $\Pi$                        |            |                     | 8419 Jul 11 22:42 | 0° $\Omega$                     |            |
| evening max el   | 8418 Aug 21 01:41 | 27° $\Pi$ 13'23                 | 21°56'30   | evening rise        | 8419 Jul 15 16:29 | 7° $\Omega$ 45'48               |            |
|                  | 8418 Aug 24 06:59 | 0° $\Omega$                     |            |                     | 8419 Jul 27 18:01 | 0° $\Pi$                        |            |
| desc. node       | 8418 Aug 27 06:22 | 1° $\Omega$ 51'47               |            | evening max el      | 8419 Aug 03 02:14 | 7° $\Pi$ 55'52                  | 20°30'17   |
| retrograde       | 8418 Sep 02 16:57 | 3° $\Omega$ 30'03               |            | retrograde          | 8419 Aug 14 05:03 | 13° $\Pi$ 25'53                 |            |
| evening set      | 8418 Sep 05 14:29 | 3° $\Omega$ 11'18               |            | desc. node          | 8419 Aug 14 03:28 | 13° $\Pi$ 25'52                 |            |
|                  | 8418 Sep 13 06:14 | 30° $\mathcal{R}$ $\Pi$         |            | evening set         | 8419 Aug 16 05:50 | 13° $\Pi$ 15'38                 |            |
| min. Earth dist. | 8418 Sep 14 05:57 | 29° $\Pi$ 27'03                 | 0.54793 AU | inferior conj       | 8419 Aug 25 10:13 | 9° $\Pi$ 18'28                  | -3°20'15   |
| inferior conj    | 8418 Sep 14 17:19 | 29° $\Pi$ 11'09                 | -4°52'42   |                     |                   |                                 |            |

|                     |                   |                        |            |                  |                   |                        |            |
|---------------------|-------------------|------------------------|------------|------------------|-------------------|------------------------|------------|
| minimum elong       | 8419 Aug 25 01:29 | 9° $\mathbb{M}$ 31'05  | 3°17'25    | minimum elong    | 8420 Aug 04 10:37 | 19° $\Omega$ 51'00     | 1°22'54    |
| min. Earth dist.    | 8419 Aug 26 15:18 | 8° $\mathbb{M}$ 36'25  | 0.54803 AU | min. Earth dist. | 8420 Aug 07 04:00 | 18° $\Omega$ 04'56     | 0.55753 AU |
| morning rise        | 8419 Sep 02 20:41 | 5° $\mathbb{M}$ 14'59  |            | morning rise     | 8420 Aug 12 19:44 | 15° $\Omega$ 08'29     |            |
| direct              | 8419 Sep 06 23:54 | 4° $\mathbb{M}$ 38'20  |            | direct           | 8420 Aug 17 18:20 | 14° $\Omega$ 13'08     |            |
| morning max el      | 8419 Sep 20 07:32 | 11° $\mathbb{M}$ 04'34 | 23°29'35   | morning max el   | 8420 Aug 31 20:04 | 21° $\Omega$ 18'40     | 25°13'35   |
|                     | 8419 Oct 04 08:40 | 0° $\Omega$            |            |                  | 8420 Sep 08 09:44 | 0° $\mathbb{M}$        |            |
| asc. node           | 8419 Oct 06 10:39 | 3° $\Omega$ 43'20      |            | asc. node        | 8420 Sep 22 07:36 | 23° $\mathbb{M}$ 00'41 |            |
| morning set         | 8419 Oct 13 23:12 | 18° $\Omega$ 44'31     |            |                  | 8420 Sep 25 18:29 | 0° $\Omega$            |            |
|                     | 8419 Oct 19 04:28 | 0° $\mathbb{M}$        |            | morning set      | 8420 Sep 27 10:49 | 3° $\Omega$ 32'33      |            |
| superior conj       | 8419 Oct 20 21:54 | 3° $\mathbb{M}$ 44'09  | 1°40'43    | superior conj    | 8420 Oct 04 07:36 | 18° $\Omega$ 32'05     | 1°35'06    |
| minimum elong       | 8419 Oct 20 21:23 | 3° $\mathbb{M}$ 41'23  | 1°40'49    | minimum elong    | 8420 Oct 04 06:07 | 18° $\Omega$ 23'56     | 1°35'03    |
| max. Earth dist.    | 8419 Oct 23 13:51 | 9° $\mathbb{M}$ 26'04  | 1.33305 AU | max. Earth dist. | 8420 Oct 05 17:59 | 21° $\Omega$ 40'38     | 1.32297 AU |
| evening rise        | 8419 Oct 28 12:58 | 19° $\mathbb{M}$ 39'24 |            |                  | 8420 Oct 09 14:47 | 0° $\mathbb{M}$        |            |
|                     | 8419 Nov 02 22:14 | 0° $\mathbb{M}$        |            | evening rise     | 8420 Oct 11 11:03 | 3° $\mathbb{M}$ 51'02  |            |
| desc. node          | 8419 Nov 10 02:11 | 12° $\mathbb{M}$ 28'17 |            |                  | 8420 Oct 25 15:45 | 0° $\mathbb{M}$        |            |
|                     | 8419 Nov 21 23:11 | 0° $\mathbb{M}$        |            | desc. node       | 8420 Oct 26 23:16 | 2° $\mathbb{M}$ 05'37  |            |
| evening max el      | 8419 Dec 01 17:08 | 11° $\mathbb{M}$ 07'46 | 27°22'16   | evening max el   | 8420 Nov 13 03:08 | 24° $\mathbb{M}$ 04'27 | 27°27'32   |
| retrograde          | 8419 Dec 15 06:14 | 18° $\mathbb{M}$ 27'39 |            |                  | 8420 Nov 21 08:05 | 0° $\mathbb{M}$        |            |
| evening set         | 8419 Dec 22 04:29 | 15° $\mathbb{M}$ 52'38 |            | retrograde       | 8420 Nov 26 21:58 | 1° $\mathbb{M}$ 20'53  |            |
| min. Earth dist.    | 8419 Dec 26 00:08 | 12° $\mathbb{M}$ 24'27 | 0.64395 AU |                  | 8420 Dec 02 04:47 | 30° $\mathbb{M}$       |            |
| inferior conj       | 8419 Dec 28 10:20 | 9° $\mathbb{M}$ 49'52  | -1°39'52   | evening set      | 8420 Dec 04 00:20 | 28° $\mathbb{M}$ 55'02 |            |
| minimum elong       | 8419 Dec 28 13:24 | 9° $\mathbb{M}$ 41'41  | 1°38'24    | min. Earth dist. | 8420 Dec 07 16:42 | 25° $\mathbb{M}$ 55'38 | 0.62560 AU |
| asc. node           | 8420 Jan 02 10:06 | 5° $\mathbb{M}$ 16'17  |            | inferior conj    | 8420 Dec 10 13:28 | 23° $\mathbb{M}$ 12'21 | -2°49'43   |
| morning rise        | 8420 Jan 03 23:55 | 4° $\mathbb{M}$ 24'50  |            | minimum elong    | 8420 Dec 10 18:52 | 22° $\mathbb{M}$ 59'31 | 2°47'32    |
| direct              | 8420 Jan 06 12:22 | 3° $\mathbb{M}$ 52'25  |            | morning rise     | 8420 Dec 17 15:33 | 18° $\mathbb{M}$ 04'38 |            |
| morning max el      | 8420 Jan 12 23:09 | 7° $\mathbb{M}$ 14'46  | 17°53'05   | asc. node        | 8420 Dec 19 07:08 | 17° $\mathbb{M}$ 42'40 |            |
|                     | 8420 Jan 28 06:21 | 0° $\mathbb{M}$        |            | direct           | 8420 Dec 19 22:33 | 17° $\mathbb{M}$ 40'45 |            |
| morning set         | 8420 Jan 30 01:19 | 3° $\mathbb{M}$ 01'02  |            | morning max el   | 8420 Dec 26 16:16 | 21° $\mathbb{M}$ 07'22 | 17°48'19   |
| desc. node          | 8420 Feb 06 01:31 | 14° $\mathbb{M}$ 43'36 |            |                  | 8421 Jan 02 09:38 | 0° $\mathbb{M}$        |            |
| superior conj       | 8420 Feb 12 11:12 | 25° $\mathbb{M}$ 09'33 | -0°45'19   | morning set      | 8421 Jan 11 15:09 | 15° $\mathbb{M}$ 48'56 |            |
| minimum elong       | 8420 Feb 12 06:02 | 24° $\mathbb{M}$ 48'44 | 0°44'29    |                  | 8421 Jan 19 17:47 | 0° $\mathbb{M}$        |            |
|                     | 8420 Feb 15 11:53 | 0° $\mathbb{M}$        |            | desc. node       | 8421 Jan 22 22:27 | 5° $\mathbb{M}$ 25'39  |            |
| max. Earth dist.    | 8420 Feb 17 07:07 | 2° $\mathbb{M}$ 51'15  | 1.44994 AU | superior conj    | 8421 Jan 23 03:25 | 5° $\mathbb{M}$ 46'32  | -0°01'32   |
| evening rise        | 8420 Feb 28 10:26 | 20° $\mathbb{M}$ 10'49 |            | minimum elong    | 8421 Jan 23 03:17 | 5° $\mathbb{M}$ 45'56  | 0°01'21    |
|                     | 8420 Mar 05 20:57 | 0° $\mathbb{M}$        |            | behind sun begin | 8421 Jan 22 18:18 | 5° $\mathbb{M}$ 08'12  |            |
| greatest brilliancy | 8420 Mar 14 07:07 | 12° $\mathbb{M}$ 33'41 | -0.6m      | behind sun end   | 8421 Jan 23 12:15 | 6° $\mathbb{M}$ 23'36  |            |
| evening max el      | 8420 Mar 26 12:55 | 28° $\mathbb{M}$ 30'56 | 20°09'40   | max. Earth dist. | 8421 Jan 29 23:40 | 17° $\mathbb{M}$ 02'09 | 1.43787 AU |
|                     | 8420 Mar 28 02:21 | 0° $\mathbb{M}$        |            | evening rise     | 8421 Feb 06 22:51 | 29° $\mathbb{M}$ 36'55 |            |
| asc. node           | 8420 Mar 30 09:00 | 1° $\mathbb{M}$ 43'31  |            |                  | 8421 Feb 07 04:49 | 0° $\mathbb{M}$        |            |
| retrograde          | 8420 Apr 03 07:13 | 3° $\mathbb{M}$ 01'12  |            |                  | 8421 Feb 27 13:45 | 0° $\mathbb{M}$        |            |
| evening set         | 8420 Apr 07 03:55 | 1° $\mathbb{M}$ 34'37  |            | evening max el   | 8421 Mar 09 11:09 | 12° $\mathbb{M}$ 10'07 | 21°18'23   |
|                     | 8420 Apr 08 21:45 | 30° $\mathbb{M}$       |            | asc. node        | 8421 Mar 17 06:05 | 17° $\mathbb{M}$ 15'48 |            |
| inferior conj       | 8420 Apr 12 11:58 | 25° $\mathbb{M}$ 31'15 | 3°12'49    | retrograde       | 8421 Mar 18 05:34 | 17° $\mathbb{M}$ 20'41 |            |
| minimum elong       | 8420 Apr 12 10:36 | 25° $\mathbb{M}$ 35'54 | 3°12'34    | evening set      | 8421 Mar 22 12:02 | 15° $\mathbb{M}$ 39'00 |            |
| min. Earth dist.    | 8420 Apr 13 08:05 | 24° $\mathbb{M}$ 23'00 | 0.67602 AU | inferior conj    | 8421 Mar 27 19:19 | 9° $\mathbb{M}$ 24'10  | 2°52'09    |
| morning rise        | 8420 Apr 17 17:03 | 19° $\mathbb{M}$ 14'22 |            | minimum elong    | 8421 Mar 27 17:18 | 9° $\mathbb{M}$ 31'11  | 2°51'42    |
| direct              | 8420 Apr 23 11:03 | 16° $\mathbb{M}$ 40'28 |            | min. Earth dist. | 8421 Mar 28 02:15 | 9° $\mathbb{M}$ 00'04  | 0.68234 AU |
| desc. node          | 8420 May 04 01:21 | 22° $\mathbb{M}$ 37'50 |            | morning rise     | 8421 Apr 01 22:21 | 3° $\mathbb{M}$ 10'22  |            |
| morning max el      | 8420 May 05 01:30 | 23° $\mathbb{M}$ 37'31 | 24°44'46   | direct           | 8421 Apr 07 02:45 | 0° $\mathbb{M}$ 54'07  |            |
|                     | 8420 May 10 17:26 | 0° $\mathbb{M}$        |            | morning max el   | 8421 Apr 17 11:00 | 7° $\mathbb{M}$ 03'09  | 23°15'12   |
|                     | 8420 May 31 15:15 | 0° $\mathbb{M}$        |            | desc. node       | 8421 Apr 20 22:17 | 10° $\mathbb{M}$ 49'52 |            |
| morning set         | 8420 Jun 10 00:01 | 15° $\mathbb{M}$ 46'41 |            |                  | 8421 May 05 06:55 | 0° $\mathbb{M}$        |            |
| max. Earth dist.    | 8420 Jun 13 14:53 | 22° $\mathbb{M}$ 16'58 | 1.37208 AU | morning set      | 8421 May 22 06:59 | 26° $\mathbb{M}$ 37'32 |            |
|                     | 8420 Jun 17 18:01 | 0° $\mathbb{M}$        |            |                  | 8421 May 24 06:55 | 0° $\mathbb{M}$        |            |
| superior conj       | 8420 Jun 20 07:34 | 4° $\mathbb{M}$ 56'28  | -0°57'02   | max. Earth dist. | 8421 May 26 10:45 | 3° $\mathbb{M}$ 42'48  | 1.39440 AU |
| minimum elong       | 8420 Jun 20 11:05 | 5° $\mathbb{M}$ 13'38  | 0°56'35    | superior conj    | 8421 Jun 03 02:20 | 17° $\mathbb{M}$ 25'50 | -1°27'59   |
| asc. node           | 8420 Jun 26 08:01 | 16° $\mathbb{M}$ 53'23 |            | minimum elong    | 8421 Jun 03 07:41 | 17° $\mathbb{M}$ 50'37 | 1°27'26    |
| evening rise        | 8420 Jun 28 19:27 | 21° $\mathbb{M}$ 51'34 |            |                  | 8421 Jun 09 17:45 | 0° $\mathbb{M}$        |            |
|                     | 8420 Jul 02 22:50 | 0° $\mathbb{M}$        |            | evening rise     | 8421 Jun 12 14:18 | 5° $\mathbb{M}$ 30'16  |            |
| evening max el      | 8420 Jul 15 16:09 | 19° $\mathbb{M}$ 23'06 | 19°23'24   | asc. node        | 8421 Jun 13 05:02 | 6° $\mathbb{M}$ 41'12  |            |
| retrograde          | 8420 Jul 25 02:14 | 24° $\mathbb{M}$ 02'25 |            |                  | 8421 Jun 27 06:33 | 0° $\mathbb{M}$        |            |
| evening set         | 8420 Jul 26 22:51 | 23° $\mathbb{M}$ 52'19 |            | evening max el   | 8421 Jun 28 17:27 | 1° $\mathbb{M}$ 33'00  | 18°37'26   |
| desc. node          | 8420 Jul 31 00:34 | 22° $\mathbb{M}$ 27'37 |            | retrograde       | 8421 Jul 06 16:44 | 5° $\mathbb{M}$ 30'39  |            |
| inferior conj       | 8420 Aug 04 14:24 | 19° $\mathbb{M}$ 44'51 | -1°24'14   | evening set      | 8421 Jul 08 18:24 | 5° $\mathbb{M}$ 15'32  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| inferior conj    | 8421 Jul 16 14:37 | 0°♎49'54  | 0°23'13    | evening set      | 8422 Jun 21 11:12 | 17°♊24'34 |            |
| minimum elong    | 8421 Jul 16 15:29 | 0°♎48'15  | 0°22'43    | inferior conj    | 8422 Jun 28 12:23 | 12°♊38'19 | 1°45'15    |
| desc. node       | 8421 Jul 17 21:40 | 29°♊50'36 |            | minimum elong    | 8422 Jun 28 15:16 | 12°♊31'54 | 1°44'10    |
|                  | 8421 Jul 17 16:45 | 30°♋♊     |            | min. Earth dist. | 8422 Jul 01 21:10 | 9°♊40'33  | 0.59610 AU |
| min. Earth dist. | 8421 Jul 19 21:28 | 28°♊21'11 | 0.57461 AU | desc. node       | 8422 Jul 04 18:43 | 7°♊28'35  |            |
| morning rise     | 8421 Jul 24 09:02 | 25°♊36'25 |            | morning rise     | 8422 Jul 05 16:21 | 6°♊54'43  |            |
| direct           | 8421 Jul 30 03:30 | 24°♊13'08 |            | direct           | 8422 Jul 12 02:04 | 4°♊59'53  |            |
|                  | 8421 Aug 11 13:23 | 0°♎       |            | morning max el   | 8422 Jul 26 10:36 | 12°♊51'47 | 27°36'58   |
| morning max el   | 8421 Aug 13 12:06 | 1°♎47'19  | 26°40'38   |                  | 8422 Aug 09 00:31 | 0°♎       |            |
|                  | 8421 Sep 02 14:46 | 0°♍       |            |                  | 8422 Aug 25 20:30 | 0°♍       |            |
| asc. node        | 8421 Sep 09 04:34 | 12°♍38'24 |            | morning set      | 8422 Aug 27 03:48 | 2°♍42'19  |            |
| morning set      | 8421 Sep 11 20:55 | 18°♍13'24 |            | asc. node        | 8422 Aug 27 01:33 | 2°♍30'31  |            |
|                  | 8421 Sep 17 06:39 | 0°♌       |            | max. Earth dist. | 8422 Sep 02 12:55 | 16°♍30'40 | 1.31658 AU |
| superior conj    | 8421 Sep 18 19:11 | 3°♌22'33  | 1°23'58    | superior conj    | 8422 Sep 03 06:49 | 18°♍09'46 | 1°07'44    |
| minimum elong    | 8421 Sep 18 17:06 | 3°♌11'00  | 1°23'43    | minimum elong    | 8422 Sep 03 04:34 | 17°♍57'20 | 1°07'19    |
| max. Earth dist. | 8421 Sep 19 02:48 | 4°♌04'52  | 1.31748 AU |                  | 8422 Sep 08 15:41 | 0°♌       |            |
| evening rise     | 8421 Sep 25 15:45 | 18°♌19'29 |            | evening rise     | 8422 Sep 10 00:45 | 2°♌58'05  |            |
|                  | 8421 Oct 01 10:23 | 0°♍       |            |                  | 8422 Sep 24 09:24 | 0°♍       |            |
| desc. node       | 8421 Oct 13 20:24 | 21°♍05'39 |            | desc. node       | 8422 Sep 30 17:31 | 9°♍13'33  |            |
|                  | 8421 Oct 20 11:32 | 0°♎       |            | evening max el   | 8422 Oct 08 05:52 | 17°♍46'28 | 25°58'40   |
| evening max el   | 8421 Oct 26 08:09 | 6°♎20'10  | 26°59'45   | retrograde       | 8422 Oct 22 04:07 | 24°♍50'01 |            |
| retrograde       | 8421 Nov 09 05:57 | 13°♎30'29 |            | evening set      | 8422 Oct 28 12:23 | 23°♍14'31 |            |
| evening set      | 8421 Nov 16 04:34 | 11°♎24'44 |            | min. Earth dist. | 8422 Nov 01 18:42 | 20°♍39'20 | 0.58436 AU |
| min. Earth dist. | 8421 Nov 19 22:44 | 8°♎44'48  | 0.60515 AU | inferior conj    | 8422 Nov 04 21:47 | 18°♍23'11 | -4°58'30   |
| inferior conj    | 8421 Nov 23 02:27 | 6°♎06'43  | -3°58'58   | minimum elong    | 8422 Nov 05 04:30 | 18°♍10'56 | 4°57'04    |
| minimum elong    | 8421 Nov 23 09:35 | 5°♎51'46  | 3°56'40    | morning rise     | 8422 Nov 12 22:56 | 13°♍58'04 |            |
| morning rise     | 8421 Nov 30 17:01 | 1°♎19'11  |            | direct           | 8422 Nov 15 05:55 | 13°♍40'56 |            |
| direct           | 8421 Dec 02 21:47 | 1°♎00'19  |            | asc. node        | 8422 Nov 23 01:10 | 17°♍13'56 |            |
| asc. node        | 8421 Dec 06 04:08 | 1°♎43'54  |            | morning max el   | 8422 Nov 23 13:27 | 17°♍42'43 | 18°36'32   |
| morning max el   | 8421 Dec 10 06:16 | 4°♎40'07  | 18°02'17   |                  | 8422 Dec 02 10:05 | 0°♎       |            |
| morning set      | 8421 Dec 25 22:02 | 29°♎24'47 |            | morning set      | 8422 Dec 09 16:42 | 13°♎32'53 |            |
|                  | 8421 Dec 26 05:37 | 0°♏       |            | superior conj    | 8422 Dec 18 11:32 | 0°♏24'40  | 1°05'17    |
| superior conj    | 8422 Jan 04 20:53 | 17°♏35'37 | 0°36'16    | minimum elong    | 8422 Dec 18 14:56 | 0°♏40'31  | 1°05'01    |
| minimum elong    | 8422 Jan 04 23:37 | 17°♏47'43 | 0°36'02    |                  | 8422 Dec 18 06:16 | 0°♏       |            |
| desc. node       | 8422 Jan 09 19:27 | 26°♏10'37 |            | max. Earth dist. | 8422 Dec 25 19:24 | 13°♏39'41 | 1.39965 AU |
|                  | 8422 Jan 12 01:50 | 0°♐       |            | desc. node       | 8422 Dec 27 16:27 | 16°♏54'23 |            |
| max. Earth dist. | 8422 Jan 12 11:40 | 0°♐41'05  | 1.42041 AU | evening rise     | 8422 Dec 29 22:43 | 20°♏44'12 |            |
| evening rise     | 8422 Jan 18 00:23 | 9°♐42'34  |            |                  | 8423 Jan 04 14:57 | 0°♐       |            |
|                  | 8422 Jan 31 07:02 | 0°♑       |            |                  | 8423 Jan 25 10:34 | 0°♑       |            |
| evening max el   | 8422 Feb 20 04:43 | 25°♑52'02 | 22°35'38   | evening max el   | 8423 Feb 02 19:13 | 9°♑37'01  | 23°55'51   |
|                  | 8422 Feb 25 02:30 | 0°♒       |            | retrograde       | 8423 Feb 13 19:23 | 16°♑05'31 |            |
| retrograde       | 8422 Mar 02 02:06 | 1°♒43'50  |            | evening set      | 8423 Feb 19 01:05 | 13°♑54'35 |            |
| asc. node        | 8422 Mar 04 03:11 | 1°♒22'47  |            | asc. node        | 8423 Feb 19 00:17 | 13°♑56'17 |            |
| evening set      | 8422 Mar 06 19:37 | 29°♑47'12 |            | min. Earth dist. | 8423 Feb 23 19:17 | 8°♑24'11  | 0.68231 AU |
|                  | 8422 Mar 06 13:19 | 30°♒♑     |            | inferior conj    | 8423 Feb 24 12:11 | 7°♑26'47  | 1°43'02    |
| inferior conj    | 8422 Mar 12 04:01 | 23°♑24'00 | 2°21'58    | minimum elong    | 8423 Feb 24 10:09 | 7°♑33'42  | 1°42'25    |
| minimum elong    | 8422 Mar 12 01:46 | 23°♑31'51 | 2°21'22    | morning rise     | 8423 Mar 01 19:13 | 1°♑23'41  |            |
| min. Earth dist. | 8422 Mar 11 22:46 | 23°♑42'17 | 0.68437 AU |                  | 8423 Mar 04 13:51 | 30°♒♐     |            |
| morning rise     | 8422 Mar 17 07:46 | 17°♑14'47 |            | direct           | 8423 Mar 05 20:14 | 29°♐51'11 |            |
| direct           | 8422 Mar 21 22:15 | 15°♑19'55 |            |                  | 8423 Mar 07 03:27 | 0°♑       |            |
| morning max el   | 8422 Mar 30 23:44 | 20°♑37'07 | 21°47'45   | morning max el   | 8423 Mar 13 19:03 | 4°♑22'23  | 20°29'32   |
| desc. node       | 8422 Apr 07 19:14 | 29°♑49'52 |            | desc. node       | 8423 Mar 25 16:10 | 19°♑24'09 |            |
|                  | 8422 Apr 07 22:20 | 0°♒       |            |                  | 8423 Apr 01 22:09 | 0°♒       |            |
|                  | 8422 Apr 28 12:24 | 0°♓       |            | morning set      | 8423 Apr 11 14:37 | 14°♒44'31 |            |
| morning set      | 8422 May 02 10:41 | 6°♓12'24  |            | max. Earth dist. | 8423 Apr 20 17:14 | 29°♒07'25 | 1.43514 AU |
| max. Earth dist. | 8422 May 08 10:14 | 15°♓57'16 | 1.41638 AU |                  | 8423 Apr 21 06:17 | 0°♓       |            |
| superior conj    | 8422 May 16 02:13 | 29°♓02'06 | -1°54'05   | superior conj    | 8423 Apr 27 02:43 | 9°♓35'19  | -2°09'54   |
| minimum elong    | 8422 May 16 07:56 | 29°♓27'11 | 1°53'45    | minimum elong    | 8423 Apr 27 05:32 | 9°♓47'01  | 2°09'57    |
|                  | 8422 May 16 15:24 | 0°♑       |            |                  | 8423 May 09 00:44 | 0°♑       |            |
| evening rise     | 8422 May 26 21:21 | 18°♑33'14 |            | evening rise     | 8423 May 09 12:07 | 0°♑49'52  |            |
| asc. node        | 8422 May 31 02:06 | 26°♑14'03 |            | asc. node        | 8423 May 17 23:10 | 15°♑25'56 |            |
|                  | 8422 Jun 02 04:53 | 0°♒       |            | evening max el   | 8423 May 26 15:06 | 27°♑25'51 | 18°05'33   |
| evening max el   | 8422 Jun 12 02:23 | 14°♒17'19 | 18°11'45   |                  | 8423 May 30 00:49 | 0°♒       |            |
| retrograde       | 8422 Jun 19 01:55 | 17°♒48'37 |            | retrograde       | 8423 Jun 02 02:29 | 0°♒46'48  |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set         | 8423 Jun 04 19:15 | 0°☿11'10  |            |                  | 8424 May 01 02:03 | 0°♊       |            |
|                     | 8423 Jun 05 04:56 | 30°♊II    |            | asc. node        | 8424 May 03 20:14 | 4°♊09'42  |            |
| inferior conj       | 8423 Jun 11 04:49 | 25°♊05'01 | 2°39'40    | evening max el   | 8424 May 09 04:20 | 10°♊49'56 | 18°18'04   |
| minimum elong       | 8423 Jun 11 07:37 | 24°♊57'53 | 2°38'52    | retrograde       | 8424 May 15 13:48 | 14°♊15'01 |            |
| min. Earth dist.    | 8423 Jun 14 05:03 | 22°♊02'14 | 0.61857 AU | evening set      | 8424 May 18 13:46 | 13°♊26'14 |            |
| morning rise        | 8423 Jun 17 17:57 | 19°♊01'38 |            | inferior conj    | 8424 May 24 11:46 | 8°♊01'57  | 3°10'29    |
| desc. node          | 8423 Jun 21 15:45 | 17°♊03'50 |            | minimum elong    | 8424 May 24 13:28 | 7°♊57'06  | 3°10'06    |
| direct              | 8423 Jun 24 11:20 | 16°♊39'16 |            | min. Earth dist. | 8424 May 26 22:20 | 5°♊15'32  | 0.63941 AU |
| morning max el      | 8423 Jul 08 15:30 | 24°♊40'15 | 27°55'48   | morning rise     | 8424 May 30 12:00 | 1°♊47'54  |            |
|                     | 8423 Jul 13 11:43 | 0°☿       |            |                  | 8424 Jun 02 08:14 | 30°♊♋     |            |
|                     | 8423 Aug 02 10:17 | 0°♌       |            | direct           | 8424 Jun 06 05:27 | 29°♋07'24 |            |
| morning set         | 8423 Aug 11 05:32 | 16°♌53'47 |            | desc. node       | 8424 Jun 07 12:46 | 29°♋12'54 |            |
| asc. node           | 8423 Aug 13 22:32 | 22°♌31'55 |            |                  | 8424 Jun 10 08:55 | 0°♊       |            |
| max. Earth dist.    | 8423 Aug 16 20:30 | 28°♌46'57 | 1.32029 AU | morning max el   | 8424 Jun 20 00:39 | 7°♊08'30  | 27°37'16   |
|                     | 8423 Aug 17 09:56 | 0°♍       |            |                  | 8424 Jul 07 13:24 | 0°☿       |            |
|                     |                   |           |            | morning set      | 8424 Jul 24 23:38 | 0°♌40'15  |            |
| superior conj       | 8423 Aug 18 16:42 | 2°♍48'11  | 0°46'47    |                  | 8424 Jul 24 15:30 | 0°♌       |            |
| minimum elong       | 8423 Aug 18 14:48 | 2°♍37'43  | 0°46'19    | max. Earth dist. | 8424 Jul 29 21:30 | 10°♌41'41 | 1.32877 AU |
| evening rise        | 8423 Aug 25 12:00 | 17°♍40'39 |            | asc. node        | 8424 Jul 30 19:30 | 12°♌37'26 |            |
|                     | 8423 Aug 31 12:14 | 0°♎       |            |                  |                   |           |            |
| desc. node          | 8423 Sep 17 14:37 | 26°♎09'05 |            | superior conj    | 8424 Aug 01 22:52 | 17°♌11'06 | 0°21'34    |
| evening max el      | 8423 Sep 19 19:58 | 28°♎25'38 | 24°31'17   | minimum elong    | 8424 Aug 01 21:50 | 17°♌05'34 | 0°21'12    |
|                     | 8423 Sep 21 13:33 | 0°♏       |            |                  | 8424 Aug 07 21:17 | 0°♍       |            |
| retrograde          | 8423 Oct 03 14:45 | 5°♏21'04  |            | evening rise     | 8424 Aug 08 23:33 | 2°♍20'21  |            |
| evening set         | 8423 Oct 08 19:51 | 4°♏20'45  |            |                  | 8424 Aug 24 03:06 | 0°♎       |            |
| min. Earth dist.    | 8423 Oct 14 06:56 | 1°♏31'58  | 0.56568 AU | evening max el   | 8424 Aug 31 07:16 | 8°♎38'22  | 22°52'07   |
| inferior conj       | 8423 Oct 16 21:00 | 29°♎53'49 | -5°33'04   | desc. node       | 8424 Sep 03 11:44 | 11°♎23'59 |            |
| minimum elong       | 8423 Oct 16 23:18 | 29°♎50'10 | 5°32'52    | retrograde       | 8424 Sep 13 13:13 | 15°♎15'25 |            |
|                     | 8423 Oct 16 17:06 | 30°♏♎     |            | evening set      | 8424 Sep 17 06:03 | 14°♎45'24 |            |
| morning rise        | 8423 Oct 25 04:54 | 25°♎50'46 |            | min. Earth dist. | 8424 Sep 24 15:28 | 11°♎25'22 | 0.55216 AU |
| direct              | 8423 Oct 27 19:21 | 25°♎32'25 |            | inferior conj    | 8424 Sep 26 01:06 | 10°♎37'08 | -5°23'30   |
|                     | 8423 Nov 06 07:58 | 0°♏       |            | minimum elong    | 8424 Sep 25 19:52 | 10°♎44'39 | 5°22'54    |
| morning max el      | 8423 Nov 06 10:21 | 0°♏05'37  | 19°32'45   | morning rise     | 8424 Oct 04 11:44 | 6°♎48'14  |            |
| asc. node           | 8423 Nov 09 22:11 | 3°♏58'47  |            | direct           | 8424 Oct 07 13:54 | 6°♎26'03  |            |
| morning set         | 8423 Nov 23 19:19 | 28°♏02'35 |            | morning max el   | 8424 Oct 18 18:26 | 11°♎40'21 | 20°51'21   |
|                     | 8423 Nov 24 18:39 | 0°♐       |            | asc. node        | 8424 Oct 26 19:10 | 21°♎42'00 |            |
|                     |                   |           |            |                  | 8424 Oct 31 16:10 | 0°♏       |            |
| superior conj       | 8423 Dec 01 18:20 | 14°♐00'04 | 1°25'15    | morning set      | 8424 Nov 07 03:02 | 12°♏44'44 |            |
| minimum elong       | 8423 Dec 01 21:04 | 14°♐13'26 | 1°25'10    |                  |                   |           |            |
| max. Earth dist.    | 8423 Dec 08 01:20 | 25°♐59'51 | 1.37800 AU | superior conj    | 8424 Nov 14 12:44 | 28°♏07'59 | 1°36'55    |
|                     | 8423 Dec 10 06:05 | 0°♑       |            | minimum elong    | 8424 Nov 14 14:13 | 28°♏15'39 | 1°37'00    |
| evening rise        | 8423 Dec 11 18:43 | 2°♑43'18  |            |                  | 8424 Nov 15 10:39 | 0°♐       |            |
| desc. node          | 8423 Dec 14 13:29 | 7°♑33'35  |            | max. Earth dist. | 8424 Nov 19 09:53 | 7°♐55'35  | 1.35780 AU |
|                     | 8423 Dec 28 18:02 | 0°♒       |            | evening rise     | 8424 Nov 23 09:32 | 15°♐31'56 |            |
| evening max el      | 8424 Jan 16 08:25 | 23°♒24'23 | 25°12'21   | desc. node       | 8424 Nov 30 10:31 | 28°♐03'20 |            |
|                     | 8424 Jan 25 23:17 | 0°♒       |            |                  | 8424 Dec 01 14:13 | 0°♑       |            |
| retrograde          | 8424 Jan 28 08:27 | 0°♒21'04  |            |                  | 8424 Dec 22 08:07 | 0°♒       |            |
|                     | 8424 Jan 30 14:44 | 30°♒♒     |            | evening max el   | 8424 Dec 28 21:27 | 7°♒09'52  | 26°18'08   |
| evening set         | 8424 Feb 03 02:54 | 27°♒57'34 |            | retrograde       | 8425 Jan 10 16:35 | 14°♒24'03 |            |
| asc. node           | 8424 Feb 05 21:22 | 25°♒06'59 |            | evening set      | 8425 Jan 16 23:19 | 11°♒51'27 |            |
| min. Earth dist.    | 8424 Feb 07 13:35 | 23°♒01'52 | 0.67632 AU | min. Earth dist. | 8425 Jan 21 03:28 | 7°♒30'23  | 0.66650 AU |
| inferior conj       | 8424 Feb 08 17:58 | 21°♒29'31 | 0°55'51    | inferior conj    | 8425 Jan 22 19:25 | 5°♒28'22  | 0°00'49    |
| minimum elong       | 8424 Feb 08 16:40 | 21°♒33'48 | 0°55'27    | minimum elong    | 8425 Jan 22 19:23 | 5°♒28'28  | 0°00'57    |
| morning rise        | 8424 Feb 14 06:44 | 15°♒34'12 |            | transit middle   | 8425 Jan 22 19:23 | 5°♒28'28  | 0°00'57    |
| direct              | 8424 Feb 17 19:19 | 14°♒22'47 |            | transit begin    | 8425 Jan 22 16:31 | 5°♒37'16  |            |
| morning max el      | 8424 Feb 24 22:24 | 18°♒19'37 | 19°24'54   | transit end      | 8425 Jan 22 22:16 | 5°♒19'41  |            |
|                     | 8424 Mar 05 04:30 | 0°♒       |            | asc. node        | 8425 Jan 22 18:27 | 5°♒31'21  |            |
| greatest brilliancy | 8424 Mar 08 18:57 | 5°♒15'48  | -0.7m      |                  | 8425 Jan 28 05:03 | 30°♒♑     |            |
| desc. node          | 8424 Mar 11 13:05 | 9°♒23'32  |            | morning rise     | 8425 Jan 28 16:13 | 29°♑42'47 |            |
| morning set         | 8424 Mar 20 13:10 | 23°♒09'40 |            | direct           | 8425 Jan 31 17:52 | 28°♑49'33 |            |
|                     | 8424 Mar 24 23:14 | 0°♓       |            |                  | 8425 Feb 04 09:39 | 0°♒       |            |
| max. Earth dist.    | 8424 Apr 02 07:05 | 13°♓01'43 | 1.44839 AU | morning max el   | 8425 Feb 07 08:53 | 2°♒24'39  | 18°36'01   |
|                     |                   |           |            | desc. node       | 8425 Feb 26 10:00 | 29°♒41'11 |            |
| superior conj       | 8424 Apr 06 02:42 | 19°♓05'22 | -2°09'13   |                  | 8425 Feb 26 14:46 | 0°♒       |            |
| minimum elong       | 8424 Apr 05 22:54 | 18°♓50'12 | 2°09'09    | morning set      | 8425 Feb 28 06:01 | 2°♒34'43  |            |
|                     | 8424 Apr 12 20:55 | 0°♈       |            |                  |                   |           |            |
| evening rise        | 8424 Apr 20 06:01 | 12°♈11'08 |            | superior conj    | 8425 Mar 16 09:47 | 27°♒56'22 | -1°48'20   |

|                     |                   |                      |            |                     |                   |                           |            |
|---------------------|-------------------|----------------------|------------|---------------------|-------------------|---------------------------|------------|
| minimum elong       | 8425 Mar 16 00:33 | 27° $\text{H}$ 20'11 | 1°47'33    | superior conj       | 8426 Feb 23 17:27 | 6° $\text{H}$ 56'12       | -1°10'44   |
| max. Earth dist.    | 8425 Mar 16 01:01 | 27° $\text{H}$ 22'00 | 1.45476 AU | minimum elong       | 8426 Feb 23 09:24 | 6° $\text{H}$ 24'23       | 1°09'39    |
|                     | 8425 Mar 17 17:22 | 0° $\text{Y}$        |            | max. Earth dist.    | 8426 Feb 26 20:21 | 11° $\text{H}$ 51'10      | 1.45377 AU |
| evening rise        | 8425 Apr 01 00:19 | 22° $\text{Y}$ 34'01 |            |                     | 8426 Mar 10 12:11 | 0° $\text{Y}$             |            |
|                     | 8425 Apr 05 16:10 | 0° $\text{B}$        |            | evening rise        | 8426 Mar 11 21:40 | 2° $\text{Y}$ 09'29       |            |
| greatest brilliancy | 8425 Apr 09 08:53 | 5° $\text{B}$ 52'01  | -0.8m      | greatest brilliancy | 8426 Mar 25 04:24 | 22° $\text{Y}$ 27'46      | -0.7m      |
| asc. node           | 8425 Apr 20 17:19 | 22° $\text{B}$ 16'31 |            |                     | 8426 Mar 30 09:47 | 0° $\text{B}$             |            |
| evening max el      | 8425 Apr 22 15:25 | 24° $\text{B}$ 23'16 | 18°48'36   | evening max el      | 8426 Apr 05 22:18 | 8° $\text{B}$ 00'32       | 19°35'52   |
| retrograde          | 8425 Apr 29 07:49 | 28° $\text{B}$ 05'14 |            | asc. node           | 8426 Apr 07 14:24 | 9° $\text{B}$ 34'23       |            |
| evening set         | 8425 May 02 15:11 | 27° $\text{B}$ 02'21 |            | retrograde          | 8426 Apr 13 05:15 | 12° $\text{B}$ 10'28      |            |
| inferior conj       | 8425 May 08 05:23 | 21° $\text{B}$ 21'41 | 3°22'34    | evening set         | 8426 Apr 16 20:48 | 10° $\text{B}$ 52'44      |            |
| minimum elong       | 8425 May 08 05:44 | 21° $\text{B}$ 20'34 | 3°22'25    | inferior conj       | 8426 Apr 22 06:20 | 4° $\text{B}$ 57'21       | 3°19'54    |
| min. Earth dist.    | 8425 May 10 00:42 | 19° $\text{B}$ 07'05 | 0.65694 AU | minimum elong       | 8426 Apr 22 05:30 | 5° $\text{B}$ 00'05       | 3°19'44    |
| morning rise        | 8425 May 13 19:41 | 15° $\text{B}$ 03'37 |            | min. Earth dist.    | 8426 Apr 23 10:41 | 3° $\text{B}$ 23'31       | 0.67034 AU |
| direct              | 8425 May 20 07:12 | 12° $\text{B}$ 16'50 |            |                     | 8426 Apr 26 05:31 | 30° $\text{R}$ $\text{Y}$ |            |
| desc. node          | 8425 May 25 09:44 | 13° $\text{B}$ 41'40 |            | morning rise        | 8426 Apr 27 13:53 | 28° $\text{Y}$ 39'22      |            |
| morning max el      | 8425 Jun 02 11:14 | 20° $\text{B}$ 05'28 | 26°46'58   | direct              | 8426 May 03 15:10 | 25° $\text{Y}$ 57'49      |            |
|                     | 8425 Jun 10 22:49 | 0° $\text{II}$       |            | desc. node          | 8426 May 12 06:42 | 29° $\text{Y}$ 58'35      |            |
|                     | 8425 Jun 30 15:34 | 0° $\text{E}$        |            |                     | 8426 May 12 07:24 | 0° $\text{B}$             |            |
| morning set         | 8425 Jul 08 07:06 | 13° $\text{E}$ 53'46 |            | morning max el      | 8426 May 15 21:00 | 3° $\text{B}$ 17'58       | 25°33'30   |
| max. Earth dist.    | 8425 Jul 12 12:30 | 22° $\text{E}$ 08'33 | 1.34213 AU |                     | 8426 Jun 05 04:40 | 0° $\text{II}$            |            |
|                     | 8425 Jul 16 09:04 | 0° $\text{O}$        |            | morning set         | 8426 Jun 20 23:49 | 26° $\text{II}$ 22'28     |            |
|                     |                   |                      |            |                     | 8426 Jun 22 23:12 | 0° $\text{E}$             |            |
| superior conj       | 8425 Jul 16 23:08 | 1° $\text{O}$ 12'59  | -0°07'17   | max. Earth dist.    | 8426 Jun 24 16:31 | 3° $\text{E}$ 13'35       | 1.36008 AU |
| minimum elong       | 8425 Jul 16 23:32 | 1° $\text{O}$ 15'06  | 0°07'22    |                     |                   |                           |            |
| behind sun begin    | 8425 Jul 16 18:23 | 0° $\text{O}$ 48'19  |            | superior conj       | 8426 Jun 30 14:46 | 14° $\text{E}$ 46'03      | -0°38'35   |
| behind sun end      | 8425 Jul 17 04:41 | 1° $\text{O}$ 41'54  |            | minimum elong       | 8426 Jun 30 17:04 | 14° $\text{E}$ 57'37      | 0°38'18    |
| asc. node           | 8425 Jul 17 16:29 | 2° $\text{O}$ 43'29  |            | asc. node           | 8426 Jul 04 13:29 | 22° $\text{E}$ 45'43      |            |
| evening rise        | 8425 Jul 24 09:31 | 16° $\text{O}$ 51'56 |            |                     | 8426 Jul 08 02:16 | 0° $\text{O}$             |            |
|                     | 8425 Jul 30 23:11 | 0° $\text{P}$        |            | evening rise        | 8426 Jul 08 15:44 | 1° $\text{O}$ 08'42       |            |
| evening max el      | 8425 Aug 13 01:01 | 19° $\text{P}$ 01'59 | 21°17'45   |                     | 8426 Jul 26 06:00 | 0° $\text{P}$             |            |
| desc. node          | 8425 Aug 21 08:48 | 24° $\text{P}$ 26'36 |            | evening max el      | 8426 Jul 26 07:23 | 0° $\text{P}$ 03'26       | 19°59'22   |
| retrograde          | 8425 Aug 25 02:33 | 25° $\text{P}$ 00'43 |            | retrograde          | 8426 Aug 05 16:38 | 5° $\text{P}$ 10'56       |            |
| evening set         | 8425 Aug 27 12:42 | 24° $\text{P}$ 47'08 |            | evening set         | 8426 Aug 07 13:58 | 5° $\text{P}$ 01'31       |            |
| inferior conj       | 8425 Sep 05 18:13 | 20° $\text{P}$ 49'48 | -4°18'37   | desc. node          | 8426 Aug 08 05:53 | 4° $\text{P}$ 53'56       |            |
| minimum elong       | 8425 Sep 05 08:40 | 21° $\text{P}$ 03'14 | 4°16'06    | inferior conj       | 8426 Aug 16 14:21 | 1° $\text{P}$ 01'52       | -2°31'50   |
| min. Earth dist.    | 8425 Sep 06 00:15 | 20° $\text{P}$ 41'20 | 0.54680 AU | minimum elong       | 8426 Aug 16 07:25 | 1° $\text{P}$ 12'18       | 2°29'25    |
| morning rise        | 8425 Sep 14 05:19 | 16° $\text{P}$ 57'13 |            |                     | 8426 Aug 18 07:24 | 30° $\text{R}$ $\text{O}$ |            |
| direct              | 8425 Sep 17 22:23 | 16° $\text{P}$ 27'30 |            | min. Earth dist.    | 8426 Aug 18 11:05 | 29° $\text{O}$ 54'31      | 0.55102 AU |
| morning max el      | 8425 Sep 30 14:26 | 22° $\text{P}$ 28'39 | 22°28'39   | morning rise        | 8426 Aug 24 23:17 | 26° $\text{O}$ 45'44      |            |
|                     | 8425 Oct 07 03:31 | 0° $\text{A}$        |            | direct              | 8426 Aug 29 10:42 | 26° $\text{O}$ 02'00      |            |
| asc. node           | 8425 Oct 13 16:08 | 10° $\text{A}$ 10'15 |            |                     | 8426 Sep 08 20:22 | 0° $\text{P}$             |            |
| morning set         | 8425 Oct 22 13:40 | 27° $\text{A}$ 33'17 |            | morning max el      | 8426 Sep 12 03:22 | 2° $\text{P}$ 46'30       | 24°14'41   |
|                     | 8425 Oct 23 17:23 | 0° $\text{M}$        |            | asc. node           | 8426 Sep 30 13:06 | 29° $\text{P}$ 12'30      |            |
|                     |                   |                      |            |                     | 8426 Sep 30 23:05 | 0° $\text{A}$             |            |
| superior conj       | 8425 Oct 29 15:10 | 12° $\text{M}$ 38'03 | 1°41'13    | morning set         | 8426 Oct 07 01:25 | 12° $\text{A}$ 23'07      |            |
| minimum elong       | 8425 Oct 29 15:21 | 12° $\text{M}$ 39'00 | 1°41'21    |                     |                   |                           |            |
| max. Earth dist.    | 8425 Nov 02 01:30 | 19° $\text{M}$ 49'21 | 1.34091 AU | superior conj       | 8426 Oct 13 22:54 | 27° $\text{A}$ 21'47      | 1°39'02    |
| evening rise        | 8425 Nov 06 15:19 | 29° $\text{M}$ 00'39 |            | minimum elong       | 8426 Oct 13 21:56 | 27° $\text{A}$ 16'33      | 1°39'05    |
|                     | 8425 Nov 07 03:32 | 0° $\text{J}$        |            |                     | 8426 Oct 15 04:03 | 0° $\text{M}$             |            |
| desc. node          | 8425 Nov 17 07:34 | 18° $\text{J}$ 18'32 |            | max. Earth dist.    | 8426 Oct 16 01:38 | 1° $\text{M}$ 56'23       | 1.32824 AU |
|                     | 8425 Nov 24 17:52 | 0° $\text{B}$        |            | evening rise        | 8426 Oct 21 08:24 | 12° $\text{M}$ 59'45      |            |
| evening max el      | 8425 Dec 11 10:33 | 20° $\text{B}$ 46'17 | 27°05'50   |                     | 8426 Oct 30 07:51 | 0° $\text{J}$             |            |
| retrograde          | 8425 Dec 24 18:59 | 28° $\text{B}$ 06'59 |            | desc. node          | 8426 Nov 04 04:38 | 8° $\text{J}$ 12'34       |            |
| evening set         | 8425 Dec 31 12:19 | 25° $\text{B}$ 30'53 |            |                     | 8426 Nov 20 00:37 | 0° $\text{B}$             |            |
| min. Earth dist.    | 8426 Jan 04 10:46 | 21° $\text{B}$ 43'44 | 0.65310 AU | evening max el      | 8426 Nov 23 22:37 | 4° $\text{B}$ 02'52       | 27°28'24   |
| inferior conj       | 8426 Jan 06 14:20 | 19° $\text{B}$ 18'41 | -1°01'23   | retrograde          | 8426 Dec 07 14:50 | 11° $\text{B}$ 21'35      |            |
| minimum elong       | 8426 Jan 06 16:09 | 19° $\text{B}$ 13'35 | 1°00'27    | evening set         | 8426 Dec 14 15:22 | 8° $\text{B}$ 49'38       |            |
| asc. node           | 8426 Jan 09 15:30 | 16° $\text{B}$ 05'41 |            | min. Earth dist.    | 8426 Dec 18 09:23 | 5° $\text{B}$ 34'07       | 0.63645 AU |
| morning rise        | 8426 Jan 12 21:17 | 13° $\text{B}$ 45'11 |            | inferior conj       | 8426 Dec 21 00:11 | 2° $\text{B}$ 54'36       | -2°09'12   |
| direct              | 8426 Jan 15 13:51 | 13° $\text{B}$ 06'22 |            | minimum elong       | 8426 Dec 21 04:15 | 2° $\text{B}$ 44'15       | 2°07'23    |
| morning max el      | 8426 Jan 22 00:13 | 16° $\text{B}$ 30'49 | 18°03'46   |                     | 8426 Dec 24 01:12 | 30° $\text{R}$ $\text{J}$ |            |
|                     | 8426 Jan 31 21:31 | 0° $\text{A}$        |            | morning rise        | 8426 Dec 27 18:58 | 27° $\text{J}$ 36'14      |            |
| morning set         | 8426 Feb 09 04:11 | 13° $\text{A}$ 27'59 |            | asc. node           | 8426 Dec 27 12:33 | 27° $\text{J}$ 42'45      |            |
| desc. node          | 8426 Feb 13 06:56 | 20° $\text{A}$ 11'39 |            | direct              | 8426 Dec 30 04:44 | 27° $\text{J}$ 07'53      |            |
|                     | 8426 Feb 19 08:44 | 0° $\text{H}$        |            |                     | 8427 Jan 05 04:30 | 0° $\text{B}$             |            |
|                     |                   |                      |            | morning max el      | 8427 Jan 05 17:36 | 0° $\text{B}$ 31'13       | 17°48'47   |

|                  |                   |   |            |                  |                   |   |            |
|------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| morning set      | 8427 Jan 22 05:31 | 25°  41'03   |            | superior conj    | 8428 Jan 15 22:31 | 28°  00'25   | 0°15'30    |
|                  | 8427 Jan 24 17:51 | 0°           |            | minimum elong    | 8428 Jan 15 23:55 | 28°  06'23   | 0°15'27    |
| desc. node       | 8427 Jan 31 03:54 | 10°  51'03   |            | behind sun begin | 8428 Jan 15 21:39 | 27°  56'42   |            |
|                  |                   |   |            | behind sun end   | 8428 Jan 16 02:10 | 28°  16'05   |            |
| superior conj    | 8427 Feb 03 19:15 | 16°  51'36   | -0°26'20   |                  | 8428 Jan 17 02:29 | 0°   |            |
| minimum elong    | 8427 Feb 03 16:23 | 16°  39'51   | 0°25'46    | desc. node       | 8428 Jan 18 00:53 | 1°  35'03  |            |
| max. Earth dist. | 8427 Feb 09 15:03 | 26°  15'20   | 1.44561 AU | max. Earth dist. | 8428 Jan 23 06:26 | 10°  16'47   | 1.43108 AU |
|                  | 8427 Feb 11 23:48 | 0°           |            | evening rise     | 8428 Jan 30 01:43 | 21°  09'16   |            |
| evening rise     | 8427 Feb 19 09:04 | 11°  29'03   |            |                  | 8428 Feb 04 19:27 | 0°   |            |
|                  | 8427 Mar 03 16:02 | 0°           |            |                  | 8428 Feb 26 02:35 | 0°   |            |
| evening max el   | 8427 Mar 19 23:52 | 21°  39'50   | 20°37'36   | evening max el   | 8428 Mar 01 20:02 | 5°  20'17  | 21°50'26   |
| asc. node        | 8427 Mar 25 11:29 | 25°  49'47   |            | retrograde       | 8428 Mar 11 01:27 | 10°  48'07   |            |
| retrograde       | 8427 Mar 28 03:46 | 26°  26'13   |            | asc. node        | 8428 Mar 11 08:35 | 10°  47'40   |            |
| evening set      | 8427 Apr 01 04:31 | 24°  53'14   |            | evening set      | 8428 Mar 15 12:37 | 8°  59'47  |            |
| inferior conj    | 8427 Apr 06 12:00 | 18°  44'56   | 3°05'15    | inferior conj    | 8428 Mar 20 20:10 | 2°  41'02  | 2°40'25    |
| minimum elong    | 8427 Apr 06 10:19 | 18°  50'44   | 3°04'56    | minimum elong    | 8428 Mar 20 18:00 | 2°  48'36  | 2°39'54    |
| min. Earth dist. | 8427 Apr 07 02:25 | 17°  55'26   | 0.67930 AU | min. Earth dist. | 8428 Mar 20 21:45 | 2°  35'31  | 0.68379 AU |
| morning rise     | 8427 Apr 11 15:53 | 12°  29'20   |            |                  | 8428 Mar 22 19:23 | 30°  R      |            |
| direct           | 8427 Apr 17 04:21 | 10°  02'07   |            | morning rise     | 8428 Mar 25 23:13 | 26°  29'17   |            |
| morning max el   | 8427 Apr 28 05:59 | 16°  39'11   | 24°06'55   | direct           | 8428 Mar 30 21:41 | 24°  22'00   |            |
| desc. node       | 8427 Apr 29 03:41 | 17°  35'12   |            | morning max el   | 8428 Apr 09 16:30 | 0°  08'14  | 22°37'17   |
|                  | 8427 May 09 07:15 | 0°           |            |                  | 8428 Apr 09 13:13 | 0°   |            |
|                  | 8427 May 29 04:45 | 0°           |            | desc. node       | 8428 Apr 15 00:39 | 6°  09'33  |            |
| morning set      | 8427 Jun 02 20:39 | 7°  52'40    |            |                  | 8428 May 02 02:52 | 0°   |            |
| max. Earth dist. | 8427 Jun 06 13:35 | 14°  23'17   | 1.38147 AU | morning set      | 8428 May 13 16:17 | 18°  11'34   |            |
|                  |                   |   |            | max. Earth dist. | 8428 May 18 10:48 | 26°  09'53   | 1.40397 AU |
|                  |                   |   |            |                  | 8428 May 20 16:25 | 0°   |            |
| superior conj    | 8427 Jun 13 18:20 | 27°  41'39   | -1°10'28   |                  |                   |   |            |
| minimum elong    | 8427 Jun 13 22:43 | 28°  02'32   | 1°09'57    |                  |                   |   |            |
|                  | 8427 Jun 14 23:13 | 0°         |            | superior conj    | 8428 May 26 05:40 | 9°  49'50  | -1°39'55   |
| asc. node        | 8427 Jun 21 10:30 | 12°  54'08 |            | minimum elong    | 8428 May 26 11:27 | 10°  16'02   | 1°39'26    |
| evening rise     | 8427 Jun 22 15:37 | 15°  50'34 |            | evening rise     | 8428 Jun 05 05:58 | 28°  12'53   |            |
|                  | 8427 Jun 30 14:13 | 0°         |            |                  | 8428 Jun 06 01:15 | 0°   |            |
| evening max el   | 8427 Jul 09 02:35 | 11°  49'37 | 19°01'20   | asc. node        | 8428 Jun 07 07:32 | 2°  52'31  |            |
| retrograde       | 8427 Jul 17 20:24 | 16°  09'16 |            | evening max el   | 8428 Jun 21 07:33 | 24°  15'17   | 18°24'05   |
| evening set      | 8427 Jul 19 18:45 | 15°  05'27 |            | retrograde       | 8428 Jun 28 19:23 | 28°  00'09   |            |
| desc. node       | 8427 Jul 26 02:58 | 13°  02'46 |            | evening set      | 8428 Jul 01 00:10 | 27°  54'38   |            |
| inferior conj    | 8427 Jul 28 02:21 | 11°  02'42 | -0°36'11   | inferior conj    | 8428 Jul 08 11:56 | 23°  06'55   | 1°01'27    |
| minimum elong    | 8427 Jul 28 00:49 | 11°  45'22 | 0°35'44    | minimum elong    | 8428 Jul 08 13:59 | 23°  02'44   | 1°00'34    |
| min. Earth dist. | 8427 Jul 31 01:17 | 9°  40'29  | 0.56406 AU | min. Earth dist. | 8428 Jul 11 21:02 | 20°  53'16   | 0.58334 AU |
| morning rise     | 8427 Aug 05 03:44 | 6°  50'43  |            | desc. node       | 8428 Jul 12 00:03 | 20°  51'28   |            |
| direct           | 8427 Aug 10 11:14 | 5°  44'25  |            | morning rise     | 8428 Jul 16 00:26 | 17°  53'22   |            |
| morning max el   | 8427 Aug 24 16:35 | 13°  02'40 | 25°53'40   | direct           | 8428 Jul 22 01:58 | 16°  53'05   |            |
|                  | 8427 Sep 06 23:30 | 0°         |            | morning max el   | 8428 Aug 05 11:24 | 23°  54'39   | 27°09'07   |
| asc. node        | 8427 Sep 17 10:04 | 18°  09'39 |            |                  | 8428 Aug 11 02:45 | 0°   |            |
| morning set      | 8427 Sep 21 12:36 | 27°  08'56 |            |                  | 8428 Aug 30 01:50 | 0°   |            |
|                  | 8427 Sep 22 20:29 | 0°         |            | asc. node        | 8428 Sep 03 07:02 | 8°  09'24  | 48         |
|                  |                   |   |            | morning set      | 8428 Sep 04 21:36 | 11°  09'46   | 10         |
| superior conj    | 8427 Sep 28 09:37 | 12°  41'39 | 1°31'02    |                  |                   |   |            |
| minimum elong    | 8427 Sep 28 07:50 | 12°  41'46 | 1°30'53    | superior conj    | 8428 Sep 11 21:28 | 27°  01'53   | 1°17'42    |
| max. Earth dist. | 8427 Sep 29 08:24 | 14°  41'22 | 1.32011 AU | minimum elong    | 8428 Sep 11 19:15 | 26°  09'37   | 1°17'22    |
| evening rise     | 8427 Oct 05 09:38 | 27°  41'52 |            | max. Earth dist. | 8428 Sep 11 18:26 | 26°  09'45   | 02         |
|                  | 8427 Oct 06 16:37 | 0°         |            |                  | 8428 Sep 13 05:33 | 0°   |            |
| desc. node       | 8427 Oct 22 01:44 | 27°  41'35 | 56         | evening rise     | 8428 Sep 18 16:27 | 11°  41'53   | 53         |
|                  | 8427 Oct 23 15:57 | 0°         |            |                  | 8428 Sep 27 20:26 | 0°   |            |
| evening max el   | 8427 Nov 06 07:04 | 16°  44'43 | 27°19'56   | desc. node       | 8428 Oct 07 22:50 | 16°  41'16   | 23         |
| retrograde       | 8427 Nov 20 03:07 | 23°  41'57 | 43         | evening max el   | 8428 Oct 18 09:05 | 28°  41'39   | 54         |
| evening set      | 8427 Nov 27 05:06 | 21°  41'39 | 16         |                  | 8428 Oct 19 20:26 | 0°   |            |
| min. Earth dist. | 8427 Nov 30 21:32 | 18°  41'49 | 35         | retrograde       | 8428 Nov 01 06:59 | 5°  41'47  | 18         |
| inferior conj    | 8427 Dec 03 21:48 | 16°  41'57 | 57         | evening set      | 8428 Nov 08 01:17 | 3°  41'52  | 59         |
| minimum elong    | 8427 Dec 04 04:04 | 15°  41'52 | 47         | min. Earth dist. | 8428 Nov 11 22:48 | 1°  41'17  | 31         |
| morning rise     | 8427 Dec 11 05:15 | 11°  41'07 | 13         |                  | 8428 Nov 13 14:40 | 30°  R  |            |
| direct           | 8427 Dec 13 10:58 | 10°  41'45 | 45         | inferior conj    | 8428 Nov 15 03:40 | 28°  41'46   | 28         |
| asc. node        | 8427 Dec 14 09:36 | 10°  41'49 | 41         | minimum elong    | 8428 Nov 15 11:01 | 28°  41'31   | 58         |
| morning max el   | 8427 Dec 20 09:48 | 14°  41'16 | 41         | morning rise     | 8428 Nov 22 23:08 | 24°  41'08   | 35         |
|                  | 8427 Dec 31 04:23 | 0°         |            | direct           | 8428 Nov 25 04:22 | 23°  41'50   | 46         |
| morning set      | 8428 Jan 05 03:24 | 8°  41'52  | 13         | asc. node        | 8428 Nov 30 06:37 | 25°  41'30   | 22         |
|                  |                   |   |            | morning max el   | 8428 Dec 02 21:23 | 27°  41'38   | 17         |



|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8428 Dec 05 01:12 | 0°♊       |            |                  | 8429 Nov 28 23:22 | 0°♊       |            |
| morning set      | 8428 Dec 18 15:48 | 22°♊43'24 |            | morning set      | 8429 Dec 02 14:13 | 7°♊01'41  |            |
|                  | 8428 Dec 22 12:11 | 0°♋       |            |                  |                   |           |            |
| superior conj    | 8428 Dec 28 01:39 | 10°♋17'14 | 0°49'41    | superior conj    | 8429 Dec 10 23:46 | 23°♊28'01 | 1°14'48    |
| minimum elong    | 8428 Dec 28 04:53 | 10°♋31'52 | 0°49'24    | minimum elong    | 8429 Dec 11 02:59 | 23°♊43'24 | 1°14'37    |
| desc. node       | 8429 Jan 03 21:53 | 22°♋20'05 |            |                  | 8429 Dec 14 11:07 | 0°♋       |            |
| max. Earth dist. | 8429 Jan 04 16:34 | 23°♋39'37 | 1.41189 AU | max. Earth dist. | 8429 Dec 17 22:35 | 6°♋19'07  | 1.39037 AU |
|                  | 8429 Jan 08 11:43 | 0°♌       |            | evening rise     | 8429 Dec 21 19:15 | 13°♋04'17 |            |
| evening rise     | 8429 Jan 09 11:32 | 1°♌37'25  |            | desc. node       | 8429 Dec 21 18:53 | 13°♋02'39 |            |
|                  | 8429 Jan 28 05:15 | 0°♍       |            |                  | 8430 Jan 01 05:14 | 0°♌       |            |
| evening max el   | 8429 Feb 12 11:53 | 19°♍02'52 | 23°09'40   | evening max el   | 8430 Jan 23 08:53 | 0°♍       |            |
| retrograde       | 8429 Feb 22 20:52 | 25°♍11'29 |            | retrograde       | 8430 Jan 26 01:31 | 2°♍49'07  | 24°29'15   |
| asc. node        | 8429 Feb 26 05:41 | 24°♍15'21 |            |                  | 8430 Feb 06 12:39 | 9°♍31'37  |            |
| evening set      | 8429 Feb 27 19:30 | 23°♍08'23 |            | evening set      | 8430 Feb 11 23:38 | 7°♍15'06  |            |
| inferior conj    | 8429 Mar 05 04:52 | 16°♍42'29 | 2°06'29    | asc. node        | 8430 Feb 13 02:46 | 6°♍11'39  |            |
| minimum elong    | 8429 Mar 05 02:39 | 16°♍50'10 | 2°05'50    | min. Earth dist. | 8430 Feb 16 14:28 | 1°♍59'14  | 0.68019 AU |
| min. Earth dist. | 8429 Mar 04 18:31 | 17°♍18'13 | 0.68400 AU | inferior conj    | 8430 Feb 17 12:15 | 0°♍46'20  | 1°24'02    |
| morning rise     | 8429 Mar 10 09:43 | 10°♍35'47 |            | minimum elong    | 8430 Feb 17 10:28 | 0°♍52'20  | 1°23'28    |
| direct           | 8429 Mar 14 18:16 | 8°♍50'44  |            |                  | 8430 Feb 18 02:09 | 30°♎      |            |
| morning max el   | 8429 Mar 23 07:52 | 13°♍47'23 | 21°12'59   | morning rise     | 8430 Feb 22 21:25 | 24°♎46'07 |            |
| desc. node       | 8429 Apr 01 21:36 | 25°♍25'32 |            | direct           | 8430 Feb 26 16:54 | 23°♎22'57 |            |
|                  | 8429 Apr 05 04:38 | 0°♏       |            | morning max el   | 8430 Mar 06 06:35 | 27°♎38'30 | 20°00'08   |
| morning set      | 8429 Apr 23 08:39 | 27°♏16'00 |            |                  | 8430 Mar 08 11:26 | 0°♍       |            |
|                  | 8429 Apr 25 02:09 | 0°♐       |            | desc. node       | 8430 Mar 19 18:31 | 15°♍11'55 |            |
| max. Earth dist. | 8429 Apr 30 13:18 | 8°♐48'27  | 1.42486 AU |                  | 8430 Mar 29 15:29 | 0°♏       |            |
|                  |                   |           |            | morning set      | 8430 Apr 02 07:17 | 5°♏36'41  |            |
| superior conj    | 8429 May 07 19:58 | 20°♐59'32 | -2°02'26   | max. Earth dist. | 8430 Apr 12 22:55 | 22°♏17'43 | 1.44153 AU |
| minimum elong    | 8429 May 08 00:58 | 21°♐20'56 | 2°02'16    |                  | 8430 Apr 17 17:47 | 0°♐       |            |
|                  | 8429 May 13 00:11 | 0°♑       |            | superior conj    | 8430 Apr 18 09:52 | 1°♐05'29  | -2°11'59   |
| evening rise     | 8429 May 19 06:40 | 11°♑13'28 |            | minimum elong    | 8430 Apr 18 10:11 | 1°♐06'48  | 2°12'03    |
| asc. node        | 8429 May 25 04:35 | 21°♑47'10 |            | evening rise     | 8430 May 01 13:07 | 23°♐07'44 |            |
|                  | 8429 May 30 04:03 | 0°♒       |            |                  | 8430 May 05 13:14 | 0°♑       |            |
| evening max el   | 8429 Jun 04 18:27 | 7°♒10'26  | 18°06'47   | asc. node        | 8430 May 12 01:39 | 10°♑48'23 |            |
| retrograde       | 8429 Jun 11 11:41 | 10°♒35'51 |            | evening max el   | 8430 May 19 07:47 | 20°♑26'56 | 18°08'38   |
| evening set      | 8429 Jun 14 00:03 | 10°♒07'17 |            | retrograde       | 8430 May 25 17:13 | 23°♑47'50 |            |
| inferior conj    | 8429 Jun 20 18:06 | 5°♒12'29  | 2°11'32    | evening set      | 8430 May 28 13:02 | 23°♑06'52 |            |
| minimum elong    | 8429 Jun 20 21:08 | 5°♒05'18  | 2°10'30    | inferior conj    | 8430 Jun 03 17:13 | 17°♑53'07 | 2°55'18    |
| min. Earth dist. | 8429 Jun 24 00:14 | 2°♒09'23  | 0.60563 AU | minimum elong    | 8430 Jun 03 19:37 | 17°♑46'40 | 2°54'41    |
|                  | 8429 Jun 26 15:29 | 30°♒♑     |            | min. Earth dist. | 8430 Jun 06 12:10 | 14°♑54'39 | 0.62780 AU |
| morning rise     | 8429 Jun 27 15:34 | 29°♑18'50 |            | morning rise     | 8430 Jun 10 00:33 | 11°♑44'12 |            |
| desc. node       | 8429 Jun 28 21:06 | 28°♑35'40 |            | desc. node       | 8430 Jun 15 18:08 | 9°♑15'44  |            |
| direct           | 8429 Jul 04 05:21 | 27°♑11'20 |            | direct           | 8430 Jun 16 18:57 | 9°♑12'20  |            |
|                  | 8429 Jul 12 08:02 | 0°♒       |            | morning max el   | 8430 Jun 30 19:52 | 17°♑15'11 | 27°52'07   |
| morning max el   | 8429 Jul 18 12:58 | 5°♒09'07  | 27°49'48   |                  | 8430 Jul 11 09:58 | 0°♒       |            |
|                  | 8429 Aug 06 01:32 | 0°♓       |            |                  | 8430 Jul 29 20:13 | 0°♓       |            |
| morning set      | 8429 Aug 20 02:32 | 26°♓08'14 |            | morning set      | 8430 Aug 04 01:18 | 10°♓09'31 |            |
| asc. node        | 8429 Aug 21 04:01 | 28°♓21'17 |            | asc. node        | 8430 Aug 08 00:59 | 18°♓24'44 |            |
|                  | 8429 Aug 21 22:42 | 0°♔       |            | max. Earth dist. | 8430 Aug 09 08:44 | 21°♓13'45 | 1.32326 AU |
| max. Earth dist. | 8429 Aug 26 03:49 | 9°♔07'22  | 1.31751 AU |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8430 Aug 11 17:04 | 26°♓18'00 | 0°36'34    |
| superior conj    | 8429 Aug 27 08:32 | 11°♔45'42 | 0°59'25    | minimum elong    | 8430 Aug 11 15:28 | 26°♓09'17 | 0°36'08    |
| minimum elong    | 8429 Aug 27 06:22 | 11°♔33'44 | 0°58'57    |                  | 8430 Aug 13 09:46 | 0°♔       |            |
| evening rise     | 8429 Sep 03 02:34 | 26°♔34'16 |            | evening rise     | 8430 Aug 18 14:08 | 11°♔15'45 |            |
|                  | 8429 Sep 04 17:22 | 0°♕       |            |                  | 8430 Aug 28 01:33 | 0°♕       |            |
|                  | 8429 Sep 21 19:21 | 0°♖       |            | evening max el   | 8430 Sep 11 15:04 | 20°♕07'54 | 23°49'36   |
| desc. node       | 8429 Sep 24 19:56 | 3°♖56'22  |            | desc. node       | 8430 Sep 11 17:02 | 20°♕12'36 |            |
| evening max el   | 8429 Sep 30 03:04 | 9°♖43'53  | 25°24'00   | retrograde       | 8430 Sep 25 06:22 | 26°♕57'24 |            |
| retrograde       | 8429 Oct 14 00:54 | 16°♖45'29 |            | evening set      | 8430 Sep 29 20:12 | 26°♕11'34 |            |
| evening set      | 8429 Oct 19 23:04 | 15°♖24'37 |            | min. Earth dist. | 8430 Oct 06 01:32 | 23°♕11'10 | 0.55904 AU |
| min. Earth dist. | 8429 Oct 24 15:04 | 12°♖45'56 | 0.57595 AU | inferior conj    | 8430 Oct 08 05:05 | 21°♕53'24 | -5°35'32   |
| inferior conj    | 8429 Oct 27 14:32 | 10°♖43'48 | -5°17'20   | minimum elong    | 8430 Oct 08 04:18 | 21°♕54'36 | 5°35'28    |
| minimum elong    | 8429 Oct 27 19:57 | 10°♖34'31 | 5°16'29    | morning rise     | 8430 Oct 16 14:29 | 17°♕57'31 |            |
| morning rise     | 8429 Nov 04 19:10 | 6°♖28'43  |            | direct           | 8430 Oct 19 09:20 | 17°♕37'55 |            |
| direct           | 8429 Nov 07 04:27 | 6°♖11'33  |            | morning max el   | 8430 Oct 29 16:12 | 22°♕28'14 | 20°03'34   |
| morning max el   | 8429 Nov 16 00:40 | 10°♖25'36 | 18°57'42   | asc. node        | 8430 Nov 04 00:38 | 28°♕45'24 |            |
| asc. node        | 8429 Nov 17 03:38 | 11°♖34'05 |            |                  | 8430 Nov 04 21:29 | 0°♖       |            |

|                     |                   |                               |            |                     |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|---------------------|-------------------|-------------------------------|------------|
| morning set         | 8430 Nov 16 19:18 | 21° $\mathbb{M}$ 37'23        |            | direct              | 8431 Sep 29 22:37 | 28° $\mathbb{M}$ 07'57        |            |
|                     | 8430 Nov 20 21:29 | 0° $\mathbb{A}$               |            |                     | 8431 Oct 06 19:05 | 0° $\mathbb{A}$               |            |
| superior conj       | 8430 Nov 24 11:57 | 7° $\mathbb{A}$ 18'23         | 1°31'09    | morning max el      | 8431 Oct 11 18:40 | 3° $\mathbb{A}$ 41'51         | 21°30'55   |
| minimum elong       | 8430 Nov 24 14:11 | 7° $\mathbb{A}$ 29'35         | 1°31'09    | asc. node           | 8431 Oct 21 21:37 | 16° $\mathbb{A}$ 49'29        |            |
| max. Earth dist.    | 8430 Nov 30 04:49 | 18° $\mathbb{A}$ 25'38        | 1.36908 AU | morning set         | 8431 Oct 29 01:41 | 0° $\mathbb{M}$               |            |
| evening rise        | 8430 Dec 03 23:43 | 25° $\mathbb{A}$ 25'53        |            |                     | 8431 Nov 01 04:32 | 6° $\mathbb{M}$ 23'25         |            |
|                     | 8430 Dec 06 13:20 | 0° $\mathbb{B}$               |            | superior conj       | 8431 Nov 08 10:09 | 21° $\mathbb{M}$ 37'01        | 1°39'35    |
| desc. node          | 8430 Dec 08 15:52 | 3° $\mathbb{B}$ 38'29         |            | minimum elong       | 8431 Nov 08 11:05 | 21° $\mathbb{M}$ 41'51        | 1°39'42    |
|                     | 8430 Dec 25 18:43 | 0° $\mathbb{A}$               |            | max. Earth dist.    | 8431 Nov 12 16:23 | 0° $\mathbb{A}$ 20'00         | 1.35015 AU |
| evening max el      | 8431 Jan 08 14:41 | 16° $\mathbb{A}$ 37'09        | 25°42'11   |                     | 8431 Nov 12 12:23 | 0° $\mathbb{A}$               |            |
| retrograde          | 8431 Jan 20 23:42 | 23° $\mathbb{A}$ 42'32        |            | evening rise        | 8431 Nov 16 21:25 | 8° $\mathbb{A}$ 33'12         |            |
| evening set         | 8431 Jan 26 23:21 | 21° $\mathbb{A}$ 14'58        |            | desc. node          | 8431 Nov 25 12:56 | 24° $\mathbb{A}$ 03'09        |            |
| asc. node           | 8431 Jan 30 23:51 | 16° $\mathbb{A}$ 56'55        |            |                     | 8431 Nov 29 03:44 | 0° $\mathbb{B}$               |            |
| min. Earth dist.    | 8431 Jan 31 07:16 | 16° $\mathbb{A}$ 33'44        | 0.67258 AU |                     | 8431 Dec 21 19:25 | 0° $\mathbb{A}$               |            |
| inferior conj       | 8431 Feb 01 16:27 | 14° $\mathbb{A}$ 48'20        | 0°33'28    | evening max el      | 8431 Dec 22 04:04 | 0° $\mathbb{A}$ 20'59         | 26°41'04   |
| minimum elong       | 8431 Feb 01 15:37 | 14° $\mathbb{A}$ 51'00        | 0°33'16    | retrograde          | 8432 Jan 04 05:16 | 7° $\mathbb{A}$ 38'13         |            |
| morning rise        | 8431 Feb 07 08:20 | 8° $\mathbb{A}$ 56'35         |            | evening set         | 8432 Jan 10 16:53 | 5° $\mathbb{A}$ 03'31         |            |
| direct              | 8431 Feb 10 16:06 | 7° $\mathbb{A}$ 53'12         |            | min. Earth dist.    | 8432 Jan 14 18:36 | 0° $\mathbb{A}$ 57'02         | 0.66130 AU |
| morning max el      | 8431 Feb 17 13:04 | 11° $\mathbb{A}$ 39'23        | 19°02'02   |                     | 8432 Jan 15 14:02 | 30° $\mathbb{R}$ $\mathbb{B}$ |            |
|                     | 8431 Mar 03 03:48 | 0° $\mathbb{H}$               |            | inferior conj       | 8432 Jan 16 15:26 | 28° $\mathbb{B}$ 44'35        | -0°24'42   |
| greatest brilliancy | 8431 Mar 03 08:18 | 0° $\mathbb{H}$ 17'04         | -0.8m      | minimum elong       | 8432 Jan 16 16:07 | 28° $\mathbb{B}$ 42'33        | 0°24'15    |
| desc. node          | 8431 Mar 06 15:25 | 5° $\mathbb{H}$ 19'55         |            | asc. node           | 8432 Jan 17 20:54 | 27° $\mathbb{B}$ 18'39        |            |
| morning set         | 8431 Mar 12 11:09 | 14° $\mathbb{H}$ 20'33        |            | morning rise        | 8432 Jan 22 16:18 | 23° $\mathbb{B}$ 03'42        |            |
|                     | 8431 Mar 22 12:28 | 0° $\mathbb{Y}$               |            | direct              | 8432 Jan 25 13:57 | 22° $\mathbb{B}$ 16'54        |            |
| max. Earth dist.    | 8431 Mar 26 14:42 | 6° $\mathbb{Y}$ 24'51         | 1.45206 AU | morning max el      | 8432 Feb 01 01:55 | 25° $\mathbb{B}$ 45'49        | 18°20'12   |
|                     |                   |                               |            |                     | 8432 Feb 04 17:48 | 0° $\mathbb{A}$               |            |
| superior conj       | 8431 Mar 29 01:05 | 10° $\mathbb{Y}$ 14'40        | -2°02'49   | morning set         | 8432 Feb 20 16:11 | 24° $\mathbb{A}$ 23'07        |            |
| minimum elong       | 8431 Mar 28 18:23 | 9° $\mathbb{Y}$ 48'13         | 2°02'29    | desc. node          | 8432 Feb 21 12:22 | 25° $\mathbb{A}$ 43'50        |            |
|                     | 8431 Apr 10 09:14 | 0° $\mathbb{B}$               |            |                     | 8432 Feb 24 04:31 | 0° $\mathbb{H}$               |            |
| evening rise        | 8431 Apr 12 21:00 | 4° $\mathbb{B}$ 03'28         |            | superior conj       | 8432 Mar 07 05:54 | 19° $\mathbb{H}$ 02'27        | -1°33'54   |
| asc. node           | 8431 Apr 28 22:43 | 29° $\mathbb{B}$ 17'44        |            | minimum elong       | 8432 Mar 06 20:19 | 18° $\mathbb{H}$ 24'56        | 1°32'53    |
|                     | 8431 Apr 29 11:29 | 0° $\mathbb{I}$               |            | max. Earth dist.    | 8432 Mar 08 10:11 | 20° $\mathbb{H}$ 53'13        | 1.45537 AU |
| evening max el      | 8431 May 02 20:28 | 3° $\mathbb{I}$ 56'03         | 18°28'57   |                     | 8432 Mar 14 06:02 | 0° $\mathbb{Y}$               |            |
| retrograde          | 8431 May 09 07:43 | 7° $\mathbb{I}$ 26'24         |            | evening rise        | 8432 Mar 23 05:37 | 14° $\mathbb{Y}$ 03'56        |            |
| evening set         | 8431 May 12 10:52 | 6° $\mathbb{I}$ 31'36         |            |                     | 8432 Apr 02 10:21 | 0° $\mathbb{B}$               |            |
| inferior conj       | 8431 May 18 05:08 | 1° $\mathbb{I}$ 00'16         | 3°17'36    | greatest brilliancy | 8432 Apr 02 20:05 | 0° $\mathbb{B}$ 37'28         | -0.8m      |
| minimum elong       | 8431 May 18 06:16 | 0° $\mathbb{I}$ 56'54         | 3°17'20    | asc. node           | 8432 Apr 14 19:47 | 17° $\mathbb{B}$ 05'10        |            |
|                     | 8431 May 19 01:21 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | evening max el      | 8432 Apr 15 05:59 | 17° $\mathbb{B}$ 31'29        | 19°06'44   |
| min. Earth dist.    | 8431 May 20 09:16 | 28° $\mathbb{B}$ 26'00        | 0.64744 AU | retrograde          | 8432 Apr 22 03:32 | 21° $\mathbb{B}$ 23'51        |            |
| morning rise        | 8431 May 24 00:48 | 24° $\mathbb{B}$ 44'11        |            | evening set         | 8432 Apr 25 14:23 | 20° $\mathbb{B}$ 14'31        |            |
| direct              | 8431 May 30 16:31 | 21° $\mathbb{B}$ 59'27        |            | inferior conj       | 8432 May 01 02:13 | 14° $\mathbb{B}$ 27'11        | 3°23'01    |
| desc. node          | 8431 Jun 02 15:07 | 22° $\mathbb{B}$ 27'34        |            | minimum elong       | 8432 May 01 02:03 | 14° $\mathbb{B}$ 27'44        | 3°22'53    |
| morning max el      | 8431 Jun 13 05:42 | 29° $\mathbb{B}$ 56'14        | 27°19'11   | min. Earth dist.    | 8432 May 02 14:58 | 12° $\mathbb{B}$ 29'32        | 0.66324 AU |
|                     | 8431 Jun 13 07:11 | 0° $\mathbb{I}$               |            | morning rise        | 8432 May 06 13:17 | 8° $\mathbb{B}$ 08'54         |            |
|                     | 8431 Jul 05 09:12 | 0° $\mathbb{B}$               |            | direct              | 8432 May 12 20:49 | 5° $\mathbb{B}$ 23'25         |            |
| morning set         | 8431 Jul 18 15:16 | 23° $\mathbb{B}$ 42'55        |            | desc. node          | 8432 May 19 12:06 | 7° $\mathbb{B}$ 46'05         |            |
|                     | 8431 Jul 21 19:08 | 0° $\mathbb{Q}$               |            | morning max el      | 8432 May 25 16:09 | 13° $\mathbb{B}$ 01'07        | 26°17'57   |
| max. Earth dist.    | 8431 Jul 23 05:44 | 2° $\mathbb{Q}$ 56'33         | 1.33388 AU |                     | 8432 Jun 08 08:36 | 0° $\mathbb{I}$               |            |
| asc. node           | 8431 Jul 25 21:58 | 8° $\mathbb{Q}$ 31'05         |            |                     | 8432 Jun 27 01:49 | 0° $\mathbb{B}$               |            |
| superior conj       | 8431 Jul 26 21:02 | 10° $\mathbb{Q}$ 33'01        | 0°09'43    | morning set         | 8432 Jun 30 16:59 | 6° $\mathbb{B}$ 38'29         |            |
| minimum elong       | 8431 Jul 26 20:33 | 10° $\mathbb{Q}$ 30'25        | 0°09'29    | max. Earth dist.    | 8432 Jul 04 16:16 | 14° $\mathbb{B}$ 13'44        | 1.34930 AU |
| behind sun begin    | 8431 Jul 26 16:03 | 10° $\mathbb{Q}$ 06'38        |            | superior conj       | 8432 Jul 09 17:59 | 24° $\mathbb{B}$ 23'23        | -0°20'21   |
| behind sun end      | 8431 Jul 27 01:02 | 10° $\mathbb{Q}$ 54'14        |            | minimum elong       | 8432 Jul 09 19:09 | 24° $\mathbb{B}$ 29'23        | 0°20'17    |
| evening rise        | 8431 Aug 03 01:16 | 25° $\mathbb{Q}$ 52'58        |            | asc. node           | 8432 Jul 11 18:57 | 28° $\mathbb{B}$ 35'51        |            |
|                     | 8431 Aug 05 00:29 | 0° $\mathbb{M}$               |            |                     | 8432 Jul 12 11:08 | 0° $\mathbb{Q}$               |            |
|                     | 8431 Aug 23 19:33 | 0° $\mathbb{A}$               |            | evening rise        | 8432 Jul 17 09:57 | 10° $\mathbb{Q}$ 19'11        |            |
| evening max el      | 8431 Aug 24 04:12 | 0° $\mathbb{A}$ 21'30         | 22°10'36   |                     | 8432 Jul 27 19:07 | 0° $\mathbb{M}$               |            |
| desc. node          | 8431 Aug 29 14:07 | 4° $\mathbb{A}$ 35'30         |            | evening max el      | 8432 Aug 05 02:49 | 10° $\mathbb{M}$ 58'25        | 20°42'00   |
| retrograde          | 8431 Sep 05 23:40 | 6° $\mathbb{A}$ 43'57         |            | desc. node          | 8432 Aug 15 11:13 | 16° $\mathbb{M}$ 33'42        |            |
| evening set         | 8431 Sep 09 01:56 | 6° $\mathbb{A}$ 22'44         |            | retrograde          | 8432 Aug 16 11:50 | 16° $\mathbb{M}$ 36'21        |            |
| min. Earth dist.    | 8431 Sep 17 09:42 | 2° $\mathbb{A}$ 45'18         | 0.54875 AU | evening set         | 8432 Aug 18 14:26 | 16° $\mathbb{M}$ 25'32        |            |
| inferior conj       | 8431 Sep 18 03:07 | 2° $\mathbb{A}$ 20'52         | -5°02'39   | inferior conj       | 8432 Aug 27 19:37 | 12° $\mathbb{M}$ 28'38        | -3°36'36   |
| minimum elong       | 8431 Sep 17 19:14 | 2° $\mathbb{A}$ 31'57         | 5°01'13    | minimum elong       | 8432 Aug 27 10:27 | 12° $\mathbb{M}$ 41'44        | 3°33'47    |
|                     | 8431 Sep 22 13:54 | 30° $\mathbb{R}$ $\mathbb{M}$ |            | min. Earth dist.    | 8432 Aug 28 18:47 | 11° $\mathbb{M}$ 55'26        | 0.54740 AU |
| morning rise        | 8431 Sep 26 14:06 | 28° $\mathbb{M}$ 33'01        |            |                     |                   |                               |            |

|                     |                   |                                   |            |                  |                   |                                   |            |
|---------------------|-------------------|-----------------------------------|------------|------------------|-------------------|-----------------------------------|------------|
| morning rise        | 8432 Sep 05 06:21 | 8° $\mathbb{M}$ 28'41             |            | morning rise     | 8433 Aug 16 03:47 | 18° $\Omega$ 19'27                |            |
| direct              | 8432 Sep 09 06:47 | 7° $\mathbb{M}$ 54'07             |            | direct           | 8433 Aug 20 23:23 | 17° $\Omega$ 27'23                |            |
| morning max el      | 8432 Sep 22 10:49 | 14° $\mathbb{M}$ 13'54            | 23°13'40   | morning max el   | 8433 Sep 03 23:16 | 24° $\Omega$ 28'01                | 24°58'43   |
|                     | 8432 Oct 04 13:44 | 0° $\mathfrak{L}$                 |            |                  | 8433 Sep 09 01:35 | 0° $\mathbb{M}$                   |            |
| asc. node           | 8432 Oct 07 18:35 | 5° $\mathfrak{L}$ 33'12           |            | asc. node        | 8433 Sep 24 15:34 | 24° $\mathbb{M}$ 46'47            |            |
| morning set         | 8432 Oct 15 15:52 | 21° $\mathfrak{L}$ 13'05          |            |                  | 8433 Sep 27 06:23 | 0° $\mathfrak{L}$                 |            |
|                     | 8432 Oct 19 17:58 | 0° $\mathbb{M}$                   |            | morning set      | 8433 Sep 30 03:34 | 6° $\mathfrak{L}$ 01'29           |            |
| superior conj       | 8432 Oct 22 15:09 | 6° $\mathbb{M}$ 13'32             | 1°41'04    | superior conj    | 8433 Oct 07 00:25 | 21° $\mathfrak{L}$ 00'28          | 1°36'20    |
| minimum elong       | 8432 Oct 22 14:49 | 6° $\mathbb{M}$ 11'44             | 1°41'09    | minimum elong    | 8433 Oct 06 23:03 | 20° $\mathfrak{L}$ 53'02          | 1°36'18    |
| max. Earth dist.    | 8432 Oct 25 11:49 | 12° $\mathbb{M}$ 18'52            | 1.33495 AU | max. Earth dist. | 8433 Oct 08 14:53 | 24° $\mathfrak{L}$ 30'46          | 1.32418 AU |
| evening rise        | 8432 Oct 30 08:24 | 22° $\mathbb{M}$ 15'22            |            |                  | 8433 Oct 11 03:58 | 0° $\mathbb{M}$                   |            |
|                     | 8432 Nov 03 08:45 | 0° $\mathfrak{X}$                 |            | evening rise     | 8433 Oct 14 05:16 | 6° $\mathbb{M}$ 23'46             |            |
| desc. node          | 8432 Nov 11 10:00 | 14° $\mathfrak{X}$ 10'06          |            |                  | 8433 Oct 26 21:56 | 0° $\mathfrak{X}$                 |            |
|                     | 8432 Nov 21 22:10 | 0° $\mathfrak{Z}$                 |            | desc. node       | 8433 Oct 29 07:04 | 3° $\mathfrak{X}$ 51'52           |            |
| evening max el      | 8432 Dec 03 16:49 | 13° $\mathfrak{Z}$ 49'42          | 27°18'49   | evening max el   | 8433 Nov 16 03:23 | 26° $\mathfrak{X}$ 51'42          | 27°28'48   |
| retrograde          | 8432 Dec 17 04:50 | 21° $\mathfrak{Z}$ 10'12          |            |                  | 8433 Nov 19 19:30 | 0° $\mathfrak{Z}$                 |            |
| evening set         | 8432 Dec 24 01:59 | 18° $\mathfrak{Z}$ 34'32          |            | retrograde       | 8433 Nov 29 21:47 | 4° $\mathfrak{Z}$ 09'08           |            |
| min. Earth dist.    | 8432 Dec 27 22:16 | 15° $\mathfrak{Z}$ 01'37          | 0.64643 AU | evening set      | 8433 Dec 06 23:49 | 1° $\mathfrak{Z}$ 41'21           |            |
| inferior conj       | 8432 Dec 30 06:48 | 12° $\mathfrak{Z}$ 29'07          | -1°29'34   |                  | 8433 Dec 09 04:00 | 30° $\mathfrak{R}$ $\mathfrak{X}$ |            |
| minimum elong       | 8432 Dec 30 09:32 | 12° $\mathfrak{Z}$ 21'44          | 1°28'15    | min. Earth dist. | 8433 Dec 10 16:28 | 28° $\mathfrak{X}$ 38'01          | 0.62844 AU |
| asc. node           | 8433 Jan 03 17:57 | 8° $\mathfrak{Z}$ 13'57           |            | inferior conj    | 8433 Dec 13 11:48 | 25° $\mathfrak{X}$ 55'13          | -2°39'04   |
| morning rise        | 8433 Jan 05 18:38 | 7° $\mathfrak{Z}$ 01'56           |            | minimum elong    | 8433 Dec 13 16:51 | 25° $\mathfrak{X}$ 42'58          | 2°36'58    |
| direct              | 8433 Jan 08 08:04 | 6° $\mathfrak{Z}$ 28'00           |            | morning rise     | 8433 Dec 20 11:58 | 20° $\mathfrak{X}$ 44'41          |            |
| morning max el      | 8433 Jan 14 18:32 | 9° $\mathfrak{Z}$ 50'34           | 17°55'20   | asc. node        | 8433 Dec 21 15:02 | 20° $\mathfrak{X}$ 26'26          |            |
|                     | 8433 Jan 28 14:17 | 0° $\approx$                      |            | direct           | 8433 Dec 22 19:32 | 20° $\mathfrak{X}$ 19'48          |            |
| morning set         | 8433 Feb 01 02:37 | 5° $\approx$ 52'38                |            | morning max el   | 8433 Dec 29 11:51 | 23° $\mathfrak{X}$ 45'26          | 17°47'53   |
| desc. node          | 8433 Feb 07 09:21 | 16° $\approx$ 18'44               |            |                  | 8434 Jan 03 11:50 | 0° $\mathfrak{Z}$                 |            |
| superior conj       | 8433 Feb 14 19:42 | 28° $\approx$ 22'03               | -0°52'06   | morning set      | 8434 Jan 14 13:27 | 18° $\mathfrak{Z}$ 32'04          |            |
| minimum elong       | 8433 Feb 14 13:43 | 27° $\approx$ 58'05               | 0°51'11    |                  | 8434 Jan 21 03:22 | 0° $\approx$                      |            |
|                     | 8433 Feb 15 20:14 | 0° $\mathfrak{X}$                 |            | desc. node       | 8434 Jan 25 06:19 | 7° $\approx$ 00'13                |            |
| max. Earth dist.    | 8433 Feb 19 05:50 | 5° $\mathfrak{X}$ 23'19           | 1.45114 AU | superior conj    | 8434 Jan 26 08:05 | 8° $\approx$ 48'03                | -0°07'53   |
| evening rise        | 8433 Mar 02 21:06 | 23° $\mathfrak{X}$ 28'39          |            | minimum elong    | 8434 Jan 26 07:18 | 8° $\approx$ 44'46                | 0°07'38    |
|                     | 8433 Mar 07 03:19 | 0° $\mathfrak{Y}$                 |            | behind sun begin | 8434 Jan 25 23:09 | 8° $\approx$ 10'44                |            |
| greatest brilliancy | 8433 Mar 17 13:51 | 15° $\mathfrak{Y}$ 40'36          | -0.6m      | behind sun end   | 8434 Jan 26 15:27 | 9° $\approx$ 18'43                |            |
|                     | 8433 Mar 28 08:18 | 0° $\mathfrak{Z}$                 |            | max. Earth dist. | 8434 Feb 01 22:50 | 19° $\approx$ 37'30               | 1.44002 AU |
| evening max el      | 8433 Mar 29 10:37 | 1° $\mathfrak{Z}$ 09'45           | 20°00'26   |                  | 8434 Feb 08 12:25 | 0° $\mathfrak{X}$                 |            |
| asc. node           | 8433 Apr 01 16:51 | 3° $\mathfrak{Z}$ 58'37           |            | evening rise     | 8434 Feb 10 08:46 | 2° $\mathfrak{X}$ 51'51           |            |
| retrograde          | 8433 Apr 06 01:51 | 5° $\mathfrak{Z}$ 34'40           |            |                  | 8434 Feb 28 15:33 | 0° $\mathfrak{Y}$                 |            |
| evening set         | 8433 Apr 09 21:09 | 4° $\mathfrak{Z}$ 10'25           |            | evening max el   | 8434 Mar 12 09:45 | 14° $\mathfrak{Y}$ 49'09          | 21°07'29   |
|                     | 8433 Apr 13 20:06 | 30° $\mathfrak{R}$ $\mathfrak{Y}$ |            | asc. node        | 8434 Mar 19 13:57 | 19° $\mathfrak{Y}$ 42'57          |            |
| inferior conj       | 8433 Apr 15 05:31 | 28° $\mathfrak{Y}$ 08'58          | 3°15'01    | retrograde       | 8434 Mar 21 00:19 | 19° $\mathfrak{Y}$ 53'25          |            |
| minimum elong       | 8433 Apr 15 04:16 | 28° $\mathfrak{Y}$ 13'09          | 3°14'48    | evening set      | 8434 Mar 25 05:14 | 18° $\mathfrak{Y}$ 14'04          |            |
| min. Earth dist.    | 8433 Apr 16 03:44 | 26° $\mathfrak{Y}$ 54'00          | 0.67468 AU | inferior conj    | 8434 Mar 30 12:31 | 12° $\mathfrak{Y}$ 00'54          | 2°55'54    |
| morning rise        | 8433 Apr 20 11:08 | 21° $\mathfrak{Y}$ 51'39          |            | minimum elong    | 8434 Mar 30 10:34 | 12° $\mathfrak{Y}$ 07'38          | 2°55'30    |
| direct              | 8433 Apr 26 07:03 | 19° $\mathfrak{Y}$ 15'31          |            | min. Earth dist. | 8434 Mar 30 21:23 | 11° $\mathfrak{Y}$ 30'07          | 0.68169 AU |
| desc. node          | 8433 May 06 09:05 | 24° $\mathfrak{Y}$ 40'26          |            | morning rise     | 8434 Apr 04 15:41 | 5° $\mathfrak{Y}$ 46'30           |            |
| morning max el      | 8433 May 08 01:45 | 26° $\mathfrak{Y}$ 19'15          | 24°57'42   | direct           | 8434 Apr 09 22:12 | 3° $\mathfrak{Y}$ 27'10           |            |
|                     | 8433 May 11 11:10 | 0° $\mathfrak{Z}$                 |            | morning max el   | 8434 Apr 20 11:01 | 9° $\mathfrak{Y}$ 43'47           | 23°28'35   |
|                     | 8433 Jun 01 22:20 | 0° $\mathbb{I}$                   |            | desc. node       | 8434 Apr 23 06:04 | 12° $\mathfrak{Y}$ 43'56          |            |
| morning set         | 8433 Jun 13 02:00 | 18° $\mathbb{I}$ 44'42            |            |                  | 8434 May 06 10:51 | 0° $\mathfrak{Z}$                 |            |
| max. Earth dist.    | 8433 Jun 16 16:52 | 25° $\mathbb{I}$ 18'11            | 1.36887 AU | morning set      | 8434 May 25 12:45 | 29° $\mathfrak{Z}$ 46'19          |            |
|                     | 8433 Jun 19 05:11 | 0° $\mathfrak{Z}$                 |            |                  | 8434 May 25 15:59 | 0° $\mathbb{I}$                   |            |
| superior conj       | 8433 Jun 23 04:58 | 7° $\mathfrak{Z}$ 41'43           | -0°52'10   | max. Earth dist. | 8434 May 29 12:40 | 6° $\mathbb{I}$ 38'15             | 1.39106 AU |
| minimum elong       | 8433 Jun 23 08:10 | 7° $\mathfrak{Z}$ 57'26           | 0°51'47    | superior conj    | 8434 Jun 06 02:11 | 20° $\mathbb{I}$ 18'18            | -1°23'29   |
| asc. node           | 8433 Jun 28 15:57 | 18° $\mathfrak{Z}$ 35'24          |            | minimum elong    | 8434 Jun 06 07:18 | 20° $\mathbb{I}$ 42'14            | 1°22'57    |
| evening rise        | 8433 Jul 01 13:52 | 24° $\mathfrak{Z}$ 28'04          |            |                  | 8434 Jun 11 04:42 | 0° $\mathfrak{Z}$                 |            |
|                     | 8433 Jul 04 08:34 | 0° $\Omega$                       |            | evening rise     | 8434 Jun 15 10:07 | 8° $\mathfrak{Z}$ 11'09           |            |
| evening max el      | 8433 Jul 18 14:50 | 22° $\Omega$ 18'48                | 19°32'05   | asc. node        | 8434 Jun 15 12:58 | 8° $\mathfrak{Z}$ 24'58           |            |
| retrograde          | 8433 Jul 28 06:53 | 27° $\Omega$ 05'17                |            |                  | 8434 Jun 27 21:46 | 0° $\Omega$                       |            |
| evening set         | 8433 Jul 30 03:14 | 26° $\Omega$ 55'34                |            | evening max el   | 8434 Jul 01 14:41 | 4° $\Omega$ 22'53                 | 18°42'59   |
| desc. node          | 8433 Aug 02 08:17 | 25° $\Omega$ 56'44                |            | retrograde       | 8434 Jul 09 18:22 | 8° $\Omega$ 25'36                 |            |
| inferior conj       | 8433 Aug 07 21:22 | 22° $\Omega$ 50'28                | -1°41'55   | evening set      | 8434 Jul 11 19:06 | 8° $\Omega$ 11'27                 |            |
| minimum elong       | 8433 Aug 07 16:45 | 22° $\Omega$ 57'50                | 1°40'15    | inferior conj    | 8434 Jul 19 18:19 | 3° $\Omega$ 48'52                 | 0°08'20    |
| min. Earth dist.    | 8433 Aug 10 07:05 | 21° $\Omega$ 18'43                | 0.55558 AU | minimum elong    | 8434 Jul 19 18:38 | 3° $\Omega$ 48'17                 | 0°08'04    |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| transit middle   | 8434 Jul 19 18:38 | 3°Ω48'17  | 0°08'04    | retrograde       | 8435 Jun 22 00:58 | 20°Ω36'45 |            |
| transit begin    | 8434 Jul 19 15:27 | 3°Ω54'10  |            | evening set      | 8435 Jun 24 09:07 | 20°Ω14'11 |            |
| transit end      | 8434 Jul 19 21:48 | 3°Ω42'23  |            | inferior conj    | 8435 Jul 01 12:56 | 15°Ω30'49 | 1°34'39    |
| desc. node       | 8434 Jul 20 05:23 | 3°Ω28'17  |            | minimum elong    | 8435 Jul 01 15:41 | 15°Ω24'51 | 1°33'35    |
| min. Earth dist. | 8434 Jul 22 23:41 | 1°Ω26'23  | 0.57172 AU | min. Earth dist. | 8435 Jul 04 22:10 | 12°Ω36'01 | 0.59276 AU |
|                  | 8434 Jul 25 03:43 | 30°℞Ω     |            | desc. node       | 8435 Jul 07 02:27 | 10°Ω56'03 |            |
| morning rise     | 8434 Jul 27 14:40 | 28°Ω40'49 |            | morning rise     | 8435 Jul 08 19:10 | 9°Ω51'10  |            |
| direct           | 8434 Aug 02 06:31 | 27°Ω22'00 |            | direct           | 8435 Jul 15 03:03 | 8°Ω01'06  |            |
|                  | 8434 Aug 10 11:48 | 0°Ω       |            | morning max el   | 8435 Jul 29 11:50 | 15°Ω50'32 | 27°31'00   |
| morning max el   | 8434 Aug 16 14:25 | 4°Ω52'28  | 26°29'23   |                  | 8435 Aug 10 01:02 | 0°Ω       |            |
|                  | 8434 Sep 03 22:04 | 0°℞       |            |                  | 8435 Aug 27 08:22 | 0°℞       |            |
| asc. node        | 8434 Sep 11 12:33 | 14°℞22'05 |            | asc. node        | 8435 Aug 29 09:30 | 4°℞12'20  |            |
| morning set      | 8434 Sep 14 14:00 | 20°℞43'53 |            | morning set      | 8435 Aug 29 21:28 | 5°℞14'53  |            |
|                  | 8434 Sep 18 20:26 | 0°Ω       |            |                  |                   |           |            |
| superior conj    | 8434 Sep 21 11:51 | 5°Ω51'11  | 1°26'00    | superior conj    | 8435 Sep 05 23:33 | 20°℞39'09 | 1°10'31    |
| minimum elong    | 8434 Sep 21 09:50 | 5°Ω39'59  | 1°25'47    | minimum elong    | 8435 Sep 05 21:18 | 20°℞26'40 | 1°10'07    |
| max. Earth dist. | 8434 Sep 21 23:17 | 6°Ω54'35  | 1.31798 AU | max. Earth dist. | 8435 Sep 05 09:30 | 19°℞21'13 | 1.31640 AU |
| evening rise     | 8434 Sep 28 09:09 | 20°Ω50'33 |            |                  | 8435 Sep 10 05:00 | 0°Ω       |            |
|                  | 8434 Oct 02 21:04 | 0°℞       |            | evening rise     | 8435 Sep 12 17:37 | 5°Ω28'05  |            |
| desc. node       | 8434 Oct 16 04:09 | 22°℞58'31 |            |                  | 8435 Sep 25 13:33 | 0°℞       |            |
|                  | 8434 Oct 21 04:53 | 0°℞       |            | desc. node       | 8435 Oct 03 01:14 | 11°℞15'28 |            |
| evening max el   | 8434 Oct 29 09:30 | 9°℞15'13  | 27°06'10   | evening max el   | 8435 Oct 11 08:25 | 20°℞49'11 | 26°09'46   |
| retrograde       | 8434 Nov 12 06:59 | 16°℞26'10 |            | retrograde       | 8435 Oct 25 06:32 | 27°℞53'28 |            |
| evening set      | 8434 Nov 19 06:44 | 14°℞16'55 |            | evening set      | 8435 Oct 31 17:54 | 26°℞12'53 |            |
| min. Earth dist. | 8434 Nov 23 00:13 | 11°℞34'45 | 0.60826 AU | min. Earth dist. | 8435 Nov 04 21:27 | 23°℞38'16 | 0.58742 AU |
| inferior conj    | 8434 Nov 26 03:11 | 8°℞55'03  | -3°48'51   | inferior conj    | 8435 Nov 08 01:21 | 21°℞17'48 | -4°50'40   |
| minimum elong    | 8434 Nov 26 10:09 | 8°℞40'10  | 3°46'30    | minimum elong    | 8435 Nov 08 08:21 | 21°℞04'45 | 4°49'03    |
| morning rise     | 8434 Dec 03 15:56 | 4°℞04'09  |            | morning rise     | 8435 Nov 16 01:08 | 16°℞49'17 |            |
| direct           | 8434 Dec 05 20:48 | 3°℞44'43  |            | direct           | 8435 Nov 18 07:32 | 16°℞32'01 |            |
| asc. node        | 8434 Dec 08 12:06 | 4°℞13'46  |            | asc. node        | 8435 Nov 25 09:08 | 19°℞31'12 |            |
| morning max el   | 8434 Dec 13 02:32 | 7°℞22'04  | 17°58'55   | morning max el   | 8435 Nov 26 10:57 | 20°℞29'43 | 18°30'02   |
|                  | 8434 Dec 27 15:37 | 0°Ω       |            |                  | 8435 Dec 03 15:13 | 0°℞       |            |
| morning set      | 8434 Dec 28 18:11 | 2°Ω02'18  |            | morning set      | 8435 Dec 12 11:19 | 16°℞06'22 |            |
|                  |                   |           |            |                  | 8435 Dec 19 17:30 | 0°Ω       |            |
| superior conj    | 8435 Jan 07 21:59 | 20°Ω27'05 | 0°31'04    | superior conj    | 8435 Dec 21 09:47 | 3°Ω08'05  | 1°01'27    |
| minimum elong    | 8435 Jan 08 00:26 | 20°Ω37'52 | 0°30'52    | minimum elong    | 8435 Dec 21 13:10 | 3°Ω23'49  | 1°01'11    |
| desc. node       | 8435 Jan 12 03:17 | 27°Ω45'02 |            | max. Earth dist. | 8435 Dec 28 20:13 | 16°Ω28'21 | 1.40290 AU |
|                  | 8435 Jan 13 11:11 | 0°≈       |            | desc. node       | 8435 Dec 30 00:15 | 18°Ω29'02 |            |
| max. Earth dist. | 8435 Jan 15 11:46 | 3°≈22'52  | 1.42332 AU | evening rise     | 8436 Jan 02 02:42 | 23°Ω43'09 |            |
| evening rise     | 8435 Jan 21 07:43 | 12°≈50'29 |            |                  | 8436 Jan 05 22:56 | 0°≈       |            |
|                  | 8435 Feb 01 12:24 | 0°℞       |            |                  | 8436 Jan 26 09:49 | 0°℞       |            |
| evening max el   | 8435 Feb 23 03:59 | 28°℞30'52 | 22°23'45   | evening max el   | 8436 Feb 05 18:46 | 12°℞15'05 | 23°43'54   |
|                  | 8435 Feb 24 17:03 | 0°℞       |            | retrograde       | 8436 Feb 16 14:58 | 18°℞38'29 |            |
| retrograde       | 8435 Mar 04 21:09 | 4°℞16'20  |            | asc. node        | 8436 Feb 21 08:10 | 16°℞51'13 |            |
| asc. node        | 8435 Mar 06 11:04 | 4°℞03'44  |            | evening set      | 8436 Feb 21 18:52 | 16°℞29'28 |            |
| evening set      | 8435 Mar 09 13:00 | 2°℞21'52  |            | min. Earth dist. | 8436 Feb 26 14:15 | 10°℞54'02 | 0.68291 AU |
|                  | 8435 Mar 11 20:34 | 30°℞℞     |            | inferior conj    | 8436 Feb 27 05:29 | 10°℞02'04 | 1°49'31    |
| inferior conj    | 8435 Mar 14 21:09 | 25°℞59'48 | 2°27'08    | minimum elong    | 8436 Feb 27 03:23 | 10°℞09'15 | 1°48'52    |
| minimum elong    | 8435 Mar 14 18:54 | 26°℞07'38 | 2°26'32    | morning rise     | 8436 Mar 03 11:52 | 3°℞58'05  |            |
| min. Earth dist. | 8435 Mar 14 17:39 | 26°℞11'57 | 0.68440 AU | direct           | 8436 Mar 07 14:49 | 2°℞22'22  |            |
| morning rise     | 8435 Mar 20 00:38 | 19°℞49'55 |            | morning max el   | 8436 Mar 15 17:13 | 6°℞59'38  | 20°40'23   |
| direct           | 8435 Mar 24 17:13 | 17°℞51'41 |            | desc. node       | 8436 Mar 26 23:58 | 21°℞07'15 |            |
| morning max el   | 8435 Apr 02 23:00 | 23°℞16'07 | 22°00'17   |                  | 8436 Apr 02 03:25 | 0°℞       |            |
|                  | 8435 Apr 08 20:21 | 0°℞       |            | morning set      | 8436 Apr 14 03:16 | 18°℞11'31 |            |
| desc. node       | 8435 Apr 10 03:02 | 1°℞37'35  |            |                  | 8436 Apr 21 14:35 | 0°Ω       |            |
|                  | 8435 Apr 29 19:30 | 0°Ω       |            | max. Earth dist. | 8436 Apr 22 17:28 | 1°Ω48'19  | 1.43264 AU |
| morning set      | 8435 May 05 20:31 | 9°Ω32'13  |            |                  |                   |           |            |
| max. Earth dist. | 8435 May 11 11:25 | 18°Ω45'07 | 1.41330 AU | superior conj    | 8436 Apr 29 09:22 | 12°Ω46'10 | -2°08'26   |
|                  | 8435 May 18 01:10 | 0°Ω       |            | minimum elong    | 8436 Apr 29 12:53 | 13°Ω00'58 | 2°08'26    |
| superior conj    | 8435 May 19 05:10 | 2°Ω03'09  | -1°50'39   |                  | 8436 May 09 09:44 | 0°Ω       |            |
| minimum elong    | 8435 May 19 11:00 | 2°Ω28'56  | 1°50'16    | evening rise     | 8436 May 11 12:42 | 3°Ω44'40  |            |
| evening rise     | 8435 May 29 19:10 | 21°Ω20'02 |            | asc. node        | 8436 May 19 07:02 | 17°Ω15'55 |            |
| asc. node        | 8435 Jun 02 09:59 | 28°Ω00'16 |            |                  | 8436 May 28 07:47 | 0°Ω       |            |
|                  | 8435 Jun 03 12:23 | 0°Ω       |            | evening max el   | 8436 May 28 11:03 | 0°Ω08'08  | 18°05'13   |
| evening max el   | 8435 Jun 14 22:42 | 17°Ω02'33 | 18°14'18   | retrograde       | 8436 Jun 03 23:38 | 3°Ω29'52  |            |
|                  |                   |           |            | evening set      | 8436 Jun 06 15:15 | 2°Ω56'08  |            |

|                     |                   |                                  |  |                  |                   |                       |            |
|---------------------|-------------------|----------------------------------|--|------------------|-------------------|-----------------------|------------|
|                     | 8436 Jun 10 21:54 | 30° $\text{R}\text{II}$          |  | asc. node        | 8437 May 06 04:05 | 6° $\text{II}$ 04'25  |            |
| inferior conj       | 8436 Jun 13 02:52 | 27° $\text{II}$ 52'45 2°33'03    |  | evening max el   | 8437 May 12 00:23 | 13° $\text{II}$ 30'13 | 18°15'02   |
| minimum elong       | 8436 Jun 13 05:46 | 27° $\text{II}$ 45'30 2°32'10    |  | retrograde       | 8437 May 18 09:37 | 16° $\text{II}$ 53'55 |            |
| min. Earth dist.    | 8436 Jun 16 04:47 | 24° $\text{II}$ 49'13 0.61525 AU |  | evening set      | 8437 May 21 08:27 | 16° $\text{II}$ 07'16 |            |
| morning rise        | 8436 Jun 19 18:07 | 21° $\text{II}$ 51'31            |  | inferior conj    | 8437 May 27 07:56 | 10° $\text{II}$ 45'40 | 3°07'06    |
| desc. node          | 8436 Jun 22 23:29 | 20° $\text{II}$ 09'46            |  | minimum elong    | 8437 May 27 09:50 | 10° $\text{II}$ 40'21 | 3°06'38    |
| direct              | 8436 Jun 26 10:44 | 19° $\text{II}$ 32'51            |  | min. Earth dist. | 8437 May 29 20:44 | 7° $\text{II}$ 55'31  | 0.63647 AU |
| morning max el      | 8436 Jul 10 16:01 | 27° $\text{II}$ 33'11 27°55'30   |  | morning rise     | 8437 Jun 02 09:55 | 4° $\text{II}$ 32'37  |            |
|                     | 8436 Jul 13 00:03 | 0° $\text{☿}$                    |  | direct           | 8437 Jun 09 03:46 | 1° $\text{II}$ 53'58  |            |
|                     | 8436 Aug 02 18:30 | 0° $\text{♊}$                    |  | desc. node       | 8437 Jun 09 20:31 | 1° $\text{II}$ 55'32  |            |
| morning set         | 8436 Aug 13 00:05 | 19° $\text{♊}$ 29'22             |  | morning max el   | 8437 Jun 23 00:46 | 9° $\text{II}$ 56'14  | 27°42'11   |
| asc. node           | 8436 Aug 15 06:26 | 24° $\text{♊}$ 12'29             |  |                  | 8437 Jul 08 17:06 | 0° $\text{☿}$         |            |
|                     | 8436 Aug 17 23:22 | 0° $\text{♋}$                    |  |                  | 8437 Jul 26 02:53 | 0° $\text{♊}$         |            |
| max. Earth dist.    | 8436 Aug 18 17:45 | 1° $\text{♋}$ 39'53 1.31944 AU   |  | morning set      | 8437 Jul 27 19:29 | 3° $\text{♊}$ 19'56   |            |
|                     |                   |                                  |  | max. Earth dist. | 8437 Aug 01 19:52 | 13° $\text{♊}$ 37'43  | 1.32720 AU |
| superior conj       | 8436 Aug 20 09:47 | 5° $\text{♋}$ 19'03 0°50'15      |  | asc. node        | 8437 Aug 02 03:23 | 14° $\text{♊}$ 17'25  |            |
| minimum elong       | 8436 Aug 20 07:48 | 5° $\text{♋}$ 08'05 0°49'48      |  |                  |                   |                       |            |
| evening rise        | 8436 Aug 27 04:38 | 20° $\text{♋}$ 10'14             |  | superior conj    | 8437 Aug 04 16:38 | 19° $\text{♊}$ 44'29  | 0°25'38    |
|                     | 8436 Aug 31 22:24 | 0° $\text{♌}$                    |  | minimum elong    | 8437 Aug 04 15:26 | 19° $\text{♊}$ 38'01  | 0°25'16    |
| desc. node          | 8436 Sep 18 22:19 | 28° $\text{♌}$ 23'13             |  |                  | 8437 Aug 09 10:13 | 0° $\text{♋}$         |            |
|                     | 8436 Sep 20 09:55 | 0° $\text{♍}$                    |  | evening rise     | 8437 Aug 11 16:15 | 4° $\text{♋}$ 50'22   |            |
| evening max el      | 8436 Sep 21 23:17 | 1° $\text{♍}$ 33'37 24°45'25     |  |                  | 8437 Aug 25 02:09 | 0° $\text{♌}$         |            |
| retrograde          | 8436 Oct 05 19:00 | 8° $\text{♍}$ 30'56              |  | evening max el   | 8437 Sep 03 10:24 | 11° $\text{♌}$ 47'41  | 23°06'54   |
| evening set         | 8436 Oct 11 05:00 | 7° $\text{♍}$ 25'13              |  | desc. node       | 8437 Sep 05 19:25 | 13° $\text{♌}$ 55'00  |            |
| min. Earth dist.    | 8436 Oct 16 10:25 | 4° $\text{♍}$ 39'43 0.56822 AU   |  | retrograde       | 8437 Sep 16 19:24 | 18° $\text{♌}$ 28'44  |            |
| inferior conj       | 8436 Oct 19 03:30 | 2° $\text{♍}$ 54'51 -5°30'16     |  | evening set      | 8437 Sep 20 17:33 | 17° $\text{♌}$ 55'04  |            |
| minimum elong       | 8436 Oct 19 06:45 | 2° $\text{♍}$ 49'34 5°29'56      |  | min. Earth dist. | 8437 Sep 27 19:23 | 14° $\text{♌}$ 40'27  | 0.55370 AU |
|                     | 8436 Oct 24 03:30 | 30° $\text{R}\text{♌}$           |  | inferior conj    | 8437 Sep 29 10:04 | 13° $\text{♌}$ 44'19  | -5°28'32   |
| morning rise        | 8436 Oct 27 10:43 | 28° $\text{♌}$ 48'58             |  | minimum elong    | 8437 Sep 29 05:58 | 13° $\text{♌}$ 50'18  | 5°28'07    |
| direct              | 8436 Oct 29 23:42 | 28° $\text{♌}$ 31'01             |  | morning rise     | 8437 Oct 07 20:28 | 9° $\text{♌}$ 54'04   |            |
|                     | 8436 Nov 04 10:29 | 0° $\text{♍}$                    |  | direct           | 8437 Oct 10 20:33 | 9° $\text{♌}$ 32'42   |            |
| morning max el      | 8436 Nov 08 09:33 | 2° $\text{♍}$ 58'46 19°22'58     |  | morning max el   | 8437 Oct 21 19:36 | 14° $\text{♌}$ 40'42  | 20°38'22   |
| asc. node           | 8436 Nov 11 06:08 | 6° $\text{♍}$ 05'21              |  | asc. node        | 8437 Oct 29 03:06 | 23° $\text{♌}$ 40'24  |            |
|                     | 8436 Nov 25 06:20 | 0° $\text{♎}$                    |  |                  | 8437 Nov 01 23:40 | 0° $\text{♍}$         |            |
| morning set         | 8436 Nov 25 12:55 | 0° $\text{♎}$ 32'55              |  | morning set      | 8437 Nov 09 20:02 | 15° $\text{♍}$ 13'26  |            |
|                     |                   |                                  |  |                  | 8437 Nov 16 23:22 | 0° $\text{♎}$         |            |
| superior conj       | 8436 Dec 03 14:27 | 16° $\text{♎}$ 37'09 1°22'45     |  |                  |                   |                       |            |
| minimum elong       | 8436 Dec 03 17:19 | 16° $\text{♎}$ 51'10 1°22'39     |  | superior conj    | 8437 Nov 17 07:22 | 0° $\text{♎}$ 40'52   | 1°35'38    |
| max. Earth dist.    | 8436 Dec 10 01:59 | 28° $\text{♎}$ 52'38 1.38117 AU  |  | minimum elong    | 8437 Nov 17 09:03 | 0° $\text{♎}$ 49'30   | 1°35'41    |
|                     | 8436 Dec 10 16:47 | 0° $\text{♏}$                    |  | max. Earth dist. | 8437 Nov 22 09:37 | 10° $\text{♎}$ 49'40  | 1.36059 AU |
| evening rise        | 8436 Dec 13 19:33 | 5° $\text{♏}$ 33'27              |  | evening rise     | 8437 Nov 26 07:48 | 18° $\text{♎}$ 15'25  |            |
| desc. node          | 8436 Dec 15 21:14 | 9° $\text{♏}$ 08'45              |  | desc. node       | 8437 Dec 02 18:16 | 29° $\text{♎}$ 40'10  |            |
|                     | 8436 Dec 28 22:56 | 0° $\text{♐}$                    |  |                  | 8437 Dec 02 22:56 | 0° $\text{♏}$         |            |
| evening max el      | 8437 Jan 18 07:56 | 26° $\text{♐}$ 01'35 25°01'28    |  |                  | 8437 Dec 23 04:25 | 0° $\text{♐}$         |            |
|                     | 8437 Jan 22 22:19 | 0° $\text{♑}$                    |  | evening max el   | 8437 Dec 31 20:57 | 9° $\text{♐}$ 47'53   | 26°09'23   |
| retrograde          | 8437 Jan 30 04:47 | 2° $\text{♑}$ 55'06              |  | retrograde       | 8438 Jan 13 13:46 | 17° $\text{♐}$ 00'29  |            |
| evening set         | 8437 Feb 04 21:19 | 0° $\text{♑}$ 33'11              |  | evening set      | 8438 Jan 19 18:41 | 14° $\text{♐}$ 29'02  |            |
|                     | 8437 Feb 05 12:11 | 30° $\text{R}\text{♑}$           |  | min. Earth dist. | 8438 Jan 23 23:46 | 10° $\text{♐}$ 02'42  | 0.66815 AU |
| asc. node           | 8437 Feb 07 05:16 | 28° $\text{♐}$ 12'25             |  | asc. node        | 8438 Jan 25 02:21 | 8° $\text{♐}$ 40'43   |            |
| min. Earth dist.    | 8437 Feb 09 09:00 | 25° $\text{♐}$ 32'20 0.67743 AU  |  | inferior conj    | 8438 Jan 25 13:57 | 8° $\text{♐}$ 04'44   | 0°09'39    |
| inferior conj       | 8437 Feb 10 11:42 | 24° $\text{♐}$ 04'44 1°03'32     |  | minimum elong    | 8438 Jan 25 13:42 | 8° $\text{♐}$ 05'32   | 0°09'42    |
| minimum elong       | 8437 Feb 10 10:15 | 24° $\text{♐}$ 09'31 1°03'05     |  | transit middle   | 8438 Jan 25 13:42 | 8° $\text{♐}$ 05'32   | 0°09'42    |
| morning rise        | 8437 Feb 15 23:28 | 18° $\text{♐}$ 08'10             |  | transit begin    | 8438 Jan 25 11:25 | 8° $\text{♐}$ 12'36   |            |
| direct              | 8437 Feb 19 13:47 | 16° $\text{♐}$ 53'52             |  | transit end      | 8438 Jan 25 15:59 | 7° $\text{♐}$ 58'28   |            |
| morning max el      | 8437 Feb 26 19:24 | 20° $\text{♐}$ 55'11 19°33'33    |  | morning rise     | 8438 Jan 31 09:25 | 2° $\text{♐}$ 17'25   |            |
|                     | 8437 Mar 06 06:02 | 0° $\text{♒}$                    |  | direct           | 8438 Feb 03 12:33 | 1° $\text{♐}$ 21'44   |            |
| greatest brilliancy | 8437 Mar 11 12:54 | 7° $\text{♒}$ 34'56 -0.7m        |  | morning max el   | 8438 Feb 10 04:57 | 4° $\text{♐}$ 59'28   | 18°42'15   |
| desc. node          | 8437 Mar 13 20:53 | 11° $\text{♒}$ 03'07             |  |                  | 8438 Feb 27 21:48 | 0° $\text{♑}$         |            |
| morning set         | 8437 Mar 24 00:57 | 26° $\text{♒}$ 32'45             |  | desc. node       | 8438 Feb 28 17:48 | 1° $\text{♒}$ 18'21   |            |
|                     | 8437 Mar 26 06:39 | 0° $\text{♓}$                    |  | morning set      | 8438 Mar 03 13:59 | 5° $\text{♒}$ 45'49   |            |
| max. Earth dist.    | 8437 Apr 05 06:14 | 15° $\text{♓}$ 36'18 1.44678 AU  |  | max. Earth dist. | 8438 Mar 18 23:30 | 29° $\text{♒}$ 52'50  | 1.45428 AU |
|                     |                   |                                  |  |                  | 8438 Mar 19 01:19 | 0° $\text{♓}$         |            |
| superior conj       | 8437 Apr 09 12:45 | 22° $\text{♓}$ 24'32 -2°10'36    |  |                  |                   |                       |            |
| minimum elong       | 8437 Apr 09 10:03 | 22° $\text{♓}$ 13'45 2°10'37     |  | superior conj    | 8438 Mar 19 21:28 | 1° $\text{♓}$ 18'55   | -1°52'45   |
|                     | 8437 Apr 14 05:21 | 0° $\text{♈}$                    |  | minimum elong    | 8438 Mar 19 12:40 | 0° $\text{♓}$ 44'27   | 1°52'05    |
| evening rise        | 8437 Apr 23 09:57 | 15° $\text{♈}$ 14'26             |  | evening rise     | 8438 Apr 04 07:45 | 25° $\text{♓}$ 45'21  |            |
|                     | 8437 May 02 06:31 | 0° $\text{♉}$                    |  |                  | 8438 Apr 06 23:13 | 0° $\text{♈}$         |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| greatest brilliancy | 8438 Apr 11 18:11 | 7°♄40'20  | -0.9m      | minimum elong       | 8439 Feb 26 19:10 | 9°♄39'55  | 1°16'02    |
| asc. node           | 8438 Apr 23 01:11 | 24°♄17'26 |            | max. Earth dist.    | 8439 Mar 01 19:00 | 14°♄22'19 | 1.45444 AU |
| evening max el      | 8438 Apr 25 11:58 | 27°♄02'28 | 18°42'59   |                     | 8439 Mar 11 19:37 | 0°♄       |            |
|                     | 8438 Apr 29 08:56 | 0°♄       |            | evening rise        | 8439 Mar 15 07:44 | 5°♄26'17  |            |
| retrograde          | 8438 May 02 02:48 | 0°♄41'03  |            | greatest brilliancy | 8439 Mar 27 22:59 | 24°♄51'13 | -0.7m      |
|                     | 8438 May 04 19:04 | 30°♄      |            |                     | 8439 Mar 31 10:49 | 0°♄       |            |
| evening set         | 8438 May 05 09:03 | 29°♄40'20 |            | evening max el      | 8439 Apr 08 19:37 | 10°♄39'20 | 19°27'51   |
| inferior conj       | 8438 May 11 00:12 | 24°♄02'09 | 3°21'42    | asc. node           | 8439 Apr 09 22:17 | 11°♄43'25 |            |
| minimum elong       | 8438 May 11 00:46 | 24°♄00'25 | 3°21'32    | retrograde          | 8439 Apr 15 23:52 | 14°♄44'13 |            |
| min. Earth dist.    | 8438 May 12 21:51 | 21°♄42'00 | 0.65461 AU | evening set         | 8439 Apr 19 14:11 | 13°♄28'38 |            |
| morning rise        | 8438 May 16 15:48 | 17°♄44'25 |            | inferior conj       | 8439 Apr 25 00:15 | 7°♄35'22  | 3°21'04    |
| direct              | 8438 May 23 04:34 | 14°♄57'41 |            | minimum elong       | 8439 Apr 24 23:35 | 7°♄37'32  | 3°20'56    |
| desc. node          | 8438 May 27 17:31 | 16°♄04'49 |            | min. Earth dist.    | 8439 Apr 26 06:46 | 5°♄55'11  | 0.66867 AU |
| morning max el      | 8438 Jun 05 11:10 | 22°♄49'02 | 26°56'04   | morning rise        | 8439 Apr 30 08:38 | 1°♄17'17  |            |
|                     | 8438 Jun 11 19:15 | 0°♄       |            |                     | 8439 May 02 00:19 | 30°♄      |            |
|                     | 8438 Jul 02 00:05 | 0°♄       |            | direct              | 8439 May 06 11:41 | 28°♄34'23 |            |
| morning set         | 8438 Jul 11 04:46 | 16°♄38'39 |            |                     | 8439 May 11 10:21 | 0°♄       |            |
| max. Earth dist.    | 8438 Jul 15 12:22 | 25°♄07'48 | 1.33985 AU | desc. node          | 8439 May 14 14:31 | 2°♄07'04  |            |
|                     | 8438 Jul 17 21:42 | 0°♄       |            | morning max el      | 8439 May 18 21:05 | 5°♄59'20  | 25°45'29   |
|                     |                   |           |            |                     | 8439 Jun 06 09:45 | 0°♄       |            |
| superior conj       | 8438 Jul 19 17:57 | 3°♄49'47  | -0°02'43   | morning set         | 8439 Jun 23 23:59 | 29°♄14'35 |            |
| minimum elong       | 8438 Jul 19 18:06 | 3°♄50'35  | 0°02'51    |                     | 8439 Jun 24 09:53 | 0°♄       |            |
| behind sun begin    | 8438 Jul 19 12:29 | 3°♄21'15  |            | max. Earth dist.    | 8439 Jun 27 18:00 | 6°♄15'10  | 1.35715 AU |
| behind sun end      | 8438 Jul 19 23:43 | 4°♄19'58  |            |                     |                   |           |            |
| asc. node           | 8438 Jul 20 00:22 | 4°♄23'23  |            | superior conj       | 8439 Jul 03 11:06 | 17°♄27'41 | -0°33'43   |
| evening rise        | 8438 Jul 27 02:36 | 19°♄23'17 |            | minimum elong       | 8439 Jul 03 13:06 | 17°♄37'46 | 0°33'31    |
|                     | 8438 Aug 01 08:05 | 0°♄       |            | asc. node           | 8439 Jul 06 21:23 | 24°♄26'27 |            |
| evening max el      | 8438 Aug 16 02:47 | 22°♄07'43 | 21°30'58   |                     | 8439 Jul 09 14:11 | 0°♄       |            |
| desc. node          | 8438 Aug 23 16:32 | 27°♄19'35 |            | evening rise        | 8439 Jul 11 09:33 | 3°♄42'47  |            |
| retrograde          | 8438 Aug 28 09:26 | 28°♄12'58 |            |                     | 8439 Jul 26 13:19 | 0°♄       |            |
| evening set         | 8438 Aug 30 23:10 | 27°♄57'52 |            | evening max el      | 8439 Jul 29 07:12 | 3°♄02'56  | 20°09'51   |
| inferior conj       | 8438 Sep 09 04:05 | 23°♄59'53 | -4°31'43   | retrograde          | 8439 Aug 08 22:34 | 8°♄18'14  |            |
| minimum elong       | 8438 Sep 08 18:42 | 24°♄13'01 | 4°29'28    | evening set         | 8439 Aug 10 20:51 | 8°♄08'39  |            |
| min. Earth dist.    | 8438 Sep 09 04:04 | 23°♄59'54 | 0.54701 AU | desc. node          | 8439 Aug 10 13:37 | 8°♄11'23  |            |
| morning rise        | 8438 Sep 17 15:10 | 20°♄09'04 |            | inferior conj       | 8439 Aug 19 22:54 | 4°♄10'11  | -2°49'26   |
| direct              | 8438 Sep 21 05:58 | 19°♄40'40 |            | minimum elong       | 8439 Aug 19 15:15 | 4°♄21'32  | 2°46'49    |
| morning max el      | 8438 Oct 03 17:08 | 25°♄34'59 | 22°13'18   | min. Earth dist.    | 8439 Aug 21 14:21 | 3°♄11'44  | 0.54979 AU |
|                     | 8438 Oct 07 19:52 | 0°♄       |            | morning rise        | 8439 Aug 28 08:28 | 29°♄58'53 |            |
| asc. node           | 8438 Oct 16 00:04 | 12°♄02'31 |            |                     | 8439 Aug 28 07:02 | 30°♄      |            |
| morning set         | 8438 Oct 25 06:22 | 0°♄01'15  |            | direct              | 8439 Sep 01 17:04 | 29°♄17'47 |            |
|                     | 8438 Oct 25 06:08 | 0°♄       |            |                     | 8439 Sep 06 01:09 | 0°♄       |            |
|                     |                   |           |            | morning max el      | 8439 Sep 15 06:41 | 5°♄55'54  | 23°58'54   |
| superior conj       | 8438 Nov 01 08:48 | 15°♄08'01 | 1°41'01    |                     | 8439 Oct 02 08:04 | 0°♄       |            |
| minimum elong       | 8438 Nov 01 09:10 | 15°♄09'59 | 1°41'08    | asc. node           | 8439 Oct 02 21:02 | 1°♄00'25  |            |
| max. Earth dist.    | 8438 Nov 05 00:06 | 22°♄42'44 | 1.34316 AU | morning set         | 8439 Oct 09 18:06 | 14°♄51'28 |            |
|                     | 8438 Nov 08 15:20 | 0°♄       |            |                     |                   |           |            |
| evening rise        | 8438 Nov 09 11:38 | 1°♄38'50  |            | superior conj       | 8439 Oct 16 15:56 | 29°♄50'15 | 1°39'46    |
| desc. node          | 8438 Nov 19 15:19 | 19°♄57'53 |            | minimum elong       | 8439 Oct 16 15:07 | 29°♄45'53 | 1°39'49    |
|                     | 8438 Nov 25 22:16 | 0°♄       |            |                     | 8439 Oct 16 17:43 | 0°♄       |            |
| evening max el      | 8438 Dec 14 10:15 | 23°♄26'45 | 27°00'14   | max. Earth dist.    | 8439 Oct 18 23:14 | 4°♄48'23  | 1.32988 AU |
|                     | 8438 Dec 23 18:35 | 0°♄       |            | evening rise        | 8439 Oct 24 03:18 | 15°♄34'05 |            |
| retrograde          | 8438 Dec 27 17:04 | 0°♄46'48  |            |                     | 8439 Oct 31 17:00 | 0°♄       |            |
|                     | 8438 Dec 31 09:39 | 30°♄      |            | desc. node          | 8439 Nov 06 12:24 | 9°♄55'35  |            |
| evening set         | 8439 Jan 03 08:56 | 28°♄10'59 |            |                     | 8439 Nov 20 15:56 | 0°♄       |            |
| min. Earth dist.    | 8439 Jan 07 08:15 | 24°♄18'47 | 0.65530 AU | evening max el      | 8439 Nov 26 22:38 | 6°♄46'58  | 27°26'50   |
| inferior conj       | 8439 Jan 09 10:02 | 21°♄56'48 | -0°51'32   | retrograde          | 8439 Dec 10 13:46 | 14°♄05'56 |            |
| minimum elong       | 8439 Jan 09 11:32 | 21°♄52'31 | 0°50'42    | evening set         | 8439 Dec 17 13:38 | 11°♄32'49 |            |
| asc. node           | 8439 Jan 11 23:26 | 19°♄09'50 |            | min. Earth dist.    | 8439 Dec 21 08:14 | 8°♄12'53  | 0.63916 AU |
| morning rise        | 8439 Jan 15 15:20 | 16°♄21'11 |            | inferior conj       | 8439 Dec 23 21:25 | 5°♄34'59  | -1°58'39   |
| direct              | 8439 Jan 18 09:10 | 15°♄40'24 |            | minimum elong       | 8439 Dec 24 01:07 | 5°♄25'23  | 1°56'58    |
| morning max el      | 8439 Jan 24 19:43 | 19°♄05'46 | 18°07'29   | asc. node           | 8439 Dec 29 20:29 | 0°♄34'31  |            |
|                     | 8439 Feb 02 02:10 | 0°♄       |            | morning rise        | 8439 Dec 30 14:20 | 0°♄14'09  |            |
| morning set         | 8439 Feb 12 07:46 | 16°♄26'07 |            |                     | 8439 Dec 31 06:40 | 30°♄      |            |
| desc. node          | 8439 Feb 15 14:45 | 21°♄47'06 |            | direct              | 8440 Jan 02 01:01 | 29°♄44'25 |            |
|                     | 8439 Feb 20 17:07 | 0°♄       |            |                     | 8440 Jan 03 19:13 | 0°♄       |            |
|                     |                   |           |            | morning max el      | 8440 Jan 08 12:58 | 3°♄07'09  | 17°49'54   |
| superior conj       | 8439 Feb 27 03:47 | 10°♄13'55 | -1°17'08   | morning set         | 8440 Jan 25 05:26 | 28°♄28'16 |            |

|                  |                   |                      |                  |                   |           |            |
|------------------|-------------------|----------------------|------------------|-------------------|-----------|------------|
|                  | 8440 Jan 26 02:56 | 0°♊                  | superior conj    | 8441 Jan 18 01:32 | 0°♊56'24  | 0°09'35    |
| desc. node       | 8440 Feb 02 11:43 | 12°♊25'14            | minimum elong    | 8441 Jan 18 02:26 | 1°♊00'14  | 0°09'36    |
|                  |                   |                      | behind sun begin | 8441 Jan 17 19:25 | 0°♊30'20  |            |
| superior conj    | 8440 Feb 07 02:08 | 19°♊58'43 -0°33'03   | behind sun end   | 8441 Jan 18 09:27 | 1°♊30'04  |            |
| minimum elong    | 8440 Feb 06 22:27 | 19°♊43'46 0°32'24    | desc. node       | 8441 Jan 19 08:41 | 3°♊08'32  |            |
| max. Earth dist. | 8440 Feb 12 14:11 | 28°♊48'50 1.44729 AU | max. Earth dist. | 8441 Jan 25 06:03 | 12°♊53'58 | 1.43355 AU |
|                  | 8440 Feb 13 08:09 | 0°♋                  | evening rise     | 8441 Feb 01 10:35 | 24°♊20'18 |            |
| evening rise     | 8440 Feb 22 19:42 | 14°♋45'45            |                  | 8441 Feb 05 02:34 | 0°♋       |            |
|                  | 8440 Mar 03 21:19 | 0°♌                  |                  | 8441 Feb 25 23:44 | 0°♌       |            |
| evening max el   | 8440 Mar 21 22:00 | 24°♌18'07 20°27'35   | evening max el   | 8441 Mar 04 18:51 | 7°♌58'08  | 21°39'03   |
| asc. node        | 8440 Mar 26 19:23 | 28°♌09'10            | retrograde       | 8441 Mar 13 20:22 | 13°♌20'00 |            |
| retrograde       | 8440 Mar 29 22:22 | 28°♌58'37            | asc. node        | 8441 Mar 13 16:28 | 13°♌19'52 |            |
| evening set      | 8440 Apr 02 21:43 | 27°♌27'48            | evening set      | 8441 Mar 18 05:52 | 11°♌33'55 |            |
| inferior conj    | 8440 Apr 08 05:22 | 21°♌21'10 3°08'08    | inferior conj    | 8441 Mar 23 13:16 | 5°♌16'25  | 2°44'50    |
| minimum elong    | 8440 Apr 08 03:46 | 21°♌26'35 3°07'51    | minimum elong    | 8441 Mar 23 11:09 | 5°♌23'49  | 2°44'19    |
| min. Earth dist. | 8440 Apr 08 21:43 | 20°♌25'10 0.67827 AU | min. Earth dist. | 8441 Mar 23 16:41 | 5°♌04'31  | 0.68336 AU |
| morning rise     | 8440 Apr 13 09:37 | 15°♌05'09            |                  | 8441 Mar 27 16:54 | 30°♌♋     |            |
| direct           | 8440 Apr 19 00:02 | 12°♌35'30            | morning rise     | 8441 Mar 28 16:16 | 29°♋03'55 |            |
| desc. node       | 8440 Apr 30 11:31 | 19°♌33'07            | direct           | 8441 Apr 02 16:47 | 26°♋53'30 |            |
| morning max el   | 8440 Apr 30 06:11 | 19°♌19'35 24°20'16   |                  | 8441 Apr 09 14:42 | 0°♌       |            |
|                  | 8440 May 09 07:23 | 0°♍                  | morning max el   | 8441 Apr 12 16:20 | 2°♌47'47  | 22°50'29   |
|                  | 8440 May 29 13:03 | 0°♎                  | desc. node       | 8441 Apr 17 08:29 | 8°♌00'04  |            |
| morning set      | 8440 Jun 05 00:08 | 10°♎54'11            |                  | 8441 May 03 08:42 | 0°♍       |            |
| max. Earth dist. | 8440 Jun 08 15:53 | 17°♎22'41 1.37814 AU | morning set      | 8441 May 16 23:51 | 21°♍24'39 |            |
|                  | 8440 Jun 15 10:39 | 0°♏                  | max. Earth dist. | 8441 May 21 12:37 | 29°♍02'05 | 1.40066 AU |
|                  |                   |                      |                  | 8441 May 22 02:07 | 0°♎       |            |
| superior conj    | 8440 Jun 15 16:43 | 0°♏29'10 -1°05'42    | superior conj    | 8441 May 29 06:45 | 12°♎44'55 | -1°35'48   |
| minimum elong    | 8440 Jun 15 20:48 | 0°♏48'47 1°05'12     | minimum elong    | 8441 May 29 12:25 | 13°♎10'48 | 1°35'16    |
| asc. node        | 8440 Jun 22 18:24 | 14°♏22'06            |                  | 8441 Jun 07 11:33 | 0°♏       |            |
| evening rise     | 8440 Jun 24 10:34 | 17°♏41'26            | evening rise     | 8441 Jun 08 02:35 | 1°♏11'33  |            |
|                  | 8440 Jun 30 20:42 | 0°♐                  | asc. node        | 8441 Jun 09 15:26 | 4°♏06'27  |            |
| evening max el   | 8440 Jul 11 00:34 | 14°♐42'00 19°08'39   | evening max el   | 8441 Jun 24 04:16 | 27°♏01'52 | 18°28'17   |
| retrograde       | 8440 Jul 19 23:54 | 19°♐08'24            |                  | 8441 Jun 28 05:21 | 0°♐       |            |
| evening set      | 8440 Jul 21 21:31 | 18°♐57'16            | retrograde       | 8441 Jul 01 19:55 | 0°♐50'59  |            |
| desc. node       | 8440 Jul 27 10:44 | 16°♐37'20            | evening set      | 8441 Jul 03 23:32 | 0°♐33'46  |            |
| inferior conj    | 8440 Jul 30 07:58 | 14°♐45'07 -0°53'02   |                  | 8441 Jul 05 14:00 | 30°♐♑     |            |
| minimum elong    | 8440 Jul 30 05:40 | 14°♐49'01 0°52'16    | inferior conj    | 8441 Jul 11 14:14 | 26°♑02'13 | 0°48'22    |
| min. Earth dist. | 8440 Aug 02 03:55 | 12°♐50'34 0.56161 AU | minimum elong    | 8441 Jul 11 15:55 | 25°♑58'52 | 0°47'36    |
| morning rise     | 8440 Aug 07 10:50 | 9°♐58'43             | desc. node       | 8441 Jul 14 07:48 | 23°♑52'01 |            |
| direct           | 8440 Aug 12 15:13 | 8°♐56'29             | min. Earth dist. | 8441 Jul 14 22:50 | 23°♑23'18 | 0.58020 AU |
| morning max el   | 8440 Aug 26 19:30 | 16°♐10'20 25°40'07   | morning rise     | 8441 Jul 19 04:50 | 20°♑39'19 |            |
|                  | 8440 Sep 07 00:52 | 0°♒                  | direct           | 8441 Jul 25 03:56 | 19°♑07'37 |            |
| asc. node        | 8440 Sep 18 18:00 | 20°♒24'07            | morning max el   | 8441 Aug 08 13:20 | 26°♑47'37 | 26°59'55   |
| morning set      | 8440 Sep 23 05:29 | 29°♒38'06            |                  | 8441 Aug 11 14:50 | 0°♒       |            |
|                  | 8440 Sep 23 09:35 | 0°♓                  |                  | 8441 Aug 31 11:48 | 0°♒       |            |
| superior conj    | 8440 Sep 30 02:20 | 14°♓39'26 1°32'36    | asc. node        | 8441 Sep 05 14:58 | 10°♒06'26 |            |
| minimum elong    | 8440 Sep 30 00:39 | 14°♓30'08 1°32'30    | morning set      | 8441 Sep 07 14:52 | 14°♒16'19 |            |
| max. Earth dist. | 8440 Oct 01 05:11 | 17°♓07'20 1.32104 AU |                  |                   |           |            |
| evening rise     | 8440 Oct 07 03:28 | 29°♓51'12            | superior conj    | 8441 Sep 14 14:05 | 29°♒29'25 | 1°20'02    |
|                  | 8440 Oct 07 05:10 | 0°♔                  | minimum elong    | 8441 Sep 14 11:55 | 29°♒17'22 | 1°19'45    |
| desc. node       | 8440 Oct 23 09:28 | 29°♔23'58            | max. Earth dist. | 8441 Sep 14 14:48 | 29°♒33'26 | 1.31673 AU |
|                  | 8440 Oct 23 18:49 | 0°♕                  |                  | 8441 Sep 14 19:36 | 0°♓       |            |
| evening max el   | 8440 Nov 08 07:40 | 19°♕34'02 27°23'13   | evening rise     | 8441 Sep 21 09:32 | 14°♓22'52 |            |
| retrograde       | 8440 Nov 22 03:14 | 26°♕48'08            |                  | 8441 Sep 29 05:25 | 0°♔       |            |
| evening set      | 8440 Nov 29 05:34 | 24°♕26'51            | desc. node       | 8441 Oct 10 06:32 | 18°♔11'28 |            |
| min. Earth dist. | 8440 Dec 02 21:52 | 21°♕34'00 0.62017 AU |                  | 8441 Oct 19 19:38 | 0°♕       |            |
| inferior conj    | 8440 Dec 05 21:01 | 18°♕50'51 -3°08'57   | evening max el   | 8441 Oct 21 10:42 | 1°♕36'14  | 26°45'59   |
| minimum elong    | 8440 Dec 06 03:00 | 18°♕37'06 3°06'39    | retrograde       | 8441 Nov 04 08:38 | 8°♕44'49  |            |
| morning rise     | 8440 Dec 13 02:36 | 13°♕48'19            | evening set      | 8441 Nov 11 04:42 | 6°♕46'13  |            |
| direct           | 8440 Dec 15 08:44 | 13°♕26'02            | min. Earth dist. | 8441 Nov 15 00:45 | 4°♕09'35  | 0.59940 AU |
| asc. node        | 8440 Dec 15 17:32 | 13°♕26'39            | inferior conj    | 8441 Nov 18 05:26 | 1°♕35'38  | -4°16'43   |
| morning max el   | 8440 Dec 22 05:33 | 16°♕55'10 17°50'13   | minimum elong    | 8441 Nov 18 12:46 | 1°♕20'52  | 4°14'33    |
|                  | 8440 Dec 31 11:51 | 0°♖                  |                  | 8441 Nov 20 06:15 | 30°♖♗     |            |
| morning set      | 8441 Jan 07 00:36 | 11°♖31'29            | morning rise     | 8441 Nov 25 23:16 | 26°♗54'24 |            |
|                  | 8441 Jan 17 12:19 | 0°♗                  | direct           | 8441 Nov 28 04:11 | 26°♗36'19 |            |
|                  |                   |                      | asc. node        | 8441 Dec 02 14:34 | 27°♗53'26 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8441 Dec 05 09:17 | 0°♊       |            | morning set      | 8442 Dec 05 08:21 | 9°♊32'48  |            |
| morning max el   | 8441 Dec 05 18:04 | 0°♊20'56  | 18°09'36   |                  |                   |           |            |
| morning set      | 8441 Dec 21 11:07 | 25°♊17'21 |            | superior conj    | 8442 Dec 13 21:00 | 26°♊07'37 | 1°11'33    |
|                  | 8441 Dec 23 23:16 | 0°♋       |            | minimum elong    | 8442 Dec 14 00:18 | 26°♊23'15 | 1°11'20    |
|                  |                   |           |            |                  | 8442 Dec 15 22:27 | 0°♋       |            |
| superior conj    | 8441 Dec 31 01:20 | 13°♋03'38 | 0°45'04    | max. Earth dist. | 8442 Dec 20 23:15 | 9°♋08'27  | 1.39365 AU |
| minimum elong    | 8441 Dec 31 04:26 | 13°♋17'31 | 0°44'48    | desc. node       | 8442 Dec 24 02:35 | 14°♋36'32 |            |
| desc. node       | 8442 Jan 06 05:37 | 23°♋53'18 |            | evening rise     | 8442 Dec 24 21:51 | 15°♋58'44 |            |
| max. Earth dist. | 8442 Jan 07 16:43 | 26°♋22'09 | 1.41492 AU |                  | 8443 Jan 02 12:25 | 0°♌       |            |
|                  | 8442 Jan 09 20:53 | 0°♌       |            |                  | 8443 Jan 24 01:34 | 0°♌       |            |
| evening rise     | 8442 Jan 12 17:19 | 4°♌39'57  |            | evening max el   | 8443 Jan 29 01:06 | 5°♌26'05  | 24°17'38   |
|                  | 8442 Jan 29 09:06 | 0°♍       |            | retrograde       | 8443 Feb 09 08:31 | 12°♍03'52 |            |
| evening max el   | 8442 Feb 15 11:11 | 21°♍39'59 | 22°57'45   | evening set      | 8443 Feb 14 17:37 | 9°♍49'19  |            |
| retrograde       | 8442 Feb 25 16:11 | 27°♍43'02 |            | asc. node        | 8443 Feb 15 10:40 | 9°♍10'45  |            |
| asc. node        | 8442 Feb 28 13:35 | 27°♍01'23 |            | min. Earth dist. | 8443 Feb 19 09:38 | 4°♍28'18  | 0.68106 AU |
| evening set      | 8442 Mar 02 13:00 | 25°♍42'11 |            | inferior conj    | 8443 Feb 20 05:42 | 3°♍20'47  | 1°31'02    |
| inferior conj    | 8442 Mar 07 21:59 | 19°♍17'05 | 2°12'14    | minimum elong    | 8443 Feb 20 03:48 | 3°♍27'10  | 1°30'26    |
| minimum elong    | 8442 Mar 07 19:44 | 19°♍24'52 | 2°11'35    |                  | 8443 Feb 22 20:11 | 30°♎      |            |
| min. Earth dist. | 8442 Mar 07 13:24 | 19°♍46'48 | 0.68420 AU | morning rise     | 8443 Feb 25 14:03 | 27°♎19'27 |            |
| morning rise     | 8442 Mar 13 02:23 | 13°♍09'26 |            | direct           | 8443 Mar 01 11:27 | 25°♎53'01 |            |
| direct           | 8442 Mar 17 12:58 | 11°♍20'57 |            |                  | 8443 Mar 08 22:33 | 0°♏       |            |
| morning max el   | 8442 Mar 26 06:41 | 16°♍24'49 | 21°24'54   | morning max el   | 8443 Mar 09 04:09 | 0°♏13'46  | 20°10'02   |
| desc. node       | 8442 Apr 04 05:24 | 27°♏10'23 |            | desc. node       | 8443 Mar 22 02:19 | 16°♏52'35 |            |
|                  | 8442 Apr 06 07:11 | 0°♐       |            |                  | 8443 Mar 30 22:12 | 0°♐       |            |
|                  | 8442 Apr 26 10:06 | 0°♑       |            | morning set      | 8443 Apr 05 19:57 | 9°♐02'01  |            |
| morning set      | 8442 Apr 26 20:00 | 0°♑39'09  |            | max. Earth dist. | 8443 Apr 15 22:24 | 24°♐53'43 | 1.43944 AU |
| max. Earth dist. | 8442 May 03 13:51 | 11°♑31'33 | 1.42197 AU |                  | 8443 Apr 19 02:28 | 0°♒       |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8442 May 11 00:26 | 24°♒03'53 | -1°59'43   | superior conj    | 8443 Apr 21 18:00 | 4°♒19'04  | -2°11'37   |
| minimum elong    | 8442 May 11 05:46 | 24°♒26'56 | 1°59'29    | minimum elong    | 8443 Apr 21 19:17 | 4°♒24'20  | 2°11'43    |
|                  | 8442 May 14 10:03 | 0°♓       |            | evening rise     | 8443 May 04 14:58 | 26°♒04'34 |            |
| evening rise     | 8442 May 22 05:35 | 14°♓02'38 |            |                  | 8443 May 06 21:25 | 0°♓       |            |
| asc. node        | 8442 May 27 12:27 | 23°♓34'05 |            | asc. node        | 8443 May 14 09:30 | 12°♓39'09 |            |
|                  | 8442 May 31 06:55 | 0°♔       |            | evening max el   | 8443 May 22 03:45 | 23°♓07'19 | 18°07'12   |
| evening max el   | 8442 Jun 07 14:32 | 9°♔53'25  | 18°08'06   | retrograde       | 8443 May 28 13:37 | 26°♓27'52 |            |
| retrograde       | 8442 Jun 14 09:45 | 13°♔20'31 |            | evening set      | 8443 May 31 08:23 | 25°♓48'46 |            |
| evening set      | 8442 Jun 16 21:01 | 12°♔53'37 |            | inferior conj    | 8443 Jun 06 14:22 | 20°♓37'39 | 2°50'08    |
| inferior conj    | 8442 Jun 23 17:31 | 8°♔01'52  | 2°02'41    | minimum elong    | 8443 Jun 06 16:55 | 20°♓30'55 | 2°49'26    |
| minimum elong    | 8442 Jun 23 20:32 | 7°♔54'52  | 2°01'37    | min. Earth dist. | 8443 Jun 09 11:16 | 17°♓37'16 | 0.62463 AU |
| min. Earth dist. | 8442 Jun 27 00:47 | 5°♔00'02  | 0.60230 AU | morning rise     | 8443 Jun 12 23:41 | 14°♓30'34 |            |
| morning rise     | 8442 Jun 30 17:14 | 2°♔11'27  |            | desc. node       | 8443 Jun 18 01:54 | 12°♓10'32 |            |
| desc. node       | 8442 Jul 01 04:52 | 1°♔53'57  |            | direct           | 8443 Jun 19 17:56 | 12°♓01'46 |            |
| direct           | 8442 Jul 07 05:49 | 0°♔08'10  |            | morning max el   | 8443 Jul 03 19:59 | 20°♓04'01 | 27°54'10   |
| morning max el   | 8442 Jul 21 13:50 | 8°♔04'15  | 27°46'08   |                  | 8443 Jul 12 07:55 | 0°♕       |            |
|                  | 8442 Aug 07 06:36 | 0°♌       |            |                  | 8443 Jul 31 06:20 | 0°♌       |            |
| morning set      | 8442 Aug 22 20:31 | 28°♌40'48 |            | morning set      | 8443 Aug 06 20:20 | 12°♌45'39 |            |
| asc. node        | 8442 Aug 23 11:55 | 0°♍01'19  |            | asc. node        | 8443 Aug 10 08:52 | 20°♌03'57 |            |
|                  | 8442 Aug 23 11:40 | 0°♎       |            | max. Earth dist. | 8443 Aug 12 06:20 | 24°♌06'39 | 1.32211 AU |
| max. Earth dist. | 8442 Aug 29 00:25 | 11°♎56'42 | 1.31703 AU |                  |                   |           |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8442 Aug 30 01:23 | 14°♎14'34 | 1°02'29    | superior conj    | 8443 Aug 14 10:26 | 28°♌49'05 | 0°40'19    |
| minimum elong    | 8442 Aug 29 23:11 | 14°♎02'23 | 1°02'03    | minimum elong    | 8443 Aug 14 08:42 | 28°♌39'40 | 0°39'52    |
| evening rise     | 8442 Sep 05 19:17 | 29°♎02'41 |            |                  | 8443 Aug 14 23:25 | 0°♏       |            |
|                  | 8442 Sep 06 06:01 | 0°♐       |            | evening rise     | 8443 Aug 21 06:47 | 13°♏44'40 |            |
|                  | 8442 Sep 22 17:36 | 0°♑       |            |                  | 8443 Aug 29 09:03 | 0°♐       |            |
| desc. node       | 8442 Sep 27 03:37 | 6°♑02'00  |            | desc. node       | 8443 Sep 14 00:44 | 22°♐32'47 |            |
| evening max el   | 8442 Oct 03 06:00 | 12°♑48'13 | 25°36'45   | evening max el   | 8443 Sep 14 18:39 | 23°♐16'54 | 24°04'24   |
| retrograde       | 8442 Oct 17 04:12 | 19°♑50'42 |            |                  | 8443 Sep 26 12:48 | 0°♒       |            |
| evening set      | 8442 Oct 23 06:08 | 18°♑24'41 |            | retrograde       | 8443 Sep 28 11:23 | 0°♑08'36  |            |
| min. Earth dist. | 8442 Oct 27 18:21 | 15°♑47'36 | 0.57879 AU |                  | 8443 Sep 30 10:16 | 30°♒      |            |
| inferior conj    | 8442 Oct 30 19:21 | 13°♑40'13 | -5°11'20   | evening set      | 8443 Oct 03 06:43 | 29°♒17'54 |            |
| minimum elong    | 8442 Oct 31 01:19 | 13°♑29'44 | 5°10'15    | min. Earth dist. | 8443 Oct 09 05:20 | 26°♒21'55 | 0.56121 AU |
| morning rise     | 8442 Nov 07 22:51 | 9°♒21'38  |            | inferior conj    | 8443 Oct 11 12:51 | 24°♒56'53 | -5°35'48   |
| direct           | 8442 Nov 10 07:10 | 9°♒04'35  |            | minimum elong    | 8443 Oct 11 13:12 | 24°♒56'20 | 5°35'42    |
| morning max el   | 8442 Nov 18 22:50 | 13°♒14'16 | 18°49'48   | morning rise     | 8443 Oct 19 21:47 | 20°♒58'38 |            |
| asc. node        | 8442 Nov 19 11:35 | 13°♒45'47 |            | direct           | 8443 Oct 22 15:02 | 20°♒39'30 |            |
|                  | 8442 Nov 30 08:45 | 0°♓       |            | morning max el   | 8443 Nov 01 16:15 | 25°♒23'44 | 19°52'21   |
|                  |                   |           |            |                  | 8443 Nov 05 18:14 | 0°♓       |            |



|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node           | 8443 Nov 06 08:34 | 0°♑47'39  |            | direct              | 8444 Oct 02 05:58 | 1°♑17'33  |            |
| morning set         | 8443 Nov 19 12:39 | 24°♑06'31 |            | morning max el      | 8444 Oct 13 20:36 | 6°♑44'21  | 21°16'46   |
|                     | 8443 Nov 22 10:04 | 0°♑       |            |                     | 8444 Oct 23 05:33 | 18°♑44'21 |            |
|                     |                   |           |            | asc. node           | 8444 Oct 29 12:25 | 0°♑       |            |
| superior conj       | 8443 Nov 27 07:24 | 9°♑52'54  | 1°29'11    | morning set         | 8444 Nov 02 21:25 | 8°♑51'11  |            |
| minimum elong       | 8443 Nov 27 09:49 | 10°♑04'56 | 1°29'09    |                     |                   |           |            |
| max. Earth dist.    | 8443 Dec 03 05:22 | 21°♑19'40 | 1.37217 AU | superior conj       | 8444 Nov 10 04:21 | 24°♑07'45 | 1°38'46    |
| evening rise        | 8443 Dec 06 23:27 | 28°♑12'42 |            | minimum elong       | 8444 Nov 10 05:29 | 24°♑13'37 | 1°38'52    |
|                     | 8443 Dec 07 23:32 | 0°♑       |            |                     | 8444 Nov 13 01:07 | 0°♑       |            |
| desc. node          | 8443 Dec 10 23:36 | 5°♑13'34  |            | max. Earth dist.    | 8444 Nov 14 15:51 | 3°♑14'00  | 1.35275 AU |
|                     | 8443 Dec 26 21:26 | 0°♑       |            | evening rise        | 8444 Nov 18 18:49 | 11°♑13'20 |            |
| evening max el      | 8444 Jan 11 14:21 | 19°♑14'20 | 25°31'57   | desc. node          | 8444 Nov 26 20:39 | 25°♑39'56 |            |
| retrograde          | 8444 Jan 23 20:17 | 26°♑16'39 |            |                     | 8444 Nov 29 11:16 | 0°♑       |            |
| evening set         | 8444 Jan 29 18:07 | 23°♑50'29 |            |                     | 8444 Dec 21 05:51 | 0°♑       |            |
| asc. node           | 8444 Feb 02 07:46 | 20°♑04'19 |            | evening max el      | 8444 Dec 24 03:36 | 2°♑58'46  | 26°33'26   |
| min. Earth dist.    | 8444 Feb 03 03:01 | 19°♑04'12 | 0.67402 AU | retrograde          | 8445 Jan 06 02:43 | 10°♑15'05 |            |
| inferior conj       | 8444 Feb 04 10:30 | 17°♑23'18 | 0°41'39    | evening set         | 8445 Jan 12 12:43 | 7°♑40'57  |            |
| minimum elong       | 8444 Feb 04 09:29 | 17°♑26'33 | 0°41'23    | min. Earth dist.    | 8445 Jan 16 15:16 | 3°♑29'28  | 0.66320 AU |
| morning rise        | 8444 Feb 10 01:15 | 11°♑30'14 |            | inferior conj       | 8445 Jan 18 10:24 | 1°♑20'30  | -0°15'26   |
| direct              | 8444 Feb 13 10:42 | 10°♑24'03 |            | minimum elong       | 8445 Jan 18 10:49 | 1°♑19'14  | 0°15'05    |
| morning max el      | 8444 Feb 20 09:35 | 14°♑13'34 | 19°09'39   | transit middle      | 8445 Jan 18 10:49 | 1°♑19'14  | 0°15'05    |
|                     | 8444 Mar 03 08:51 | 0°♑       |            | transit begin       | 8445 Jan 18 09:49 | 1°♑22'14  |            |
| greatest brilliancy | 8444 Mar 04 17:56 | 2°♑04'05  | -0.7m      | transit end         | 8445 Jan 18 11:49 | 1°♑16'15  |            |
| desc. node          | 8444 Mar 07 23:14 | 6°♑57'42  |            | asc. node           | 8445 Jan 19 04:51 | 0°♑25'39  |            |
| morning set         | 8444 Mar 14 21:33 | 17°♑38'16 |            |                     | 8445 Jan 19 13:39 | 30°♑      |            |
|                     | 8444 Mar 22 20:30 | 0°♑       |            | morning rise        | 8445 Jan 24 09:49 | 25°♑37'59 |            |
| max. Earth dist.    | 8444 Mar 28 13:45 | 8°♑57'26  | 1.45095 AU | direct              | 8445 Jan 27 08:50 | 24°♑49'00 |            |
|                     |                   |           |            | morning max el      | 8445 Feb 02 21:42 | 28°♑19'46 | 18°25'25   |
| superior conj       | 8444 Mar 31 12:06 | 13°♑35'05 | -2°05'32   |                     | 8445 Feb 04 11:22 | 0°♑       |            |
| minimum elong       | 8444 Mar 31 06:22 | 13°♑12'21 | 2°05'18    | morning set         | 8445 Feb 22 22:15 | 27°♑27'42 |            |
|                     | 8444 Apr 10 17:30 | 0°♑       |            | desc. node          | 8445 Feb 22 20:10 | 27°♑19'26 |            |
| evening rise        | 8444 Apr 15 02:25 | 7°♑09'22  |            |                     | 8445 Feb 24 12:32 | 0°♑       |            |
|                     | 8444 Apr 29 09:32 | 0°♑       |            |                     |                   |           |            |
| asc. node           | 8444 Apr 30 06:35 | 1°♑13'58  |            | superior conj       | 8445 Mar 10 17:21 | 22°♑23'04 | -1°39'22   |
| evening max el      | 8444 May 04 16:42 | 6°♑35'01  | 18°24'47   | minimum elong       | 8445 Mar 10 07:44 | 21°♑45'26 | 1°38'24    |
| retrograde          | 8444 May 11 03:06 | 10°♑03'13 |            | max. Earth dist.    | 8445 Mar 11 08:54 | 23°♑23'53 | 1.45532 AU |
| evening set         | 8444 May 14 05:10 | 9°♑10'30  |            |                     | 8445 Mar 15 14:08 | 0°♑       |            |
| inferior conj       | 8444 May 20 00:39 | 3°♑41'34  | 3°15'21    | evening rise        | 8445 Mar 26 14:23 | 17°♑17'37 |            |
| minimum elong       | 8444 May 20 01:59 | 3°♑37'39  | 3°15'04    |                     | 8445 Apr 03 16:02 | 0°♑       |            |
| min. Earth dist.    | 8444 May 22 07:02 | 1°♑02'50  | 0.64469 AU | greatest brilliancy | 8445 Apr 05 10:41 | 2°♑46'02  | -0.8m      |
|                     | 8444 May 23 05:41 | 30°♑      |            | asc. node           | 8445 Apr 17 03:41 | 19°♑08'39 |            |
| morning rise        | 8444 May 25 21:52 | 27°♑26'06 |            | evening max el      | 8445 Apr 18 02:48 | 20°♑09'42 | 19°00'02   |
| direct              | 8444 Jun 01 14:17 | 24°♑42'44 |            | retrograde          | 8445 Apr 24 22:25 | 23°♑58'18 |            |
| desc. node          | 8444 Jun 03 22:56 | 25°♑00'48 |            | evening set         | 8445 Apr 28 08:01 | 22°♑51'13 |            |
|                     | 8444 Jun 12 09:16 | 0°♑       |            | inferior conj       | 8445 May 03 20:37 | 17°♑06'06 | 3°23'06    |
| morning max el      | 8444 Jun 15 05:41 | 2°♑41'08  | 27°26'10   | minimum elong       | 8445 May 03 20:38 | 17°♑06'04 | 3°22'58    |
|                     | 8444 Jul 05 15:34 | 0°♑       |            | min. Earth dist.    | 8445 May 05 11:37 | 15°♑02'25 | 0.66112 AU |
| morning set         | 8444 Jul 20 11:51 | 26°♑24'00 |            | morning rise        | 8445 May 09 08:45 | 10°♑47'48 |            |
|                     | 8444 Jul 22 07:24 | 0°♑       |            | direct              | 8445 May 15 17:42 | 8°♑01'42  |            |
| max. Earth dist.    | 8444 Jul 25 04:54 | 5°♑54'22  | 1.33201 AU | desc. node          | 8445 May 21 19:57 | 10°♑02'15 |            |
| asc. node           | 8444 Jul 27 05:50 | 10°♑10'11 |            | morning max el      | 8445 May 28 16:17 | 15°♑43'38 | 26°28'32   |
|                     |                   |           |            |                     | 8445 Jun 09 10:08 | 0°♑       |            |
| superior conj       | 8444 Jul 28 15:14 | 13°♑07'15 | 0°14'03    |                     | 8445 Jun 28 11:31 | 0°♑       |            |
| minimum elong       | 8444 Jul 28 14:33 | 13°♑03'33 | 0°13'45    | morning set         | 8445 Jul 03 15:39 | 9°♑25'59  |            |
| behind sun begin    | 8444 Jul 28 11:43 | 12°♑48'30 |            | max. Earth dist.    | 8445 Jul 07 17:03 | 17°♑14'49 | 1.34670 AU |
| behind sun end      | 8444 Jul 28 17:22 | 13°♑18'37 |            |                     |                   |           |            |
| evening rise        | 8444 Aug 04 18:09 | 28°♑23'11 |            | superior conj       | 8445 Jul 12 13:24 | 27°♑01'36 | -0°15'37   |
|                     | 8444 Aug 05 12:29 | 0°♑       |            | minimum elong       | 8445 Jul 12 14:17 | 27°♑06'10 | 0°15'37    |
|                     | 8444 Aug 23 01:56 | 0°♑       |            | behind sun begin    | 8445 Jul 12 12:53 | 26°♑58'56 |            |
| evening max el      | 8444 Aug 26 06:57 | 3°♑29'24  | 22°24'54   | behind sun end      | 8445 Jul 12 15:41 | 27°♑13'25 |            |
| desc. node          | 8444 Aug 30 21:52 | 7°♑15'00  |            |                     | 8445 Jul 13 23:51 | 0°♑       |            |
| retrograde          | 8444 Sep 08 06:17 | 9°♑57'16  |            | asc. node           | 8445 Jul 14 02:49 | 0°♑15'23  |            |
| evening set         | 8444 Sep 11 13:33 | 9°♑33'14  |            | evening rise        | 8445 Jul 20 03:19 | 12°♑51'19 |            |
| min. Earth dist.    | 8444 Sep 19 13:28 | 6°♑02'11  | 0.54979 AU |                     | 8445 Jul 28 23:26 | 0°♑       |            |
| inferior conj       | 8444 Sep 20 12:46 | 5°♑29'18  | -5°11'16   | evening max el      | 8445 Aug 08 03:43 | 14°♑00'59 | 20°54'08   |
| minimum elong       | 8444 Sep 20 05:43 | 5°♑39'17  | 5°10'09    | desc. node          | 8445 Aug 17 19:00 | 19°♑36'42 |            |
| morning rise        | 8444 Sep 28 23:40 | 1°♑41'33  |            | retrograde          | 8445 Aug 19 18:45 | 19°♑46'34 |            |

|                     |                   |                                    |            |                  |                   |                                    |            |
|---------------------|-------------------|------------------------------------|------------|------------------|-------------------|------------------------------------|------------|
| evening set         | 8445 Aug 21 23:36 | 19° $\mathbb{M}$ 34'59             |            | evening set      | 8446 Aug 02 08:12 | 29° $\Omega$ 58'50                 |            |
| inferior conj       | 8445 Aug 31 05:12 | 15° $\mathbb{M}$ 38'08             | -3°52'19   |                  | 8446 Aug 02 05:19 | 30° $\mathbb{R}$ $\Omega$          |            |
| minimum elong       | 8445 Aug 30 19:45 | 15° $\mathbb{M}$ 51'34             | 3°49'33    | desc. node       | 8446 Aug 04 16:06 | 29° $\Omega$ 21'55                 |            |
| min. Earth dist.    | 8445 Aug 31 22:27 | 15° $\mathbb{M}$ 13'39             | 0.54699 AU | inferior conj    | 8446 Aug 11 04:44 | 25° $\Omega$ 55'57                 | -1°59'42   |
| morning rise        | 8445 Sep 08 16:07 | 11° $\mathbb{M}$ 41'11             |            | minimum elong    | 8446 Aug 10 23:16 | 26° $\Omega$ 04'28                 | 1°57'44    |
| direct              | 8445 Sep 12 13:52 | 11° $\mathbb{M}$ 08'30             |            | min. Earth dist. | 8446 Aug 13 10:15 | 24° $\Omega$ 32'33                 | 0.55380 AU |
| morning max el      | 8445 Sep 25 14:02 | 17° $\mathbb{M}$ 21'52             | 22°57'50   | morning rise     | 8446 Aug 19 12:07 | 21° $\Omega$ 30'16                 |            |
|                     | 8445 Oct 05 16:48 | 0° $\underline{\mathbf{A}}$        |            | direct           | 8446 Aug 24 04:50 | 20° $\Omega$ 41'16                 |            |
| asc. node           | 8445 Oct 10 02:31 | 7° $\underline{\mathbf{A}}$ 22'41  |            | morning max el   | 8446 Sep 07 02:30 | 27° $\Omega$ 36'41                 | 24°43'34   |
| morning set         | 8445 Oct 18 08:32 | 23° $\underline{\mathbf{A}}$ 40'35 |            |                  | 8446 Sep 09 11:08 | 0° $\mathbb{M}$                    |            |
|                     | 8445 Oct 21 07:30 | 0° $\mathbb{M}$                    |            | asc. node        | 8446 Sep 26 23:28 | 26° $\mathbb{M}$ 32'18             |            |
|                     |                   |                                    |            |                  | 8446 Sep 28 17:47 | 0° $\underline{\mathbf{A}}$        |            |
| superior conj       | 8445 Oct 25 08:30 | 8° $\mathbb{M}$ 42'14              | 1°41'15    | morning set      | 8446 Oct 02 20:15 | 8° $\underline{\mathbf{A}}$ 29'30  |            |
| minimum elong       | 8445 Oct 25 08:21 | 8° $\mathbb{M}$ 41'25              | 1°41'21    |                  |                   |                                    |            |
| max. Earth dist.    | 8445 Oct 28 09:53 | 15° $\mathbb{M}$ 10'35             | 1.33691 AU | superior conj    | 8446 Oct 09 17:15 | 23° $\underline{\mathbf{A}}$ 28'13 | 1°37'25    |
| evening rise        | 8445 Nov 02 04:03 | 24° $\mathbb{M}$ 50'58             |            | minimum elong    | 8446 Oct 09 16:02 | 23° $\underline{\mathbf{A}}$ 21'32 | 1°37'25    |
|                     | 8445 Nov 04 19:52 | 0° $\mathbb{X}$                    |            | max. Earth dist. | 8446 Oct 11 11:55 | 27° $\underline{\mathbf{A}}$ 20'40 | 1.32548 AU |
| desc. node          | 8445 Nov 13 17:44 | 15° $\mathbb{X}$ 50'03             |            |                  | 8446 Oct 12 17:26 | 0° $\mathbb{M}$                    |            |
|                     | 8445 Nov 22 23:15 | 0° $\mathbb{Z}$                    |            | evening rise     | 8446 Oct 16 23:38 | 8° $\mathbb{M}$ 56'16              |            |
| evening max el      | 8445 Dec 06 16:29 | 16° $\mathbb{Z}$ 30'28             | 27°14'52   |                  | 8446 Oct 28 05:14 | 0° $\mathbb{X}$                    |            |
| retrograde          | 8445 Dec 20 03:24 | 23° $\mathbb{Z}$ 51'27             |            | desc. node       | 8446 Oct 31 14:48 | 5° $\mathbb{X}$ 36'25              |            |
| evening set         | 8445 Dec 26 23:17 | 21° $\mathbb{Z}$ 15'24             |            | evening max el   | 8446 Nov 19 03:37 | 29° $\mathbb{X}$ 37'47             | 27°29'24   |
| min. Earth dist.    | 8445 Dec 30 20:15 | 17° $\mathbb{Z}$ 37'39             | 0.64879 AU |                  | 8446 Nov 19 13:05 | 0° $\mathbb{Z}$                    |            |
| inferior conj       | 8446 Jan 02 03:07 | 15° $\mathbb{Z}$ 07'26             | -1°19'23   | retrograde       | 8446 Dec 02 21:26 | 6° $\mathbb{Z}$ 55'56              |            |
| minimum elong       | 8446 Jan 02 05:30 | 15° $\mathbb{Z}$ 00'52             | 1°18'11    | evening set      | 8446 Dec 09 23:00 | 4° $\mathbb{Z}$ 26'30              |            |
| asc. node           | 8446 Jan 06 01:56 | 11° $\mathbb{Z}$ 12'44             |            | min. Earth dist. | 8446 Dec 13 16:05 | 1° $\mathbb{Z}$ 18'59              | 0.63126 AU |
| morning rise        | 8446 Jan 08 13:12 | 9° $\mathbb{Z}$ 38'05              |            |                  | 8446 Dec 15 00:28 | 30° $\mathbb{R}$ $\mathbb{X}$      |            |
| direct              | 8446 Jan 11 03:40 | 9° $\mathbb{Z}$ 02'33              |            | inferior conj    | 8446 Dec 16 09:51 | 28° $\mathbb{X}$ 37'04             | -2°28'22   |
| morning max el      | 8446 Jan 17 13:59 | 12° $\mathbb{Z}$ 25'36             | 17°57'58   | minimum elong    | 8446 Dec 16 14:33 | 28° $\mathbb{X}$ 25'27             | 2°26'22    |
|                     | 8446 Jan 29 21:47 | 0° $\approx$                       |            | morning rise     | 8446 Dec 23 08:07 | 23° $\mathbb{X}$ 23'41             |            |
| morning set         | 8446 Feb 04 04:31 | 8° $\approx$ 45'16                 |            | asc. node        | 8446 Dec 23 22:59 | 23° $\mathbb{X}$ 11'51             |            |
| desc. node          | 8446 Feb 09 17:07 | 17° $\approx$ 53'00                |            | direct           | 8446 Dec 25 16:21 | 22° $\mathbb{X}$ 57'42             |            |
|                     | 8446 Feb 17 04:48 | 0° $\mathbb{H}$                    |            | morning max el   | 8447 Jan 01 07:21 | 26° $\mathbb{X}$ 22'29             | 17°47'49   |
|                     |                   |                                    |            |                  | 8447 Jan 04 10:19 | 0° $\mathbb{Z}$                    |            |
| superior conj       | 8446 Feb 18 04:46 | 1° $\mathbb{H}$ 35'35              | -0°58'50   | morning set      | 8447 Jan 17 12:07 | 21° $\mathbb{Z}$ 15'41             |            |
| minimum elong       | 8446 Feb 17 22:00 | 1° $\mathbb{H}$ 08'36              | 0°57'51    |                  | 8447 Jan 22 13:02 | 0° $\approx$                       |            |
| max. Earth dist.    | 8446 Feb 22 04:29 | 7° $\mathbb{H}$ 54'16              | 1.45220 AU | desc. node       | 8447 Jan 27 14:03 | 8° $\approx$ 33'39                 |            |
| evening rise        | 8446 Mar 06 07:44 | 26° $\mathbb{H}$ 45'56             |            |                  |                   |                                    |            |
|                     | 8446 Mar 08 10:14 | 0° $\mathbb{Y}$                    |            | superior conj    | 8447 Jan 29 13:19 | 11° $\approx$ 50'29                | -0°14'24   |
| greatest brilliancy | 8446 Mar 20 14:45 | 18° $\mathbb{Y}$ 25'59             | -0.6m      | minimum elong    | 8447 Jan 29 11:49 | 11° $\approx$ 44'18                | 0°14'01    |
|                     | 8446 Mar 28 23:59 | 0° $\mathbb{B}$                    |            | behind sun begin | 8447 Jan 29 07:12 | 11° $\approx$ 25'10                |            |
| evening max el      | 8446 Apr 01 08:15 | 3° $\mathbb{B}$ 48'00              | 19°51'30   | behind sun end   | 8447 Jan 29 16:26 | 12° $\approx$ 03'25                |            |
| asc. node           | 8446 Apr 04 00:48 | 6° $\mathbb{B}$ 11'31              |            | max. Earth dist. | 8447 Feb 04 21:59 | 22° $\approx$ 11'45                | 1.44209 AU |
| retrograde          | 8446 Apr 08 20:30 | 8° $\mathbb{B}$ 07'33              |            |                  | 8447 Feb 09 20:22 | 0° $\mathbb{H}$                    |            |
| evening set         | 8446 Apr 12 14:27 | 6° $\mathbb{B}$ 45'39              |            | evening rise     | 8447 Feb 13 18:56 | 6° $\mathbb{H}$ 06'56              |            |
| inferior conj       | 8446 Apr 17 23:10 | 0° $\mathbb{B}$ 46'17              | 3°16'59    |                  | 8447 Mar 01 18:46 | 0° $\mathbb{Y}$                    |            |
| minimum elong       | 8446 Apr 17 22:04 | 0° $\mathbb{B}$ 49'57              | 3°16'47    | evening max el   | 8447 Mar 15 08:14 | 17° $\mathbb{Y}$ 27'30             | 20°56'47   |
|                     | 8446 Apr 18 12:56 | 30° $\mathbb{R}$ $\mathbb{Y}$      |            | asc. node        | 8447 Mar 21 21:55 | 22° $\mathbb{Y}$ 07'25             |            |
| min. Earth dist.    | 8446 Apr 18 23:32 | 29° $\mathbb{Y}$ 24'34             | 0.67328 AU | retrograde       | 8447 Mar 23 19:00 | 22° $\mathbb{Y}$ 25'24             |            |
| morning rise        | 8446 Apr 23 05:24 | 24° $\mathbb{Y}$ 28'33             |            | evening set      | 8447 Mar 27 22:25 | 20° $\mathbb{Y}$ 48'19             |            |
| direct              | 8446 Apr 29 03:13 | 21° $\mathbb{Y}$ 50'22             |            | inferior conj    | 8447 Apr 02 05:44 | 14° $\mathbb{Y}$ 36'51             | 2°59'27    |
| desc. node          | 8446 May 08 16:55 | 26° $\mathbb{Y}$ 43'59             |            | minimum elong    | 8447 Apr 02 03:52 | 14° $\mathbb{Y}$ 43'17             | 2°59'04    |
| morning max el      | 8446 May 11 01:59 | 29° $\mathbb{Y}$ 00'16             | 25°10'22   | min. Earth dist. | 8447 Apr 02 16:32 | 13° $\mathbb{Y}$ 59'28             | 0.68098 AU |
|                     | 8446 May 12 01:04 | 0° $\mathbb{B}$                    |            | morning rise     | 8447 Apr 07 09:05 | 8° $\mathbb{Y}$ 21'59              |            |
|                     | 8446 Jun 03 05:10 | 0° $\mathbb{I}$                    |            | direct           | 8447 Apr 12 17:44 | 5° $\mathbb{Y}$ 59'41              |            |
| morning set         | 8446 Jun 16 03:28 | 21° $\mathbb{I}$ 40'20             |            | morning max el   | 8447 Apr 23 11:03 | 12° $\mathbb{Y}$ 23'37             | 23°41'58   |
| max. Earth dist.    | 8446 Jun 19 18:40 | 28° $\mathbb{I}$ 18'27             | 1.36575 AU | desc. node       | 8447 Apr 25 13:52 | 14° $\mathbb{Y}$ 38'18             |            |
|                     | 8446 Jun 20 16:23 | 0° $\mathbb{E}$                    |            |                  | 8447 May 07 14:06 | 0° $\mathbb{B}$                    |            |
|                     |                   |                                    |            |                  | 8447 May 27 01:00 | 0° $\mathbb{I}$                    |            |
| superior conj       | 8446 Jun 26 02:04 | 10° $\mathbb{E}$ 25'07             | -0°47'19   | morning set      | 8447 May 28 17:52 | 2° $\mathbb{I}$ 52'33              |            |
| minimum elong       | 8446 Jun 26 04:57 | 10° $\mathbb{E}$ 39'23             | 0°46'58    | max. Earth dist. | 8447 Jun 01 14:38 | 9° $\mathbb{I}$ 34'00              | 1.38770 AU |
| asc. node           | 8446 Jun 30 23:50 | 20° $\mathbb{E}$ 15'55             |            |                  |                   |                                    |            |
| evening rise        | 8446 Jul 04 08:04 | 27° $\mathbb{E}$ 02'55             |            | superior conj    | 8447 Jun 09 01:37 | 23° $\mathbb{I}$ 08'58             | -1°18'55   |
|                     | 8446 Jul 05 19:17 | 0° $\Omega$                        |            | minimum elong    | 8447 Jun 09 06:30 | 23° $\mathbb{I}$ 31'55             | 1°18'22    |
| evening max el      | 8446 Jul 21 13:45 | 25° $\Omega$ 14'35                 | 19°41'12   |                  | 8447 Jun 12 15:56 | 0° $\mathbb{E}$                    |            |
|                     | 8446 Jul 29 19:07 | 0° $\mathbb{M}$                    |            | asc. node        | 8447 Jun 17 20:52 | 10° $\mathbb{E}$ 07'41             |            |
| retrograde          | 8446 Jul 31 11:48 | 0° $\mathbb{M}$ 08'18              |            | evening rise     | 8447 Jun 18 05:40 | 10° $\mathbb{E}$ 50'38             |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8447 Jun 28 20:09 | 0°♌       |            | evening rise     | 8448 May 31 16:40 | 24°♊05'34 |            |
| evening max el   | 8447 Jul 04 12:05 | 7°♌12'58  | 18°48'58   | asc. node        | 8448 Jun 03 17:54 | 29°♊45'49 |            |
| retrograde       | 8447 Jul 12 20:26 | 11°♌21'12 |            |                  | 8448 Jun 03 20:58 | 0°♊       |            |
| evening set      | 8447 Jul 14 20:17 | 11°♌07'57 |            | evening max el   | 8448 Jun 16 19:05 | 19°♊47'58 | 18°17'16   |
| inferior conj    | 8447 Jul 22 22:28 | 6°♌48'15  | -0°07'03   | retrograde       | 8448 Jun 24 00:25 | 23°♊25'34 |            |
| minimum elong    | 8447 Jul 22 22:10 | 6°♌48'47  | 0°07'06    | evening set      | 8448 Jun 26 07:24 | 23°♊04'28 |            |
| transit middle   | 8447 Jul 22 22:10 | 6°♌48'47  | 0°07'06    | inferior conj    | 8448 Jul 03 13:57 | 18°♊24'01 | 1°23'23    |
| transit begin    | 8447 Jul 22 18:51 | 6°♌54'48  |            | minimum elong    | 8448 Jul 03 16:29 | 18°♊18'36 | 1°22'21    |
| transit end      | 8447 Jul 23 01:30 | 6°♌42'45  |            | min. Earth dist. | 8448 Jul 06 23:21 | 15°♊32'42 | 0.58943 AU |
| desc. node       | 8447 Jul 22 13:09 | 7°♌05'03  |            | desc. node       | 8448 Jul 08 10:14 | 14°♊25'41 |            |
| min. Earth dist. | 8447 Jul 26 01:57 | 4°♌32'32  | 0.56891 AU | morning rise     | 8448 Jul 10 22:23 | 12°♊48'28 |            |
| morning rise     | 8447 Jul 30 20:40 | 1°♌45'51  |            | direct           | 8448 Jul 17 04:12 | 11°♊03'15 |            |
| direct           | 8447 Aug 05 09:45 | 0°♌31'30  |            | morning max el   | 8448 Jul 31 13:17 | 18°♊50'14 | 27°24'09   |
| morning max el   | 8447 Aug 19 16:48 | 7°♌57'51  | 26°17'28   |                  | 8448 Aug 09 23:18 | 0°♌       |            |
|                  | 8447 Sep 05 04:09 | 0°♍       |            |                  | 8448 Aug 27 19:47 | 0°♍       |            |
| asc. node        | 8447 Sep 13 20:25 | 16°♍05'06 |            | asc. node        | 8448 Aug 30 17:21 | 5°♍53'34  |            |
| morning set      | 8447 Sep 17 06:59 | 23°♍13'33 |            | morning set      | 8448 Aug 31 15:00 | 7°♍46'43  |            |
|                  | 8447 Sep 20 10:08 | 0°♎       |            |                  |                   |           |            |
| superior conj    | 8447 Sep 24 04:28 | 8°♎19'07  | 1°27'54    | superior conj    | 8448 Sep 07 16:14 | 23°♍07'51 | 1°13'11    |
| minimum elong    | 8447 Sep 24 02:32 | 8°♎08'21  | 1°27'43    | minimum elong    | 8448 Sep 07 14:00 | 22°♍55'23 | 1°12'49    |
| max. Earth dist. | 8447 Sep 24 19:49 | 9°♎44'05  | 1.31864 AU | max. Earth dist. | 8448 Sep 07 06:04 | 22°♍11'24 | 1.31635 AU |
| evening rise     | 8447 Oct 01 02:38 | 23°♎21'20 |            |                  | 8448 Sep 10 18:37 | 0°♎       |            |
|                  | 8447 Oct 04 08:24 | 0°♎       |            | evening rise     | 8448 Sep 14 10:33 | 7°♎57'39  |            |
| desc. node       | 8447 Oct 18 11:53 | 24°♎49'34 |            |                  | 8448 Sep 25 19:22 | 0°♎       |            |
|                  | 8447 Oct 22 01:57 | 0°♏       |            | desc. node       | 8448 Oct 04 08:59 | 13°♎15'16 |            |
| evening max el   | 8447 Nov 01 10:38 | 12°♏08'18 | 27°11'43   | evening max el   | 8448 Oct 13 10:39 | 23°♎49'44 | 26°20'05   |
| retrograde       | 8447 Nov 15 07:38 | 19°♏19'48 |            |                  | 8448 Oct 22 13:38 | 0°♏       |            |
| evening set      | 8447 Nov 22 08:21 | 17°♏07'13 |            | retrograde       | 8448 Oct 27 08:39 | 0°♏54'56  |            |
| min. Earth dist. | 8447 Nov 26 01:22 | 14°♏22'36 | 0.61141 AU |                  | 8448 Nov 01 02:02 | 30°♏♎     |            |
| inferior conj    | 8447 Nov 29 03:28 | 11°♏41'36 | -3°38'31   | evening set      | 8448 Nov 02 22:45 | 29°♎09'22 |            |
| minimum elong    | 8447 Nov 29 10:13 | 11°♏26'53 | 3°36'10    | min. Earth dist. | 8448 Nov 06 23:53 | 26°♎34'52 | 0.59053 AU |
| morning rise     | 8447 Dec 06 14:23 | 6°♏47'28  |            | inferior conj    | 8448 Nov 10 04:21 | 24°♎10'23 | -4°42'21   |
| direct           | 8447 Dec 08 19:29 | 6°♏27'22  |            | minimum elong    | 8448 Nov 10 11:34 | 23°♎56'42 | 4°40'33    |
| asc. node        | 8447 Dec 10 20:00 | 6°♏44'47  |            | morning rise     | 8448 Nov 18 02:43 | 19°♎38'34 |            |
| morning max el   | 8447 Dec 15 22:35 | 10°♏02'17 | 17°56'00   | direct           | 8448 Nov 20 08:38 | 19°♎21'09 |            |
|                  | 8447 Dec 29 01:14 | 0°♐       |            | asc. node        | 8448 Nov 26 17:00 | 21°♎49'19 |            |
| morning set      | 8447 Dec 31 14:31 | 4°♐39'28  |            | morning max el   | 8448 Nov 28 08:10 | 23°♎15'00 | 18°24'03   |
|                  |                   |           |            |                  | 8448 Dec 03 17:46 | 0°♐       |            |
| superior conj    | 8448 Jan 10 23:29 | 23°♐18'46 | 0°25'40    | morning set      | 8448 Dec 14 06:05 | 18°♏39'24 |            |
| minimum elong    | 8448 Jan 11 01:36 | 23°♐28'02 | 0°25'32    |                  | 8448 Dec 20 04:49 | 0°♐       |            |
| desc. node       | 8448 Jan 14 11:00 | 29°♐18'07 |            | superior conj    | 8448 Dec 23 08:21 | 5°♐51'43  | 0°57'26    |
|                  | 8448 Jan 14 20:53 | 0°♑       |            | minimum elong    | 8448 Dec 23 11:43 | 6°♐07'12  | 0°57'09    |
| max. Earth dist. | 8448 Jan 18 11:43 | 6°♑02'40  | 1.42615 AU | max. Earth dist. | 8448 Dec 30 20:52 | 19°♐14'57 | 1.40609 AU |
| evening rise     | 8448 Jan 24 15:24 | 15°♑58'22 |            | desc. node       | 8448 Dec 31 07:59 | 20°♐02'36 |            |
|                  | 8448 Feb 02 18:29 | 0°♑       |            | evening rise     | 8449 Jan 04 07:06 | 26°♐42'23 |            |
|                  | 8448 Feb 25 00:42 | 0°♒       |            |                  | 8449 Jan 06 07:25 | 0°♑       |            |
| evening max el   | 8448 Feb 26 03:07 | 1°♒08'40  | 22°12'00   |                  | 8449 Jan 26 10:47 | 0°♒       |            |
| retrograde       | 8448 Mar 06 16:06 | 6°♒47'50  |            | evening max el   | 8449 Feb 07 18:13 | 14°♒52'24 | 23°31'58   |
| asc. node        | 8448 Mar 07 19:00 | 6°♒41'28  |            | retrograde       | 8449 Feb 18 10:29 | 21°♒10'45 |            |
| evening set      | 8448 Mar 11 06:18 | 4°♒55'30  |            | asc. node        | 8449 Feb 22 16:05 | 19°♒43'27 |            |
|                  | 8448 Mar 15 13:32 | 30°♒♒     |            | evening set      | 8449 Feb 23 12:34 | 19°♒03'41 |            |
| inferior conj    | 8448 Mar 16 14:12 | 28°♒34'36 | 2°32'05    | inferior conj    | 8449 Feb 28 22:42 | 12°♒36'45 | 1°55'46    |
| minimum elong    | 8448 Mar 16 11:58 | 28°♒42'22 | 2°31'30    | minimum elong    | 8449 Feb 28 20:33 | 12°♒44'08 | 1°55'07    |
| min. Earth dist. | 8448 Mar 16 12:29 | 28°♒40'35 | 0.68429 AU | min. Earth dist. | 8449 Feb 28 09:09 | 13°♒23'12 | 0.68336 AU |
| morning rise     | 8448 Mar 21 17:29 | 22°♒24'05 |            | morning rise     | 8449 Mar 06 04:30 | 6°♒31'51  |            |
| direct           | 8448 Mar 26 12:09 | 20°♒22'37 |            | direct           | 8449 Mar 10 09:24 | 4°♒52'55  |            |
| morning max el   | 8448 Apr 04 22:22 | 25°♒54'27 | 22°13'05   | morning max el   | 8449 Mar 18 15:35 | 9°♒36'43  | 20°51'34   |
|                  | 8448 Apr 08 15:51 | 0°♒       |            | desc. node       | 8449 Mar 29 07:43 | 22°♒50'15 |            |
| desc. node       | 8448 Apr 11 10:48 | 3°♒25'11  |            |                  | 8449 Apr 03 08:13 | 0°♒       |            |
|                  | 8448 Apr 30 02:25 | 0°♓       |            | morning set      | 8449 Apr 17 15:41 | 21°♒37'37 |            |
| morning set      | 8448 May 08 05:48 | 12°♓50'01 |            |                  | 8449 Apr 22 22:53 | 0°♓       |            |
| max. Earth dist. | 8448 May 13 12:51 | 21°♓34'07 | 1.41009 AU | max. Earth dist. | 8449 Apr 25 17:50 | 4°♓29'45  | 1.43000 AU |
|                  | 8448 May 18 11:01 | 0°♔       |            |                  |                   |           |            |
| superior conj    | 8448 May 21 07:37 | 5°♔02'22  | -1°47'00   | superior conj    | 8449 May 02 15:25 | 15°♓55'01 | -2°06'36   |
| minimum elong    | 8448 May 21 13:30 | 5°♔28'33  | 1°46'34    | minimum elong    | 8449 May 02 19:33 | 16°♓12'31 | 2°06'33    |
|                  |                   |           |            |                  | 8449 May 10 19:05 | 0°♔       |            |

|                     |                   |                             |            |                  |                   |                         |            |
|---------------------|-------------------|-----------------------------|------------|------------------|-------------------|-------------------------|------------|
| evening rise        | 8449 May 14 12:49 | 6° $\Pi$ 37'45              |            | minimum elong    | 8450 Apr 12 20:45 | 25° $\Upsilon$ 36'02    | 2°11'34    |
| asc. node           | 8449 May 21 14:57 | 19° $\Pi$ 05'10             |            |                  | 8450 Apr 15 13:53 | 0° $\mathcal{B}$        |            |
|                     | 8449 May 28 18:49 | 0° $\mathcal{E}$            |            | evening rise     | 8450 Apr 26 13:20 | 18° $\mathcal{B}$ 16'00 |            |
| evening max el      | 8449 May 31 07:01 | 2° $\mathcal{E}$ 50'21      | 18°05'21   |                  | 8450 May 03 12:22 | 0° $\Pi$                |            |
| retrograde          | 8449 Jun 06 21:02 | 6° $\mathcal{E}$ 13'10      |            | asc. node        | 8450 May 08 12:02 | 7° $\Pi$ 58'25          |            |
| evening set         | 8449 Jun 09 11:30 | 5° $\mathcal{E}$ 41'18      |            | evening max el   | 8450 May 14 20:25 | 16° $\Pi$ 10'32         | 18°12'28   |
| inferior conj       | 8449 Jun 16 01:17 | 0° $\mathcal{E}$ 40'50      | 2°25'48    | retrograde       | 8450 May 21 05:36 | 19° $\Pi$ 33'04         |            |
| minimum elong       | 8449 Jun 16 04:16 | 0° $\mathcal{E}$ 33'31      | 2°24'52    | evening set      | 8450 May 24 03:20 | 18° $\Pi$ 48'29         |            |
|                     | 8449 Jun 16 17:51 | 30° $\mathcal{R}$ $\Pi$     |            | inferior conj    | 8450 May 30 04:23 | 13° $\Pi$ 29'38         | 3°03'12    |
| min. Earth dist.    | 8449 Jun 19 04:47 | 27° $\Pi$ 37'00             | 0.61190 AU | minimum elong    | 8450 May 30 06:28 | 13° $\Pi$ 23'52         | 3°02'43    |
| morning rise        | 8449 Jun 22 18:41 | 24° $\Pi$ 41'57             |            | min. Earth dist. | 8450 Jun 01 19:24 | 10° $\Pi$ 36'09         | 0.63347 AU |
| desc. node          | 8449 Jun 25 07:16 | 23° $\Pi$ 18'50             |            | morning rise     | 8450 Jun 05 08:10 | 7° $\Pi$ 17'48          |            |
| direct              | 8449 Jun 29 10:25 | 22° $\Pi$ 27'06             |            | direct           | 8450 Jun 12 02:21 | 4° $\Pi$ 41'14          |            |
|                     | 8449 Jul 13 05:49 | 0° $\mathcal{E}$            |            | desc. node       | 8450 Jun 12 04:18 | 4° $\Pi$ 41'15          |            |
| morning max el      | 8449 Jul 13 16:41 | 0° $\mathcal{E}$ 26'45      | 27°54'17   | morning max el   | 8450 Jun 26 00:52 | 12° $\Pi$ 44'11         | 27°46'22   |
|                     | 8449 Aug 04 02:03 | 0° $\mathcal{Q}$            |            |                  | 8450 Jul 09 19:37 | 0° $\mathcal{E}$        |            |
| morning set         | 8449 Aug 15 18:29 | 22° $\mathcal{Q}$ 04'03     |            |                  | 8450 Jul 27 13:59 | 0° $\mathcal{Q}$        |            |
| asc. node           | 8449 Aug 17 14:20 | 25° $\mathcal{Q}$ 52'37     |            | morning set      | 8450 Jul 30 15:09 | 5° $\mathcal{Q}$ 58'49  |            |
|                     | 8449 Aug 19 12:46 | 0° $\mathcal{M}$            |            | asc. node        | 8450 Aug 04 11:19 | 15° $\mathcal{Q}$ 57'24 |            |
| max. Earth dist.    | 8449 Aug 21 14:49 | 4° $\mathcal{M}$ 31'38      | 1.31868 AU | max. Earth dist. | 8450 Aug 04 17:59 | 16° $\mathcal{Q}$ 32'43 | 1.32570 AU |
| superior conj       | 8449 Aug 23 02:49 | 7° $\mathcal{M}$ 49'13      | 0°53'38    | superior conj    | 8450 Aug 07 10:20 | 22° $\mathcal{Q}$ 17'28 | 0°29'39    |
| minimum elong       | 8449 Aug 23 00:45 | 7° $\mathcal{M}$ 37'50      | 0°53'10    | minimum elong    | 8450 Aug 07 08:58 | 22° $\mathcal{Q}$ 10'07 | 0°29'15    |
| evening rise        | 8449 Aug 29 21:18 | 22° $\mathcal{M}$ 39'16     |            |                  | 8450 Aug 10 23:27 | 0° $\mathcal{M}$        |            |
|                     | 8449 Sep 02 09:29 | 0° $\mathcal{A}$            |            | evening rise     | 8450 Aug 14 08:58 | 7° $\mathcal{M}$ 20'14  |            |
|                     | 8449 Sep 20 18:13 | 0° $\mathcal{M}$            |            |                  | 8450 Aug 26 04:21 | 0° $\mathcal{A}$        |            |
| desc. node          | 8449 Sep 21 06:05 | 0° $\mathcal{M}$ 34'59      |            | evening max el   | 8450 Sep 06 13:48 | 14° $\mathcal{A}$ 57'42 | 23°21'53   |
| evening max el      | 8449 Sep 25 02:30 | 4° $\mathcal{M}$ 40'25      | 24°59'14   | desc. node       | 8450 Sep 08 03:12 | 16° $\mathcal{A}$ 23'40 |            |
| retrograde          | 8449 Oct 08 23:04 | 11° $\mathcal{M}$ 39'30     |            | retrograde       | 8450 Sep 20 01:24 | 21° $\mathcal{A}$ 42'14 |            |
| evening set         | 8449 Oct 14 13:38 | 10° $\mathcal{M}$ 28'25     |            | evening set      | 8450 Sep 24 05:01 | 21° $\mathcal{A}$ 04'35 |            |
| min. Earth dist.    | 8449 Oct 19 13:53 | 7° $\mathcal{M}$ 45'43      | 0.57083 AU | min. Earth dist. | 8450 Sep 30 23:27 | 17° $\mathcal{A}$ 55'12 | 0.55539 AU |
| inferior conj       | 8449 Oct 22 09:33 | 5° $\mathcal{M}$ 54'30      | -5°26'32   | inferior conj    | 8450 Oct 02 18:53 | 16° $\mathcal{A}$ 51'21 | -5°32'14   |
| minimum elong       | 8449 Oct 22 13:40 | 5° $\mathcal{M}$ 47'42      | 5°26'01    | minimum elong    | 8450 Oct 02 15:57 | 16° $\mathcal{A}$ 55'41 | 5°32'01    |
| morning rise        | 8449 Oct 30 16:00 | 1° $\mathcal{M}$ 45'35      |            | morning rise     | 8450 Oct 11 04:59 | 12° $\mathcal{A}$ 59'24 |            |
| direct              | 8449 Nov 02 03:32 | 1° $\mathcal{M}$ 28'01      |            | direct           | 8450 Oct 14 03:07 | 12° $\mathcal{A}$ 38'44 |            |
| morning max el      | 8449 Nov 11 08:30 | 5° $\mathcal{M}$ 50'42      | 19°13'41   | morning max el   | 8450 Oct 24 20:34 | 17° $\mathcal{A}$ 40'35 | 20°25'46   |
| asc. node           | 8449 Nov 13 14:00 | 8° $\mathcal{M}$ 12'55      |            | asc. node        | 8450 Oct 31 10:59 | 25° $\mathcal{A}$ 40'09 |            |
|                     | 8449 Nov 26 17:36 | 0° $\mathcal{X}$            |            |                  | 8450 Nov 03 05:13 | 0° $\mathcal{M}$        |            |
| morning set         | 8449 Nov 28 06:39 | 3° $\mathcal{X}$ 03'21      |            | morning set      | 8450 Nov 12 13:09 | 17° $\mathcal{M}$ 42'48 |            |
|                     |                   |                             |            |                  | 8450 Nov 18 12:03 | 0° $\mathcal{X}$        |            |
| superior conj       | 8449 Dec 06 10:51 | 19° $\mathcal{X}$ 14'54     | 1°20'05    | superior conj    | 8450 Nov 20 02:15 | 3° $\mathcal{X}$ 14'46  | 1°34'10    |
| minimum elong       | 8449 Dec 06 13:51 | 19° $\mathcal{X}$ 29'28     | 1°19'56    | minimum elong    | 8450 Nov 20 04:09 | 3° $\mathcal{X}$ 24'22  | 1°34'12    |
|                     | 8449 Dec 12 03:41 | 0° $\mathcal{Z}$            |            | max. Earth dist. | 8450 Nov 25 09:37 | 13° $\mathcal{X}$ 44'25 | 1.36350 AU |
| max. Earth dist.    | 8449 Dec 13 02:37 | 1° $\mathcal{Z}$ 44'24      | 1.38436 AU | evening rise     | 8450 Nov 29 06:31 | 21° $\mathcal{X}$ 00'29 |            |
| evening rise        | 8449 Dec 16 20:49 | 8° $\mathcal{Z}$ 24'44      |            |                  | 8450 Dec 04 08:01 | 0° $\mathcal{Z}$        |            |
| desc. node          | 8449 Dec 18 04:58 | 10° $\mathcal{Z}$ 43'32     |            | desc. node       | 8450 Dec 05 02:01 | 1° $\mathcal{Z}$ 17'00  |            |
|                     | 8449 Dec 30 04:35 | 0° $\approx$                |            |                  | 8450 Dec 24 02:55 | 0° $\approx$            |            |
| evening max el      | 8450 Jan 21 07:27 | 28° $\approx$ 38'44         | 24°50'22   | evening max el   | 8451 Jan 03 20:34 | 12° $\approx$ 26'17     | 26°00'08   |
|                     | 8450 Jan 22 17:35 | 0° $\mathcal{H}$            |            | retrograde       | 8451 Jan 16 10:51 | 19° $\approx$ 36'41     |            |
| retrograde          | 8450 Feb 02 01:03 | 5° $\mathcal{H}$ 28'50      |            | evening set      | 8451 Jan 22 13:54 | 17° $\approx$ 06'34     |            |
| evening set         | 8450 Feb 07 15:38 | 3° $\mathcal{H}$ 08'42      |            | min. Earth dist. | 8451 Jan 26 19:57 | 12° $\approx$ 34'57     | 0.66981 AU |
| asc. node           | 8450 Feb 09 13:11 | 1° $\mathcal{H}$ 16'45      |            | asc. node        | 8451 Jan 27 10:15 | 11° $\approx$ 50'34     |            |
|                     | 8450 Feb 10 15:30 | 30° $\mathcal{R}$ $\approx$ |            | inferior conj    | 8451 Jan 28 08:24 | 10° $\approx$ 41'14     | 0°18'22    |
| min. Earth dist.    | 8450 Feb 12 04:23 | 28° $\approx$ 02'36         | 0.67847 AU | minimum elong    | 8451 Jan 28 07:55 | 10° $\approx$ 42'44     | 0°18'19    |
| inferior conj       | 8450 Feb 13 05:24 | 26° $\approx$ 39'57         | 1°11'02    | morning rise     | 8451 Feb 03 02:33 | 4° $\approx$ 52'15      |            |
| minimum elong       | 8450 Feb 13 03:48 | 26° $\approx$ 45'12         | 1°10'33    | direct           | 8451 Feb 06 07:16 | 3° $\approx$ 53'57      |            |
| morning rise        | 8450 Feb 18 16:12 | 20° $\approx$ 42'06         |            | morning max el   | 8451 Feb 13 01:07 | 7° $\approx$ 34'28      | 18°48'46   |
| direct              | 8450 Feb 22 08:15 | 19° $\approx$ 24'48         |            |                  | 8451 Mar 01 04:22 | 0° $\mathcal{H}$        |            |
| morning max el      | 8450 Mar 01 16:35 | 23° $\approx$ 30'54         | 19°42'31   | desc. node       | 8451 Mar 03 01:35 | 2° $\mathcal{H}$ 55'48  |            |
|                     | 8450 Mar 07 05:28 | 0° $\mathcal{H}$            |            | morning set      | 8451 Mar 06 22:37 | 8° $\mathcal{H}$ 58'54  |            |
| greatest brilliancy | 8450 Mar 14 10:32 | 10° $\mathcal{H}$ 07'21     | -0.6m      |                  | 8451 Mar 20 09:18 | 0° $\Upsilon$           |            |
| desc. node          | 8450 Mar 16 04:38 | 12° $\mathcal{H}$ 42'47     |            | max. Earth dist. | 8451 Mar 21 22:04 | 2° $\Upsilon$ 24'01     | 1.45369 AU |
| morning set         | 8450 Mar 27 13:07 | 29° $\mathcal{H}$ 56'52     |            |                  |                   |                         |            |
|                     | 8450 Mar 27 13:56 | 0° $\Upsilon$               |            | superior conj    | 8451 Mar 23 09:04 | 4° $\Upsilon$ 41'19     | -1°56'44   |
| max. Earth dist.    | 8450 Apr 08 05:22 | 18° $\Upsilon$ 10'46        | 1.44506 AU | minimum elong    | 8451 Mar 23 00:53 | 4° $\Upsilon$ 09'12     | 1°56'11    |
| superior conj       | 8450 Apr 12 22:20 | 25° $\Upsilon$ 42'26        | -2°11'31   | evening rise     | 8451 Apr 07 14:39 | 28° $\Upsilon$ 55'20    |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8451 Apr 08 06:41 | 0°♄       |            |                     | 8452 Feb 22 01:20 | 0°♄       |            |
| greatest brilliancy | 8451 Apr 13 19:14 | 8°♄54'57  | -0.9m      |                     |                   |           |            |
| asc. node           | 8451 Apr 25 09:07 | 26°♄17'20 |            | superior conj       | 8452 Mar 01 14:30 | 13°♄33'01 | -1°23'19   |
| evening max el      | 8451 Apr 28 08:26 | 29°♄41'40 | 18°37'44   | minimum elong       | 8452 Mar 01 05:24 | 12°♄57'16 | 1°22'15    |
|                     | 8451 Apr 28 15:52 | 0°♄       |            | max. Earth dist.    | 8452 Mar 03 17:43 | 16°♄53'57 | 1.45496 AU |
| retrograde          | 8451 May 04 21:50 | 3°♄17'03  |            |                     | 8452 Mar 12 03:09 | 0°♄       |            |
| evening set         | 8451 May 08 03:00 | 2°♄18'25  |            | evening rise        | 8452 Mar 17 17:32 | 8°♄42'58  |            |
|                     | 8451 May 10 22:05 | 30°♄      |            | greatest brilliancy | 8452 Mar 29 16:17 | 27°♄10'27 | -0.7m      |
| inferior conj       | 8451 May 13 19:11 | 26°♄42'41 | 3°20'31    |                     | 8452 Mar 31 13:30 | 0°♄       |            |
| minimum elong       | 8451 May 13 19:57 | 26°♄40'22 | 3°20'19    | evening max el      | 8452 Apr 10 16:48 | 13°♄18'27 | 19°20'08   |
| min. Earth dist.    | 8451 May 15 19:08 | 24°♄17'17 | 0.65219 AU | asc. node           | 8452 Apr 11 06:12 | 13°♄51'30 |            |
| morning rise        | 8451 May 19 12:08 | 20°♄25'27 |            | retrograde          | 8452 Apr 17 18:30 | 17°♄18'36 |            |
| direct              | 8451 May 26 02:05 | 17°♄39'06 |            | evening set         | 8452 Apr 21 07:37 | 16°♄05'11 |            |
| desc. node          | 8451 May 30 01:20 | 18°♄30'26 |            | inferior conj       | 8452 Apr 26 18:15 | 10°♄13'57 | 3°22'01    |
| morning max el      | 8451 Jun 08 11:04 | 25°♄32'42 | 27°04'41   | minimum elong       | 8452 Apr 26 17:45 | 10°♄15'34 | 3°21'52    |
|                     | 8451 Jun 12 12:50 | 0°♄       |            | min. Earth dist.    | 8452 Apr 28 02:55 | 8°♄27'36  | 0.66688 AU |
|                     | 8451 Jul 03 08:05 | 0°♄       |            | morning rise        | 8452 May 02 03:31 | 3°♄55'50  |            |
| morning set         | 8451 Jul 14 02:09 | 19°♄22'47 |            | direct              | 8452 May 08 08:14 | 1°♄11'51  |            |
| max. Earth dist.    | 8451 Jul 18 12:02 | 28°♄06'53 | 1.33762 AU | desc. node          | 8452 May 15 22:20 | 4°♄17'59  |            |
|                     | 8451 Jul 19 10:14 | 0°♄       |            | morning max el      | 8452 May 20 21:10 | 8°♄41'24  | 25°57'12   |
| asc. node           | 8451 Jul 22 08:18 | 6°♄03'33  |            |                     | 8452 Jun 06 13:54 | 0°♄       |            |
|                     |                   |           |            |                     | 8452 Jun 24 20:15 | 0°♄       |            |
| superior conj       | 8451 Jul 22 12:38 | 6°♄26'21  | 0°01'50    | morning set         | 8452 Jun 25 23:44 | 2°♄05'52  |            |
| minimum elong       | 8451 Jul 22 12:33 | 6°♄25'51  | 0°01'39    | max. Earth dist.    | 8452 Jun 29 19:21 | 9°♄17'22  | 1.35431 AU |
| behind sun begin    | 8451 Jul 22 06:57 | 5°♄56'26  |            |                     |                   |           |            |
| behind sun end      | 8451 Jul 22 18:09 | 6°♄55'20  |            | superior conj       | 8452 Jul 05 07:10 | 20°♄08'51 | -0°28'54   |
| evening rise        | 8451 Jul 29 19:38 | 21°♄54'42 |            | minimum elong       | 8452 Jul 05 08:52 | 20°♄17'28 | 0°28'45    |
|                     | 8451 Aug 02 18:02 | 0°♄       |            | asc. node           | 8452 Jul 08 05:19 | 26°♄07'29 |            |
| evening max el      | 8451 Aug 19 04:55 | 25°♄15'03 | 21°44'37   |                     | 8452 Jul 10 02:18 | 0°♄       |            |
|                     | 8451 Aug 25 15:54 | 0°♄       |            | evening rise        | 8452 Jul 13 03:13 | 6°♄16'49  |            |
| desc. node          | 8451 Aug 26 00:20 | 0°♄09'52  |            |                     | 8452 Jul 26 06:24 | 0°♄       |            |
| retrograde          | 8451 Aug 31 16:21 | 1°♄26'33  |            | evening max el      | 8452 Jul 31 07:15 | 6°♄03'31  | 20°20'43   |
| evening set         | 8451 Sep 03 10:09 | 1°♄09'37  |            | retrograde          | 8452 Aug 11 04:48 | 11°♄26'46 |            |
|                     | 8451 Sep 07 01:52 | 30°♄      |            | desc. node          | 8452 Aug 11 21:26 | 11°♄25'32 |            |
| inferior conj       | 8451 Sep 12 14:03 | 27°♄10'38 | -4°43'53   | evening set         | 8452 Aug 13 04:18 | 11°♄16'53 |            |
| minimum elong       | 8451 Sep 12 05:03 | 27°♄23'13 | 4°41'53    | inferior conj       | 8452 Aug 22 07:44 | 7°♄19'14  | -3°06'42   |
| min. Earth dist.    | 8451 Sep 12 07:55 | 27°♄19'13 | 0.54741 AU | minimum elong       | 8452 Aug 21 23:27 | 7°♄31'21  | 3°03'56    |
| morning rise        | 8451 Sep 21 01:06 | 23°♄21'15 |            | min. Earth dist.    | 8452 Aug 23 17:39 | 6°♄29'41  | 0.54876 AU |
| direct              | 8451 Sep 24 13:43 | 22°♄54'03 |            | morning rise        | 8452 Aug 30 17:48 | 3°♄12'23  |            |
| morning max el      | 8451 Oct 06 19:43 | 28°♄41'19 | 21°58'11   | direct              | 8452 Sep 03 23:31 | 2°♄33'43  |            |
|                     | 8451 Oct 08 03:50 | 0°♄       |            | morning max el      | 8452 Sep 17 09:58 | 9°♄05'22  | 23°43'06   |
| asc. node           | 8451 Oct 18 07:58 | 13°♄56'08 |            |                     | 8452 Oct 02 15:43 | 0°♄       |            |
|                     | 8451 Oct 26 18:21 | 0°♄       |            | asc. node           | 8452 Oct 04 04:57 | 2°♄49'12  |            |
| morning set         | 8451 Oct 27 23:09 | 2°♄30'05  |            | morning set         | 8452 Oct 11 10:45 | 17°♄20'06 |            |
|                     |                   |           |            |                     | 8452 Oct 17 07:20 | 0°♄       |            |
| superior conj       | 8451 Nov 04 02:37 | 17°♄39'00 | 1°40'37    | superior conj       | 8452 Oct 18 09:00 | 2°♄19'10  | 1°40'20    |
| minimum elong       | 8451 Nov 04 03:11 | 17°♄42'00 | 1°40'45    | minimum elong       | 8452 Oct 18 08:21 | 2°♄15'41  | 1°40'25    |
| max. Earth dist.    | 8451 Nov 07 23:04 | 25°♄37'42 | 1.34554 AU | max. Earth dist.    | 8452 Oct 20 20:57 | 7°♄40'58  | 1.33158 AU |
|                     | 8451 Nov 10 03:20 | 0°♄       |            | evening rise        | 8452 Oct 25 22:20 | 18°♄09'04 |            |
| evening rise        | 8451 Nov 12 08:17 | 4°♄18'28  |            |                     | 8452 Nov 01 02:39 | 0°♄       |            |
| desc. node          | 8451 Nov 21 23:04 | 21°♄37'19 |            | desc. node          | 8452 Nov 07 20:08 | 11°♄38'21 |            |
|                     | 8451 Nov 27 03:31 | 0°♄       |            |                     | 8452 Nov 20 10:49 | 0°♄       |            |
| evening max el      | 8451 Dec 17 09:58 | 26°♄07'18 | 26°53'59   | evening max el      | 8452 Nov 28 22:31 | 9°♄30'32  | 27°24'37   |
|                     | 8451 Dec 21 23:41 | 0°♄       |            | retrograde          | 8452 Dec 12 12:33 | 16°♄49'57 |            |
| retrograde          | 8451 Dec 30 14:56 | 3°♄26'24  |            | evening set         | 8452 Dec 19 11:36 | 14°♄15'46 |            |
| evening set         | 8452 Jan 06 05:20 | 0°♄50'57  |            | min. Earth dist.    | 8452 Dec 23 06:46 | 10°♄51'26 | 0.64178 AU |
|                     | 8452 Jan 07 05:21 | 30°♄      |            | inferior conj       | 8452 Dec 25 18:21 | 8°♄15'14  | -1°48'10   |
| min. Earth dist.    | 8452 Jan 10 05:31 | 26°♄53'42 | 0.65750 AU | minimum elong       | 8452 Dec 25 21:43 | 8°♄06'25  | 1°46'37    |
| inferior conj       | 8452 Jan 12 05:33 | 24°♄34'58 | -0°41'45   | asc. node           | 8452 Dec 31 04:23 | 3°♄28'51  |            |
| minimum elong       | 8452 Jan 12 06:44 | 24°♄31'31 | 0°41'05    | morning rise        | 8453 Jan 01 09:28 | 2°♄52'07  |            |
| asc. node           | 8452 Jan 14 07:19 | 22°♄15'51 |            | direct              | 8453 Jan 03 21:06 | 2°♄20'58  |            |
| morning rise        | 8452 Jan 18 09:15 | 18°♄57'23 |            | morning max el      | 8453 Jan 10 08:19 | 5°♄43'19  | 17°51'25   |
| direct              | 8452 Jan 21 04:23 | 18°♄14'32 |            |                     | 8453 Jan 26 11:33 | 0°♄       |            |
| morning max el      | 8452 Jan 27 15:15 | 21°♄40'55 | 18°11'34   | morning set         | 8453 Jan 27 05:46 | 1°♄17'14  |            |
|                     | 8452 Feb 03 05:01 | 0°♄       |            | desc. node          | 8453 Feb 03 19:26 | 13°♄59'47 |            |
| morning set         | 8452 Feb 15 11:58 | 19°♄26'22 |            |                     |                   |           |            |
| desc. node          | 8452 Feb 17 22:31 | 23°♄23'00 |            |                     |                   |           |            |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| superior conj    | 8453 Feb 09 09:32 | 23° $\approx$ 08'05           | -0°39'51   | minimum elong    | 8454 Jan 21 05:27 | 3° $\approx$ 56'28            | 0°03'36    |
| minimum elong    | 8453 Feb 09 05:02 | 22° $\approx$ 49'54           | 0°39'05    | behind sun begin | 8454 Jan 20 20:47 | 3° $\approx$ 19'47            |            |
|                  | 8453 Feb 13 16:25 | 0° $\mathbb{X}$               |            | behind sun end   | 8454 Jan 21 14:07 | 4° $\approx$ 33'03            |            |
| max. Earth dist. | 8453 Feb 14 13:12 | 1° $\mathbb{X}$ 22'24         | 1.44878 AU | desc. node       | 8454 Jan 21 16:23 | 4° $\approx$ 42'36            |            |
| evening rise     | 8453 Feb 25 06:23 | 18° $\mathbb{X}$ 03'25        |            | max. Earth dist. | 8454 Jan 28 05:32 | 15° $\approx$ 31'16           | 1.43592 AU |
|                  | 8453 Mar 05 02:54 | 0° $\mathbb{Y}$               |            | evening rise     | 8454 Feb 04 19:50 | 27° $\approx$ 33'22           |            |
| evening max el   | 8453 Mar 24 19:57 | 26° $\mathbb{Y}$ 57'01        | 20°17'47   |                  | 8454 Feb 06 09:45 | 0° $\mathbb{X}$               |            |
|                  | 8453 Mar 28 09:30 | 0° $\mathbb{Z}$               |            |                  | 8454 Feb 26 22:56 | 0° $\mathbb{Y}$               |            |
| asc. node        | 8453 Mar 29 03:17 | 0° $\mathbb{Z}$ 27'32         |            | evening max el   | 8454 Mar 07 17:33 | 10° $\mathbb{Y}$ 36'49        | 21°27'48   |
| retrograde       | 8453 Apr 01 16:58 | 1° $\mathbb{Z}$ 31'56         |            | asc. node        | 8454 Mar 16 00:23 | 15° $\mathbb{Y}$ 50'40        |            |
| evening set      | 8453 Apr 05 14:54 | 0° $\mathbb{Z}$ 03'21         |            | retrograde       | 8454 Mar 16 15:13 | 15° $\mathbb{Y}$ 52'37        |            |
|                  | 8453 Apr 05 16:40 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            | evening set      | 8454 Mar 20 23:04 | 14° $\mathbb{Y}$ 08'53        |            |
| inferior conj    | 8453 Apr 10 22:44 | 23° $\mathbb{Y}$ 58'27        | 3°10'49    | inferior conj    | 8454 Mar 26 06:23 | 7° $\mathbb{Y}$ 52'44         | 2°48'58    |
| minimum elong    | 8453 Apr 10 21:16 | 24° $\mathbb{Y}$ 03'27        | 3°10'33    | minimum elong    | 8454 Mar 26 04:19 | 7° $\mathbb{Y}$ 59'56         | 2°48'30    |
| min. Earth dist. | 8453 Apr 11 17:06 | 22° $\mathbb{Y}$ 55'52        | 0.67712 AU | min. Earth dist. | 8454 Mar 26 11:40 | 7° $\mathbb{Y}$ 34'20         | 0.68288 AU |
| morning rise     | 8453 Apr 16 03:25 | 17° $\mathbb{Y}$ 41'57        |            | morning rise     | 8454 Mar 31 09:22 | 1° $\mathbb{Y}$ 39'31         |            |
| direct           | 8453 Apr 21 19:46 | 15° $\mathbb{Y}$ 09'59        |            |                  | 8454 Apr 02 21:08 | 30° $\mathbb{R}$ $\mathbb{X}$ |            |
| desc. node       | 8453 May 02 19:17 | 21° $\mathbb{Y}$ 33'12        |            | direct           | 8454 Apr 05 11:58 | 29° $\mathbb{X}$ 25'57        |            |
| morning max el   | 8453 May 03 06:25 | 22° $\mathbb{Y}$ 01'04        | 24°33'29   |                  | 8454 Apr 08 07:03 | 0° $\mathbb{Y}$               |            |
|                  | 8453 May 10 05:24 | 0° $\mathbb{Z}$               |            | morning max el   | 8454 Apr 15 16:14 | 5° $\mathbb{Y}$ 28'15         | 23°03'43   |
|                  | 8453 May 30 20:46 | 0° $\mathbb{II}$              |            | desc. node       | 8454 Apr 19 16:11 | 9° $\mathbb{Y}$ 52'06         |            |
| morning set      | 8453 Jun 08 03:03 | 13° $\mathbb{II}$ 54'48       |            |                  | 8454 May 04 13:44 | 0° $\mathbb{Z}$               |            |
| max. Earth dist. | 8453 Jun 11 18:08 | 20° $\mathbb{II}$ 23'29       | 1.37488 AU | morning set      | 8454 May 20 06:41 | 24° $\mathbb{Z}$ 36'28        |            |
|                  | 8453 Jun 16 21:54 | 0° $\mathbb{E}$               |            |                  | 8454 May 23 11:26 | 0° $\mathbb{II}$              |            |
|                  |                   |                               |            | max. Earth dist. | 8454 May 24 14:23 | 1° $\mathbb{II}$ 55'39        | 1.39735 AU |
| superior conj    | 8453 Jun 18 14:42 | 3° $\mathbb{E}$ 16'05         | -1°00'54   |                  |                   |                               |            |
| minimum elong    | 8453 Jun 18 18:28 | 3° $\mathbb{E}$ 34'22         | 1°00'26    | superior conj    | 8454 Jun 01 07:19 | 15° $\mathbb{II}$ 39'16       | -1°31'31   |
| asc. node        | 8453 Jun 25 02:18 | 16° $\mathbb{E}$ 04'27        |            | minimum elong    | 8454 Jun 01 12:50 | 16° $\mathbb{II}$ 04'38       | 1°30'59    |
| evening rise     | 8453 Jun 27 05:17 | 20° $\mathbb{E}$ 18'58        |            |                  | 8454 Jun 08 22:04 | 0° $\mathbb{E}$               |            |
|                  | 8453 Jul 02 04:38 | 0° $\mathbb{O}$               |            | evening rise     | 8454 Jun 10 22:52 | 3° $\mathbb{E}$ 53'50         |            |
| evening max el   | 8453 Jul 13 22:41 | 17° $\mathbb{O}$ 35'27        | 19°16'22   | asc. node        | 8454 Jun 11 23:20 | 5° $\mathbb{E}$ 50'49         |            |
| retrograde       | 8453 Jul 23 03:45 | 22° $\mathbb{O}$ 08'48        |            | evening max el   | 8454 Jun 27 01:06 | 29° $\mathbb{E}$ 49'51        | 18°32'57   |
| evening set      | 8453 Jul 25 00:44 | 21° $\mathbb{O}$ 58'16        |            |                  | 8454 Jun 27 05:16 | 0° $\mathbb{O}$               |            |
| desc. node       | 8453 Jul 29 18:32 | 20° $\mathbb{O}$ 10'06        |            | retrograde       | 8454 Jul 04 20:45 | 3° $\mathbb{O}$ 43'24         |            |
| inferior conj    | 8453 Aug 02 13:59 | 17° $\mathbb{O}$ 48'39        | -1°10'08   | evening set      | 8454 Jul 06 23:17 | 3° $\mathbb{O}$ 27'22         |            |
| minimum elong    | 8453 Aug 02 10:53 | 17° $\mathbb{O}$ 53'49        | 1°09'05    |                  | 8454 Jul 13 08:59 | 30° $\mathbb{R}$ $\mathbb{E}$ |            |
| min. Earth dist. | 8453 Aug 05 06:39 | 16° $\mathbb{O}$ 01'53        | 0.55933 AU | inferior conj    | 8454 Jul 14 16:57 | 28° $\mathbb{E}$ 59'01        | 0°34'41    |
| morning rise     | 8453 Aug 10 18:12 | 13° $\mathbb{O}$ 07'42        |            | minimum elong    | 8454 Jul 14 18:12 | 28° $\mathbb{E}$ 56'35        | 0°34'03    |
| direct           | 8453 Aug 15 19:28 | 12° $\mathbb{O}$ 09'16        |            | desc. node       | 8454 Jul 16 15:35 | 27° $\mathbb{E}$ 28'08        |            |
| morning max el   | 8453 Aug 29 22:31 | 19° $\mathbb{O}$ 18'43        | 25°26'06   | min. Earth dist. | 8454 Jul 18 00:45 | 26° $\mathbb{E}$ 25'20        | 0.57717 AU |
|                  | 8453 Sep 07 23:25 | 0° $\mathbb{P}$               |            | morning rise     | 8454 Jul 22 09:36 | 23° $\mathbb{E}$ 41'03        |            |
| asc. node        | 8453 Sep 21 01:54 | 22° $\mathbb{P}$ 09'11        |            | direct           | 8454 Jul 28 06:17 | 22° $\mathbb{E}$ 13'52        |            |
|                  | 8453 Sep 24 22:13 | 0° $\mathbb{A}$               |            | morning max el   | 8454 Aug 11 15:21 | 29° $\mathbb{E}$ 50'56        | 26°49'57   |
| morning set      | 8453 Sep 25 22:15 | 2° $\mathbb{A}$ 07'16         |            |                  | 8454 Aug 11 19:04 | 0° $\mathbb{O}$               |            |
|                  |                   |                               |            |                  | 8454 Sep 01 20:47 | 0° $\mathbb{P}$               |            |
| superior conj    | 8453 Oct 02 19:01 | 17° $\mathbb{A}$ 07'28        | 1°34'02    | asc. node        | 8454 Sep 07 22:51 | 11° $\mathbb{P}$ 48'50        |            |
| minimum elong    | 8453 Oct 02 17:27 | 16° $\mathbb{A}$ 58'48        | 1°33'58    | morning set      | 8454 Sep 10 08:02 | 16° $\mathbb{P}$ 46'48        |            |
| max. Earth dist. | 8453 Oct 04 01:56 | 19° $\mathbb{A}$ 57'20        | 1.32200 AU |                  | 8454 Sep 16 09:29 | 0° $\mathbb{A}$               |            |
|                  | 8453 Oct 08 17:56 | 0° $\mathbb{M}$               |            |                  |                   |                               |            |
| evening rise     | 8453 Oct 09 21:21 | 2° $\mathbb{M}$ 22'59         |            | superior conj    | 8454 Sep 17 06:41 | 1° $\mathbb{A}$ 57'39         | 1°22'17    |
|                  | 8453 Oct 24 22:59 | 0° $\mathbb{J}$               |            | minimum elong    | 8454 Sep 17 04:34 | 1° $\mathbb{A}$ 45'51         | 1°22'00    |
| desc. node       | 8453 Oct 25 17:14 | 1° $\mathbb{J}$ 11'52         |            | max. Earth dist. | 8454 Sep 17 11:07 | 2° $\mathbb{A}$ 22'11         | 1.31702 AU |
| evening max el   | 8453 Nov 11 08:06 | 22° $\mathbb{J}$ 23'05        | 27°25'55   | evening rise     | 8454 Sep 24 02:41 | 16° $\mathbb{A}$ 52'49        |            |
| retrograde       | 8453 Nov 25 03:18 | 29° $\mathbb{J}$ 38'30        |            |                  | 8454 Sep 30 15:04 | 0° $\mathbb{M}$               |            |
| evening set      | 8453 Dec 02 05:43 | 27° $\mathbb{J}$ 14'37        |            | desc. node       | 8454 Oct 12 14:20 | 20° $\mathbb{M}$ 06'27        |            |
| min. Earth dist. | 8453 Dec 05 21:59 | 24° $\mathbb{J}$ 18'24        | 0.62309 AU |                  | 8454 Oct 20 04:13 | 0° $\mathbb{J}$               |            |
| inferior conj    | 8453 Dec 08 19:55 | 21° $\mathbb{J}$ 35'00        | -2°58'20   | evening max el   | 8454 Oct 24 12:11 | 4° $\mathbb{J}$ 32'33         | 26°53'49   |
| minimum elong    | 8453 Dec 09 01:35 | 21° $\mathbb{J}$ 21'43        | 2°56'05    | retrograde       | 8454 Nov 07 10:06 | 11° $\mathbb{J}$ 42'13        |            |
| morning rise     | 8453 Dec 15 23:37 | 16° $\mathbb{J}$ 29'41        |            | evening set      | 8454 Nov 14 07:39 | 9° $\mathbb{J}$ 39'39         |            |
| direct           | 8453 Dec 18 06:11 | 16° $\mathbb{J}$ 06'35        |            | min. Earth dist. | 8454 Nov 18 02:34 | 7° $\mathbb{J}$ 01'24         | 0.60246 AU |
| asc. node        | 8453 Dec 18 01:25 | 16° $\mathbb{J}$ 06'46        |            | inferior conj    | 8454 Nov 21 06:49 | 4° $\mathbb{J}$ 25'02         | -4°07'06   |
| morning max el   | 8453 Dec 25 01:15 | 19° $\mathbb{J}$ 34'15        | 17°49'00   | minimum elong    | 8454 Nov 21 14:04 | 4° $\mathbb{J}$ 10'06         | 4°04'49    |
|                  | 8454 Jan 01 17:39 | 0° $\mathbb{Z}$               |            |                  | 8454 Nov 27 23:20 | 30° $\mathbb{R}$ $\mathbb{M}$ |            |
| morning set      | 8454 Jan 09 22:09 | 14° $\mathbb{Z}$ 12'41        |            | morning rise     | 8454 Nov 28 22:56 | 29° $\mathbb{M}$ 40'26        |            |
|                  | 8454 Jan 18 21:56 | 0° $\mathbb{\approx}$         |            | direct           | 8454 Dec 01 03:40 | 29° $\mathbb{M}$ 21'59        |            |
|                  |                   |                               |            |                  | 8454 Dec 04 05:37 | 0° $\mathbb{J}$               |            |
| superior conj    | 8454 Jan 21 05:06 | 3° $\mathbb{\approx}$ 55'00   | 0°03'29    | asc. node        | 8454 Dec 04 22:27 | 0° $\mathbb{J}$ 19'22         |            |

|                  |                   |                      |            |                  |  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|--|-------------------|----------------------|------------|
| morning max el   | 8454 Dec 08 14:36 | 3° $\text{♊}$ 03'57  | 18°05'28   |                  |  | 8455 Dec 01 16:48 | 0° $\text{♊}$        |            |
| morning set      | 8454 Dec 24 06:46 | 27° $\text{♊}$ 53'19 |            | morning set      |  | 8455 Dec 08 02:41 | 12° $\text{♊}$ 05'00 |            |
|                  | 8454 Dec 25 09:54 | 0° $\text{♋}$        |            |                  |  |                   |                      |            |
| superior conj    | 8455 Jan 03 01:33 | 15° $\text{♋}$ 52'37 | 0°40'14    | superior conj    |  | 8455 Dec 16 18:36 | 28° $\text{♊}$ 48'43 | 1°08'07    |
| minimum elong    | 8455 Jan 03 04:28 | 16° $\text{♋}$ 05'35 | 0°39'59    | minimum elong    |  | 8455 Dec 16 21:57 | 29° $\text{♊}$ 04'31 | 1°07'52    |
| desc. node       | 8455 Jan 08 13:21 | 25° $\text{♋}$ 27'25 |            |                  |  | 8455 Dec 17 09:47 | 0° $\text{♋}$        |            |
| max. Earth dist. | 8455 Jan 10 16:51 | 29° $\text{♋}$ 05'00 | 1.41792 AU | max. Earth dist. |  | 8455 Dec 23 23:59 | 11° $\text{♋}$ 57'45 | 1.39692 AU |
|                  | 8455 Jan 11 06:00 | 0° $\text{♌}$        |            | desc. node       |  | 8455 Dec 26 10:23 | 16° $\text{♋}$ 11'03 |            |
| evening rise     | 8455 Jan 15 23:43 | 7° $\text{♌}$ 45'19  |            | evening rise     |  | 8455 Dec 28 00:57 | 18° $\text{♋}$ 55'00 |            |
|                  | 8455 Jan 30 13:28 | 0° $\text{♍}$        |            |                  |  | 8456 Jan 03 19:54 | 0° $\text{♌}$        |            |
| evening max el   | 8455 Feb 18 10:30 | 24° $\text{♍}$ 18'25 | 22°45'47   | evening max el   |  | 8456 Jan 24 21:19 | 0° $\text{♍}$        |            |
|                  | 8455 Feb 26 15:00 | 0° $\text{♎}$        |            | retrograde       |  | 8456 Feb 01 00:45 | 8° $\text{♍}$ 03'57  | 24°05'56   |
| retrograde       | 8455 Feb 28 11:26 | 0° $\text{♎}$ 15'32  |            | evening set      |  | 8456 Feb 12 04:17 | 14° $\text{♍}$ 36'44 |            |
|                  | 8455 Mar 02 05:57 | 30° $\text{♎}$ 8'8   |            | asc. node        |  | 8456 Feb 17 11:33 | 12° $\text{♍}$ 24'08 |            |
| asc. node        | 8455 Mar 02 21:29 | 29° $\text{♎}$ 46'13 |            | min. Earth dist. |  | 8456 Feb 17 18:35 | 12° $\text{♍}$ 08'49 |            |
| evening set      | 8455 Mar 05 06:27 | 28° $\text{♎}$ 16'56 |            | inferior conj    |  | 8456 Feb 22 04:45 | 6° $\text{♎}$ 58'03  | 0.68181 AU |
| inferior conj    | 8455 Mar 10 15:07 | 21° $\text{♎}$ 52'49 | 2°17'43    | minimum elong    |  | 8456 Feb 22 23:06 | 5° $\text{♎}$ 55'57  | 1°37'48    |
| minimum elong    | 8455 Mar 10 12:52 | 22° $\text{♎}$ 00'39 | 2°17'06    | morning rise     |  | 8456 Feb 22 21:08 | 6° $\text{♎}$ 02'38  | 1°37'12    |
| min. Earth dist. | 8455 Mar 10 08:19 | 22° $\text{♎}$ 16'23 | 0.68437 AU |                  |  | 8456 Feb 28 06:43 | 29° $\text{♌}$ 53'37 |            |
| morning rise     | 8455 Mar 15 19:08 | 15° $\text{♎}$ 44'15 |            | direct           |  | 8456 Feb 28 03:24 | 30° $\text{♌}$ 8'8   |            |
| direct           | 8455 Mar 20 07:48 | 13° $\text{♎}$ 52'19 |            |                  |  | 8456 Mar 03 06:05 | 28° $\text{♌}$ 23'54 |            |
| morning max el   | 8455 Mar 29 05:40 | 19° $\text{♎}$ 03'20 | 21°37'01   | morning max el   |  | 8456 Mar 07 17:16 | 0° $\text{♏}$        |            |
| desc. node       | 8455 Apr 06 13:07 | 28° $\text{♎}$ 56'30 |            | desc. node       |  | 8456 Mar 11 01:57 | 2° $\text{♎}$ 50'04  | 20°20'18   |
|                  | 8455 Apr 07 08:10 | 0° $\text{♏}$        |            |                  |  | 8456 Mar 23 10:03 | 18° $\text{♎}$ 34'11 |            |
|                  | 8455 Apr 27 17:38 | 0° $\text{♐}$        |            | morning set      |  | 8456 Mar 31 04:20 | 0° $\text{♏}$        |            |
| morning set      | 8455 Apr 30 06:51 | 4° $\text{♐}$ 01'39  |            | max. Earth dist. |  | 8456 Apr 08 08:44 | 12° $\text{♏}$ 28'40 |            |
| max. Earth dist. | 8455 May 06 14:29 | 14° $\text{♐}$ 16'19 | 1.41902 AU |                  |  | 8456 Apr 17 22:16 | 27° $\text{♏}$ 32'10 | 1.43719 AU |
|                  |                   |                      |            |                  |  | 8456 Apr 19 10:58 | 0° $\text{♐}$        |            |
| superior conj    | 8455 May 14 04:22 | 27° $\text{♐}$ 07'33 | -1°56'43   | superior conj    |  | 8456 Apr 24 01:39 | 7° $\text{♐}$ 32'14  | -2°10'52   |
| minimum elong    | 8455 May 14 09:57 | 27° $\text{♐}$ 31'54 | 1°56'26    | minimum elong    |  | 8456 Apr 24 03:49 | 7° $\text{♐}$ 41'11  | 2°10'55    |
|                  | 8455 May 15 19:47 | 0° $\text{♑}$        |            | evening rise     |  | 8456 May 06 16:24 | 29° $\text{♐}$ 01'07 |            |
| evening rise     | 8455 May 25 04:05 | 16° $\text{♑}$ 51'23 |            |                  |  | 8456 May 07 05:55 | 0° $\text{♑}$        |            |
| asc. node        | 8455 May 29 20:23 | 25° $\text{♑}$ 21'29 |            | asc. node        |  | 8456 May 15 17:27 | 14° $\text{♑}$ 30'18 |            |
|                  | 8455 Jun 01 11:57 | 0° $\text{♒}$        |            | evening max el   |  | 8456 May 23 23:44 | 25° $\text{♑}$ 48'55 | 18°06'09   |
| evening max el   | 8455 Jun 10 10:43 | 12° $\text{♒}$ 37'50 | 18°09'53   | retrograde       |  | 8456 May 30 10:18 | 29° $\text{♑}$ 09'31 |            |
| retrograde       | 8455 Jun 17 08:09 | 16° $\text{♒}$ 07'02 |            | evening set      |  | 8456 Jun 02 04:00 | 28° $\text{♑}$ 32'17 |            |
| evening set      | 8455 Jun 19 18:20 | 15° $\text{♒}$ 41'42 |            | inferior conj    |  | 8456 Jun 08 11:52 | 23° $\text{♑}$ 23'50 | 2°44'27    |
| inferior conj    | 8455 Jun 26 17:19 | 10° $\text{♒}$ 52'56 | 1°53'10    | minimum elong    |  | 8456 Jun 08 14:34 | 23° $\text{♑}$ 16'51 | 2°43'41    |
| minimum elong    | 8455 Jun 26 20:17 | 10° $\text{♒}$ 46'13 | 1°52'06    | min. Earth dist. |  | 8456 Jun 11 10:36 | 20° $\text{♑}$ 21'59 | 0.62138 AU |
| min. Earth dist. | 8455 Jun 30 01:31 | 7° $\text{♒}$ 53'02  | 0.59895 AU | morning rise     |  | 8456 Jun 14 23:14 | 17° $\text{♑}$ 18'41 |            |
| morning rise     | 8455 Jul 03 19:19 | 5° $\text{♒}$ 06'07  |            | desc. node       |  | 8456 Jun 19 09:40 | 15° $\text{♑}$ 09'56 |            |
| desc. node       | 8455 Jul 03 12:37 | 5° $\text{♒}$ 16'28  |            | direct           |  | 8456 Jun 21 17:04 | 14° $\text{♑}$ 53'16 |            |
| direct           | 8455 Jul 10 06:28 | 3° $\text{♒}$ 07'17  |            | morning max el   |  | 8456 Jul 05 20:16 | 22° $\text{♑}$ 54'51 | 27°55'24   |
| morning max el   | 8455 Jul 24 14:47 | 11° $\text{♒}$ 01'14 | 27°41'38   |                  |  | 8456 Jul 12 02:56 | 0° $\text{♓}$        |            |
|                  | 8455 Aug 08 09:59 | 0° $\text{♓}$        |            |                  |  | 8456 Jul 31 15:41 | 0° $\text{♓}$        |            |
|                  | 8455 Aug 25 00:09 | 0° $\text{♔}$        |            | morning set      |  | 8456 Aug 08 15:13 | 15° $\text{♓}$ 22'05 |            |
| morning set      | 8455 Aug 25 14:23 | 1° $\text{♔}$ 13'58  |            | asc. node        |  | 8456 Aug 11 16:48 | 21° $\text{♓}$ 44'13 |            |
| asc. node        | 8455 Aug 25 19:50 | 1° $\text{♔}$ 42'26  |            | max. Earth dist. |  | 8456 Aug 14 03:53 | 27° $\text{♓}$ 00'21 | 1.32109 AU |
| max. Earth dist. | 8455 Aug 31 21:02 | 14° $\text{♔}$ 47'05 | 1.31671 AU |                  |  | 8456 Aug 15 12:57 | 0° $\text{♕}$        |            |
| superior conj    | 8455 Sep 01 18:13 | 16° $\text{♕}$ 44'17 | 1°05'29    | superior conj    |  | 8456 Aug 16 03:43 | 1° $\text{♔}$ 20'37  | 0°43'59    |
| minimum elong    | 8455 Sep 01 15:59 | 16° $\text{♕}$ 31'56 | 1°05'03    | minimum elong    |  | 8456 Aug 16 01:53 | 1° $\text{♔}$ 10'35  | 0°43'31    |
|                  | 8455 Sep 07 18:54 | 0° $\text{♌}$        |            | evening rise     |  | 8456 Aug 22 23:27 | 16° $\text{♕}$ 14'23 |            |
| evening rise     | 8455 Sep 08 12:05 | 1° $\text{♌}$ 32'20  |            |                  |  | 8456 Aug 29 17:41 | 0° $\text{♌}$        |            |
|                  | 8455 Sep 23 18:30 | 0° $\text{♍}$        |            | desc. node       |  | 8456 Sep 15 08:34 | 24° $\text{♌}$ 51'16 |            |
| desc. node       | 8455 Sep 29 11:26 | 8° $\text{♍}$ 06'56  |            | evening max el   |  | 8456 Sep 16 22:11 | 26° $\text{♌}$ 26'00 | 24°18'56   |
| evening max el   | 8455 Oct 06 08:50 | 15° $\text{♍}$ 52'23 | 25°48'51   |                  |  | 8456 Sep 21 05:38 | 0° $\text{♍}$        |            |
| retrograde       | 8455 Oct 20 07:08 | 22° $\text{♍}$ 55'27 |            | retrograde       |  | 8456 Sep 30 16:04 | 3° $\text{♍}$ 19'40  |            |
| evening set      | 8455 Oct 26 12:35 | 21° $\text{♍}$ 24'20 |            | evening set      |  | 8456 Oct 05 16:46 | 2° $\text{♍}$ 23'50  |            |
| min. Earth dist. | 8455 Oct 30 21:27 | 18° $\text{♍}$ 48'26 | 0.58175 AU |                  |  | 8456 Oct 10 14:17 | 30° $\text{♌}$ 8'8   |            |
| inferior conj    | 8455 Nov 02 23:40 | 16° $\text{♍}$ 36'11 | -5°04'35   | min. Earth dist. |  | 8456 Oct 11 09:01 | 29° $\text{♌}$ 31'53 | 0.56357 AU |
| minimum elong    | 8455 Nov 03 06:07 | 16° $\text{♍}$ 24'40 | 5°03'18    | inferior conj    |  | 8456 Oct 13 20:10 | 27° $\text{♌}$ 59'46 | -5°34'49   |
| morning rise     | 8455 Nov 11 01:58 | 12° $\text{♍}$ 14'04 |            | minimum elong    |  | 8456 Oct 13 21:38 | 27° $\text{♌}$ 57'29 | 5°34'42    |
| direct           | 8455 Nov 13 09:30 | 11° $\text{♍}$ 57'00 |            | morning rise     |  | 8456 Oct 22 04:37 | 23° $\text{♌}$ 58'59 |            |
| asc. node        | 8455 Nov 21 19:27 | 15° $\text{♍}$ 59'23 |            | direct           |  | 8456 Oct 24 20:19 | 23° $\text{♌}$ 40'17 |            |
| morning max el   | 8455 Nov 21 20:44 | 16° $\text{♍}$ 02'26 | 18°42'27   | morning max el   |  | 8456 Nov 03 15:59 | 28° $\text{♌}$ 18'31 | 19°41'37   |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8456 Nov 05 07:37 | 0°♍       |            | morning max el      | 8457 Oct 16 22:18 | 9°♎46'19  | 21°02'58   |
| asc. node           | 8456 Nov 07 16:28 | 2°♍51'21  |            | asc. node           | 8457 Oct 25 13:27 | 20°♎40'24 |            |
| morning set         | 8456 Nov 21 06:06 | 26°♍36'12 |            |                     | 8457 Oct 30 22:07 | 0°♍       |            |
|                     | 8456 Nov 22 22:22 | 0°♌       |            | morning set         | 8457 Nov 05 14:18 | 11°♍19'19 |            |
| superior conj       | 8456 Nov 29 03:05 | 12°♌28'19 | 1°27'03    | superior conj       | 8457 Nov 12 22:40 | 26°♍39'17 | 1°37'47    |
| minimum elong       | 8456 Nov 29 05:40 | 12°♌41'07 | 1°26'59    | minimum elong       | 8457 Nov 12 24:00 | 26°♍46'10 | 1°37'52    |
| max. Earth dist.    | 8456 Dec 05 06:00 | 24°♌13'26 | 1.37529 AU |                     | 8457 Nov 14 13:51 | 0°♌       |            |
|                     | 8456 Dec 08 09:58 | 0°♋       |            | max. Earth dist.    | 8457 Nov 17 15:22 | 6°♌08'01  | 1.35541 AU |
| evening rise        | 8456 Dec 08 23:33 | 1°♋00'37  |            | evening rise        | 8457 Nov 21 16:29 | 13°♌54'38 |            |
| desc. node          | 8456 Dec 12 07:26 | 6°♋49'07  |            | desc. node          | 8457 Nov 29 04:29 | 27°♌17'14 |            |
|                     | 8456 Dec 27 01:03 | 0°♊       |            |                     | 8457 Nov 30 19:18 | 0°♋       |            |
| evening max el      | 8457 Jan 13 13:59 | 21°♊51'46 | 25°21'34   |                     | 8457 Dec 21 21:12 | 0°♊       |            |
| retrograde          | 8457 Jan 25 16:45 | 28°♊51'06 |            | evening max el      | 8457 Dec 27 03:06 | 5°♊36'40  | 26°25'25   |
| evening set         | 8457 Jan 31 12:48 | 26°♊26'20 |            | retrograde          | 8458 Jan 09 00:08 | 12°♊52'02 |            |
| asc. node           | 8457 Feb 03 15:39 | 23°♊11'40 |            | evening set         | 8458 Jan 15 08:24 | 10°♊18'39 |            |
| min. Earth dist.    | 8457 Feb 04 22:39 | 21°♊35'02 | 0.67529 AU | min. Earth dist.    | 8458 Jan 19 11:46 | 6°♊02'04  | 0.66499 AU |
| inferior conj       | 8457 Feb 06 04:29 | 19°♊58'40 | 0°49'41    | inferior conj       | 8458 Jan 21 05:14 | 3°♊56'42  | -0°06'16   |
| minimum elong       | 8457 Feb 06 03:17 | 20°♊02'31 | 0°49'20    | minimum elong       | 8458 Jan 21 05:23 | 3°♊56'12  | 0°06'03    |
| morning rise        | 8457 Feb 11 18:08 | 14°♊04'23 |            | transit middle      | 8458 Jan 21 05:23 | 3°♊56'12  | 0°06'03    |
| direct              | 8457 Feb 15 05:16 | 12°♊55'24 |            | transit begin       | 8458 Jan 21 02:43 | 4°♊04'20  |            |
| morning max el      | 8457 Feb 22 06:19 | 16°♊48'40 | 19°17'42   | transit end         | 8458 Jan 21 08:04 | 3°♊48'05  |            |
|                     | 8457 Mar 04 12:44 | 0°♐       |            | asc. node           | 8458 Jan 21 12:44 | 3°♊34'00  |            |
| greatest brilliancy | 8457 Mar 07 07:20 | 4°♐06'06  | -0.7m      |                     | 8458 Jan 24 18:33 | 30°♐♋     |            |
| desc. node          | 8457 Mar 10 07:00 | 8°♐36'18  |            | morning rise        | 8458 Jan 27 03:13 | 28°♋12'34 |            |
| morning set         | 8457 Mar 18 08:33 | 20°♐58'44 |            | direct              | 8458 Jan 30 03:38 | 27°♋21'20 |            |
|                     | 8457 Mar 24 04:14 | 0°♏       |            |                     | 8458 Feb 04 18:18 | 0°♊       |            |
| max. Earth dist.    | 8457 Mar 31 13:00 | 11°♏31'43 | 1.44965 AU | morning max el      | 8458 Feb 05 17:35 | 0°♊54'16  | 18°30'59   |
|                     |                   |           |            | desc. node          | 8458 Feb 25 03:57 | 28°♊55'44 |            |
| superior conj       | 8457 Apr 03 22:54 | 16°♏55'50 | -2°07'47   |                     | 8458 Feb 25 20:10 | 0°♐       |            |
| minimum elong       | 8457 Apr 03 18:12 | 16°♏37'11 | 2°07'39    | morning set         | 8458 Feb 26 04:58 | 0°♐34'50  |            |
|                     | 8457 Apr 12 01:46 | 0°♏       |            |                     |                   |           |            |
| evening rise        | 8457 Apr 18 07:23 | 10°♏15'03 |            | superior conj       | 8458 Mar 14 04:59 | 25°♐44'56 | -1°44'28   |
|                     | 8457 Apr 30 10:48 | 0°♏       |            | minimum elong       | 8458 Mar 13 19:30 | 25°♐07'49 | 1°43'37    |
| asc. node           | 8457 May 02 14:31 | 3°♏10'13  |            | max. Earth dist.    | 8458 Mar 14 07:31 | 25°♐54'50 | 1.45510 AU |
| evening max el      | 8457 May 07 12:54 | 9°♏14'51  | 18°21'00   |                     | 8458 Mar 16 22:09 | 0°♏       |            |
| retrograde          | 8457 May 13 22:42 | 12°♏41'13 |            | evening rise        | 8458 Mar 29 22:45 | 20°♏30'59 |            |
| evening set         | 8457 May 16 23:38 | 11°♏50'38 |            |                     | 8458 Apr 04 22:15 | 0°♏       |            |
| inferior conj       | 8457 May 22 20:26 | 6°♏24'08  | 3°12'44    | greatest brilliancy | 8458 Apr 08 00:17 | 4°♏51'22  | -0.8m      |
| minimum elong       | 8457 May 22 21:58 | 6°♏19'41  | 3°12'23    | asc. node           | 8458 Apr 19 11:36 | 21°♏11'32 |            |
| min. Earth dist.    | 8457 May 25 05:03 | 3°♏41'11  | 0.64189 AU | evening max el      | 8458 Apr 20 23:31 | 22°♏48'32 | 18°53'41   |
| morning rise        | 8457 May 28 19:15 | 0°♏09'21  |            | retrograde          | 8458 Apr 27 17:20 | 26°♏33'29 |            |
|                     | 8457 May 28 23:57 | 30°♐♋     |            | evening set         | 8458 May 01 01:43 | 25°♏28'39 |            |
| direct              | 8457 Jun 04 12:16 | 27°♏27'30 |            | inferior conj       | 8458 May 06 15:09 | 19°♏45'54 | 3°22'52    |
| desc. node          | 8457 Jun 06 06:41 | 27°♏37'37 |            | minimum elong       | 8458 May 06 15:21 | 19°♏45'15 | 3°22'43    |
|                     | 8457 Jun 11 18:12 | 0°♏       |            | min. Earth dist.    | 8458 May 08 08:28 | 17°♏36'13 | 0.65894 AU |
| morning max el      | 8457 Jun 18 05:45 | 5°♏27'24  | 27°32'25   | morning rise        | 8458 May 12 04:26 | 13°♏27'36 |            |
|                     | 8457 Jul 06 20:58 | 0°♏       |            | direct              | 8458 May 18 14:46 | 10°♏41'04 |            |
| morning set         | 8457 Jul 23 08:09 | 29°♏04'42 |            | desc. node          | 8458 May 24 03:41 | 12°♏20'51 |            |
|                     | 8457 Jul 23 19:20 | 0°♏       |            | morning max el      | 8458 May 31 16:22 | 18°♏26'46 | 26°38'36   |
| max. Earth dist.    | 8457 Jul 28 03:48 | 8°♏51'46  | 1.33025 AU |                     | 8458 Jun 10 10:00 | 0°♏       |            |
| asc. node           | 8457 Jul 29 13:47 | 11°♏50'04 |            |                     | 8458 Jun 29 20:46 | 0°♏       |            |
|                     |                   |           |            | morning set         | 8458 Jul 06 13:58 | 12°♏12'40 |            |
| superior conj       | 8457 Jul 31 09:16 | 15°♏41'14 | 0°18'16    | max. Earth dist.    | 8458 Jul 10 17:28 | 20°♏15'12 | 1.34419 AU |
| minimum elong       | 8457 Jul 31 08:23 | 15°♏36'29 | 0°17'57    |                     |                   |           |            |
| evening rise        | 8457 Aug 07 10:57 | 0°♏53'26  |            | superior conj       | 8458 Jul 15 08:35 | 29°♏39'20 | -0°10'58   |
|                     | 8457 Aug 07 00:54 | 0°♏       |            | minimum elong       | 8458 Jul 15 09:12 | 29°♏42'31 | 0°11'00    |
|                     | 8457 Aug 23 17:03 | 0°♏       |            | behind sun begin    | 8458 Jul 15 04:55 | 29°♏20'24 |            |
| evening max el      | 8457 Aug 29 09:49 | 6°♏37'53  | 22°39'26   | behind sun end      | 8458 Jul 15 13:28 | 0°♏04'39  |            |
| desc. node          | 8457 Sep 02 05:39 | 9°♏51'32  |            |                     | 8458 Jul 15 12:34 | 0°♏       |            |
| retrograde          | 8457 Sep 11 12:48 | 13°♏10'52 |            | asc. node           | 8458 Jul 16 10:47 | 1°♏55'32  |            |
| evening set         | 8457 Sep 15 01:12 | 12°♏43'41 |            | evening rise        | 8458 Jul 22 20:33 | 15°♏23'09 |            |
| min. Earth dist.    | 8457 Sep 22 17:18 | 9°♏18'40  | 0.55100 AU |                     | 8458 Jul 30 05:52 | 0°♏       |            |
| inferior conj       | 8457 Sep 23 22:14 | 8°♏37'31  | -5°18'39   | evening max el      | 8458 Aug 11 04:53 | 17°♏04'46 | 21°06'41   |
| minimum elong       | 8457 Sep 23 16:08 | 8°♏46'12  | 5°17'49    | desc. node          | 8458 Aug 20 02:44 | 22°♏36'05 |            |
| morning rise        | 8457 Oct 02 09:00 | 4°♏49'19  |            | retrograde          | 8458 Aug 23 01:43 | 22°♏57'39 |            |
| direct              | 8457 Oct 05 13:03 | 4°♏26'20  |            | evening set         | 8458 Aug 25 09:14 | 22°♏45'06 |            |



































































































































|                     |                   |                        |            |                  |                   |                        |            |
|---------------------|-------------------|------------------------|------------|------------------|-------------------|------------------------|------------|
| inferior conj       | 8458 Sep 03 14:55 | 18° $\cap$ 48'09       | -4°07'16   | desc. node       | 8459 Aug 06 23:49 | 2° $\cap$ 44'26        |            |
| minimum elong       | 8458 Sep 03 05:20 | 19° $\cap$ 01'40       | 4°04'36    |                  | 8459 Aug 12 22:23 | 30° $\mathbb{R}$ 0     |            |
| min. Earth dist.    | 8458 Sep 04 02:09 | 18° $\cap$ 32'17       | 0.54676 AU | inferior conj    | 8459 Aug 14 12:30 | 29° $\cap$ 02'27       | -2°17'30   |
| morning rise        | 8458 Sep 12 01:55 | 14° $\cap$ 53'46       |            | minimum elong    | 8459 Aug 14 06:13 | 29° $\cap$ 12'04       | 2°15'16    |
| direct              | 8458 Sep 15 21:08 | 14° $\cap$ 22'44       |            | min. Earth dist. | 8459 Aug 16 13:26 | 27° $\cap$ 47'38       | 0.55218 AU |
| morning max el      | 8458 Sep 28 17:06 | 20° $\cap$ 29'41       | 22°42'07   | morning rise     | 8459 Aug 22 20:44 | 24° $\cap$ 42'03       |            |
|                     | 8458 Oct 06 16:44 | 0° $\cap$              |            | direct           | 8459 Aug 27 10:38 | 23° $\cap$ 55'55       |            |
| asc. node           | 8458 Oct 12 10:25 | 9° $\cap$ 13'25        |            |                  | 8459 Sep 09 09:53 | 0° $\cap$              |            |
| morning set         | 8458 Oct 21 01:11 | 26° $\cap$ 08'28       |            | morning max el   | 8459 Sep 10 05:43 | 0° $\cap$ 45'39        | 24°28'10   |
|                     | 8458 Oct 22 20:43 | 0° $\cap$              |            | asc. node        | 8459 Sep 29 07:23 | 28° $\cap$ 18'58       |            |
|                     |                   |                        |            |                  | 8459 Sep 30 04:21 | 0° $\cap$              |            |
| superior conj       | 8458 Oct 28 01:55 | 11° $\cap$ 11'41       | 1°41'17    | morning set      | 8459 Oct 05 12:55 | 10° $\cap$ 57'44       |            |
| minimum elong       | 8458 Oct 28 01:57 | 11° $\cap$ 11'51       | 1°41'24    |                  |                   |                        |            |
| max. Earth dist.    | 8458 Oct 31 08:06 | 18° $\cap$ 03'15       | 1.33899 AU | superior conj    | 8459 Oct 12 10:07 | 25° $\cap$ 56'19       | 1°38'22    |
| evening rise        | 8458 Nov 04 23:53 | 27° $\cap$ 27'45       |            | minimum elong    | 8459 Oct 12 09:03 | 25° $\cap$ 50'26       | 1°38'24    |
|                     | 8458 Nov 06 07:14 | 0° $\mathbb{X}$        |            |                  | 8459 Oct 14 06:59 | 0° $\cap$              |            |
| desc. node          | 8458 Nov 16 01:31 | 17° $\mathbb{X}$ 30'14 |            | max. Earth dist. | 8459 Oct 14 09:06 | 0° $\cap$ 11'28        | 1.32690 AU |
|                     | 8458 Nov 24 01:44 | 0° $\mathbb{Z}$        |            | evening rise     | 8459 Oct 19 18:08 | 11° $\cap$ 29'35       |            |
| evening max el      | 8458 Dec 09 16:06 | 19° $\mathbb{Z}$ 11'07 | 27°10'16   |                  | 8459 Oct 29 13:16 | 0° $\mathbb{X}$        |            |
| retrograde          | 8458 Dec 23 01:46 | 26° $\mathbb{Z}$ 32'08 |            | desc. node       | 8459 Nov 02 22:33 | 7° $\mathbb{X}$ 20'39  |            |
| evening set         | 8458 Dec 29 20:17 | 23° $\mathbb{Z}$ 55'59 |            |                  | 8459 Nov 19 18:30 | 0° $\mathbb{Z}$        |            |
| min. Earth dist.    | 8459 Jan 02 18:02 | 20° $\mathbb{Z}$ 13'13 | 0.65114 AU | evening max el   | 8459 Nov 22 03:43 | 2° $\mathbb{Z}$ 23'11  | 27°29'10   |
| inferior conj       | 8459 Jan 04 23:09 | 17° $\mathbb{Z}$ 45'37 | -1°09'16   | retrograde       | 8459 Dec 05 20:46 | 9° $\mathbb{Z}$ 41'42  |            |
| minimum elong       | 8459 Jan 05 01:13 | 17° $\mathbb{Z}$ 39'52 | 1°08'14    | evening set      | 8459 Dec 12 21:48 | 7° $\mathbb{Z}$ 10'53  |            |
| asc. node           | 8459 Jan 08 09:47 | 14° $\mathbb{Z}$ 13'32 |            | min. Earth dist. | 8459 Dec 16 15:23 | 3° $\mathbb{Z}$ 59'03  | 0.63409 AU |
| morning rise        | 8459 Jan 11 07:32 | 12° $\mathbb{Z}$ 14'02 |            | inferior conj    | 8459 Dec 19 07:34 | 1° $\mathbb{Z}$ 18'19  | -2°17'44   |
| direct              | 8459 Jan 13 23:05 | 11° $\mathbb{Z}$ 36'46 |            | minimum elong    | 8459 Dec 19 11:55 | 1° $\mathbb{Z}$ 07'23  | 2°15'49    |
| morning max el      | 8459 Jan 20 09:23 | 15° $\mathbb{Z}$ 00'31 | 18°00'55   |                  | 8459 Dec 20 15:16 | 30° $\mathbb{R}$ 2     |            |
|                     | 8459 Jan 31 04:23 | 0° $\approx$           |            | morning rise     | 8459 Dec 26 03:56 | 26° $\mathbb{X}$ 02'11 |            |
| morning set         | 8459 Feb 07 06:55 | 11° $\approx$ 39'27    |            | asc. node        | 8459 Dec 26 06:50 | 25° $\mathbb{X}$ 59'32 |            |
| desc. node          | 8459 Feb 12 00:54 | 19° $\approx$ 27'39    |            | direct           | 8459 Dec 28 12:58 | 25° $\mathbb{X}$ 34'59 |            |
|                     | 8459 Feb 18 13:19 | 0° $\mathbb{H}$        |            | morning max el   | 8460 Jan 04 02:45 | 28° $\mathbb{X}$ 58'55 | 17°48'08   |
|                     |                   |                        |            |                  | 8460 Jan 05 02:08 | 0° $\mathbb{Z}$        |            |
| superior conj       | 8459 Feb 21 14:15 | 4° $\mathbb{H}$ 50'21  | -1°05'29   | morning set      | 8460 Jan 20 11:09 | 24° $\mathbb{Z}$ 00'14 |            |
| minimum elong       | 8459 Feb 21 06:44 | 4° $\mathbb{H}$ 20'36  | 1°04'26    |                  | 8460 Jan 23 22:32 | 0° $\approx$           |            |
| max. Earth dist.    | 8459 Feb 25 02:58 | 10° $\mathbb{H}$ 24'35 | 1.45315 AU | desc. node       | 8460 Jan 29 21:49 | 10° $\approx$ 07'16    |            |
| evening rise        | 8459 Mar 09 18:08 | 0° $\mathbb{Y}$ 02'47  |            |                  |                   |                        |            |
|                     | 8459 Mar 09 17:25 | 0° $\mathbb{Y}$        |            | superior conj    | 8460 Feb 01 19:03 | 14° $\approx$ 54'07    | -0°20'59   |
| greatest brilliancy | 8459 Mar 23 12:46 | 21° $\mathbb{Y}$ 01'18 | -0.7m      | minimum elong    | 8460 Feb 01 16:48 | 14° $\approx$ 44'54    | 0°20'30    |
|                     | 8459 Mar 29 20:36 | 0° $\mathbb{B}$        |            | max. Earth dist. | 8460 Feb 07 20:59 | 24° $\approx$ 45'02    | 1.44406 AU |
| evening max el      | 8459 Apr 04 05:44 | 6° $\mathbb{B}$ 26'11  | 19°42'54   |                  | 8460 Feb 11 04:31 | 0° $\mathbb{H}$        |            |
| asc. node           | 8459 Apr 06 08:40 | 8° $\mathbb{B}$ 22'44  |            | evening rise     | 8460 Feb 17 05:13 | 9° $\mathbb{H}$ 22'14  |            |
| retrograde          | 8459 Apr 11 15:05 | 10° $\mathbb{B}$ 40'25 |            |                  | 8460 Mar 01 22:58 | 0° $\mathbb{Y}$        |            |
| evening set         | 8459 Apr 15 07:42 | 9° $\mathbb{B}$ 20'47  |            | evening max el   | 8460 Mar 17 06:35 | 20° $\mathbb{Y}$ 05'37 | 20°46'23   |
| inferior conj       | 8459 Apr 20 16:51 | 3° $\mathbb{B}$ 23'33  | 3°18'40    | asc. node        | 8460 Mar 23 05:45 | 24° $\mathbb{Y}$ 29'44 |            |
| minimum elong       | 8459 Apr 20 15:54 | 3° $\mathbb{B}$ 26'42  | 3°18'29    | retrograde       | 8460 Mar 25 13:35 | 24° $\mathbb{Y}$ 57'15 |            |
| min. Earth dist.    | 8459 Apr 21 19:22 | 1° $\mathbb{B}$ 55'14  | 0.67178 AU | evening set      | 8460 Mar 29 15:35 | 23° $\mathbb{Y}$ 22'22 |            |
|                     | 8459 Apr 23 07:17 | 30° $\mathbb{R}$ Y     |            | inferior conj    | 8460 Apr 03 22:57 | 17° $\mathbb{Y}$ 12'37 | 3°02'45    |
| morning rise        | 8459 Apr 25 23:47 | 27° $\mathbb{Y}$ 05'36 |            | minimum elong    | 8460 Apr 03 21:11 | 17° $\mathbb{Y}$ 18'43 | 3°02'24    |
| direct              | 8459 May 01 23:29 | 24° $\mathbb{Y}$ 25'30 |            | min. Earth dist. | 8460 Apr 04 11:43 | 16° $\mathbb{Y}$ 28'40 | 0.68012 AU |
| desc. node          | 8459 May 11 00:40 | 28° $\mathbb{Y}$ 48'50 |            | morning rise     | 8460 Apr 09 02:34 | 10° $\mathbb{Y}$ 57'22 |            |
|                     | 8459 May 12 08:33 | 0° $\mathbb{B}$        |            | direct           | 8460 Apr 14 13:18 | 8° $\mathbb{Y}$ 32'19  |            |
| morning max el      | 8459 May 14 02:07 | 1° $\mathbb{B}$ 41'07  | 25°22'52   | morning max el   | 8460 Apr 25 11:06 | 15° $\mathbb{Y}$ 03'23 | 23°55'26   |
|                     | 8459 Jun 04 11:25 | 0° $\mathbb{H}$        |            | desc. node       | 8460 Apr 26 21:37 | 16° $\mathbb{Y}$ 33'36 |            |
| morning set         | 8459 Jun 19 04:27 | 24° $\mathbb{H}$ 34'40 |            |                  | 8460 May 07 16:20 | 0° $\mathbb{B}$        |            |
|                     | 8459 Jun 22 03:24 | 0° $\mathbb{B}$        |            |                  | 8460 May 27 09:46 | 0° $\mathbb{H}$        |            |
| max. Earth dist.    | 8459 Jun 22 20:15 | 1° $\mathbb{B}$ 18'48  | 1.36266 AU | morning set      | 8460 May 30 22:25 | 5° $\mathbb{H}$ 57'11  |            |
|                     |                   |                        |            | max. Earth dist. | 8460 Jun 03 16:48 | 12° $\mathbb{H}$ 31'28 | 1.38434 AU |
| superior conj       | 8459 Jun 28 22:52 | 13° $\mathbb{B}$ 07'54 | -0°42'28   |                  |                   |                        |            |
| minimum elong       | 8459 Jun 29 01:26 | 13° $\mathbb{B}$ 20'41 | 0°42'09    | superior conj    | 8460 Jun 11 00:41 | 25° $\mathbb{H}$ 58'38 | -1°14'14   |
| asc. node           | 8459 Jul 03 07:46 | 21° $\mathbb{B}$ 56'50 |            | minimum elong    | 8460 Jun 11 05:17 | 26° $\mathbb{H}$ 20'30 | 1°13'43    |
| evening rise        | 8459 Jul 07 02:06 | 29° $\mathbb{B}$ 37'22 |            |                  | 8460 Jun 13 03:14 | 0° $\mathbb{B}$        |            |
|                     | 8459 Jul 07 06:34 | 0° $\cap$              |            | asc. node        | 8460 Jun 19 04:46 | 11° $\mathbb{B}$ 50'16 |            |
| evening max el      | 8459 Jul 24 12:58 | 28° $\cap$ 11'42       | 19°50'48   | evening rise     | 8460 Jun 20 01:00 | 13° $\mathbb{B}$ 29'32 |            |
|                     | 8459 Jul 26 13:31 | 0° $\cap$              |            |                  | 8460 Jun 28 22:39 | 0° $\cap$              |            |
| retrograde          | 8459 Aug 03 17:03 | 3° $\cap$ 12'47        |            | evening max el   | 8460 Jul 06 09:41 | 10° $\cap$ 03'53       | 18°55'25   |
| evening set         | 8459 Aug 05 13:47 | 3° $\cap$ 03'25        |            | retrograde       | 8460 Jul 14 23:00 | 14° $\cap$ 18'07       |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8460 Jul 16 22:01 | 14°Ω05'40 |            | inferior conj    | 8461 Jul 06 15:27 | 21°♄17'55 | 1°11'25    |
| desc. node       | 8460 Jul 23 20:54 | 10°Ω41'23 |            | minimum elong    | 8461 Jul 06 17:45 | 21°♄13'09 | 1°10'27    |
| inferior conj    | 8460 Jul 25 03:09 | 9°Ω48'39  | -0°23'02   | min. Earth dist. | 8461 Jul 10 00:47 | 18°♄30'33 | 0.58616 AU |
| minimum elong    | 8460 Jul 25 02:11 | 9°Ω50'21  | 0°22'49    | desc. node       | 8461 Jul 10 17:58 | 17°♄57'25 |            |
| min. Earth dist. | 8460 Jul 28 04:20 | 7°Ω40'05  | 0.56625 AU | morning rise     | 8461 Jul 14 02:05 | 15°♄46'33 |            |
| morning rise     | 8460 Aug 02 03:05 | 4°Ω51'54  |            | direct           | 8461 Jul 20 05:39 | 14°♄06'11 |            |
| direct           | 8460 Aug 07 13:13 | 3°Ω41'54  |            | morning max el   | 8461 Aug 03 14:58 | 21°♄50'44 | 27°16'25   |
| morning max el   | 8460 Aug 21 19:23 | 11°Ω03'51 | 26°04'55   |                  | 8461 Aug 10 18:46 | 0°Ω       |            |
|                  | 8460 Sep 05 08:45 | 0°♍       |            |                  | 8461 Aug 29 06:47 | 0°♍       |            |
| asc. node        | 8460 Sep 15 04:22 | 17°♍48'37 |            | asc. node        | 8461 Sep 02 01:19 | 7°♍34'53  |            |
| morning set      | 8460 Sep 18 23:55 | 25°♍42'39 |            | morning set      | 8461 Sep 03 08:29 | 10°♍17'38 |            |
|                  | 8460 Sep 20 23:44 | 0°♎       |            |                  |                   |           |            |
| superior conj    | 8460 Sep 25 21:06 | 10°♎46'35 | 1°29'42    | superior conj    | 8461 Sep 10 08:56 | 25°♍35'44 | 1°15'45    |
| minimum elong    | 8460 Sep 25 19:15 | 10°♎36'18 | 1°29'32    | minimum elong    | 8461 Sep 10 06:42 | 25°♍23'22 | 1°15'24    |
| max. Earth dist. | 8460 Sep 26 16:26 | 12°♎33'25 | 1.31939 AU | max. Earth dist. | 8461 Sep 10 02:36 | 25°♍00'36 | 1.31640 AU |
| evening rise     | 8460 Oct 02 20:13 | 25°♎51'55 |            |                  | 8461 Sep 12 08:33 | 0°♎       |            |
|                  | 8460 Oct 04 20:19 | 0°♏       |            | evening rise     | 8461 Sep 17 03:34 | 10°♎26'38 |            |
| desc. node       | 8460 Oct 19 19:38 | 26°♏39'16 |            |                  | 8461 Sep 27 02:40 | 0°♏       |            |
|                  | 8460 Oct 22 01:44 | 0°♐       |            | desc. node       | 8461 Oct 06 16:45 | 15°♏13'01 |            |
| evening max el   | 8460 Nov 03 11:34 | 14°♐59'45 | 27°16'27   | evening max el   | 8461 Oct 16 12:42 | 26°♏48'27 | 26°29'48   |
| retrograde       | 8460 Nov 17 08:03 | 22°♐11'55 |            |                  | 8461 Oct 20 07:44 | 0°♐       |            |
| evening set      | 8460 Nov 24 09:32 | 19°♐56'08 |            | retrograde       | 8461 Oct 30 10:37 | 3°♐54'47  |            |
| min. Earth dist. | 8460 Nov 28 02:11 | 17°♐08'52 | 0.61452 AU | evening set      | 8461 Nov 06 03:07 | 2°♐04'25  |            |
| inferior conj    | 8460 Dec 01 03:21 | 14°♐26'52 | -3°28'08   |                  | 8461 Nov 09 09:33 | 30°♑♏     |            |
| minimum elong    | 8460 Dec 01 09:51 | 14°♐12'25 | 3°25'44    | min. Earth dist. | 8461 Nov 10 02:10 | 29°♏29'37 | 0.59360 AU |
| morning rise     | 8460 Dec 08 12:25 | 9°♐29'39  |            | inferior conj    | 8461 Nov 13 06:57 | 27°♏01'29 | -4°33'37   |
| direct           | 8460 Dec 10 17:49 | 9°♐08'50  |            | minimum elong    | 8461 Nov 13 14:17 | 26°♏47'17 | 4°31'40    |
| asc. node        | 8460 Dec 12 03:53 | 9°♐17'36  |            | morning rise     | 8461 Nov 23 03:49 | 22°♏26'25 |            |
| morning max el   | 8460 Dec 17 18:31 | 12°♐41'30 | 17°53'32   | direct           | 8461 Nov 23 09:18 | 22°♏08'49 |            |
|                  | 8460 Dec 29 10:16 | 0°♑       |            | asc. node        | 8461 Nov 29 00:55 | 24°♏09'00 |            |
| morning set      | 8461 Jan 02 11:08 | 7°♑17'03  |            | morning max el   | 8461 Dec 01 05:14 | 25°♏59'11 | 18°18'37   |
|                  |                   |           |            |                  | 8461 Dec 04 16:19 | 0°♑       |            |
| superior conj    | 8461 Jan 13 01:28 | 26°♑11'35 | 0°20'06    | morning set      | 8461 Dec 17 01:06 | 21°♑12'44 |            |
| minimum elong    | 8461 Jan 13 03:13 | 26°♑19'06 | 0°20'00    |                  | 8461 Dec 21 16:09 | 0°♑       |            |
|                  | 8461 Jan 15 06:44 | 0°♒       |            | superior conj    | 8461 Dec 26 07:22 | 8°♑36'24  | 0°53'11    |
| desc. node       | 8461 Jan 15 18:46 | 0°♒51'10  |            | minimum elong    | 8461 Dec 26 10:40 | 8°♑51'28  | 0°52'54    |
| max. Earth dist. | 8461 Jan 20 11:38 | 8°♒41'39  | 1.42885 AU | desc. node       | 8462 Jan 02 15:47 | 21°♑36'07 |            |
| evening rise     | 8461 Jan 26 23:29 | 19°♒07'02 |            | max. Earth dist. | 8462 Jan 02 21:28 | 22°♑00'25 | 1.40922 AU |
|                  | 8461 Feb 03 01:03 | 0°♓       |            | evening rise     | 8462 Jan 07 12:05 | 29°♑42'51 |            |
|                  | 8461 Feb 24 15:47 | 0°♔       |            |                  | 8462 Jan 07 16:16 | 0°♒       |            |
| evening max el   | 8461 Feb 28 02:08 | 3°♔46'14  | 22°00'23   |                  | 8462 Jan 27 13:04 | 0°♓       |            |
| retrograde       | 8461 Mar 09 11:01 | 9°♔19'16  |            | evening max el   | 8462 Feb 10 17:37 | 17°♓29'25 | 23°19'57   |
| asc. node        | 8461 Mar 10 02:52 | 9°♔17'03  |            | retrograde       | 8462 Feb 21 05:59 | 23°♓42'38 |            |
| evening set      | 8461 Mar 13 23:36 | 7°♔29'03  |            | asc. node        | 8462 Feb 24 23:58 | 22°♓33'32 |            |
| inferior conj    | 8461 Mar 19 07:17 | 1°♔09'18  | 2°36'48    | evening set      | 8462 Feb 26 06:13 | 21°♓37'38 |            |
| minimum elong    | 8461 Mar 19 05:05 | 1°♔16'58  | 2°36'16    | min. Earth dist. | 8462 Mar 03 04:04 | 15°♓51'58 | 0.68376 AU |
| min. Earth dist. | 8461 Mar 19 07:19 | 1°♔09'09  | 0.68405 AU | inferior conj    | 8462 Mar 03 15:55 | 15°♓11'12 | 2°01'50    |
|                  | 8461 Mar 20 03:15 | 30°♕♓     |            | minimum elong    | 8462 Mar 03 13:43 | 15°♓18'46 | 2°01'12    |
| morning rise     | 8461 Mar 24 10:24 | 24°♕58'08 |            | morning rise     | 8462 Mar 08 21:11 | 9°♕05'21  |            |
| direct           | 8461 Mar 29 07:07 | 22°♕53'32 |            | direct           | 8462 Mar 13 04:02 | 7°♕23'08  |            |
| morning max el   | 8461 Apr 07 21:56 | 28°♕33'02 | 22°26'03   | morning max el   | 8462 Mar 21 14:10 | 12°♕13'47 | 21°02'58   |
|                  | 8461 Apr 09 07:19 | 0°♖       |            | desc. node       | 8462 Mar 31 15:30 | 24°♕33'29 |            |
| desc. node       | 8461 Apr 13 18:33 | 5°♖13'26  |            |                  | 8462 Apr 04 12:26 | 0°♖       |            |
|                  | 8461 May 01 08:59 | 0°♗       |            | morning set      | 8462 Apr 21 03:46 | 25°♖02'20 |            |
| morning set      | 8461 May 11 14:29 | 16°♗05'59 |            |                  | 8462 Apr 24 07:10 | 0°♗       |            |
| max. Earth dist. | 8461 May 16 14:34 | 24°♗24'34 | 1.40684 AU | max. Earth dist. | 8462 Apr 28 18:12 | 7°♗10'59  | 1.42729 AU |
|                  | 8461 May 19 20:52 | 0°♘       |            |                  |                   |           |            |
| superior conj    | 8461 May 24 09:34 | 7°♘59'54  | -1°43'09   | superior conj    | 8462 May 05 20:53 | 19°♗01'39 | -2°04'27   |
| minimum elong    | 8461 May 24 15:26 | 8°♘26'13  | 1°42'42    | minimum elong    | 8462 May 06 01:33 | 19°♗21'28 | 2°04'19    |
| evening rise     | 8461 Jun 03 13:51 | 26°♘49'55 |            |                  | 8462 May 12 04:48 | 0°♘       |            |
|                  | 8461 Jun 05 06:23 | 0°♙       |            | evening rise     | 8462 May 17 12:31 | 9°♘28'52  |            |
| asc. node        | 8461 Jun 06 01:48 | 1°♙30'38  |            | asc. node        | 8462 May 23 22:52 | 20°♘53'00 |            |
| evening max el   | 8461 Jun 19 15:37 | 22°♙33'40 | 18°20'42   |                  | 8462 May 29 15:06 | 0°♙       |            |
| retrograde       | 8461 Jun 27 00:19 | 26°♙15'02 |            | evening max el   | 8462 Jun 03 03:02 | 5°♙32'13  | 18°05'55   |
| evening set      | 8461 Jun 29 06:07 | 25°♙55'21 |            | retrograde       | 8462 Jun 09 18:43 | 8°♙56'20  |            |
|                  |                   |           |            | evening set      | 8462 Jun 12 08:01 | 8°♙26'18  |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| inferior conj       | 8462 Jun 19 00:04 | 3°☿28'50  | 2°18'02    | retrograde       | 8463 May 24 01:40 | 22°♊11'49 |            |
| minimum elong       | 8462 Jun 19 03:06 | 3°☿21'33  | 2°17'02    | evening set      | 8463 May 26 22:21 | 21°♊29'13 |            |
| min. Earth dist.    | 8462 Jun 22 05:02 | 0°☿25'12  | 0.60854 AU | inferior conj    | 8463 Jun 02 01:03 | 16°♊13'09 | 2°58'56    |
|                     | 8462 Jun 22 16:13 | 30°♋♊     |            | minimum elong    | 8463 Jun 02 03:19 | 16°♊06'59 | 2°58'22    |
| morning rise        | 8462 Jun 25 19:39 | 27°♊32'37 |            | min. Earth dist. | 8463 Jun 04 18:15 | 13°♊16'45 | 0.63041 AU |
| desc. node          | 8462 Jun 27 15:01 | 26°♊30'48 |            | morning rise     | 8463 Jun 08 06:44 | 10°♊02'48 |            |
| direct              | 8462 Jul 02 10:24 | 25°♊21'39 |            | desc. node       | 8463 Jun 14 12:03 | 7°♊29'35  |            |
|                     | 8462 Jul 13 00:29 | 0°☿       |            | direct           | 8463 Jun 15 01:04 | 7°♊28'39  |            |
| morning max el      | 8462 Jul 16 17:27 | 3°☿20'24  | 27°52'14   | morning max el   | 8463 Jun 29 00:58 | 15°♊31'49 | 27°49'52   |
|                     | 8462 Aug 05 08:54 | 0°♌       |            |                  | 8463 Jul 10 20:48 | 0°☿       |            |
| morning set         | 8462 Aug 18 12:47 | 24°♌37'42 |            |                  | 8463 Jul 29 00:50 | 0°♌       |            |
| asc. node           | 8462 Aug 19 22:18 | 27°♌32'35 |            | morning set      | 8463 Aug 02 10:38 | 8°♌36'29  |            |
|                     | 8462 Aug 21 02:07 | 0°♍       |            | asc. node        | 8463 Aug 06 19:17 | 17°♌37'00 |            |
| max. Earth dist.    | 8462 Aug 24 11:44 | 7°♍22'05  | 1.31799 AU | max. Earth dist. | 8463 Aug 07 15:56 | 19°♌26'43 | 1.32429 AU |
| superior conj       | 8462 Aug 25 19:50 | 10°♍18'36 | 0°56'54    | superior conj    | 8463 Aug 10 03:56 | 24°♌49'34 | 0°33'34    |
| minimum elong       | 8462 Aug 25 17:42 | 10°♍06'52 | 0°56'27    | minimum elong    | 8463 Aug 10 02:26 | 24°♌41'25 | 0°33'09    |
| evening rise        | 8462 Sep 01 14:01 | 25°♍07'44 |            |                  | 8463 Aug 12 12:56 | 0°♍       |            |
|                     | 8462 Sep 03 21:22 | 0°♎       |            | evening rise     | 8463 Aug 17 01:40 | 9°♍49'28  |            |
|                     | 8462 Sep 21 09:35 | 0°♏       |            |                  | 8463 Aug 27 09:04 | 0°♎       |            |
| desc. node          | 8462 Sep 23 13:52 | 2°♏44'14  |            | evening max el   | 8463 Sep 09 17:20 | 18°♎07'23 | 23°36'53   |
| evening max el      | 8462 Sep 28 05:39 | 7°♏46'05  | 25°12'45   | desc. node       | 8463 Sep 10 10:58 | 18°♎48'59 |            |
| retrograde          | 8462 Oct 12 02:58 | 14°♏46'40 |            | retrograde       | 8463 Sep 23 07:06 | 24°♎54'43 |            |
| evening set         | 8462 Oct 17 21:46 | 13°♏30'18 |            | evening set      | 8463 Sep 27 16:15 | 24°♎12'47 |            |
| min. Earth dist.    | 8462 Oct 22 17:22 | 10°♏49'55 | 0.57351 AU | min. Earth dist. | 8463 Oct 04 03:27 | 21°♎08'22 | 0.55730 AU |
| inferior conj       | 8462 Oct 25 15:13 | 8°♏52'43  | -5°21'54   | inferior conj    | 8463 Oct 06 03:24 | 19°♎56'55 | -5°34'41   |
| minimum elong       | 8462 Oct 25 20:06 | 8°♏44'30  | 5°21'13    | minimum elong    | 8463 Oct 06 01:39 | 19°♎59'32 | 5°34'34    |
| morning rise        | 8462 Nov 02 20:45 | 4°♏40'35  |            | morning rise     | 8463 Oct 14 13:09 | 16°♎02'56 |            |
| direct              | 8462 Nov 05 07:00 | 4°♏23'17  |            | direct           | 8463 Oct 17 09:28 | 15°♎42'52 |            |
| morning max el      | 8462 Nov 14 07:13 | 8°♏41'17  | 19°04'56   | morning max el   | 8463 Oct 27 21:13 | 20°♎38'31 | 20°13'34   |
| asc. node           | 8462 Nov 15 21:56 | 10°♏21'42 |            | asc. node        | 8463 Nov 02 18:56 | 27°♎40'27 |            |
|                     | 8462 Nov 28 04:25 | 0°♐       |            |                  | 8463 Nov 04 08:25 | 0°♏       |            |
| morning set         | 8462 Dec 01 00:35 | 5°♐33'48  |            | morning set      | 8463 Nov 15 06:20 | 20°♏11'22 |            |
|                     |                   |           |            |                  | 8463 Nov 20 00:52 | 0°♐       |            |
| superior conj       | 8462 Dec 09 07:36 | 21°♐53'09 | 1°17'11    | superior conj    | 8463 Nov 22 21:18 | 5°♐48'05  | 1°32'31    |
| minimum elong       | 8462 Dec 09 10:44 | 22°♐08'12 | 1°17'01    | minimum elong    | 8463 Nov 22 23:23 | 5°♐58'35  | 1°32'32    |
|                     | 8462 Dec 13 14:53 | 0°♑       |            | max. Earth dist. | 8463 Nov 28 09:48 | 16°♐38'12 | 1.36650 AU |
| max. Earth dist.    | 8462 Dec 16 03:17 | 4°♑34'58  | 1.38757 AU | evening rise     | 8463 Dec 02 05:33 | 23°♐45'23 |            |
| evening rise        | 8462 Dec 19 22:37 | 11°♑17'03 |            |                  | 8463 Dec 05 17:43 | 0°♑       |            |
| desc. node          | 8462 Dec 20 12:47 | 12°♑17'59 |            | desc. node       | 8463 Dec 07 09:50 | 2°♑52'52  |            |
|                     | 8462 Dec 31 10:59 | 0°♒       |            |                  | 8463 Dec 25 03:30 | 0°♒       |            |
|                     | 8463 Jan 23 01:14 | 0°♓       |            | evening max el   | 8464 Jan 06 20:13 | 15°♒03'33 | 25°50'35   |
| evening max el      | 8463 Jan 24 07:02 | 1°♓15'37  | 24°39'02   | retrograde       | 8464 Jan 19 07:44 | 22°♒11'21 |            |
| retrograde          | 8463 Feb 04 21:13 | 8°♓01'49  |            | evening set      | 8464 Jan 25 08:56 | 19°♒42'35 |            |
| evening set         | 8463 Feb 10 09:52 | 5°♓43'36  |            | min. Earth dist. | 8464 Jan 29 15:59 | 15°♒05'47 | 0.67137 AU |
| asc. node           | 8463 Feb 11 21:04 | 4°♓19'23  |            | asc. node        | 8464 Jan 29 18:08 | 14°♒59'05 |            |
| min. Earth dist.    | 8463 Feb 14 23:43 | 0°♓32'15  | 0.67947 AU | inferior conj    | 8464 Jan 31 02:41 | 13°♒16'28 | 0°26'54    |
|                     | 8463 Feb 15 09:26 | 30°♈♒     |            | minimum elong    | 8464 Jan 31 02:00 | 13°♒18'38 | 0°26'45    |
| inferior conj       | 8463 Feb 15 23:00 | 29°♈14'44 | 1°18'24    | morning rise     | 8464 Feb 05 19:35 | 7°♈25'56  |            |
| minimum elong       | 8463 Feb 15 21:18 | 29°♈20'25 | 1°17'52    | direct           | 8464 Feb 09 01:55 | 6°♈24'54  |            |
| morning rise        | 8463 Feb 21 08:55 | 23°♈15'35 |            | morning max el   | 8464 Feb 15 21:22 | 10°♈08'22 | 18°55'41   |
| direct              | 8463 Feb 25 02:48 | 21°♈55'11 |            |                  | 8464 Mar 01 10:35 | 0°♈       |            |
| morning max el      | 8463 Mar 04 13:56 | 26°♈06'13 | 19°51'48   | desc. node       | 8464 Mar 04 09:23 | 4°♈32'53  |            |
|                     | 8463 Mar 08 01:58 | 0°♈       |            | morning set      | 8464 Mar 09 07:51 | 12°♈13'01 |            |
| greatest brilliancy | 8463 Mar 17 15:24 | 13°♈05'20 | -0.6m      |                  | 8464 Mar 20 17:27 | 0°♉       |            |
| desc. node          | 8463 Mar 18 12:26 | 14°♈22'32 |            | max. Earth dist. | 8464 Mar 23 20:48 | 4°♉55'09  | 1.45291 AU |
|                     | 8463 Mar 28 21:10 | 0°♊       |            |                  |                   |           |            |
| morning set         | 8463 Mar 31 01:33 | 3°♊21'14  |            | superior conj    | 8464 Mar 25 20:30 | 8°♊02'37  | -2°00'17   |
| max. Earth dist.    | 8463 Apr 11 04:32 | 20°♊44'54 | 1.44324 AU | minimum elong    | 8464 Mar 25 13:04 | 7°♊33'23  | 1°59'52    |
| superior conj       | 8463 Apr 16 07:29 | 28°♊58'29 | -2°11'58   |                  | 8464 Apr 08 14:36 | 0°♋       |            |
| minimum elong       | 8463 Apr 16 06:58 | 28°♊56'24 | 2°12'03    | evening rise     | 8464 Apr 09 21:02 | 2°♋03'24  |            |
|                     | 8463 Apr 16 22:38 | 0°♌       |            | asc. node        | 8464 Apr 26 16:58 | 28°♋15'18 |            |
| evening rise        | 8463 Apr 29 16:12 | 21°♋15'20 |            |                  | 8464 Apr 28 02:13 | 0°♌       |            |
|                     | 8463 May 04 19:26 | 0°♍       |            | evening max el   | 8464 Apr 30 04:48 | 2°♌20'16  | 18°32'52   |
| asc. node           | 8463 May 10 19:55 | 9°♌50'34  |            | retrograde       | 8464 May 06 16:56 | 5°♌52'46  |            |
| evening max el      | 8463 May 17 16:25 | 18°♌50'15 | 18°10'17   | evening set      | 8464 May 09 21:02 | 4°♌56'12  |            |

|                  |                   |                      |                     |                   |           |            |
|------------------|-------------------|----------------------|---------------------|-------------------|-----------|------------|
|                  | 8464 May 15 01:52 | 30°♄                 | greatest brilliancy | 8465 Apr 01 08:39 | 29°♄25'44 | -0.8m      |
| inferior conj    | 8464 May 15 14:18 | 29°♄22'51 3°18'58    |                     | 8465 Apr 01 17:39 | 0°♄       |            |
| minimum elong    | 8464 May 15 15:16 | 29°♄19'57 3°18'44    | evening max el      | 8465 Apr 13 13:49 | 15°♄56'50 | 19°12'43   |
| min. Earth dist. | 8464 May 17 16:31 | 26°♄52'33 0.64966 AU | asc. node           | 8465 Apr 13 14:03 | 15°♄57'25 |            |
| morning rise     | 8464 May 21 08:41 | 23°♄06'11            | retrograde          | 8465 Apr 20 13:11 | 19°♄52'38 |            |
| direct           | 8464 May 27 23:39 | 20°♄20'37            | evening set         | 8465 Apr 24 01:05 | 18°♄41'22 |            |
| desc. node       | 8464 May 31 09:04 | 20°♄58'06            | inferior conj       | 8465 Apr 29 12:19 | 12°♄52'14 | 3°22'37    |
| morning max el   | 8464 Jun 10 10:56 | 28°♄16'06 27°12'46   | minimum elong       | 8465 Apr 29 12:01 | 12°♄53'14 | 3°22'29    |
|                  | 8464 Jun 12 02:39 | 0°♄                  | min. Earth dist.    | 8465 Apr 30 23:11 | 10°♄59'45 | 0.66499 AU |
|                  | 8464 Jul 03 15:37 | 0°♄                  | morning rise        | 8465 May 04 22:33 | 6°♄33'59  |            |
| morning set      | 8464 Jul 15 23:12 | 22°♄05'12            | direct              | 8465 May 11 04:48 | 3°♄49'09  |            |
|                  | 8464 Jul 19 22:45 | 0°♄                  | desc. node          | 8465 May 18 06:03 | 6°♄30'11  |            |
| max. Earth dist. | 8464 Jul 20 11:30 | 1°♄04'55 1.33553 AU  | morning max el      | 8465 May 23 21:12 | 11°♄23'05 | 26°08'30   |
| asc. node        | 8464 Jul 23 16:13 | 7°♄43'04             |                     | 8465 Jun 07 17:17 | 0°♄       |            |
|                  |                   |                      |                     | 8465 Jun 26 06:29 | 0°♄       |            |
| superior conj    | 8464 Jul 24 07:06 | 9°♄01'28 0°06'16     | morning set         | 8465 Jun 28 23:00 | 4°♄54'56  |            |
| minimum elong    | 8464 Jul 24 06:47 | 8°♄59'47 0°06'03     | max. Earth dist.    | 8465 Jul 02 20:31 | 12°♄18'47 | 1.35160 AU |
| behind sun begin | 8464 Jul 24 01:35 | 8°♄32'24             |                     |                   |           |            |
| behind sun end   | 8464 Jul 24 11:58 | 9°♄27'14             | superior conj       | 8465 Jul 08 02:56 | 22°♄48'08 | -0°24'07   |
| evening rise     | 8464 Jul 31 12:33 | 24°♄25'07            | minimum elong       | 8465 Jul 08 04:20 | 22°♄55'16 | 0°24'01    |
|                  | 8464 Aug 03 04:58 | 0°♄                  | asc. node           | 8465 Jul 10 13:12 | 27°♄47'25 |            |
| evening max el   | 8464 Aug 21 07:16 | 28°♄22'10 21°58'33   |                     | 8465 Jul 11 14:47 | 0°♄       |            |
|                  | 8464 Aug 23 02:00 | 0°♄                  | evening rise        | 8465 Jul 15 20:44 | 8°♄49'22  |            |
| desc. node       | 8464 Aug 27 08:04 | 2°♄55'45             |                     | 8465 Jul 27 05:24 | 0°♄       |            |
| retrograde       | 8464 Sep 02 23:09 | 4°♄39'39             | evening max el      | 8465 Aug 03 07:29 | 9°♄03'42  | 20°31'58   |
| evening set      | 8464 Sep 05 21:25 | 4°♄20'32             | retrograde          | 8465 Aug 14 11:13 | 14°♄34'56 |            |
| inferior conj    | 8464 Sep 14 23:57 | 0°♄20'09 -4°54'49    | desc. node          | 8465 Aug 14 05:08 | 14°♄34'47 |            |
| minimum elong    | 8464 Sep 14 15:30 | 0°♄32'00 4°53'07     | evening set         | 8465 Aug 16 12:16 | 14°♄24'36 |            |
| min. Earth dist. | 8464 Sep 14 11:42 | 0°♄37'19 0.54806 AU  | inferior conj       | 8465 Aug 25 16:46 | 10°♄27'29 | -3°23'27   |
|                  | 8464 Sep 15 14:22 | 30°♄                 | minimum elong       | 8465 Aug 25 07:56 | 10°♄40'13 | 3°20'37    |
| morning rise     | 8464 Sep 23 10:58 | 26°♄31'48            | min. Earth dist.    | 8465 Aug 26 20:59 | 9°♄46'44  | 0.54794 AU |
| direct           | 8464 Sep 26 21:23 | 26°♄05'46            | morning rise        | 8465 Sep 03 03:11 | 6°♄24'34  |            |
|                  | 8464 Oct 06 20:40 | 0°♄                  | direct              | 8465 Sep 07 06:04 | 5°♄48'11  |            |
| morning max el   | 8464 Oct 08 22:04 | 1°♄45'47 21°43'19    | morning max el      | 8465 Sep 20 13:11 | 12°♄13'27 | 23°27'19   |
| asc. node        | 8464 Oct 19 15:55 | 15°♄49'51            |                     | 8465 Oct 03 22:05 | 0°♄       |            |
|                  | 8464 Oct 27 06:11 | 0°♄                  | asc. node           | 8465 Oct 06 12:53 | 4°♄37'43  |            |
| morning set      | 8464 Oct 29 15:55 | 4°♄57'51             | morning set         | 8465 Oct 14 03:23 | 19°♄47'40 |            |
|                  |                   |                      |                     | 8465 Oct 18 21:02 | 0°♄       |            |
| superior conj    | 8464 Nov 05 20:29 | 20°♄09'05 1°40'05    | superior conj       | 8465 Oct 21 02:08 | 4°♄47'19  | 1°40'47    |
| minimum elong    | 8464 Nov 05 21:16 | 20°♄13'07 1°40'12    | minimum elong       | 8465 Oct 21 01:39 | 4°♄44'46  | 1°40'53    |
| max. Earth dist. | 8464 Nov 09 22:11 | 28°♄31'43 1.34802 AU | max. Earth dist.    | 8465 Oct 23 18:46 | 10°♄32'39 | 1.33334 AU |
|                  | 8464 Nov 10 15:46 | 0°♄                  | evening rise        | 8465 Oct 28 17:31 | 20°♄43'33 |            |
| evening rise     | 8464 Nov 14 05:07 | 6°♄57'29             |                     | 8465 Nov 02 13:02 | 0°♄       |            |
| desc. node       | 8464 Nov 23 06:52 | 23°♄15'27            | desc. node          | 8465 Nov 10 03:54 | 13°♄19'50 |            |
|                  | 8464 Nov 27 09:52 | 0°♄                  |                     | 8465 Nov 21 08:39 | 0°♄       |            |
| evening max el   | 8464 Dec 19 09:36 | 28°♄46'05 26°47'15   | evening max el      | 8465 Dec 01 22:17 | 12°♄12'34 | 27°21'47   |
|                  | 8464 Dec 20 17:19 | 0°♄                  | retrograde          | 8465 Dec 15 11:15 | 19°♄32'34 |            |
| retrograde       | 8465 Jan 01 12:35 | 6°♄04'13             | evening set         | 8465 Dec 22 09:19 | 16°♄57'30 |            |
| evening set      | 8465 Jan 08 01:30 | 3°♄29'10             | min. Earth dist.    | 8465 Dec 26 05:03 | 13°♄28'39 | 0.64431 AU |
|                  | 8465 Jan 11 14:53 | 30°♄                 | inferior conj       | 8465 Dec 28 15:03 | 10°♄54'18 | -1°37'49   |
| min. Earth dist. | 8465 Jan 12 02:32 | 29°♄26'57 0.65957 AU | minimum elong       | 8465 Dec 28 18:03 | 10°♄46'17 | 1°36'22    |
| inferior conj    | 8465 Jan 14 00:49 | 27°♄11'33 -0°32'11   | asc. node           | 8466 Jan 02 12:17 | 6°♄24'27  |            |
| minimum elong    | 8465 Jan 14 01:44 | 27°♄08'54 0°31'38    | morning rise        | 8466 Jan 04 04:23 | 5°♄29'00  |            |
| asc. node        | 8465 Jan 15 15:12 | 25°♄21'39            | direct              | 8466 Jan 06 16:58 | 4°♄56'22  |            |
| morning rise     | 8465 Jan 20 02:58 | 21°♄32'10            | morning max el      | 8466 Jan 13 03:41 | 8°♄18'42  | 17°53'21   |
| direct           | 8465 Jan 22 23:28 | 20°♄47'12            |                     | 8466 Jan 27 19:56 | 0°♄       |            |
| morning max el   | 8465 Jan 29 10:49 | 24°♄14'48 18°16'03   | morning set         | 8466 Jan 30 06:37 | 4°♄06'59  |            |
|                  | 8465 Feb 03 05:41 | 0°♄                  | desc. node          | 8466 Feb 06 03:15 | 15°♄34'11 |            |
| morning set      | 8465 Feb 17 16:45 | 22°♄27'28            |                     |                   |           |            |
| desc. node       | 8465 Feb 19 06:19 | 24°♄58'28            | superior conj       | 8466 Feb 12 17:33 | 26°♄18'32 | -0°46'38   |
|                  | 8465 Feb 22 09:35 | 0°♄                  | minimum elong       | 8466 Feb 12 12:13 | 25°♄57'08 | 0°45'47    |
| superior conj    | 8465 Mar 05 01:28 | 16°♄52'12 -1°29'18   |                     | 8466 Feb 15 00:55 | 0°♄       |            |
| minimum elong    | 8465 Mar 04 16:03 | 16°♄15'14 1°28'14    | max. Earth dist.    | 8466 Feb 17 12:07 | 3°♄54'41  | 1.45011 AU |
| max. Earth dist. | 8465 Mar 06 16:28 | 19°♄25'01 1.45524 AU | evening rise        | 8466 Feb 28 17:05 | 21°♄20'35 |            |
|                  | 8465 Mar 13 11:00 | 0°♄                  |                     | 8466 Mar 06 09:09 | 0°♄       |            |
| evening rise     | 8465 Mar 21 03:00 | 11°♄58'21            | greatest brilliancy | 8466 Mar 15 14:18 | 13°♄45'52 | -0.6m      |

|                  |                   |                              |            |                  |                   |                              |            |
|------------------|-------------------|------------------------------|------------|------------------|-------------------|------------------------------|------------|
| evening max el   | 8466 Mar 27 17:46 | 29° $\Upsilon$ 35'15         | 20°08'18   | max. Earth dist. | 8467 Jan 31 04:49 | 18° $\approx$ 06'49          | 1.43822 AU |
|                  | 8466 Mar 28 03:40 | 0° $\mathcal{B}$             |            |                  | 8467 Feb 07 17:21 | 0° $\mathcal{H}$             |            |
| asc. node        | 8466 Mar 31 11:09 | 2° $\mathcal{B}$ 43'24       |            | evening rise     | 8467 Feb 08 05:28 | 0° $\mathcal{H}$ 46'57       |            |
| retrograde       | 8466 Apr 04 11:36 | 4° $\mathcal{B}$ 04'43       |            |                  | 8467 Feb 28 00:03 | 0° $\Upsilon$                |            |
| evening set      | 8466 Apr 08 08:07 | 2° $\mathcal{B}$ 38'26       |            | evening max el   | 8467 Mar 10 16:10 | 13° $\Upsilon$ 14'53         | 21°16'45   |
|                  | 8466 Apr 11 00:52 | 30° $\mathcal{R}\Upsilon$    |            | asc. node        | 8467 Mar 18 08:15 | 18° $\Upsilon$ 18'38         |            |
| inferior conj    | 8466 Apr 13 16:12 | 26° $\Upsilon$ 35'21         | 3°13'12    | retrograde       | 8467 Mar 19 10:01 | 18° $\Upsilon$ 24'30         |            |
| minimum elong    | 8466 Apr 13 14:52 | 26° $\Upsilon$ 39'53         | 3°12'58    | evening set      | 8467 Mar 23 16:17 | 16° $\Upsilon$ 43'08         |            |
| min. Earth dist. | 8466 Apr 14 12:37 | 25° $\Upsilon$ 26'06         | 0.67587 AU | inferior conj    | 8467 Mar 28 23:33 | 10° $\Upsilon$ 28'32         | 2°52'54    |
| morning rise     | 8466 Apr 18 21:22 | 20° $\Upsilon$ 18'21         |            | minimum elong    | 8467 Mar 28 21:33 | 10° $\Upsilon$ 35'29         | 2°52'28    |
| direct           | 8466 Apr 24 15:37 | 17° $\Upsilon$ 44'08         |            | min. Earth dist. | 8467 Mar 29 06:46 | 10° $\Upsilon$ 03'27         | 0.68232 AU |
| desc. node       | 8466 May 05 03:02 | 23° $\Upsilon$ 34'04         |            | morning rise     | 8467 Apr 03 02:36 | 4° $\Upsilon$ 14'36          |            |
| morning max el   | 8466 May 06 06:41 | 24° $\Upsilon$ 42'08         | 24°46'32   | direct           | 8467 Apr 08 07:18 | 1° $\Upsilon$ 57'54          |            |
|                  | 8466 May 11 01:13 | 0° $\mathcal{B}$             |            | morning max el   | 8467 Apr 18 16:12 | 8° $\Upsilon$ 08'02          | 23°17'00   |
|                  | 8466 Jun 01 04:14 | 0° $\Pi$                     |            | desc. node       | 8467 Apr 22 00:00 | 11° $\Upsilon$ 44'40         |            |
| morning set      | 8466 Jun 11 05:25 | 16° $\Pi$ 53'17              |            |                  | 8467 May 05 18:20 | 0° $\mathcal{B}$             |            |
| max. Earth dist. | 8466 Jun 14 20:16 | 23° $\Pi$ 23'53              | 1.37166 AU | morning set      | 8467 May 23 12:57 | 27° $\mathcal{B}$ 46'00      |            |
|                  | 8466 Jun 18 09:14 | 0° $\mathcal{E}$             |            |                  | 8467 May 24 20:44 | 0° $\Pi$                     |            |
|                  |                   |                              |            | max. Earth dist. | 8467 May 27 16:08 | 4° $\Pi$ 49'09               | 1.39398 AU |
| superior conj    | 8466 Jun 21 12:21 | 6° $\mathcal{E}$ 01'21       | -0°56'04   | superior conj    | 8467 Jun 04 07:29 | 18° $\Pi$ 32'01              | -1°27'07   |
| minimum elong    | 8466 Jun 21 15:49 | 6° $\mathcal{E}$ 18'14       | 0°55'39    | minimum elong    | 8467 Jun 04 12:48 | 18° $\Pi$ 56'40              | 1°26'35    |
| asc. node        | 8466 Jun 27 10:12 | 17° $\mathcal{E}$ 45'49      |            |                  | 8467 Jun 10 08:59 | 0° $\mathcal{E}$             |            |
| evening rise     | 8466 Jun 29 23:49 | 22° $\mathcal{E}$ 55'10      |            | evening rise     | 8467 Jun 13 18:53 | 6° $\mathcal{E}$ 34'50       |            |
|                  | 8466 Jul 03 13:55 | 0° $\Omega$                  |            | asc. node        | 8467 Jun 14 07:13 | 7° $\mathcal{E}$ 34'13       |            |
| evening max el   | 8466 Jul 16 21:03 | 20° $\Omega$ 29'14           | 19°24'34   |                  | 8467 Jun 27 13:19 | 0° $\Omega$                  |            |
| retrograde       | 8466 Jul 26 07:59 | 25° $\Omega$ 09'37           |            | evening max el   | 8467 Jun 29 22:10 | 2° $\Omega$ 38'33            | 18°38'09   |
| evening set      | 8466 Jul 28 04:31 | 24° $\Omega$ 59'35           |            | retrograde       | 8467 Jul 07 22:04 | 6° $\Omega$ 36'54            |            |
| desc. node       | 8466 Aug 01 02:12 | 23° $\Omega$ 40'11           |            | evening set      | 8467 Jul 09 23:34 | 6° $\Omega$ 21'57            |            |
| inferior conj    | 8466 Aug 05 20:27 | 20° $\Omega$ 52'30           | -1°27'37   | inferior conj    | 8467 Jul 17 20:13 | 1° $\Omega$ 56'44            | 0°20'18    |
| minimum elong    | 8466 Aug 05 16:31 | 20° $\Omega$ 58'53           | 1°26'13    | minimum elong    | 8467 Jul 17 20:59 | 1° $\Omega$ 55'18            | 0°19'52    |
| min. Earth dist. | 8466 Aug 08 09:33 | 19° $\Omega$ 13'41           | 0.55721 AU | desc. node       | 8467 Jul 18 23:18 | 1° $\Omega$ 05'10            |            |
| morning rise     | 8466 Aug 14 01:52 | 16° $\Omega$ 16'56           |            |                  | 8467 Jul 20 09:52 | 30° $\mathcal{R}\mathcal{E}$ |            |
| direct           | 8466 Aug 19 00:07 | 15° $\Omega$ 22'01           |            | min. Earth dist. | 8467 Jul 21 02:53 | 29° $\mathcal{E}$ 28'52      | 0.57418 AU |
| morning max el   | 8466 Sep 02 01:38 | 22° $\Omega$ 26'58           | 25°11'41   | morning rise     | 8467 Jul 25 14:52 | 26° $\mathcal{E}$ 44'03      |            |
|                  | 8466 Sep 08 18:30 | 0° $\mathcal{M}$             |            | direct           | 8467 Jul 31 09:02 | 25° $\mathcal{E}$ 21'20      |            |
| asc. node        | 8466 Sep 23 09:51 | 23° $\mathcal{M}$ 54'21      |            |                  | 8467 Aug 11 10:07 | 0° $\Omega$                  |            |
|                  | 8466 Sep 26 10:30 | 0° $\mathcal{L}$             |            | morning max el   | 8467 Aug 14 17:32 | 2° $\Omega$ 55'02            | 26°39'16   |
| morning set      | 8466 Sep 28 15:01 | 4° $\mathcal{L}$ 35'54       |            |                  | 8467 Sep 03 04:51 | 0° $\mathcal{M}$             |            |
|                  |                   |                              |            | asc. node        | 8467 Sep 10 06:48 | 13° $\mathcal{M}$ 31'41      |            |
| superior conj    | 8466 Oct 05 11:47 | 19° $\mathcal{L}$ 35'17      | 1°35'22    | morning set      | 8467 Sep 13 01:10 | 19° $\mathcal{M}$ 17'01      |            |
| minimum elong    | 8466 Oct 05 10:20 | 19° $\mathcal{L}$ 27'18      | 1°35'19    |                  | 8467 Sep 17 23:23 | 0° $\mathcal{L}$             |            |
| max. Earth dist. | 8466 Oct 06 22:47 | 22° $\mathcal{L}$ 47'06      | 1.32306 AU |                  |                   |                              |            |
|                  | 8466 Oct 10 07:04 | 0° $\mathcal{M}$             |            | superior conj    | 8467 Sep 19 23:20 | 4° $\mathcal{L}$ 25'53       | 1°24'24    |
| evening rise     | 8466 Oct 12 15:25 | 4° $\mathcal{M}$ 54'55       |            | minimum elong    | 8467 Sep 19 21:16 | 4° $\mathcal{L}$ 14'25       | 1°24'10    |
|                  | 8466 Oct 26 04:33 | 0° $\mathcal{J}$             |            | max. Earth dist. | 8467 Sep 20 07:30 | 5° $\mathcal{L}$ 11'11       | 1.31746 AU |
| desc. node       | 8466 Oct 28 00:57 | 2° $\mathcal{J}$ 58'19       |            | evening rise     | 8467 Sep 26 20:00 | 19° $\mathcal{L}$ 23'10      |            |
| evening max el   | 8466 Nov 14 08:25 | 25° $\mathcal{J}$ 10'50      | 27°27'51   |                  | 8467 Oct 02 01:29 | 0° $\mathcal{M}$             |            |
|                  | 8466 Nov 20 11:46 | 0° $\mathcal{Z}$             |            | desc. node       | 8467 Oct 14 22:03 | 21° $\mathcal{M}$ 59'43      |            |
| retrograde       | 8466 Nov 28 03:14 | 2° $\mathcal{Z}$ 27'31       |            |                  | 8467 Oct 20 18:56 | 0° $\mathcal{J}$             |            |
| evening set      | 8466 Dec 05 05:31 | 0° $\mathcal{Z}$ 01'24       |            | evening max el   | 8467 Oct 27 13:36 | 7° $\mathcal{J}$ 27'49       | 27°00'50   |
|                  | 8466 Dec 05 06:21 | 30° $\mathcal{R}\mathcal{J}$ |            | retrograde       | 8467 Nov 10 11:23 | 14° $\mathcal{J}$ 38'18      |            |
| min. Earth dist. | 8466 Dec 08 21:56 | 27° $\mathcal{J}$ 01'28      | 0.62599 AU | evening set      | 8467 Nov 17 10:10 | 12° $\mathcal{J}$ 32'05      |            |
| inferior conj    | 8466 Dec 11 18:32 | 24° $\mathcal{J}$ 18'12      | -2°47'39   | min. Earth dist. | 8467 Nov 21 04:13 | 9° $\mathcal{J}$ 51'51       | 0.60557 AU |
| minimum elong    | 8466 Dec 11 23:52 | 24° $\mathcal{J}$ 05'28      | 2°45'28    | inferior conj    | 8467 Nov 24 07:51 | 7° $\mathcal{J}$ 13'30       | -3°57'07   |
| morning rise     | 8466 Dec 18 20:20 | 19° $\mathcal{J}$ 10'05      |            | minimum elong    | 8467 Nov 24 14:58 | 6° $\mathcal{J}$ 58'33       | 3°54'47    |
| asc. node        | 8466 Dec 20 09:21 | 18° $\mathcal{J}$ 48'42      |            | morning rise     | 8467 Dec 01 22:12 | 2° $\mathcal{J}$ 25'30       |            |
| direct           | 8466 Dec 21 03:23 | 18° $\mathcal{J}$ 46'05      |            | direct           | 8467 Dec 04 02:56 | 2° $\mathcal{J}$ 06'35       |            |
| morning max el   | 8466 Dec 27 20:54 | 22° $\mathcal{J}$ 12'33      | 17°48'12   | asc. node        | 8467 Dec 07 06:24 | 2° $\mathcal{J}$ 47'08       |            |
|                  | 8467 Jan 02 21:32 | 0° $\mathcal{Z}$             |            | morning max el   | 8467 Dec 11 11:01 | 5° $\mathcal{J}$ 46'02       | 18°01'44   |
| morning set      | 8467 Jan 12 20:07 | 16° $\mathcal{Z}$ 54'32      |            |                  | 8467 Dec 26 20:17 | 0° $\mathcal{Z}$             |            |
|                  | 8467 Jan 20 07:40 | 0° $\approx$                 |            | morning set      | 8467 Dec 27 02:42 | 0° $\mathcal{Z}$ 29'44       |            |
|                  |                   |                              |            |                  |                   |                              |            |
| superior conj    | 8467 Jan 24 09:18 | 6° $\approx$ 54'46           | -0°02'48   | superior conj    | 8468 Jan 06 02:16 | 18° $\mathcal{Z}$ 42'31      | 0°35'11    |
| minimum elong    | 8467 Jan 24 09:02 | 6° $\approx$ 53'41           | 0°02'37    | minimum elong    | 8468 Jan 06 04:56 | 18° $\mathcal{Z}$ 54'21      | 0°34'58    |
| behind sun begin | 8467 Jan 24 00:07 | 6° $\approx$ 16'09           |            | desc. node       | 8468 Jan 10 21:11 | 27° $\mathcal{Z}$ 01'25      |            |
| behind sun end   | 8467 Jan 24 17:58 | 7° $\approx$ 31'08           |            |                  | 8468 Jan 12 15:25 | 0° $\approx$                 |            |
| desc. node       | 8467 Jan 24 00:13 | 6° $\approx$ 16'35           |            |                  |                   |                              |            |

|                  |                   |   |            |                  |                   |   |            |
|------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| max. Earth dist. | 8468 Jan 13 16:54 | 1°  46'35    | 1.42089 AU | evening rise     | 8468 Dec 30 04:30 | 21°  52'12   |            |
| evening rise     | 8468 Jan 19 06:37 | 10°  51'39   |            |                  | 8469 Jan 04 03:48 | 0°           |            |
|                  | 8468 Jan 31 18:37 | 0°           |            |                  | 8469 Jan 24 19:31 | 0°           |            |
| evening max el   | 8468 Feb 21 09:49 | 26°  56'43   | 22°33'54   | evening max el   | 8469 Feb 03 00:22 | 10°  41'50   | 23°54'08   |
|                  | 8468 Feb 24 19:17 | 0°           |            | retrograde       | 8469 Feb 13 23:58 | 17°  09'34   |            |
| retrograde       | 8468 Mar 02 06:36 | 2°  47'36    |            | evening set      | 8469 Feb 19 05:26 | 14°  58'53   |            |
| asc. node        | 8468 Mar 04 05:23 | 2°  28'29    |            | asc. node        | 8469 Feb 19 02:29 | 15°  05'03   |            |
| evening set      | 8468 Mar 06 23:54 | 0°  51'14    |            | min. Earth dist. | 8469 Feb 23 23:47 | 9°  27'48    | 0.68246 AU |
|                  | 8468 Mar 07 22:18 | 30°          |            | inferior conj    | 8469 Feb 24 16:28 | 8°  31'06    | 1°44'27    |
| inferior conj    | 8468 Mar 12 08:16 | 24°  28'12   | 2°23'04    | minimum elong    | 8469 Feb 24 14:25 | 8°  38'05    | 1°43'49    |
| minimum elong    | 8468 Mar 12 06:01 | 24°  36'03   | 2°22'27    | morning rise     | 8469 Mar 01 23:24 | 2°  27'53    |            |
| min. Earth dist. | 8468 Mar 12 03:16 | 24°  45'37   | 0.68445 AU | direct           | 8469 Mar 06 00:42 | 0°  54'55    |            |
| morning rise     | 8468 Mar 17 11:58 | 18°  18'53   |            | morning max el   | 8469 Mar 13 23:59 | 5°  26'53    | 20°30'57   |
| direct           | 8468 Mar 22 02:45 | 16°  23'31   |            | desc. node       | 8469 Mar 25 17:54 | 20°  16'50   |            |
| morning max el   | 8468 Mar 31 04:49 | 21°  41'41   | 21°49'24   |                  | 8469 Apr 01 09:59 | 0°           |            |
|                  | 8468 Apr 07 07:36 | 0°           |            | morning set      | 8469 Apr 11 21:32 | 15°  55'47   |            |
| desc. node       | 8468 Apr 07 20:58 | 0°  43'22    |            |                  | 8469 Apr 20 19:23 | 0°           |            |
|                  | 8468 Apr 28 01:00 | 0°           |            | max. Earth dist. | 8469 Apr 20 22:26 | 0°           | 1.43481 AU |
| morning set      | 8468 May 02 17:14 | 7°  22'38    |            |                  |                   |   |            |
| max. Earth dist. | 8468 May 08 15:30 | 17°  02'46   | 1.41595 AU | superior conj    | 8469 Apr 27 08:48 | 10°  44'18   | -2°09'41   |
|                  |                   |   |            | minimum elong    | 8469 Apr 27 11:46 | 10°  56'38   | 2°09'44    |
| superior conj    | 8468 May 16 07:48 | 0°  09'45    | -1°53'29   |                  | 8469 May 08 14:45 | 0°           |            |
| minimum elong    | 8468 May 16 13:34 | 0°  35'02    | 1°53'08    | evening rise     | 8469 May 09 17:24 | 1°  56'47    |            |
|                  | 8468 May 16 05:35 | 0°           |            | asc. node        | 8469 May 18 01:19 | 16°  20'31   |            |
| evening rise     | 8468 May 27 02:15 | 19°  39'00   |            | evening max el   | 8469 May 26 19:43 | 28°  30'50   | 18°05'28   |
| asc. node        | 8468 May 31 04:16 | 27°  07'52   |            |                  | 8469 May 28 12:24 | 0°           |            |
|                  | 8468 Jun 01 18:43 | 0°           |            | retrograde       | 8469 Jun 02 07:14 | 1°  51'52    |            |
| evening max el   | 8468 Jun 12 07:02 | 15°  22'47   | 18°12'06   | evening set      | 8469 Jun 04 23:50 | 1°  56'33    |            |
| retrograde       | 8468 Jun 19 06:56 | 18°  54'32  |            |                  | 8469 Jun 07 04:21 | 30°         |            |
| evening set      | 8468 Jun 21 16:02 | 18°  50'42 |            | inferior conj    | 8469 Jun 11 09:40 | 26°  10'46 | 2°38'16    |
| inferior conj    | 8468 Jun 28 17:36 | 13°  54'50 | 1°43'05    | minimum elong    | 8469 Jun 11 12:29 | 26°  03'36 | 2°37'25    |
| minimum elong    | 8468 Jun 28 20:28 | 13°  38'31 | 1°41'59    | min. Earth dist. | 8469 Jun 14 10:08 | 23°  07'51 | 0.61811 AU |
| min. Earth dist. | 8468 Jul 02 02:28 | 10°  54'29 | 0.59560 AU | morning rise     | 8469 Jun 17 23:07 | 20°  07'38 |            |
| desc. node       | 8468 Jul 04 20:23 | 8°  54'59  |            | desc. node       | 8469 Jun 21 17:27 | 18°  12'52 |            |
| morning rise     | 8468 Jul 05 21:52 | 8°  50'49  |            | direct           | 8469 Jun 24 16:23 | 17°  45'50 |            |
| direct           | 8468 Jul 12 07:21 | 6°  50'40  |            | morning max el   | 8469 Jul 08 20:42 | 25°  46'44 | 27°55'49   |
| morning max el   | 8468 Jul 26 15:55 | 13°  59'11 | 27°36'16   |                  | 8469 Jul 12 18:22 | 0°         |            |
|                  | 8468 Aug 08 11:44 | 0°         |            |                  | 8469 Aug 02 00:24 | 0°         |            |
|                  | 8468 Aug 25 12:19 | 0°         |            | morning set      | 8469 Aug 11 09:56 | 17°  57'53 |            |
| morning set      | 8468 Aug 27 08:08 | 3°  46'30  |            | asc. node        | 8469 Aug 14 00:43 | 23°  52'46 |            |
| asc. node        | 8468 Aug 27 03:46 | 3°  40'23  |            | max. Earth dist. | 8469 Aug 17 01:16 | 29°  53'24 | 1.32017 AU |
| max. Earth dist. | 8468 Sep 02 17:39 | 17°  37'22 | 1.31651 AU |                  | 8469 Aug 17 02:29 | 0°         |            |
|                  |                   |   |            |                  |                   |   |            |
| superior conj    | 8468 Sep 03 11:00 | 19°  37'29 | 1°08'20    | superior conj    | 8469 Aug 18 20:54 | 3°  51'38  | 0°47'31    |
| minimum elong    | 8468 Sep 03 08:45 | 19°  01'02 | 1°07'56    | minimum elong    | 8469 Aug 18 18:58 | 3°  41'03  | 0°47'04    |
|                  | 8468 Sep 08 08:08 | 0°         |            | evening rise     | 8469 Aug 25 16:07 | 18°  43'52 |            |
| evening rise     | 8468 Sep 10 04:56 | 4°  01'52  |            |                  | 8469 Aug 31 03:22 | 0°         |            |
|                  | 8468 Sep 23 21:42 | 0°         |            | desc. node       | 8469 Sep 17 16:15 | 27°  50'56 |            |
| desc. node       | 8468 Sep 30 19:09 | 10°  09'27 |            | evening max el   | 8469 Sep 20 01:35 | 29°  54'18 | 24°33'16   |
| evening max el   | 8468 Oct 08 11:30 | 18°  55'14 | 26°00'20   |                  | 8469 Sep 20 12:28 | 0°         |            |
| retrograde       | 8468 Oct 22 09:43 | 25°  58'50 |            | retrograde       | 8469 Oct 03 20:29 | 6°  29'56  |            |
| evening set      | 8468 Oct 28 18:27 | 24°  22'36 |            | evening set      | 8469 Oct 09 02:20 | 5°  28'48  |            |
| min. Earth dist. | 8468 Nov 02 00:20 | 21°  47'31 | 0.58478 AU | min. Earth dist. | 8469 Oct 14 12:35 | 2°  40'30  | 0.56600 AU |
| inferior conj    | 8468 Nov 05 03:33 | 19°  30'47 | -4°57'12   | inferior conj    | 8469 Oct 17 03:02 | 1°  01'30  | -5°32'52   |
| minimum elong    | 8468 Nov 05 10:21 | 19°  18'21 | 4°55'44    | minimum elong    | 8469 Oct 17 05:32 | 0°  57'32  | 5°32'38    |
| morning rise     | 8468 Nov 13 04:33 | 15°  05'09 |            |                  | 8469 Oct 18 18:17 | 30°        |            |
| direct           | 8468 Nov 15 11:24 | 14°  48'02 |            | morning rise     | 8469 Oct 25 10:53 | 26°  58'04 |            |
| asc. node        | 8468 Nov 23 03:25 | 18°  14'29 |            | direct           | 8469 Oct 28 01:05 | 26°  59'47 |            |
| morning max el   | 8468 Nov 23 18:22 | 18°  49'17 | 18°35'34   |                  | 8469 Nov 05 06:39 | 0°         |            |
|                  | 8468 Dec 01 23:19 | 0°         |            | morning max el   | 8469 Nov 06 15:24 | 1°  12'18  | 19°31'26   |
| morning set      | 8468 Dec 09 21:09 | 14°  37'20 |            | asc. node        | 8469 Nov 10 00:24 | 4°  56'40  |            |
|                  | 8468 Dec 17 21:11 | 0°         |            | morning set      | 8469 Nov 23 23:36 | 29°  06'17 |            |
|                  |                   |   |            |                  | 8469 Nov 24 10:18 | 0°         |            |
| superior conj    | 8468 Dec 18 16:30 | 1°  30'30  | 1°04'27    |                  |                   |   |            |
| minimum elong    | 8468 Dec 18 19:54 | 1°  46'19  | 1°04'13    | superior conj    | 8469 Dec 01 22:58 | 15°  27'44 | 1°24'42    |
| max. Earth dist. | 8468 Dec 26 00:46 | 14°  46'22 | 1.40015 AU | minimum elong    | 8469 Dec 02 01:43 | 15°  28'14 | 1°24'37    |
| desc. node       | 8468 Dec 27 18:10 | 17°  34'51 |            | max. Earth dist. | 8469 Dec 08 06:39 | 27°  27'58 | 1.37840 AU |

|                     |                   |                          |            |                     |                   |                           |            |
|---------------------|-------------------|--------------------------|------------|---------------------|-------------------|---------------------------|------------|
|                     | 8469 Dec 09 20:34 | 0° $\text{Z}$            |            | max. Earth dist.    | 8470 Nov 20 15:00 | 9° $\text{Z}$ 02'37       | 1.35813 AU |
| evening rise        | 8469 Dec 12 00:01 | 3° $\text{Z}$ 49'53      |            | evening rise        | 8470 Nov 24 14:26 | 16° $\text{Z}$ 37'27      |            |
| desc. node          | 8469 Dec 14 15:10 | 8° $\text{Z}$ 24'27      |            | desc. node          | 8470 Dec 01 12:10 | 28° $\text{Z}$ 54'22      |            |
|                     | 8469 Dec 28 05:27 | 0° $\approx$             |            |                     | 8470 Dec 02 03:41 | 0° $\text{Z}$             |            |
| evening max el      | 8470 Jan 16 13:32 | 24° $\approx$ 29'22      | 25°10'51   |                     | 8470 Dec 22 15:48 | 0° $\approx$              |            |
|                     | 8470 Jan 23 14:05 | 0° $\text{H}$            |            | evening max el      | 8470 Dec 30 02:33 | 8° $\approx$ 14'56        | 26°16'58   |
| retrograde          | 8470 Jan 28 13:09 | 1° $\text{H}$ 25'43      |            | retrograde          | 8471 Jan 11 21:25 | 15° $\approx$ 29'02       |            |
|                     | 8470 Feb 02 00:40 | 30° $\text{R}$ $\approx$ |            | evening set         | 8471 Jan 18 03:52 | 12° $\approx$ 56'37       |            |
| evening set         | 8470 Feb 03 07:20 | 29° $\approx$ 02'26      |            | min. Earth dist.    | 8471 Jan 22 08:08 | 8° $\approx$ 34'51        | 0.66673 AU |
| asc. node           | 8470 Feb 05 23:34 | 26° $\approx$ 18'19      |            | inferior conj       | 8471 Jan 23 23:51 | 6° $\approx$ 33'19        | 0°02'41    |
| min. Earth dist.    | 8470 Feb 07 18:09 | 24° $\approx$ 06'02      | 0.67649 AU | minimum elong       | 8471 Jan 23 23:47 | 6° $\approx$ 33'33        | 0°02'49    |
| inferior conj       | 8470 Feb 08 22:19 | 22° $\approx$ 34'18      | 0°57'32    | transit middle      | 8471 Jan 23 23:47 | 6° $\approx$ 33'33        | 0°02'49    |
| minimum elong       | 8470 Feb 08 20:58 | 22° $\approx$ 38'41      | 0°57'07    | transit begin       | 8471 Jan 23 20:57 | 6° $\approx$ 42'14        |            |
| morning rise        | 8470 Feb 14 10:55 | 16° $\approx$ 38'49      |            | transit end         | 8471 Jan 24 02:37 | 6° $\approx$ 24'52        |            |
| direct              | 8470 Feb 17 23:45 | 15° $\approx$ 26'59      |            | asc. node           | 8471 Jan 23 20:39 | 6° $\approx$ 43'09        |            |
| morning max el      | 8470 Feb 25 03:11 | 19° $\approx$ 24'24      | 19°26'06   | morning rise        | 8471 Jan 29 20:27 | 0° $\approx$ 47'30        |            |
|                     | 8470 Mar 05 15:13 | 0° $\text{H}$            |            |                     | 8471 Jan 31 21:22 | 30° $\text{R}$ $\text{Z}$ |            |
| greatest brilliancy | 8470 Mar 09 23:13 | 6° $\text{H}$ 17'49      | -0.7m      | direct              | 8471 Feb 01 22:19 | 29° $\text{Z}$ 53'54      |            |
| desc. node          | 8470 Mar 12 14:50 | 10° $\text{H}$ 15'52     |            |                     | 8471 Feb 02 23:34 | 0° $\approx$              |            |
| morning set         | 8470 Mar 21 20:03 | 24° $\text{H}$ 21'08     |            | morning max el      | 8471 Feb 08 13:31 | 3° $\approx$ 29'19        | 18°36'53   |
|                     | 8470 Mar 25 11:43 | 0° $\text{Y}$            |            | desc. node          | 8471 Feb 27 11:44 | 0° $\text{H}$ 32'54       |            |
| max. Earth dist.    | 8470 Apr 03 12:12 | 14° $\text{Y}$ 06'19     | 1.44821 AU |                     | 8471 Feb 27 03:22 | 0° $\text{H}$             |            |
|                     |                   |                          |            | morning set         | 8471 Mar 01 12:20 | 3° $\text{H}$ 44'24       |            |
| superior conj       | 8470 Apr 07 09:20 | 20° $\text{Y}$ 16'08     | -2°09'32   |                     |                   |                           |            |
| minimum elong       | 8470 Apr 07 05:44 | 20° $\text{Y}$ 01'46     | 2°09'30    | superior conj       | 8471 Mar 17 16:38 | 29° $\text{H}$ 07'34      | -1°49'13   |
|                     | 8470 Apr 13 10:05 | 0° $\text{Z}$            |            | minimum elong       | 8471 Mar 17 07:28 | 28° $\text{H}$ 31'39      | 1°48'27    |
| evening rise        | 8470 Apr 21 11:50 | 13° $\text{Z}$ 19'44     |            | max. Earth dist.    | 8471 Mar 17 06:01 | 28° $\text{H}$ 26'00      | 1.45476 AU |
|                     | 8470 May 01 14:15 | 0° $\text{II}$           |            |                     | 8471 Mar 18 06:02 | 0° $\text{Y}$             |            |
| asc. node           | 8470 May 04 22:23 | 5° $\text{II}$ 05'33     |            | evening rise        | 8471 Apr 02 06:35 | 23° $\text{Y}$ 43'34      |            |
| evening max el      | 8470 May 10 08:58 | 11° $\text{II}$ 54'50    | 18°17'33   |                     | 8471 Apr 06 04:55 | 0° $\text{Z}$             |            |
| retrograde          | 8470 May 16 18:23 | 15° $\text{II}$ 19'40    |            | greatest brilliancy | 8471 Apr 10 12:06 | 6° $\text{Z}$ 50'09       | -0.8m      |
| evening set         | 8470 May 19 18:10 | 14° $\text{II}$ 31'12    |            | asc. node           | 8471 Apr 21 19:28 | 23° $\text{Z}$ 13'35      |            |
| inferior conj       | 8470 May 25 16:23 | 9° $\text{II}$ 07'17     | 3°09'40    | evening max el      | 8471 Apr 23 20:06 | 25° $\text{Z}$ 27'51      | 18°47'43   |
| minimum elong       | 8470 May 25 18:07 | 9° $\text{II}$ 02'20     | 3°09'16    | retrograde          | 8471 Apr 30 12:15 | 29° $\text{Z}$ 09'14      |            |
| min. Earth dist.    | 8470 May 28 03:16 | 6° $\text{II}$ 20'19     | 0.63904 AU | evening set         | 8471 May 03 19:28 | 28° $\text{Z}$ 06'40      |            |
| morning rise        | 8470 May 31 16:53 | 2° $\text{II}$ 53'19     |            | inferior conj       | 8471 May 09 09:48 | 22° $\text{Z}$ 26'22      | 3°22'16    |
| direct              | 8470 Jun 07 10:22 | 0° $\text{II}$ 13'06     |            | minimum elong       | 8471 May 09 10:12 | 22° $\text{Z}$ 25'07      | 3°22'07    |
| desc. node          | 8470 Jun 08 14:29 | 0° $\text{II}$ 17'32     |            | min. Earth dist.    | 8471 May 11 05:28 | 20° $\text{Z}$ 10'53      | 0.65667 AU |
| morning max el      | 8470 Jun 21 05:50 | 8° $\text{II}$ 14'22     | 27°37'57   | morning rise        | 8471 May 15 00:18 | 16° $\text{Z}$ 08'16      |            |
|                     | 8470 Jul 08 01:23 | 0° $\text{O}$            |            | direct              | 8471 May 21 11:59 | 13° $\text{Z}$ 21'32      |            |
|                     | 8470 Jul 25 06:56 | 0° $\Omega$              |            | desc. node          | 8471 May 26 11:28 | 14° $\text{Z}$ 42'18      |            |
| morning set         | 8470 Jul 26 04:13 | 1° $\Omega$ 44'50        |            | morning max el      | 8471 Jun 03 16:23 | 21° $\text{Z}$ 10'34      | 26°48'12   |
| max. Earth dist.    | 8470 Jul 31 02:24 | 11° $\Omega$ 48'21       | 1.32855 AU |                     | 8471 Jun 11 07:46 | 0° $\text{II}$            |            |
| asc. node           | 8470 Jul 31 21:40 | 13° $\Omega$ 29'47       |            |                     | 8471 Jul 01 05:27 | 0° $\text{O}$             |            |
|                     |                   |                          |            | morning set         | 8471 Jul 09 11:56 | 14° $\text{O}$ 59'00      |            |
| superior conj       | 8470 Aug 03 03:09 | 18° $\Omega$ 14'50       | 0°22'25    | max. Earth dist.    | 8471 Jul 13 17:36 | 23° $\text{O}$ 15'34      | 1.34177 AU |
| minimum elong       | 8470 Aug 03 02:05 | 18° $\Omega$ 09'06       | 0°22'04    |                     | 8471 Jul 17 01:07 | 0° $\Omega$               |            |
|                     | 8470 Aug 08 13:39 | 0° $\text{P}$            |            |                     |                   |                           |            |
| evening rise        | 8470 Aug 10 03:40 | 3° $\text{P}$ 23'32      |            | superior conj       | 8471 Jul 18 03:35 | 2° $\Omega$ 17'13         | -0°06'20   |
|                     | 8470 Aug 24 13:34 | 0° $\text{O}$            |            | minimum elong       | 8471 Jul 18 03:56 | 2° $\Omega$ 19'02         | 0°06'26    |
| evening max el      | 8470 Sep 01 12:49 | 9° $\text{O}$ 47'03      | 22°54'10   | behind sun begin    | 8471 Jul 17 22:38 | 1° $\Omega$ 51'29         |            |
| desc. node          | 8470 Sep 04 13:22 | 12° $\text{O}$ 25'10     |            | behind sun end      | 8471 Jul 18 09:13 | 2° $\Omega$ 46'39         |            |
| retrograde          | 8470 Sep 14 19:12 | 16° $\text{O}$ 24'40     |            | asc. node           | 8471 Jul 18 18:39 | 3° $\Omega$ 35'51         |            |
| evening set         | 8470 Sep 18 12:51 | 15° $\text{O}$ 54'06     |            | evening rise        | 8471 Jul 25 13:42 | 17° $\Omega$ 55'19        |            |
| min. Earth dist.    | 8470 Sep 25 21:10 | 12° $\text{O}$ 34'49     | 0.55234 AU |                     | 8471 Jul 31 13:49 | 0° $\text{P}$             |            |
| inferior conj       | 8470 Sep 27 07:28 | 11° $\text{O}$ 45'33     | -5°24'44   | evening max el      | 8471 Aug 14 06:26 | 20° $\text{P}$ 10'31      | 21°19'40   |
| minimum elong       | 8470 Sep 27 02:25 | 11° $\text{O}$ 52'48     | 5°24'09    | desc. node          | 8471 Aug 22 10:28 | 25° $\text{P}$ 32'41      |            |
| morning rise        | 8470 Oct 05 18:03 | 7° $\text{O}$ 56'29      |            | retrograde          | 8471 Aug 26 08:44 | 26° $\text{P}$ 10'16      |            |
| direct              | 8470 Oct 08 19:56 | 7° $\text{O}$ 34'25      |            | evening set         | 8471 Aug 28 19:24 | 25° $\text{P}$ 56'28      |            |
| morning max el      | 8470 Oct 19 23:45 | 12° $\text{O}$ 47'56     | 20°49'35   | inferior conj       | 8471 Sep 07 00:48 | 21° $\text{P}$ 59'08      | -4°21'15   |
| asc. node           | 8470 Oct 27 21:23 | 22° $\text{O}$ 38'14     |            | minimum elong       | 8471 Sep 06 15:15 | 22° $\text{P}$ 12'31      | 4°18'48    |
|                     | 8470 Nov 01 06:26 | 0° $\text{M}$            |            | min. Earth dist.    | 8471 Sep 07 05:58 | 21° $\text{P}$ 51'51      | 0.54677 AU |
| morning set         | 8470 Nov 08 07:13 | 13° $\text{M}$ 48'08     |            | morning rise        | 8471 Sep 15 11:50 | 18° $\text{P}$ 06'52      |            |
|                     |                   |                          |            | direct              | 8471 Sep 19 04:38 | 17° $\text{P}$ 37'18      |            |
| superior conj       | 8470 Nov 15 17:07 | 29° $\text{M}$ 11'57     | 1°36'38    | morning max el      | 8471 Oct 01 20:01 | 23° $\text{P}$ 37'34      | 22°26'30   |
| minimum elong       | 8470 Nov 15 18:39 | 29° $\text{M}$ 19'49     | 1°36'42    |                     | 8471 Oct 07 12:20 | 0° $\text{O}$             |            |
|                     | 8470 Nov 16 02:30 | 0° $\text{Z}$            |            | asc. node           | 8471 Oct 14 18:20 | 11° $\text{O}$ 05'36      |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| morning set         | 8471 Oct 23 17:50 | 28°♄36'57 |            | morning max el   | 8472 Sep 12 09:00 | 3°♄55'29  | 24°12'30   |
|                     | 8471 Oct 24 09:34 | 0°♄       |            | asc. node        | 8472 Sep 30 15:18 | 0°♄06'42  |            |
|                     |                   |           |            |                  | 8472 Sep 30 13:53 | 0°♄       |            |
| superior conj       | 8471 Oct 30 19:27 | 13°♄41'56 | 1°41'11    | morning set      | 8472 Oct 07 05:36 | 13°♄26'32 |            |
| minimum elong       | 8471 Oct 30 19:40 | 13°♄43'06 | 1°41'18    |                  |                   |           |            |
| max. Earth dist.    | 8471 Nov 03 06:32 | 20°♄56'51 | 1.34120 AU | superior conj    | 8472 Oct 14 03:06 | 28°♄25'07 | 1°39'12    |
| evening rise        | 8471 Nov 07 19:59 | 0°♄05'47  |            | minimum elong    | 8472 Oct 14 02:10 | 28°♄20'04 | 1°39'14    |
|                     | 8471 Nov 07 18:48 | 0°♄       |            |                  | 8472 Oct 14 20:33 | 0°♄       |            |
| desc. node          | 8471 Nov 18 09:13 | 19°♄10'08 |            | max. Earth dist. | 8472 Oct 16 06:30 | 3°♄03'13  | 1.32847 AU |
|                     | 8471 Nov 25 05:23 | 0°♄       |            | evening rise     | 8472 Oct 21 12:52 | 14°♄03'57 |            |
| evening max el      | 8471 Dec 12 15:43 | 21°♄51'47 | 27°05'05   |                  | 8472 Oct 29 21:57 | 0°♄       |            |
| retrograde          | 8471 Dec 25 23:56 | 29°♄12'26 |            | desc. node       | 8472 Nov 04 06:18 | 9°♄04'29  |            |
| evening set         | 8472 Jan 01 17:02 | 26°♄36'24 |            |                  | 8472 Nov 19 06:40 | 0°♄       |            |
| min. Earth dist.    | 8472 Jan 05 15:38 | 22°♄48'32 | 0.65343 AU | evening max el   | 8472 Nov 24 03:48 | 5°♄08'18  | 27°28'13   |
| inferior conj       | 8472 Jan 07 18:57 | 20°♄23'51 | -0°59'21   | retrograde       | 8472 Dec 07 19:53 | 12°♄27'02 |            |
| minimum elong       | 8472 Jan 07 20:42 | 20°♄18'56 | 0°58'26    | evening set      | 8472 Dec 14 20:18 | 9°♄54'59  |            |
| asc. node           | 8472 Jan 10 17:43 | 17°♄16'09 |            | min. Earth dist. | 8472 Dec 18 14:26 | 6°♄38'48  | 0.63684 AU |
| morning rise        | 8472 Jan 14 01:39 | 14°♄50'03 |            | inferior conj    | 8472 Dec 21 05:00 | 3°♄59'29  | -2°07'07   |
| direct              | 8472 Jan 16 18:24 | 14°♄10'57 |            | minimum elong    | 8472 Dec 21 09:00 | 3°♄49'17  | 2°05'20    |
| morning max el      | 8472 Jan 23 04:46 | 17°♄35'28 | 18°04'15   |                  | 8472 Dec 25 14:44 | 30°♄      |            |
|                     | 8472 Feb 01 09:48 | 0°♄       |            | morning rise     | 8472 Dec 27 23:31 | 28°♄40'46 |            |
| morning set         | 8472 Feb 10 09:51 | 14°♄35'40 |            | asc. node        | 8472 Dec 27 14:47 | 28°♄49'52 |            |
| desc. node          | 8472 Feb 14 08:39 | 21°♄02'53 |            | direct           | 8472 Dec 30 09:25 | 28°♄12'14 |            |
|                     | 8472 Feb 19 21:42 | 0°♄       |            |                  | 8473 Jan 04 02:12 | 0°♄       |            |
|                     |                   |           |            | morning max el   | 8473 Jan 05 22:07 | 1°♄35'25  | 17°48'53   |
| superior conj       | 8472 Feb 25 00:06 | 8°♄06'42  | -1°11'59   | morning set      | 8473 Jan 22 10:38 | 26°♄46'39 |            |
| minimum elong       | 8472 Feb 24 15:56 | 7°♄34'28  | 1°10'54    |                  | 8473 Jan 24 07:42 | 0°♄       |            |
| max. Earth dist.    | 8472 Feb 28 01:22 | 12°♄55'07 | 1.45392 AU | desc. node       | 8473 Jan 31 05:36 | 11°♄41'36 |            |
|                     | 8472 Mar 10 00:40 | 0°♄       |            |                  |                   |           |            |
| evening rise        | 8472 Mar 12 04:17 | 3°♄19'46  |            | superior conj    | 8473 Feb 04 01:22 | 18°♄00'05 | -0°27'38   |
| greatest brilliancy | 8472 Mar 25 08:51 | 23°♄30'28 | -0.7m      | minimum elong    | 8473 Feb 03 22:20 | 17°♄47'44 | 0°27'04    |
|                     | 8472 Mar 29 20:05 | 0°♄       |            | max. Earth dist. | 8473 Feb 09 20:04 | 27°♄19'05 | 1.44583 AU |
| evening max el      | 8472 Apr 06 03:07 | 9°♄05'15  | 19°34'40   |                  | 8473 Feb 11 12:40 | 0°♄       |            |
| asc. node           | 8472 Apr 07 16:34 | 10°♄33'20 |            | evening rise     | 8473 Feb 19 15:42 | 12°♄38'55 |            |
| retrograde          | 8472 Apr 13 09:39 | 13°♄14'22 |            |                  | 8473 Mar 03 03:41 | 0°♄       |            |
| evening set         | 8472 Apr 17 01:02 | 11°♄56'55 |            | evening max el   | 8473 Mar 20 04:49 | 22°♄44'38 | 20°36'11   |
| inferior conj       | 8472 Apr 22 10:39 | 6°♄01'50  | 3°20'03    | asc. node        | 8473 Mar 25 13:41 | 26°♄51'12 |            |
| minimum elong       | 8472 Apr 22 09:51 | 6°♄04'26  | 3°19'54    | retrograde       | 8473 Mar 28 08:11 | 27°♄30'10 |            |
| min. Earth dist.    | 8472 Apr 23 15:19 | 4°♄27'04  | 0.67015 AU | evening set      | 8473 Apr 01 08:46 | 25°♄57'27 |            |
|                     | 8472 Apr 27 11:19 | 30°♄      |            | inferior conj    | 8473 Apr 06 16:15 | 19°♄49'24 | 3°05'50    |
| morning rise        | 8472 Apr 27 18:20 | 29°♄43'47 |            | minimum elong    | 8473 Apr 06 14:35 | 19°♄55'08 | 3°05'31    |
| direct              | 8472 May 03 19:52 | 27°♄02'03 |            | min. Earth dist. | 8473 Apr 07 06:57 | 18°♄58'57 | 0.67915 AU |
|                     | 8472 May 11 03:20 | 0°♄       |            | morning rise     | 8473 Apr 11 20:11 | 13°♄33'45 |            |
| desc. node          | 8472 May 12 08:28 | 0°♄56'27  |            | direct           | 8473 Apr 17 08:55 | 11°♄06'11 |            |
| morning max el      | 8472 May 16 02:11 | 4°♄22'53  | 25°35'09   | morning max el   | 8473 Apr 28 11:13 | 17°♄44'17 | 24°08'51   |
|                     | 8472 Jun 04 16:45 | 0°♄       |            | desc. node       | 8473 Apr 29 05:26 | 18°♄31'09 |            |
| morning set         | 8472 Jun 21 05:00 | 27°♄28'44 |            |                  | 8473 May 08 17:07 | 0°♄       |            |
|                     | 8472 Jun 22 14:01 | 0°♄       |            |                  | 8473 May 28 18:04 | 0°♄       |            |
| max. Earth dist.    | 8472 Jun 24 21:50 | 4°♄20'52  | 1.35967 AU | morning set      | 8473 Jun 03 02:24 | 9°♄00'51  |            |
|                     |                   |           |            | max. Earth dist. | 8473 Jun 06 19:10 | 15°♄31'13 | 1.38102 AU |
|                     |                   |           |            |                  |                   |           |            |
| superior conj       | 8472 Jun 30 19:27 | 15°♄50'59 | -0°37'35   | superior conj    | 8473 Jun 13 23:23 | 28°♄47'53 | -1°09'31   |
| minimum elong       | 8472 Jun 30 21:42 | 16°♄02'17 | 0°37'21    | minimum elong    | 8473 Jun 14 03:42 | 29°♄08'33 | 1°09'00    |
| asc. node           | 8472 Jul 04 15:38 | 23°♄38'11 |            |                  | 8473 Jun 14 14:27 | 0°♄       |            |
|                     | 8472 Jul 07 18:07 | 0°♄       |            | asc. node        | 8473 Jun 21 12:41 | 13°♄33'09 |            |
| evening rise        | 8472 Jul 08 20:03 | 2°♄12'32  |            | evening rise     | 8473 Jun 22 20:09 | 16°♄08'32 |            |
|                     | 8472 Jul 25 09:16 | 0°♄       |            |                  | 8473 Jun 30 03:45 | 0°♄       |            |
| evening max el      | 8472 Jul 26 12:31 | 1°♄10'55  | 20°00'50   | evening max el   | 8473 Jul 09 07:29 | 12°♄56'08 | 19°02'15   |
| retrograde          | 8472 Aug 05 22:39 | 6°♄19'34  |            | retrograde       | 8473 Jul 18 02:03 | 17°♄16'45 |            |
| evening set         | 8472 Aug 07 20:05 | 6°♄10'08  |            | evening set      | 8473 Jul 20 00:16 | 17°♄05'02 |            |
| desc. node          | 8472 Aug 08 07:35 | 6°♄04'52  |            | desc. node       | 8473 Jul 26 04:40 | 14°♄17'18 |            |
| inferior conj       | 8472 Aug 16 20:43 | 2°♄10'40  | -2°35'15   | inferior conj    | 8473 Jul 28 08:19 | 12°♄50'37 | -0°39'29   |
| minimum elong       | 8472 Aug 16 13:39 | 2°♄21'17  | 2°32'47    | minimum elong    | 8473 Jul 28 06:37 | 12°♄53'32 | 0°38'58    |
| min. Earth dist.    | 8472 Aug 18 16:42 | 1°♄04'36  | 0.55082 AU | min. Earth dist. | 8473 Jul 31 06:49 | 10°♄49'29 | 0.56374 AU |
|                     | 8472 Aug 20 13:42 | 30°♄      |            | morning rise     | 8473 Aug 05 09:51 | 7°♄59'27  |            |
| morning rise        | 8472 Aug 25 05:41 | 27°♄55'20 |            | direct           | 8473 Aug 10 16:58 | 6°♄53'41  |            |
| direct              | 8472 Aug 29 16:46 | 27°♄11'55 |            | morning max el   | 8473 Aug 24 22:10 | 14°♄11'12 | 25°51'49   |
|                     | 8472 Sep 07 09:41 | 0°♄       |            |                  |                   |           |            |






































































































































|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8473 Sep 06 11:24 | 0°♎       |            | morning max el   | 8474 Aug 06 16:50 | 24°♊52'57 | 27°07'56   |
| asc. node        | 8473 Sep 17 12:17 | 19°♎32'54 |            |                  | 8474 Aug 11 09:57 | 0°♎       |            |
| morning set      | 8473 Sep 21 16:50 | 28°♎12'13 |            |                  | 8474 Aug 30 16:58 | 0°♎       |            |
|                  | 8473 Sep 22 12:58 | 0°♏       |            | asc. node        | 8474 Sep 04 09:15 | 9°♎17'10  |            |
|                  |                   |           |            | morning set      | 8474 Sep 06 01:53 | 12°♎49'16 |            |
| superior conj    | 8473 Sep 28 13:48 | 13°♏14'37 | 1°31'21    |                  |                   |           |            |
| minimum elong    | 8473 Sep 28 12:02 | 13°♏04'53 | 1°31'14    | superior conj    | 8474 Sep 13 01:38 | 28°♎04'34 | 1°18'11    |
| max. Earth dist. | 8473 Sep 29 13:09 | 15°♏23'28 | 1.32023 AU | minimum elong    | 8474 Sep 12 23:26 | 27°♎52'21 | 1°17'53    |
| evening rise     | 8473 Oct 05 13:57 | 28°♏23'20 |            | max. Earth dist. | 8474 Sep 12 23:06 | 27°♎50'31 | 1.31650 AU |
|                  | 8473 Oct 06 08:36 | 0°♐       |            |                  | 8474 Sep 13 22:25 | 0°♏       |            |
| desc. node       | 8473 Oct 22 03:23 | 28°♐28'30 |            | evening rise     | 8474 Sep 19 20:39 | 12°♏56'44 |            |
|                  | 8473 Oct 23 03:26 | 0°♑       |            |                  | 8474 Sep 28 10:51 | 0°♐       |            |
| evening max el   | 8473 Nov 06 12:21 | 17°♑50'42 | 27°20'27   | desc. node       | 8474 Oct 09 00:29 | 17°♐10'18 |            |
| retrograde       | 8473 Nov 20 08:19 | 25°♑03'50 |            | evening max el   | 8474 Oct 19 14:33 | 29°♐47'02 | 26°38'51   |
| evening set      | 8473 Nov 27 10:21 | 22°♑45'00 |            |                  | 8474 Oct 19 20:05 | 0°♑       |            |
| min. Earth dist. | 8473 Dec 01 02:46 | 19°♑54'52 | 0.61755 AU | retrograde       | 8474 Nov 02 12:29 | 6°♑54'41  |            |
| inferior conj    | 8473 Dec 04 02:54 | 17°♑12'09 | -3°17'33   | evening set      | 8474 Nov 09 07:02 | 4°♑59'46  |            |
| minimum elong    | 8473 Dec 04 09:07 | 16°♑58'03 | 3°15'13    | min. Earth dist. | 8474 Nov 13 04:20 | 2°♑24'10  | 0.59669 AU |
| morning rise     | 8473 Dec 11 10:06 | 12°♑12'01 |            | inferior conj    | 8474 Nov 16 09:10 | 29°♐52'43 | -4°24'28   |
| direct           | 8473 Dec 13 15:52 | 11°♑50'27 |            | minimum elong    | 8474 Nov 16 16:32 | 29°♐38'09 | 4°22'23    |
| asc. node        | 8473 Dec 14 11:50 | 11°♑53'31 |            |                  | 8474 Nov 16 05:30 | 30°♐♐     |            |
| morning max el   | 8473 Dec 20 14:23 | 15°♑21'06 | 17°51'35   | morning rise     | 8474 Nov 24 04:27 | 25°♐14'23 |            |
|                  | 8473 Dec 30 18:16 | 0°♒       |            | direct           | 8474 Nov 26 09:34 | 24°♐56'35 |            |
| morning set      | 8474 Jan 05 08:07 | 9°♒56'28  |            | asc. node        | 8474 Dec 01 08:52 | 26°♐31'42 |            |
|                  |                   |           |            | morning max el   | 8474 Dec 04 02:10 | 28°♐43'44 | 18°13'35   |
| superior conj    | 8474 Jan 16 04:04 | 29°♒07'01 | 0°14'19    |                  | 8474 Dec 05 07:25 | 0°♑       |            |
| minimum elong    | 8474 Jan 16 05:21 | 29°♒12'34 | 0°14'18    | morning set      | 8474 Dec 19 20:20 | 23°♑47'29 |            |
| behind sun begin | 8474 Jan 16 01:28 | 28°♒55'54 |            |                  | 8474 Dec 23 03:11 | 0°♒       |            |
| behind sun end   | 8474 Jan 16 09:14 | 29°♒29'13 |            |                  |                   |           |            |
|                  | 8474 Jan 16 16:26 | 0°♓       |            | superior conj    | 8474 Dec 29 06:49 | 11°♒23'07 | 0°48'43    |
| desc. node       | 8474 Jan 18 02:33 | 2°♓25'05  |            | minimum elong    | 8474 Dec 29 10:01 | 11°♒37'35 | 0°48'26    |
| max. Earth dist. | 8474 Jan 23 11:32 | 11°♓20'55 | 1.43142 AU | desc. node       | 8475 Jan 04 23:32 | 23°♒10'13 |            |
| evening rise     | 8474 Jan 30 08:02 | 22°♓17'51 |            | max. Earth dist. | 8475 Jan 05 21:51 | 24°♒45'11 | 1.41233 AU |
|                  | 8474 Feb 04 07:48 | 0°♈       |            |                  | 8475 Jan 09 01:09 | 0°♓       |            |
|                  | 8474 Feb 25 10:54 | 0°♉       |            | evening rise     | 8475 Jan 10 17:33 | 2°♓45'30  |            |
| evening max el   | 8474 Mar 03 01:02 | 6°♉24'36  | 21°48'52   |                  | 8475 Jan 28 16:10 | 0°♈       |            |
| retrograde       | 8474 Mar 12 05:56 | 11°♉51'36 |            | evening max el   | 8475 Feb 13 16:58 | 20°♈07'07 | 23°07'55   |
| asc. node        | 8474 Mar 12 10:48 | 11°♉51'24 |            | retrograde       | 8475 Feb 24 01:23 | 26°♈14'58 |            |
| evening set      | 8474 Mar 16 16:52 | 10°♉03'33 |            | asc. node        | 8475 Feb 27 07:53 | 25°♈21'59 |            |
| inferior conj    | 8474 Mar 22 00:22 | 3°♉44'58  | 2°41'21    | evening set      | 8475 Feb 28 23:47 | 24°♈12'09 |            |
| minimum elong    | 8474 Mar 21 22:13 | 3°♉52'29  | 2°40'50    | inferior conj    | 8475 Mar 06 09:05 | 17°♈46'20 | 2°07'44    |
| min. Earth dist. | 8474 Mar 22 02:13 | 3°♉38'34  | 0.68373 AU | minimum elong    | 8475 Mar 06 06:52 | 17°♈54'02 | 2°07'05    |
|                  | 8474 Mar 24 19:48 | 30°♈♈     |            | min. Earth dist. | 8475 Mar 05 22:59 | 18°♈21'13 | 0.68409 AU |
| morning rise     | 8474 Mar 27 03:24 | 27°♈33'06 |            | morning rise     | 8475 Mar 11 13:52 | 11°♈39'28 |            |
| direct           | 8474 Apr 01 02:10 | 25°♈25'22 |            | direct           | 8475 Mar 15 22:42 | 9°♈53'55  |            |
|                  | 8474 Apr 09 15:36 | 0°♉       |            | morning max el   | 8475 Mar 24 12:52 | 14°♈51'33 | 21°14'35   |
| morning max el   | 8474 Apr 10 21:40 | 1°♉12'48  | 22°39'08   | desc. node       | 8475 Apr 02 23:19 | 26°♈18'12 |            |
| desc. node       | 8474 Apr 16 02:23 | 7°♉03'33  |            |                  | 8475 Apr 05 15:34 | 0°♉       |            |
|                  | 8474 May 02 14:57 | 0°♊       |            | morning set      | 8475 Apr 24 15:25 | 28°♉26'24 |            |
| morning set      | 8474 May 14 22:33 | 19°♊20'54 |            |                  | 8475 Apr 25 15:08 | 0°♊       |            |
| max. Earth dist. | 8474 May 19 16:18 | 27°♊16'27 | 1.40354 AU | max. Earth dist. | 8475 May 01 18:29 | 9°♊52'57  | 1.42448 AU |
|                  | 8474 May 21 06:28 | 0°♋       |            |                  |                   |           |            |
| superior conj    | 8474 May 27 11:02 | 10°♋56'36 | -1°39'10   | superior conj    | 8475 May 09 01:45 | 22°♊07'12 | -2°01'58   |
| minimum elong    | 8474 May 27 16:48 | 11°♋22'48 | 1°38'39    | minimum elong    | 8475 May 09 06:50 | 22°♊28'59 | 2°01'48    |
| evening rise     | 8474 Jun 06 10:43 | 29°♋33'56 |            |                  | 8475 May 13 14:30 | 0°♋       |            |
|                  | 8474 Jun 06 16:13 | 0°♌       |            | evening rise     | 8475 May 20 11:43 | 12°♋19'08 |            |
| asc. node        | 8474 Jun 08 09:43 | 3°♌15'39  |            | asc. node        | 8475 May 26 06:44 | 22°♋40'47 |            |
| evening max el   | 8474 Jun 22 12:15 | 25°♌20'32 | 18°24'35   |                  | 8475 May 30 15:56 | 0°♌       |            |
| retrograde       | 8474 Jun 30 00:35 | 29°♌05'58 |            | evening max el   | 8475 Jun 05 23:03 | 8°♌15'06  | 18°06'58   |
| evening set      | 8474 Jul 02 05:11 | 28°♌47'40 |            | retrograde       | 8475 Jun 12 16:35 | 11°♌40'46 |            |
| inferior conj    | 8474 Jul 09 17:24 | 24°♌13'21 | 0°58'51    | evening set      | 8475 Jun 15 04:46 | 11°♌12'28 |            |
| minimum elong    | 8474 Jul 09 19:23 | 24°♌09'21 | 0°57'58    | inferior conj    | 8475 Jun 21 23:10 | 6°♌18'05  | 2°09'41    |
| min. Earth dist. | 8474 Jul 13 02:25 | 21°♌30'22 | 0.58292 AU | minimum elong    | 8475 Jun 22 02:12 | 6°♌10'56  | 2°08'38    |
| desc. node       | 8474 Jul 13 01:45 | 21°♌31'38 |            | min. Earth dist. | 8475 Jun 25 05:28 | 3°♌15'09  | 0.60513 AU |
| morning rise     | 8474 Jul 17 06:10 | 18°♌46'27 |            | morning rise     | 8475 Jun 28 20:58 | 0°♌24'53  |            |
| direct           | 8474 Jul 23 07:24 | 17°♌10'46 |            | desc. node       | 8475 Jun 29 22:49 | 29°♋46'47 |            |
|                  |                   |           |            |                  | 8475 Jun 29 13:20 | 30°♋♋     |            |

|                  |                   |                          |            |                     |                   |                          |            |
|------------------|-------------------|--------------------------|------------|---------------------|-------------------|--------------------------|------------|
| direct           | 8475 Jul 05 10:35 | 28° $\Pi$ 17'58          |            | direct              | 8476 Jun 16 23:55 | 10° $\Pi$ 17'39          |            |
|                  | 8475 Jul 11 15:58 | 0° $\mathfrak{E}$        |            | morning max el      | 8476 Jul 01 01:02 | 18° $\Pi$ 20'32          | 27°52'34   |
| morning max el   | 8475 Jul 19 18:14 | 6° $\mathfrak{E}$ 15'31  | 27°49'24   |                     | 8476 Jul 10 19:57 | 0° $\mathfrak{E}$        |            |
|                  | 8475 Aug 06 14:29 | 0° $\Omega$              |            |                     | 8476 Jul 29 11:06 | 0° $\Omega$              |            |
| morning set      | 8475 Aug 21 06:54 | 27° $\Omega$ 11'46       |            | morning set         | 8476 Aug 04 05:49 | 11° $\Omega$ 13'38       |            |
| asc. node        | 8475 Aug 22 06:11 | 29° $\Omega$ 13'19       |            | asc. node           | 8476 Aug 08 03:07 | 19° $\Omega$ 16'37       |            |
|                  | 8475 Aug 22 15:03 | 0° $\mathfrak{M}$        |            | max. Earth dist.    | 8476 Aug 09 13:37 | 22° $\Omega$ 20'21       | 1.32304 AU |
| max. Earth dist. | 8475 Aug 27 08:32 | 10° $\mathfrak{M}$ 13'11 | 1.31740 AU |                     |                   |                          |            |
|                  |                   |                          |            | superior conj       | 8476 Aug 11 21:21 | 27° $\Omega$ 21'27       | 0°37'24    |
| superior conj    | 8475 Aug 28 12:44 | 12° $\mathfrak{M}$ 48'43 | 1°00'05    | minimum elong       | 8476 Aug 11 19:43 | 27° $\Omega$ 12'34       | 0°36'57    |
| minimum elong    | 8475 Aug 28 10:34 | 12° $\mathfrak{M}$ 36'42 | 0°59'38    |                     | 8476 Aug 13 02:25 | 0° $\mathfrak{M}$        |            |
| evening rise     | 8475 Sep 04 06:44 | 27° $\mathfrak{M}$ 37'11 |            | evening rise        | 8476 Aug 18 18:17 | 12° $\mathfrak{M}$ 18'50 |            |
|                  | 8475 Sep 05 09:35 | 0° $\mathfrak{L}$        |            |                     | 8476 Aug 27 15:32 | 0° $\mathfrak{L}$        |            |
|                  | 8475 Sep 22 05:19 | 0° $\mathfrak{M}$        |            | desc. node          | 8476 Sep 11 18:42 | 21° $\mathfrak{L}$ 11'49 |            |
| desc. node       | 8475 Sep 25 21:36 | 4° $\mathfrak{M}$ 52'29  |            | evening max el      | 8476 Sep 11 20:51 | 21° $\mathfrak{L}$ 17'03 | 23°51'47   |
| evening max el   | 8475 Oct 01 08:44 | 10° $\mathfrak{M}$ 52'11 | 25°25'54   | retrograde          | 8476 Sep 25 12:20 | 28° $\mathfrak{L}$ 06'45 |            |
| retrograde       | 8475 Oct 15 06:38 | 17° $\mathfrak{M}$ 53'52 |            | evening set         | 8476 Sep 30 03:03 | 27° $\mathfrak{L}$ 20'09 |            |
| evening set      | 8475 Oct 21 05:22 | 16° $\mathfrak{M}$ 32'16 |            | min. Earth dist.    | 8476 Oct 06 07:20 | 24° $\mathfrak{L}$ 20'26 | 0.55937 AU |
| min. Earth dist. | 8475 Oct 25 20:47 | 13° $\mathfrak{M}$ 53'49 | 0.57633 AU | inferior conj       | 8476 Oct 08 11:28 | 23° $\mathfrak{L}$ 01'37 | -5°35'53   |
| inferior conj    | 8475 Oct 28 20:28 | 11° $\mathfrak{M}$ 50'58 | -5°16'28   | minimum elong       | 8476 Oct 08 10:53 | 23° $\mathfrak{L}$ 02'29 | 5°35'48    |
| minimum elong    | 8475 Oct 29 02:00 | 11° $\mathfrak{M}$ 41'26 | 5°15'33    | morning rise        | 8476 Oct 16 20:49 | 19° $\mathfrak{L}$ 05'21 |            |
| morning rise     | 8475 Nov 06 00:59 | 7° $\mathfrak{M}$ 35'22  |            | direct              | 8476 Oct 19 15:25 | 18° $\mathfrak{L}$ 45'49 |            |
| direct           | 8475 Nov 08 10:06 | 7° $\mathfrak{M}$ 18'16  |            | morning max el      | 8476 Oct 29 21:29 | 23° $\mathfrak{L}$ 35'16 | 20°01'53   |
| morning max el   | 8475 Nov 17 05:40 | 11° $\mathfrak{M}$ 31'45 | 18°56'32   | asc. node           | 8476 Nov 04 02:50 | 29° $\mathfrak{L}$ 42'05 |            |
| asc. node        | 8475 Nov 18 05:51 | 12° $\mathfrak{M}$ 32'52 |            |                     | 8476 Nov 04 07:58 | 0° $\mathfrak{M}$        |            |
|                  | 8475 Nov 29 14:15 | 0° $\mathfrak{X}$        |            | morning set         | 8476 Nov 16 23:33 | 22° $\mathfrak{M}$ 40'22 |            |
| morning set      | 8475 Dec 03 18:36 | 8° $\mathfrak{X}$ 05'11  |            |                     | 8476 Nov 20 13:31 | 0° $\mathfrak{X}$        |            |
|                  |                   |                          |            |                     |                   |                          |            |
| superior conj    | 8475 Dec 12 04:36 | 24° $\mathfrak{X}$ 32'43 | 1°14'06    | superior conj       | 8476 Nov 24 16:30 | 8° $\mathfrak{X}$ 22'06  | 1°30'43    |
| minimum elong    | 8475 Dec 12 07:49 | 24° $\mathfrak{X}$ 48'08 | 1°13'54    | minimum elong       | 8476 Nov 24 18:47 | 8° $\mathfrak{X}$ 33'29  | 1°30'42    |
|                  | 8475 Dec 15 02:04 | 0° $\mathfrak{Z}$        |            | max. Earth dist.    | 8476 Nov 30 10:07 | 19° $\mathfrak{X}$ 32'10 | 1.36957 AU |
| max. Earth dist. | 8475 Dec 19 03:54 | 7° $\mathfrak{Z}$ 25'16  | 1.39087 AU | evening rise        | 8476 Dec 04 04:55 | 26° $\mathfrak{X}$ 31'24 |            |
| desc. node       | 8475 Dec 22 20:31 | 13° $\mathfrak{Z}$ 52'35 |            |                     | 8476 Dec 06 03:41 | 0° $\mathfrak{Z}$        |            |
| evening rise     | 8475 Dec 23 00:51 | 14° $\mathfrak{Z}$ 11'05 |            | desc. node          | 8476 Dec 08 17:32 | 4° $\mathfrak{Z}$ 28'20  |            |
|                  | 8476 Jan 01 17:48 | 0° $\mathfrak{A}$        |            |                     | 8476 Dec 25 05:26 | 0° $\mathfrak{A}$        |            |
|                  | 8476 Jan 23 15:06 | 0° $\mathfrak{H}$        |            | evening max el      | 8477 Jan 08 19:50 | 17° $\mathfrak{A}$ 40'58 | 25°40'42   |
| evening max el   | 8476 Jan 27 06:38 | 3° $\mathfrak{H}$ 53'06  | 24°27'32   | retrograde          | 8477 Jan 21 04:24 | 24° $\mathfrak{A}$ 45'54 |            |
| retrograde       | 8476 Feb 07 17:15 | 10° $\mathfrak{H}$ 34'54 |            | evening set         | 8477 Jan 27 03:48 | 22° $\mathfrak{A}$ 18'33 |            |
| evening set      | 8476 Feb 13 03:58 | 8° $\mathfrak{H}$ 18'39  |            | asc. node           | 8477 Jan 31 02:04 | 18° $\mathfrak{A}$ 07'11 |            |
| asc. node        | 8476 Feb 14 04:58 | 7° $\mathfrak{H}$ 20'35  |            | min. Earth dist.    | 8477 Jan 31 11:51 | 17° $\mathfrak{A}$ 36'36 | 0.67283 AU |
| min. Earth dist. | 8476 Feb 17 18:58 | 3° $\mathfrak{H}$ 02'03  | 0.68039 AU | inferior conj       | 8477 Feb 01 20:49 | 15° $\mathfrak{A}$ 51'48 | 0°35'12    |
| inferior conj    | 8476 Feb 18 16:31 | 1° $\mathfrak{H}$ 49'52  | 1°25'32    | minimum elong       | 8477 Feb 01 19:56 | 15° $\mathfrak{A}$ 54'36 | 0°34'59    |
| minimum elong    | 8476 Feb 18 14:42 | 1° $\mathfrak{H}$ 55'57  | 1°24'58    | morning rise        | 8477 Feb 07 12:31 | 9° $\mathfrak{A}$ 59'52  |            |
|                  | 8476 Feb 20 01:50 | 30° $\mathfrak{R}$       |            | direct              | 8477 Feb 10 20:32 | 8° $\mathfrak{A}$ 56'04  |            |
| morning rise     | 8476 Feb 24 01:34 | 25° $\mathfrak{A}$ 49'29 |            | morning max el      | 8477 Feb 17 17:44 | 12° $\mathfrak{A}$ 42'39 | 19°03'02   |
| direct           | 8476 Feb 27 21:20 | 24° $\mathfrak{A}$ 25'50 |            |                     | 8477 Mar 02 16:01 | 0° $\mathfrak{H}$        |            |
| morning max el   | 8476 Mar 06 11:24 | 28° $\mathfrak{A}$ 42'01 | 20°01'25   | greatest brilliancy | 8477 Mar 03 11:01 | 1° $\mathfrak{H}$ 12'00  | -0.8m      |
|                  | 8476 Mar 07 17:26 | 0° $\mathfrak{H}$        |            | desc. node          | 8477 Mar 06 17:09 | 6° $\mathfrak{H}$ 10'41  |            |
| desc. node       | 8476 Mar 19 20:14 | 16° $\mathfrak{H}$ 03'24 |            | morning set         | 8477 Mar 12 17:45 | 15° $\mathfrak{H}$ 29'44 |            |
|                  | 8476 Mar 29 03:57 | 0° $\mathfrak{Y}$        |            |                     | 8477 Mar 22 01:24 | 0° $\mathfrak{Y}$        |            |
| morning set      | 8476 Apr 02 14:10 | 6° $\mathfrak{Y}$ 46'52  |            | max. Earth dist.    | 8477 Mar 26 19:44 | 7° $\mathfrak{Y}$ 27'43  | 1.45194 AU |
| max. Earth dist. | 8476 Apr 13 03:54 | 23° $\mathfrak{Y}$ 20'46 | 1.44126 AU |                     |                   |                          |            |
|                  | 8476 Apr 17 07:11 | 0° $\mathfrak{B}$        |            | superior conj       | 8477 Mar 29 07:47 | 11° $\mathfrak{Y}$ 24'12 | -2°03'23   |
|                  |                   |                          |            | minimum elong       | 8477 Mar 29 01:14 | 10° $\mathfrak{Y}$ 58'22 | 2°03'04    |
| superior conj    | 8476 Apr 18 16:07 | 2° $\mathfrak{B}$ 13'58  | -2°11'58   |                     | 8477 Apr 09 22:37 | 0° $\mathfrak{B}$        |            |
| minimum elong    | 8476 Apr 18 16:37 | 2° $\mathfrak{B}$ 16'02  | 2°12'04    | evening rise        | 8477 Apr 13 02:57 | 5° $\mathfrak{B}$ 11'02  |            |
| evening rise     | 8476 May 01 18:31 | 24° $\mathfrak{B}$ 14'00 |            |                     | 8477 Apr 28 21:03 | 0° $\mathfrak{H}$        |            |
|                  | 8476 May 05 03:05 | 0° $\mathfrak{H}$        |            | asc. node           | 8477 Apr 29 00:52 | 0° $\mathfrak{H}$ 12'55  |            |
| asc. node        | 8476 May 12 03:47 | 11° $\mathfrak{H}$ 42'33 |            | evening max el      | 8477 May 03 01:06 | 4° $\mathfrak{H}$ 59'37  | 18°28'19   |
| evening max el   | 8476 May 19 12:22 | 21° $\mathfrak{H}$ 30'56 | 18°08'27   | retrograde          | 8477 May 09 12:11 | 8° $\mathfrak{H}$ 29'35  |            |
| retrograde       | 8476 May 25 21:51 | 24° $\mathfrak{H}$ 51'46 |            | evening set         | 8477 May 12 15:11 | 7° $\mathfrak{H}$ 35'05  |            |
| evening set      | 8476 May 28 17:30 | 24° $\mathfrak{H}$ 11'04 |            | inferior conj       | 8477 May 18 09:37 | 2° $\mathfrak{H}$ 04'05  | 3°17'02    |
| inferior conj    | 8476 Jun 03 21:57 | 18° $\mathfrak{H}$ 57'44 | 2°54'09    | minimum elong       | 8477 May 18 10:47 | 2° $\mathfrak{H}$ 00'36  | 3°16'46    |
| minimum elong    | 8476 Jun 04 00:22 | 18° $\mathfrak{H}$ 51'13 | 2°53'31    |                     | 8477 May 20 03:27 | 30° $\mathfrak{R}$       |            |
| min. Earth dist. | 8476 Jun 06 17:11 | 15° $\mathfrak{H}$ 58'57 | 0.62729 AU | min. Earth dist.    | 8477 May 20 14:05 | 29° $\mathfrak{R}$ 29'09 | 0.64705 AU |
| morning rise     | 8476 Jun 10 05:34 | 12° $\mathfrak{H}$ 49'03 |            | morning rise        | 8477 May 24 05:31 | 25° $\mathfrak{R}$ 48'02 |            |
| desc. node       | 8476 Jun 15 19:51 | 10° $\mathfrak{H}$ 22'00 |            | direct              | 8477 May 30 21:20 | 23° $\mathfrak{R}$ 03'33 |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| desc. node          | 8477 Jun 02 16:53 | 23°♄29'19 |            | inferior conj       | 8478 May 02 06:36 | 15°♄31'01 | 3°22'57    |
|                     | 8477 Jun 12 10:16 | 0°♄       |            | minimum elong       | 8478 May 02 06:28 | 15°♄31'27 | 3°22'48    |
| morning max el      | 8477 Jun 13 10:49 | 1°♄00'36  | 27°20'15   | min. Earth dist.    | 8478 May 03 19:40 | 13°♄32'28 | 0.66299 AU |
|                     | 8477 Jul 04 22:22 | 0°♄       |            | morning rise        | 8478 May 07 17:50 | 9°♄12'40  |            |
| morning set         | 8477 Jul 18 19:57 | 24°♄46'56 |            | direct              | 8478 May 14 01:33 | 6°♄27'08  |            |
|                     | 8477 Jul 21 11:05 | 0°♄       |            | desc. node          | 8478 May 20 13:52 | 8°♄44'45  |            |
| max. Earth dist.    | 8477 Jul 23 10:45 | 4°♄02'48  | 1.33358 AU | morning max el      | 8478 May 26 21:20 | 14°♄05'24 | 26°19'24   |
| asc. node           | 8477 Jul 26 00:05 | 9°♄22'23  |            |                     | 8478 Jun 08 19:34 | 0°♄       |            |
|                     |                   |           |            |                     | 8478 Jun 27 16:23 | 0°♄       |            |
| superior conj       | 8477 Jul 27 01:23 | 11°♄36'09 | 0°10'39    | morning set         | 8478 Jul 01 21:57 | 7°♄43'08  |            |
| minimum elong       | 8477 Jul 27 00:51 | 11°♄33'19 | 0°10'22    | max. Earth dist.    | 8478 Jul 05 21:30 | 15°♄20'06 | 1.34895 AU |
| behind sun begin    | 8477 Jul 26 20:37 | 11°♄10'51 |            |                     |                   |           |            |
| behind sun end      | 8477 Jul 27 05:05 | 11°♄55'49 |            | superior conj       | 8478 Jul 10 22:31 | 25°♄26'47 | -0°19'22   |
| evening rise        | 8477 Aug 03 05:24 | 26°♄55'27 |            | minimum elong       | 8478 Jul 10 23:37 | 25°♄32'29 | 0°19'20    |
|                     | 8477 Aug 04 16:34 | 0°♄       |            | asc. node           | 8478 Jul 12 21:05 | 29°♄27'05 |            |
|                     | 8477 Aug 22 23:01 | 0°♄       |            |                     | 8478 Jul 13 03:26 | 0°♄       |            |
| evening max el      | 8477 Aug 24 09:45 | 1°♄29'30  | 22°12'39   | evening rise        | 8478 Jul 18 14:10 | 11°♄21'39 |            |
| desc. node          | 8477 Aug 29 15:48 | 5°♄37'59  |            |                     | 8478 Jul 28 08:03 | 0°♄       |            |
| retrograde          | 8477 Sep 06 05:45 | 7°♄52'44  |            | evening max el      | 8478 Aug 06 08:04 | 12°♄05'04 | 20°43'40   |
| evening set         | 8477 Sep 09 08:49 | 7°♄31'05  |            | desc. node          | 8478 Aug 16 12:56 | 17°♄40'28 |            |
| min. Earth dist.    | 8477 Sep 17 15:25 | 3°♄54'35  | 0.54888 AU | retrograde          | 8478 Aug 17 17:56 | 17°♄44'09 |            |
| inferior conj       | 8477 Sep 18 09:39 | 3°♄28'58  | -5°04'29   | evening set         | 8478 Aug 19 20:51 | 17°♄33'14 |            |
| minimum elong       | 8477 Sep 18 01:54 | 3°♄39'52  | 5°03'07    | inferior conj       | 8478 Aug 29 02:05 | 13°♄36'22 | -3°39'42   |
|                     | 8477 Sep 25 17:36 | 30°♄      |            | minimum elong       | 8478 Aug 28 16:51 | 13°♄49'34 | 3°36'51    |
| morning rise        | 8477 Sep 26 20:36 | 29°♄41'10 |            | min. Earth dist.    | 8478 Aug 30 00:27 | 13°♄04'23 | 0.54730 AU |
| direct              | 8477 Sep 30 04:49 | 29°♄16'15 |            | morning rise        | 8478 Sep 06 12:46 | 9°♄36'55  |            |
|                     | 8477 Oct 04 11:49 | 0°♄       |            | direct              | 8478 Sep 10 12:53 | 9°♄02'36  |            |
| morning max el      | 8477 Oct 12 00:08 | 4°♄49'08  | 21°28'55   | morning max el      | 8478 Sep 23 16:25 | 15°♄21'33 | 23°11'33   |
| asc. node           | 8477 Oct 21 23:48 | 17°♄44'13 |            |                     | 8478 Oct 05 02:33 | 0°♄       |            |
|                     | 8477 Oct 28 17:18 | 0°♄       |            | asc. node           | 8478 Oct 08 20:46 | 6°♄26'39  |            |
| morning set         | 8477 Nov 01 08:44 | 7°♄25'54  |            | morning set         | 8478 Oct 16 20:02 | 22°♄15'26 |            |
|                     |                   |           |            |                     | 8478 Oct 20 10:38 | 0°♄       |            |
| superior conj       | 8477 Nov 08 14:31 | 22°♄39'50 | 1°39'24    |                     |                   |           |            |
| minimum elong       | 8477 Nov 08 15:29 | 22°♄44'53 | 1°39'30    | superior conj       | 8478 Oct 23 19:23 | 7°♄15'59  | 1°41'05    |
|                     | 8477 Nov 12 04:20 | 0°♄       |            | minimum elong       | 8478 Oct 23 19:05 | 7°♄14'23  | 1°41'12    |
| max. Earth dist.    | 8477 Nov 12 21:30 | 1°♄26'13  | 1.35051 AU | max. Earth dist.    | 8478 Oct 26 16:45 | 13°♄24'47 | 1.33517 AU |
| evening rise        | 8477 Nov 17 02:14 | 9°♄37'25  |            | evening rise        | 8478 Oct 31 12:57 | 23°♄18'50 |            |
| desc. node          | 8477 Nov 25 14:34 | 24°♄53'05 |            |                     | 8478 Nov 03 23:52 | 0°♄       |            |
|                     | 8477 Nov 28 16:52 | 0°♄       |            | desc. node          | 8478 Nov 12 11:38 | 15°♄00'38 |            |
|                     | 8477 Dec 20 23:02 | 0°♄       |            |                     | 8478 Nov 22 08:33 | 0°♄       |            |
| evening max el      | 8477 Dec 22 09:12 | 1°♄24'54  | 26°40'02   | evening max el      | 8478 Dec 04 21:59 | 14°♄54'11 | 27°18'20   |
| retrograde          | 8478 Jan 04 10:08 | 8°♄42'06  |            | retrograde          | 8478 Dec 18 09:54 | 22°♄14'49 |            |
| evening set         | 8478 Jan 10 21:30 | 6°♄07'30  |            | evening set         | 8478 Dec 25 06:50 | 19°♄39'08 |            |
| min. Earth dist.    | 8478 Jan 14 23:20 | 2°♄00'21  | 0.66157 AU | min. Earth dist.    | 8478 Dec 29 03:13 | 16°♄05'33 | 0.64676 AU |
| inferior conj       | 8478 Jan 16 19:57 | 29°♄48'18 | -0°22'46   | inferior conj       | 8478 Dec 31 11:33 | 13°♄33'17 | -1°27'29   |
| minimum elong       | 8478 Jan 16 20:35 | 29°♄46'26 | 0°22'20    | minimum elong       | 8478 Dec 31 14:13 | 13°♄26'04 | 1°26'11    |
|                     | 8478 Jan 16 16:01 | 30°♄      |            | asc. node           | 8479 Jan 04 20:14 | 9°♄22'13  |            |
| asc. node           | 8478 Jan 17 23:09 | 28°♄28'45 |            | morning rise        | 8479 Jan 06 23:08 | 8°♄05'49  |            |
| morning rise        | 8478 Jan 22 20:36 | 24°♄07'14 |            | direct              | 8479 Jan 09 12:42 | 7°♄31'40  |            |
| direct              | 8478 Jan 25 18:27 | 23°♄20'07 |            | morning max el      | 8479 Jan 15 23:07 | 10°♄54'14 | 17°55'38   |
| morning max el      | 8478 Feb 01 06:31 | 26°♄49'14 | 18°20'55   |                     | 8479 Jan 29 03:49 | 0°♄       |            |
|                     | 8478 Feb 04 02:30 | 0°♄       |            | morning set         | 8479 Feb 02 08:03 | 6°♄58'25  |            |
| morning set         | 8478 Feb 20 22:14 | 25°♄30'50 |            | desc. node          | 8479 Feb 08 10:59 | 17°♄08'20 |            |
| desc. node          | 8478 Feb 21 14:03 | 26°♄34'04 |            |                     |                   |           |            |
|                     | 8478 Feb 23 17:38 | 0°♄       |            | superior conj       | 8479 Feb 16 02:09 | 29°♄30'48 | -0°53'25   |
|                     |                   |           |            | minimum elong       | 8479 Feb 15 20:01 | 29°♄06'16 | 0°52'29    |
| superior conj       | 8478 Mar 08 12:45 | 20°♄12'32 | -1°34'59   |                     | 8479 Feb 16 09:28 | 0°♄       |            |
| minimum elong       | 8478 Mar 08 03:09 | 19°♄34'57 | 1°33'59    | max. Earth dist.    | 8479 Feb 20 10:54 | 6°♄26'17  | 1.45134 AU |
| max. Earth dist.    | 8478 Mar 09 15:15 | 21°♄56'18 | 1.45538 AU | evening rise        | 8479 Mar 04 03:46 | 24°♄37'49 |            |
|                     | 8478 Mar 14 18:57 | 0°♄       |            |                     | 8479 Mar 07 15:51 | 0°♄       |            |
| evening rise        | 8478 Mar 24 12:07 | 15°♄13'06 |            | greatest brilliancy | 8479 Mar 18 19:26 | 16°♄46'11 | -0.6m      |
|                     | 8478 Apr 02 22:46 | 0°♄       |            |                     | 8479 Mar 28 14:41 | 0°♄       |            |
| greatest brilliancy | 8478 Apr 04 00:04 | 1°♄37'38  | -0.8m      | evening max el      | 8479 Mar 30 15:29 | 2°♄13'18  | 19°59'07   |
| asc. node           | 8478 Apr 15 21:59 | 18°♄02'15 |            | asc. node           | 8479 Apr 02 19:07 | 4°♄57'28  |            |
| evening max el      | 8478 Apr 16 10:44 | 18°♄35'19 | 19°05'41   | retrograde          | 8479 Apr 07 06:18 | 6°♄37'23  |            |
| retrograde          | 8478 Apr 23 07:59 | 22°♄27'05 |            | evening set         | 8479 Apr 11 01:24 | 5°♄13'28  |            |
| evening set         | 8478 Apr 26 18:39 | 21°♄18'02 |            |                     | 8479 Apr 15 19:36 | 30°♄      |            |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| inferior conj    | 8479 Apr 16 09:48 | 29° $\Upsilon$ 12'18 | 3°15'22    | retrograde       | 8480 Mar 21 04:45 | 20° $\Upsilon$ 56'02 |            |
| minimum elong    | 8479 Apr 16 08:36 | 29° $\Upsilon$ 16'22 | 3°15'09    | evening set      | 8480 Mar 25 09:29 | 19° $\Upsilon$ 16'58 |            |
| min. Earth dist. | 8479 Apr 17 08:20 | 27° $\Upsilon$ 56'20 | 0.67454 AU | inferior conj    | 8480 Mar 30 16:45 | 13° $\Upsilon$ 04'02 | 2°56'37    |
| morning rise     | 8479 Apr 21 15:31 | 22° $\Upsilon$ 54'52 |            | minimum elong    | 8480 Mar 30 14:49 | 13° $\Upsilon$ 10'43 | 2°56'13    |
| direct           | 8479 Apr 27 11:41 | 20° $\Upsilon$ 18'28 |            | min. Earth dist. | 8480 Mar 31 01:55 | 12° $\Upsilon$ 32'17 | 0.68166 AU |
| desc. node       | 8479 May 07 10:50 | 25° $\Upsilon$ 36'14 |            | morning rise     | 8480 Apr 04 19:57 | 6° $\Upsilon$ 49'32  |            |
| morning max el   | 8479 May 09 06:58 | 27° $\Upsilon$ 23'07 | 24°59'24   | direct           | 8480 Apr 10 02:45 | 4° $\Upsilon$ 29'47  |            |
|                  | 8479 May 11 17:50 | 0° $\text{♄}$        |            | morning max el   | 8480 Apr 20 16:12 | 10° $\Upsilon$ 47'25 | 23°30'22   |
|                  | 8479 Jun 02 11:21 | 0° $\text{♅}$        |            | desc. node       | 8480 Apr 23 07:47 | 13° $\Upsilon$ 37'46 |            |
| morning set      | 8479 Jun 14 07:22 | 19° $\text{♅}$ 50'23 |            |                  | 8480 May 05 22:14 | 0° $\text{♄}$        |            |
| max. Earth dist. | 8479 Jun 17 22:13 | 26° $\text{♅}$ 24'12 | 1.36844 AU |                  | 8480 May 25 05:55 | 0° $\text{♅}$        |            |
|                  | 8479 Jun 19 20:29 | 0° $\text{♄}$        |            | morning set      | 8480 May 25 18:38 | 0° $\text{♅}$ 53'34  |            |
|                  |                   |                      |            | max. Earth dist. | 8480 May 29 18:01 | 7° $\text{♅}$ 43'40  | 1.39059 AU |
| superior conj    | 8479 Jun 24 09:45 | 8° $\text{♄}$ 45'47  | -0°51'13   | superior conj    | 8480 Jun 06 07:18 | 21° $\text{♅}$ 23'29 | -1°22'38   |
| minimum elong    | 8479 Jun 24 12:53 | 9° $\text{♄}$ 01'14  | 0°50'49    | minimum elong    | 8480 Jun 06 12:23 | 21° $\text{♅}$ 47'17 | 1°22'04    |
| asc. node        | 8479 Jun 29 18:08 | 19° $\text{♄}$ 26'55 |            |                  | 8480 Jun 10 20:09 | 0° $\text{♄}$        |            |
| evening rise     | 8479 Jul 02 18:13 | 25° $\text{♄}$ 30'54 |            | evening rise     | 8480 Jun 15 14:41 | 9° $\text{♄}$ 14'49  |            |
|                  | 8479 Jul 05 00:08 | 0° $\text{♄}$        |            | asc. node        | 8480 Jun 15 15:10 | 9° $\text{♄}$ 17'08  |            |
| evening max el   | 8479 Jul 19 19:49 | 23° $\text{♄}$ 24'35 | 19°33'20   |                  | 8480 Jun 27 08:00 | 0° $\text{♄}$        |            |
| retrograde       | 8479 Jul 29 12:44 | 28° $\text{♄}$ 12'08 |            | evening max el   | 8480 Jul 01 19:28 | 5° $\text{♄}$ 27'57  | 18°43'47   |
| evening set      | 8479 Jul 31 09:03 | 28° $\text{♄}$ 02'29 |            | retrograde       | 8480 Jul 09 23:48 | 9° $\text{♄}$ 31'28  |            |
| desc. node       | 8479 Aug 03 10:02 | 27° $\text{♄}$ 08'10 |            | evening set      | 8480 Jul 12 00:22 | 9° $\text{♄}$ 17'28  |            |
| inferior conj    | 8479 Aug 09 03:31 | 23° $\text{♄}$ 57'44 | -1°45'21   | inferior conj    | 8480 Jul 20 00:01 | 4° $\text{♄}$ 55'17  | 0°05'21    |
| minimum elong    | 8479 Aug 08 22:45 | 24° $\text{♄}$ 05'20 | 1°43'38    | minimum elong    | 8480 Jul 20 00:13 | 4° $\text{♄}$ 54'54  | 0°05'06    |
| min. Earth dist. | 8479 Aug 11 12:41 | 22° $\text{♄}$ 27'10 | 0.55526 AU | transit middle   | 8480 Jul 20 00:13 | 4° $\text{♄}$ 54'54  | 0°05'06    |
| morning rise     | 8479 Aug 17 10:00 | 19° $\text{♄}$ 27'34 |            | transit begin    | 8480 Jul 19 20:44 | 5° $\text{♄}$ 01'20  |            |
| direct           | 8479 Aug 22 05:17 | 18° $\text{♄}$ 35'52 |            | transit end      | 8480 Jul 20 03:42 | 4° $\text{♄}$ 48'27  |            |
| morning max el   | 8479 Sep 05 04:53 | 25° $\text{♄}$ 35'52 | 24°56'45   | desc. node       | 8480 Jul 20 07:07 | 4° $\text{♄}$ 42'07  |            |
|                  | 8479 Sep 09 08:27 | 0° $\text{♄}$        |            | min. Earth dist. | 8480 Jul 23 05:08 | 2° $\text{♄}$ 33'45  | 0.57130 AU |
| asc. node        | 8479 Sep 25 17:44 | 25° $\text{♄}$ 39'33 |            |                  | 8480 Jul 27 10:24 | 30° $\text{♄}$       |            |
|                  | 8479 Sep 27 22:15 | 0° $\text{♄}$        |            | morning rise     | 8480 Jul 27 20:35 | 29° $\text{♄}$ 48'05 |            |
| morning set      | 8479 Oct 01 07:46 | 7° $\text{♄}$ 04'17  |            | direct           | 8480 Aug 02 12:06 | 28° $\text{♄}$ 29'51 |            |
| superior conj    | 8479 Oct 08 04:37 | 22° $\text{♄}$ 03'10 | 1°36'33    |                  | 8480 Aug 08 15:48 | 0° $\text{♄}$        |            |
| minimum elong    | 8479 Oct 08 03:17 | 21° $\text{♄}$ 55'54 | 1°36'33    | morning max el   | 8480 Aug 16 19:52 | 5° $\text{♄}$ 59'42  | 26°27'51   |
| max. Earth dist. | 8479 Oct 09 19:43 | 25° $\text{♄}$ 36'51 | 1.32429 AU |                  | 8480 Sep 03 11:50 | 0° $\text{♄}$        |            |
|                  | 8479 Oct 11 20:28 | 0° $\text{♄}$        |            | asc. node        | 8480 Sep 11 14:42 | 15° $\text{♄}$ 14'06 |            |
| evening rise     | 8479 Oct 15 09:41 | 7° $\text{♄}$ 27'11  |            | morning set      | 8480 Sep 14 18:14 | 21° $\text{♄}$ 46'34 |            |
|                  | 8479 Oct 27 11:18 | 0° $\text{♄}$        |            |                  | 8480 Sep 18 13:15 | 0° $\text{♄}$        |            |
| desc. node       | 8479 Oct 30 08:44 | 4° $\text{♄}$ 43'40  |            | superior conj    | 8480 Sep 21 16:00 | 6° $\text{♄}$ 53'35  | 1°26'25    |
| evening max el   | 8479 Nov 17 08:40 | 27° $\text{♄}$ 57'19 | 27°28'59   | minimum elong    | 8480 Sep 21 13:59 | 6° $\text{♄}$ 42'29  | 1°26'12    |
|                  | 8479 Nov 19 15:46 | 0° $\text{♄}$        |            | max. Earth dist. | 8480 Sep 22 03:59 | 8° $\text{♄}$ 00'03  | 1.31804 AU |
| retrograde       | 8479 Dec 01 03:01 | 5° $\text{♄}$ 14'55  |            | evening rise     | 8480 Sep 28 13:25 | 21° $\text{♄}$ 53'21 |            |
| evening set      | 8479 Dec 08 04:58 | 2° $\text{♄}$ 46'56  |            |                  | 8480 Oct 02 12:38 | 0° $\text{♄}$        |            |
|                  | 8479 Dec 11 14:23 | 30° $\text{♄}$       |            | desc. node       | 8480 Oct 16 05:50 | 23° $\text{♄}$ 51'19 |            |
| min. Earth dist. | 8479 Dec 11 21:41 | 29° $\text{♄}$ 42'59 | 0.62886 AU |                  | 8480 Oct 20 14:07 | 0° $\text{♄}$        |            |
| inferior conj    | 8479 Dec 14 16:49 | 27° $\text{♄}$ 00'15 | -2°36'56   | evening max el   | 8480 Oct 29 14:52 | 10° $\text{♄}$ 21'19 | 27°07'01   |
| minimum elong    | 8479 Dec 14 21:48 | 26° $\text{♄}$ 48'07 | 2°34'51    | retrograde       | 8480 Nov 12 12:18 | 17° $\text{♄}$ 32'18 |            |
| morning rise     | 8479 Dec 21 16:43 | 21° $\text{♄}$ 49'18 |            | evening set      | 8480 Nov 19 12:09 | 15° $\text{♄}$ 22'37 |            |
| asc. node        | 8479 Dec 22 17:15 | 21° $\text{♄}$ 32'11 |            | min. Earth dist. | 8480 Nov 23 05:36 | 12° $\text{♄}$ 40'06 | 0.60870 AU |
| direct           | 8479 Dec 24 00:22 | 21° $\text{♄}$ 24'17 |            | inferior conj    | 8480 Nov 26 08:26 | 10° $\text{♄}$ 00'12 | -3°46'57   |
| morning max el   | 8479 Dec 30 16:28 | 24° $\text{♄}$ 49'45 | 17°47'48   | minimum elong    | 8480 Nov 26 15:23 | 9° $\text{♄}$ 45'20  | 3°44'36    |
|                  | 8480 Jan 03 22:35 | 0° $\text{♄}$        |            | morning rise     | 8480 Dec 03 20:58 | 5° $\text{♄}$ 08'50  |            |
| morning set      | 8480 Jan 15 18:26 | 19° $\text{♄}$ 36'51 |            | direct           | 8480 Dec 06 01:50 | 4° $\text{♄}$ 49'19  |            |
|                  | 8480 Jan 21 17:29 | 0° $\text{♄}$        |            | asc. node        | 8480 Dec 08 14:16 | 5° $\text{♄}$ 15'54  |            |
| desc. node       | 8480 Jan 26 07:57 | 7° $\text{♄}$ 49'45  |            | morning max el   | 8480 Dec 13 07:11 | 8° $\text{♄}$ 26'21  | 17°58'28   |
|                  |                   |                      |            |                  | 8480 Dec 27 06:21 | 0° $\text{♄}$        |            |
| superior conj    | 8480 Jan 27 14:02 | 9° $\text{♄}$ 55'30  | -0°09'12   | morning set      | 8480 Dec 28 22:49 | 3° $\text{♄}$ 05'56  |            |
| minimum elong    | 8480 Jan 27 13:07 | 9° $\text{♄}$ 51'39  | 0°08'54    |                  |                   |                      |            |
| behind sun begin | 8480 Jan 27 05:23 | 9° $\text{♄}$ 19'24  |            | superior conj    | 8481 Jan 08 03:22 | 21° $\text{♄}$ 32'47 | 0°29'58    |
| behind sun end   | 8480 Jan 27 20:51 | 10° $\text{♄}$ 23'51 |            | minimum elong    | 8481 Jan 08 05:45 | 21° $\text{♄}$ 43'15 | 0°29'47    |
| max. Earth dist. | 8480 Feb 03 03:55 | 20° $\text{♄}$ 40'50 | 1.44040 AU | desc. node       | 8481 Jan 12 04:56 | 28° $\text{♄}$ 34'24 |            |
|                  | 8480 Feb 09 01:18 | 0° $\text{♄}$        |            |                  | 8481 Jan 13 01:08 | 0° $\text{♄}$        |            |
| evening rise     | 8480 Feb 11 15:23 | 4° $\text{♄}$ 00'51  |            | max. Earth dist. | 8481 Jan 15 16:56 | 4° $\text{♄}$ 26'52  | 1.42375 AU |
|                  | 8480 Feb 29 02:40 | 0° $\text{♄}$        |            | evening rise     | 8481 Jan 21 13:57 | 13° $\text{♄}$ 58'22 |            |
| evening max el   | 8480 Mar 12 14:44 | 15° $\text{♄}$ 52'43 | 21°05'55   |                  | 8481 Feb 01 00:28 | 0° $\text{♄}$        |            |
| asc. node        | 8480 Mar 19 16:13 | 20° $\text{♄}$ 44'13 |            |                  |                   |                      |            |

|                  |                   |   |            |                  |                   |   |            |
|------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| evening max el   | 8481 Feb 23 09:03 | 29°  34'33   | 22°22'05   | evening max el   | 8482 Feb 05 23:51 | 13°  18'54   | 23°42'13   |
|                  | 8481 Feb 23 19:16 | 0°   |            | retrograde       | 8482 Feb 16 19:30 | 19°  41'38   |            |
| retrograde       | 8481 Mar 05 01:38 | 5°  19'05  |            | asc. node        | 8482 Feb 21 10:22 | 17°  58'37   |            |
| asc. node        | 8481 Mar 06 13:17 | 5°  07'57  |            | evening set      | 8482 Feb 21 23:10 | 17°  32'51   |            |
| evening set      | 8481 Mar 09 17:15 | 3°  24'53  |            | inferior conj    | 8482 Feb 27 09:42 | 11°  05'31   | 1°50'51    |
|                  | 8481 Mar 12 21:09 | 30°  R  |            | minimum elong    | 8482 Feb 27 07:36 | 11°  12'44   | 1°50'13    |
| inferior conj    | 8481 Mar 15 01:21 | 27°  03'00   | 2°28'11    | min. Earth dist. | 8482 Feb 26 18:42 | 11°  56'45   | 0.68301 AU |
| minimum elong    | 8481 Mar 14 23:07 | 27°  10'49   | 2°27'35    | morning rise     | 8482 Mar 04 16:00 | 5°  01'24  |            |
| min. Earth dist. | 8481 Mar 14 22:07 | 27°  14'17   | 0.68442 AU | direct           | 8482 Mar 08 19:15 | 3°  25'13  |            |
| morning rise     | 8481 Mar 20 04:48 | 20°  53'02   |            | morning max el   | 8482 Mar 16 22:10 | 8°  03'21  | 20°41'54   |
| direct           | 8481 Mar 24 21:42 | 18°  54'19   |            | desc. node       | 8482 Mar 28 01:38 | 21°  59'00   |            |
| morning max el   | 8481 Apr 03 04:05 | 24°  19'47   | 22°02'02   |                  | 8482 Apr 02 15:15 | 0°   |            |
|                  | 8481 Apr 08 04:56 | 0°   |            | morning set      | 8482 Apr 15 10:10 | 19°  21'56   |            |
| desc. node       | 8481 Apr 10 04:44 | 2°  30'11  |            |                  | 8482 Apr 22 03:50 | 0°   |            |
|                  | 8481 Apr 29 08:12 | 0°   |            | max. Earth dist. | 8482 Apr 23 22:42 | 2°  52'32  | 1.43232 AU |
| morning set      | 8481 May 06 03:02 | 10°  841'30  |            |                  |                   |   |            |
| max. Earth dist. | 8481 May 11 16:48 | 19°  50'20   | 1.41286 AU | superior conj    | 8482 Apr 30 15:21 | 13°  53'59   | -2°08'09   |
|                  | 8481 May 17 15:30 | 0°   |            | minimum elong    | 8482 Apr 30 19:00 | 14°  09'20   | 2°08'08    |
|                  |                   |   |            |                  | 8482 May 10 00:02 | 0°   |            |
| superior conj    | 8481 May 19 10:43 | 3°  09'51  | -1°49'59   | evening rise     | 8482 May 12 17:54 | 4°  05'23  |            |
| minimum elong    | 8481 May 19 16:34 | 3°  35'46  | 1°49'36    | asc. node        | 8482 May 20 09:14 | 18°  09'38   |            |
| evening rise     | 8481 May 30 00:03 | 22°  02'54   |            |                  | 8482 May 28 12:20 | 0°   |            |
| asc. node        | 8481 Jun 02 12:12 | 28°  05'21   |            | evening max el   | 8482 May 29 15:38 | 1°  12'02  | 18°05'11   |
|                  | 8481 Jun 03 02:50 | 0°   |            | retrograde       | 8482 Jun 05 04:24 | 4°  33'54  |            |
| evening max el   | 8481 Jun 15 03:22 | 18°  07'14   | 18°14'40   | evening set      | 8482 Jun 07 19:50 | 4°  00'27  |            |
| retrograde       | 8481 Jun 22 06:03 | 21°  04'56   |            |                  | 8482 Jun 13 06:21 | 30°  R      |            |
| evening set      | 8481 Jun 24 14:01 | 21°  09'36   |            | inferior conj    | 8482 Jun 14 07:46 | 28°  05'27   | 2°31'28    |
| inferior conj    | 8481 Jul 01 18:14 | 16°  03'37   | 1°32'19    | minimum elong    | 8482 Jun 14 10:41 | 28°  05'11   | 2°30'36    |
| minimum elong    | 8481 Jul 01 20:56 | 16°  30'46  | 1°31'16    | min. Earth dist. | 8482 Jun 17 09:54 | 25°  05'52  | 0.61480 AU |
| min. Earth dist. | 8481 Jul 05 03:29 | 13°  04'20   | 0.59229 AU | morning rise     | 8482 Jun 20 23:20 | 22°  05'30   |            |
| desc. node       | 8481 Jul 07 04:10 | 12°  08'58   |            | desc. node       | 8482 Jun 24 01:13 | 21°  08'17   |            |
| morning rise     | 8481 Jul 09 00:46 | 10°  05'33   |            | direct           | 8482 Jun 27 15:49 | 20°  08'24   |            |
| direct           | 8481 Jul 15 08:22 | 9°  08'12  |            | morning max el   | 8482 Jul 11 21:14 | 28°  08'39   | 27°55'23   |
| morning max el   | 8481 Jul 29 17:12 | 16°  05'13   | 27°30'06   |                  | 8482 Jul 13 04:58 | 0°   |            |
|                  | 8481 Aug 09 11:43 | 0°   |            |                  | 8482 Aug 03 08:34 | 0°   |            |
|                  | 8481 Aug 27 00:11 | 0°   |            | morning set      | 8482 Aug 14 04:28 | 20°  03'25   |            |
| asc. node        | 8481 Aug 29 11:40 | 5°  04'08  |            | asc. node        | 8482 Aug 16 08:37 | 25°  04'04   |            |
| morning set      | 8481 Aug 30 01:45 | 6°  07'47  |            |                  | 8482 Aug 18 16:02 | 0°   |            |
| max. Earth dist. | 8481 Sep 05 14:12 | 20°  06'39   | 1.31638 AU | max. Earth dist. | 8482 Aug 19 22:28 | 2°  45'09  | 1.31928 AU |
|                  |                   |   |            |                  |                   |   |            |
| superior conj    | 8481 Sep 06 03:42 | 21°  04'13   | 1°11'06    | superior conj    | 8482 Aug 21 13:59 | 6°  07'30  | 0°50'59    |
| minimum elong    | 8481 Sep 06 01:27 | 21°  09'04   | 1°10'42    | minimum elong    | 8482 Aug 21 11:58 | 6°  10'27  | 0°50'31    |
|                  | 8481 Sep 09 21:46 | 0°   |            | evening rise     | 8482 Aug 28 08:45 | 21°  07'29   |            |
| evening rise     | 8481 Sep 12 21:48 | 6°  30'35  |            |                  | 8482 Sep 01 14:04 | 0°   |            |
|                  | 8481 Sep 25 02:48 | 0°   |            | desc. node       | 8482 Sep 20 00:02 | 29°  02'09   |            |
| desc. node       | 8481 Oct 03 02:56 | 12°  09'51   |            |                  | 8482 Sep 20 14:15 | 0°   |            |
| evening max el   | 8481 Oct 11 13:55 | 21°  05'09   | 26°11'16   | evening max el   | 8482 Sep 23 04:56 | 2°  41'38  | 24°47'29   |
| retrograde       | 8481 Oct 25 12:00 | 29°  00'29   |            | retrograde       | 8482 Oct 07 00:47 | 9°  39'16  |            |
| evening set      | 8481 Oct 31 23:46 | 27°  01'11   |            | evening set      | 8482 Oct 12 11:30 | 8°  32'45  |            |
| min. Earth dist. | 8481 Nov 05 02:59 | 24°  04'35   | 0.58783 AU | min. Earth dist. | 8482 Oct 17 16:07 | 5°  47'42  | 0.56852 AU |
| inferior conj    | 8481 Nov 08 06:56 | 22°  03'37   | -4°49'19   | inferior conj    | 8482 Oct 20 09:33 | 4°  01'58  | -5°29'53   |
| minimum elong    | 8481 Nov 08 14:01 | 22°  10'26   | 4°47'39    | minimum elong    | 8482 Oct 20 12:59 | 3°  56'24  | 5°29'30    |
| morning rise     | 8481 Nov 16 06:34 | 17°  05'37   |            |                  | 8482 Oct 28 09:39 | 30°  R  |            |
| direct           | 8481 Nov 18 12:52 | 17°  03'72   |            | morning rise     | 8482 Oct 28 16:42 | 29°  05'43   |            |
| asc. node        | 8481 Nov 25 11:16 | 20°  03'29   |            | direct           | 8482 Oct 31 05:26 | 29°  03'75   |            |
| morning max el   | 8481 Nov 26 15:44 | 21°  03'34   | 18°29'12   |                  | 8482 Nov 02 23:04 | 0°   |            |
|                  | 8481 Dec 03 03:45 | 0°   |            | morning max el   | 8482 Nov 09 14:37 | 4°  04'59  | 19°21'40   |
| morning set      | 8481 Dec 12 15:44 | 17°  09'28   |            | asc. node        | 8482 Nov 12 08:16 | 7°  02'50  |            |
|                  | 8481 Dec 19 08:40 | 0°   |            |                  | 8482 Nov 25 21:55 | 0°   |            |
|                  |                   |   |            | morning set      | 8482 Nov 26 17:14 | 1°  36'14  |            |
| superior conj    | 8481 Dec 21 14:44 | 4°  03'42  | 1°00'37    |                  |                   |   |            |
| minimum elong    | 8481 Dec 21 18:07 | 4°  08'23  | 1°00'20    | superior conj    | 8482 Dec 04 19:08 | 17°  34'30   | 1°22'11    |
| max. Earth dist. | 8481 Dec 29 01:31 | 17°  03'37   | 1.40334 AU | minimum elong    | 8482 Dec 04 22:02 | 17°  35'38   | 1°22'03    |
| desc. node       | 8481 Dec 30 01:54 | 19°  08'33   |            |                  | 8482 Dec 11 07:29 | 0°   |            |
| evening rise     | 8482 Jan 02 08:28 | 24°  09'58   |            | max. Earth dist. | 8482 Dec 11 07:20 | 29°  35'17   | 1.38159 AU |
|                  | 8482 Jan 05 12:11 | 0°   |            | evening rise     | 8482 Dec 15 00:56 | 6°  39'49  |            |
|                  | 8482 Jan 25 19:42 | 0°   |            | desc. node       | 8482 Dec 16 22:54 | 9°  38'57  |            |

|                     |                   |                      |  |                     |                   |                      |  |
|---------------------|-------------------|----------------------|--|---------------------|-------------------|----------------------|--|
|                     | 8482 Dec 29 10:48 | 0°♊                  |  |                     | 8483 Dec 03 12:43 | 0°♊                  |  |
| evening max el      | 8483 Jan 19 13:04 | 27°♊06'02 24°59'51   |  |                     | 8483 Dec 23 13:16 | 0°♊                  |  |
|                     | 8483 Jan 22 18:00 | 0°♋                  |  | evening max el      | 8484 Jan 02 02:06 | 10°♊52'25 26°08'03   |  |
| retrograde          | 8483 Jan 31 09:28 | 3°♋59'07             |  | retrograde          | 8484 Jan 14 18:35 | 18°♊04'46            |  |
| evening set         | 8483 Feb 06 01:44 | 1°♋37'28             |  | evening set         | 8484 Jan 20 23:12 | 15°♊33'31            |  |
|                     | 8483 Feb 07 18:06 | 30°♋                 |  | min. Earth dist.    | 8484 Jan 25 04:25 | 11°♊06'26 0.66843 AU |  |
| asc. node           | 8483 Feb 08 07:26 | 29°♊23'01            |  | asc. node           | 8484 Jan 26 04:32 | 9°♊52'02             |  |
| min. Earth dist.    | 8483 Feb 10 13:32 | 26°♊35'53 0.67763 AU |  | inferior conj       | 8484 Jan 26 18:23 | 9°♊09'00 0°11'31     |  |
| inferior conj       | 8483 Feb 11 16:02 | 25°♊08'55 1°05'10    |  | minimum elong       | 8484 Jan 26 18:05 | 9°♊09'57 0°11'33     |  |
| minimum elong       | 8483 Feb 11 14:33 | 25°♊13'48 1°04'43    |  | transit middle      | 8484 Jan 26 18:05 | 9°♊09'57 0°11'33     |  |
| morning rise        | 8483 Feb 17 03:39 | 19°♊12'11            |  | transit begin       | 8484 Jan 26 16:05 | 9°♊16'08             |  |
| direct              | 8483 Feb 20 18:13 | 17°♊57'26            |  | transit end         | 8484 Jan 26 20:04 | 9°♊03'47             |  |
| morning max el      | 8483 Feb 28 00:12 | 21°♊59'21 19°34'46   |  | morning rise        | 8484 Feb 01 13:39 | 3°♊21'27             |  |
|                     | 8483 Mar 06 16:10 | 0°♋                  |  | direct              | 8484 Feb 04 17:00 | 2°♊25'23             |  |
| greatest brilliancy | 8483 Mar 12 17:34 | 8°♋37'47 -0.7m       |  | morning max el      | 8484 Feb 11 09:35 | 6°♊03'28 18°43'06    |  |
| desc. node          | 8483 Mar 14 22:33 | 11°♋54'35            |  |                     | 8484 Feb 28 10:26 | 0°♋                  |  |
| morning set         | 8483 Mar 25 07:52 | 27°♋43'33            |  | desc. node          | 8484 Feb 29 19:29 | 2°♋09'17             |  |
|                     | 8483 Mar 26 19:15 | 0°♌                  |  | morning set         | 8484 Mar 03 20:22 | 6°♋55'00             |  |
| max. Earth dist.    | 8483 Apr 06 11:18 | 16°♌39'54 1.44662 AU |  |                     | 8484 Mar 18 14:09 | 0°♌                  |  |
|                     |                   |                      |  | max. Earth dist.    | 8484 Mar 19 04:29 | 0°♌56'07 1.45423 AU  |  |
| superior conj       | 8483 Apr 10 19:17 | 23°♌34'13 -2°10'50   |  | superior conj       | 8484 Mar 20 04:18 | 2°♌29'27 -1°53'33    |  |
| minimum elong       | 8483 Apr 10 16:48 | 23°♌24'14 2°10'51    |  | minimum elong       | 8484 Mar 19 19:36 | 1°♌55'22 1°52'55     |  |
|                     | 8483 Apr 14 18:43 | 0°♍                  |  | evening rise        | 8484 Apr 04 13:57 | 26°♌54'10            |  |
| evening rise        | 8483 Apr 24 15:39 | 16°♍21'48            |  |                     | 8484 Apr 06 12:14 | 0°♍                  |  |
|                     | 8483 May 02 19:28 | 0°♎                  |  | greatest brilliancy | 8484 Apr 11 21:01 | 8°♍36'18 -0.9m       |  |
| asc. node           | 8483 May 07 06:17 | 6°♎59'23             |  | asc. node           | 8484 Apr 23 03:23 | 25°♍14'01            |  |
| evening max el      | 8483 May 13 04:59 | 14°♎34'07 18°14'36   |  | evening max el      | 8484 Apr 25 16:39 | 28°♍06'43 18°42'11   |  |
| retrograde          | 8483 May 19 14:11 | 17°♎57'36            |  |                     | 8484 Apr 27 20:09 | 0°♎                  |  |
| evening set         | 8483 May 22 12:51 | 17°♎11'16            |  | retrograde          | 8484 May 02 07:15 | 1°♎44'45             |  |
| inferior conj       | 8483 May 28 12:34 | 11°♎50'03 3°06'11    |  | evening set         | 8484 May 05 13:21 | 0°♎44'20             |  |
| minimum elong       | 8483 May 28 14:30 | 11°♎44'37 3°05'43    |  |                     | 8484 May 06 14:32 | 30°♎                 |  |
| min. Earth dist.    | 8483 May 31 01:42 | 8°♎59'21 0.63609 AU  |  | inferior conj       | 8484 May 11 04:38 | 25°♎06'32 3°21'23    |  |
| morning rise        | 8483 Jun 03 14:49 | 5°♎37'05             |  | minimum elong       | 8484 May 11 05:15 | 25°♎04'40 3°21'11    |  |
| direct              | 8483 Jun 10 08:42 | 2°♎58'44             |  | min. Earth dist.    | 8484 May 13 02:38 | 22°♎45'34 0.65429 AU |  |
| desc. node          | 8483 Jun 10 22:14 | 2°♎59'46             |  | morning rise        | 8484 May 16 20:27 | 18°♎48'48            |  |
| morning max el      | 8483 Jun 24 05:55 | 11°♎01'08 27°42'47   |  | direct              | 8484 May 23 09:23 | 16°♎02'09            |  |
|                     | 8483 Jul 09 04:52 | 0°♏                  |  | desc. node          | 8484 May 27 19:15 | 17°♎05'38            |  |
|                     | 8483 Jul 26 18:21 | 0°♏                  |  | morning max el      | 8484 Jun 05 16:20 | 23°♎53'55 26°57'19   |  |
| morning set         | 8483 Jul 29 00:03 | 4°♏23'43             |  |                     | 8484 Jun 11 03:16 | 0°♏                  |  |
| max. Earth dist.    | 8483 Aug 03 00:44 | 14°♏43'35 1.32694 AU |  |                     | 8484 Jul 01 13:49 | 0°♏                  |  |
| asc. node           | 8483 Aug 03 05:35 | 15°♏09'11            |  | morning set         | 8484 Jul 11 09:36 | 17°♏43'44            |  |
|                     |                   |                      |  | max. Earth dist.    | 8484 Jul 15 17:29 | 26°♏14'46 1.33950 AU |  |
| superior conj       | 8483 Aug 05 20:55 | 20°♏47'31 0°26'30    |  |                     | 8484 Jul 17 13:45 | 0°♏                  |  |
| minimum elong       | 8483 Aug 05 19:41 | 20°♏40'52 0°26'06    |  | superior conj       | 8484 Jul 19 22:25 | 4°♏53'53 -0°01'46    |  |
|                     | 8483 Aug 10 02:49 | 0°♐                  |  | minimum elong       | 8484 Jul 19 22:32 | 4°♏54'27 0°01'54     |  |
| evening rise        | 8483 Aug 12 20:23 | 5°♐52'56             |  | behind sun begin    | 8484 Jul 19 16:53 | 4°♏24'55             |  |
|                     | 8483 Aug 25 14:03 | 0°♑                  |  | behind sun end      | 8484 Jul 20 04:10 | 5°♏24'01             |  |
| evening max el      | 8483 Sep 04 16:05 | 12°♑56'23 23°09'07   |  | asc. node           | 8484 Jul 20 02:36 | 5°♏15'47             |  |
| desc. node          | 8483 Sep 06 21:09 | 14°♑55'36            |  | evening rise        | 8484 Jul 27 06:49 | 20°♏26'36            |  |
| retrograde          | 8483 Sep 18 01:30 | 19°♑38'00            |  |                     | 8484 Jul 31 23:15 | 0°♐                  |  |
| evening set         | 8483 Sep 22 00:29 | 19°♑03'45            |  | evening max el      | 8484 Aug 16 08:17 | 23°♐16'22 21°32'56   |  |
| min. Earth dist.    | 8483 Sep 29 01:10 | 15°♑49'57 0.55388 AU |  | desc. node          | 8484 Aug 23 18:16 | 28°♐24'54            |  |
| inferior conj       | 8483 Sep 30 16:32 | 14°♑52'44 -5°29'31   |  | retrograde          | 8484 Aug 28 15:39 | 29°♐22'32            |  |
| minimum elong       | 8483 Sep 30 12:38 | 14°♑58'25 5°29'09    |  | evening set         | 8484 Aug 31 05:59 | 29°♐07'11            |  |
| morning rise        | 8483 Oct 09 02:53 | 11°♑02'18            |  | inferior conj       | 8484 Sep 09 10:43 | 25°♐09'07 -4°34'16   |  |
| direct              | 8483 Oct 12 02:41 | 10°♑41'01            |  | minimum elong       | 8484 Sep 09 01:23 | 25°♐22'10 4°32'02    |  |
| morning max el      | 8483 Oct 23 00:59 | 15°♑48'16 20°36'34   |  | min. Earth dist.    | 8484 Sep 09 09:50 | 25°♐10'21 0.54704 AU |  |
| asc. node           | 8483 Oct 30 05:16 | 24°♑36'31            |  | morning rise        | 8484 Sep 17 21:45 | 21°♐18'35            |  |
|                     | 8483 Nov 02 13:19 | 0°♒                  |  | direct              | 8484 Sep 21 12:16 | 20°♐50'19            |  |
| morning set         | 8483 Nov 11 00:16 | 16°♒16'41            |  | morning max el      | 8484 Oct 03 22:44 | 26°♐43'40 22°11'09   |  |
|                     | 8483 Nov 17 15:20 | 0°♓                  |  |                     | 8484 Oct 07 02:10 | 0°♓                  |  |
| superior conj       | 8483 Nov 18 11:50 | 1°♓44'45 1°35'18     |  | asc. node           | 8484 Oct 16 02:16 | 12°♓57'40            |  |
| minimum elong       | 8483 Nov 18 13:34 | 1°♓53'36 1°35'21     |  |                     | 8484 Oct 24 22:14 | 0°♓                  |  |
| max. Earth dist.    | 8483 Nov 23 14:52 | 11°♓56'47 1.36100 AU |  | morning set         | 8484 Oct 25 10:35 | 1°♓04'42             |  |
| evening rise        | 8483 Nov 27 12:50 | 19°♓20'57            |  |                     |                   |                      |  |
| desc. node          | 8483 Dec 03 19:56 | 0°♔30'46             |  |                     |                   |                      |  |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| superior conj       | 8484 Nov 01 13:08 | 16° $\mathbb{M}$ 11'40        | 1°40'53    | morning set      | 8485 Oct 09 22:17 | 15° $\mathbb{A}$ 54'33        |            |
| minimum elong       | 8484 Nov 01 13:33 | 16° $\mathbb{M}$ 13'51        | 1°41'02    |                  | 8485 Oct 16 10:19 | 0° $\mathbb{M}$               |            |
| max. Earth dist.    | 8484 Nov 05 05:12 | 23° $\mathbb{M}$ 50'00        | 1.34351 AU |                  |                   |                               |            |
|                     | 8484 Nov 08 06:51 | 0° $\mathbb{A}$               |            | superior conj    | 8485 Oct 16 20:08 | 0° $\mathbb{M}$ 53'17         | 1°39'52    |
| evening rise        | 8484 Nov 09 16:23 | 2° $\mathbb{A}$ 43'47         |            | minimum elong    | 8485 Oct 16 19:22 | 0° $\mathbb{M}$ 49'07         | 1°39'56    |
| desc. node          | 8484 Nov 19 17:00 | 20° $\mathbb{A}$ 49'03        |            | max. Earth dist. | 8485 Oct 19 04:05 | 5° $\mathbb{M}$ 54'46         | 1.33007 AU |
|                     | 8484 Nov 25 10:20 | 0° $\mathbb{B}$               |            | evening rise     | 8485 Oct 24 07:46 | 16° $\mathbb{M}$ 38'01        |            |
| evening max el      | 8484 Dec 14 15:25 | 24° $\mathbb{B}$ 31'36        | 26°59'21   |                  | 8485 Oct 31 07:24 | 0° $\mathbb{A}$               |            |
|                     | 8484 Dec 21 16:47 | 0° $\approx$                  |            | desc. node       | 8485 Nov 06 14:05 | 10° $\mathbb{A}$ 47'25        |            |
| retrograde          | 8484 Dec 27 21:59 | 1° $\approx$ 51'32            |            |                  | 8485 Nov 19 23:35 | 0° $\mathbb{B}$               |            |
|                     | 8485 Jan 02 13:24 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | evening max el   | 8485 Nov 27 03:51 | 7° $\mathbb{B}$ 52'27         | 27°26'38   |
| evening set         | 8485 Jan 03 13:38 | 29° $\mathbb{B}$ 15'49        |            | retrograde       | 8485 Dec 10 18:51 | 15° $\mathbb{B}$ 11'32        |            |
| min. Earth dist.    | 8485 Jan 07 13:05 | 25° $\mathbb{B}$ 22'53        | 0.65564 AU | evening set      | 8485 Dec 17 18:34 | 12° $\mathbb{B}$ 38'19        |            |
| inferior conj       | 8485 Jan 09 14:38 | 23° $\mathbb{B}$ 01'19        | -0°49'30   | min. Earth dist. | 8485 Dec 21 13:15 | 9° $\mathbb{B}$ 17'49         | 0.63950 AU |
| minimum elong       | 8485 Jan 09 16:04 | 22° $\mathbb{B}$ 57'12        | 0°48'43    | inferior conj    | 8485 Dec 24 02:14 | 6° $\mathbb{B}$ 40'05         | -1°56'33   |
| asc. node           | 8485 Jan 12 01:38 | 20° $\mathbb{B}$ 20'03        |            | minimum elong    | 8485 Dec 24 05:52 | 6° $\mathbb{B}$ 30'38         | 1°54'53    |
| morning rise        | 8485 Jan 15 19:42 | 17° $\mathbb{B}$ 25'26        |            | asc. node        | 8485 Dec 29 22:42 | 1° $\mathbb{B}$ 42'28         |            |
| direct              | 8485 Jan 18 13:42 | 16° $\mathbb{B}$ 44'21        |            | morning rise     | 8485 Dec 30 18:54 | 1° $\mathbb{B}$ 18'57         |            |
| morning max el      | 8485 Jan 25 00:16 | 20° $\mathbb{B}$ 09'47        | 18°07'59   | direct           | 8486 Jan 02 05:42 | 0° $\mathbb{B}$ 49'02         |            |
|                     | 8485 Feb 01 14:00 | 0° $\approx$                  |            | morning max el   | 8486 Jan 08 17:31 | 4° $\mathbb{B}$ 11'40         | 17°50'04   |
| morning set         | 8485 Feb 12 13:29 | 17° $\approx$ 33'26           |            | morning set      | 8486 Jan 25 10:38 | 29° $\mathbb{B}$ 34'24        |            |
| desc. node          | 8485 Feb 15 16:24 | 22° $\approx$ 37'41           |            |                  | 8486 Jan 25 16:38 | 0° $\approx$                  |            |
|                     | 8485 Feb 20 06:11 | 0° $\mathbb{H}$               |            | desc. node       | 8486 Feb 02 13:21 | 13° $\approx$ 15'43           |            |
| superior conj       | 8485 Feb 27 10:27 | 11° $\mathbb{H}$ 23'58        | -1°18'20   | superior conj    | 8486 Feb 07 08:21 | 21° $\approx$ 07'48           | -0°34'24   |
| minimum elong       | 8485 Feb 27 01:43 | 10° $\mathbb{H}$ 49'36        | 1°17'14    | minimum elong    | 8486 Feb 07 04:31 | 20° $\approx$ 52'14           | 0°33'42    |
| max. Earth dist.    | 8485 Mar 01 23:58 | 15° $\mathbb{H}$ 25'38        | 1.45452 AU |                  | 8486 Feb 12 21:01 | 0° $\mathbb{H}$               |            |
|                     | 8485 Mar 11 08:15 | 0° $\mathbb{Y}$               |            | max. Earth dist. | 8486 Feb 12 19:17 | 29° $\approx$ 53'06           | 1.44749 AU |
| evening rise        | 8485 Mar 15 14:18 | 6° $\mathbb{Y}$ 36'05         |            | evening rise     | 8486 Feb 23 02:23 | 15° $\mathbb{H}$ 56'00        |            |
| greatest brilliancy | 8485 Mar 28 03:27 | 25° $\mathbb{Y}$ 53'49        | -0.7m      |                  | 8486 Mar 04 09:07 | 0° $\mathbb{Y}$               |            |
|                     | 8485 Mar 30 21:55 | 0° $\mathbb{B}$               |            | evening max el   | 8486 Mar 23 02:56 | 25° $\mathbb{Y}$ 23'08        | 20°26'10   |
| evening max el      | 8485 Apr 09 00:25 | 11° $\mathbb{B}$ 43'56        | 19°26'43   | asc. node        | 8486 Mar 27 21:36 | 29° $\mathbb{Y}$ 10'25        |            |
| asc. node           | 8485 Apr 10 00:29 | 12° $\mathbb{B}$ 42'04        |            |                  | 8486 Mar 30 09:31 | 0° $\mathbb{B}$               |            |
| retrograde          | 8485 Apr 16 04:17 | 15° $\mathbb{B}$ 48'05        |            | retrograde       | 8486 Mar 31 02:48 | 0° $\mathbb{B}$ 02'48         |            |
| evening set         | 8485 Apr 19 18:27 | 14° $\mathbb{B}$ 32'48        |            |                  | 8486 Mar 31 19:51 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| inferior conj       | 8485 Apr 25 04:34 | 8° $\mathbb{B}$ 39'50         | 3°21'13    | evening set      | 8486 Apr 04 01:59 | 28° $\mathbb{Y}$ 32'16        |            |
| minimum elong       | 8485 Apr 25 03:57 | 8° $\mathbb{B}$ 41'53         | 3°21'04    | inferior conj    | 8486 Apr 09 09:37 | 22° $\mathbb{Y}$ 25'53        | 3°08'39    |
| min. Earth dist.    | 8485 Apr 26 11:24 | 6° $\mathbb{B}$ 58'44         | 0.66843 AU | minimum elong    | 8486 Apr 09 08:04 | 22° $\mathbb{Y}$ 31'13        | 3°08'22    |
| morning rise        | 8485 Apr 30 13:05 | 2° $\mathbb{B}$ 21'44         |            | min. Earth dist. | 8486 Apr 10 02:16 | 21° $\mathbb{Y}$ 28'56        | 0.67813 AU |
|                     | 8485 May 04 09:50 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            | morning rise     | 8486 Apr 14 13:56 | 16° $\mathbb{Y}$ 09'47        |            |
| direct              | 8485 May 06 16:22 | 29° $\mathbb{Y}$ 38'41        |            | direct           | 8486 Apr 20 04:37 | 13° $\mathbb{Y}$ 39'50        |            |
|                     | 8485 May 09 01:45 | 0° $\mathbb{B}$               |            | morning max el   | 8486 May 01 11:26 | 20° $\mathbb{Y}$ 24'56        | 24°22'07   |
| desc. node          | 8485 May 14 16:14 | 3° $\mathbb{B}$ 05'16         |            | desc. node       | 8486 May 01 13:10 | 20° $\mathbb{Y}$ 29'21        |            |
| morning max el      | 8485 May 19 02:16 | 7° $\mathbb{B}$ 04'17         | 25°47'09   |                  | 8486 May 09 16:31 | 0° $\mathbb{B}$               |            |
|                     | 8485 Jun 05 21:30 | 0° $\mathbb{II}$              |            |                  | 8486 May 30 02:09 | 0° $\mathbb{II}$              |            |
| morning set         | 8485 Jun 24 05:08 | 0° $\mathbb{B}$ 20'46         |            | morning set      | 8486 Jun 06 05:44 | 12° $\mathbb{II}$ 02'03       |            |
|                     | 8485 Jun 24 00:35 | 0° $\mathbb{B}$               |            | max. Earth dist. | 8486 Jun 09 21:26 | 18° $\mathbb{II}$ 30'45       | 1.37772 AU |
| max. Earth dist.    | 8485 Jun 27 23:22 | 7° $\mathbb{B}$ 22'49         | 1.35678 AU |                  | 8486 Jun 16 01:48 | 0° $\mathbb{B}$               |            |
| superior conj       | 8485 Jul 03 15:45 | 18° $\mathbb{B}$ 32'31        | -0°32'44   | superior conj    | 8486 Jun 16 21:39 | 1° $\mathbb{B}$ 35'08         | -1°04'45   |
| minimum elong       | 8485 Jul 03 17:42 | 18° $\mathbb{B}$ 42'18        | 0°32'32    | minimum elong    | 8486 Jun 17 01:40 | 1° $\mathbb{B}$ 54'31         | 1°04'16    |
| asc. node           | 8485 Jul 06 23:35 | 25° $\mathbb{B}$ 19'00        |            | asc. node        | 8486 Jun 23 20:36 | 15° $\mathbb{B}$ 15'17        |            |
|                     | 8485 Jul 09 06:09 | 0° $\mathbb{Q}$               |            | evening rise     | 8486 Jun 25 15:02 | 18° $\mathbb{B}$ 46'02        |            |
| evening rise        | 8485 Jul 11 13:51 | 4° $\mathbb{Q}$ 46'31         |            |                  | 8486 Jul 01 10:54 | 0° $\mathbb{Q}$               |            |
|                     | 8485 Jul 25 21:12 | 0° $\mathbb{M}$               |            | evening max el   | 8486 Jul 12 05:26 | 15° $\mathbb{Q}$ 48'29        | 19°09'38   |
| evening max el      | 8485 Jul 29 12:20 | 4° $\mathbb{M}$ 10'08         | 20°11'16   | retrograde       | 8486 Jul 21 05:33 | 20° $\mathbb{Q}$ 15'50        |            |
| retrograde          | 8485 Aug 09 04:32 | 9° $\mathbb{M}$ 26'33         |            | evening set      | 8486 Jul 23 03:03 | 20° $\mathbb{Q}$ 04'48        |            |
| desc. node          | 8485 Aug 10 15:23 | 9° $\mathbb{M}$ 21'05         |            | desc. node       | 8486 Jul 28 12:27 | 17° $\mathbb{Q}$ 51'10        |            |
| evening set         | 8485 Aug 11 02:59 | 9° $\mathbb{M}$ 16'55         |            | inferior conj    | 8486 Jul 31 13:56 | 15° $\mathbb{Q}$ 52'58        | -0°56'17   |
| inferior conj       | 8485 Aug 20 05:15 | 5° $\mathbb{M}$ 18'34         | -2°52'43   | minimum elong    | 8486 Jul 31 11:28 | 15° $\mathbb{Q}$ 57'07        | 0°55'29    |
| minimum elong       | 8485 Aug 19 21:29 | 5° $\mathbb{M}$ 30'05         | 2°50'04    | min. Earth dist. | 8486 Aug 03 09:25 | 13° $\mathbb{Q}$ 59'30        | 0.56132 AU |
| min. Earth dist.    | 8485 Aug 21 19:58 | 4° $\mathbb{M}$ 21'20         | 0.54966 AU | morning rise     | 8486 Aug 08 16:56 | 11° $\mathbb{Q}$ 07'20        |            |
| morning rise        | 8485 Aug 28 14:50 | 1° $\mathbb{M}$ 07'57         |            | direct           | 8486 Aug 13 20:58 | 10° $\mathbb{Q}$ 05'35        |            |
| direct              | 8485 Sep 01 23:06 | 0° $\mathbb{M}$ 27'08         |            | morning max el   | 8486 Aug 28 01:04 | 17° $\mathbb{Q}$ 18'45        | 25°38'14   |
| morning max el      | 8485 Sep 15 12:18 | 7° $\mathbb{M}$ 04'19         | 23°56'47   |                  | 8486 Sep 07 11:48 | 0° $\mathbb{M}$               |            |
|                     | 8485 Oct 01 22:30 | 0° $\mathbb{A}$               |            | asc. node        | 8486 Sep 19 20:11 | 21° $\mathbb{M}$ 17'23        |            |
| asc. node           | 8485 Oct 02 23:15 | 1° $\mathbb{A}$ 54'19         |            | morning set      | 8486 Sep 24 09:40 | 0° $\mathbb{A}$ 41'18         |            |

|                  |                   |           |            |                  |                   |           |            |  |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|--|
|                  | 8486 Sep 24 01:54 | 0°♄       |            |                  | 8487 Aug 11 19:19 | 0°♄       |            |  |
|                  |                   |           |            |                  | 8487 Sep 01 02:23 | 0°♄       |            |  |
| superior conj    | 8486 Oct 01 06:29 | 15°♄42'24 | 1°32'55    | asc. node        | 8487 Sep 06 17:08 | 10°♄59'41 |            |  |
| minimum elong    | 8486 Oct 01 04:49 | 15°♄33'15 | 1°32'49    | morning set      | 8487 Sep 08 19:08 | 15°♄20'22 |            |  |
| max. Earth dist. | 8486 Oct 02 09:54 | 18°♄13'23 | 1.32112 AU |                  |                   |           |            |  |
|                  | 8486 Oct 07 21:16 | 0°♄       |            | superior conj    | 8487 Sep 15 18:15 | 0°♄33'08  | 1°20'33    |  |
| evening rise     | 8486 Oct 08 07:46 | 0°♄54'43  |            | minimum elong    | 8487 Sep 15 16:05 | 0°♄21'07  | 1°20'15    |  |
| desc. node       | 8486 Oct 24 11:11 | 0°♄16'59  |            |                  | 8487 Sep 15 12:17 | 0°♄       |            |  |
|                  | 8486 Oct 24 06:49 | 0°♄       |            | max. Earth dist. | 8487 Sep 15 19:29 | 0°♄40'03  | 1.31673 AU |  |
| evening max el   | 8486 Nov 09 12:57 | 20°♄40'26 | 27°23'44   | evening rise     | 8487 Sep 22 13:45 | 15°♄26'48 |            |  |
| retrograde       | 8486 Nov 23 08:30 | 27°♄54'49 |            |                  | 8487 Sep 29 20:00 | 0°♄       |            |  |
| evening set      | 8486 Nov 30 10:49 | 25°♄33'12 |            | desc. node       | 8487 Oct 11 08:17 | 19°♄06'25 |            |  |
| min. Earth dist. | 8486 Dec 04 03:06 | 22°♄39'55 | 0.62053 AU |                  | 8487 Oct 19 23:14 | 0°♄       |            |  |
| inferior conj    | 8486 Dec 07 02:06 | 19°♄56'42 | -3°06'58   | evening max el   | 8487 Oct 22 16:09 | 2°♄44'08  | 26°47'11   |  |
| minimum elong    | 8486 Dec 07 08:02 | 19°♄43'02 | 3°04'39    | retrograde       | 8487 Nov 05 14:05 | 9°♄52'54  |            |  |
| morning rise     | 8486 Dec 14 07:27 | 14°♄53'48 |            | evening set      | 8487 Nov 12 10:22 | 7°♄53'45  |            |  |
| direct           | 8486 Dec 16 13:36 | 14°♄31'26 |            | min. Earth dist. | 8487 Nov 16 06:15 | 5°♄16'52  | 0.59982 AU |  |
| asc. node        | 8486 Dec 16 19:44 | 14°♄31'44 |            | inferior conj    | 8487 Nov 19 10:53 | 2°♄42'34  | -4°15'01   |  |
| morning max el   | 8486 Dec 23 10:10 | 18°♄00'22 | 17°50'02   | minimum elong    | 8487 Nov 19 18:13 | 2°♄27'45  | 4°12'49    |  |
|                  | 8487 Jan 01 01:03 | 0°♄       |            |                  | 8487 Nov 23 01:21 | 30°♄      |            |  |
| morning set      | 8487 Jan 08 05:26 | 12°♄36'47 |            | morning rise     | 8487 Nov 27 04:30 | 28°♄00'52 |            |  |
|                  | 8487 Jan 18 02:09 | 0°♄       |            | direct           | 8487 Nov 29 09:21 | 27°♄42'46 |            |  |
|                  |                   |           |            | asc. node        | 8487 Dec 03 16:43 | 28°♄55'47 |            |  |
| superior conj    | 8487 Jan 19 07:13 | 2°♄04'12  | 0°08'21    |                  | 8487 Dec 05 07:02 | 0°♄       |            |  |
| minimum elong    | 8487 Jan 19 08:01 | 2°♄07'34  | 0°08'24    | morning max el   | 8487 Dec 06 22:50 | 1°♄27'02  | 18°09'00   |  |
| behind sun begin | 8487 Jan 19 00:32 | 1°♄35'43  |            | morning set      | 8487 Dec 22 15:43 | 26°♄22'18 |            |  |
| behind sun end   | 8487 Jan 19 15:29 | 2°♄39'20  |            |                  | 8487 Dec 24 14:05 | 0°♄       |            |  |
| desc. node       | 8487 Jan 20 10:19 | 3°♄59'02  |            |                  |                   |           |            |  |
| max. Earth dist. | 8487 Jan 26 11:14 | 13°♄59'01 | 1.43392 AU | superior conj    | 8488 Jan 01 06:37 | 14°♄10'29 | 0°44'04    |  |
| evening rise     | 8487 Feb 02 17:03 | 25°♄29'58 |            | minimum elong    | 8488 Jan 01 09:40 | 14°♄24'11 | 0°43'48    |  |
|                  | 8487 Feb 05 14:53 | 0°♄       |            | desc. node       | 8488 Jan 07 07:19 | 24°♄44'13 |            |  |
|                  | 8487 Feb 26 08:54 | 0°♄       |            | max. Earth dist. | 8488 Jan 08 21:59 | 27°♄28'06 | 1.41539 AU |  |
| evening max el   | 8487 Mar 05 23:50 | 9°♄02'49  | 21°37'24   |                  | 8488 Jan 10 10:17 | 0°♄       |            |  |
| asc. node        | 8487 Mar 14 18:41 | 14°♄23'29 |            | evening rise     | 8488 Jan 13 23:28 | 5°♄49'03  |            |  |
| retrograde       | 8487 Mar 15 00:48 | 14°♄23'49 |            |                  | 8488 Jan 29 20:11 | 0°♄       |            |  |
| evening set      | 8487 Mar 19 10:06 | 12°♄38'01 |            | evening max el   | 8488 Feb 16 16:16 | 22°♄44'54 | 22°55'58   |  |
| inferior conj    | 8487 Mar 24 17:29 | 6°♄20'42  | 2°45'39    | retrograde       | 8488 Feb 26 20:42 | 28°♄47'03 |            |  |
| minimum elong    | 8487 Mar 24 15:22 | 6°♄28'03  | 2°45'10    | asc. node        | 8488 Feb 29 15:45 | 28°♄08'09 |            |  |
| min. Earth dist. | 8487 Mar 24 21:10 | 6°♄07'52  | 0.68336 AU | evening set      | 8488 Mar 02 17:16 | 26°♄46'30 |            |  |
| morning rise     | 8487 Mar 29 20:28 | 0°♄08'05  |            | min. Earth dist. | 8488 Mar 07 17:53 | 20°♄50'22 | 0.68431 AU |  |
|                  | 8487 Mar 30 00:12 | 30°♄      |            | inferior conj    | 8488 Mar 08 02:12 | 20°♄21'32 | 2°13'22    |  |
| direct           | 8487 Apr 03 21:17 | 27°♄57'12 |            | minimum elong    | 8488 Mar 07 23:58 | 20°♄29'18 | 2°12'45    |  |
|                  | 8487 Apr 09 09:09 | 0°♄       |            | morning rise     | 8488 Mar 13 06:33 | 14°♄13'42 |            |  |
| morning max el   | 8487 Apr 13 21:29 | 3°♄52'38  | 22°52'15   | direct           | 8488 Mar 17 17:26 | 12°♄24'44 |            |  |
| desc. node       | 8487 Apr 18 10:06 | 8°♄54'16  |            | morning max el   | 8488 Mar 26 11:42 | 17°♄29'31 | 21°26'30   |  |
|                  | 8487 May 03 20:29 | 0°♄       |            | desc. node       | 8488 Apr 04 07:03 | 28°♄03'31 |            |  |
| morning set      | 8487 May 18 05:57 | 22°♄33'45 |            |                  | 8488 Apr 05 17:29 | 0°♄       |            |  |
| max. Earth dist. | 8487 May 22 17:57 | 0°♄08'23  | 1.40020 AU |                  | 8488 Apr 25 22:51 | 0°♄       |            |  |
|                  | 8487 May 22 15:59 | 0°♄       |            | morning set      | 8488 Apr 27 02:40 | 1°♄49'44  |            |  |
|                  |                   |           |            | max. Earth dist. | 8488 May 03 18:59 | 12°♄36'29 | 1.42158 AU |  |
| superior conj    | 8487 May 30 11:59 | 13°♄51'38 | -1°34'59   |                  |                   |           |            |  |
| minimum elong    | 8487 May 30 17:38 | 14°♄17'28 | 1°34'28    | superior conj    | 8488 May 11 06:08 | 25°♄11'48 | -1°59'12   |  |
|                  | 8487 Jun 08 02:33 | 0°♄       |            | minimum elong    | 8488 May 11 11:32 | 25°♄35'09 | 1°58'58    |  |
| evening rise     | 8487 Jun 09 07:14 | 2°♄16'40  |            |                  | 8488 May 14 00:14 | 0°♄       |            |  |
| asc. node        | 8487 Jun 10 17:38 | 5°♄00'09  |            | evening rise     | 8488 May 22 10:32 | 15°♄08'34 |            |  |
| evening max el   | 8487 Jun 25 08:58 | 28°♄07'48 | 18°28'57   | asc. node        | 8488 May 27 14:39 | 24°♄28'21 |            |  |
|                  | 8487 Jun 27 13:40 | 0°♄       |            |                  | 8488 May 30 19:41 | 0°♄       |            |  |
| retrograde       | 8487 Jul 03 01:12 | 1°♄57'36  |            | evening max el   | 8488 Jun 07 19:08 | 10°♄58'43 | 18°08'22   |  |
| evening set      | 8487 Jul 05 04:37 | 1°♄40'35  |            | retrograde       | 8488 Jun 14 14:40 | 14°♄26'09 |            |  |
|                  | 8487 Jul 08 21:42 | 30°♄      |            | evening set      | 8488 Jun 17 01:46 | 13°♄59'30 |            |  |
| inferior conj    | 8487 Jul 12 19:45 | 27°♄09'30 | 0°45'37    | inferior conj    | 8488 Jun 23 22:36 | 9°♄08'11  | 2°00'42    |  |
| minimum elong    | 8487 Jul 12 21:21 | 27°♄06'19 | 0°44'53    | minimum elong    | 8488 Jun 24 01:37 | 9°♄01'15  | 1°59'38    |  |
| desc. node       | 8487 Jul 15 09:29 | 25°♄07'09 |            | min. Earth dist. | 8488 Jun 27 06:02 | 6°♄06'36  | 0.60177 AU |  |
| min. Earth dist. | 8487 Jul 16 04:14 | 24°♄31'20 | 0.57973 AU | morning rise     | 8488 Jun 30 22:39 | 3°♄18'18  |            |  |
| morning rise     | 8487 Jul 20 10:37 | 21°♄47'20 |            | desc. node       | 8488 Jul 01 06:33 | 3°♄06'19  |            |  |
| direct           | 8487 Jul 26 09:24 | 20°♄16'14 |            | direct           | 8488 Jul 07 11:01 | 1°♄15'39  |            |  |
| morning max el   | 8487 Aug 09 18:46 | 27°♄55'51 | 26°58'39   | morning max el   | 8488 Jul 21 19:05 | 9°♄11'30  | 27°45'39   |  |



































































































































|                  |                   |                      |  |                     |                   |                      |
|------------------|-------------------|----------------------|--|---------------------|-------------------|----------------------|
|                  | 8488 Aug 06 18:48 | 0°♎                  |  | 8489 Jul 30 20:51   | 0°♎               |                      |
| morning set      | 8488 Aug 23 00:51 | 29°♎45'09            |  | morning set         | 8489 Aug 07 00:49 | 13°♎50'14            |
|                  | 8488 Aug 23 03:42 | 0°♎                  |  | asc. node           | 8489 Aug 10 11:05 | 20°♎56'51            |
| asc. node        | 8488 Aug 23 14:05 | 0°♎54'22             |  | max. Earth dist.    | 8489 Aug 12 11:10 | 25°♎13'36 1.32193 AU |
| max. Earth dist. | 8488 Aug 29 05:09 | 13°♎03'36 1.31695 AU |  |                     |                   |                      |
|                  |                   |                      |  | superior conj       | 8489 Aug 14 14:40 | 29°♎53'01 0°41'07    |
| superior conj    | 8488 Aug 30 05:34 | 15°♎18'26 1°03'09    |  | minimum elong       | 8489 Aug 14 12:55 | 29°♎43'27 0°40'40    |
| minimum elong    | 8488 Aug 30 03:21 | 15°♎06'11 1°02'42    |  |                     | 8489 Aug 14 15:57 | 0°♎                  |
| evening rise     | 8488 Sep 05 23:26 | 0°♎06'29             |  | evening rise        | 8489 Aug 21 10:54 | 14°♎48'15            |
|                  | 8488 Sep 05 22:13 | 0°♎                  |  |                     | 8489 Aug 28 23:27 | 0°♎                  |
|                  | 8488 Sep 22 04:31 | 0°♎                  |  | desc. node          | 8489 Sep 14 02:28 | 23°♎32'05            |
| desc. node       | 8488 Sep 27 05:22 | 6°♎58'48             |  | evening max el      | 8489 Sep 15 00:21 | 24°♎26'17 24°06'31   |
| evening max el   | 8488 Oct 03 11:37 | 13°♎57'01 25°38'29   |  |                     | 8489 Sep 22 20:29 | 0°♎                  |
| retrograde       | 8488 Oct 17 09:49 | 20°♎59'27            |  | retrograde          | 8489 Sep 28 17:13 | 1°♎18'10             |
| evening set      | 8488 Oct 23 12:16 | 19°♎32'40            |  | evening set         | 8489 Oct 03 13:25 | 0°♎26'40             |
| min. Earth dist. | 8488 Oct 28 00:00 | 16°♎55'44 0.57924 AU |  |                     | 8489 Oct 04 17:28 | 30°♎                 |
| inferior conj    | 8488 Oct 31 01:09 | 14°♎47'42 -5°10'15   |  | min. Earth dist.    | 8489 Oct 09 11:04 | 27°♎31'18 0.56155 AU |
| minimum elong    | 8488 Oct 31 07:14 | 14°♎37'00 5°09'09    |  | inferior conj       | 8489 Oct 11 19:05 | 26°♎05'18 -5°35'52   |
| morning rise     | 8488 Nov 08 04:32 | 10°♎28'33            |  | minimum elong       | 8489 Oct 11 19:39 | 26°♎04'26 5°35'48    |
| direct           | 8488 Nov 10 12:42 | 10°♎11'31            |  | morning rise        | 8489 Oct 20 03:59 | 22°♎06'40            |
| morning max el   | 8488 Nov 19 03:45 | 14°♎20'39 18°48'43   |  | direct              | 8489 Oct 22 21:00 | 21°♎47'37            |
| asc. node        | 8488 Nov 19 13:43 | 14°♎45'09            |  | morning max el      | 8489 Nov 01 21:25 | 26°♎31'00 19°50'46   |
|                  | 8488 Nov 29 23:05 | 0°♎                  |  |                     | 8489 Nov 05 02:08 | 0°♎                  |
| morning set      | 8488 Dec 05 12:43 | 10°♎36'40            |  | asc. node           | 8489 Nov 06 10:44 | 1°♎45'04             |
|                  |                   |                      |  | morning set         | 8489 Nov 19 16:53 | 25°♎10'04            |
|                  |                   |                      |  |                     | 8489 Nov 22 01:54 | 0°♎                  |
| superior conj    | 8488 Dec 14 01:50 | 27°♎12'45 1°10'50    |  |                     |                   |                      |
| minimum elong    | 8488 Dec 14 05:09 | 27°♎28'25 1°10'36    |  | superior conj       | 8489 Nov 27 11:56 | 10°♎57'10 1°28'42    |
|                  | 8488 Dec 15 13:22 | 0°♎                  |  | minimum elong       | 8489 Nov 27 14:24 | 11°♎09'22 1°28'41    |
| max. Earth dist. | 8488 Dec 21 04:30 | 10°♎14'37 1.39414 AU |  | max. Earth dist.    | 8489 Dec 03 10:37 | 22°♎26'35 1.37263 AU |
| desc. node       | 8488 Dec 24 04:20 | 15°♎27'18            |  | evening rise        | 8489 Dec 07 04:38 | 29°♎18'46            |
| evening rise     | 8488 Dec 25 03:28 | 17°♎05'59            |  |                     | 8489 Dec 07 13:52 | 0°♎                  |
|                  | 8489 Jan 02 01:03 | 0°♎                  |  | desc. node          | 8489 Dec 11 01:20 | 6°♎04'30             |
|                  | 8489 Jan 23 09:00 | 0°♎                  |  |                     | 8489 Dec 26 08:21 | 0°♎                  |
| evening max el   | 8489 Jan 29 06:14 | 6°♎30'49 24°16'01    |  | evening max el      | 8490 Jan 11 19:29 | 20°♎18'57 25°30'32   |
| retrograde       | 8489 Feb 09 13:07 | 13°♎07'56            |  | retrograde          | 8490 Jan 24 00:59 | 27°♎20'55            |
| evening set      | 8489 Feb 14 21:58 | 10°♎53'39            |  | evening set         | 8490 Jan 29 22:35 | 24°♎54'57            |
| asc. node        | 8489 Feb 15 12:50 | 10°♎20'15            |  | asc. node           | 8490 Feb 02 09:57 | 21°♎15'34            |
| min. Earth dist. | 8489 Feb 19 14:08 | 5°♎31'57 0.68118 AU  |  | min. Earth dist.    | 8490 Feb 03 07:35 | 20°♎07'59 0.67420 AU |
| inferior conj    | 8489 Feb 20 09:58 | 4°♎25'10 1°32'30     |  | inferior conj       | 8490 Feb 04 14:52 | 18°♎27'40 0°43'23    |
| minimum elong    | 8489 Feb 20 08:03 | 4°♎31'36 1°31'54     |  | minimum elong       | 8490 Feb 04 13:49 | 18°♎31'03 0°43'05    |
|                  | 8489 Feb 23 23:30 | 30°♎                 |  | morning rise        | 8490 Feb 10 05:26 | 12°♎34'28            |
| morning rise     | 8489 Feb 25 18:12 | 28°♎23'42            |  | direct              | 8490 Feb 13 15:09 | 11°♎27'52            |
| direct           | 8489 Mar 01 15:54 | 26°♎56'46            |  | morning max el      | 8490 Feb 20 14:18 | 15°♎17'51 19°10'45   |
|                  | 8489 Mar 07 23:30 | 0°♎                  |  |                     | 8490 Mar 03 20:27 | 0°♎                  |
| morning max el   | 8489 Mar 09 09:02 | 1°♎18'16 20°11'27    |  | greatest brilliancy | 8490 Mar 05 21:11 | 3°♎02'01 -0.7m       |
| desc. node       | 8489 Mar 22 04:00 | 17°♎44'58            |  | desc. node          | 8490 Mar 09 00:55 | 7°♎49'22             |
|                  | 8489 Mar 30 10:17 | 0°♎                  |  | morning set         | 8490 Mar 16 04:16 | 18°♎48'58            |
| morning set      | 8489 Apr 06 02:58 | 10°♎13'42            |  |                     | 8490 Mar 23 09:08 | 0°♎                  |
| max. Earth dist. | 8489 Apr 16 03:36 | 25°♎58'36 1.43914 AU |  | max. Earth dist.    | 8490 Mar 29 18:53 | 10°♎01'48 1.45079 AU |
|                  | 8489 Apr 18 15:36 | 0°♎                  |  |                     |                   |                      |
| superior conj    | 8489 Apr 22 00:17 | 5°♎28'47 -2°11'33    |  | superior conj       | 8490 Apr 01 18:49 | 14°♎45'48 -2°06'01   |
| minimum elong    | 8489 Apr 22 01:44 | 5°♎34'46 2°11'38     |  | minimum elong       | 8490 Apr 01 13:15 | 14°♎23'47 2°05'49    |
| evening rise     | 8489 May 04 20:24 | 27°♎12'01            |  |                     | 8490 Apr 11 06:39 | 0°♎                  |
|                  | 8489 May 06 11:13 | 0°♎                  |  | evening rise        | 8490 Apr 16 08:22 | 8°♎18'06             |
| asc. node        | 8489 May 14 11:43 | 13°♎34'23            |  |                     | 8490 Apr 29 20:21 | 0°♎                  |
| evening max el   | 8489 May 22 08:21 | 24°♎12'25 18°07'00   |  | asc. node           | 8490 May 01 08:48 | 2°♎10'13             |
| retrograde       | 8489 May 28 18:18 | 27°♎32'56            |  | evening max el      | 8490 May 05 21:21 | 7°♎39'45 18°24'11    |
| evening set      | 8489 May 31 12:54 | 26°♎54'07            |  | retrograde          | 8490 May 12 07:39 | 11°♎07'37            |
| inferior conj    | 8489 Jun 06 19:10 | 21°♎43'22 2°48'53    |  | evening set         | 8490 May 15 09:33 | 10°♎15'12            |
| minimum elong    | 8489 Jun 06 21:45 | 21°♎36'35 2°48'10    |  | inferior conj       | 8490 May 21 05:13 | 4°♎46'35 3°14'43     |
| min. Earth dist. | 8489 Jun 09 16:19 | 18°♎42'46 0.62416 AU |  | minimum elong       | 8490 May 21 06:35 | 4°♎42'34 3°14'24     |
| morning rise     | 8489 Jun 13 04:47 | 15°♎36'32            |  | min. Earth dist.    | 8490 May 23 11:55 | 2°♎07'14 0.64435 AU  |
| desc. node       | 8489 Jun 18 03:35 | 13°♎18'33            |  |                     | 8490 May 25 11:31 | 30°♎                 |
| direct           | 8489 Jun 19 22:58 | 13°♎08'15            |  | morning rise        | 8490 May 27 02:40 | 28°♎31'09            |
| morning max el   | 8489 Jul 04 01:11 | 21°♎10'26 27°54'26   |  | direct              | 8490 Jun 02 19:09 | 25°♎48'01            |
|                  | 8489 Jul 11 16:44 | 0°♎                  |  | desc. node          | 8490 Jun 05 00:36 | 26°♎04'07            |














































































































































































|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8490 Jun 12 07:01 | 0°♊       |            | inferior conj       | 8491 May 05 01:01 | 18°♊10'41 | 3°22'57    |
| morning max el      | 8490 Jun 16 10:50 | 3°♊46'36  | 27°27'02   | minimum elong       | 8491 May 05 01:04 | 18°♊10'30 | 3°22'49    |
|                     | 8490 Jul 06 04:13 | 0°♋       |            | min. Earth dist.    | 8491 May 06 16:21 | 16°♋06'05 | 0.66087 AU |
| morning set         | 8490 Jul 21 16:30 | 27°♋28'36 |            | morning rise        | 8491 May 10 13:20 | 11°♋52'17 |            |
|                     | 8490 Jul 22 23:06 | 0°♌       |            | direct              | 8491 May 16 22:27 | 9°♋06'10  |            |
| max. Earth dist.    | 8490 Jul 26 09:52 | 7°♌01'02  | 1.33173 AU | desc. node          | 8491 May 22 21:37 | 11°♋01'51 |            |
| asc. node           | 8490 Jul 28 08:05 | 11°♌02'43 |            | morning max el      | 8491 May 29 21:29 | 16°♋48'39 | 26°29'54   |
|                     |                   |           |            |                     | 8491 Jun 09 20:19 | 0°♊       |            |
| superior conj       | 8490 Jul 29 19:35 | 14°♌10'59 | 0°14'55    |                     | 8491 Jun 29 01:44 | 0°♋       |            |
| minimum elong       | 8490 Jul 29 18:50 | 14°♌07'03 | 0°14'38    | morning set         | 8491 Jul 04 20:35 | 10°♋31'18 |            |
| behind sun begin    | 8490 Jul 29 16:36 | 13°♌55'09 |            | max. Earth dist.    | 8491 Jul 08 22:14 | 18°♋21'43 | 1.34634 AU |
| behind sun end      | 8490 Jul 29 21:04 | 14°♌18'58 |            |                     |                   |           |            |
| evening rise        | 8490 Aug 05 22:17 | 29°♌26'20 |            | superior conj       | 8491 Jul 13 17:55 | 28°♋05'46 | -0°14'40   |
|                     | 8490 Aug 06 04:38 | 0°♍       |            | minimum elong       | 8491 Jul 13 18:45 | 28°♋10'03 | 0°14'40    |
|                     | 8490 Aug 23 09:00 | 0°♎       |            | behind sun begin    | 8491 Jul 13 16:19 | 27°♋57'34 |            |
| evening max el      | 8490 Aug 27 12:31 | 4°♎38'12  | 22°27'00   | behind sun end      | 8491 Jul 13 21:10 | 28°♋22'33 |            |
| desc. node          | 8490 Aug 31 23:34 | 8°♎17'36  |            |                     | 8491 Jul 14 16:00 | 0°♌       |            |
| retrograde          | 8490 Sep 09 12:24 | 11°♎06'54 |            | asc. node           | 8491 Jul 15 05:04 | 1°♌07'53  |            |
| evening set         | 8490 Sep 12 20:27 | 10°♎42'24 |            | evening rise        | 8491 Jul 21 07:32 | 13°♌54'35 |            |
| min. Earth dist.    | 8490 Sep 20 19:12 | 7°♎12'17  | 0.54988 AU |                     | 8491 Jul 29 13:05 | 0°♍       |            |
| inferior conj       | 8490 Sep 21 19:17 | 6°♎38'15  | -5°12'58   | evening max el      | 8491 Aug 09 09:01 | 15°♍08'46 | 20°55'52   |
| minimum elong       | 8490 Sep 21 12:23 | 6°♎48'01  | 5°11'53    | desc. node          | 8491 Aug 18 20:40 | 20°♍43'38 |            |
| morning rise        | 8490 Sep 30 06:09 | 2°♎50'32  |            | retrograde          | 8491 Aug 21 00:54 | 20°♍55'26 |            |
| direct              | 8490 Oct 03 12:08 | 2°♎26'41  |            | evening set         | 8491 Aug 23 06:06 | 20°♍43'44 |            |
| morning max el      | 8490 Oct 15 02:04 | 7°♎52'37  | 21°14'51   | inferior conj       | 8491 Sep 01 11:42 | 16°♍46'57 | -3°55'16   |
| asc. node           | 8490 Oct 24 07:45 | 19°♎40'23 |            | minimum elong       | 8491 Sep 01 02:12 | 17°♍00'25 | 3°52'30    |
|                     | 8490 Oct 30 03:27 | 0°♏       |            | min. Earth dist.    | 8491 Sep 02 04:06 | 16°♍23'39 | 0.54689 AU |
| morning set         | 8490 Nov 04 01:37 | 9°♏54'55  |            | morning rise        | 8491 Sep 09 22:32 | 12°♍50'27 |            |
|                     |                   |           |            | direct              | 8491 Sep 13 20:00 | 12°♍17'57 |            |
| superior conj       | 8490 Nov 11 08:44 | 25°♏11'55 | 1°38'32    | morning max el      | 8491 Sep 26 19:38 | 18°♍30'33 | 22°55'45   |
| minimum elong       | 8490 Nov 11 09:55 | 25°♏18'00 | 1°38'38    |                     | 8491 Oct 06 04:17 | 0°♎       |            |
|                     | 8490 Nov 13 16:54 | 0°♐       |            | asc. node           | 8491 Oct 11 04:44 | 8°♎17'31  |            |
| max. Earth dist.    | 8490 Nov 15 21:03 | 4°♐21'44  | 1.35309 AU | morning set         | 8491 Oct 19 12:43 | 24°♎44'08 |            |
| evening rise        | 8490 Nov 19 23:42 | 12°♐18'59 |            |                     | 8491 Oct 21 23:54 | 0°♏       |            |
| desc. node          | 8490 Nov 27 22:23 | 26°♐31'28 |            |                     |                   |           |            |
|                     | 8490 Nov 30 00:21 | 0°♑       |            | superior conj       | 8491 Oct 26 12:46 | 9°♏45'56  | 1°41'14    |
|                     | 8490 Dec 21 11:18 | 0°♒       |            | minimum elong       | 8491 Oct 26 12:39 | 9°♏45'20  | 1°41'21    |
| evening max el      | 8490 Dec 25 08:46 | 4°♒03'59  | 26°32'19   | max. Earth dist.    | 8491 Oct 29 14:53 | 16°♏17'56 | 1.33715 AU |
| retrograde          | 8491 Jan 07 07:36 | 11°♒20'13 |            | evening rise        | 8491 Nov 03 08:39 | 25°♏55'46 |            |
| evening set         | 8491 Jan 13 17:20 | 8°♒46'11  |            |                     | 8491 Nov 05 10:56 | 0°♐       |            |
| min. Earth dist.    | 8491 Jan 17 19:59 | 4°♒34'01  | 0.66349 AU | desc. node          | 8491 Nov 14 19:26 | 16°♐41'53 |            |
| inferior conj       | 8491 Jan 19 14:55 | 2°♒25'27  | -0°13'28   |                     | 8491 Nov 23 09:58 | 0°♑       |            |
| minimum elong       | 8491 Jan 19 15:17 | 2°♒24'21  | 0°13'09    | evening max el      | 8491 Dec 07 21:37 | 17°♑35'48 | 27°14'14   |
| transit middle      | 8491 Jan 19 15:17 | 2°♒24'21  | 0°13'09    | retrograde          | 8491 Dec 21 08:23 | 24°♑56'50 |            |
| transit begin       | 8491 Jan 19 13:37 | 2°♒29'22  |            | evening set         | 8491 Dec 28 04:04 | 22°♑20'48 |            |
| transit end         | 8491 Jan 19 16:57 | 2°♒19'21  |            | min. Earth dist.    | 8492 Jan 01 01:09 | 18°♑42'19 | 0.64917 AU |
| asc. node           | 8491 Jan 20 07:02 | 1°♒37'26  |            | inferior conj       | 8492 Jan 03 07:47 | 16°♑12'24 | -1°17'18   |
|                     | 8491 Jan 21 17:10 | 30°♒3     |            | minimum elong       | 8492 Jan 03 10:07 | 16°♑06'00 | 1°16'08    |
| morning rise        | 8491 Jan 25 14:07 | 26°♒42'43 |            | asc. node           | 8492 Jan 07 04:06 | 12°♒22'21 |            |
| direct              | 8491 Jan 28 13:21 | 25°♒53'24 |            | morning rise        | 8492 Jan 09 17:38 | 10°♒42'44 |            |
| morning max el      | 8491 Feb 04 02:20 | 29°♒24'23 | 18°26'08   | direct              | 8492 Jan 12 08:15 | 10°♒06'58 |            |
|                     | 8491 Feb 04 16:21 | 0°♓       |            | morning max el      | 8492 Jan 18 18:32 | 13°♒30'01 | 17°58'17   |
| desc. node          | 8491 Feb 23 21:52 | 28°♓10'47 |            |                     | 8492 Jan 30 10:50 | 0°♓       |            |
| morning set         | 8491 Feb 24 04:22 | 28°♓36'35 |            | morning set         | 8492 Feb 05 09:59 | 9°♓51'53  |            |
|                     | 8491 Feb 25 01:21 | 0°♈       |            | desc. node          | 8492 Feb 10 18:49 | 18°♓43'41 |            |
|                     |                   |           |            |                     | 8492 Feb 17 17:51 | 0°♈       |            |
| superior conj       | 8491 Mar 12 00:11 | 23°♈33'59 | -1°40'21   |                     |                   |           |            |
| minimum elong       | 8491 Mar 11 14:35 | 22°♈56'23 | 1°39'26    | superior conj       | 8492 Feb 19 11:14 | 2°♈45'03  | -1°00'08   |
| max. Earth dist.    | 8491 Mar 12 13:56 | 24°♈27'47 | 1.45535 AU | minimum elong       | 8492 Feb 19 04:20 | 2°♈17'33  | 0°59'07    |
|                     | 8491 Mar 16 02:51 | 0°♉       |            | max. Earth dist.    | 8492 Feb 23 09:23 | 8°♈57'23  | 1.45240 AU |
| evening rise        | 8491 Mar 27 20:48 | 18°♉27'20 |            | evening rise        | 8492 Mar 06 14:19 | 27°♈55'31 |            |
|                     | 8491 Apr 04 04:30 | 0°♊       |            |                     | 8492 Mar 07 22:41 | 0°♉       |            |
| greatest brilliancy | 8491 Apr 06 14:35 | 3°♊46'40  | -0.8m      | greatest brilliancy | 8492 Mar 20 19:50 | 19°♉30'31 | -0.6m      |
| asc. node           | 8491 Apr 18 05:53 | 20°♊06'12 |            |                     | 8492 Mar 28 08:26 | 0°♊       |            |
| evening max el      | 8491 Apr 19 07:32 | 21°♊14'15 | 18°59'03   | evening max el      | 8492 Apr 01 13:04 | 4°♊52'10  | 19°50'16   |
| retrograde          | 8491 Apr 26 02:52 | 25°♊02'14 |            | asc. node           | 8492 Apr 04 02:57 | 7°♊10'35  |            |
| evening set         | 8491 Apr 29 12:18 | 23°♊55'28 |            | retrograde          | 8492 Apr 09 00:55 | 9°♊10'56  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8492 Apr 12 18:40 | 7°♄49'20  |            | evening rise     | 8493 Feb 14 01:29 | 7°♄16'15  |            |
| inferior conj    | 8492 Apr 18 03:26 | 1°♄50'16  | 3°17'15    |                  | 8493 Mar 01 06:04 | 0°♄       |            |
| minimum elong    | 8492 Apr 18 02:23 | 1°♄53'50  | 3°17'04    | evening max el   | 8493 Mar 15 13:10 | 18°♄31'35 | 20°55'18   |
| min. Earth dist. | 8492 Apr 19 04:07 | 0°♄27'35  | 0.67309 AU | asc. node        | 8493 Mar 22 00:02 | 23°♄08'44 |            |
|                  | 8492 Apr 19 12:26 | 30°♄      |            | retrograde       | 8493 Mar 23 23:23 | 23°♄28'31 |            |
| morning rise     | 8492 Apr 23 09:47 | 25°♄32'29 |            | evening set      | 8493 Mar 28 02:38 | 21°♄51'43 |            |
| direct           | 8492 Apr 29 07:51 | 22°♄54'01 |            | inferior conj    | 8493 Apr 02 09:56 | 15°♄40'31 | 3°00'06    |
| desc. node       | 8492 May 08 18:36 | 27°♄40'42 |            | minimum elong    | 8493 Apr 02 08:05 | 15°♄46'53 | 2°59'44    |
|                  | 8492 May 11 05:16 | 0°♄       |            | min. Earth dist. | 8493 Apr 02 21:02 | 15°♄02'09 | 0.68089 AU |
| morning max el   | 8492 May 11 07:11 | 0°♄04'51  | 25°12'08   | morning rise     | 8493 Apr 07 13:20 | 9°♄25'34  |            |
|                  | 8492 Jun 02 17:43 | 0°♄       |            | direct           | 8493 Apr 12 22:16 | 7°♄02'53  |            |
| morning set      | 8492 Jun 16 08:48 | 22°♄46'59 |            | morning max el   | 8493 Apr 23 16:12 | 13°♄27'48 | 23°43'49   |
| max. Earth dist. | 8492 Jun 20 00:02 | 29°♄25'41 | 1.36528 AU | desc. node       | 8493 Apr 25 15:33 | 15°♄32'57 |            |
|                  | 8492 Jun 20 07:23 | 0°♄       |            |                  | 8493 May 07 00:55 | 0°♄       |            |
|                  |                   |           |            |                  | 8493 May 26 14:39 | 0°♄       |            |
| superior conj    | 8492 Jun 26 06:50 | 11°♄30'16 | -0°46'20   | morning set      | 8493 May 28 23:39 | 4°♄00'09  |            |
| minimum elong    | 8492 Jun 26 09:40 | 11°♄44'15 | 0°46'00    | max. Earth dist. | 8493 Jun 01 20:04 | 10°♄40'37 | 1.38725 AU |
| asc. node        | 8492 Jul 01 02:03 | 21°♄08'41 |            |                  |                   |           |            |
| evening rise     | 8492 Jul 04 12:26 | 28°♄06'51 |            | superior conj    | 8493 Jun 09 06:39 | 24°♄14'34 | -1°18'00   |
|                  | 8492 Jul 05 10:53 | 0°♄       |            | minimum elong    | 8493 Jun 09 11:29 | 24°♄37'20 | 1°17'29    |
| evening max el   | 8492 Jul 21 18:49 | 26°♄21'44 | 19°42'32   |                  | 8493 Jun 12 07:15 | 0°♄       |            |
|                  | 8492 Jul 26 15:18 | 0°♄       |            | asc. node        | 8493 Jun 17 23:02 | 11°♄00'18 |            |
| retrograde       | 8492 Jul 31 17:44 | 1°♄16'32  |            | evening rise     | 8493 Jun 18 10:11 | 11°♄54'43 |            |
| evening set      | 8492 Aug 02 14:09 | 1°♄07'05  |            |                  | 8493 Jun 28 08:04 | 0°♄       |            |
| desc. node       | 8492 Aug 04 17:45 | 0°♄34'01  |            | evening max el   | 8493 Jul 04 16:53 | 8°♄18'39  | 18°49'50   |
|                  | 8492 Aug 06 04:34 | 30°♄      |            | retrograde       | 8493 Jul 13 01:55 | 12°♄27'45 |            |
| inferior conj    | 8492 Aug 11 11:00 | 27°♄04'29 | -2°03'09   | evening set      | 8493 Jul 15 01:38 | 12°♄14'36 |            |
| minimum elong    | 8492 Aug 11 05:23 | 27°♄13'14 | 2°01'08    | desc. node       | 8493 Jul 22 14:50 | 8°♄19'20  |            |
| min. Earth dist. | 8492 Aug 13 15:53 | 25°♄42'19 | 0.55354 AU | inferior conj    | 8493 Jul 23 04:15 | 7°♄55'15  | -0°10'11   |
| morning rise     | 8492 Aug 19 18:26 | 22°♄39'37 |            | minimum elong    | 8493 Jul 23 03:50 | 7°♄56'01  | 0°10'10    |
| direct           | 8492 Aug 24 10:49 | 21°♄50'58 |            | transit middle   | 8493 Jul 23 03:50 | 7°♄56'01  | 0°10'10    |
| morning max el   | 8492 Sep 07 08:08 | 28°♄45'34 | 24°41'28   | transit begin    | 8493 Jul 23 00:57 | 8°♄01'12  |            |
|                  | 8492 Sep 08 14:28 | 0°♄       |            | transit end      | 8493 Jul 23 06:42 | 7°♄50'49  |            |
| asc. node        | 8492 Sep 27 01:42 | 27°♄26'19 |            | min. Earth dist. | 8493 Jul 26 07:25 | 5°♄40'34  | 0.56855 AU |
|                  | 8492 Sep 28 09:13 | 0°♄       |            | morning rise     | 8493 Jul 31 02:39 | 2°♄53'41  |            |
| morning set      | 8492 Oct 03 00:27 | 9°♄32'56  |            | direct           | 8493 Aug 05 15:23 | 1°♄39'53  |            |
|                  |                   |           |            | morning max el   | 8493 Aug 19 22:17 | 9°♄05'31  | 26°15'47   |
| superior conj    | 8492 Oct 09 21:27 | 24°♄31'34 | 1°37'37    |                  | 8493 Sep 04 17:18 | 0°♄       |            |
| minimum elong    | 8492 Oct 09 20:15 | 24°♄25'04 | 1°37'37    | asc. node        | 8493 Sep 13 22:39 | 16°♄57'51 |            |
| max. Earth dist. | 8492 Oct 11 16:44 | 28°♄27'17 | 1.32565 AU | morning set      | 8493 Sep 17 11:10 | 24°♄16'14 |            |
|                  | 8492 Oct 12 09:53 | 0°♄       |            |                  | 8493 Sep 20 02:52 | 0°♄       |            |
| evening rise     | 8492 Oct 17 04:03 | 10°♄00'22 |            |                  |                   |           |            |
|                  | 8492 Oct 27 18:50 | 0°♄       |            | superior conj    | 8493 Sep 24 08:36 | 9°♄21'31  | 1°28'18    |
| desc. node       | 8492 Oct 31 16:29 | 6°♄28'42  |            | minimum elong    | 8493 Sep 24 06:40 | 9°♄10'52  | 1°28'07    |
|                  | 8492 Nov 18 14:46 | 0°♄       |            | max. Earth dist. | 8493 Sep 25 00:30 | 10°♄49'31 | 1.31871 AU |
| evening max el   | 8492 Nov 19 08:49 | 0°♄43'33  | 27°29'24   | evening rise     | 8493 Oct 01 06:53 | 24°♄24'11 |            |
| retrograde       | 8492 Dec 03 02:34 | 8°♄01'45  |            |                  | 8493 Oct 04 00:10 | 0°♄       |            |
| evening set      | 8492 Dec 10 04:02 | 5°♄32'11  |            | desc. node       | 8493 Oct 18 13:34 | 25°♄42'19 |            |
| min. Earth dist. | 8492 Dec 13 21:11 | 2°♄24'02  | 0.63167 AU |                  | 8493 Oct 21 12:13 | 0°♄       |            |
|                  | 8492 Dec 16 07:36 | 30°♄      |            | evening max el   | 8493 Nov 01 15:58 | 13°♄14'25 | 27°12'30   |
| inferior conj    | 8492 Dec 16 14:45 | 29°♄42'14 | -2°26'18   | retrograde       | 8493 Nov 15 12:54 | 20°♄26'00 |            |
| minimum elong    | 8492 Dec 16 19:23 | 29°♄30'45 | 2°24'18    | evening set      | 8493 Nov 22 13:43 | 18°♄13'00 |            |
| morning rise     | 8492 Dec 23 12:45 | 24°♄28'27 |            | min. Earth dist. | 8493 Nov 26 06:41 | 15°♄28'01 | 0.61179 AU |
| asc. node        | 8492 Dec 24 01:09 | 24°♄18'19 |            | inferior conj    | 8493 Nov 29 08:39 | 12°♄46'54 | -3°36'38   |
| direct           | 8492 Dec 25 21:05 | 24°♄02'19 |            | minimum elong    | 8493 Nov 29 15:22 | 12°♄32'13 | 3°34'15    |
| morning max el   | 8493 Jan 01 11:54 | 27°♄26'55 | 17°47'48   | morning rise     | 8493 Dec 06 19:20 | 7°♄52'20  |            |
|                  | 8493 Jan 03 18:42 | 0°♄       |            | direct           | 8493 Dec 09 00:25 | 7°♄32'09  |            |
| morning set      | 8493 Jan 17 17:07 | 22°♄20'54 |            | asc. node        | 8493 Dec 10 22:11 | 7°♄47'42  |            |
|                  | 8493 Jan 22 02:59 | 0°♄       |            | morning max el   | 8493 Dec 16 03:12 | 11°♄06'48 | 17°55'39   |
| desc. node       | 8493 Jan 27 15:45 | 9°♄24'00  |            |                  | 8493 Dec 28 15:39 | 0°♄       |            |
|                  |                   |           |            | morning set      | 8493 Dec 31 19:13 | 5°♄43'45  |            |
| superior conj    | 8493 Jan 29 19:16 | 12°♄58'22 | -0°15'41   |                  |                   |           |            |
| minimum elong    | 8493 Jan 29 17:38 | 12°♄51'36 | 0°15'18    | superior conj    | 8494 Jan 11 04:57 | 24°♄25'18 | 0°24'32    |
| behind sun begin | 8493 Jan 29 14:44 | 12°♄39'37 |            | minimum elong    | 8494 Jan 11 07:00 | 24°♄34'12 | 0°24'24    |
| behind sun end   | 8493 Jan 29 20:31 | 13°♄03'35 |            |                  | 8494 Jan 14 10:46 | 0°♄       |            |
| max. Earth dist. | 8493 Feb 05 02:58 | 23°♄15'15 | 1.44241 AU | desc. node       | 8494 Jan 14 12:43 | 0°♄08'18  |            |
|                  | 8493 Feb 09 09:11 | 0°♄       |            | max. Earth dist. | 8494 Jan 18 16:58 | 7°♄07'34  | 1.42652 AU |

|                  |                   |                            |            |                  |                   |                            |            |
|------------------|-------------------|----------------------------|------------|------------------|-------------------|----------------------------|------------|
| evening rise     | 8494 Jan 24 21:43 | 17° $\approx$ 07'07        |            | desc. node       | 8495 Jan 01 09:41 | 20° $\approx$ 52'37        |            |
|                  | 8494 Feb 02 06:33 | 0° $\mathbb{H}$            |            | evening rise     | 8495 Jan 05 13:01 | 27° $\approx$ 49'51        |            |
|                  | 8494 Feb 24 06:12 | 0° $\mathbb{Y}$            |            |                  | 8495 Jan 06 20:46 | 0° $\approx$               |            |
| evening max el   | 8494 Feb 26 08:10 | 2° $\mathbb{Y}$ 13'02      | 22°10'18   |                  | 8495 Jan 26 21:07 | 0° $\mathbb{H}$            |            |
| retrograde       | 8494 Mar 07 20:33 | 7° $\mathbb{Y}$ 51'18      |            | evening max el   | 8495 Feb 08 23:19 | 15° $\mathbb{H}$ 56'29     | 23°30'12   |
| asc. node        | 8494 Mar 08 21:08 | 7° $\mathbb{Y}$ 45'59      |            | retrograde       | 8495 Feb 19 15:01 | 22° $\mathbb{H}$ 14'09     |            |
| evening set      | 8494 Mar 12 10:33 | 5° $\mathbb{Y}$ 59'12      |            | asc. node        | 8495 Feb 23 18:15 | 20° $\mathbb{H}$ 50'49     |            |
| inferior conj    | 8494 Mar 17 18:24 | 29° $\mathbb{H}$ 38'28     | 2°33'04    | evening set      | 8495 Feb 24 16:52 | 20° $\mathbb{H}$ 07'20     |            |
| minimum elong    | 8494 Mar 17 16:11 | 29° $\mathbb{H}$ 46'13     | 2°32'31    | min. Earth dist. | 8495 Mar 01 13:37 | 14° $\mathbb{H}$ 26'07     | 0.68349 AU |
| min. Earth dist. | 8494 Mar 17 16:56 | 29° $\mathbb{H}$ 43'36     | 0.68431 AU | inferior conj    | 8495 Mar 02 02:56 | 13° $\mathbb{H}$ 40'26     | 1°57'05    |
|                  | 8494 Mar 17 12:13 | 30° $\mathbb{R}\mathbb{H}$ |            | minimum elong    | 8495 Mar 02 00:46 | 13° $\mathbb{H}$ 47'52     | 1°56'26    |
| morning rise     | 8494 Mar 22 21:39 | 23° $\mathbb{H}$ 27'51     |            | morning rise     | 8495 Mar 07 08:39 | 7° $\mathbb{H}$ 35'24      |            |
| direct           | 8494 Mar 27 16:38 | 21° $\mathbb{H}$ 25'55     |            | direct           | 8495 Mar 11 13:50 | 5° $\mathbb{H}$ 55'59      |            |
| morning max el   | 8494 Apr 06 03:29 | 26° $\mathbb{H}$ 58'47     | 22°14'51   | morning max el   | 8495 Mar 19 20:34 | 10° $\mathbb{H}$ 40'40     | 20°53'06   |
|                  | 8494 Apr 08 22:49 | 0° $\mathbb{Y}$            |            | desc. node       | 8495 Mar 30 09:26 | 23° $\mathbb{H}$ 42'23     |            |
| desc. node       | 8494 Apr 12 12:30 | 4° $\mathbb{Y}$ 18'33      |            |                  | 8495 Apr 03 19:47 | 0° $\mathbb{Y}$            |            |
|                  | 8494 Apr 30 14:50 | 0° $\mathbb{B}$            |            | morning set      | 8495 Apr 18 22:33 | 22° $\mathbb{Y}$ 47'57     |            |
| morning set      | 8494 May 09 12:11 | 13° $\mathbb{B}$ 59'15     |            |                  | 8495 Apr 23 12:04 | 0° $\mathbb{B}$            |            |
| max. Earth dist. | 8494 May 14 18:16 | 22° $\mathbb{B}$ 39'48     | 1.40970 AU | max. Earth dist. | 8495 Apr 26 23:00 | 5° $\mathbb{B}$ 33'44      | 1.42969 AU |
|                  | 8494 May 19 01:13 | 0° $\mathbb{I}$            |            |                  |                   |                            |            |
| superior conj    | 8494 May 22 13:03 | 6° $\mathbb{I}$ 08'56      | -1°46'18   | superior conj    | 8495 May 03 21:20 | 17° $\mathbb{B}$ 02'35     | -2°06'15   |
| minimum elong    | 8494 May 22 18:56 | 6° $\mathbb{I}$ 35'12      | 1°45'52    | minimum elong    | 8495 May 04 01:35 | 17° $\mathbb{B}$ 20'35     | 2°06'11    |
| evening rise     | 8494 Jun 01 21:27 | 25° $\mathbb{I}$ 10'18     |            |                  | 8495 May 11 09:27 | 0° $\mathbb{I}$            |            |
|                  | 8494 Jun 04 11:40 | 0° $\mathbb{E}$            |            | evening rise     | 8495 May 15 17:58 | 7° $\mathbb{I}$ 43'12      |            |
| asc. node        | 8494 Jun 04 20:03 | 0° $\mathbb{E}$ 38'42      |            | asc. node        | 8495 May 22 17:06 | 19° $\mathbb{I}$ 58'28     |            |
| evening max el   | 8494 Jun 17 23:44 | 20° $\mathbb{E}$ 52'39     | 18°17'42   |                  | 8495 May 29 03:49 | 0° $\mathbb{E}$            |            |
| retrograde       | 8494 Jun 25 05:32 | 24° $\mathbb{E}$ 30'45     |            | evening max el   | 8495 Jun 01 11:35 | 3° $\mathbb{E}$ 54'10      | 18°05'23   |
| evening set      | 8494 Jun 27 12:19 | 24° $\mathbb{E}$ 09'52     |            | retrograde       | 8495 Jun 08 01:50 | 7° $\mathbb{E}$ 17'10      |            |
| inferior conj    | 8494 Jul 04 19:17 | 19° $\mathbb{E}$ 29'48     | 1°20'58    | evening set      | 8495 Jun 10 16:06 | 6° $\mathbb{E}$ 45'36      |            |
| minimum elong    | 8494 Jul 04 21:46 | 19° $\mathbb{E}$ 24'31     | 1°19'57    | inferior conj    | 8495 Jun 17 06:13 | 1° $\mathbb{E}$ 45'31      | 2°24'12    |
| min. Earth dist. | 8494 Jul 08 04:39 | 16° $\mathbb{E}$ 39'04     | 0.58898 AU | minimum elong    | 8495 Jun 17 09:12 | 1° $\mathbb{E}$ 38'13      | 2°23'14    |
| desc. node       | 8494 Jul 09 11:54 | 15° $\mathbb{E}$ 38'53     |            |                  | 8495 Jun 19 01:09 | 30° $\mathbb{R}\mathbb{I}$ |            |
| morning rise     | 8494 Jul 12 04:01 | 13° $\mathbb{E}$ 54'49     |            | min. Earth dist. | 8495 Jun 20 09:56 | 28° $\mathbb{I}$ 41'40     | 0.61141 AU |
| direct           | 8494 Jul 18 09:32 | 12° $\mathbb{E}$ 10'17     |            | morning rise     | 8495 Jun 23 23:56 | 25° $\mathbb{I}$ 46'59     |            |
| morning max el   | 8494 Aug 01 18:38 | 19° $\mathbb{E}$ 56'52     | 27°23'09   | desc. node       | 8495 Jun 26 08:57 | 24° $\mathbb{I}$ 27'59     |            |
|                  | 8494 Aug 10 09:01 | 0° $\mathbb{Q}$            |            | direct           | 8495 Jun 30 15:30 | 23° $\mathbb{I}$ 32'41     |            |
|                  | 8494 Aug 28 11:24 | 0° $\mathbb{P}$            |            |                  | 8495 Jul 13 07:18 | 0° $\mathbb{E}$            |            |
| asc. node        | 8494 Aug 31 19:35 | 6° $\mathbb{P}$ 45'41      |            | morning max el   | 8495 Jul 14 21:55 | 1° $\mathbb{E}$ 32'17      | 27°54'09   |
| morning set      | 8494 Sep 01 19:16 | 8° $\mathbb{P}$ 49'26      |            |                  | 8495 Aug 04 15:46 | 0° $\mathbb{Q}$            |            |
|                  |                   |                            |            | morning set      | 8495 Aug 16 22:54 | 23° $\mathbb{Q}$ 07'20     |            |
| superior conj    | 8494 Sep 08 20:23 | 24° $\mathbb{P}$ 10'07     | 1°13'45    | asc. node        | 8495 Aug 18 16:33 | 26° $\mathbb{Q}$ 44'31     |            |
| minimum elong    | 8494 Sep 08 18:08 | 23° $\mathbb{P}$ 57'40     | 1°13'23    |                  | 8495 Aug 20 05:20 | 0° $\mathbb{P}$            |            |
| max. Earth dist. | 8494 Sep 08 10:44 | 23° $\mathbb{P}$ 16'34     | 1.31632 AU | max. Earth dist. | 8495 Aug 22 19:35 | 5° $\mathbb{P}$ 37'14      | 1.31850 AU |
|                  | 8494 Sep 11 11:29 | 0° $\mathbb{A}$            |            |                  |                   |                            |            |
| evening rise     | 8494 Sep 15 14:43 | 9° $\mathbb{A}$ 00'03      |            | superior conj    | 8495 Aug 24 07:02 | 8° $\mathbb{P}$ 51'54      | 0°54'20    |
|                  | 8494 Sep 26 09:10 | 0° $\mathbb{L}$            |            | minimum elong    | 8495 Aug 24 04:57 | 8° $\mathbb{P}$ 40'26      | 0°53'53    |
| desc. node       | 8494 Oct 05 10:40 | 14° $\mathbb{L}$ 09'23     |            | evening rise     | 8495 Aug 31 01:27 | 23° $\mathbb{P}$ 41'48     |            |
| evening max el   | 8494 Oct 14 16:09 | 24° $\mathbb{L}$ 56'39     | 26°21'34   |                  | 8495 Sep 03 01:24 | 0° $\mathbb{A}$            |            |
|                  | 8494 Oct 21 09:03 | 0° $\mathbb{X}$            |            |                  | 8495 Sep 21 01:23 | 0° $\mathbb{L}$            |            |
| retrograde       | 8494 Oct 28 14:08 | 2° $\mathbb{X}$ 02'01      |            | desc. node       | 8495 Sep 22 07:46 | 1° $\mathbb{L}$ 31'39      |            |
| evening set      | 8494 Nov 04 04:35 | 0° $\mathbb{X}$ 15'46      |            | evening max el   | 8495 Sep 26 08:12 | 5° $\mathbb{L}$ 48'43      | 25°01'17   |
|                  | 8494 Nov 04 16:19 | 30° $\mathbb{R}\mathbb{L}$ |            | retrograde       | 8495 Oct 10 04:54 | 12° $\mathbb{L}$ 48'02     |            |
| min. Earth dist. | 8494 Nov 08 05:25 | 27° $\mathbb{L}$ 41'16     | 0.59090 AU | evening set      | 8495 Oct 15 20:07 | 11° $\mathbb{L}$ 36'09     |            |
| inferior conj    | 8494 Nov 11 09:56 | 25° $\mathbb{L}$ 16'17     | -4°40'54   | min. Earth dist. | 8495 Oct 20 19:38 | 8° $\mathbb{L}$ 53'51      | 0.57117 AU |
| minimum elong    | 8494 Nov 11 17:11 | 25° $\mathbb{L}$ 02'29     | 4°39'04    | inferior conj    | 8495 Oct 23 15:37 | 7° $\mathbb{L}$ 01'46      | -5°25'56   |
| morning rise     | 8494 Nov 19 08:07 | 20° $\mathbb{L}$ 44'02     |            | minimum elong    | 8495 Oct 23 19:54 | 6° $\mathbb{L}$ 54'40      | 5°25'23    |
| direct           | 8494 Nov 21 13:56 | 20° $\mathbb{L}$ 26'37     |            | morning rise     | 8495 Oct 31 21:59 | 2° $\mathbb{L}$ 52'24      |            |
| asc. node        | 8494 Nov 27 19:13 | 22° $\mathbb{L}$ 49'21     |            | direct           | 8495 Nov 03 09:17 | 2° $\mathbb{L}$ 34'53      |            |
| morning max el   | 8494 Nov 29 12:58 | 24° $\mathbb{L}$ 20'02     | 18°23'18   | morning max el   | 8495 Nov 12 13:36 | 6° $\mathbb{L}$ 56'58      | 19°12'24   |
|                  | 8494 Dec 04 04:49 | 0° $\mathbb{X}$            |            | asc. node        | 8495 Nov 14 16:14 | 9° $\mathbb{L}$ 10'57      |            |
| morning set      | 8494 Dec 15 10:34 | 19° $\mathbb{X}$ 42'57     |            |                  | 8495 Nov 27 09:02 | 0° $\mathbb{X}$            |            |
|                  | 8494 Dec 20 19:57 | 0° $\mathbb{B}$            |            | morning set      | 8495 Nov 29 11:01 | 4° $\mathbb{X}$ 06'36      |            |
|                  |                   |                            |            |                  |                   |                            |            |
| superior conj    | 8494 Dec 24 13:24 | 6° $\mathbb{B}$ 56'56      | 0°56'32    | superior conj    | 8495 Dec 07 15:36 | 20° $\mathbb{X}$ 19'15     | 1°19'26    |
| minimum elong    | 8494 Dec 24 16:45 | 7° $\mathbb{B}$ 12'19      | 0°56'16    | minimum elong    | 8495 Dec 07 18:38 | 20° $\mathbb{X}$ 33'55     | 1°19'18    |
| max. Earth dist. | 8495 Jan 01 02:13 | 20° $\mathbb{B}$ 20'33     | 1.40652 AU |                  | 8495 Dec 12 18:34 | 0° $\mathbb{B}$            |            |
|                  |                   |                            |            | max. Earth dist. | 8495 Dec 14 07:59 | 2° $\mathbb{B}$ 50'41      | 1.38483 AU |

|                     |                   |   |                  |                   |   |
|---------------------|-------------------|---|------------------|-------------------|---|
| evening rise        | 8495 Dec 18 02:18 | 9°  31'06                  | evening rise     | 8496 Nov 29 11:34 | 22°  05'10                 |
| desc. node          | 8495 Dec 19 06:42 | 11°  33'38                 | desc. node       | 8496 Dec 03 22:12 | 0°                         |
|                     | 8495 Dec 30 16:50 | 0°                         |                  | 8496 Dec 05 03:44 | 2°  06'54                  |
| evening max el      | 8496 Jan 22 12:36 | 29°  42'43 24°48'43        |                  | 8496 Dec 23 12:48 | 0°                         |
|                     | 8496 Jan 22 19:39 | 0°                         | evening max el   | 8497 Jan 04 01:42 | 13°  29'51 25°58'51        |
| retrograde          | 8496 Feb 03 05:44 | 6°  32'17                  | retrograde       | 8497 Jan 16 15:38 | 20°  39'59                 |
| evening set         | 8496 Feb 08 20:03 | 4°  12'25                  | evening set      | 8497 Jan 22 18:25 | 18°  10'04                 |
| asc. node           | 8496 Feb 10 15:22 | 2°  26'32                  | min. Earth dist. | 8497 Jan 27 00:37 | 13°  37'45 0.67003 AU      |
|                     | 8496 Feb 12 16:11 | 30°                        | asc. node        | 8497 Jan 27 12:28 | 13°  00'56                 |
| min. Earth dist.    | 8496 Feb 13 08:55 | 29°  05'35 0.67867 AU      | inferior conj    | 8497 Jan 28 12:49 | 11°  44'36 0°20'11         |
| inferior conj       | 8496 Feb 14 09:42 | 27°  43'36 1°12'39         | minimum elong    | 8497 Jan 28 12:18 | 11°  46'14 0°20'07         |
| minimum elong       | 8496 Feb 14 08:06 | 27°  48'57 1°12'08         | morning rise     | 8497 Feb 03 06:47 | 5°  55'25                  |
| morning rise        | 8496 Feb 19 20:22 | 21°  45'34                 | direct           | 8497 Feb 06 11:43 | 4°  56'43                  |
| direct              | 8496 Feb 23 12:42 | 20°  27'48                 | morning max el   | 8497 Feb 13 05:46 | 8°  37'35 18°49'42         |
| morning max el      | 8496 Mar 01 21:24 | 24°  34'33 19°43'45        |                  | 8497 Feb 28 16:59 | 0°                         |
|                     | 8496 Mar 06 14:39 | 0°                         | desc. node       | 8497 Mar 03 03:18 | 3°  46'20                  |
| greatest brilliancy | 8496 Mar 14 15:36 | 11°  11'06 -0.6m           | morning set      | 8497 Mar 07 05:05 | 10°  07'42                 |
| desc. node          | 8496 Mar 16 06:22 | 13°  34'06                 |                  | 8497 Mar 19 22:15 | 0°                         |
|                     | 8496 Mar 27 02:35 | 0°                         | max. Earth dist. | 8497 Mar 22 03:04 | 3°  26'52 1.45357 AU       |
| morning set         | 8496 Mar 27 20:03 | 1°  07'16                  |                  |                   |   |
| max. Earth dist.    | 8496 Apr 08 10:26 | 19°  14'00 1.44485 AU      | superior conj    | 8497 Mar 23 15:53 | 5°  51'18 -1°57'28         |
|                     |                   |   | minimum elong    | 8497 Mar 23 07:49 | 5°  19'39 1°56'57          |
| superior conj       | 8496 Apr 13 04:50 | 26°  51'34 -2°11'39        | evening rise     | 8497 Apr 07 20:48 | 0°  03'39                  |
| minimum elong       | 8496 Apr 13 03:27 | 26°  45'59 2°11'44         |                  | 8497 Apr 07 19:54 | 0°                         |
|                     | 8496 Apr 15 03:21 | 0°                         | asc. node        | 8497 Apr 25 11:17 | 27°  13'15                 |
| evening rise        | 8496 Apr 26 18:59 | 19°  22'50                 |                  | 8497 Apr 27 19:36 | 0°                         |
|                     | 8496 May 03 01:49 | 0°                        | evening max el   | 8497 Apr 28 13:08 | 0°  45'41 18°37'00        |
| asc. node           | 8496 May 08 14:11 | 8°  15'24                | retrograde       | 8497 May 05 02:20 | 4°  12'03'36             |
| evening max el      | 8496 May 15 01:01 | 17°  14'13 18°12'05      | evening set      | 8497 May 08 07:21 | 3°  12'21'16             |
| retrograde          | 8496 May 21 10:10 | 20°  36'32               |                  | 8497 May 12 02:25 | 30°                      |
| evening set         | 8496 May 24 07:45 | 19°  12'52'15            | inferior conj    | 8497 May 13 23:40 | 27°  46'54 3°20'05       |
| inferior conj       | 8496 May 30 09:02 | 14°  33'49 3°02'16       | minimum elong    | 8497 May 14 00:28 | 27°  44'26 3°19'52       |
| minimum elong       | 8496 May 30 11:09 | 14°  12'57'58 3°01'44    | min. Earth dist. | 8497 May 15 23:57 | 25°  20'46 0.65185 AU    |
| min. Earth dist.    | 8496 Jun 02 00:23 | 11°  39'50 0.63305 AU    | morning rise     | 8497 May 19 16:51 | 21°  29'41               |
| morning rise        | 8496 Jun 05 13:07 | 8°  12'22'08             | direct           | 8497 May 26 06:55 | 18°  43'29               |
| direct              | 8496 Jun 12 07:18 | 5°  14'55'55             | desc. node       | 8497 May 30 03:00 | 19°  31'31               |
| desc. node          | 8496 Jun 12 06:00 | 5°  14'55'56             | morning max el   | 8497 Jun 08 16:14 | 26°  37'20 27°05'51      |
| morning max el      | 8496 Jun 26 06:02 | 13°  12'48'58 27°46'56   |                  | 8497 Jun 11 19:34 | 0°                       |
|                     | 8496 Jul 09 06:53 | 0°                       |                  | 8497 Jul 02 21:40 | 0°                       |
|                     | 8496 Jul 27 05:19 | 0°                       | morning set      | 8497 Jul 14 06:55 | 20°  27'09               |
| morning set         | 8496 Jul 30 19:43 | 7°  02'24                | max. Earth dist. | 8497 Jul 18 17:08 | 29°  13'18 1.33735 AU    |
| asc. node           | 8496 Aug 04 13:31 | 16°  04'48'57            |                  | 8497 Jul 19 02:19 | 0°                       |
| max. Earth dist.    | 8496 Aug 04 22:52 | 17°  03'38'28 1.32546 AU | asc. node        | 8497 Jul 22 10:30 | 6°  02'55'14             |
|                     |                   |   |                  |                   |   |
| superior conj       | 8496 Aug 07 14:37 | 23°  02'20'18 0°30'29    | superior conj    | 8497 Jul 22 17:04 | 7°  02'29'42 0°02'46     |
| minimum elong       | 8496 Aug 07 13:14 | 23°  01'12'47 0°30'05    | minimum elong    | 8497 Jul 22 16:55 | 7°  02'28'59 0°02'35     |
|                     | 8496 Aug 10 16:09 | 0°                       | behind sun begin | 8497 Jul 22 11:22 | 6°  02'59'46             |
| evening rise        | 8496 Aug 14 13:06 | 8°  02'22'34             | behind sun end   | 8497 Jul 22 22:29 | 7°  02'58'15             |
|                     | 8496 Aug 25 17:19 | 0°                       | evening rise     | 8497 Jul 29 23:49 | 22°  02'57'18            |
| evening max el      | 8496 Sep 06 19:30 | 16°  06'06'05 23°24'04   |                  | 8497 Aug 02 09:42 | 0°                       |
| desc. node          | 8496 Sep 08 04:54 | 17°  02'23'14            | evening max el   | 8497 Aug 19 10:24 | 26°  02'22'40 21°46'31   |
| retrograde          | 8496 Sep 20 07:26 | 22°  02'50'59            |                  | 8497 Aug 23 21:12 | 0°                       |
| evening set         | 8496 Sep 24 11:54 | 22°  02'12'41            | desc. node       | 8497 Aug 26 01:59 | 1°  02'13'17             |
| min. Earth dist.    | 8496 Oct 01 05:14 | 19°  02'04'03 0.55565 AU | retrograde       | 8497 Aug 31 22:26 | 2°  02'34'57             |
| inferior conj       | 8496 Oct 03 01:19 | 17°  02'59'09 -5°33'00   | evening set      | 8497 Sep 03 16:55 | 2°  02'17'42             |
| minimum elong       | 8496 Oct 02 22:35 | 18°  02'03'11 5°32'48    |                  | 8497 Sep 09 18:06 | 30°                      |
| morning rise        | 8496 Oct 11 11:22 | 14°  02'06'55            | inferior conj    | 8497 Sep 12 20:36 | 28°  02'18'34 -4°46'06   |
| direct              | 8496 Oct 14 09:13 | 13°  02'46'21            | minimum elong    | 8497 Sep 12 11:40 | 28°  02'31'03 4°44'10    |
| morning max el      | 8496 Oct 25 01:54 | 18°  02'47'22 20°23'59   | min. Earth dist. | 8497 Sep 12 13:38 | 28°  02'28'19 0.54751 AU |
| asc. node           | 8496 Oct 31 13:15 | 26°  02'36'05            | morning rise     | 8497 Sep 21 07:36 | 24°  02'29'22            |
|                     | 8496 Nov 02 18:06 | 0°                       | direct           | 8497 Sep 24 19:58 | 24°  02'02'18            |
| morning set         | 8496 Nov 12 17:23 | 18°  02'45'16            | morning max el   | 8497 Oct 07 01:14 | 29°  02'48'34 21°56'06   |
|                     | 8496 Nov 18 04:12 | 0°                       |                  | 8497 Oct 07 06:06 | 0°                       |
|                     |                   |   | asc. node        | 8497 Oct 18 10:13 | 14°  02'50'30            |
| superior conj       | 8496 Nov 20 06:44 | 4°  02'17'49 1°33'47     |                  | 8497 Oct 26 10:27 | 0°                       |
| minimum elong       | 8496 Nov 20 08:40 | 4°  02'27'36 1°33'50     | morning set      | 8497 Oct 28 03:19 | 3°  02'32'17             |
| max. Earth dist.    | 8496 Nov 25 14:50 | 14°  02'50'26 1.36394 AU |                  |                   |   |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| superior conj       | 8497 Nov 04 06:55 | 18° $\mathbb{M}$ 41'27        | 1°40'30    | superior conj    | 8498 Oct 19 13:13 | 3° $\mathbb{M}$ 21'33         | 1°40'26    |
| minimum elong       | 8497 Nov 04 07:32 | 18° $\mathbb{M}$ 44'40        | 1°40'37    | minimum elong    | 8498 Oct 19 12:37 | 3° $\mathbb{M}$ 18'17         | 1°40'31    |
| max. Earth dist.    | 8497 Nov 08 04:06 | 26° $\mathbb{M}$ 43'33        | 1.34587 AU | max. Earth dist. | 8498 Oct 22 01:51 | 8° $\mathbb{M}$ 46'51         | 1.33176 AU |
|                     | 8497 Nov 09 19:10 | 0° $\mathbb{A}$               |            | evening rise     | 8498 Oct 27 02:50 | 19° $\mathbb{M}$ 12'26        |            |
| evening rise        | 8497 Nov 12 13:00 | 5° $\mathbb{A}$ 22'14         |            |                  | 8498 Nov 01 17:27 | 0° $\mathbb{A}$               |            |
| desc. node          | 8497 Nov 22 00:46 | 22° $\mathbb{A}$ 27'30        |            | desc. node       | 8498 Nov 08 21:49 | 12° $\mathbb{A}$ 29'23        |            |
|                     | 8497 Nov 26 16:13 | 0° $\mathbb{B}$               |            |                  | 8498 Nov 20 19:49 | 0° $\mathbb{B}$               |            |
| evening max el      | 8497 Dec 17 15:07 | 27° $\mathbb{B}$ 11'06        | 26°53'07   | evening max el   | 8498 Nov 30 03:43 | 10° $\mathbb{B}$ 35'22        | 27°24'19   |
|                     | 8497 Dec 20 19:26 | 0° $\mathbb{C}$               |            | retrograde       | 8498 Dec 13 17:37 | 17° $\mathbb{B}$ 54'57        |            |
| retrograde          | 8497 Dec 30 19:50 | 4° $\mathbb{C}$ 30'06         |            | evening set      | 8498 Dec 20 16:30 | 15° $\mathbb{B}$ 20'41        |            |
| evening set         | 8498 Jan 06 10:00 | 1° $\mathbb{C}$ 54'44         |            | min. Earth dist. | 8498 Dec 24 11:45 | 11° $\mathbb{B}$ 55'44        | 0.64213 AU |
|                     | 8498 Jan 08 12:37 | 30° $\mathbb{R}$ $\mathbb{B}$ |            | inferior conj    | 8498 Dec 26 23:09 | 9° $\mathbb{B}$ 19'44         | -1°46'05   |
| min. Earth dist.    | 8498 Jan 10 10:18 | 27° $\mathbb{B}$ 56'49        | 0.65778 AU | minimum elong    | 8498 Dec 27 02:26 | 9° $\mathbb{B}$ 11'04         | 1°44'32    |
| inferior conj       | 8498 Jan 12 10:07 | 25° $\mathbb{B}$ 38'28        | -0°39'48   | asc. node        | 8499 Jan 01 06:35 | 4° $\mathbb{B}$ 36'42         |            |
| minimum elong       | 8498 Jan 12 11:15 | 25° $\mathbb{B}$ 35'11        | 0°39'08    | morning rise     | 8499 Jan 02 14:00 | 3° $\mathbb{B}$ 56'18         |            |
| asc. node           | 8498 Jan 14 09:33 | 23° $\mathbb{B}$ 25'18        |            | direct           | 8499 Jan 05 01:45 | 3° $\mathbb{B}$ 24'58         |            |
| morning rise        | 8498 Jan 18 13:35 | 20° $\mathbb{B}$ 00'40        |            | morning max el   | 8499 Jan 11 12:53 | 6° $\mathbb{B}$ 47'16         | 17°51'40   |
| direct              | 8498 Jan 21 08:55 | 19° $\mathbb{B}$ 17'30        |            |                  | 8499 Jan 27 01:20 | 0° $\mathbb{C}$               |            |
| morning max el      | 8498 Jan 27 19:49 | 22° $\mathbb{B}$ 43'59        | 18°12'08   | morning set      | 8499 Jan 28 11:05 | 2° $\mathbb{C}$ 22'59         |            |
|                     | 8498 Feb 02 16:14 | 0° $\mathbb{C}$               |            | desc. node       | 8499 Feb 04 21:11 | 14° $\mathbb{C}$ 49'57        |            |
| morning set         | 8498 Feb 15 17:46 | 20° $\mathbb{C}$ 33'03        |            |                  |                   |                               |            |
| desc. node          | 8498 Feb 18 00:14 | 24° $\mathbb{C}$ 13'00        |            | superior conj    | 8499 Feb 10 15:53 | 24° $\mathbb{C}$ 16'45        | -0°41'10   |
|                     | 8498 Feb 21 14:35 | 0° $\mathbb{H}$               |            | minimum elong    | 8499 Feb 10 11:14 | 23° $\mathbb{C}$ 57'57        | 0°40'24    |
|                     |                   |                               |            |                  | 8499 Feb 14 05:34 | 0° $\mathbb{H}$               |            |
| superior conj       | 8498 Mar 02 21:10 | 14° $\mathbb{H}$ 42'17        | -1°24'30   | max. Earth dist. | 8499 Feb 15 18:19 | 2° $\mathbb{H}$ 25'49         | 1.44903 AU |
| minimum elong       | 8498 Mar 02 12:00 | 14° $\mathbb{H}$ 06'17        | 1°23'24    | evening rise     | 8499 Feb 26 13:06 | 19° $\mathbb{H}$ 12'50        |            |
| max. Earth dist.    | 8498 Mar 04 22:43 | 17° $\mathbb{H}$ 56'40        | 1.45500 AU |                  | 8499 Mar 05 15:10 | 0° $\mathbb{Y}$               |            |
|                     | 8498 Mar 12 16:02 | 0° $\mathbb{Y}$               |            | evening max el   | 8499 Mar 26 00:50 | 28° $\mathbb{Y}$ 00'43        | 20°16'23   |
| evening rise        | 8498 Mar 19 00:02 | 9° $\mathbb{Y}$ 51'49         |            |                  | 8499 Mar 28 04:22 | 0° $\mathbb{B}$               |            |
| greatest brilliancy | 8498 Mar 30 20:38 | 28° $\mathbb{Y}$ 11'48        | -0.7m      | asc. node        | 8499 Mar 30 05:27 | 1° $\mathbb{B}$ 27'02         |            |
|                     | 8498 Apr 01 01:22 | 0° $\mathbb{B}$               |            | retrograde       | 8499 Apr 02 21:23 | 2° $\mathbb{B}$ 34'48         |            |
| evening max el      | 8498 Apr 11 21:35 | 14° $\mathbb{B}$ 22'11        | 19°19'02   | evening set      | 8499 Apr 06 19:08 | 1° $\mathbb{B}$ 06'30         |            |
| asc. node           | 8498 Apr 12 08:22 | 14° $\mathbb{B}$ 48'57        |            |                  | 8499 Apr 08 01:39 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            |
| retrograde          | 8498 Apr 18 22:56 | 18° $\mathbb{B}$ 21'40        |            | inferior conj    | 8499 Apr 12 02:59 | 25° $\mathbb{Y}$ 01'51        | 3°11'15    |
| evening set         | 8498 Apr 22 11:53 | 17° $\mathbb{B}$ 08'32        |            | minimum elong    | 8499 Apr 12 01:33 | 25° $\mathbb{Y}$ 06'44        | 3°10'59    |
| inferior conj       | 8498 Apr 27 22:34 | 11° $\mathbb{B}$ 17'37        | 3°22'01    | min. Earth dist. | 8499 Apr 12 21:39 | 23° $\mathbb{Y}$ 58'17        | 0.67700 AU |
| minimum elong       | 8498 Apr 27 22:07 | 11° $\mathbb{B}$ 19'05        | 3°21'54    | morning rise     | 8499 Apr 17 07:45 | 18° $\mathbb{Y}$ 45'14        |            |
| min. Earth dist.    | 8498 Apr 29 07:34 | 9° $\mathbb{B}$ 30'21         | 0.66664 AU | direct           | 8499 Apr 23 00:21 | 16° $\mathbb{Y}$ 12'58        |            |
| morning rise        | 8498 May 03 08:00 | 4° $\mathbb{B}$ 59'25         |            | desc. node       | 8499 May 03 20:59 | 22° $\mathbb{Y}$ 28'31        |            |
| direct              | 8498 May 09 12:54 | 2° $\mathbb{B}$ 15'22         |            | morning max el   | 8499 May 04 11:38 | 23° $\mathbb{Y}$ 05'04        | 24°35'16   |
| desc. node          | 8498 May 16 23:59 | 5° $\mathbb{B}$ 15'39         |            |                  | 8499 May 10 14:06 | 0° $\mathbb{B}$               |            |
| morning max el      | 8498 May 22 02:20 | 9° $\mathbb{B}$ 45'32         | 25°58'46   |                  | 8499 May 31 10:00 | 0° $\mathbb{I}$               |            |
|                     | 8498 Jun 07 01:31 | 0° $\mathbb{I}$               |            | morning set      | 8499 Jun 09 08:32 | 15° $\mathbb{I}$ 01'07        |            |
|                     | 8498 Jun 25 11:01 | 0° $\mathbb{E}$               |            | max. Earth dist. | 8499 Jun 12 23:33 | 21° $\mathbb{I}$ 29'51        | 1.37442 AU |
| morning set         | 8498 Jun 27 04:47 | 3° $\mathbb{E}$ 10'50         |            |                  | 8499 Jun 17 13:14 | 0° $\mathbb{E}$               |            |
| max. Earth dist.    | 8498 Jul 01 00:40 | 10° $\mathbb{E}$ 24'03        | 1.35396 AU |                  |                   |                               |            |
|                     |                   |                               |            | superior conj    | 8499 Jun 19 19:33 | 4° $\mathbb{E}$ 20'39         | -0°59'56   |
| superior conj       | 8498 Jul 06 11:46 | 21° $\mathbb{E}$ 12'33        | -0°27'55   | minimum elong    | 8499 Jun 19 23:16 | 4° $\mathbb{E}$ 38'41         | 0°59'30    |
| minimum elong       | 8498 Jul 06 13:24 | 21° $\mathbb{E}$ 20'52        | 0°27'47    | asc. node        | 8499 Jun 26 04:28 | 16° $\mathbb{E}$ 56'20        |            |
| asc. node           | 8498 Jul 09 07:29 | 26° $\mathbb{E}$ 59'02        |            | evening rise     | 8499 Jun 28 09:41 | 21° $\mathbb{E}$ 22'16        |            |
|                     | 8498 Jul 10 18:30 | 0° $\mathbb{Q}$               |            |                  | 8499 Jul 02 19:33 | 0° $\mathbb{Q}$               |            |
| evening rise        | 8498 Jul 14 07:29 | 7° $\mathbb{Q}$ 19'29         |            | evening max el   | 8499 Jul 15 03:36 | 18° $\mathbb{Q}$ 41'13        | 19°17'30   |
|                     | 8498 Jul 26 17:02 | 0° $\mathbb{P}$               |            | retrograde       | 8499 Jul 24 09:31 | 23° $\mathbb{Q}$ 15'37        |            |
| evening max el      | 8498 Aug 01 12:23 | 7° $\mathbb{P}$ 09'53         | 20°22'12   | evening set      | 8499 Jul 26 06:23 | 23° $\mathbb{Q}$ 05'11        |            |
| retrograde          | 8498 Aug 12 10:47 | 12° $\mathbb{P}$ 34'15        |            | desc. node       | 8499 Jul 30 20:09 | 21° $\mathbb{Q}$ 22'57        |            |
| desc. node          | 8498 Aug 12 23:03 | 12° $\mathbb{P}$ 33'35        |            | inferior conj    | 8499 Aug 03 20:02 | 18° $\mathbb{Q}$ 55'56        | -1°13'34   |
| evening set         | 8498 Aug 14 10:30 | 12° $\mathbb{P}$ 24'18        |            | minimum elong    | 8499 Aug 03 16:46 | 19° $\mathbb{Q}$ 01'20        | 1°12'25    |
| inferior conj       | 8498 Aug 23 14:06 | 8° $\mathbb{P}$ 26'44         | -3°09'55   | min. Earth dist. | 8499 Aug 06 12:12 | 17° $\mathbb{Q}$ 10'19        | 0.55900 AU |
| minimum elong       | 8498 Aug 23 05:42 | 8° $\mathbb{P}$ 38'59         | 3°07'08    | morning rise     | 8499 Aug 12 00:21 | 14° $\mathbb{Q}$ 15'48        |            |
| min. Earth dist.    | 8498 Aug 24 23:14 | 7° $\mathbb{P}$ 38'24         | 0.54863 AU | direct           | 8499 Aug 17 01:15 | 13° $\mathbb{Q}$ 17'49        |            |
| morning rise        | 8498 Sep 01 00:08 | 4° $\mathbb{P}$ 20'31         |            | morning max el   | 8499 Aug 31 04:06 | 20° $\mathbb{Q}$ 26'38        | 25°24'10   |
| direct              | 8498 Sep 05 05:33 | 3° $\mathbb{P}$ 42'07         |            |                  | 8499 Sep 08 09:17 | 0° $\mathbb{P}$               |            |
| morning max el      | 8498 Sep 18 15:33 | 10° $\mathbb{P}$ 12'54        | 23°41'00   | asc. node        | 8499 Sep 22 04:06 | 23° $\mathbb{P}$ 02'05        |            |
|                     | 8498 Oct 03 05:45 | 0° $\mathbb{L}$               |            |                  | 8499 Sep 25 14:26 | 0° $\mathbb{L}$               |            |
| asc. node           | 8498 Oct 05 07:10 | 3° $\mathbb{L}$ 42'33         |            | morning set      | 8499 Sep 27 02:26 | 3° $\mathbb{L}$ 10'00         |            |
| morning set         | 8498 Oct 12 14:55 | 18° $\mathbb{L}$ 22'28        |            |                  |                   |                               |            |
|                     | 8498 Oct 18 00:03 | 0° $\mathbb{M}$               |            | superior conj    | 8499 Oct 03 23:11 | 18° $\mathbb{L}$ 10'00        | 1°34'20    |

|                  |                   |  |            |                  |                   |   |            |
|------------------|-------------------|--|------------|------------------|-------------------|---|------------|
| minimum elong    | 8499 Oct 03 21:38 | 18°  01'29  | 1°34'16    | morning set      | 8500 Sep 11 12:17 | 17°  50'08   |            |
| max. Earth dist. | 8499 Oct 05 06:41 | 21°  03'07  | 1.32211 AU |                  | 8500 Sep 17 02:18 | 0°   |            |
|                  | 8499 Oct 09 10:16 | 0°    |            |                  |                   |   |            |
| evening rise     | 8499 Oct 11 01:42 | 3°  26'09   |            | superior conj    | 8500 Sep 18 10:51 | 3°  00'38  | 1°22'44    |
|                  | 8499 Oct 25 11:41 | 0°    |            | minimum elong    | 8500 Sep 18 08:44 | 2°  48'55  | 1°22'29    |
| desc. node       | 8499 Oct 26 18:52 | 2°  03'49   |            | max. Earth dist. | 8500 Sep 18 15:51 | 3°  28'20  | 1.31707 AU |
| evening max el   | 8499 Nov 12 13:20 | 23°  28'33  | 27°26'14   | evening rise     | 8500 Sep 25 06:56 | 17°  56'06   |            |
|                  | 8499 Nov 22 06:12 | 0°    |            |                  | 8500 Oct 01 06:08 | 0°   |            |
| retrograde       | 8499 Nov 26 08:30 | 0°  344'13  |            | desc. node       | 8500 Oct 13 15:57 | 20°  15'52   |            |
|                  | 8499 Nov 30 06:58 | 30°  R             |            |                  | 8500 Oct 20 10:45 | 0°   |            |
| evening set      | 8499 Dec 03 10:53 | 28°  20'04  |            | evening max el   | 8500 Oct 25 17:37 | 5°  39'20  | 26°54'49   |
| min. Earth dist. | 8499 Dec 07 03:11 | 25°  23'18  | 0.62350 AU | retrograde       | 8500 Nov 08 15:31 | 12°  49'02   |            |
| inferior conj    | 8499 Dec 10 00:56 | 22°  39'53  | -2°56'16   | evening set      | 8500 Nov 15 13:13 | 10°  45'58   |            |
| minimum elong    | 8499 Dec 10 06:33 | 22°  26'42  | 2°54'01    | min. Earth dist. | 8500 Nov 19 08:02 | 8°  07'23  | 0.60293 AU |
| morning rise     | 8499 Dec 17 04:24 | 17°  34'11  |            | inferior conj    | 8500 Nov 22 12:11 | 5°  30'44  | -4°05'16   |
| direct           | 8499 Dec 19 11:00 | 17°  10'59  |            | minimum elong    | 8500 Nov 22 19:26 | 5°  15'48  | 4°02'59    |
| asc. node        | 8499 Dec 19 03:37 | 17°  11'25  |            | morning rise     | 8500 Nov 30 04:05 | 0°  45'36  |            |
| morning max el   | 8499 Dec 26 05:51 | 20°  38'27  | 17°48'52   | direct           | 8500 Dec 02 08:47 | 0°  27'07  |            |
|                  | 8500 Jan 02 06:21 | 0°    |            | asc. node        | 8500 Dec 06 00:40 | 1°  21'06  |            |
| morning set      | 8500 Jan 11 03:02 | 15°  317'10   |            | morning max el   | 8500 Dec 09 19:19 | 4°  08'45  | 18°04'52   |
|                  | 8500 Jan 19 12:02 | 0°    |            | morning set      | 8500 Dec 25 11:20 | 28°  56'56   |            |
|                  |                   |  |            |                  | 8500 Dec 26 00:51 | 0°   |            |
| superior conj    | 8500 Jan 22 10:54 | 5°  02'02   | 0°02'14    |                  |                   |   |            |
| minimum elong    | 8500 Jan 22 11:08 | 5°  03'01   | 0°02'22    | superior conj    | 8501 Jan 04 06:49 | 16°  358'12  | 0°39'12    |
| behind sun begin | 8500 Jan 22 02:20 | 4°  25'49   |            | minimum elong    | 8501 Jan 04 09:41 | 17°  310'55  | 0°38'58    |
| behind sun end   | 8500 Jan 22 19:56 | 5°  40'08   |            | desc. node       | 8501 Jan 09 15:04 | 26°  317'16  |            |
| desc. node       | 8500 Jan 22 18:09 | 5°  32'41   |            |                  | 8501 Jan 11 19:47 | 0°   |            |
| max. Earth dist. | 8500 Jan 29 10:36 | 16°  34'46  | 1.43629 AU | max. Earth dist. | 8501 Jan 11 22:00 | 0°  09'17  | 1.41838 AU |
| evening rise     | 8500 Feb 06 02:22 | 28°  42'10  |            | evening rise     | 8501 Jan 17 05:50 | 8°  53'07  |            |
|                  | 8500 Feb 06 22:28 | 0°    |            |                  | 8501 Jan 31 01:07 | 0°   |            |
|                  | 8500 Feb 27 09:09 | 0°    |            | evening max el   | 8501 Feb 19 15:35 | 25°  H  22'20   | 22°44'07   |
| evening max el   | 8500 Mar 08 22:31 | 11°  Y  40'27  | 21°26'12   |                  | 8501 Feb 25 08:28 | 0°   |            |
| asc. node        | 8500 Mar 17 02:32 | 16°  Y  52'46  |            | retrograde       | 8501 Mar 01 15:56 | 1°  Y  18'33  |            |
| retrograde       | 8500 Mar 17 19:39 | 16°  Y  55'21  |            | asc. node        | 8501 Mar 03 23:39 | 0°  Y  51'33  |            |
| evening set      | 8500 Mar 22 03:18 | 15°  Y  11'55  |            |                  | 8501 Mar 05 13:52 | 30°  R  H  |            |
| inferior conj    | 8500 Mar 27 10:36 | 8°  Y  56'00   | 2°49'48    | evening set      | 8501 Mar 06 10:44 | 29°  H  20'15   |            |
| minimum elong    | 8500 Mar 27 08:32 | 9°  Y  03'09   | 2°49'20    | inferior conj    | 8501 Mar 11 19:20 | 22°  H  56'17   | 2°18'54    |
| min. Earth dist. | 8500 Mar 27 16:10 | 8°  Y  36'36   | 0.68284 AU | minimum elong    | 8501 Mar 11 17:05 | 23°  H  04'07   | 2°18'15    |
| morning rise     | 8500 Apr 01 13:36 | 2°  Y  42'39   |            | min. Earth dist. | 8501 Mar 11 12:48 | 23°  H  19'00   | 0.68441 AU |
| direct           | 8500 Apr 06 16:29 | 0°  Y  28'38   |            | morning rise     | 8501 Mar 16 23:19 | 16°  H  47'37   |            |
| morning max el   | 8500 Apr 16 21:24 | 6°  Y  32'03   | 23°05'32   | direct           | 8501 Mar 21 12:17 | 14°  H  55'10   |            |
| desc. node       | 8500 Apr 20 17:57 | 10°  Y  45'52  |            | morning max el   | 8501 Mar 30 10:43 | 20°  H  07'11   | 21°38'43   |
|                  | 8500 May 05 01:34 | 0°    |            | desc. node       | 8501 Apr 07 14:54 | 29°  H  49'20   |            |
| morning set      | 8500 May 21 12:45 | 25°  8  44'31  |            |                  | 8501 Apr 07 18:07 | 0°   |            |
|                  | 8500 May 24 01:27 | 0°    |            |                  | 8501 Apr 28 06:29 | 0°   |            |
| max. Earth dist. | 8500 May 25 19:44 | 3°  II  01'06  | 1.39685 AU | morning set      | 8501 May 01 13:30 | 5°  8  11'28  |            |
|                  |                   |  |            | max. Earth dist. | 8501 May 07 19:49 | 15°  8  21'15   | 1.41861 AU |
| superior conj    | 8500 Jun 02 12:32 | 16°  II  45'01 | -1°30'41   |                  |                   |   |            |
| minimum elong    | 8500 Jun 02 18:01 | 17°  II  10'18 | 1°30'09    | superior conj    | 8501 May 15 10:02 | 28°  8  14'40   | -1°56'09   |
|                  | 8500 Jun 09 13:21 | 0°    |            | minimum elong    | 8501 May 15 15:40 | 28°  8  39'15   | 1°55'51    |
| evening rise     | 8500 Jun 12 03:30 | 4°  58'00   |            |                  | 8501 May 16 10:08 | 0°   |            |
| asc. node        | 8500 Jun 13 01:29 | 6°  543'15  |            | evening rise     | 8501 May 26 09:02 | 17°  II  56'32  |            |
|                  | 8500 Jun 27 08:32 | 0°    |            | asc. node        | 8501 May 30 22:32 | 26°  II  14'29  |            |
| evening max el   | 8500 Jun 28 05:52 | 0°  II  55'14  | 18°33'43   |                  | 8501 Jun 02 01:39 | 0°   |            |
| retrograde       | 8500 Jul 06 02:09 | 4°  II  49'34  |            | evening max el   | 8501 Jun 11 15:22 | 13°  542'25  | 18°10'09   |
| evening set      | 8500 Jul 08 04:29 | 4°  II  33'43  |            | retrograde       | 8501 Jun 18 13:07 | 17°  511'57  |            |
| inferior conj    | 8500 Jul 15 22:36 | 0°  II  05'51  | 0°31'48    | evening set      | 8501 Jun 20 23:08 | 16°  546'52  |            |
| minimum elong    | 8500 Jul 15 23:46 | 0°  II  03'36  | 0°31'12    | inferior conj    | 8501 Jun 27 22:30 | 11°  558'30  | 1°51'08    |
|                  | 8500 Jul 16 01:37 | 30°  R  5      |            | minimum elong    | 8501 Jun 28 01:26 | 11°  551'52  | 1°50'02    |
| desc. node       | 8500 Jul 17 17:15 | 28°  542'59   |            | min. Earth dist. | 8501 Jul 01 06:48 | 8°  558'57   | 0.59847 AU |
| min. Earth dist. | 8500 Jul 19 06:15 | 27°  533'01   | 0.57668 AU | desc. node       | 8501 Jul 04 14:21 | 6°  528'28   |            |
| morning rise     | 8500 Jul 23 15:30 | 24°  548'42   |            | morning rise     | 8501 Jul 05 00:49 | 6°  512'13   |            |
| direct           | 8500 Jul 29 11:50 | 23°  522'08   |            | direct           | 8501 Jul 11 11:44 | 4°  514'03   |            |
|                  | 8500 Aug 11 19:58 | 0°    |            | morning max el   | 8501 Jul 25 20:05 | 12°  507'39  | 27°40'58   |
| morning max el   | 8500 Aug 12 20:51 | 0°  II  58'46  | 26°48'32   |                  | 8501 Aug 08 21:52 | 0°   |            |
|                  | 8500 Sep 02 11:10 | 0°    |            |                  | 8501 Aug 25 16:15 | 0°   |            |
| asc. node        | 8500 Sep 09 01:04 | 12°  II  41'36 |            | morning set      | 8501 Aug 26 18:42 | 2°  II  17'05   |            |




































































































































|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node        | 8501 Aug 26 22:01 | 2°♎34'28  |            | morning set         | 8502 Aug 10 19:41 | 16°♌25'37 |            |
| max. Earth dist. | 8501 Sep 02 01:43 | 15°♎52'37 | 1.31664 AU | asc. node           | 8502 Aug 13 18:59 | 22°♌36'02 |            |
|                  |                   |           |            | max. Earth dist.    | 8502 Aug 16 08:39 | 28°♌06'02 | 1.32092 AU |
| superior conj    | 8501 Sep 02 22:23 | 17°♎46'56 | 1°06'05    |                     | 8502 Aug 17 05:40 | 0°♎       |            |
| minimum elong    | 8501 Sep 02 20:09 | 17°♎34'32 | 1°05'41    |                     |                   |           |            |
|                  | 8501 Sep 08 11:27 | 0°♏       |            | superior conj       | 8502 Aug 18 07:57 | 2°♎23'31  | 0°44'44    |
| evening rise     | 8501 Sep 09 16:14 | 2°♏34'58  |            | minimum elong       | 8502 Aug 18 06:06 | 2°♎13'21  | 0°44'17    |
|                  | 8501 Sep 24 06:37 | 0°♎       |            | evening rise        | 8502 Aug 25 03:35 | 17°♎17'00 |            |
| desc. node       | 8501 Sep 30 13:05 | 9°♎01'59  |            |                     | 8502 Aug 31 08:44 | 0°♏       |            |
| evening max el   | 8501 Oct 07 14:25 | 17°♎00'02 | 25°50'34   | desc. node          | 8502 Sep 17 10:12 | 25°♏49'00 |            |
| retrograde       | 8501 Oct 21 12:42 | 24°♎03'08 |            | evening max el      | 8502 Sep 19 03:52 | 27°♏34'24 | 24°21'02   |
| evening set      | 8501 Oct 27 18:39 | 22°♎31'16 |            |                     | 8502 Sep 21 22:20 | 0°♎       |            |
| min. Earth dist. | 8501 Nov 01 03:06 | 19°♎55'30 | 0.58216 AU | retrograde          | 8502 Oct 02 21:54 | 4°♎28'22  |            |
| inferior conj    | 8501 Nov 04 05:26 | 17°♎42'41 | -5°03'25   | evening set         | 8502 Oct 07 23:24 | 3°♎31'46  |            |
| minimum elong    | 8501 Nov 04 11:58 | 17°♎30'58 | 5°02'06    | min. Earth dist.    | 8502 Oct 13 14:43 | 0°♎40'24  | 0.56385 AU |
| morning rise     | 8501 Nov 12 07:36 | 13°♎20'03 |            |                     | 8502 Oct 14 16:50 | 30°♎♏     |            |
| direct           | 8501 Nov 14 14:58 | 13°♎03'01 |            | inferior conj       | 8502 Oct 16 02:20 | 29°♏07'21 | -5°34'48   |
| asc. node        | 8501 Nov 22 21:42 | 16°♎58'33 |            | minimum elong       | 8502 Oct 16 04:00 | 29°♏04'45 | 5°34'39    |
| morning max el   | 8501 Nov 23 01:37 | 17°♎07'54 | 18°41'26   | morning rise        | 8502 Oct 24 10:43 | 25°♏06'15 |            |
|                  | 8501 Dec 02 06:42 | 0°♏       |            | direct              | 8502 Oct 27 02:11 | 24°♏47'38 |            |
| morning set      | 8501 Dec 09 07:03 | 13°♏08'17 |            | morning max el      | 8502 Nov 05 21:08 | 29°♏25'10 | 19°40'11   |
|                  |                   |           |            |                     | 8502 Nov 06 11:25 | 0°♎       |            |
| superior conj    | 8501 Dec 17 23:28 | 29°♏53'21 | 1°07'20    | asc. node           | 8502 Nov 09 18:42 | 3°♎48'47  |            |
| minimum elong    | 8501 Dec 18 02:50 | 0°♏09'08  | 1°07'06    | morning set         | 8502 Nov 23 10:22 | 27°♎39'34 |            |
|                  | 8501 Dec 18 00:53 | 0°♏       |            |                     | 8502 Nov 24 14:10 | 0°♏       |            |
| max. Earth dist. | 8501 Dec 25 05:17 | 13°♏03'30 | 1.39738 AU |                     |                   |           |            |
| desc. node       | 8501 Dec 27 12:03 | 17°♏00'59 |            | superior conj       | 8502 Dec 01 07:40 | 13°♏32'33 | 1°26'31    |
| evening rise     | 8501 Dec 29 06:37 | 20°♏01'51 |            | minimum elong       | 8502 Dec 01 10:18 | 13°♏45'30 | 1°26'28    |
|                  | 8502 Jan 04 08:51 | 0°♏       |            | max. Earth dist.    | 8502 Dec 07 11:20 | 25°♏20'25 | 1.37571 AU |
|                  | 8502 Jan 25 05:58 | 0°♏       |            |                     | 8502 Dec 10 00:29 | 0°♏       |            |
| evening max el   | 8502 Feb 02 05:53 | 9°♏08'14  | 24°04'16   | evening rise        | 8502 Dec 11 04:48 | 2°♏06'44  |            |
| retrograde       | 8502 Feb 13 08:53 | 15°♏40'21 |            | desc. node          | 8502 Dec 14 09:03 | 7°♏39'20  |            |
| evening set      | 8502 Feb 18 15:54 | 13°♏28'01 |            |                     | 8502 Dec 28 12:24 | 0°♏       |            |
| asc. node        | 8502 Feb 18 20:47 | 13°♏17'28 |            | evening max el      | 8503 Jan 15 19:06 | 22°♏56'12 | 25°20'01   |
| min. Earth dist. | 8502 Feb 23 09:15 | 8°♏01'15  | 0.68192 AU | retrograde          | 8503 Jan 27 21:27 | 29°♏55'08 |            |
| inferior conj    | 8502 Feb 24 03:23 | 6°♏59'53  | 1°39'16    | evening set         | 8503 Feb 02 17:14 | 27°♏30'34 |            |
| minimum elong    | 8502 Feb 24 01:23 | 7°♏06'38  | 1°38'39    | asc. node           | 8503 Feb 05 17:54 | 24°♏22'18 |            |
| morning rise     | 8502 Mar 01 10:53 | 0°♏57'27  |            | min. Earth dist.    | 8503 Feb 07 03:12 | 22°♏38'35 | 0.67552 AU |
|                  | 8502 Mar 03 00:34 | 30°♎♏     |            | inferior conj       | 8503 Feb 08 08:49 | 21°♏02'47 | 0°51'21    |
| direct           | 8502 Mar 05 10:32 | 29°♏27'14 |            | minimum elong       | 8503 Feb 08 07:36 | 21°♏06'45 | 0°51'00    |
|                  | 8502 Mar 07 23:28 | 0°♏       |            | morning rise        | 8503 Feb 13 22:18 | 15°♏08'22 |            |
| morning max el   | 8502 Mar 13 06:52 | 3°♏54'12  | 20°21'47   | direct              | 8503 Feb 17 09:42 | 13°♏58'57 |            |
| desc. node       | 8502 Mar 25 11:49 | 19°♏26'30 |            | morning max el      | 8503 Feb 24 11:03 | 17°♏52'43 | 19°18'48   |
|                  | 8502 Apr 01 16:23 | 0°♏       |            |                     | 8503 Mar 05 23:59 | 0°♏       |            |
| morning set      | 8502 Apr 10 15:48 | 13°♏40'02 |            | greatest brilliancy | 8503 Mar 09 11:08 | 5°♏05'47  | -0.7m      |
| max. Earth dist. | 8502 Apr 20 03:32 | 28°♏36'51 | 1.43690 AU | desc. node          | 8503 Mar 12 08:43 | 9°♏27'49  |            |
|                  | 8502 Apr 21 00:12 | 0°♏       |            | morning set         | 8503 Mar 20 15:18 | 22°♏09'03 |            |
|                  |                   |           |            |                     | 8503 Mar 25 16:55 | 0°♏       |            |
| superior conj    | 8502 Apr 26 07:54 | 8°♏41'22  | -2°10'41   | max. Earth dist.    | 8503 Apr 02 18:03 | 12°♏35'21 | 1.44950 AU |
| minimum elong    | 8502 Apr 26 10:14 | 8°♏51'01  | 2°10'46    |                     |                   |           |            |
| evening rise     | 8502 May 08 21:49 | 0°♏08'01  |            | superior conj       | 8503 Apr 06 05:30 | 18°♏05'46 | -2°08'10   |
|                  | 8502 May 08 19:58 | 0°♏       |            | minimum elong       | 8503 Apr 06 01:00 | 17°♏47'52 | 2°08'03    |
| asc. node        | 8502 May 17 19:37 | 15°♏24'31 |            |                     | 8503 Apr 13 15:04 | 0°♏       |            |
| evening max el   | 8502 May 26 04:21 | 26°♏53'23 | 18°05'57   | evening rise        | 8503 Apr 20 13:12 | 11°♏22'56 |            |
|                  | 8502 May 30 23:06 | 0°♏       |            |                     | 8503 May 01 22:44 | 0°♏       |            |
| retrograde       | 8502 Jun 01 15:01 | 0°♏13'59  |            | asc. node           | 8503 May 04 16:42 | 4°♏05'36  |            |
|                  | 8502 Jun 03 07:07 | 30°♎♏     |            | evening max el      | 8503 May 09 17:31 | 10°♏19'01 | 18°20'28   |
| evening set      | 8502 Jun 04 08:33 | 29°♏37'03 |            | retrograde          | 8503 May 16 03:14 | 13°♏45'08 |            |
| inferior conj    | 8502 Jun 10 16:42 | 24°♏28'55 | 2°43'06    | evening set         | 8503 May 19 04:00 | 12°♏54'51 |            |
| minimum elong    | 8502 Jun 10 19:25 | 24°♏21'53 | 2°42'19    | inferior conj       | 8503 May 25 01:00 | 7°♏28'43  | 3°11'59    |
| min. Earth dist. | 8502 Jun 13 15:41 | 21°♏26'54 | 0.62097 AU | minimum elong       | 8503 May 25 02:35 | 7°♏24'09  | 3°11'38    |
| morning rise     | 8502 Jun 17 04:23 | 18°♏24'00 |            | min. Earth dist.    | 8503 May 27 09:57 | 4°♏45'08  | 0.64150 AU |
| desc. node       | 8502 Jun 21 11:24 | 16°♏17'49 |            | morning rise        | 8503 May 31 00:04 | 1°♏13'58  |            |
| direct           | 8502 Jun 23 22:08 | 15°♏59'07 |            |                     | 8503 Jun 01 18:02 | 30°♎♏     |            |
| morning max el   | 8502 Jul 08 01:29 | 24°♏00'32 | 27°55'30   | direct              | 8503 Jun 06 17:07 | 28°♏32'24 |            |
|                  | 8502 Jul 13 10:49 | 0°♏       |            | desc. node          | 8503 Jun 08 08:25 | 28°♏41'05 |            |
|                  | 8502 Aug 02 06:09 | 0°♏       |            |                     | 8503 Jun 12 02:34 | 0°♏       |            |






































































































































|                     |                   |                                   |            |                     |                   |                          |            |
|---------------------|-------------------|-----------------------------------|------------|---------------------|-------------------|--------------------------|------------|
| morning max el      | 8503 Jun 20 10:55 | 6° $\Pi$ 32'35                    | 27°33'15   | morning rise        | 8504 May 13 08:59 | 14° $\mathcal{B}$ 31'52  |            |
|                     | 8503 Jul 08 09:20 | 0° $\mathfrak{D}$                 |            | direct              | 8504 May 19 19:30 | 11° $\mathcal{B}$ 45'20  |            |
|                     | 8503 Jul 25 10:57 | 0° $\mathcal{O}$                  |            | desc. node          | 8504 May 25 05:25 | 13° $\mathcal{B}$ 20'49  |            |
| morning set         | 8503 Jul 25 12:49 | 0° $\mathcal{O}$ 09'10            |            | morning max el      | 8504 Jun 01 21:31 | 19° $\mathcal{B}$ 31'38  | 26°39'59   |
| max. Earth dist.    | 8503 Jul 30 08:47 | 9° $\mathcal{O}$ 58'23            | 1.32995 AU |                     | 8504 Jun 10 19:29 | 0° $\Pi$                 |            |
| asc. node           | 8503 Jul 31 15:58 | 12° $\mathcal{O}$ 42'03           |            |                     | 8504 Jun 30 10:45 | 0° $\mathfrak{D}$        |            |
|                     |                   |                                   |            | morning set         | 8504 Jul 07 18:51 | 13° $\mathfrak{D}$ 18'05 |            |
| superior conj       | 8503 Aug 02 13:38 | 16° $\mathcal{O}$ 44'52           | 0°19'10    | max. Earth dist.    | 8504 Jul 11 22:38 | 21° $\mathfrak{D}$ 22'26 | 1.34382 AU |
| minimum elong       | 8503 Aug 02 12:42 | 16° $\mathcal{O}$ 39'54           | 0°18'49    |                     | 8504 Jul 16 04:38 | 0° $\mathcal{O}$         |            |
|                     | 8503 Aug 08 17:15 | 0° $\mathfrak{M}$                 |            |                     |                   |                          |            |
| evening rise        | 8503 Aug 09 15:06 | 1° $\mathfrak{M}$ 56'31           |            | superior conj       | 8504 Jul 16 13:04 | 0° $\mathcal{O}$ 43'41   | -0°09'59   |
|                     | 8503 Aug 25 02:30 | 0° $\mathfrak{L}$                 |            | minimum elong       | 8504 Jul 16 13:38 | 0° $\mathcal{O}$ 46'35   | 0°10'03    |
| evening max el      | 8503 Aug 31 15:27 | 7° $\mathfrak{L}$ 46'51           | 22°41'34   | behind sun begin    | 8504 Jul 16 09:04 | 0° $\mathcal{O}$ 22'57   |            |
| desc. node          | 8503 Sep 04 07:19 | 10° $\mathfrak{L}$ 53'27          |            | behind sun end      | 8504 Jul 16 18:11 | 1° $\mathcal{O}$ 10'14   |            |
| retrograde          | 8503 Sep 13 18:58 | 14° $\mathfrak{L}$ 20'33          |            | asc. node           | 8504 Jul 17 12:55 | 2° $\mathcal{O}$ 47'44   |            |
| evening set         | 8503 Sep 17 08:09 | 13° $\mathfrak{L}$ 52'54          |            | evening rise        | 8504 Jul 24 00:46 | 16° $\mathcal{O}$ 26'39  |            |
| min. Earth dist.    | 8503 Sep 24 23:03 | 10° $\mathfrak{L}$ 28'46          | 0.55112 AU |                     | 8504 Jul 30 20:10 | 0° $\mathfrak{M}$        |            |
| inferior conj       | 8503 Sep 26 04:46 | 9° $\mathfrak{L}$ 46'28           | -5°20'04   | evening max el      | 8504 Aug 12 10:16 | 18° $\mathfrak{M}$ 13'07 | 21°08'30   |
| minimum elong       | 8503 Sep 25 22:50 | 9° $\mathfrak{L}$ 54'55           | 5°19'18    | desc. node          | 8504 Aug 21 04:26 | 23° $\mathfrak{M}$ 42'41 |            |
| morning rise        | 8503 Oct 04 15:29 | 5° $\mathfrak{L}$ 58'14           |            | retrograde          | 8504 Aug 24 07:53 | 24° $\mathfrak{M}$ 07'00 |            |
| direct              | 8503 Oct 07 19:13 | 5° $\mathfrak{L}$ 35'23           |            | evening set         | 8504 Aug 26 15:51 | 23° $\mathfrak{M}$ 54'16 |            |
| morning max el      | 8503 Oct 19 03:46 | 10° $\mathfrak{L}$ 54'34          | 21°01'05   | inferior conj       | 8504 Sep 04 21:29 | 19° $\mathfrak{M}$ 57'18 | -4°10'01   |
| asc. node           | 8503 Oct 27 15:40 | 21° $\mathfrak{L}$ 36'42          |            | minimum elong       | 8504 Sep 04 11:53 | 20° $\mathfrak{M}$ 10'50 | 4°07'24    |
|                     | 8503 Nov 01 12:41 | 0° $\mathfrak{M}$                 |            | min. Earth dist.    | 8504 Sep 05 07:53 | 19° $\mathfrak{M}$ 42'38 | 0.54674 AU |
| morning set         | 8503 Nov 07 18:32 | 12° $\mathfrak{M}$ 23'04          |            | morning rise        | 8504 Sep 13 08:25 | 16° $\mathfrak{M}$ 03'15 |            |
|                     |                   |                                   |            | direct              | 8504 Sep 17 03:20 | 15° $\mathfrak{M}$ 32'24 |            |
| superior conj       | 8503 Nov 15 03:05 | 27° $\mathfrak{M}$ 43'31          | 1°37'31    | morning max el      | 8504 Sep 29 22:42 | 21° $\mathfrak{M}$ 38'26 | 22°39'57   |
| minimum elong       | 8503 Nov 15 04:28 | 27° $\mathfrak{M}$ 50'36          | 1°37'36    |                     | 8504 Oct 07 02:48 | 0° $\mathfrak{L}$        |            |
|                     | 8503 Nov 16 05:42 | 0° $\mathfrak{X}$                 |            | asc. node           | 8504 Oct 13 12:37 | 10° $\mathfrak{L}$ 08'15 |            |
| max. Earth dist.    | 8503 Nov 19 20:37 | 7° $\mathfrak{X}$ 15'47           | 1.35578 AU | morning set         | 8504 Oct 22 05:21 | 27° $\mathfrak{L}$ 11'51 |            |
| evening rise        | 8503 Nov 23 21:25 | 15° $\mathfrak{X}$ 00'22          |            |                     | 8504 Oct 23 13:02 | 0° $\mathfrak{M}$        |            |
| desc. node          | 8503 Dec 01 06:06 | 28° $\mathfrak{X}$ 08'08          |            |                     |                   |                          |            |
|                     | 8503 Dec 02 08:39 | 0° $\mathfrak{Z}$                 |            | superior conj       | 8504 Oct 29 06:12 | 12° $\mathfrak{M}$ 15'14 | 1°41'15    |
|                     | 8503 Dec 23 04:16 | 0° $\approx$                      |            | minimum elong       | 8504 Oct 29 06:16 | 12° $\mathfrak{M}$ 15'37 | 1°41'22    |
| evening max el      | 8503 Dec 29 08:12 | 6° $\approx$ 41'30                | 26°24'11   | max. Earth dist.    | 8504 Nov 01 13:04 | 19° $\mathfrak{M}$ 10'08 | 1.33929 AU |
| retrograde          | 8504 Jan 11 04:57 | 13° $\approx$ 56'43               |            | evening rise        | 8504 Nov 06 04:32 | 28° $\mathfrak{M}$ 32'26 |            |
| evening set         | 8504 Jan 17 12:57 | 11° $\approx$ 23'29               |            |                     | 8504 Nov 06 22:30 | 0° $\mathfrak{X}$        |            |
| min. Earth dist.    | 8504 Jan 21 16:27 | 7° $\approx$ 06'10                | 0.66531 AU | desc. node          | 8504 Nov 17 03:09 | 18° $\mathfrak{X}$ 21'32 |            |
| inferior conj       | 8504 Jan 23 09:41 | 5° $\approx$ 01'16                | -0°04'24   |                     | 8504 Nov 24 13:04 | 0° $\mathfrak{Z}$        |            |
| minimum elong       | 8504 Jan 23 09:48 | 5° $\approx$ 00'55                | 0°04'11    | evening max el      | 8504 Dec 10 21:13 | 20° $\mathfrak{Z}$ 16'07 | 27°09'34   |
| transit middle      | 8504 Jan 23 09:48 | 5° $\approx$ 00'55                | 0°04'11    | retrograde          | 8504 Dec 24 06:43 | 27° $\mathfrak{Z}$ 37'09 |            |
| transit begin       | 8504 Jan 23 07:00 | 5° $\approx$ 09'24                |            | evening set         | 8504 Dec 31 01:01 | 25° $\mathfrak{Z}$ 01'05 |            |
| transit end         | 8504 Jan 23 12:35 | 4° $\approx$ 52'28                |            | min. Earth dist.    | 8505 Jan 03 22:53 | 21° $\mathfrak{Z}$ 17'36 | 0.65147 AU |
| asc. node           | 8504 Jan 23 14:58 | 4° $\approx$ 45'17                |            | inferior conj       | 8505 Jan 06 03:46 | 18° $\mathfrak{Z}$ 50'20 | -1°07'15   |
|                     | 8504 Jan 28 05:18 | 30° $\mathfrak{R}$ $\mathfrak{Z}$ |            | minimum elong       | 8505 Jan 06 05:46 | 18° $\mathfrak{Z}$ 44'45 | 1°06'13    |
| morning rise        | 8504 Jan 29 07:28 | 29° $\mathfrak{Z}$ 16'54          |            | asc. node           | 8505 Jan 09 12:00 | 15° $\mathfrak{Z}$ 23'10 |            |
| direct              | 8504 Feb 01 08:06 | 28° $\mathfrak{Z}$ 25'19          |            | morning rise        | 8505 Jan 12 11:54 | 13° $\mathfrak{Z}$ 18'27 |            |
|                     | 8504 Feb 05 14:31 | 0° $\approx$                      |            | direct              | 8505 Jan 15 03:38 | 12° $\mathfrak{Z}$ 40'57 |            |
| morning max el      | 8504 Feb 07 22:11 | 1° $\approx$ 58'31                | 18°31'41   | morning max el      | 8505 Jan 21 13:54 | 16° $\mathfrak{Z}$ 04'44 | 18°01'20   |
| desc. node          | 8504 Feb 27 05:38 | 29° $\approx$ 46'48               |            |                     | 8505 Jan 31 17:03 | 0° $\approx$             |            |
|                     | 8504 Feb 27 08:58 | 0° $\mathfrak{H}$                 |            | morning set         | 8505 Feb 08 12:27 | 12° $\approx$ 46'24      |            |
| morning set         | 8504 Feb 28 11:05 | 1° $\mathfrak{H}$ 43'22           |            | desc. node          | 8505 Feb 13 02:34 | 20° $\approx$ 18'26      |            |
|                     |                   |                                   |            |                     | 8505 Feb 19 02:21 | 0° $\mathfrak{H}$        |            |
| superior conj       | 8504 Mar 15 11:42 | 26° $\mathfrak{H}$ 55'12          | -1°45'24   |                     |                   |                          |            |
| minimum elong       | 8504 Mar 15 02:16 | 26° $\mathfrak{H}$ 18'17          | 1°44'33    | superior conj       | 8505 Feb 22 20:46 | 6° $\mathfrak{H}$ 00'11  | -1°06'44   |
| max. Earth dist.    | 8504 Mar 15 12:25 | 26° $\mathfrak{H}$ 57'58          | 1.45512 AU | minimum elong       | 8505 Feb 22 13:08 | 5° $\mathfrak{H}$ 29'57  | 1°05'42    |
|                     | 8504 Mar 17 10:55 | 0° $\mathfrak{Y}$                 |            | max. Earth dist.    | 8505 Feb 26 07:51 | 11° $\mathfrak{H}$ 27'54 | 1.45327 AU |
| evening rise        | 8504 Mar 31 04:58 | 21° $\mathfrak{Y}$ 39'51          |            |                     | 8505 Mar 10 05:52 | 0° $\mathfrak{Y}$        |            |
|                     | 8504 Apr 05 10:59 | 0° $\mathcal{B}$                  |            | evening rise        | 8505 Mar 11 00:42 | 1° $\mathfrak{Y}$ 12'40  |            |
| greatest brilliancy | 8504 Apr 09 03:53 | 5° $\mathcal{B}$ 50'36            | -0.8m      | greatest brilliancy | 8505 Mar 24 17:34 | 22° $\mathfrak{Y}$ 05'16 | -0.7m      |
| asc. node           | 8504 Apr 20 13:46 | 22° $\mathcal{B}$ 08'30           |            |                     | 8505 Mar 30 06:17 | 0° $\mathcal{B}$         |            |
| evening max el      | 8504 Apr 22 04:11 | 23° $\mathcal{B}$ 52'41           | 18°52'50   | evening max el      | 8505 Apr 05 10:32 | 7° $\mathcal{B}$ 30'49   | 19°41'43   |
| retrograde          | 8504 Apr 28 21:46 | 27° $\mathcal{B}$ 37'06           |            | asc. node           | 8505 Apr 07 10:51 | 9° $\mathcal{B}$ 21'59   |            |
| evening set         | 8504 May 02 05:59 | 26° $\mathcal{B}$ 32'36           |            | retrograde          | 8505 Apr 12 19:28 | 11° $\mathcal{B}$ 44'17  |            |
| inferior conj       | 8504 May 07 19:31 | 20° $\mathcal{B}$ 50'11           | 3°22'38    | evening set         | 8505 Apr 16 11:56 | 10° $\mathcal{B}$ 24'56  |            |
| minimum elong       | 8504 May 07 19:46 | 20° $\mathcal{B}$ 49'25           | 3°22'30    | inferior conj       | 8505 Apr 21 21:07 | 4° $\mathcal{B}$ 28'02   | 3°18'53    |
| min. Earth dist.    | 8504 May 09 13:11 | 18° $\mathcal{B}$ 39'38           | 0.65862 AU | minimum elong       | 8505 Apr 21 20:13 | 4° $\mathcal{B}$ 31'04   | 3°18'43    |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| min. Earth dist. | 8505 Apr 22 23:58 | 2°♄58'44  | 0.67157 AU | evening set      | 8506 Mar 31 19:47 | 24°♄26'26 |            |
|                  | 8505 Apr 25 09:21 | 30°♄♄     |            | inferior conj    | 8506 Apr 06 03:10 | 18°♄16'56 | 3°03'22    |
| morning rise     | 8505 Apr 27 04:10 | 28°♄10'02 |            | minimum elong    | 8506 Apr 06 01:25 | 18°♄22'57 | 3°03'01    |
| direct           | 8505 May 03 04:07 | 25°♄29'43 |            | min. Earth dist. | 8506 Apr 06 16:12 | 17°♄32'03 | 0.68005 AU |
| desc. node       | 8505 May 12 02:23 | 29°♄46'29 |            | morning rise     | 8506 Apr 11 06:50 | 12°♄01'36 |            |
|                  | 8505 May 12 08:43 | 0°♄       |            | direct           | 8506 Apr 16 17:51 | 9°♄36'13  |            |
| morning max el   | 8505 May 15 07:16 | 2°♄46'07  | 25°24'35   | morning max el   | 8506 Apr 27 16:16 | 16°♄08'14 | 23°57'14   |
|                  | 8505 Jun 04 23:35 | 0°♄       |            | desc. node       | 8506 Apr 28 23:21 | 17°♄29'12 |            |
| morning set      | 8505 Jun 20 09:41 | 25°♄41'27 |            |                  | 8506 May 09 02:32 | 0°♄       |            |
|                  | 8505 Jun 22 18:12 | 0°♄       |            |                  | 8506 May 28 23:11 | 0°♄       |            |
| max. Earth dist. | 8505 Jun 24 01:39 | 2°♄26'43  | 1.36224 AU | morning set      | 8506 Jun 02 04:04 | 7°♄04'47  |            |
|                  |                   |           |            | max. Earth dist. | 8506 Jun 05 22:13 | 13°♄38'27 | 1.38392 AU |
| superior conj    | 8505 Jun 30 03:34 | 14°♄13'15 | -0°41'28   |                  |                   |           |            |
| minimum elong    | 8505 Jun 30 06:05 | 14°♄25'44 | 0°41'11    | superior conj    | 8506 Jun 13 05:37 | 27°♄04'18 | -1°13'21   |
| asc. node        | 8505 Jul 04 09:55 | 22°♄49'34 |            | minimum elong    | 8506 Jun 13 10:11 | 27°♄25'58 | 1°12'49    |
|                  | 8505 Jul 07 22:15 | 0°♄       |            |                  | 8506 Jun 14 18:27 | 0°♄       |            |
| evening rise     | 8505 Jul 08 06:26 | 0°♄41'34  |            | asc. node        | 8506 Jun 21 06:56 | 12°♄43'07 |            |
| evening max el   | 8505 Jul 25 18:03 | 29°♄19'15 | 19°52'11   | evening rise     | 8506 Jun 22 05:28 | 14°♄33'46 |            |
|                  | 8505 Jul 26 11:07 | 0°♄       |            |                  | 8506 Jun 30 11:41 | 0°♄       |            |
| retrograde       | 8505 Aug 04 22:58 | 4°♄21'24  |            | evening max el   | 8506 Jul 08 14:28 | 11°♄09'53 | 18°56'20   |
| evening set      | 8505 Aug 06 19:49 | 4°♄12'01  |            | retrograde       | 8506 Jul 17 04:31 | 15°♄25'02 |            |
| desc. node       | 8505 Aug 08 01:31 | 3°♄56'00  |            | evening set      | 8506 Jul 19 03:23 | 15°♄12'42 |            |
| inferior conj    | 8505 Aug 15 18:48 | 0°♄11'15  | -2°20'57   | desc. node       | 8506 Jul 25 22:36 | 11°♄55'35 |            |
| minimum elong    | 8505 Aug 15 12:22 | 0°♄21'05  | 2°18'39    | inferior conj    | 8506 Jul 27 08:57 | 10°♄56'02 | -0°26'11   |
|                  | 8505 Aug 16 02:10 | 30°♄♄     |            | minimum elong    | 8506 Jul 27 07:51 | 10°♄57'59 | 0°25'55    |
| min. Earth dist. | 8505 Aug 17 19:03 | 28°♄57'41 | 0.55201 AU | min. Earth dist. | 8506 Jul 30 09:46 | 8°♄48'32  | 0.56588 AU |
| morning rise     | 8505 Aug 24 03:05 | 25°♄51'36 |            | morning rise     | 8506 Aug 04 09:04 | 6°♄00'09  |            |
| direct           | 8505 Aug 28 16:41 | 25°♄05'47 |            | direct           | 8506 Aug 09 18:51 | 4°♄50'42  |            |
|                  | 8505 Sep 09 07:14 | 0°♄       |            | morning max el   | 8506 Aug 24 00:52 | 12°♄12'02 | 26°03'16   |
| morning max el   | 8505 Sep 11 11:20 | 1°♄54'35  | 24°26'00   |                  | 8506 Sep 06 21:05 | 0°♄       |            |
| asc. node        | 8505 Sep 30 09:34 | 29°♄12'49 |            | asc. node        | 8506 Sep 17 06:32 | 18°♄41'52 |            |
|                  | 8505 Sep 30 19:25 | 0°♄       |            | morning set      | 8506 Sep 21 04:08 | 26°♄46'11 |            |
| morning set      | 8505 Oct 06 17:05 | 12°♄01'03 |            |                  | 8506 Sep 22 16:13 | 0°♄       |            |
| superior conj    | 8505 Oct 13 14:19 | 26°♄59'34 | 1°38'32    | superior conj    | 8506 Sep 28 01:16 | 11°♄49'51 | 1°30'03    |
| minimum elong    | 8505 Oct 13 13:16 | 26°♄53'53 | 1°38'34    | minimum elong    | 8506 Sep 27 23:25 | 11°♄39'41 | 1°29'55    |
|                  | 8505 Oct 14 23:30 | 0°♄       |            | max. Earth dist. | 8506 Sep 28 21:09 | 13°♄39'50 | 1.31944 AU |
| max. Earth dist. | 8505 Oct 15 13:54 | 1°♄17'54  | 1.32711 AU | evening rise     | 8506 Oct 05 00:31 | 26°♄55'43 |            |
| evening rise     | 8505 Oct 20 22:35 | 12°♄33'39 |            |                  | 8506 Oct 06 12:08 | 0°♄       |            |
|                  | 8505 Oct 30 03:13 | 0°♄       |            | desc. node       | 8506 Oct 21 21:18 | 27°♄32'39 |            |
| desc. node       | 8505 Nov 04 00:14 | 8°♄12'40  |            |                  | 8506 Oct 23 12:38 | 0°♄       |            |
|                  | 8505 Nov 19 23:14 | 0°♄       |            | evening max el   | 8506 Nov 05 16:56 | 16°♄06'48 | 27°17'10   |
| evening max el   | 8505 Nov 23 08:56 | 3°♄28'54  | 27°29'07   | retrograde       | 8506 Nov 19 13:20 | 23°♄19'10 |            |
| retrograde       | 8505 Dec 07 01:52 | 10°♄47'27 |            | evening set      | 8506 Nov 26 14:54 | 21°♄02'59 |            |
| evening set      | 8505 Dec 14 02:46 | 8°♄16'31  |            | min. Earth dist. | 8506 Nov 30 07:32 | 18°♄15'19 | 0.61490 AU |
| min. Earth dist. | 8505 Dec 17 20:27 | 5°♄04'04  | 0.63444 AU | inferior conj    | 8506 Dec 03 08:33 | 15°♄33'13 | -3°26'07   |
| inferior conj    | 8505 Dec 20 12:24 | 2°♄23'31  | -2°15'38   | minimum elong    | 8506 Dec 03 15:00 | 15°♄18'49 | 3°23'45    |
| minimum elong    | 8505 Dec 20 16:42 | 2°♄12'44  | 2°13'45    | morning rise     | 8506 Dec 10 17:22 | 10°♄35'35 |            |
|                  | 8505 Dec 23 00:03 | 30°♄♄     |            | direct           | 8506 Dec 12 22:47 | 10°♄14'42 |            |
| morning rise     | 8505 Dec 27 08:31 | 27°♄07'01 |            | asc. node        | 8506 Dec 14 06:06 | 10°♄22'07 |            |
| asc. node        | 8505 Dec 27 09:03 | 27°♄06'31 |            | morning max el   | 8506 Dec 19 23:10 | 13°♄47'05 | 17°53'16   |
| direct           | 8505 Dec 29 17:39 | 26°♄39'38 |            |                  | 8506 Dec 31 00:11 | 0°♄       |            |
|                  | 8506 Jan 05 05:52 | 0°♄       |            | morning set      | 8507 Jan 04 15:56 | 8°♄22'35  |            |
| morning max el   | 8506 Jan 05 07:17 | 0°♄03'28  | 17°48'14   |                  |                   |           |            |
| morning set      | 8506 Jan 21 16:14 | 25°♄06'05 |            | superior conj    | 8507 Jan 15 07:06 | 27°♄19'29 | 0°18'54    |
|                  | 8506 Jan 24 12:22 | 0°♄       |            | minimum elong    | 8507 Jan 15 08:44 | 27°♄26'36 | 0°18'50    |
| desc. node       | 8506 Jan 30 23:30 | 10°♄57'57 |            |                  | 8507 Jan 16 20:28 | 0°♄       |            |
|                  |                   |           |            | desc. node       | 8507 Jan 17 20:28 | 1°♄42'06  |            |
| superior conj    | 8506 Feb 03 01:06 | 16°♄02'49 | -0°22'17   | max. Earth dist. | 8507 Jan 22 16:56 | 9°♄47'27  | 1.42923 AU |
| minimum elong    | 8506 Feb 02 22:43 | 15°♄52'59 | 0°21'47    | evening rise     | 8507 Jan 29 05:57 | 20°♄17'04 |            |
| max. Earth dist. | 8506 Feb 09 02:05 | 25°♄49'27 | 1.44432 AU |                  | 8507 Feb 04 13:05 | 0°♄       |            |
|                  | 8506 Feb 11 17:17 | 0°♄       |            |                  | 8507 Feb 25 23:00 | 0°♄       |            |
| evening rise     | 8506 Feb 18 11:51 | 10°♄32'21 |            | evening max el   | 8507 Mar 02 07:11 | 4°♄51'24  | 21°58'38   |
|                  | 8506 Mar 03 10:24 | 0°♄       |            | retrograde       | 8507 Mar 11 15:29 | 10°♄23'31 |            |
| evening max el   | 8506 Mar 19 11:30 | 21°♄10'22 | 20°44'52   | asc. node        | 8507 Mar 12 05:04 | 10°♄21'53 |            |
| asc. node        | 8506 Mar 25 07:57 | 25°♄31'22 |            | evening set      | 8507 Mar 16 03:51 | 8°♄33'34  |            |
| retrograde       | 8506 Mar 27 17:59 | 26°♄01'03 |            | inferior conj    | 8507 Mar 21 11:30 | 2°♄13'59  | 2°37'47    |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| minimum elong    | 8507 Mar 21 09:18 | 2°♂21'37  | 2°37'14    | inferior conj    | 8508 Mar 04 20:10 | 16°♂15'42 | 2°03'07    |
| min. Earth dist. | 8507 Mar 21 11:48 | 2°♂12'56  | 0.68409 AU | minimum elong    | 8508 Mar 04 17:58 | 16°♂23'18 | 2°02'28    |
|                  | 8507 Mar 23 02:32 | 30°♂♂     |            | min. Earth dist. | 8508 Mar 04 08:34 | 16°♂55'40 | 0.68385 AU |
| morning rise     | 8507 Mar 26 14:37 | 26°♂02'41 |            | morning rise     | 8508 Mar 10 01:21 | 10°♂09'43 |            |
| direct           | 8507 Mar 31 11:37 | 23°♂57'37 |            | direct           | 8508 Mar 14 08:29 | 8°♂27'01  |            |
| morning max el   | 8507 Apr 10 03:05 | 29°♂38'10 | 22°27'48   | morning max el   | 8508 Mar 22 19:11 | 13°♂18'37 | 21°04'33   |
|                  | 8507 Apr 10 11:41 | 0°♂       |            | desc. node       | 8508 Apr 01 17:14 | 25°♂26'44 |            |
| desc. node       | 8507 Apr 15 20:18 | 6°♂07'52  |            |                  | 8508 Apr 04 23:25 | 0°♂       |            |
|                  | 8507 May 02 21:04 | 0°♂       |            | morning set      | 8508 Apr 22 10:38 | 26°♂13'42 |            |
| morning set      | 8507 May 13 20:46 | 17°♂15'36 |            |                  | 8508 Apr 24 20:01 | 0°♂       |            |
| max. Earth dist. | 8507 May 18 19:54 | 25°♂30'41 | 1.40644 AU | max. Earth dist. | 8508 Apr 29 23:25 | 8°♂16'17  | 1.42692 AU |
|                  | 8507 May 21 10:52 | 0°♂       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8508 May 07 02:47 | 20°♂10'19 | -2°04'01   |
| superior conj    | 8507 May 26 14:56 | 9°♂06'53  | -1°42'25   | minimum elong    | 8508 May 07 07:32 | 20°♂30'35 | 2°03'54    |
| minimum elong    | 8507 May 26 20:47 | 9°♂33'14  | 1°41'57    |                  | 8508 May 12 18:56 | 0°♂       |            |
| evening rise     | 8507 Jun 05 18:35 | 27°♂55'09 |            | evening rise     | 8508 May 18 17:38 | 10°♂35'29 |            |
|                  | 8507 Jun 06 21:09 | 0°♂       |            | asc. node        | 8508 May 25 01:02 | 21°♂47'27 |            |
| asc. node        | 8507 Jun 08 03:58 | 2°♂24'08  |            |                  | 8508 May 30 01:56 | 0°♂       |            |
| evening max el   | 8507 Jun 21 20:16 | 23°♂39'01 | 18°21'12   | evening max el   | 8508 Jun 04 07:38 | 6°♂37'28  | 18°06'01   |
| retrograde       | 8507 Jun 29 05:28 | 27°♂20'59 |            | retrograde       | 8508 Jun 10 23:34 | 10°♂01'47 |            |
| evening set      | 8507 Jul 01 11:03 | 27°♂01'32 |            | evening set      | 8508 Jun 13 12:41 | 9°♂32'02  |            |
| inferior conj    | 8507 Jul 08 20:49 | 22°♂24'31 | 1°08'57    | inferior conj    | 8508 Jun 20 05:05 | 4°♂35'01  | 2°16'16    |
| minimum elong    | 8507 Jul 08 23:03 | 22°♂19'54 | 1°07'59    | minimum elong    | 8508 Jun 20 08:06 | 4°♂27'46  | 2°15'15    |
| min. Earth dist. | 8507 Jul 12 06:07 | 19°♂37'44 | 0.58567 AU | min. Earth dist. | 8508 Jun 23 10:14 | 1°♂31'26  | 0.60804 AU |
| desc. node       | 8507 Jul 12 19:43 | 19°♂11'32 |            |                  | 8508 Jun 25 04:45 | 30°♂♂     |            |
| morning rise     | 8507 Jul 16 07:44 | 16°♂53'48 |            | morning rise     | 8508 Jun 27 00:59 | 28°♂39'11 |            |
| direct           | 8507 Jul 22 10:59 | 15°♂14'04 |            | desc. node       | 8508 Jun 28 16:46 | 27°♂41'58 |            |
| morning max el   | 8507 Aug 05 20:20 | 22°♂58'20 | 27°15'24   | direct           | 8508 Jul 03 15:33 | 26°♂28'49 |            |
|                  | 8507 Aug 12 02:52 | 0°♂       |            |                  | 8508 Jul 12 18:28 | 0°♂       |            |
|                  | 8507 Aug 30 21:55 | 0°♂       |            | morning max el   | 8508 Jul 17 22:43 | 4°♂27'28  | 27°51'57   |
| asc. node        | 8507 Sep 04 03:30 | 8°♂27'52  |            |                  | 8508 Aug 05 21:55 | 0°♂       |            |
| morning set      | 8507 Sep 05 12:45 | 11°♂21'34 |            | morning set      | 8508 Aug 19 17:09 | 25°♂42'05 |            |
|                  |                   |           |            | asc. node        | 8508 Aug 21 00:27 | 28°♂25'23 |            |
| superior conj    | 8507 Sep 12 13:05 | 26°♂39'15 | 1°16'17    |                  | 8508 Aug 21 18:22 | 0°♂       |            |
| minimum elong    | 8507 Sep 12 10:52 | 26°♂26'55 | 1°15'57    | max. Earth dist. | 8508 Aug 25 16:29 | 8°♂28'52  | 1.31786 AU |
| max. Earth dist. | 8507 Sep 12 07:18 | 26°♂07'10 | 1.31633 AU |                  |                   |           |            |
|                  | 8507 Sep 14 01:14 | 0°♂       |            | superior conj    | 8508 Aug 27 00:01 | 11°♂22'24 | 0°57'36    |
| evening rise     | 8507 Sep 19 07:45 | 11°♂30'20 |            | minimum elong    | 8508 Aug 26 21:53 | 11°♂10'36 | 0°57'09    |
|                  | 8507 Sep 28 16:38 | 0°♂       |            | evening rise     | 8508 Sep 02 18:10 | 26°♂11'23 |            |
| desc. node       | 8507 Oct 08 18:26 | 16°♂08'10 |            |                  | 8508 Sep 04 13:18 | 0°♂       |            |
| evening max el   | 8507 Oct 18 18:13 | 27°♂56'40 | 26°31'13   |                  | 8508 Sep 21 18:23 | 0°♂       |            |
|                  | 8507 Oct 21 02:05 | 0°♂       |            | desc. node       | 8508 Sep 24 15:32 | 3°♂41'31  |            |
| retrograde       | 8507 Nov 01 16:09 | 5°♂03'13  |            | evening max el   | 8508 Sep 29 11:20 | 8°♂55'16  | 25°14'43   |
| evening set      | 8507 Nov 08 08:58 | 3°♂12'10  |            | retrograde       | 8508 Oct 13 08:44 | 15°♂55'58 |            |
| min. Earth dist. | 8507 Nov 12 07:43 | 0°♂37'18  | 0.59402 AU | evening set      | 8508 Oct 19 04:08 | 14°♂38'48 |            |
|                  | 8507 Nov 13 03:26 | 30°♂♂     |            | min. Earth dist. | 8508 Oct 23 23:06 | 11°♂58'45 | 0.57391 AU |
| inferior conj    | 8507 Nov 15 12:32 | 28°♂08'39 | -4°32'03   | inferior conj    | 8508 Oct 26 21:12 | 10°♂00'44 | -5°21'10   |
| minimum elong    | 8507 Nov 15 19:54 | 27°♂54'22 | 4°30'03    | minimum elong    | 8508 Oct 27 02:14 | 9°♂52'15  | 5°20'24    |
| morning rise     | 8507 Nov 23 09:13 | 23°♂33'07 |            | morning rise     | 8508 Nov 04 02:39 | 5°♂48'04  |            |
| direct           | 8507 Nov 25 14:36 | 23°♂15'31 |            | direct           | 8508 Nov 06 12:40 | 5°♂30'51  |            |
| asc. node        | 8507 Dec 01 03:09 | 25°♂10'42 |            | morning max el   | 8508 Nov 15 12:15 | 9°♂48'13  | 19°03'39   |
| morning max el   | 8507 Dec 03 10:04 | 27°♂05'27 | 18°17'50   | asc. node        | 8508 Nov 17 00:09 | 11°♂20'51 |            |
|                  | 8507 Dec 06 00:39 | 0°♂       |            |                  | 8508 Nov 28 19:23 | 0°♂       |            |
| morning set      | 8507 Dec 19 05:37 | 22°♂17'20 |            | morning set      | 8508 Dec 02 04:54 | 6°♂37'42  |            |
|                  | 8507 Dec 23 07:05 | 0°♂       |            |                  |                   |           |            |
|                  |                   |           |            | superior conj    | 8508 Dec 10 12:21 | 22°♂58'11 | 1°16'31    |
| superior conj    | 8507 Dec 28 12:30 | 9°♂42'42  | 0°52'14    | minimum elong    | 8508 Dec 10 15:30 | 23°♂13'18 | 1°16'21    |
| minimum elong    | 8507 Dec 28 15:46 | 9°♂57'38  | 0°51'58    |                  | 8508 Dec 14 05:41 | 0°♂       |            |
| desc. node       | 8508 Jan 04 17:26 | 22°♂26'44 |            | max. Earth dist. | 8508 Dec 17 08:33 | 5°♂41'32  | 1.38807 AU |
| max. Earth dist. | 8508 Jan 05 02:45 | 23°♂06'31 | 1.40969 AU | evening rise     | 8508 Dec 21 04:07 | 12°♂24'05 |            |
|                  | 8508 Jan 09 05:32 | 0°♂       |            | desc. node       | 8508 Dec 21 14:26 | 13°♂08'27 |            |
| evening rise     | 8508 Jan 09 18:03 | 0°♂51'20  |            |                  | 8508 Dec 31 23:18 | 0°♂       |            |
|                  | 8508 Jan 28 23:37 | 0°♂       |            |                  | 8509 Jan 23 06:02 | 0°♂       |            |
| evening max el   | 8508 Feb 12 22:44 | 18°♂34'19 | 23°18'13   | evening max el   | 8509 Jan 25 12:10 | 2°♂20'14  | 24°37'26   |
| retrograde       | 8508 Feb 23 10:33 | 24°♂46'48 |            | retrograde       | 8509 Feb 06 01:53 | 9°♂05'53  |            |
| asc. node        | 8508 Feb 27 02:12 | 23°♂41'11 |            | evening set      | 8509 Feb 11 14:15 | 6°♂47'56  |            |
| evening set      | 8508 Feb 28 10:32 | 22°♂42'05 |            | asc. node        | 8509 Feb 12 23:18 | 5°♂29'19  |            |

|                     |                   |   |            |                  |                   |   |            |
|---------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| min. Earth dist.    | 8509 Feb 16 04:15 | 1°  35'50  | 0.67962 AU | min. Earth dist. | 8510 Jan 30 20:37 | 16°  09'44   | 0.67157 AU |
| inferior conj       | 8509 Feb 17 03:19 | 0°  19'02  | 1°19'55    | inferior conj    | 8510 Feb 01 07:05 | 14°  20'59   | 0°28'39    |
| minimum elong       | 8509 Feb 17 01:35 | 0°  24'49  | 1°19'23    | minimum elong    | 8510 Feb 01 06:21 | 14°  23'17   | 0°28'31    |
|                     | 8509 Feb 17 09:02 | 30°  R  |            | morning rise     | 8510 Feb 06 23:48 | 8°  30'17  |            |
| morning rise        | 8509 Feb 22 13:04 | 24°  19'43   |            | direct           | 8510 Feb 10 06:23 | 7°  28'50  |            |
| direct              | 8509 Feb 26 07:13 | 22°  58'49   |            | morning max el   | 8510 Feb 17 02:03 | 11°  12'39   | 18°56'42   |
| morning max el      | 8509 Mar 05 18:45 | 27°  10'34   | 19°53'05   |                  | 8510 Mar 02 22:42 | 0°  H  |            |
|                     | 8509 Mar 08 09:13 | 0°  H  |            | desc. node       | 8510 Mar 06 11:02 | 5°  H24'20   |            |
| greatest brilliancy | 8509 Mar 18 22:15 | 14°  H16'27  | -0.6m      | morning set      | 8510 Mar 11 14:27 | 13°  H23'20  |            |
| desc. node          | 8509 Mar 19 14:08 | 15°  H14'42  |            |                  | 8510 Mar 22 06:07 | 0°  Y  |            |
|                     | 8509 Mar 29 09:28 | 0°  Y  |            | max. Earth dist. | 8510 Mar 26 01:52 | 5°  Y59'16   | 1.45278 AU |
| morning set         | 8509 Apr 01 08:31 | 4°  Y32'42   |            |                  |                   |   |            |
| max. Earth dist.    | 8509 Apr 12 09:39 | 21°  Y49'23  | 1.44296 AU | superior conj    | 8510 Mar 28 03:19 | 9°  Y13'39   | -2°00'56   |
|                     | 8509 Apr 17 11:48 | 0°  B  |            | minimum elong    | 8510 Mar 27 20:02 | 8°  Y45'00   | 2°00'32    |
|                     |                   |   |            |                  | 8510 Apr 10 03:39 | 0°  B  |            |
| superior conj       | 8509 Apr 17 13:55 | 0°  B08'34   | -2°12'02   | evening rise     | 8510 Apr 12 03:08 | 3°  B12'34   |            |
| minimum elong       | 8509 Apr 17 13:35 | 0°  B07'16   | 2°12'07    | asc. node        | 8510 Apr 28 19:12 | 29°  B12'05  |            |
| evening rise        | 8509 Apr 30 21:47 | 22°  B23'14  |            |                  | 8510 Apr 29 09:58 | 0°  II   |            |
|                     | 8509 May 05 08:53 | 0°  II   |            | evening max el   | 8510 May 02 09:30 | 3°  II25'15  | 18°32'09   |
| asc. node           | 8509 May 11 22:07 | 10°  II46'02   |            | retrograde       | 8510 May 08 21:27 | 6°  II57'19  |            |
| evening max el      | 8509 May 18 21:02 | 19°  II55'17   | 18°09'57   | evening set      | 8510 May 12 01:24 | 6°  II01'02  |            |
| retrograde          | 8509 May 25 06:17 | 23°  II16'41   |            | inferior conj    | 8510 May 17 18:49 | 0°  II28'01  | 3°18'27    |
| evening set         | 8509 May 28 02:49 | 22°  II34'22   |            | minimum elong    | 8510 May 17 19:50 | 0°  II24'59  | 3°18'12    |
| inferior conj       | 8509 Jun 03 05:46 | 17°  II18'41   | 2°57'50    |                  | 8510 May 18 04:08 | 30°  R  B     |            |
| minimum elong       | 8509 Jun 03 08:03 | 17°  II12'27   | 2°57'15    | min. Earth dist. | 8510 May 19 21:22 | 27°  B57'01  | 0.64932 AU |
| min. Earth dist.    | 8509 Jun 05 23:14 | 14°  II21'56   | 0.62999 AU | morning rise     | 8510 May 23 13:27 | 24°  B11'23  |            |
| morning rise        | 8509 Jun 09 11:44 | 11°  II08'32   |            | direct           | 8510 May 30 04:30 | 21°  B26'01  |            |
| desc. node          | 8509 Jun 15 13:48 | 8°  II36'15  |            | desc. node       | 8510 Jun 02 10:48 | 22°  B00'42  |            |
| direct              | 8509 Jun 16 06:04 | 8°  II34'46   |            | morning max el   | 8510 Jun 12 16:06 | 29°  B21'40   | 27°13'49   |
| morning max el      | 8509 Jun 30 06:07 | 16°  II37'52   | 27°50'15   |                  | 8510 Jun 13 07:04 | 0°  II   |            |
|                     | 8509 Jul 11 07:05 | 0°  B  |            |                  | 8510 Jul 05 04:44 | 0°  B  |            |
|                     | 8509 Jul 29 15:45 | 0°  Q  |            | morning set      | 8510 Jul 18 03:55 | 23°  B10'09  |            |
| morning set         | 8509 Aug 03 15:07 | 9°  Q40'46   |            |                  | 8510 Jul 21 14:36 | 0°  Q  |            |
| asc. node           | 8509 Aug 07 21:25 | 18°  Q29'13  |            | max. Earth dist. | 8510 Jul 22 16:33 | 2°  Q12'01   | 1.33528 AU |
| max. Earth dist.    | 8509 Aug 08 20:44 | 20°  Q33'03  | 1.32413 AU | asc. node        | 8510 Jul 25 18:23 | 8°  Q35'17   |            |
|                     |                   |   |            |                  |                   |   |            |
| superior conj       | 8509 Aug 11 08:10 | 25°  Q53'08  | 0°34'24    | superior conj    | 8510 Jul 26 11:29 | 10°  Q05'28  | 0°07'12    |
| minimum elong       | 8509 Aug 11 06:38 | 25°  Q44'49  | 0°33'57    | minimum elong    | 8510 Jul 26 11:08 | 10°  Q03'33  | 0°06'58    |
|                     | 8509 Aug 13 05:31 | 0°  P  |            | behind sun begin | 8510 Jul 26 06:05 | 9°  Q36'55   |            |
| evening rise        | 8509 Aug 18 05:46 | 10°  P52'34  |            | behind sun end   | 8510 Jul 26 16:10 | 10°  Q30'14  |            |
|                     | 8509 Aug 27 22:38 | 0°  Q  |            | evening rise     | 8510 Aug 02 16:43 | 25°  Q28'25  |            |
| evening max el      | 8509 Sep 10 22:58 | 19°  Q16'07  | 23°38'57   |                  | 8510 Aug 04 20:47 | 0°  P  |            |
| desc. node          | 8509 Sep 11 12:39 | 19°  Q48'34  |            | evening max el   | 8510 Aug 23 12:45 | 29°  P30'27  | 22°00'27   |
| retrograde          | 8509 Sep 24 12:58 | 26°  Q03'45  |            |                  | 8510 Aug 24 01:02 | 0°  Q  |            |
| evening set         | 8509 Sep 28 22:57 | 25°  Q21'07  |            | desc. node       | 8510 Aug 29 09:46 | 3°  Q59'10   |            |
| min. Earth dist.    | 8509 Oct 05 09:11 | 22°  Q17'23  | 0.55756 AU | retrograde       | 8510 Sep 05 05:11 | 5°  Q48'41   |            |
| inferior conj       | 8509 Oct 07 09:40 | 21°  Q05'01  | -5°35'12   | evening set      | 8510 Sep 08 04:10 | 5°  Q29'12   |            |
| minimum elong       | 8509 Oct 07 08:07 | 21°  Q07'19  | 5°35'05    | min. Earth dist. | 8510 Sep 16 17:21 | 1°  Q46'55   | 0.54816 AU |
| morning rise        | 8509 Oct 15 19:22 | 17°  Q10'44  |            | inferior conj    | 8510 Sep 17 06:25 | 1°  Q28'37   | -4°56'49   |
| direct              | 8509 Oct 18 15:26 | 16°  Q50'45  |            | minimum elong    | 8510 Sep 16 22:04 | 1°  Q40'19   | 4°55'11    |
| morning max el      | 8509 Oct 29 02:26 | 21°  Q45'38  | 20°11'57   |                  | 8510 Sep 19 23:09 | 30°  R  P |            |
| asc. node           | 8509 Nov 03 21:07 | 28°  Q37'11  |            | morning rise     | 8510 Sep 25 17:24 | 27°  P40'23  |            |
|                     | 8509 Nov 04 19:49 | 0°  M  |            | direct           | 8510 Sep 29 03:34 | 27°  P14'28  |            |
| morning set         | 8509 Nov 16 10:34 | 21°  M14'45  |            |                  | 8510 Oct 07 12:25 | 0°  Q  |            |
|                     | 8509 Nov 20 16:49 | 0°  X  |            | morning max el   | 8510 Oct 11 03:30 | 2°  Q53'33   | 21°41'21   |
|                     |                   |   |            | asc. node        | 8510 Oct 21 18:04 | 16°  Q44'55  |            |
| superior conj       | 8509 Nov 24 01:47 | 6°  X52'08   | 1°32'07    |                  | 8510 Oct 28 21:50 | 0°  M  |            |
| minimum elong       | 8509 Nov 24 03:55 | 7°  X02'49   | 1°32'08    | morning set      | 8510 Oct 31 20:05 | 6°  M00'58   |            |
| max. Earth dist.    | 8509 Nov 29 15:01 | 17°  X45'10  | 1.36691 AU |                  |                   |   |            |
| evening rise        | 8509 Dec 03 10:38 | 24°  X51'12  |            | superior conj    | 8510 Nov 08 00:48 | 21°  M12'32  | 1°39'55    |
|                     | 8509 Dec 06 07:49 | 0°  Z  |            | minimum elong    | 8510 Nov 08 01:37 | 21°  M16'47  | 1°40'03    |
| desc. node          | 8509 Dec 08 11:27 | 3°  Z43'24   |            | max. Earth dist. | 8510 Nov 12 03:16 | 29°  M38'43  | 1.34832 AU |
|                     | 8509 Dec 25 13:39 | 0°  Z  |            |                  | 8510 Nov 12 07:30 | 0°  X  |            |
| evening max el      | 8510 Jan 08 01:21 | 16°  Z08'20  | 25°49'15   | evening rise     | 8510 Nov 16 09:52 | 8°  X02'18   |            |
| retrograde          | 8510 Jan 20 12:29 | 23°  Z15'47  |            | desc. node       | 8510 Nov 25 08:29 | 24°  X06'18  |            |
| evening set         | 8510 Jan 26 13:25 | 20°  Z47'15  |            |                  | 8510 Nov 28 22:36 | 0°  Z  |            |
| asc. node           | 8510 Jan 30 20:22 | 16°  Z10'30  |            | evening max el   | 8510 Dec 21 14:44 | 29°  Z51'00  | 26°46'17   |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8510 Dec 21 18:29 | 0°♊       |            | evening max el      | 8511 Dec 04 03:27 | 13°♊17'51 | 27°21'17   |
| retrograde          | 8511 Jan 03 17:26 | 7°♊09'03  |            | retrograde          | 8511 Dec 17 16:16 | 20°♊37'59 |            |
| evening set         | 8511 Jan 10 06:08 | 4°♊34'05  |            | evening set         | 8511 Dec 24 14:10 | 18°♊02'53 |            |
| min. Earth dist.    | 8511 Jan 14 07:16 | 0°♊31'12  | 0.65987 AU | min. Earth dist.    | 8511 Dec 28 10:00 | 14°♊33'20 | 0.64469 AU |
|                     | 8511 Jan 14 18:03 | 30°♋♊     |            | inferior conj       | 8511 Dec 30 19:47 | 11°♊59'13 | -1°35'41   |
| inferior conj       | 8511 Jan 16 05:21 | 28°♊16'11 | -0°30'13   | minimum elong       | 8511 Dec 30 22:43 | 11°♊51'22 | 1°34'17    |
| minimum elong       | 8511 Jan 16 06:12 | 28°♊13'42 | 0°29'41    | asc. node           | 8512 Jan 04 14:28 | 7°♊33'13  |            |
| asc. node           | 8511 Jan 17 17:25 | 26°♊32'32 |            | morning rise        | 8512 Jan 06 08:52 | 6°♊33'37  |            |
| morning rise        | 8511 Jan 22 07:17 | 22°♊36'35 |            | direct              | 8512 Jan 08 21:35 | 6°♊00'48  |            |
| direct              | 8511 Jan 25 03:58 | 21°♊51'18 |            | morning max el      | 8512 Jan 15 08:14 | 9°♊23'04  | 17°53'37   |
| morning max el      | 8511 Jan 31 15:24 | 25°♊19'02 | 18°16'42   |                     | 8512 Jan 29 09:26 | 0°♊       |            |
|                     | 8511 Feb 04 15:17 | 0°♊       |            | morning set         | 8512 Feb 01 11:59 | 5°♊13'16  |            |
| morning set         | 8511 Feb 19 22:41 | 23°♊35'28 |            | desc. node          | 8512 Feb 08 04:54 | 16°♊24'28 |            |
| desc. node          | 8511 Feb 21 07:57 | 25°♊49'07 |            |                     |                   |           |            |
|                     | 8511 Feb 23 22:35 | 0°♋       |            | superior conj       | 8512 Feb 14 23:56 | 27°♊27'46 | -0°47'58   |
|                     |                   |           |            | minimum elong       | 8512 Feb 14 18:28 | 27°♊05'46 | 0°47'05    |
| superior conj       | 8511 Mar 07 08:12 | 18°♋02'27 | -1°30'24   |                     | 8512 Feb 16 13:59 | 0°♋       |            |
| minimum elong       | 8511 Mar 06 22:44 | 17°♋25'20 | 1°29'21    | max. Earth dist.    | 8512 Feb 19 17:07 | 4°♋58'05  | 1.45035 AU |
| max. Earth dist.    | 8511 Mar 08 21:30 | 20°♋28'35 | 1.45532 AU | evening rise        | 8512 Mar 01 23:45 | 22°♋30'18 |            |
|                     | 8511 Mar 14 23:44 | 0°♌       |            |                     | 8512 Mar 06 21:27 | 0°♌       |            |
| evening rise        | 8511 Mar 23 09:26 | 13°♌07'43 |            | greatest brilliancy | 8512 Mar 16 20:30 | 14°♌54'13 | -0.6m      |
|                     | 8511 Apr 03 05:44 | 0°♌       |            |                     | 8512 Mar 28 07:34 | 0°♌       |            |
| greatest brilliancy | 8511 Apr 03 12:37 | 0°♌26'16  | -0.8m      | evening max el      | 8512 Mar 28 22:37 | 0°♌39'12  | 20°06'57   |
| asc. node           | 8511 Apr 15 16:16 | 16°♌55'12 |            | asc. node           | 8512 Apr 01 13:22 | 3°♌42'57  |            |
| evening max el      | 8511 Apr 15 18:34 | 17°♌01'01 | 19°11'43   | retrograde          | 8512 Apr 05 16:01 | 5°♌07'52  |            |
| retrograde          | 8511 Apr 22 17:37 | 20°♌56'11 |            | evening set         | 8512 Apr 09 12:21 | 3°♌41'53  |            |
| evening set         | 8511 Apr 26 05:21 | 19°♌45'13 |            |                     | 8512 Apr 13 01:53 | 30°♌♌     |            |
| inferior conj       | 8511 May 01 16:41 | 13°♌56'22 | 3°22'37    | inferior conj       | 8512 Apr 14 20:28 | 27°♌39'03 | 3°13'37    |
| minimum elong       | 8511 May 01 16:24 | 13°♌57'15 | 3°22'29    | minimum elong       | 8512 Apr 14 19:09 | 27°♌43'30 | 3°13'23    |
| min. Earth dist.    | 8511 May 03 03:52 | 12°♌03'00 | 0.66472 AU | min. Earth dist.    | 8512 Apr 15 17:12 | 26°♌28'48 | 0.67572 AU |
| morning rise        | 8511 May 07 03:04 | 7°♌38'04  |            | morning rise        | 8512 Apr 20 01:43 | 21°♌21'57 |            |
| direct              | 8511 May 13 09:30 | 4°♌53'10  |            | direct              | 8512 Apr 25 20:14 | 18°♌47'26 |            |
| desc. node          | 8511 May 20 07:46 | 7°♌28'50  |            | desc. node          | 8512 May 06 04:45 | 24°♌30'00 |            |
| morning max el      | 8511 May 26 02:25 | 12°♌27'49 | 26°10'04   | morning max el      | 8512 May 07 11:53 | 25°♌46'24 | 24°48'19   |
|                     | 8511 Jun 09 04:20 | 0°♍       |            |                     | 8512 May 11 08:39 | 0°♍       |            |
|                     | 8511 Jun 27 20:56 | 0°♍       |            |                     | 8512 Jun 01 17:13 | 0°♍       |            |
| morning set         | 8511 Jul 01 04:03 | 6°♍00'41  |            | morning set         | 8512 Jun 12 10:52 | 17°♍59'53 |            |
| max. Earth dist.    | 8511 Jul 05 01:50 | 13°♍26'16 | 1.35117 AU | max. Earth dist.    | 8512 Jun 16 01:39 | 24°♍30'39 | 1.37117 AU |
|                     |                   |           |            |                     | 8512 Jun 19 00:25 | 0°♍       |            |
| superior conj       | 8511 Jul 10 07:31 | 23°♍52'41 | -0°23'09   |                     |                   |           |            |
| minimum elong       | 8511 Jul 10 08:52 | 23°♍59'32 | 0°23'03    | superior conj       | 8512 Jun 22 17:10 | 7°♍06'17  | -0°55'06   |
| asc. node           | 8511 Jul 12 15:23 | 28°♍39'46 |            | minimum elong       | 8512 Jun 22 20:35 | 7°♍22'55  | 0°54'41    |
|                     | 8511 Jul 13 06:52 | 0°♎       |            | asc. node           | 8512 Jun 28 12:24 | 18°♍38'12 |            |
| evening rise        | 8511 Jul 18 00:59 | 9°♎52'58  |            | evening rise        | 8512 Jul 01 04:13 | 23°♍58'55 |            |
|                     | 8511 Jul 28 17:20 | 0°♏       |            |                     | 8512 Jul 04 05:07 | 0°♎       |            |
| evening max el      | 8511 Aug 05 12:46 | 10°♏11'41 | 20°33'40   | evening max el      | 8512 Jul 18 02:04 | 21°♎35'57 | 19°25'51   |
| desc. node          | 8511 Aug 16 06:52 | 15°♏43'37 |            | retrograde          | 8512 Jul 27 13:53 | 26°♎17'28 |            |
| retrograde          | 8511 Aug 16 17:25 | 15°♏44'07 |            | evening set         | 8512 Jul 29 10:21 | 26°♎07'30 |            |
| evening set         | 8511 Aug 18 18:43 | 15°♏33'42 |            | desc. node          | 8512 Aug 02 03:59 | 24°♎53'15 |            |
| inferior conj       | 8511 Aug 27 23:18 | 11°♏36'37 | -3°26'42   | inferior conj       | 8512 Aug 07 02:40 | 22°♎00'46 | -1°31'04   |
| minimum elong       | 8511 Aug 27 14:23 | 11°♏49'28 | 3°23'51    | minimum elong       | 8512 Aug 06 22:34 | 22°♎07'24 | 1°29'37    |
| min. Earth dist.    | 8511 Aug 29 02:39 | 10°♏57'11 | 0.54781 AU | min. Earth dist.    | 8512 Aug 09 15:11 | 20°♎23'10 | 0.55689 AU |
| morning rise        | 8511 Sep 05 09:42 | 7°♏34'18  |            | morning rise        | 8512 Aug 15 08:10 | 17°♎26'02 |            |
| direct              | 8511 Sep 09 12:14 | 6°♏58'10  |            | direct              | 8512 Aug 20 06:01 | 16°♎31'32 |            |
| morning max el      | 8511 Sep 22 18:52 | 13°♏22'30 | 23°25'05   | morning max el      | 8512 Sep 03 07:17 | 23°♎35'46 | 25°09'36   |
|                     | 8511 Oct 05 11:09 | 0°♐       |            |                     | 8512 Sep 09 02:32 | 0°♏       |            |
| asc. node           | 8511 Oct 08 15:02 | 5°♐31'57  |            | asc. node           | 8512 Sep 24 12:00 | 24°♏47'32 |            |
| morning set         | 8511 Oct 16 07:33 | 20°♐51'09 |            |                     | 8512 Sep 27 02:25 | 0°♐       |            |
|                     | 8511 Oct 20 13:33 | 0°♑       |            | morning set         | 8512 Sep 29 19:13 | 5°♐39'05  |            |
|                     |                   |           |            |                     |                   |           |            |
| superior conj       | 8511 Oct 23 06:23 | 5°♑50'50  | 1°40'50    | superior conj       | 8512 Oct 06 15:58 | 20°♐38'19 | 1°35'37    |
| minimum elong       | 8511 Oct 23 05:57 | 5°♑48'30  | 1°40'56    | minimum elong       | 8512 Oct 06 14:32 | 20°♐30'30 | 1°35'35    |
| max. Earth dist.    | 8511 Oct 25 23:44 | 11°♑39'45 | 1.33359 AU | max. Earth dist.    | 8512 Oct 08 03:34 | 23°♐53'24 | 1.32324 AU |
| evening rise        | 8511 Oct 30 22:06 | 21°♑48'04 |            |                     | 8512 Oct 10 23:27 | 0°♑       |            |
|                     | 8511 Nov 04 03:52 | 0°♒       |            | evening rise        | 8512 Oct 13 19:49 | 5°♑58'34  |            |
| desc. node          | 8511 Nov 12 05:35 | 14°♒11'30 |            |                     | 8512 Oct 26 17:40 | 0°♒       |            |
|                     | 8511 Nov 22 18:20 | 0°♓       |            | desc. node          | 8512 Oct 29 02:41 | 3°♒50'33  |            |

|                  |                   |   |            |                  |                   |   |            |
|------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| evening max el   | 8512 Nov 15 13:39 | 26°  16'15   | 27°27'59   | evening rise     | 8513 Sep 28 00:16 | 20°  26'09   |            |
|                  | 8512 Nov 20 01:13 | 0°   |            |                  | 8513 Oct 02 16:54 | 0°   |            |
| retrograde       | 8512 Nov 29 08:25 | 3°  33'01  |            | desc. node       | 8513 Oct 15 23:46 | 22°  52'57   |            |
| evening set      | 8512 Dec 06 10:37 | 1°  06'42  |            |                  | 8513 Oct 21 03:19 | 0°   |            |
|                  | 8512 Dec 07 22:34 | 30°         |            | evening max el   | 8513 Oct 28 19:00 | 8°  34'11  | 27°01'47   |
| min. Earth dist. | 8512 Dec 10 03:06 | 28°  06'08   | 0.62642 AU | retrograde       | 8513 Nov 11 16:43 | 15°  44'41   |            |
| inferior conj    | 8512 Dec 12 23:29 | 25°  22'56   | -2°45'34   | evening set      | 8513 Nov 18 15:39 | 13°  37'59   |            |
| minimum elong    | 8512 Dec 13 04:46 | 25°  10'18   | 2°43'24    | min. Earth dist. | 8513 Nov 22 09:39 | 10°  57'24   | 0.60601 AU |
| morning rise     | 8512 Dec 20 01:03 | 20°  14'24   |            | inferior conj    | 8513 Nov 25 13:10 | 8°  18'51  | -3°55'18   |
| asc. node        | 8512 Dec 21 11:31 | 19°  53'43   |            | minimum elong    | 8513 Nov 25 20:16 | 8°  03'53  | 3°52'56    |
| direct           | 8512 Dec 22 08:09 | 19°  50'17   |            | morning rise     | 8513 Dec 03 03:17 | 3°  30'20  |            |
| morning max el   | 8512 Dec 29 01:28 | 23°  16'35   | 17°48'05   | direct           | 8513 Dec 05 07:59 | 3°  11'22  |            |
|                  | 8513 Jan 03 09:11 | 0°   |            | asc. node        | 8513 Dec 08 08:34 | 3°  48'59  |            |
| morning set      | 8513 Jan 14 01:00 | 17°  59'01   |            | morning max el   | 8513 Dec 12 15:41 | 6°  50'28  | 18°01'12   |
|                  | 8513 Jan 20 21:46 | 0°   |            |                  | 8513 Dec 27 11:08 | 0°   |            |
| desc. node       | 8513 Jan 25 01:52 | 7°  06'19  |            | morning set      | 8513 Dec 28 07:17 | 1°  33'16  |            |
| superior conj    | 8513 Jan 25 15:08 | 8°  01'59  | -0°04'05   | superior conj    | 8514 Jan 07 07:33 | 19°  348'04  | 0°34'08    |
| minimum elong    | 8513 Jan 25 14:44 | 8°  00'19  | 0°03'51    | minimum elong    | 8514 Jan 07 10:10 | 19°  359'36  | 0°33'55    |
| behind sun begin | 8513 Jan 25 05:54 | 7°  23'15  |            | desc. node       | 8514 Jan 11 22:50 | 27°  350'54  |            |
| behind sun end   | 8513 Jan 25 23:34 | 8°  37'19  |            |                  | 8514 Jan 13 05:18 | 0°   |            |
| max. Earth dist. | 8513 Feb 01 09:50 | 19°  10'11   | 1.43853 AU | max. Earth dist. | 8514 Jan 14 22:04 | 2°  50'47  | 1.42131 AU |
|                  | 8513 Feb 08 06:08 | 0°   |            | evening rise     | 8514 Jan 20 12:47 | 11°  59'26   |            |
| evening rise     | 8513 Feb 09 12:00 | 1°  55'53  |            |                  | 8514 Feb 01 06:31 | 0°   |            |
|                  | 8513 Feb 28 10:45 | 0°   |            | evening max el   | 8514 Feb 22 14:52 | 28°  00'32   | 22°32'13   |
| evening max el   | 8513 Mar 11 21:09 | 14°  18'56   | 21°15'12   |                  | 8514 Feb 24 17:30 | 0°   |            |
| asc. node        | 8513 Mar 19 10:28 | 19°  20'42   |            | retrograde       | 8514 Mar 04 11:04 | 3°  50'31  |            |
| retrograde       | 8513 Mar 20 14:27 | 19°  27'38   |            | asc. node        | 8514 Mar 06 07:35 | 3°  33'13  |            |
| evening set      | 8513 Mar 24 20:31 | 17°  46'34   |            | evening set      | 8514 Mar 09 04:09 | 1°  54'26  |            |
| inferior conj    | 8513 Mar 30 03:46 | 11°  32'13  | 2°53'41    |                  | 8514 Mar 11 02:13 | 30°  R  |            |
| minimum elong    | 8513 Mar 30 01:47 | 11°  39'07   | 2°53'15    | inferior conj    | 8514 Mar 14 12:28 | 25°  31'35   | 2°24'08    |
| min. Earth dist. | 8513 Mar 30 11:16 | 11°  06'10   | 0.68225 AU | minimum elong    | 8514 Mar 14 10:13 | 25°  39'24   | 2°23'32    |
| morning rise     | 8513 Apr 04 06:50 | 5°  18'11  |            | min. Earth dist. | 8514 Mar 14 07:42 | 25°  48'07   | 0.68448 AU |
| direct           | 8513 Apr 09 11:51 | 3°  01'02  |            | morning rise     | 8514 Mar 19 16:07 | 19°  42'10   |            |
| morning max el   | 8513 Apr 19 21:23 | 9°  12'16  | 23°18'53   | direct           | 8514 Mar 24 07:13 | 17°  42'18   |            |
| desc. node       | 8513 Apr 23 01:42 | 12°  38'51   |            | morning max el   | 8514 Apr 02 09:52 | 22°  45'29   | 21°51'08   |
|                  | 8513 May 06 05:46 | 0°   |            |                  | 8514 Apr 08 16:46 | 0°   |            |
| morning set      | 8513 May 24 18:58 | 28°  54'12   |            | desc. node       | 8514 Apr 09 22:37 | 1°  35'54  |            |
|                  | 8513 May 25 10:36 | 0°   |            |                  | 8514 Apr 29 13:45 | 0°   |            |
| max. Earth dist. | 8513 May 28 21:35 | 5°  15'23  | 1.39352 AU | morning set      | 8514 May 04 23:46 | 8°  32'00  |            |
|                  |                   |   |            | max. Earth dist. | 8514 May 10 20:50 | 18°  307'39  | 1.41558 AU |
| superior conj    | 8513 Jun 05 12:41 | 19°  137'58  | -1°26'16   |                  | 8514 May 17 19:56 | 0°   |            |
| minimum elong    | 8513 Jun 05 17:58 | 20°  102'29  | 1°25'43    | superior conj    | 8514 May 18 13:23 | 1°  16'25  | -1°52'50   |
|                  | 8513 Jun 11 00:18 | 0°   |            | minimum elong    | 8514 May 18 19:11 | 1°  41'53  | 1°52'30    |
| evening rise     | 8513 Jun 14 23:31 | 7°  39'09  |            | evening rise     | 8514 May 29 07:08 | 20°  143'42  |            |
| asc. node        | 8513 Jun 15 09:27 | 8°  26'58  |            | asc. node        | 8514 Jun 02 06:29 | 28°  100'50  |            |
|                  | 8513 Jun 27 21:41 | 0°   |            |                  | 8514 Jun 03 08:58 | 0°   |            |
| evening max el   | 8513 Jul 01 02:58 | 3°  044'02   | 18°38'54   | evening max el   | 8514 Jun 14 11:39 | 16°  26'53   | 18°12'22   |
| retrograde       | 8513 Jul 09 03:28 | 7°  043'07   |            | retrograde       | 8514 Jun 21 11:55 | 19°  259'01  |            |
| evening set      | 8513 Jul 11 04:49 | 7°  028'19   |            | evening set      | 8514 Jun 23 20:50 | 19°  235'25  |            |
| inferior conj    | 8513 Jul 19 01:55 | 3°  033'33   | 0°17'22    | inferior conj    | 8514 Jun 30 22:47 | 14°  249'55  | 1°40'53    |
| minimum elong    | 8513 Jul 19 02:34 | 3°  021'9  | 0°16'57    | minimum elong    | 8514 Jul 01 01:37 | 14°  243'41  | 1°39'49    |
| desc. node       | 8513 Jul 20 01:03 | 2°  019'39   |            | min. Earth dist. | 8514 Jul 04 07:42 | 11°  252'58  | 0.59515 AU |
| min. Earth dist. | 8513 Jul 22 08:22 | 0°  036'35   | 0.57375 AU | desc. node       | 8514 Jul 06 22:07 | 9°  253'47   |            |
|                  | 8513 Jul 23 05:10 | 30°  R  |            | morning rise     | 8514 Jul 08 03:22 | 9°  207'27   |            |
| morning rise     | 8513 Jul 26 20:48 | 27°  251'40  |            | direct           | 8514 Jul 14 12:36 | 7°  213'56   |            |
| direct           | 8513 Aug 01 14:39 | 26°  229'32  |            | morning max el   | 8514 Jul 28 21:12 | 15°  205'04  | 27°35'34   |
|                  | 8513 Aug 11 03:14 | 0°   |            |                  | 8514 Aug 09 23:03 | 0°   |            |
| morning max el   | 8513 Aug 15 23:02 | 4°  024'1  | 26°37'46   | asc. node        | 8514 Aug 27 04:19 | 0°   |            |
|                  | 8513 Sep 03 18:52 | 0°   |            | morning set      | 8514 Aug 29 05:59 | 4°  15'23  |            |
| asc. node        | 8513 Sep 11 09:00 | 14°  024'05  |            | max. Earth dist. | 8514 Aug 29 12:27 | 4°  149'16   |            |
| morning set      | 8513 Sep 14 05:25 | 20°  020'02  |            |                  | 8514 Sep 04 22:19 | 18°  142'28  | 1.31639 AU |
|                  | 8513 Sep 18 16:13 | 0°   |            | superior conj    | 8514 Sep 05 15:10 | 20°  15'49   | 1°08'57    |
| superior conj    | 8513 Sep 21 03:31 | 5°  028'34   | 1°24'51    | minimum elong    | 8514 Sep 05 12:55 | 20°  103'21  | 1°08'32    |
| minimum elong    | 8513 Sep 21 01:27 | 5°  017'10   | 1°24'37    |                  | 8514 Sep 10 00:52 | 0°   |            |
| max. Earth dist. | 8513 Sep 21 12:14 | 6°  016'55   | 1.31750 AU |                  |                   |   |            |

|                  |                   |                               |            |                     |                   |                            |            |
|------------------|-------------------|-------------------------------|------------|---------------------|-------------------|----------------------------|------------|
| evening rise     | 8514 Sep 12 09:06 | 5° $\Omega$ 04'15             |            |                     | 8515 Sep 01 18:52 | 0° $\Omega$                |            |
|                  | 8514 Sep 25 10:34 | 0° $\mathbb{M}$               |            | desc. node          | 8515 Sep 19 17:59 | 28° $\Omega$ 04'14         |            |
| desc. node       | 8514 Oct 02 20:52 | 11° $\mathbb{M}$ 04'23        |            |                     | 8515 Sep 21 13:57 | 0° $\mathbb{M}$            |            |
| evening max el   | 8514 Oct 10 17:06 | 20° $\mathbb{M}$ 02'53        | 26°02'06   | evening max el      | 8515 Sep 22 07:19 | 0° $\mathbb{M}$ 42'34      | 24°35'26   |
| retrograde       | 8514 Oct 24 15:19 | 27° $\mathbb{M}$ 06'37        |            | retrograde          | 8515 Oct 06 02:21 | 7° $\mathbb{M}$ 38'31      |            |
| evening set      | 8514 Oct 31 00:32 | 25° $\mathbb{M}$ 29'39        |            | evening set         | 8515 Oct 11 08:58 | 6° $\mathbb{M}$ 36'34      |            |
| min. Earth dist. | 8514 Nov 04 05:59 | 22° $\mathbb{M}$ 54'45        | 0.58515 AU | min. Earth dist.    | 8515 Oct 16 18:18 | 3° $\mathbb{M}$ 48'50      | 0.56629 AU |
| inferior conj    | 8514 Nov 07 09:19 | 20° $\mathbb{M}$ 37'22        | -4°55'57   | inferior conj       | 8515 Oct 19 09:13 | 2° $\mathbb{M}$ 08'52      | -5°32'36   |
| minimum elong    | 8514 Nov 07 16:11 | 20° $\mathbb{M}$ 24'47        | 4°54'25    | minimum elong       | 8515 Oct 19 11:53 | 2° $\mathbb{M}$ 04'36      | 5°32'21    |
| morning rise     | 8514 Nov 15 10:10 | 16° $\mathbb{M}$ 11'17        |            |                     | 8515 Oct 22 22:41 | 30° $\mathbb{R}$ $\Omega$  |            |
| direct           | 8514 Nov 17 16:53 | 15° $\mathbb{M}$ 54'10        |            | morning rise        | 8515 Oct 27 17:00 | 28° $\Omega$ 05'04         |            |
| asc. node        | 8514 Nov 25 05:36 | 19° $\mathbb{M}$ 14'01        |            | direct              | 8515 Oct 30 06:56 | 27° $\Omega$ 46'53         |            |
| morning max el   | 8514 Nov 25 23:16 | 19° $\mathbb{M}$ 54'54        | 18°34'37   |                     | 8515 Nov 06 00:01 | 0° $\mathbb{M}$            |            |
|                  | 8514 Dec 03 12:23 | 0° $\mathbb{A}$               |            | morning max el      | 8515 Nov 08 20:34 | 2° $\mathbb{M}$ 18'43      | 19°30'02   |
| morning set      | 8514 Dec 12 01:35 | 15° $\mathbb{A}$ 40'55        |            | asc. node           | 8515 Nov 12 02:35 | 5° $\mathbb{M}$ 53'54      |            |
|                  | 8514 Dec 19 12:18 | 0° $\mathbb{B}$               |            | morning set         | 8515 Nov 26 03:55 | 0° $\mathbb{A}$ 09'26      |            |
|                  |                   |                               |            |                     | 8515 Nov 26 02:03 | 0° $\mathbb{A}$            |            |
| superior conj    | 8514 Dec 20 21:28 | 2° $\mathbb{B}$ 35'31         | 1°03'38    |                     |                   |                            |            |
| minimum elong    | 8514 Dec 21 00:51 | 2° $\mathbb{B}$ 51'17         | 1°03'23    | superior conj       | 8515 Dec 04 03:38 | 16° $\mathbb{A}$ 08'48     | 1°24'09    |
| max. Earth dist. | 8514 Dec 28 06:10 | 15° $\mathbb{B}$ 52'24        | 1.40063 AU | minimum elong       | 8515 Dec 04 06:25 | 16° $\mathbb{A}$ 22'26     | 1°24'03    |
| desc. node       | 8514 Dec 29 19:50 | 18° $\mathbb{B}$ 35'04        |            | max. Earth dist.    | 8515 Dec 10 12:03 | 28° $\mathbb{A}$ 13'40     | 1.37887 AU |
| evening rise     | 8515 Jan 01 10:17 | 22° $\mathbb{B}$ 59'25        |            |                     | 8515 Dec 11 11:18 | 0° $\mathbb{B}$            |            |
|                  | 8515 Jan 05 16:55 | 0° $\approx$                  |            | evening rise        | 8515 Dec 14 05:22 | 4° $\mathbb{B}$ 55'51      |            |
|                  | 8515 Jan 26 05:00 | 0° $\mathbb{H}$               |            | desc. node          | 8515 Dec 16 16:51 | 9° $\mathbb{B}$ 14'19      |            |
| evening max el   | 8515 Feb 05 05:30 | 11° $\mathbb{H}$ 45'49        | 23°52'22   |                     | 8515 Dec 29 17:17 | 0° $\approx$               |            |
| retrograde       | 8515 Feb 16 04:31 | 18° $\mathbb{H}$ 12'48        |            | evening max el      | 8516 Jan 18 18:39 | 25° $\approx$ 33'04        | 25°09'14   |
| evening set      | 8515 Feb 21 09:45 | 16° $\mathbb{H}$ 02'21        |            |                     | 8516 Jan 24 01:25 | 0° $\mathbb{H}$            |            |
| asc. node        | 8515 Feb 21 04:40 | 16° $\mathbb{H}$ 12'55        |            | retrograde          | 8516 Jan 30 17:49 | 2° $\mathbb{H}$ 28'56      |            |
| min. Earth dist. | 8515 Feb 26 04:15 | 10° $\mathbb{H}$ 30'34        | 0.68262 AU | evening set         | 8516 Feb 05 11:44 | 0° $\mathbb{H}$ 05'51      |            |
| inferior conj    | 8515 Feb 26 20:42 | 9° $\mathbb{H}$ 34'36         | 1°45'48    |                     | 8516 Feb 05 14:29 | 30° $\mathbb{R}$ $\approx$ |            |
| minimum elong    | 8515 Feb 26 18:39 | 9° $\mathbb{H}$ 41'38         | 1°45'11    | asc. node           | 8516 Feb 08 01:44 | 27° $\approx$ 28'09        |            |
| morning rise     | 8515 Mar 04 03:33 | 3° $\mathbb{H}$ 31'16         |            | min. Earth dist.    | 8516 Feb 09 22:41 | 25° $\approx$ 08'45        | 0.67673 AU |
| direct           | 8515 Mar 08 05:08 | 1° $\mathbb{H}$ 57'49         |            | inferior conj       | 8516 Feb 11 02:38 | 23° $\approx$ 37'38        | 0°59'10    |
| morning max el   | 8515 Mar 16 04:53 | 6° $\mathbb{H}$ 30'33         | 20°32'22   | minimum elong       | 8516 Feb 11 01:15 | 23° $\approx$ 42'07        | 0°58'45    |
| desc. node       | 8515 Mar 27 19:32 | 21° $\mathbb{H}$ 08'19        |            | morning rise        | 8516 Feb 16 15:05 | 17° $\approx$ 41'58        |            |
|                  | 8515 Apr 02 21:58 | 0° $\mathbb{Y}$               |            | direct              | 8516 Feb 20 04:11 | 16° $\approx$ 29'42        |            |
| morning set      | 8515 Apr 14 04:27 | 17° $\mathbb{Y}$ 06'04        |            | morning max el      | 8516 Feb 27 07:56 | 20° $\approx$ 27'41        | 19°27'11   |
|                  | 8515 Apr 22 08:42 | 0° $\mathbb{B}$               |            |                     | 8516 Mar 06 02:03 | 0° $\mathbb{H}$            |            |
| max. Earth dist. | 8515 Apr 23 03:36 | 1° $\mathbb{B}$ 16'04         | 1.43453 AU | greatest brilliancy | 8516 Mar 11 03:26 | 7° $\mathbb{H}$ 18'19      | -0.7m      |
|                  |                   |                               |            | desc. node          | 8516 Mar 13 16:28 | 11° $\mathbb{H}$ 06'25     |            |
| superior conj    | 8515 Apr 29 14:52 | 11° $\mathbb{B}$ 52'09        | -2°09'27   | morning set         | 8516 Mar 23 02:48 | 25° $\mathbb{H}$ 30'37     |            |
| minimum elong    | 8515 Apr 29 17:58 | 12° $\mathbb{B}$ 05'05        | 2°09'29    |                     | 8516 Mar 26 00:32 | 0° $\mathbb{Y}$            |            |
|                  | 8515 May 10 05:02 | 0° $\mathbb{I}$               |            | max. Earth dist.    | 8516 Apr 04 17:11 | 15° $\mathbb{Y}$ 08'59     | 1.44803 AU |
| evening rise     | 8515 May 11 22:39 | 3° $\mathbb{I}$ 02'29         |            |                     |                   |                            |            |
| asc. node        | 8515 May 20 03:32 | 17° $\mathbb{I}$ 14'11        |            | superior conj       | 8516 Apr 08 15:50 | 21° $\mathbb{Y}$ 24'57     | -2°09'51   |
| evening max el   | 8515 May 29 00:16 | 29° $\mathbb{I}$ 34'29        | 18°05'22   | minimum elong       | 8516 Apr 08 12:26 | 21° $\mathbb{Y}$ 11'23     | 2°09'49    |
|                  | 8515 May 29 10:55 | 0° $\mathbb{E}$               |            |                     | 8516 Apr 13 23:35 | 0° $\mathbb{B}$            |            |
| retrograde       | 8515 Jun 04 11:57 | 2° $\mathbb{E}$ 55'37         |            | evening rise        | 8516 Apr 22 17:31 | 14° $\mathbb{B}$ 26'30     |            |
| evening set      | 8515 Jun 07 04:22 | 2° $\mathbb{E}$ 20'33         |            |                     | 8516 May 02 03:00 | 0° $\mathbb{I}$            |            |
|                  | 8515 Jun 10 17:21 | 30° $\mathbb{R}$ $\mathbb{I}$ |            | asc. node           | 8516 May 06 00:35 | 6° $\mathbb{I}$ 00'11      |            |
| inferior conj    | 8515 Jun 13 14:31 | 27° $\mathbb{I}$ 15'08        | 2°36'47    | evening max el      | 8516 May 11 13:33 | 12° $\mathbb{I}$ 58'19     | 18°17'08   |
| minimum elong    | 8515 Jun 13 17:21 | 27° $\mathbb{I}$ 07'57        | 2°35'56    | retrograde          | 8516 May 17 22:56 | 16° $\mathbb{I}$ 22'56     |            |
| min. Earth dist. | 8515 Jun 16 15:13 | 24° $\mathbb{I}$ 12'06        | 0.61765 AU | evening set         | 8516 May 20 22:33 | 15° $\mathbb{I}$ 34'48     |            |
| morning rise     | 8515 Jun 20 04:16 | 21° $\mathbb{I}$ 12'15        |            | inferior conj       | 8516 May 26 20:58 | 10° $\mathbb{I}$ 11'16     | 3°08'52    |
| desc. node       | 8515 Jun 23 19:08 | 19° $\mathbb{I}$ 20'35        |            | minimum elong       | 8516 May 26 22:45 | 10° $\mathbb{I}$ 06'13     | 3°08'26    |
| direct           | 8515 Jun 26 21:23 | 18° $\mathbb{I}$ 50'59        |            | min. Earth dist.    | 8516 May 29 08:10 | 7° $\mathbb{I}$ 23'44      | 0.63860 AU |
| morning max el   | 8515 Jul 11 01:54 | 26° $\mathbb{I}$ 51'48        | 27°55'51   | morning rise        | 8516 Jun 01 21:44 | 3° $\mathbb{I}$ 57'23      |            |
|                  | 8515 Jul 14 00:47 | 0° $\mathbb{E}$               |            | direct              | 8516 Jun 08 15:15 | 1° $\mathbb{I}$ 17'29      |            |
|                  | 8515 Aug 03 14:41 | 0° $\mathbb{Q}$               |            | desc. node          | 8516 Jun 09 16:09 | 1° $\mathbb{I}$ 20'58      |            |
| morning set      | 8515 Aug 13 14:21 | 19° $\mathbb{Q}$ 00'53        |            | morning max el      | 8516 Jun 22 10:59 | 9° $\mathbb{I}$ 19'03      | 27°38'43   |
| asc. node        | 8515 Aug 16 02:55 | 24° $\mathbb{Q}$ 15'55        |            |                     | 8516 Jul 08 13:27 | 0° $\mathbb{E}$            |            |
|                  | 8515 Aug 18 19:12 | 0° $\mathbb{M}$               |            |                     | 8516 Jul 25 22:30 | 0° $\mathbb{Q}$            |            |
| max. Earth dist. | 8515 Aug 19 06:02 | 0° $\mathbb{M}$ 58'42         | 1.31997 AU | morning set         | 8516 Jul 27 08:49 | 2° $\mathbb{Q}$ 48'39      |            |
|                  |                   |                               |            | max. Earth dist.    | 8516 Aug 01 07:20 | 12° $\mathbb{Q}$ 54'24     | 1.32829 AU |
| superior conj    | 8515 Aug 21 01:07 | 4° $\mathbb{M}$ 54'01         | 0°48'17    | asc. node           | 8516 Aug 01 23:52 | 14° $\mathbb{Q}$ 21'27     |            |
| minimum elong    | 8515 Aug 20 23:10 | 4° $\mathbb{M}$ 43'20         | 0°47'49    |                     |                   |                            |            |
| evening rise     | 8515 Aug 27 20:14 | 19° $\mathbb{M}$ 46'03        |            | superior conj       | 8516 Aug 04 07:28 | 19° $\mathbb{Q}$ 17'51     | 0°23'18    |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| minimum elong       | 8516 Aug 04 06:22 | 19°Ω11'54 | 0°22'56    |                     | 8517 Jul 17 17:19 | 0°Ω       |            |
|                     | 8516 Aug 09 06:13 | 0°Π       |            |                     |                   |           |            |
| evening rise        | 8516 Aug 11 07:49 | 4°Π26'02  |            | superior conj       | 8517 Jul 19 08:00 | 3°Ω20'20  | -0°05'24   |
|                     | 8516 Aug 25 00:47 | 0°Ω       |            | minimum elong       | 8517 Jul 19 08:18 | 3°Ω21'54  | 0°05'30    |
| evening max el      | 8516 Sep 02 18:29 | 10°Ω55'24 | 22°56'19   | behind sun begin    | 8517 Jul 19 02:53 | 2°Ω53'41  |            |
| desc. node          | 8516 Sep 05 15:04 | 13°Ω25'50 |            | behind sun end      | 8517 Jul 19 13:43 | 3°Ω50'10  |            |
| retrograde          | 8516 Sep 16 01:18 | 17°Ω33'35 |            | asc. node           | 8517 Jul 19 20:50 | 4°Ω27'21  |            |
| evening set         | 8516 Sep 19 19:46 | 17°Ω02'27 |            | evening rise        | 8517 Jul 26 17:52 | 18°Ω57'38 |            |
| min. Earth dist.    | 8516 Sep 27 02:58 | 13°Ω43'57 | 0.55254 AU |                     | 8517 Aug 01 04:54 | 0°Π       |            |
| inferior conj       | 8516 Sep 28 13:57 | 12°Ω53'36 | -5°25'55   | evening max el      | 8517 Aug 15 11:48 | 21°Π17'36 | 21°21'28   |
| minimum elong       | 8516 Sep 28 09:07 | 13°Ω00'35 | 5°25'23    | desc. node          | 8517 Aug 23 12:11 | 26°Π37'09 |            |
| morning rise        | 8516 Oct 07 00:29 | 9°Ω04'20  |            | retrograde          | 8517 Aug 27 14:47 | 27°Π18'13 |            |
| direct              | 8516 Oct 10 02:04 | 8°Ω42'23  |            | evening set         | 8517 Aug 30 02:00 | 27°Π04'11 |            |
| morning max el      | 8516 Oct 21 05:09 | 13°Ω55'05 | 20°47'45   | inferior conj       | 8517 Sep 08 07:17 | 23°Π06'47 | -4°23'51   |
| asc. node           | 8516 Oct 28 23:33 | 23°Ω33'36 |            | minimum elong       | 8517 Sep 07 21:45 | 23°Π20'09 | 4°21'25    |
|                     | 8516 Nov 01 20:39 | 0°Π       |            | min. Earth dist.    | 8517 Sep 08 11:39 | 23°Π00'39 | 0.54681 AU |
| morning set         | 8516 Nov 09 11:27 | 14°Π50'52 |            | morning rise        | 8517 Sep 16 18:15 | 19°Π14'47 |            |
|                     |                   |           |            | direct              | 8517 Sep 20 10:49 | 18°Π45'21 |            |
| superior conj       | 8516 Nov 16 21:35 | 0°♂15'14  | 1°36'19    | morning max el      | 8517 Oct 03 01:32 | 24°Π44'43 | 22°24'26   |
| minimum elong       | 8516 Nov 16 23:10 | 0°♂23'19  | 1°36'24    |                     | 8517 Oct 07 20:48 | 0°Ω       |            |
|                     | 8516 Nov 16 18:37 | 0°♂       |            | asc. node           | 8517 Oct 15 20:32 | 11°Ω59'19 |            |
| max. Earth dist.    | 8516 Nov 21 20:13 | 10°♂09'01 | 1.35854 AU | morning set         | 8517 Oct 24 22:01 | 29°Ω39'05 |            |
| evening rise        | 8516 Nov 25 19:26 | 17°♂42'20 |            |                     | 8517 Oct 25 01:59 | 0°Π       |            |
| desc. node          | 8516 Dec 02 13:53 | 29°♂44'29 |            |                     |                   |           |            |
|                     | 8516 Dec 02 17:32 | 0°Ω       |            | superior conj       | 8517 Oct 31 23:44 | 14°Π44'20 | 1°41'05    |
|                     | 8516 Dec 23 00:20 | 0°≈       |            | minimum elong       | 8517 Nov 01 00:00 | 14°Π45'44 | 1°41'14    |
| evening max el      | 8516 Dec 31 07:41 | 9°≈18'43  | 26°15'42   | max. Earth dist.    | 8517 Nov 04 11:30 | 22°Π02'29 | 1.34147 AU |
| retrograde          | 8517 Jan 13 02:13 | 16°≈32'38 |            |                     | 8517 Nov 08 10:27 | 0°♂       |            |
| evening set         | 8517 Jan 19 08:25 | 14°≈00'25 |            | evening rise        | 8517 Nov 09 00:39 | 1°♂09'25  |            |
| min. Earth dist.    | 8517 Jan 23 12:48 | 9°≈37'53  | 0.66701 AU | desc. node          | 8517 Nov 19 10:56 | 20°♂00'38 |            |
| asc. node           | 8517 Jan 24 22:49 | 7°≈53'44  |            |                     | 8517 Nov 25 17:27 | 0°Ω       |            |
| inferior conj       | 8517 Jan 25 04:18 | 7°≈36'50  | 0°04'35    | evening max el      | 8517 Dec 13 20:54 | 22°Ω56'08 | 27°04'24   |
| minimum elong       | 8517 Jan 25 04:11 | 7°≈37'14  | 0°04'41    |                     | 8517 Dec 24 21:00 | 0°≈       |            |
| transit middle      | 8517 Jan 25 04:11 | 7°≈37'14  | 0°04'41    | retrograde          | 8517 Dec 27 04:56 | 0°≈16'48  |            |
| transit begin       | 8517 Jan 25 01:26 | 7°≈45'41  |            |                     | 8517 Dec 29 10:46 | 30°♂      |            |
| transit end         | 8517 Jan 25 06:56 | 7°≈28'48  |            | evening set         | 8518 Jan 02 21:47 | 27°Ω40'51 |            |
| morning rise        | 8517 Jan 31 00:42 | 1°≈50'48  |            | min. Earth dist.    | 8518 Jan 06 20:30 | 23°Ω52'18 | 0.65370 AU |
| direct              | 8517 Feb 03 02:47 | 0°≈56'51  |            | inferior conj       | 8518 Jan 08 23:36 | 21°Ω28'00 | -0°57'17   |
| morning max el      | 8517 Feb 09 18:09 | 4°≈32'33  | 18°37'41   | minimum elong       | 8518 Jan 09 01:16 | 21°Ω23'14 | 0°56'24    |
|                     | 8517 Feb 27 16:17 | 0°♂       |            | asc. node           | 8518 Jan 11 19:53 | 18°Ω25'49 |            |
| desc. node          | 8517 Feb 28 13:24 | 1°♂23'02  |            | morning rise        | 8518 Jan 15 06:03 | 15°Ω53'54 |            |
| morning set         | 8517 Mar 02 18:35 | 4°♂52'26  |            | direct              | 8518 Jan 17 22:58 | 15°Ω14'31 |            |
|                     |                   |           |            | morning max el      | 8518 Jan 24 09:22 | 18°Ω39'10 | 18°04'47   |
| superior conj       | 8517 Mar 18 23:25 | 0°♀17'08  | -1°50'04   |                     | 8518 Feb 01 22:10 | 0°≈       |            |
| minimum elong       | 8517 Mar 18 14:19 | 29°♂41'30 | 1°49'21    | morning set         | 8518 Feb 11 15:36 | 15°≈42'42 |            |
| max. Earth dist.    | 8517 Mar 18 10:55 | 29°♂28'14 | 1.45472 AU | desc. node          | 8518 Feb 15 10:21 | 21°≈53'04 |            |
|                     | 8517 Mar 18 19:02 | 0°♀       |            |                     | 8518 Feb 20 10:55 | 0°♂       |            |
| evening rise        | 8517 Apr 03 12:47 | 24°♀51'35 |            |                     |                   |           |            |
|                     | 8517 Apr 06 18:00 | 0°♂       |            | superior conj       | 8518 Feb 26 06:49 | 9°♂16'35  | -1°13'15   |
| greatest brilliancy | 8517 Apr 11 15:26 | 7°♂47'27  | -0.9m      | minimum elong       | 8518 Feb 25 22:33 | 8°♂43'54  | 1°12'09    |
| asc. node           | 8517 Apr 22 21:39 | 24°♂09'35 |            | max. Earth dist.    | 8518 Mar 01 06:28 | 13°♂58'30 | 1.45403 AU |
| evening max el      | 8517 Apr 25 00:47 | 26°♂31'16 | 18°46'54   |                     | 8518 Mar 11 13:22 | 0°♀       |            |
|                     | 8517 Apr 30 05:15 | 0°Π       |            | evening rise        | 8518 Mar 14 10:58 | 4°♀29'24  |            |
| retrograde          | 8517 May 01 16:41 | 0°Π12'09  |            | greatest brilliancy | 8518 Mar 27 13:17 | 24°♀32'21 | -0.7m      |
|                     | 8517 May 03 03:35 | 30°♂      |            |                     | 8518 Mar 31 06:55 | 0°♂       |            |
| evening set         | 8517 May 04 23:45 | 29°♂09'52 |            | evening max el      | 8518 Apr 08 07:57 | 10°♂09'14 | 19°33'27   |
| inferior conj       | 8517 May 10 14:12 | 23°♂29'56 | 3°22'01    | asc. node           | 8518 Apr 09 18:45 | 11°♂31'31 |            |
| minimum elong       | 8517 May 10 14:39 | 23°♂28'33 | 3°21'50    | retrograde          | 8518 Apr 15 14:04 | 14°♂17'31 |            |
| min. Earth dist.    | 8517 May 12 10:13 | 21°♂13'37 | 0.65635 AU | evening set         | 8518 Apr 19 05:17 | 13°♂00'22 |            |
| morning rise        | 8517 May 16 04:55 | 17°♂11'50 |            | inferior conj       | 8518 Apr 24 14:58 | 7°♂05'35  | 3°20'14    |
| direct              | 8517 May 22 16:44 | 14°♂25'09 |            | minimum elong       | 8518 Apr 24 14:13 | 7°♂08'04  | 3°20'04    |
| desc. node          | 8517 May 27 13:09 | 15°♂41'55 |            | min. Earth dist.    | 8518 Apr 25 19:57 | 5°♂29'52  | 0.66998 AU |
| morning max el      | 8517 Jun 04 21:30 | 22°♂14'36 | 26°49'28   | morning rise        | 8518 Apr 29 22:47 | 0°♂47'28  |            |
|                     | 8517 Jun 11 16:38 | 0°Π       |            |                     | 8518 Apr 30 21:35 | 30°♂♀     |            |
|                     | 8517 Jul 01 19:26 | 0°Ω       |            | direct              | 8518 May 06 00:34 | 28°♀05'35 |            |
| morning set         | 8517 Jul 10 16:44 | 16°Ω03'11 |            |                     | 8518 May 11 18:32 | 0°♂       |            |
| max. Earth dist.    | 8517 Jul 14 22:42 | 24°Ω21'44 | 1.34146 AU | desc. node          | 8518 May 14 10:09 | 1°♂53'29  |            |



|                  |                   |                           |            |                  |                   |                           |            |
|------------------|-------------------|---------------------------|------------|------------------|-------------------|---------------------------|------------|
| morning max el   | 8518 May 18 07:23 | 5° $\text{C}$ 27'02       | 25°36'45   | morning max el   | 8519 Apr 30 16:26 | 18° $\text{Y}$ 48'22      | 24°10'38   |
|                  | 8518 Jun 06 04:56 | 0° $\text{II}$            |            | desc. node       | 8519 May 01 07:06 | 19° $\text{Y}$ 26'00      |            |
| morning set      | 8518 Jun 23 10:09 | 28° $\text{II}$ 33'54     |            |                  | 8519 May 10 03:02 | 0° $\text{C}$             |            |
|                  | 8518 Jun 24 04:59 | 0° $\text{C}$             |            |                  | 8519 May 30 07:33 | 0° $\text{II}$            |            |
| max. Earth dist. | 8518 Jun 27 03:09 | 5° $\text{C}$ 27'16       | 1.35930 AU | morning set      | 8519 Jun 05 08:00 | 10° $\text{II}$ 07'27     |            |
|                  |                   |                           |            | max. Earth dist. | 8519 Jun 09 00:33 | 16° $\text{II}$ 37'15     | 1.38058 AU |
| superior conj    | 8518 Jul 03 00:05 | 16° $\text{C}$ 54'46      | -0°36'37   |                  |                   |                           |            |
| minimum elong    | 8518 Jul 03 02:16 | 17° $\text{C}$ 05'46      | 0°36'23    | superior conj    | 8519 Jun 16 04:18 | 29° $\text{II}$ 52'37     | -1°08'35   |
| asc. node        | 8518 Jul 06 17:51 | 24° $\text{C}$ 29'54      |            | minimum elong    | 8519 Jun 16 08:34 | 0° $\text{C}$ 13'04       | 1°08'05    |
|                  | 8518 Jul 09 10:11 | 0° $\text{Q}$             |            |                  | 8519 Jun 16 05:50 | 0° $\text{C}$             |            |
| evening rise     | 8518 Jul 11 00:19 | 3° $\text{Q}$ 15'11       |            | asc. node        | 8519 Jun 23 14:53 | 14° $\text{C}$ 25'19      |            |
|                  | 8518 Jul 26 15:04 | 0° $\text{P}$             |            | evening rise     | 8519 Jun 25 00:36 | 17° $\text{C}$ 11'53      |            |
| evening max el   | 8518 Jul 28 17:36 | 2° $\text{P}$ 17'01       | 20°02'15   |                  | 8519 Jul 01 17:48 | 0° $\text{Q}$             |            |
| retrograde       | 8518 Aug 08 04:35 | 7° $\text{P}$ 26'45       |            | evening max el   | 8519 Jul 11 12:19 | 14° $\text{Q}$ 01'33      | 19°03'17   |
| evening set      | 8518 Aug 10 02:08 | 7° $\text{P}$ 17'18       |            | retrograde       | 8519 Jul 20 07:42 | 18° $\text{Q}$ 23'12      |            |
| desc. node       | 8518 Aug 10 09:18 | 7° $\text{P}$ 14'10       |            | evening set      | 8519 Jul 22 05:46 | 18° $\text{Q}$ 11'37      |            |
| inferior conj    | 8518 Aug 19 03:00 | 3° $\text{P}$ 18'01       | -2°38'34   | desc. node       | 8519 Jul 28 06:22 | 15° $\text{Q}$ 30'40      |            |
| minimum elong    | 8518 Aug 18 19:48 | 3° $\text{P}$ 28'49       | 2°36'04    | inferior conj    | 8519 Jul 30 14:13 | 13° $\text{Q}$ 57'34      | -0°42'43   |
| min. Earth dist. | 8518 Aug 20 22:16 | 2° $\text{P}$ 13'11       | 0.55065 AU | minimum elong    | 8519 Jul 30 12:23 | 14° $\text{Q}$ 00'43      | 0°42'09    |
|                  | 8518 Aug 25 01:36 | 30° $\text{R}$ Q          |            | min. Earth dist. | 8519 Aug 02 12:19 | 11° $\text{Q}$ 57'32      | 0.56335 AU |
| morning rise     | 8518 Aug 27 11:59 | 29° $\text{Q}$ 03'24      |            | morning rise     | 8519 Aug 07 15:55 | 9° $\text{Q}$ 07'17       |            |
| direct           | 8518 Aug 31 22:47 | 28° $\text{Q}$ 20'18      |            | direct           | 8519 Aug 12 22:38 | 8° $\text{Q}$ 02'03       |            |
|                  | 8518 Sep 07 15:01 | 0° $\text{P}$             |            | morning max el   | 8519 Aug 27 03:41 | 15° $\text{Q}$ 18'58      | 25°50'03   |
| morning max el   | 8518 Sep 14 14:34 | 5° $\text{P}$ 02'57       | 24°10'24   |                  | 8519 Sep 07 23:04 | 0° $\text{P}$             |            |
|                  | 8518 Oct 02 04:46 | 0° $\text{Q}$             |            | asc. node        | 8519 Sep 19 14:29 | 20° $\text{P}$ 25'48      |            |
| asc. node        | 8518 Oct 02 17:30 | 0° $\text{Q}$ 59'41       |            | morning set      | 8519 Sep 23 21:02 | 29° $\text{P}$ 15'09      |            |
| morning set      | 8518 Oct 09 09:45 | 14° $\text{Q}$ 28'42      |            |                  | 8519 Sep 24 05:26 | 0° $\text{Q}$             |            |
| superior conj    | 8518 Oct 16 07:16 | 29° $\text{Q}$ 27'15      | 1°39'20    | superior conj    | 8519 Sep 30 17:57 | 14° $\text{Q}$ 17'20      | 1°31'42    |
| minimum elong    | 8518 Oct 16 06:22 | 29° $\text{Q}$ 22'23      | 1°39'23    | minimum elong    | 8519 Sep 30 16:12 | 14° $\text{Q}$ 07'43      | 1°31'35    |
|                  | 8518 Oct 16 13:17 | 0° $\text{M}$             |            | max. Earth dist. | 8519 Oct 01 17:54 | 16° $\text{Q}$ 29'31      | 1.32030 AU |
| max. Earth dist. | 8518 Oct 18 11:20 | 4° $\text{M}$ 08'46       | 1.32864 AU | evening rise     | 8519 Oct 07 18:16 | 29° $\text{Q}$ 26'35      |            |
| evening rise     | 8518 Oct 23 17:18 | 15° $\text{M}$ 07'00      |            |                  | 8519 Oct 08 00:41 | 0° $\text{M}$             |            |
|                  | 8518 Oct 31 12:22 | 0° $\text{X}$             |            | desc. node       | 8519 Oct 24 05:07 | 29° $\text{M}$ 21'19      |            |
| desc. node       | 8518 Nov 06 08:01 | 9° $\text{X}$ 55'47       |            |                  | 8519 Oct 24 15:11 | 0° $\text{X}$             |            |
|                  | 8518 Nov 20 13:39 | 0° $\text{Z}$             |            | evening max el   | 8519 Nov 08 17:40 | 18° $\text{X}$ 56'49      | 27°21'00   |
| evening max el   | 8518 Nov 26 09:02 | 6° $\text{Z}$ 13'15       | 27°28'08   | retrograde       | 8519 Nov 22 13:36 | 26° $\text{X}$ 10'09      |            |
| retrograde       | 8518 Dec 10 00:59 | 13° $\text{Z}$ 32'08      |            | evening set      | 8519 Nov 29 15:39 | 23° $\text{X}$ 50'56      |            |
| evening set      | 8518 Dec 17 01:17 | 10° $\text{Z}$ 59'58      |            | min. Earth dist. | 8519 Dec 03 08:03 | 21° $\text{X}$ 00'22      | 0.61797 AU |
| min. Earth dist. | 8518 Dec 20 19:30 | 7° $\text{Z}$ 43'12       | 0.63717 AU | inferior conj    | 8519 Dec 06 08:02 | 18° $\text{X}$ 17'31      | -3°15'34   |
| inferior conj    | 8518 Dec 23 09:52 | 5° $\text{Z}$ 04'04       | -2°05'02   | minimum elong    | 8519 Dec 06 14:13 | 18° $\text{X}$ 03'30      | 3°13'13    |
| minimum elong    | 8518 Dec 23 13:47 | 4° $\text{Z}$ 54'00       | 2°03'15    | morning rise     | 8519 Dec 13 15:00 | 13° $\text{X}$ 17'00      |            |
| asc. node        | 8518 Dec 29 16:59 | 29° $\text{X}$ 56'52      |            | direct           | 8519 Dec 15 20:47 | 12° $\text{X}$ 55'21      |            |
|                  | 8518 Dec 29 14:18 | 30° $\text{R}$ $\text{X}$ |            | asc. node        | 8519 Dec 16 14:01 | 12° $\text{X}$ 57'38      |            |
| morning rise     | 8518 Dec 30 04:06 | 29° $\text{X}$ 45'01      |            | morning max el   | 8519 Dec 22 19:01 | 16° $\text{X}$ 25'44      | 17°51'18   |
| direct           | 8519 Jan 01 14:07 | 29° $\text{X}$ 16'18      |            |                  | 8520 Jan 01 07:58 | 0° $\text{Z}$             |            |
|                  | 8519 Jan 04 13:21 | 0° $\text{Z}$             |            | morning set      | 8520 Jan 07 12:55 | 11° $\text{Z}$ 00'59      |            |
| morning max el   | 8519 Jan 08 02:41 | 2° $\text{Z}$ 39'23       | 17°49'04   |                  |                   |                           |            |
| morning set      | 8519 Jan 24 15:50 | 27° $\text{Z}$ 52'12      |            | superior conj    | 8520 Jan 18 09:43 | 0° $\approx$ 14'00        | 0°13'07    |
|                  | 8519 Jan 25 21:38 | 0° $\approx$              |            | minimum elong    | 8520 Jan 18 10:54 | 0° $\approx$ 19'07        | 0°13'06    |
| desc. node       | 8519 Feb 02 07:17 | 12° $\approx$ 31'35       |            | behind sun begin | 8520 Jan 18 05:56 | 29° $\text{Z}$ 57'50      |            |
|                  |                   |                           |            | behind sun end   | 8520 Jan 18 15:53 | 0° $\approx$ 40'23        |            |
| superior conj    | 8519 Feb 06 07:35 | 19° $\approx$ 08'32       | -0°29'00   |                  | 8520 Jan 18 06:27 | 0° $\approx$              |            |
| minimum elong    | 8519 Feb 06 04:24 | 18° $\approx$ 55'33       | 0°28'23    | desc. node       | 8520 Jan 20 04:16 | 3° $\approx$ 15'10        |            |
| max. Earth dist. | 8519 Feb 12 01:15 | 28° $\approx$ 22'58       | 1.44610 AU | max. Earth dist. | 8520 Jan 25 16:43 | 12° $\approx$ 25'12       | 1.43181 AU |
|                  | 8519 Feb 13 01:42 | 0° $\text{X}$             |            | evening rise     | 8520 Feb 01 14:31 | 23° $\approx$ 26'52       |            |
| evening rise     | 8519 Feb 21 22:26 | 13° $\text{X}$ 48'36      |            |                  | 8520 Feb 05 20:14 | 0° $\text{X}$             |            |
|                  | 8519 Mar 04 15:35 | 0° $\text{Y}$             |            |                  | 8520 Feb 26 19:42 | 0° $\text{Y}$             |            |
| evening max el   | 8519 Mar 22 09:46 | 23° $\text{Y}$ 48'38      | 20°34'40   | evening max el   | 8520 Mar 04 06:05 | 7° $\text{Y}$ 28'48       | 21°47'11   |
| asc. node        | 8519 Mar 27 15:52 | 27° $\text{Y}$ 51'41      |            | retrograde       | 8520 Mar 13 10:24 | 12° $\text{Y}$ 54'56      |            |
| retrograde       | 8519 Mar 30 12:36 | 28° $\text{Y}$ 33'15      |            | asc. node        | 8520 Mar 13 12:59 | 12° $\text{Y}$ 54'52      |            |
| evening set      | 8519 Apr 03 13:01 | 27° $\text{Y}$ 00'48      |            | evening set      | 8520 Mar 17 21:08 | 11° $\text{Y}$ 07'09      |            |
| inferior conj    | 8519 Apr 08 20:30 | 20° $\text{Y}$ 52'59      | 3°06'22    | inferior conj    | 8520 Mar 23 04:36 | 4° $\text{Y}$ 48'45       | 2°42'14    |
| minimum elong    | 8519 Apr 08 18:52 | 20° $\text{Y}$ 58'37      | 3°06'04    | minimum elong    | 8520 Mar 23 02:27 | 4° $\text{Y}$ 56'14       | 2°41'44    |
| min. Earth dist. | 8519 Apr 09 11:29 | 20° $\text{Y}$ 01'35      | 0.67909 AU | min. Earth dist. | 8520 Mar 23 06:42 | 4° $\text{Y}$ 41'26       | 0.68373 AU |
| morning rise     | 8519 Apr 14 00:30 | 14° $\text{Y}$ 37'14      |            |                  | 8520 Mar 26 21:59 | 30° $\text{R}$ $\text{X}$ |            |
| direct           | 8519 Apr 19 13:31 | 12° $\text{Y}$ 09'20      |            | morning rise     | 8520 Mar 28 07:37 | 28° $\text{X}$ 36'46      |            |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| direct           | 8520 Apr 02 06:40 | 26° <del>✕</del> 28'35        |            | minimum elong    | 8521 Mar 07 11:05 | 18° <del>✕</del> 57'49        | 2°08'18    |
|                  | 8520 Apr 09 15:51 | 0° <del>Υ</del>               |            | morning rise     | 8521 Mar 12 18:01 | 12° <del>✕</del> 43'08        |            |
| morning max el   | 8520 Apr 12 02:50 | 2° <del>Υ</del> 17'08         | 22°40'56   | direct           | 8521 Mar 17 03:09 | 10° <del>✕</del> 57'04        |            |
| desc. node       | 8520 Apr 17 04:03 | 7° <del>Υ</del> 57'08         |            | morning max el   | 8521 Mar 25 17:54 | 15° <del>✕</del> 55'47        | 21°16'17   |
|                  | 8520 May 03 03:02 | 0° <del>♄</del>               |            | desc. node       | 8521 Apr 04 00:59 | 27° <del>✕</del> 10'49        |            |
| morning set      | 8520 May 16 04:48 | 20° <del>♄</del> 29'48        |            |                  | 8521 Apr 06 02:17 | 0° <del>Υ</del>               |            |
| max. Earth dist. | 8520 May 20 21:43 | 28° <del>♄</del> 22'15        | 1.40309 AU | morning set      | 8521 Apr 25 22:17 | 29° <del>Υ</del> 37'29        |            |
|                  | 8520 May 21 20:34 | 0° <del>♁</del>               |            |                  | 8521 Apr 26 04:00 | 0° <del>♄</del>               |            |
|                  |                   |                               |            | max. Earth dist. | 8521 May 02 23:49 | 10° <del>♄</del> 58'21        | 1.42406 AU |
| superior conj    | 8520 May 28 16:23 | 12° <del>♁</del> 02'58        | -1°38'22   |                  |                   |                               |            |
| minimum elong    | 8520 May 28 22:09 | 12° <del>♁</del> 29'09        | 1°37'52    | superior conj    | 8521 May 10 07:38 | 23° <del>♄</del> 15'35        | -2°01'29   |
|                  | 8520 Jun 07 07:18 | 0° <del>♄</del>               |            | minimum elong    | 8521 May 10 12:47 | 23° <del>♄</del> 37'43        | 2°01'18    |
| evening rise     | 8520 Jun 07 15:27 | 0° <del>♄</del> 38'35         |            |                  | 8521 May 14 04:44 | 0° <del>♁</del>               |            |
| asc. node        | 8520 Jun 09 11:55 | 4° <del>♄</del> 08'37         |            | evening rise     | 8521 May 21 16:50 | 13° <del>♁</del> 25'28        |            |
| evening max el   | 8520 Jun 23 16:55 | 26° <del>♄</del> 25'29        | 18°25'07   | asc. node        | 8521 May 27 08:57 | 23° <del>♁</del> 34'56        |            |
|                  | 8520 Jun 29 12:46 | 0° <del>♁</del>               |            |                  | 8521 May 31 04:11 | 0° <del>♄</del>               |            |
| retrograde       | 8520 Jul 01 05:48 | 0° <del>♁</del> 11'35         |            | evening max el   | 8521 Jun 07 03:42 | 9° <del>♄</del> 20'14         | 18°07'05   |
|                  | 8520 Jul 02 23:34 | 30° <del>♄</del>              |            | retrograde       | 8521 Jun 13 21:30 | 12° <del>♄</del> 46'06        |            |
| evening set      | 8520 Jul 03 10:11 | 29° <del>♄</del> 53'29        |            | evening set      | 8521 Jun 16 09:28 | 12° <del>♄</del> 18'05        |            |
| inferior conj    | 8520 Jul 10 22:50 | 25° <del>♄</del> 19'38        | 0°56'12    | inferior conj    | 8521 Jun 23 04:15 | 7° <del>♄</del> 24'07         | 2°07'46    |
| minimum elong    | 8520 Jul 11 00:45 | 25° <del>♄</del> 15'47        | 0°55'21    | minimum elong    | 8521 Jun 23 07:16 | 7° <del>♄</del> 17'00         | 2°06'43    |
| desc. node       | 8520 Jul 14 03:26 | 22° <del>♄</del> 45'40        |            | min. Earth dist. | 8521 Jun 26 10:42 | 4° <del>♄</del> 21'23         | 0.60468 AU |
| min. Earth dist. | 8520 Jul 14 07:48 | 22° <del>♄</del> 37'17        | 0.58246 AU | morning rise     | 8521 Jun 30 02:22 | 1° <del>♄</del> 31'21         |            |
| morning rise     | 8520 Jul 18 11:53 | 19° <del>♄</del> 53'23        |            | desc. node       | 8521 Jul 01 00:28 | 0° <del>♄</del> 58'31         |            |
| direct           | 8520 Jul 24 12:47 | 18° <del>♄</del> 18'20        |            |                  | 8521 Jul 03 04:51 | 30° <del>♄</del> <del>♁</del> |            |
| morning max el   | 8520 Aug 07 22:14 | 26° <del>♄</del> 00'11        | 27°06'44   | direct           | 8521 Jul 06 15:50 | 29° <del>♁</del> 25'02        |            |
|                  | 8520 Aug 11 16:23 | 0° <del>♁</del>               |            |                  | 8521 Jul 10 05:44 | 0° <del>♄</del>               |            |
|                  | 8520 Aug 31 07:57 | 0° <del>♄</del>               |            | morning max el   | 8521 Jul 20 23:32 | 7° <del>♄</del> 22'18         | 27°48'54   |
| asc. node        | 8520 Sep 05 11:26 | 10° <del>♄</del> 09'38        |            |                  | 8521 Aug 07 03:11 | 0° <del>♁</del>               |            |
| morning set      | 8520 Sep 07 06:07 | 13° <del>♄</del> 52'21        |            | morning set      | 8521 Aug 22 11:14 | 28° <del>♁</del> 15'16        |            |
|                  |                   |                               |            | asc. node        | 8521 Aug 23 08:24 | 0° <del>♄</del> 05'46         |            |
|                  |                   |                               |            |                  | 8521 Aug 23 07:18 | 0° <del>♄</del>               |            |
| superior conj    | 8520 Sep 14 05:45 | 29° <del>♄</del> 07'13        | 1°18'43    | max. Earth dist. | 8521 Aug 28 13:12 | 11° <del>♄</del> 18'50        | 1.31733 AU |
| minimum elong    | 8520 Sep 14 03:33 | 28° <del>♄</del> 55'03        | 1°18'23    |                  |                   |                               |            |
| max. Earth dist. | 8520 Sep 14 03:46 | 28° <del>♄</del> 56'14        | 1.31650 AU |                  |                   |                               |            |
|                  | 8520 Sep 14 15:15 | 0° <del>♁</del>               |            | superior conj    | 8521 Aug 29 16:55 | 13° <del>♄</del> 51'40        | 1°00'45    |
| evening rise     | 8520 Sep 21 00:50 | 13° <del>♁</del> 59'35        |            | minimum elong    | 8521 Aug 29 14:43 | 13° <del>♄</del> 39'36        | 1°00'18    |
|                  | 8520 Sep 29 01:25 | 0° <del>♁</del>               |            | evening rise     | 8521 Sep 05 10:52 | 28° <del>♄</del> 39'58        |            |
| desc. node       | 8520 Oct 10 02:12 | 18° <del>♁</del> 04'23        |            |                  | 8521 Sep 06 01:51 | 0° <del>♁</del>               |            |
|                  | 8520 Oct 19 21:44 | 0° <del>♄</del>               |            |                  | 8521 Sep 22 15:47 | 0° <del>♁</del>               |            |
| evening max el   | 8520 Oct 20 19:57 | 0° <del>♄</del> 53'47         | 26°40'05   | desc. node       | 8521 Sep 26 23:17 | 5° <del>♁</del> 48'29         |            |
| retrograde       | 8520 Nov 03 17:52 | 8° <del>♄</del> 01'33         |            | evening max el   | 8521 Oct 02 14:18 | 11° <del>♁</del> 59'59        | 25°27'41   |
| evening set      | 8520 Nov 10 12:41 | 6° <del>♄</del> 06'02         |            | retrograde       | 8521 Oct 16 12:14 | 19° <del>♁</del> 01'44        |            |
| min. Earth dist. | 8520 Nov 14 09:47 | 3° <del>♄</del> 30'15         | 0.59714 AU | evening set      | 8521 Oct 22 11:31 | 17° <del>♁</del> 39'24        |            |
| inferior conj    | 8520 Nov 17 14:35 | 0° <del>♄</del> 58'25         | -4°22'50   | min. Earth dist. | 8521 Oct 27 02:25 | 15° <del>♁</del> 01'10        | 0.57671 AU |
| minimum elong    | 8520 Nov 17 21:58 | 0° <del>♄</del> 43'47         | 4°20'43    | inferior conj    | 8521 Oct 30 02:17 | 12° <del>♁</del> 57'40        | -5°15'32   |
|                  | 8520 Nov 18 20:24 | 30° <del>♄</del> <del>♁</del> |            | minimum elong    | 8521 Oct 30 07:56 | 12° <del>♁</del> 47'54        | 5°14'36    |
| morning rise     | 8520 Nov 25 09:41 | 26° <del>♁</del> 19'36        |            | morning rise     | 8521 Nov 07 06:41 | 8° <del>♁</del> 41'34         |            |
| direct           | 8520 Nov 27 14:42 | 26° <del>♁</del> 01'47        |            | direct           | 8521 Nov 09 15:36 | 8° <del>♁</del> 24'30         |            |
| asc. node        | 8520 Dec 02 11:02 | 27° <del>♁</del> 32'29        |            | morning max el   | 8521 Nov 18 10:35 | 12° <del>♁</del> 37'28        | 18°55'25   |
|                  | 8520 Dec 05 11:32 | 0° <del>♄</del>               |            | asc. node        | 8521 Nov 19 08:02 | 13° <del>♁</del> 31'24        |            |
| morning max el   | 8520 Dec 05 06:53 | 29° <del>♁</del> 48'33        | 18°12'53   |                  | 8521 Nov 30 04:59 | 0° <del>♄</del>               |            |
| morning set      | 8520 Dec 21 00:48 | 24° <del>♄</del> 50'50        |            | morning set      | 8521 Dec 04 22:54 | 9° <del>♄</del> 08'21         |            |
|                  | 8520 Dec 23 18:17 | 0° <del>♄</del>               |            |                  |                   |                               |            |
|                  |                   |                               |            | superior conj    | 8521 Dec 13 09:19 | 25° <del>♄</del> 37'03        | 1°13'24    |
| superior conj    | 8520 Dec 30 11:54 | 12° <del>♄</del> 28'15        | 0°47'46    | minimum elong    | 8521 Dec 13 12:34 | 25° <del>♄</del> 52'31        | 1°13'12    |
| minimum elong    | 8520 Dec 30 15:04 | 12° <del>♄</del> 42'34        | 0°47'29    |                  | 8521 Dec 15 17:03 | 0° <del>♄</del>               |            |
| desc. node       | 8521 Jan 06 01:15 | 24° <del>♄</del> 00'10        |            | max. Earth dist. | 8521 Dec 20 09:06 | 8° <del>♄</del> 30'56         | 1.39132 AU |
| max. Earth dist. | 8521 Jan 07 03:00 | 25° <del>♄</del> 49'42        | 1.41277 AU | desc. node       | 8521 Dec 23 22:13 | 14° <del>♄</del> 42'50        |            |
|                  | 8521 Jan 09 14:45 | 0° <del>♁</del>               |            | evening rise     | 8521 Dec 24 06:19 | 15° <del>♄</del> 17'31        |            |
| evening rise     | 8521 Jan 11 23:29 | 3° <del>♁</del> 52'50         |            |                  | 8522 Jan 02 06:25 | 0° <del>♁</del>               |            |
|                  | 8521 Jan 29 03:18 | 0° <del>✕</del>               |            |                  | 8522 Jan 23 21:51 | 0° <del>✕</del>               |            |
| evening max el   | 8521 Feb 14 22:02 | 21° <del>✕</del> 11'11        | 23°06'18   | evening max el   | 8522 Jan 28 11:43 | 4° <del>✕</del> 57'15         | 24°25'58   |
| retrograde       | 8521 Feb 25 05:56 | 27° <del>✕</del> 18'20        |            | retrograde       | 8522 Feb 08 21:50 | 11° <del>✕</del> 38'28        |            |
| asc. node        | 8521 Feb 28 10:03 | 26° <del>✕</del> 28'29        |            | evening set      | 8522 Feb 14 08:18 | 9° <del>✕</del> 22'29         |            |
| evening set      | 8521 Mar 02 04:05 | 25° <del>✕</del> 15'48        |            | asc. node        | 8522 Feb 15 07:08 | 8° <del>✕</del> 29'51         |            |
| min. Earth dist. | 8521 Mar 07 03:27 | 19° <del>✕</del> 24'10        | 0.68411 AU | min. Earth dist. | 8522 Feb 18 23:28 | 4° <del>✕</del> 05'12         | 0.68051 AU |
| inferior conj    | 8521 Mar 07 13:18 | 18° <del>✕</del> 50'07        | 2°08'56    | inferior conj    | 8522 Feb 19 20:47 | 2° <del>✕</del> 53'44         | 1°27'02    |

|                  |                   |                       |            |                     |                   |                           |            |
|------------------|-------------------|-----------------------|------------|---------------------|-------------------|---------------------------|------------|
| minimum elong    | 8522 Feb 19 18:57 | 2° $\text{H}$ 59'54   | 1°26'28    | morning rise        | 8523 Feb 09 16:43 | 11° $\text{R}$ 04'21      |            |
|                  | 8522 Feb 22 02:29 | 30° $\text{R}$        |            | direct              | 8523 Feb 13 01:00 | 10° $\text{R}$ 00'07      |            |
| morning rise     | 8522 Feb 25 05:42 | 26° $\text{R}$ 53'13  |            | morning max el      | 8523 Feb 19 22:26 | 13° $\text{R}$ 47'05      | 19°04'02   |
| direct           | 8522 Mar 01 01:45 | 25° $\text{R}$ 29'05  |            |                     | 8523 Mar 04 03:50 | 0° $\text{H}$             |            |
| morning max el   | 8522 Mar 08 16:13 | 29° $\text{R}$ 45'58  | 20°02'47   | greatest brilliancy | 8523 Mar 05 14:07 | 2° $\text{H}$ 09'20       | -0.8m      |
|                  | 8522 Mar 08 21:50 | 0° $\text{H}$         |            | desc. node          | 8523 Mar 08 18:51 | 7° $\text{H}$ 02'23       |            |
| desc. node       | 8522 Mar 21 21:54 | 16° $\text{H}$ 55'14  |            | morning set         | 8523 Mar 15 00:23 | 16° $\text{H}$ 40'01      |            |
|                  | 8522 Mar 30 16:13 | 0° $\text{Y}$         |            |                     | 8523 Mar 23 14:05 | 0° $\text{Y}$             |            |
| morning set      | 8522 Apr 04 21:08 | 7° $\text{Y}$ 58'02   |            | max. Earth dist.    | 8523 Mar 29 00:47 | 8° $\text{Y}$ 31'39       | 1.45184 AU |
| max. Earth dist. | 8522 Apr 15 09:01 | 24° $\text{Y}$ 25'01  | 1.44097 AU |                     |                   |                           |            |
|                  | 8522 Apr 18 20:24 | 0° $\text{B}$         |            | superior conj       | 8523 Mar 31 14:28 | 12° $\text{Y}$ 34'39      | -2°03'55   |
|                  |                   |                       |            | minimum elong       | 8523 Mar 31 08:06 | 12° $\text{Y}$ 09'29      | 2°03'39    |
| superior conj    | 8522 Apr 20 22:26 | 3° $\text{B}$ 23'26   | -2°11'58   |                     | 8523 Apr 11 11:45 | 0° $\text{B}$             |            |
| minimum elong    | 8522 Apr 20 23:07 | 3° $\text{B}$ 26'16   | 2°12'03    | evening rise        | 8523 Apr 15 08:53 | 6° $\text{B}$ 19'29       |            |
| evening rise     | 8522 May 04 00:00 | 25° $\text{B}$ 21'16  |            |                     | 8523 Apr 30 07:04 | 0° $\text{II}$            |            |
|                  | 8522 May 06 16:49 | 0° $\text{II}$        |            | asc. node           | 8523 May 01 03:02 | 1° $\text{II}$ 09'00      |            |
| asc. node        | 8522 May 14 05:59 | 12° $\text{II}$ 37'35 |            | evening max el      | 8523 May 05 05:45 | 6° $\text{II}$ 04'09      | 18°27'43   |
| evening max el   | 8522 May 21 17:00 | 22° $\text{II}$ 35'44 | 18°08'14   | retrograde          | 8523 May 11 16:42 | 9° $\text{II}$ 33'47      |            |
| retrograde       | 8522 May 28 02:31 | 25° $\text{II}$ 56'30 |            | evening set         | 8523 May 14 19:34 | 8° $\text{II}$ 39'35      |            |
| evening set      | 8522 May 30 22:01 | 25° $\text{II}$ 16'05 |            | inferior conj       | 8523 May 20 14:09 | 3° $\text{II}$ 08'55      | 3°16'28    |
| inferior conj    | 8522 Jun 06 02:43 | 20° $\text{II}$ 03'05 | 2°52'58    | minimum elong       | 8523 May 20 15:22 | 3° $\text{II}$ 05'18      | 3°16'11    |
| minimum elong    | 8522 Jun 06 05:11 | 19° $\text{II}$ 56'31 | 2°52'19    | min. Earth dist.    | 8523 May 22 18:56 | 0° $\text{II}$ 33'18      | 0.64667 AU |
| min. Earth dist. | 8522 Jun 08 22:14 | 17° $\text{II}$ 04'03 | 0.62686 AU |                     | 8523 May 23 06:40 | 30° $\text{R}$ $\text{B}$ |            |
| morning rise     | 8522 Jun 12 10:38 | 13° $\text{II}$ 54'39 |            | morning rise        | 8523 May 26 10:17 | 26° $\text{B}$ 52'53      |            |
| desc. node       | 8522 Jun 17 21:30 | 11° $\text{II}$ 29'10 |            | direct              | 8523 Jun 02 02:10 | 24° $\text{B}$ 08'39      |            |
| direct           | 8522 Jun 19 04:57 | 11° $\text{II}$ 23'43 |            | desc. node          | 8523 Jun 04 18:32 | 24° $\text{B}$ 32'03      |            |
| morning max el   | 8522 Jul 03 06:12 | 19° $\text{II}$ 26'27 | 27°52'52   |                     | 8523 Jun 13 11:28 | 0° $\text{II}$            |            |
|                  | 8522 Jul 12 05:30 | 0° $\text{B}$         |            | morning max el      | 8523 Jun 15 16:00 | 2° $\text{II}$ 05'59      | 27°21'15   |
|                  | 8522 Jul 31 01:52 | 0° $\text{O}$         |            |                     | 8523 Jul 06 11:11 | 0° $\text{B}$             |            |
| morning set      | 8522 Aug 06 10:18 | 12° $\text{O}$ 17'46  |            | morning set         | 8523 Jul 21 00:40 | 25° $\text{B}$ 51'57      |            |
| asc. node        | 8522 Aug 10 05:22 | 20° $\text{O}$ 09'09  |            |                     | 8523 Jul 23 02:48 | 0° $\text{O}$             |            |
| max. Earth dist. | 8522 Aug 11 18:26 | 23° $\text{O}$ 26'40  | 1.32286 AU | max. Earth dist.    | 8523 Jul 25 15:48 | 5° $\text{O}$ 10'04       | 1.33328 AU |
|                  |                   |                       |            | asc. node           | 8523 Jul 28 02:19 | 10° $\text{O}$ 15'07      |            |
| superior conj    | 8522 Aug 14 01:36 | 28° $\text{O}$ 24'55  | 0°38'11    |                     |                   |                           |            |
| minimum elong    | 8522 Aug 13 23:56 | 28° $\text{O}$ 15'53  | 0°37'46    | superior conj       | 8523 Jul 29 05:47 | 12° $\text{O}$ 40'20      | 0°11'33    |
|                  | 8522 Aug 14 19:03 | 0° $\text{M}$         |            | minimum elong       | 8523 Jul 29 05:12 | 12° $\text{O}$ 37'16      | 0°11'17    |
| evening rise     | 8522 Aug 20 22:25 | 13° $\text{M}$ 21'55  |            | behind sun begin    | 8523 Jul 29 01:16 | 12° $\text{O}$ 16'21      |            |
|                  | 8522 Aug 29 05:44 | 0° $\text{A}$         |            | behind sun end      | 8523 Jul 29 09:09 | 12° $\text{O}$ 58'13      |            |
| desc. node       | 8522 Sep 13 20:22 | 22° $\text{A}$ 10'57  |            | evening rise        | 8523 Aug 05 09:35 | 27° $\text{O}$ 59'02      |            |
| evening max el   | 8522 Sep 14 02:33 | 22° $\text{A}$ 25'59  | 23°53'54   |                     | 8523 Aug 06 08:34 | 0° $\text{M}$             |            |
| retrograde       | 8522 Sep 27 18:14 | 29° $\text{A}$ 15'58  |            |                     | 8523 Aug 24 03:47 | 0° $\text{A}$             |            |
| evening set      | 8522 Oct 02 09:47 | 28° $\text{A}$ 28'40  |            | evening max el      | 8523 Aug 26 15:23 | 2° $\text{A}$ 38'48       | 22°14'44   |
| min. Earth dist. | 8522 Oct 08 13:04 | 25° $\text{A}$ 29'36  | 0.55964 AU | desc. node          | 8523 Aug 31 17:29 | 6° $\text{A}$ 41'29       |            |
| inferior conj    | 8522 Oct 10 17:44 | 24° $\text{A}$ 09'50  | -5°36'12   | retrograde          | 8523 Sep 08 11:56 | 9° $\text{A}$ 02'49       |            |
| minimum elong    | 8522 Oct 10 17:22 | 24° $\text{A}$ 10'23  | 5°36'07    | evening set         | 8523 Sep 11 15:46 | 8° $\text{A}$ 40'44       |            |
| morning rise     | 8522 Oct 19 03:02 | 20° $\text{A}$ 13'16  |            | min. Earth dist.    | 8523 Sep 19 21:10 | 5° $\text{A}$ 05'12       | 0.54900 AU |
| direct           | 8522 Oct 21 21:24 | 19° $\text{A}$ 53'48  |            | inferior conj       | 8523 Sep 20 16:15 | 4° $\text{A}$ 38'22       | -5°06'22   |
| morning max el   | 8522 Nov 01 02:42 | 24° $\text{A}$ 42'31  | 20°00'19   | minimum elong       | 8523 Sep 20 08:38 | 4° $\text{A}$ 49'05       | 5°05'02    |
|                  | 8522 Nov 05 17:30 | 0° $\text{M}$         |            | morning rise        | 8523 Sep 29 03:09 | 0° $\text{A}$ 50'38       |            |
| asc. node        | 8522 Nov 06 05:01 | 0° $\text{M}$ 39'15   |            | direct              | 8523 Oct 02 11:05 | 0° $\text{A}$ 25'51       |            |
| morning set      | 8522 Nov 19 03:49 | 23° $\text{M}$ 44'05  |            | morning max el      | 8523 Oct 14 05:39 | 5° $\text{A}$ 57'45       | 21°26'54   |
|                  | 8522 Nov 22 05:23 | 0° $\text{J}$         |            | asc. node           | 8523 Oct 24 02:01 | 18° $\text{A}$ 40'17      |            |
|                  |                   |                       |            |                     | 8523 Oct 30 08:33 | 0° $\text{M}$             |            |
| superior conj    | 8522 Nov 26 21:03 | 9° $\text{J}$ 26'34   | 1°30'15    | morning set         | 8523 Nov 03 12:56 | 8° $\text{M}$ 29'40       |            |
| minimum elong    | 8522 Nov 26 23:22 | 9° $\text{J}$ 38'06   | 1°30'15    |                     |                   |                           |            |
| max. Earth dist. | 8522 Dec 02 15:26 | 20° $\text{J}$ 39'42  | 1.36998 AU | superior conj       | 8523 Nov 10 18:54 | 23° $\text{M}$ 43'58      | 1°39'11    |
| evening rise     | 8522 Dec 06 10:05 | 27° $\text{J}$ 37'43  |            | minimum elong       | 8523 Nov 10 19:55 | 23° $\text{M}$ 49'15      | 1°39'18    |
|                  | 8522 Dec 07 17:54 | 0° $\text{B}$         |            |                     | 8523 Nov 13 20:05 | 0° $\text{J}$             |            |
| desc. node       | 8522 Dec 10 19:15 | 5° $\text{B}$ 19'27   |            | max. Earth dist.    | 8523 Nov 15 02:42 | 2° $\text{J}$ 33'58       | 1.35089 AU |
|                  | 8522 Dec 26 16:01 | 0° $\text{R}$         |            | evening rise        | 8523 Nov 19 07:06 | 10° $\text{J}$ 42'59      |            |
| evening max el   | 8523 Jan 11 01:00 | 18° $\text{R}$ 45'58  | 25°39'14   | desc. node          | 8523 Nov 27 16:18 | 25° $\text{J}$ 44'36      |            |
| retrograde       | 8523 Jan 23 09:08 | 25° $\text{R}$ 50'28  |            |                     | 8523 Nov 30 05:50 | 0° $\text{B}$             |            |
| evening set      | 8523 Jan 29 08:16 | 23° $\text{R}$ 23'19  |            |                     | 8523 Dec 22 03:16 | 0° $\text{R}$             |            |
| asc. node        | 8523 Feb 02 04:12 | 19° $\text{R}$ 18'55  |            | evening max el      | 8523 Dec 24 14:20 | 2° $\text{R}$ 29'55       | 26°38'54   |
| min. Earth dist. | 8523 Feb 02 16:27 | 18° $\text{R}$ 40'42  | 0.67309 AU | retrograde          | 8524 Jan 06 14:58 | 9° $\text{R}$ 46'59       |            |
| inferior conj    | 8523 Feb 04 01:11 | 16° $\text{R}$ 56'27  | 0°37'00    | evening set         | 8524 Jan 13 02:06 | 7° $\text{R}$ 12'31       |            |
| minimum elong    | 8523 Feb 04 00:16 | 16° $\text{R}$ 59'22  | 0°36'45    | min. Earth dist.    | 8524 Jan 17 04:03 | 3° $\text{R}$ 04'39       | 0.66188 AU |

|                     |                   |                      |            |                     |                   |                      |            |
|---------------------|-------------------|----------------------|------------|---------------------|-------------------|----------------------|------------|
| inferior conj       | 8524 Jan 19 00:27 | 0° $\approx$ 53'02   | -0°20'48   | inferior conj       | 8525 Jan 01 16:14 | 14° $\approx$ 38'17  | -1°25'26   |
| minimum elong       | 8524 Jan 19 01:01 | 0° $\approx$ 51'20   | 0°20'23    | minimum elong       | 8525 Jan 01 18:50 | 14° $\approx$ 31'14  | 1°24'09    |
|                     | 8524 Jan 19 18:26 | 30° $\approx$ 8'3    |            | asc. node           | 8525 Jan 05 22:24 | 10° $\approx$ 31'31  |            |
| asc. node           | 8524 Jan 20 01:18 | 29° $\approx$ 340'07 |            | morning rise        | 8525 Jan 08 03:34 | 9° $\approx$ 310'32  |            |
| morning rise        | 8524 Jan 25 00:53 | 25° $\approx$ 311'45 |            | direct              | 8525 Jan 10 17:17 | 8° $\approx$ 336'09  |            |
| direct              | 8524 Jan 27 22:56 | 24° $\approx$ 324'19 |            | morning max el      | 8525 Jan 17 03:39 | 11° $\approx$ 358'44 | 17°55'56   |
| morning max el      | 8524 Feb 03 11:06 | 27° $\approx$ 353'37 | 18°21'35   |                     | 8525 Jan 29 17:00 | 0° $\approx$         |            |
|                     | 8524 Feb 05 09:47 | 0° $\approx$         |            | morning set         | 8525 Feb 03 13:26 | 8° $\approx$ 05'06   |            |
| morning set         | 8524 Feb 23 04:14 | 26° $\approx$ 339'15 |            | desc. node          | 8525 Feb 09 12:44 | 17° $\approx$ 59'28  |            |
| desc. node          | 8524 Feb 23 15:49 | 27° $\approx$ 25'28  |            |                     | 8525 Feb 16 22:27 | 0° $\approx$         |            |
|                     | 8524 Feb 25 06:31 | 0° $\approx$         |            |                     |                   |                      |            |
| superior conj       | 8524 Mar 09 19:30 | 21° $\approx$ 323'07 | -1°36'02   | superior conj       | 8525 Feb 17 08:35 | 0° $\approx$ 40'30   | -0°54'43   |
| minimum elong       | 8524 Mar 09 09:54 | 20° $\approx$ 345'29 | 1°35'03    | minimum elong       | 8525 Feb 17 02:18 | 0° $\approx$ 15'24   | 0°53'46    |
| max. Earth dist.    | 8524 Mar 10 20:13 | 22° $\approx$ 359'51 | 1.45542 AU | max. Earth dist.    | 8525 Feb 21 15:50 | 7° $\approx$ 329'53  | 1.45151 AU |
|                     | 8524 Mar 15 07:39 | 0° $\approx$         |            | evening rise        | 8525 Mar 05 10:24 | 25° $\approx$ 347'57 |            |
| evening rise        | 8524 Mar 25 18:30 | 16° $\approx$ 322'40 |            |                     | 8525 Mar 08 04:07 | 0° $\approx$         |            |
|                     | 8524 Apr 03 11:04 | 0° $\approx$         |            | greatest brilliancy | 8525 Mar 20 01:03 | 17° $\approx$ 353'06 | -0.6m      |
| greatest brilliancy | 8524 Apr 05 03:57 | 2° $\approx$ 338'12  | -0.8m      |                     | 8525 Mar 28 21:43 | 0° $\approx$         |            |
| asc. node           | 8524 Apr 17 00:07 | 18° $\approx$ 359'50 |            | evening max el      | 8525 Mar 31 20:19 | 3° $\approx$ 318'00  | 19°57'49   |
| evening max el      | 8524 Apr 17 15:27 | 19° $\approx$ 339'46 | 19°04'43   | asc. node           | 8525 Apr 03 21:14 | 5° $\approx$ 357'17  |            |
| retrograde          | 8524 Apr 24 12:25 | 23° $\approx$ 330'59 |            | retrograde          | 8525 Apr 08 10:41 | 7° $\approx$ 341'17  |            |
| evening set         | 8524 Apr 27 22:55 | 22° $\approx$ 322'15 |            | evening set         | 8525 Apr 12 05:37 | 6° $\approx$ 317'40  |            |
| inferior conj       | 8524 May 03 10:57 | 16° $\approx$ 335'34 | 3°22'53    | inferior conj       | 8525 Apr 17 14:03 | 0° $\approx$ 316'51  | 3°15'42    |
| minimum elong       | 8524 May 03 10:52 | 16° $\approx$ 335'51 | 3°22'44    | minimum elong       | 8525 Apr 17 12:53 | 0° $\approx$ 320'47  | 3°15'29    |
| min. Earth dist.    | 8524 May 05 00:22 | 14° $\approx$ 336'05 | 0.66269 AU |                     | 8525 Apr 17 19:02 | 30° $\approx$ 32'0   |            |
| morning rise        | 8524 May 08 22:21 | 10° $\approx$ 317'09 |            | min. Earth dist.    | 8525 Apr 18 12:54 | 28° $\approx$ 359'51 | 0.67436 AU |
| direct              | 8524 May 15 06:14 | 7° $\approx$ 331'33  |            | morning rise        | 8525 Apr 22 19:52 | 23° $\approx$ 359'18 |            |
| desc. node          | 8524 May 21 15:34 | 9° $\approx$ 344'10  |            | direct              | 8525 Apr 28 16:18 | 21° $\approx$ 322'37 |            |
| morning max el      | 8524 May 28 02:32 | 15° $\approx$ 310'33 | 26°20'57   | desc. node          | 8525 May 08 12:33 | 26° $\approx$ 333'19 |            |
|                     | 8524 Jun 09 06:01 | 0° $\approx$         |            | morning max el      | 8525 May 10 12:10 | 28° $\approx$ 328'11 | 25°01'11   |
|                     | 8524 Jun 28 06:34 | 0° $\approx$         |            |                     | 8525 May 11 23:16 | 0° $\approx$         |            |
| morning set         | 8524 Jul 03 02:59 | 8° $\approx$ 349'22  |            |                     | 8525 Jun 02 23:55 | 0° $\approx$         |            |
| max. Earth dist.    | 8524 Jul 07 02:48 | 16° $\approx$ 328'07 | 1.34852 AU | morning set         | 8525 Jun 15 12:43 | 20° $\approx$ 357'25 |            |
|                     |                   |                      |            | max. Earth dist.    | 8525 Jun 19 03:37 | 27° $\approx$ 331'51 | 1.36801 AU |
| superior conj       | 8524 Jul 12 03:06 | 26° $\approx$ 331'51 | -0°18'23   |                     | 8525 Jun 20 11:27 | 0° $\approx$         |            |
| minimum elong       | 8524 Jul 12 04:09 | 26° $\approx$ 337'16 | 0°18'21    | superior conj       | 8525 Jun 25 14:31 | 9° $\approx$ 351'11  | -0°50'14   |
| asc. node           | 8524 Jul 13 23:19 | 0° $\approx$ 320'08  |            | minimum elong       | 8525 Jun 25 17:36 | 10° $\approx$ 306'21 | 0°49'52    |
|                     | 8524 Jul 13 19:26 | 0° $\approx$         |            | asc. node           | 8525 Jun 30 20:18 | 20° $\approx$ 319'45 |            |
| evening rise        | 8524 Jul 19 18:26 | 12° $\approx$ 325'51 |            | evening rise        | 8525 Jul 03 22:35 | 26° $\approx$ 335'03 |            |
|                     | 8524 Jul 28 20:59 | 0° $\approx$         |            |                     | 8525 Jul 05 15:31 | 0° $\approx$         |            |
| evening max el      | 8524 Aug 07 13:25 | 13° $\approx$ 313'55 | 20°45'28   | evening max el      | 8525 Jul 21 00:48 | 24° $\approx$ 331'36 | 19°34'35   |
| desc. node          | 8524 Aug 17 14:35 | 18° $\approx$ 349'16 |            | retrograde          | 8525 Jul 30 18:33 | 29° $\approx$ 320'13 |            |
| retrograde          | 8524 Aug 19 00:12 | 18° $\approx$ 354'12 |            | evening set         | 8525 Aug 01 14:52 | 29° $\approx$ 310'36 |            |
| evening set         | 8524 Aug 21 03:27 | 18° $\approx$ 343'10 |            | desc. node          | 8525 Aug 04 11:42 | 28° $\approx$ 320'43 |            |
| inferior conj       | 8524 Aug 30 08:43 | 14° $\approx$ 346'21 | -3°42'49   | inferior conj       | 8525 Aug 10 09:42 | 25° $\approx$ 306'12 | -1°48'45   |
| minimum elong       | 8524 Aug 29 23:25 | 14° $\approx$ 359'38 | 3°39'59    | minimum elong       | 8525 Aug 10 04:46 | 25° $\approx$ 314'02 | 1°46'59    |
| min. Earth dist.    | 8524 Aug 31 06:12 | 14° $\approx$ 315'38 | 0.54721 AU | min. Earth dist.    | 8525 Aug 12 18:17 | 23° $\approx$ 336'48 | 0.55500 AU |
| morning rise        | 8524 Sep 07 19:21 | 10° $\approx$ 347'23 |            | morning rise        | 8525 Aug 18 16:15 | 20° $\approx$ 336'49 |            |
| direct              | 8524 Sep 11 19:08 | 10° $\approx$ 313'18 |            | direct              | 8525 Aug 23 11:12 | 19° $\approx$ 345'30 |            |
| morning max el      | 8524 Sep 24 22:08 | 16° $\approx$ 331'19 | 23°09'16   | morning max el      | 8525 Sep 06 10:29 | 26° $\approx$ 344'47 | 24°54'43   |
|                     | 8524 Oct 05 14:35 | 0° $\approx$         |            |                     | 8525 Sep 09 13:59 | 0° $\approx$         |            |
| asc. node           | 8524 Oct 09 23:02 | 7° $\approx$ 322'01  |            | asc. node           | 8525 Sep 26 20:00 | 26° $\approx$ 333'41 |            |
| morning set         | 8524 Oct 18 00:14 | 23° $\approx$ 319'26 |            |                     | 8525 Sep 28 13:51 | 0° $\approx$         |            |
|                     | 8524 Oct 21 03:01 | 0° $\approx$         |            | morning set         | 8525 Oct 02 11:57 | 8° $\approx$ 307'48  |            |
| superior conj       | 8524 Oct 24 23:40 | 8° $\approx$ 320'04  | 1°41'06    | superior conj       | 8525 Oct 09 08:47 | 23° $\approx$ 306'34 | 1°36'47    |
| minimum elong       | 8524 Oct 24 23:25 | 8° $\approx$ 318'42  | 1°41'13    | minimum elong       | 8525 Oct 09 07:29 | 22° $\approx$ 359'28 | 1°36'46    |
| max. Earth dist.    | 8524 Oct 27 21:44 | 14° $\approx$ 332'18 | 1.33547 AU | max. Earth dist.    | 8525 Oct 11 00:30 | 26° $\approx$ 343'27 | 1.32443 AU |
| evening rise        | 8524 Nov 01 17:35 | 24° $\approx$ 323'57 |            |                     | 8525 Oct 12 12:50 | 0° $\approx$         |            |
|                     | 8524 Nov 04 14:49 | 0° $\approx$         |            | evening rise        | 8525 Oct 16 14:04 | 8° $\approx$ 331'17  |            |
| desc. node          | 8524 Nov 13 13:20 | 15° $\approx$ 352'40 |            |                     | 8525 Oct 28 00:40 | 0° $\approx$         |            |
|                     | 8524 Nov 22 18:53 | 0° $\approx$         |            | desc. node          | 8525 Oct 31 10:25 | 5° $\approx$ 336'16  |            |
| evening max el      | 8524 Dec 06 03:08 | 15° $\approx$ 359'36 | 27°17'44   | evening max el      | 8525 Nov 18 13:55 | 29° $\approx$ 303'33 | 27°29'10   |
| retrograde          | 8524 Dec 19 14:54 | 23° $\approx$ 320'17 |            |                     | 8525 Nov 19 14:24 | 0° $\approx$         |            |
| evening set         | 8524 Dec 26 11:37 | 20° $\approx$ 344'35 |            | retrograde          | 8525 Dec 02 08:12 | 6° $\approx$ 321'18  |            |
| min. Earth dist.    | 8524 Dec 30 08:07 | 17° $\approx$ 310'18 | 0.64713 AU | evening set         | 8525 Dec 09 10:04 | 3° $\approx$ 353'08  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| min. Earth dist. | 8525 Dec 13 02:52 | 0°♄48'35  | 0.62923 AU |                  | 8526 Oct 04 04:06 | 0°♍       |            |
|                  | 8525 Dec 13 23:11 | 30°♊♌     |            | desc. node       | 8526 Oct 18 07:30 | 24°♍45'02 |            |
| inferior conj    | 8525 Dec 15 21:46 | 28°♌05'56 | -2°34'53   |                  | 8526 Oct 21 23:30 | 0°♌       |            |
| minimum elong    | 8525 Dec 16 02:42 | 27°♌53'55 | 2°32'47    | evening max el   | 8526 Oct 31 20:16 | 11°♌28'37 | 27°07'58   |
| morning rise     | 8525 Dec 22 21:25 | 22°♌54'35 |            | retrograde       | 8526 Nov 14 17:39 | 18°♌39'45 |            |
| asc. node        | 8525 Dec 23 19:29 | 22°♌38'42 |            | evening set      | 8526 Nov 21 17:38 | 16°♌29'39 |            |
| direct           | 8525 Dec 25 05:07 | 22°♌29'26 |            | min. Earth dist. | 8526 Nov 25 11:00 | 13°♌46'48 | 0.60909 AU |
| morning max el   | 8525 Dec 31 21:02 | 25°♌54'45 | 17°47'44   | inferior conj    | 8526 Nov 28 13:44 | 11°♌06'42 | -3°45'04   |
|                  | 8526 Jan 04 08:19 | 0°♄       |            | minimum elong    | 8526 Nov 28 20:39 | 10°♌51'51 | 3°42'41    |
| morning set      | 8526 Jan 16 23:24 | 20°♄42'34 |            | morning rise     | 8526 Dec 06 02:01 | 6°♌14'53  |            |
|                  | 8526 Jan 22 07:20 | 0°♌       |            | direct           | 8526 Dec 08 06:53 | 5°♌55'18  |            |
| desc. node       | 8526 Jan 27 09:40 | 8°♌40'45  |            | asc. node        | 8526 Dec 10 16:31 | 6°♌19'33  |            |
|                  |                   |           |            | morning max el   | 8526 Dec 15 11:52 | 9°♌32'00  | 17°58'01   |
| superior conj    | 8526 Jan 28 19:56 | 11°♌03'58 | -0°10'29   |                  | 8526 Dec 28 20:45 | 0°♄       |            |
| minimum elong    | 8526 Jan 28 18:53 | 10°♌59'33 | 0°10'10    | morning set      | 8526 Dec 31 03:29 | 4°♄10'57  |            |
| behind sun begin | 8526 Jan 28 11:40 | 10°♌29'30 |            |                  |                   |           |            |
| behind sun end   | 8526 Jan 29 02:05 | 11°♌29'33 |            | superior conj    | 8527 Jan 10 08:46 | 22°♄39'52 | 0°28'50    |
| max. Earth dist. | 8526 Feb 04 09:00 | 21°♌45'27 | 1.44069 AU | minimum elong    | 8527 Jan 10 11:05 | 22°♄50'02 | 0°28'41    |
|                  | 8526 Feb 09 13:53 | 0°♊       |            | desc. node       | 8527 Jan 14 06:37 | 29°♄25'10 |            |
| evening rise     | 8526 Feb 12 21:58 | 5°♊11'01  |            |                  | 8527 Jan 14 14:49 | 0°♌       |            |
|                  | 8526 Mar 01 13:30 | 0°♑       |            | max. Earth dist. | 8527 Jan 17 22:10 | 5°♌32'26  | 1.42418 AU |
| evening max el   | 8526 Mar 14 19:42 | 16°♑57'49 | 21°04'22   | evening rise     | 8527 Jan 23 20:13 | 15°♌07'39 |            |
| asc. node        | 8526 Mar 21 18:21 | 21°♑46'52 |            |                  | 8527 Feb 02 12:16 | 0°♊       |            |
| retrograde       | 8526 Mar 23 09:10 | 22°♑00'11 |            |                  | 8527 Feb 24 22:46 | 0°♑       |            |
| evening set      | 8526 Mar 27 13:42 | 20°♑21'25 |            | evening max el   | 8527 Feb 25 14:06 | 0°♑39'21  | 22°20'21   |
| inferior conj    | 8526 Apr 01 20:58 | 14°♑08'45 | 2°57'19    | retrograde       | 8527 Mar 07 06:04 | 6°♑22'57  |            |
| minimum elong    | 8526 Apr 01 19:03 | 14°♑15'21 | 2°56'55    | asc. node        | 8527 Mar 08 15:28 | 6°♑13'10  |            |
| min. Earth dist. | 8526 Apr 02 06:24 | 13°♑36'03 | 0.68160 AU | evening set      | 8527 Mar 11 21:30 | 4°♑29'00  |            |
| morning rise     | 8526 Apr 07 00:11 | 7°♑54'10  |            |                  | 8527 Mar 15 20:50 | 30°♊♌     |            |
| direct           | 8526 Apr 12 07:18 | 5°♑33'58  |            | inferior conj    | 8527 Mar 17 05:33 | 28°♊07'17 | 2°29'12    |
| morning max el   | 8526 Apr 22 21:23 | 11°♑52'39 | 23°32'13   | minimum elong    | 8527 Mar 17 03:19 | 28°♊15'04 | 2°28'37    |
| desc. node       | 8526 Apr 25 09:29 | 14°♑33'14 |            | min. Earth dist. | 8527 Mar 17 02:34 | 28°♊17'41 | 0.68448 AU |
|                  | 8526 May 07 09:03 | 0°♄       |            | morning rise     | 8527 Mar 22 08:58 | 21°♊57'12 |            |
|                  | 8526 May 26 19:27 | 0°♍       |            | direct           | 8527 Mar 27 02:10 | 19°♊58'01 |            |
| morning set      | 8526 May 28 00:29 | 2°♍02'08  |            | morning max el   | 8527 Apr 05 09:09 | 25°♊24'26 | 22°03'44   |
| max. Earth dist. | 8526 May 31 23:26 | 8°♍50'44  | 1.39019 AU |                  | 8527 Apr 09 12:40 | 0°♑       |            |
|                  |                   |           |            | desc. node       | 8527 Apr 12 06:25 | 3°♑23'54  |            |
| superior conj    | 8526 Jun 08 12:23 | 22°♍29'53 | -1°21'43   |                  | 8527 Apr 30 20:34 | 0°♄       |            |
| minimum elong    | 8526 Jun 08 17:26 | 22°♍53'30 | 1°21'11    | morning set      | 8527 May 08 09:26 | 11°♄51'22 |            |
|                  | 8526 Jun 12 11:19 | 0°♄       |            | max. Earth dist. | 8527 May 13 22:05 | 20°♄56'02 | 1.41245 AU |
| evening rise     | 8526 Jun 17 19:14 | 10°♄19'36 |            |                  | 8527 May 19 05:35 | 0°♍       |            |
| asc. node        | 8526 Jun 17 17:19 | 10°♄10'15 |            |                  |                   |           |            |
|                  | 8526 Jun 28 18:45 | 0°♎       |            | superior conj    | 8527 May 21 16:11 | 4°♍17'08  | -1°49'20   |
| evening max el   | 8526 Jul 04 00:13 | 6°♎33'54  | 18°44'32   | minimum elong    | 8527 May 21 22:04 | 4°♍43'11  | 1°48'55    |
| retrograde       | 8526 Jul 12 05:11 | 10°♎38'10 |            | evening rise     | 8527 Jun 01 04:51 | 23°♍30'21 |            |
| evening set      | 8526 Jul 14 05:36 | 10°♎24'19 |            | asc. node        | 8527 Jun 04 14:21 | 29°♍46'56 |            |
| inferior conj    | 8526 Jul 22 05:41 | 6°♎02'30  | 0°02'20    |                  | 8527 Jun 04 17:12 | 0°♄       |            |
| minimum elong    | 8526 Jul 22 05:46 | 6°♎02'20  | 0°02'09    | evening max el   | 8527 Jun 17 07:58 | 19°♄12'30 | 18°15'03   |
| transit middle   | 8526 Jul 22 05:46 | 6°♎02'20  | 0°02'09    | retrograde       | 8527 Jun 24 11:05 | 22°♄47'43 |            |
| transit begin    | 8526 Jul 22 02:08 | 6°♎09'03  |            | evening set      | 8527 Jun 26 18:51 | 22°♄25'36 |            |
| transit end      | 8526 Jul 22 09:25 | 5°♎55'37  |            | inferior conj    | 8527 Jul 03 23:28 | 17°♄43'01 | 1°30'03    |
| desc. node       | 8526 Jul 22 08:47 | 5°♎56'47  |            | minimum elong    | 8527 Jul 04 02:08 | 17°♄37'16 | 1°28'59    |
| min. Earth dist. | 8526 Jul 25 10:33 | 3°♎41'55  | 0.57092 AU | min. Earth dist. | 8527 Jul 07 08:45 | 14°♄49'13 | 0.59180 AU |
| morning rise     | 8526 Jul 30 02:29 | 0°♎56'08  |            | desc. node       | 8527 Jul 09 05:49 | 13°♄22'32 |            |
|                  | 8526 Aug 01 18:53 | 30°♊♌     |            | morning rise     | 8527 Jul 11 06:17 | 12°♄04'31 |            |
| direct           | 8526 Aug 04 17:41 | 29°♄38'27 |            | direct           | 8527 Jul 17 13:36 | 10°♄15'50 |            |
|                  | 8526 Aug 07 17:04 | 0°♎       |            | morning max el   | 8527 Jul 31 22:30 | 18°♄04'32 | 27°29'18   |
| morning max el   | 8526 Aug 19 01:17 | 7°♎07'40  | 26°26'19   |                  | 8527 Aug 10 21:48 | 0°♎       |            |
|                  | 8526 Sep 05 01:12 | 0°♏       |            |                  | 8527 Aug 28 15:42 | 0°♏       |            |
| asc. node        | 8526 Sep 13 16:56 | 16°♏07'28 |            | asc. node        | 8527 Aug 31 13:51 | 5°♏57'08  |            |
| morning set      | 8526 Sep 16 22:26 | 22°♏50'02 |            | morning set      | 8527 Sep 01 06:03 | 7°♏21'47  |            |
|                  | 8526 Sep 20 05:54 | 0°♎       |            |                  |                   |           |            |
| superior conj    | 8526 Sep 23 20:08 | 7°♎56'47  | 1°26'49    | superior conj    | 8527 Sep 08 07:52 | 22°♏45'07 | 1°11'40    |
| minimum elong    | 8526 Sep 23 18:08 | 7°♎45'47  | 1°26'37    | minimum elong    | 8527 Sep 08 05:37 | 22°♏32'38 | 1°11'18    |
| max. Earth dist. | 8526 Sep 24 08:39 | 9°♎06'12  | 1.31806 AU | max. Earth dist. | 8527 Sep 07 18:54 | 21°♏33'13 | 1.31630 AU |
| evening rise     | 8526 Sep 30 17:39 | 22°♎56'58 |            | evening rise     | 8527 Sep 15 01:58 | 7°♎34'16  |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                  | 8527 Sep 26 15:59 | 0°♌       |            | evening rise        | 8528 Aug 29 12:53 | 22°♏15'45 |            |
| desc. node       | 8527 Oct 05 04:35 | 13°♌05'26 |            |                     | 8528 Sep 02 05:40 | 0°♏       |            |
| evening max el   | 8527 Oct 13 19:31 | 23°♌04'45 | 26°12'52   |                     | 8528 Sep 20 19:33 | 0°♌       |            |
|                  | 8527 Oct 25 18:45 | 0°♏       |            | desc. node          | 8528 Sep 21 01:41 | 0°♌17'39  |            |
| retrograde       | 8527 Oct 27 17:34 | 0°♏09'13  |            | evening max el      | 8528 Sep 24 10:35 | 3°♌50'21  | 24°49'27   |
|                  | 8527 Oct 29 16:06 | 30°♌      |            | retrograde          | 8528 Oct 08 06:31 | 10°♌48'10 |            |
| evening set      | 8527 Nov 03 05:44 | 28°♌27'11 |            | evening set         | 8528 Oct 13 17:57 | 9°♌40'51  |            |
| min. Earth dist. | 8527 Nov 07 08:35 | 25°♌52'40 | 0.58824 AU | min. Earth dist.    | 8528 Oct 18 21:49 | 6°♌56'11  | 0.56888 AU |
| inferior conj    | 8527 Nov 10 12:38 | 23°♌31'06 | -4°47'53   | inferior conj       | 8528 Oct 21 15:35 | 5°♌09'38  | -5°29'25   |
| minimum elong    | 8527 Nov 10 19:46 | 23°♌17'47 | 4°46'11    | minimum elong       | 8528 Oct 21 19:11 | 5°♌03'46  | 5°29'00    |
| morning rise     | 8527 Nov 18 12:06 | 19°♌01'39 |            | morning rise        | 8528 Oct 29 22:40 | 1°♌02'55  |            |
| direct           | 8527 Nov 20 18:16 | 18°♌44'24 |            | direct              | 8528 Nov 01 11:08 | 0°♌45'08  |            |
| asc. node        | 8527 Nov 27 13:30 | 21°♌31'32 |            | morning max el      | 8528 Nov 10 19:41 | 5°♌11'36  | 19°20'22   |
| morning max el   | 8527 Nov 28 20:37 | 22°♌41'06 | 18°28'19   | asc. node           | 8528 Nov 13 10:30 | 8°♌01'00  |            |
|                  | 8527 Dec 04 15:26 | 0°♏       |            |                     | 8528 Nov 26 13:24 | 0°♏       |            |
| morning set      | 8527 Dec 14 20:14 | 18°♏14'06 |            | morning set         | 8528 Nov 27 21:33 | 2°♏39'48  |            |
|                  | 8527 Dec 20 23:37 | 0°♏       |            |                     |                   |           |            |
| superior conj    | 8527 Dec 23 19:46 | 5°♏18'51  | 0°59'44    | superior conj       | 8528 Dec 05 23:49 | 18°♏46'07 | 1°21'35    |
| minimum elong    | 8527 Dec 23 23:09 | 5°♏34'28  | 0°59'28    | minimum elong       | 8528 Dec 06 02:45 | 19°♏00'21 | 1°21'28    |
| max. Earth dist. | 8527 Dec 31 06:55 | 18°♏40'21 | 1.40384 AU | max. Earth dist.    | 8528 Dec 11 22:13 | 0°♏       |            |
| desc. node       | 8528 Jan 01 03:36 | 20°♏09'23 |            | evening rise        | 8528 Dec 12 12:37 | 1°♏05'51  | 1.38205 AU |
| evening rise     | 8528 Jan 04 14:21 | 25°♏58'16 |            | desc. node          | 8528 Dec 16 06:19 | 7°♏46'21  |            |
|                  | 8528 Jan 07 01:16 | 0°♏       |            |                     | 8528 Dec 18 00:37 | 10°♏49'31 |            |
|                  | 8528 Jan 27 05:32 | 0°♏       |            | evening max el      | 8528 Dec 29 22:46 | 0°♏       |            |
| evening max el   | 8528 Feb 08 04:59 | 14°♏23'37 | 23°40'27   |                     | 8529 Jan 20 18:10 | 28°♏10'27 | 24°58'19   |
| retrograde       | 8528 Feb 19 00:03 | 20°♏45'34 |            |                     | 8529 Jan 22 16:53 | 0°♏       |            |
| asc. node        | 8528 Feb 23 12:33 | 19°♏06'47 |            | retrograde          | 8529 Feb 01 14:09 | 5°♏03'09  |            |
| evening set      | 8528 Feb 24 03:28 | 18°♏37'01 |            | evening set         | 8529 Feb 07 06:08 | 2°♏41'44  |            |
| min. Earth dist. | 8528 Feb 28 23:10 | 13°♏00'13 | 0.68316 AU | asc. node           | 8529 Feb 09 09:38 | 0°♏33'28  |            |
| inferior conj    | 8528 Feb 29 13:57 | 12°♏09'43 | 1°52'12    |                     | 8529 Feb 09 21:13 | 30°♏      |            |
| minimum elong    | 8528 Feb 29 11:49 | 12°♏16'58 | 1°51'33    | min. Earth dist.    | 8529 Feb 11 18:05 | 27°♏39'26 | 0.67779 AU |
| morning rise     | 8528 Mar 05 20:10 | 6°♏05'29  |            | inferior conj       | 8529 Feb 12 20:21 | 26°♏13'06 | 1°06'48    |
| direct           | 8528 Mar 09 23:41 | 4°♏28'49  |            | minimum elong       | 8529 Feb 12 18:51 | 26°♏18'05 | 1°06'20    |
| morning max el   | 8528 Mar 18 03:06 | 9°♏07'47  | 20°43'21   | morning rise        | 8529 Feb 18 07:49 | 20°♏16'12 |            |
| desc. node       | 8528 Mar 29 03:21 | 22°♏51'36 |            | direct              | 8529 Feb 21 22:39 | 19°♏01'01 |            |
|                  | 8528 Apr 03 02:49 | 0°♏       |            | morning max el      | 8529 Mar 01 05:00 | 23°♏03'34 | 19°35'59   |
| morning set      | 8528 Apr 16 17:01 | 20°♏32'51 |            |                     | 8529 Mar 07 01:53 | 0°♏       |            |
|                  | 8528 Apr 22 16:53 | 0°♏       |            | greatest brilliancy | 8529 Mar 13 22:21 | 9°♏41'09  | -0.7m      |
| max. Earth dist. | 8528 Apr 25 03:52 | 3°♏57'10  | 1.43198 AU | desc. node          | 8529 Mar 16 00:18 | 12°♏46'28 |            |
|                  |                   |           |            | morning set         | 8529 Mar 26 14:46 | 28°♏54'30 |            |
| superior conj    | 8528 May 01 21:19 | 15°♏02'26 | -2°07'51   |                     | 8529 Mar 27 07:46 | 0°♏       |            |
| minimum elong    | 8528 May 02 01:06 | 15°♏18'20 | 2°07'50    | max. Earth dist.    | 8529 Apr 07 16:21 | 17°♏43'47 | 1.44639 AU |
|                  | 8528 May 10 14:10 | 0°♏       |            |                     |                   |           |            |
| evening rise     | 8528 May 13 23:05 | 5°♏56'46  |            | superior conj       | 8529 Apr 12 01:48 | 24°♏44'11 | -2°11'03   |
| asc. node        | 8528 May 21 11:23 | 19°♏03'52 |            | minimum elong       | 8529 Apr 11 23:31 | 24°♏35'01 | 2°11'05    |
|                  | 8528 May 28 18:48 | 0°♏       |            |                     | 8529 Apr 15 07:58 | 0°♏       |            |
| evening max el   | 8528 May 30 20:12 | 2°♏16'48  | 18°05'12   | evening rise        | 8529 Apr 25 21:20 | 17°♏29'37 |            |
| retrograde       | 8528 Jun 06 09:10 | 5°♏38'49  |            |                     | 8529 May 03 08:27 | 0°♏       |            |
| evening set      | 8528 Jun 09 00:25 | 5°♏05'40  |            | asc. node           | 8529 May 08 08:27 | 7°♏54'44  |            |
| inferior conj    | 8528 Jun 15 12:40 | 0°♏03'05  | 2°29'57    | evening max el      | 8529 May 14 09:36 | 15°♏38'46 | 18°14'13   |
| minimum elong    | 8528 Jun 15 15:35 | 29°♏55'48 | 2°29'02    | retrograde          | 8529 May 20 18:48 | 19°♏02'04 |            |
|                  | 8528 Jun 15 13:54 | 30°♏      |            | evening set         | 8529 May 23 17:18 | 18°♏16'02 |            |
| min. Earth dist. | 8528 Jun 18 15:01 | 26°♏59'26 | 0.61429 AU | inferior conj       | 8529 May 29 17:14 | 12°♏55'12 | 3°05'16    |
| morning rise     | 8528 Jun 22 04:32 | 24°♏02'26 |            | minimum elong       | 8529 May 29 19:12 | 12°♏49'41 | 3°04'48    |
| desc. node       | 8528 Jun 25 02:53 | 22°♏27'54 |            | min. Earth dist.    | 8529 Jun 01 06:41 | 10°♏04'01 | 0.63566 AU |
| direct           | 8528 Jun 28 20:52 | 21°♏44'54 |            | morning rise        | 8529 Jun 04 19:46 | 6°♏42'23  |            |
| morning max el   | 8528 Jul 13 02:27 | 29°♏45'07 | 27°55'20   | direct              | 8529 Jun 11 13:40 | 4°♏04'21  |            |
|                  | 8528 Jul 13 08:24 | 0°♏       |            | desc. node          | 8529 Jun 11 23:56 | 4°♏04'57  |            |
|                  | 8528 Aug 03 22:15 | 0°♏       |            | morning max el      | 8529 Jun 25 11:06 | 12°♏06'53 | 27°43'25   |
| morning set      | 8528 Aug 15 08:52 | 21°♏36'32 |            |                     | 8529 Jul 09 16:13 | 0°♏       |            |
| asc. node        | 8528 Aug 17 10:47 | 25°♏56'33 |            | morning set         | 8529 Jul 30 04:37 | 5°♏28'11  |            |
|                  | 8528 Aug 19 08:29 | 0°♏       |            | max. Earth dist.    | 8529 Aug 04 05:38 | 15°♏50'15 | 1.32672 AU |
| max. Earth dist. | 8528 Aug 21 03:14 | 3°♏51'39  | 1.31914 AU | asc. node           | 8529 Aug 04 07:46 | 16°♏01'28 |            |
|                  |                   |           |            |                     |                   |           |            |
| superior conj    | 8528 Aug 22 18:10 | 7°♏25'00  | 0°51'43    | superior conj       | 8529 Aug 07 01:13 | 21°♏51'10 | 0°27'21    |
| minimum elong    | 8528 Aug 22 16:09 | 7°♏13'50  | 0°51'15    | minimum elong       | 8529 Aug 06 23:57 | 21°♏44'19 | 0°26'57    |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8529 Aug 10 19:21 | 0°♎       |            | superior conj       | 8530 Jul 22 02:50 | 5°♏57'24  | -0°00'49   |
| evening rise        | 8529 Aug 14 00:31 | 6°♎56'03  |            | minimum elong       | 8530 Jul 22 02:53 | 5°♏57'39  | 0°00'59    |
|                     | 8529 Aug 26 02:18 | 0°♏       |            | behind sun begin    | 8530 Jul 21 21:13 | 5°♏28'03  |            |
| evening max el      | 8529 Sep 05 21:44 | 14°♏05'07 | 23°11'12   | behind sun end      | 8530 Jul 22 08:32 | 6°♏27'19  |            |
| desc. node          | 8529 Sep 07 22:48 | 15°♏56'01 |            | asc. node           | 8530 Jul 22 04:46 | 6°♏07'35  |            |
| retrograde          | 8529 Sep 19 07:28 | 20°♏47'07 |            | evening rise        | 8530 Jul 29 10:58 | 21°♏29'16 |            |
| evening set         | 8529 Sep 23 07:18 | 20°♏12'16 |            |                     | 8530 Aug 02 14:38 | 0°♎       |            |
| min. Earth dist.    | 8529 Sep 30 06:56 | 16°♏59'11 | 0.55413 AU | evening max el      | 8530 Aug 18 13:44 | 24°♎24'18 | 21°34'52   |
| inferior conj       | 8529 Oct 01 22:55 | 16°♏00'56 | -5°30'28   | desc. node          | 8530 Aug 25 19:55 | 29°♎29'21 |            |
| minimum elong       | 8529 Oct 01 19:13 | 16°♏06'20 | 5°30'07    |                     | 8530 Aug 27 06:53 | 0°♏       |            |
| morning rise        | 8529 Oct 10 09:14 | 12°♏10'14 |            | retrograde          | 8530 Aug 30 21:47 | 0°♏31'22  |            |
| direct              | 8529 Oct 13 08:46 | 11°♏49'04 |            | evening set         | 8530 Sep 02 12:43 | 0°♏15'45  |            |
| morning max el      | 8529 Oct 24 06:18 | 16°♏55'30 | 20°34'48   |                     | 8530 Sep 03 15:41 | 30°♎♎     |            |
| asc. node           | 8529 Oct 31 07:29 | 25°♏32'40 |            | inferior conj       | 8530 Sep 11 17:15 | 26°♎17'36 | -4°36'40   |
|                     | 8529 Nov 03 02:39 | 0°♎       |            | minimum elong       | 8530 Sep 11 07:59 | 26°♎30'35 | 4°34'30    |
| morning set         | 8529 Nov 12 04:28 | 17°♎19'41 |            | min. Earth dist.    | 8530 Sep 11 15:31 | 26°♎20'02 | 0.54705 AU |
|                     | 8529 Nov 18 07:22 | 0°♎       |            | morning rise        | 8530 Sep 20 04:13 | 22°♎27'20 |            |
|                     |                   |           |            | direct              | 8530 Sep 23 18:30 | 21°♎59'11 |            |
| superior conj       | 8529 Nov 19 16:16 | 2°♎48'21  | 1°34'58    | morning max el      | 8530 Oct 06 04:16 | 27°♎51'38 | 22°09'06   |
| minimum elong       | 8529 Nov 19 18:03 | 2°♎57'23  | 1°35'01    |                     | 8530 Oct 08 07:16 | 0°♏       |            |
| max. Earth dist.    | 8529 Nov 24 20:00 | 13°♎03'13 | 1.36139 AU | asc. node           | 8530 Oct 18 04:29 | 13°♏52'32 |            |
| evening rise        | 8529 Nov 28 17:49 | 20°♎26'11 |            |                     | 8530 Oct 26 14:19 | 0°♎       |            |
|                     | 8529 Dec 04 02:38 | 0°♏       |            | morning set         | 8530 Oct 27 14:45 | 2°♎07'44  |            |
| desc. node          | 8529 Dec 04 21:38 | 1°♏21'20  |            |                     |                   |           |            |
|                     | 8529 Dec 23 22:28 | 0°♏       |            | superior conj       | 8530 Nov 03 17:26 | 17°♎14'58 | 1°40'48    |
| evening max el      | 8530 Jan 03 07:15 | 11°♏56'54 | 26°06'50   | minimum elong       | 8530 Nov 03 17:54 | 17°♎17'23 | 1°40'56    |
| retrograde          | 8530 Jan 15 23:24 | 19°♏09'02 |            | max. Earth dist.    | 8530 Nov 07 10:16 | 24°♎56'57 | 1.34379 AU |
| evening set         | 8530 Jan 22 03:45 | 16°♏38'00 |            |                     | 8530 Nov 09 22:27 | 0°♎       |            |
| min. Earth dist.    | 8530 Jan 26 09:05 | 12°♏10'14 | 0.66865 AU | evening rise        | 8530 Nov 11 21:06 | 3°♎48'25  |            |
| asc. node           | 8530 Jan 27 06:45 | 11°♏03'19 |            | desc. node          | 8530 Nov 21 18:41 | 21°♎40'06 |            |
| inferior conj       | 8530 Jan 27 22:50 | 10°♏13'18 | 0°13'22    |                     | 8530 Nov 26 22:35 | 0°♏       |            |
| minimum elong       | 8530 Jan 27 22:29 | 10°♏14'24 | 0°13'22    | evening max el      | 8530 Dec 16 20:36 | 25°♏36'39 | 26°58'32   |
| transit middle      | 8530 Jan 27 22:29 | 10°♏14'24 | 0°13'22    |                     | 8530 Dec 22 03:57 | 0°♏       |            |
| transit begin       | 8530 Jan 27 20:53 | 10°♏19'20 |            | retrograde          | 8530 Dec 30 02:56 | 2°♏56'32  |            |
| transit end         | 8530 Jan 28 00:04 | 10°♏09'28 |            | evening set         | 8531 Jan 05 18:21 | 0°♏20'54  |            |
| morning rise        | 8530 Feb 02 17:53 | 4°♏25'33  |            |                     | 8531 Jan 06 04:38 | 30°♎♏     |            |
| direct              | 8530 Feb 05 21:29 | 3°♏29'05  |            | min. Earth dist.    | 8531 Jan 09 17:55 | 26°♏27'15 | 0.65595 AU |
| morning max el      | 8530 Feb 12 14:15 | 7°♏07'31  | 18°44'00   | inferior conj       | 8531 Jan 11 19:15 | 24°♏06'05 | -0°47'28   |
|                     | 8530 Feb 28 23:00 | 0°♎       |            | minimum elong       | 8531 Jan 11 20:37 | 24°♏02'09 | 0°46'42    |
| desc. node          | 8530 Mar 02 21:13 | 3°♎00'34  |            | asc. node           | 8531 Jan 14 03:50 | 21°♏30'39 |            |
| morning set         | 8530 Mar 06 02:47 | 8°♎04'21  |            | morning rise        | 8531 Jan 18 00:04 | 18°♏29'56 |            |
|                     | 8530 Mar 20 02:57 | 0°♎       |            | direct              | 8531 Jan 20 18:16 | 17°♏48'32 |            |
| max. Earth dist.    | 8530 Mar 21 09:31 | 1°♎59'40  | 1.45419 AU | morning max el      | 8531 Jan 27 04:51 | 21°♏14'04 | 18°08'33   |
|                     |                   |           |            |                     | 8531 Feb 03 01:30 | 0°♏       |            |
| superior conj       | 8530 Mar 22 11:07 | 3°♎40'01  | -1°54'21   | morning set         | 8531 Feb 14 19:19 | 18°♏41'11 |            |
| minimum elong       | 8530 Mar 22 02:31 | 3°♎06'20  | 1°53'43    | desc. node          | 8531 Feb 17 18:10 | 23°♏28'42 |            |
| evening rise        | 8530 Apr 06 20:08 | 28°♎03'00 |            |                     | 8531 Feb 21 19:16 | 0°♎       |            |
|                     | 8530 Apr 08 01:16 | 0°♎       |            |                     |                   |           |            |
| greatest brilliancy | 8530 Apr 13 23:36 | 9°♎31'19  | -0.9m      | superior conj       | 8531 Mar 01 17:13 | 12°♎34'24 | -1°19'33   |
| asc. node           | 8530 Apr 25 05:33 | 26°♎10'25 |            | minimum elong       | 8531 Mar 01 08:25 | 11°♎59'43 | 1°18'27    |
| evening max el      | 8530 Apr 27 21:21 | 29°♎10'54 | 18°41'23   | max. Earth dist.    | 8531 Mar 04 05:04 | 16°♎29'28 | 1.45466 AU |
|                     | 8530 Apr 28 17:51 | 0°♎       |            |                     | 8531 Mar 12 20:55 | 0°♎       |            |
| retrograde          | 8530 May 04 11:42 | 2°♎48'23  |            | evening rise        | 8531 Mar 17 20:57 | 7°♎46'04  |            |
| evening set         | 8530 May 07 17:40 | 1°♎48'16  |            | greatest brilliancy | 8531 Mar 30 07:41 | 26°♎55'14 | -0.7m      |
|                     | 8530 May 09 23:56 | 30°♎♏     |            |                     | 8531 Apr 01 09:19 | 0°♎       |            |
| inferior conj       | 8530 May 13 09:06 | 26°♎10'48 | 3°20'59    | evening max el      | 8531 Apr 11 05:14 | 12°♎48'07 | 19°25'31   |
| minimum elong       | 8530 May 13 09:45 | 26°♎08'49 | 3°20'48    | asc. node           | 8531 Apr 12 02:40 | 13°♎40'08 |            |
| min. Earth dist.    | 8530 May 15 07:25 | 23°♎49'03 | 0.65400 AU | retrograde          | 8531 Apr 18 08:42 | 16°♎51'29 |            |
| morning rise        | 8530 May 19 01:07 | 19°♎53'04 |            | evening set         | 8531 Apr 21 22:42 | 15°♎36'28 |            |
| direct              | 8530 May 25 14:12 | 17°♎06'31 |            | inferior conj       | 8531 Apr 27 08:54 | 9°♎43'47  | 3°21'17    |
| desc. node          | 8530 May 29 20:58 | 18°♎06'23 |            | minimum elong       | 8531 Apr 27 08:18 | 9°♎45'42  | 3°21'08    |
| morning max el      | 8530 Jun 07 21:29 | 24°♎58'33 | 26°58'27   | min. Earth dist.    | 8531 Apr 28 16:02 | 8°♎01'46  | 0.66826 AU |
|                     | 8530 Jun 12 10:51 | 0°♎       |            | morning rise        | 8531 May 02 17:34 | 3°♎25'36  |            |
|                     | 8530 Jul 03 03:29 | 0°♏       |            | direct              | 8531 May 08 21:04 | 0°♎42'26  |            |
| morning set         | 8530 Jul 13 14:22 | 18°♏48'10 |            | desc. node          | 8531 May 16 17:58 | 4°♎03'00  |            |
| max. Earth dist.    | 8530 Jul 17 22:31 | 27°♏21'04 | 1.33918 AU | morning max el      | 8531 May 21 07:27 | 8°♎08'38  | 25°48'42   |
|                     | 8530 Jul 19 05:49 | 0°♏       |            |                     | 8531 Jun 07 09:18 | 0°♎       |            |



































































































































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|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8531 Jun 25 15:23 | 0°☿       |            | morning set      | 8532 Jun 07 11:21 | 13°♊09'04 |            |
| morning set      | 8531 Jun 26 10:14 | 1°☿26'01  |            | max. Earth dist. | 8532 Jun 11 02:56 | 19°♊37'38 | 1.37726 AU |
| max. Earth dist. | 8531 Jun 30 04:36 | 8°☿29'10  | 1.35639 AU |                  | 8532 Jun 16 17:06 | 0°☿       |            |
| superior conj    | 8531 Jul 05 20:22 | 19°☿36'29 | -0°31'45   | superior conj    | 8532 Jun 18 02:35 | 2°☿40'17  | -1°03'47   |
| minimum elong    | 8531 Jul 05 22:15 | 19°☿45'59 | 0°31'35    | minimum elong    | 8532 Jun 18 06:33 | 2°☿59'25  | 1°03'19    |
| asc. node        | 8531 Jul 09 01:45 | 26°☿10'46 |            | asc. node        | 8532 Jun 24 22:46 | 16°☿07'26 |            |
|                  | 8531 Jul 10 22:15 | 0°♊       |            | evening rise     | 8532 Jun 26 19:30 | 19°☿49'50 |            |
| evening rise     | 8531 Jul 13 18:07 | 5°♊49'26  |            |                  | 8532 Jul 02 01:29 | 0°♊       |            |
|                  | 8531 Jul 27 06:21 | 0°♊       |            | evening max el   | 8532 Jul 13 10:19 | 16°♊54'24 | 19°10'40   |
| evening max el   | 8531 Jul 31 17:28 | 5°♊16'52  | 20°12'47   | retrograde       | 8532 Jul 22 11:16 | 21°♊22'48 |            |
| retrograde       | 8531 Aug 11 10:34 | 10°♊34'28 |            | evening set      | 8532 Jul 24 08:38 | 21°♊11'53 |            |
| desc. node       | 8531 Aug 12 17:02 | 10°♊30'18 |            | desc. node       | 8532 Jul 29 14:07 | 19°♊04'37 |            |
| evening set      | 8531 Aug 13 09:10 | 10°♊24'48 |            | inferior conj    | 8532 Aug 01 19:57 | 17°♊00'24 | -0°59'41   |
| inferior conj    | 8531 Aug 22 11:37 | 6°♊26'36  | -2°56'04   | minimum elong    | 8532 Aug 01 17:20 | 17°♊04'49 | 0°58'48    |
| minimum elong    | 8531 Aug 22 03:43 | 6°♊38'16  | 2°53'23    | min. Earth dist. | 8532 Aug 04 14:58 | 15°♊08'03 | 0.56097 AU |
| min. Earth dist. | 8531 Aug 24 01:34 | 5°♊30'37  | 0.54945 AU | morning rise     | 8532 Aug 09 23:05 | 12°♊15'37 |            |
| morning rise     | 8531 Aug 30 21:11 | 2°♊16'43  |            | direct           | 8532 Aug 15 02:43 | 11°♊14'22 |            |
| direct           | 8531 Sep 04 05:06 | 1°♊36'12  |            | morning max el   | 8532 Aug 29 06:39 | 18°♊26'54 | 25°36'21   |
| morning max el   | 8531 Sep 17 17:53 | 8°♊12'30  | 23°54'40   |                  | 8532 Sep 07 22:25 | 0°♊       |            |
|                  | 8531 Oct 03 12:43 | 0°♊       |            | asc. node        | 8532 Sep 20 22:24 | 22°♊10'23 |            |
| asc. node        | 8531 Oct 05 01:27 | 2°♊48'08  |            |                  | 8532 Sep 24 18:12 | 0°♊       |            |
| morning set      | 8531 Oct 12 02:26 | 16°♊57'28 |            | morning set      | 8532 Sep 25 13:51 | 1°♊44'13  |            |
|                  | 8531 Oct 18 02:56 | 0°♊       |            |                  |                   |           |            |
| superior conj    | 8531 Oct 19 00:19 | 1°♊56'10  | 1°39'59    | superior conj    | 8532 Oct 02 10:38 | 16°♊45'02 | 1°33'12    |
| minimum elong    | 8531 Oct 18 23:35 | 1°♊52'12  | 1°40'03    | minimum elong    | 8532 Oct 02 09:00 | 16°♊36'02 | 1°33'08    |
| max. Earth dist. | 8531 Oct 21 08:59 | 7°♊01'19  | 1.33027 AU | max. Earth dist. | 8532 Oct 03 14:39 | 19°♊19'21 | 1.32123 AU |
| evening rise     | 8531 Oct 26 12:14 | 17°♊41'49 |            |                  | 8532 Oct 08 13:31 | 0°♊       |            |
|                  | 8531 Nov 01 21:57 | 0°♊       |            | evening rise     | 8532 Oct 09 12:05 | 1°♊57'54  |            |
| desc. node       | 8531 Nov 08 15:43 | 11°♊38'46 |            |                  | 8532 Oct 24 19:12 | 0°♊       |            |
|                  | 8531 Nov 21 07:50 | 0°♊       |            | desc. node       | 8532 Oct 25 12:47 | 1°♊08'59  |            |
| evening max el   | 8531 Nov 29 09:01 | 8°♊57'29  | 27°26'21   | evening max el   | 8532 Nov 10 18:12 | 21°♊45'59 | 27°24'09   |
| retrograde       | 8531 Dec 12 23:53 | 16°♊16'39 |            | retrograde       | 8532 Nov 24 13:41 | 29°♊00'31 |            |
| evening set      | 8531 Dec 19 23:28 | 13°♊43'19 |            | evening set      | 8532 Dec 01 16:00 | 26°♊38'32 |            |
| min. Earth dist. | 8531 Dec 23 18:14 | 10°♊22'11 | 0.63989 AU | min. Earth dist. | 8532 Dec 05 08:18 | 23°♊44'46 | 0.62097 AU |
| inferior conj    | 8531 Dec 26 07:01 | 7°♊44'37  | -1°54'28   | inferior conj    | 8532 Dec 08 07:09 | 21°♊01'28 | -3°04'55   |
| minimum elong    | 8531 Dec 26 10:35 | 7°♊35'20  | 1°52'49    | minimum elong    | 8532 Dec 08 13:02 | 20°♊47'53 | 3°02'37    |
| asc. node        | 8532 Jan 01 00:54 | 2°♊49'54  |            | morning rise     | 8532 Dec 15 12:15 | 15°♊58'10 |            |
| morning rise     | 8532 Jan 01 23:25 | 2°♊23'10  |            | direct           | 8532 Dec 17 18:26 | 15°♊35'42 |            |
| direct           | 8532 Jan 04 10:22 | 1°♊53'03  |            | asc. node        | 8532 Dec 17 21:57 | 15°♊35'48 |            |
| morning max el   | 8532 Jan 10 22:03 | 5°♊15'34  | 17°50'14   | morning max el   | 8532 Dec 24 14:44 | 19°♊04'23 | 17°49'47   |
|                  | 8532 Jan 27 06:29 | 0°♊       |            |                  | 8533 Jan 01 14:16 | 0°♊       |            |
| morning set      | 8532 Jan 27 15:50 | 0°♊39'52  |            | morning set      | 8533 Jan 09 10:11 | 13°♊40'43 |            |
| desc. node       | 8532 Feb 04 15:05 | 14°♊05'56 |            |                  | 8533 Jan 18 16:17 | 0°♊       |            |
| superior conj    | 8532 Feb 09 14:34 | 22°♊16'12 | -0°35'43   | superior conj    | 8533 Jan 20 12:51 | 3°♊10'37  | 0°07'08    |
| minimum elong    | 8532 Feb 09 10:35 | 22°♊00'01 | 0°35'01    | minimum elong    | 8533 Jan 20 13:32 | 3°♊13'30  | 0°07'13    |
|                  | 8532 Feb 14 10:07 | 0°♊       |            | behind sun begin | 8533 Jan 20 05:40 | 2°♊40'04  |            |
| max. Earth dist. | 8532 Feb 15 00:18 | 0°♊56'21  | 1.44774 AU | behind sun end   | 8533 Jan 20 21:23 | 3°♊46'52  |            |
| evening rise     | 8532 Feb 25 09:03 | 17°♊05'27 |            | desc. node       | 8533 Jan 21 11:59 | 4°♊48'39  |            |
|                  | 8532 Mar 04 21:12 | 0°♊       |            | max. Earth dist. | 8533 Jan 27 16:17 | 15°♊02'22 | 1.43426 AU |
| evening max el   | 8532 Mar 24 07:50 | 26°♊27'06 | 20°24'44   | evening rise     | 8533 Feb 03 23:26 | 26°♊38'15 |            |
| asc. node        | 8532 Mar 28 23:45 | 0°♊10'33  |            |                  | 8533 Feb 06 03:33 | 0°♊       |            |
|                  | 8532 Mar 28 16:08 | 0°♊       |            |                  | 8533 Feb 26 18:42 | 0°♊       |            |
| retrograde       | 8532 Apr 01 07:13 | 1°♊05'57  |            | evening max el   | 8533 Mar 07 04:49 | 10°♊06'32 | 21°35'51   |
|                  | 8532 Apr 04 16:30 | 30°♊♊     |            | asc. node        | 8533 Mar 15 20:52 | 15°♊26'05 |            |
| evening set      | 8532 Apr 05 06:12 | 29°♊35'41 |            | retrograde       | 8533 Mar 16 05:16 | 15°♊26'42 |            |
| inferior conj    | 8532 Apr 10 13:51 | 23°♊29'35 | 3°09'10    | evening set      | 8533 Mar 20 14:20 | 13°♊41'13 |            |
| minimum elong    | 8532 Apr 10 12:20 | 23°♊34'48 | 3°08'53    | inferior conj    | 8533 Mar 25 21:41 | 7°♊24'05  | 2°46'33    |
| min. Earth dist. | 8532 Apr 11 06:48 | 22°♊31'38 | 0.67799 AU | minimum elong    | 8533 Mar 25 19:35 | 7°♊31'23  | 2°46'03    |
| morning rise     | 8532 Apr 15 18:14 | 17°♊13'21 |            | min. Earth dist. | 8533 Mar 26 01:38 | 7°♊10'20  | 0.68328 AU |
| direct           | 8532 Apr 21 09:11 | 14°♊43'06 |            | morning rise     | 8533 Mar 31 00:40 | 1°♊11'22  |            |
| morning max el   | 8532 May 02 16:39 | 21°♊29'14 | 24°23'59   |                  | 8533 Apr 01 15:16 | 30°♊♊     |            |
| desc. node       | 8532 May 02 14:56 | 21°♊24'54 |            | direct           | 8533 Apr 05 01:46 | 29°♊00'02 |            |
|                  | 8532 May 10 01:38 | 0°♊       |            |                  | 8533 Apr 08 19:37 | 0°♊       |            |
|                  | 8532 May 30 15:25 | 0°♊       |            | morning max el   | 8533 Apr 15 02:40 | 4°♊56'41  | 22°54'08   |
|                  |                   |           |            | desc. node       | 8533 Apr 19 11:51 | 9°♊48'05  |            |



|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8533 May 04 08:23 | 0°♄       |            | desc. node       | 8534 Apr 06 08:46 | 28°♄56'04 |            |
| morning set      | 8533 May 19 12:07 | 23°♄42'19 |            |                  | 8534 Apr 07 03:49 | 0°♄       |            |
|                  | 8533 May 23 06:01 | 0°♄       |            |                  | 8534 Apr 27 11:45 | 0°♄       |            |
| max. Earth dist. | 8533 May 23 23:26 | 1°♄14'33  | 1.39975 AU | morning set      | 8534 Apr 29 09:24 | 2°♄59'50  |            |
|                  |                   |           |            | max. Earth dist. | 8534 May 06 00:16 | 13°♄41'15 | 1.42119 AU |
| superior conj    | 8533 May 31 17:16 | 14°♄57'44 | -1°34'10   |                  |                   |           |            |
| minimum elong    | 8533 May 31 22:54 | 15°♄23'31 | 1°33'39    | superior conj    | 8534 May 13 11:52 | 26°♄19'10 | -1°58'39   |
|                  | 8533 Jun 08 17:46 | 0°♄       |            | minimum elong    | 8534 May 13 17:20 | 26°♄42'49 | 1°58'25    |
| evening rise     | 8533 Jun 10 11:56 | 3°♄21'06  |            |                  | 8534 May 15 14:35 | 0°♄       |            |
| asc. node        | 8533 Jun 11 19:46 | 5°♄52'33  |            | evening rise     | 8534 May 24 15:33 | 16°♄13'55 |            |
| evening max el   | 8533 Jun 26 13:41 | 29°♄12'44 | 18°29'32   | asc. node        | 8534 May 29 16:48 | 25°♄21'26 |            |
|                  | 8533 Jun 27 09:55 | 0°♄       |            |                  | 8534 Jun 01 08:59 | 0°♄       |            |
| retrograde       | 8533 Jul 04 06:28 | 3°♄03'09  |            | evening max el   | 8534 Jun 09 23:47 | 12°♄03'13 | 18°08'35   |
| evening set      | 8533 Jul 06 09:42 | 2°♄46'19  |            | retrograde       | 8534 Jun 16 19:38 | 15°♄30'57 |            |
|                  | 8533 Jul 11 18:25 | 30°♄      |            | evening set      | 8534 Jun 19 06:32 | 15°♄04'32 |            |
| inferior conj    | 8533 Jul 14 01:17 | 28°♄15'39 | 0°42'54    | inferior conj    | 8534 Jun 26 03:46 | 10°♄13'36 | 1°58'43    |
| minimum elong    | 8533 Jul 14 02:48 | 28°♄12'40 | 0°42'10    | minimum elong    | 8534 Jun 26 06:45 | 10°♄06'43 | 1°57'38    |
| desc. node       | 8533 Jul 16 11:13 | 26°♄21'07 |            | min. Earth dist. | 8534 Jun 29 11:18 | 7°♄12'19  | 0.60133 AU |
| min. Earth dist. | 8533 Jul 17 09:38 | 25°♄38'15 | 0.57934 AU | morning rise     | 8534 Jul 03 04:08 | 4°♄24'13  |            |
| morning rise     | 8533 Jul 21 16:25 | 22°♄54'11 |            | desc. node       | 8534 Jul 03 08:17 | 4°♄17'52  |            |
| direct           | 8533 Jul 27 14:56 | 21°♄23'41 |            | direct           | 8534 Jul 09 16:18 | 2°♄22'11  |            |
| morning max el   | 8533 Aug 11 00:12 | 29°♄02'48 | 26°57'16   | morning max el   | 8534 Jul 24 00:23 | 10°♄17'37 | 27°45'00   |
|                  | 8533 Aug 11 23:10 | 0°♄       |            |                  | 8534 Aug 08 07:09 | 0°♄       |            |
|                  | 8533 Sep 01 17:10 | 0°♄       |            |                  | 8534 Aug 24 19:58 | 0°♄       |            |
| asc. node        | 8533 Sep 07 19:20 | 11°♄51'31 |            | morning set      | 8534 Aug 25 05:11 | 0°♄47'53  |            |
| morning set      | 8533 Sep 09 23:21 | 16°♄22'43 |            | asc. node        | 8534 Aug 25 16:16 | 1°♄45'48  |            |
|                  | 8533 Sep 16 05:14 | 0°♄       |            | max. Earth dist. | 8534 Aug 31 09:50 | 14°♄08'30 | 1.31690 AU |
| superior conj    | 8533 Sep 16 22:22 | 1°♄35'06  | 1°21'00    | superior conj    | 8534 Sep 01 09:45 | 16°♄20'40 | 1°03'47    |
| minimum elong    | 8533 Sep 16 20:13 | 1°♄23'09  | 1°20'44    | minimum elong    | 8534 Sep 01 07:32 | 16°♄08'24 | 1°03'21    |
| max. Earth dist. | 8533 Sep 17 00:07 | 1°♄44'46  | 1.31675 AU |                  | 8534 Sep 07 14:49 | 0°♄       |            |
| evening rise     | 8533 Sep 23 17:57 | 16°♄28'59 |            | evening rise     | 8534 Sep 08 03:36 | 1°♄08'40  |            |
|                  | 8533 Sep 30 11:03 | 0°♄       |            |                  | 8534 Sep 23 16:14 | 0°♄       |            |
| desc. node       | 8533 Oct 12 09:54 | 19°♄59'18 |            | desc. node       | 8534 Sep 29 07:01 | 7°♄53'38  |            |
|                  | 8533 Oct 20 04:33 | 0°♄       |            | evening max el   | 8534 Oct 05 17:14 | 15°♄04'14 | 25°40'15   |
| evening max el   | 8533 Oct 23 21:33 | 3°♄50'14  | 26°48'23   | retrograde       | 8534 Oct 19 15:27 | 22°♄06'43 |            |
| retrograde       | 8533 Nov 06 19:30 | 10°♄59'13 |            | evening set      | 8534 Oct 25 18:24 | 20°♄39'14 |            |
| evening set      | 8533 Nov 13 15:58 | 8°♄59'32  |            | min. Earth dist. | 8534 Oct 30 05:40 | 18°♄02'28 | 0.57959 AU |
| min. Earth dist. | 8533 Nov 17 11:43 | 6°♄22'25  | 0.60019 AU | inferior conj    | 8534 Nov 02 06:57 | 15°♄53'50 | -5°09'15   |
| inferior conj    | 8533 Nov 20 16:16 | 3°♄47'49  | -4°13'18   | minimum elong    | 8534 Nov 02 13:08 | 15°♄42'55 | 5°08'05    |
| minimum elong    | 8533 Nov 20 23:36 | 3°♄32'57  | 4°11'05    | morning rise     | 8534 Nov 10 10:12 | 11°♄34'12 |            |
|                  | 8533 Nov 26 02:39 | 30°♄      |            | direct           | 8534 Nov 12 18:12 | 11°♄17'12 |            |
| morning rise     | 8533 Nov 28 09:41 | 29°♄05'40 |            | morning max el   | 8534 Nov 21 08:40 | 15°♄25'51 | 18°47'42   |
| direct           | 8533 Nov 30 14:27 | 28°♄47'33 |            | asc. node        | 8534 Nov 21 15:57 | 15°♄43'40 |            |
| asc. node        | 8533 Dec 04 18:57 | 29°♄56'47 |            |                  | 8534 Dec 01 13:26 | 0°♄       |            |
|                  | 8533 Dec 04 21:16 | 0°♄       |            | morning set      | 8534 Dec 07 17:07 | 11°♄39'43 |            |
| morning max el   | 8533 Dec 08 03:32 | 2°♄31'29  | 18°08'24   |                  |                   |           |            |
| morning set      | 8533 Dec 23 20:16 | 27°♄25'39 |            | superior conj    | 8534 Dec 16 06:42 | 28°♄17'05 | 1°10'04    |
|                  | 8533 Dec 25 05:09 | 0°♄       |            | minimum elong    | 8534 Dec 16 10:01 | 28°♄32'46 | 1°09'51    |
| superior conj    | 8534 Jan 02 11:48 | 15°♄15'44 | 0°43'03    |                  | 8534 Dec 17 04:32 | 0°♄       |            |
| minimum elong    | 8534 Jan 02 14:48 | 15°♄29'13 | 0°42'48    | max. Earth dist. | 8534 Dec 23 09:52 | 11°♄20'24 | 1.39458 AU |
| desc. node       | 8534 Jan 08 08:57 | 25°♄33'39 |            | desc. node       | 8534 Dec 26 05:57 | 16°♄16'44 |            |
| max. Earth dist. | 8534 Jan 10 03:10 | 28°♄32'33 | 1.41580 AU | evening rise     | 8534 Dec 27 09:06 | 18°♄12'32 |            |
|                  | 8534 Jan 11 00:02 | 0°♄       |            |                  | 8535 Jan 03 13:59 | 0°♄       |            |
| evening rise     | 8534 Jan 15 05:30 | 6°♄56'32  |            |                  | 8535 Jan 24 17:10 | 0°♄       |            |
|                  | 8534 Jan 30 07:41 | 0°♄       |            | evening max el   | 8535 Jan 31 11:22 | 7°♄34'39  | 24°14'18   |
| evening max el   | 8534 Feb 17 21:21 | 23°♄48'44 | 22°54'17   | retrograde       | 8535 Feb 11 17:42 | 14°♄11'01 |            |
| retrograde       | 8534 Feb 28 01:13 | 29°♄50'06 |            | evening set      | 8535 Feb 17 02:18 | 11°♄57'00 |            |
| asc. node        | 8534 Mar 02 17:57 | 29°♄13'49 |            | asc. node        | 8535 Feb 17 15:03 | 11°♄28'34 |            |
| evening set      | 8534 Mar 04 21:33 | 27°♄49'50 |            | min. Earth dist. | 8535 Feb 21 18:38 | 6°♄34'36  | 0.68135 AU |
| inferior conj    | 8534 Mar 10 06:26 | 21°♄25'00 | 2°14'35    | inferior conj    | 8535 Feb 22 14:14 | 5°♄28'32  | 1°33'57    |
| minimum elong    | 8534 Mar 10 04:11 | 21°♄32'48 | 2°13'56    | minimum elong    | 8535 Feb 22 12:18 | 5°♄35'02  | 1°33'21    |
| min. Earth dist. | 8534 Mar 09 22:21 | 21°♄52'59 | 0.68435 AU |                  | 8535 Feb 27 06:01 | 30°♄      |            |
| morning rise     | 8534 Mar 15 10:42 | 15°♄17'03 |            | morning rise     | 8535 Feb 27 22:21 | 29°♄26'56 |            |
| direct           | 8534 Mar 19 21:54 | 13°♄27'33 |            | direct           | 8535 Mar 03 20:21 | 27°♄59'29 |            |
| morning max el   | 8534 Mar 28 16:45 | 18°♄33'21 | 21°28'11   |                  | 8535 Mar 08 20:59 | 0°♄       |            |
|                  |                   |           |            | morning max el   | 8535 Mar 11 13:53 | 2°♄21'39  | 20°12'48   |

|                  |                   |                           |            |                     |                   |                           |            |
|------------------|-------------------|---------------------------|------------|---------------------|-------------------|---------------------------|------------|
| desc. node       | 8535 Mar 24 05:42 | 18° $\text{X}$ 36'19      |            | greatest brilliancy | 8536 Mar 07 00:56 | 4° $\text{X}$ 00'47       | -0.7m      |
|                  | 8535 Mar 31 22:37 | 0° $\text{Y}$             |            | desc. node          | 8536 Mar 10 02:38 | 8° $\text{X}$ 40'05       |            |
| morning set      | 8535 Apr 08 09:54 | 11° $\text{Y}$ 23'51      |            | morning set         | 8536 Mar 17 10:58 | 19° $\text{X}$ 58'20      |            |
| max. Earth dist. | 8535 Apr 18 08:41 | 27° $\text{Y}$ 01'49      | 1.43887 AU |                     | 8536 Mar 23 22:03 | 0° $\text{Y}$             |            |
|                  | 8535 Apr 20 05:01 | 0° $\text{Z}$             |            | max. Earth dist.    | 8536 Mar 30 23:55 | 11° $\text{Y}$ 04'34      | 1.45066 AU |
| superior conj    | 8535 Apr 24 06:28 | 6° $\text{Z}$ 36'53       | -2°11'26   | superior conj       | 8536 Apr 03 01:27 | 15° $\text{Y}$ 55'01      | -2°06'29   |
| minimum elong    | 8535 Apr 24 08:06 | 6° $\text{Z}$ 43'35       | 2°11'32    | minimum elong       | 8536 Apr 02 20:05 | 15° $\text{Y}$ 33'43      | 2°06'17    |
| evening rise     | 8535 May 07 01:46 | 28° $\text{Z}$ 17'55      |            |                     | 8536 Apr 11 20:06 | 0° $\text{Z}$             |            |
|                  | 8535 May 08 01:20 | 0° $\text{II}$            |            | evening rise        | 8536 Apr 17 14:13 | 9° $\text{Z}$ 25'15       |            |
| asc. node        | 8535 May 16 13:52 | 14° $\text{II}$ 28'05     |            |                     | 8536 Apr 30 07:55 | 0° $\text{II}$            |            |
| evening max el   | 8535 May 24 12:57 | 25° $\text{II}$ 16'11     | 18°06'52   | asc. node           | 8536 May 02 10:58 | 3° $\text{II}$ 04'59      |            |
| retrograde       | 8535 May 30 23:00 | 28° $\text{II}$ 36'42     |            | evening max el      | 8536 May 07 01:58 | 8° $\text{II}$ 43'07      | 18°23'38   |
| evening set      | 8535 Jun 02 17:26 | 27° $\text{II}$ 58'10     |            | retrograde          | 8536 May 13 12:09 | 12° $\text{II}$ 10'42     |            |
| inferior conj    | 8535 Jun 08 23:57 | 22° $\text{II}$ 47'48     | 2°47'36    | evening set         | 8536 May 16 13:54 | 11° $\text{II}$ 18'36     |            |
| minimum elong    | 8535 Jun 09 02:34 | 22° $\text{II}$ 40'57     | 2°46'53    | inferior conj       | 8536 May 22 09:44 | 5° $\text{II}$ 50'20      | 3°14'03    |
| min. Earth dist. | 8535 Jun 11 21:23 | 19° $\text{II}$ 46'58     | 0.62367 AU | minimum elong       | 8536 May 22 11:09 | 5° $\text{II}$ 46'11      | 3°13'44    |
| morning rise     | 8535 Jun 15 09:53 | 16° $\text{II}$ 41'13     |            | min. Earth dist.    | 8536 May 24 16:46 | 3° $\text{II}$ 10'19      | 0.64392 AU |
| desc. node       | 8535 Jun 20 05:20 | 14° $\text{II}$ 25'22     |            |                     | 8536 May 27 19:35 | 30° $\text{R}$ $\text{Z}$ |            |
| direct           | 8535 Jun 22 03:59 | 14° $\text{II}$ 13'28     |            | morning rise        | 8536 May 28 07:26 | 29° $\text{Z}$ 34'56      |            |
| morning max el   | 8535 Jul 06 06:23 | 22° $\text{II}$ 15'38     | 27°54'43   | direct              | 8536 Jun 03 23:59 | 26° $\text{Z}$ 52'04      |            |
|                  | 8535 Jul 13 01:30 | 0° $\text{O}$             |            | desc. node          | 8536 Jun 06 02:22 | 27° $\text{Z}$ 06'24      |            |
|                  | 8535 Aug 01 11:30 | 0° $\text{Q}$             |            |                     | 8536 Jun 12 02:01 | 0° $\text{II}$            |            |
| morning set      | 8535 Aug 09 05:20 | 14° $\text{Q}$ 53'52      |            | morning max el      | 8536 Jun 17 16:00 | 4° $\text{II}$ 50'59      | 27°28'01   |
| asc. node        | 8535 Aug 12 13:14 | 21° $\text{Q}$ 48'21      |            |                     | 8536 Jul 06 16:56 | 0° $\text{O}$             |            |
| max. Earth dist. | 8535 Aug 14 16:03 | 26° $\text{Q}$ 19'42      | 1.32174 AU | morning set         | 8536 Jul 22 21:10 | 28° $\text{O}$ 32'40      |            |
|                  | 8535 Aug 16 08:41 | 0° $\text{P}$             |            |                     | 8536 Jul 23 14:52 | 0° $\text{Q}$             |            |
| superior conj    | 8535 Aug 16 18:57 | 0° $\text{P}$ 56'01       | 0°41'55    | max. Earth dist.    | 8536 Jul 27 14:54 | 8° $\text{Q}$ 07'28       | 1.33142 AU |
| minimum elong    | 8535 Aug 16 17:11 | 0° $\text{P}$ 46'19       | 0°41'27    | asc. node           | 8536 Jul 29 10:12 | 11° $\text{Q}$ 54'04      |            |
| evening rise     | 8535 Aug 23 15:05 | 15° $\text{P}$ 50'58      |            | superior conj       | 8536 Jul 30 23:56 | 15° $\text{Q}$ 14'11      | 0°15'51    |
|                  | 8535 Aug 30 14:17 | 0° $\text{A}$             |            | minimum elong       | 8536 Jul 30 23:09 | 15° $\text{Q}$ 10'02      | 0°15'31    |
| desc. node       | 8535 Sep 16 04:09 | 24° $\text{A}$ 30'18      |            | behind sun begin    | 8536 Jul 30 21:48 | 15° $\text{Q}$ 02'51      |            |
| evening max el   | 8535 Sep 17 06:08 | 25° $\text{A}$ 34'58      | 24°08'39   | behind sun end      | 8536 Jul 31 00:30 | 15° $\text{Q}$ 17'13      |            |
|                  | 8535 Sep 22 21:24 | 0° $\text{M}$             |            |                     | 8536 Aug 06 20:59 | 0° $\text{P}$             |            |
| retrograde       | 8535 Sep 30 23:08 | 2° $\text{M}$ 27'03       |            | evening rise        | 8536 Aug 07 02:26 | 0° $\text{P}$ 28'58       |            |
| evening set      | 8535 Oct 05 20:11 | 1° $\text{M}$ 34'46       |            |                     | 8536 Aug 23 17:15 | 0° $\text{A}$             |            |
|                  | 8535 Oct 09 08:57 | 30° $\text{R}$ $\text{A}$ |            | evening max el      | 8536 Aug 28 18:08 | 5° $\text{A}$ 46'36       | 22°29'08   |
| min. Earth dist. | 8535 Oct 11 16:51 | 28° $\text{A}$ 40'02      | 0.56188 AU | desc. node          | 8536 Sep 02 01:17 | 9° $\text{A}$ 19'34       |            |
| inferior conj    | 8535 Oct 14 01:23 | 27° $\text{A}$ 13'03      | -5°35'58   | retrograde          | 8536 Sep 10 18:32 | 12° $\text{A}$ 16'03      |            |
| minimum elong    | 8535 Oct 14 02:10 | 27° $\text{A}$ 11'51      | 5°35'52    | evening set         | 8536 Sep 14 03:25 | 11° $\text{A}$ 51'03      |            |
| morning rise     | 8535 Oct 22 10:15 | 23° $\text{A}$ 14'02      |            | min. Earth dist.    | 8536 Sep 22 00:58 | 8° $\text{A}$ 21'51       | 0.55007 AU |
| direct           | 8535 Oct 25 03:01 | 22° $\text{A}$ 55'03      |            | inferior conj       | 8536 Sep 23 01:53 | 7° $\text{A}$ 46'38       | -5°14'31   |
| morning max el   | 8535 Nov 04 02:39 | 27° $\text{A}$ 37'38      | 19°49'12   | minimum elong       | 8536 Sep 22 19:08 | 7° $\text{A}$ 56'10       | 5°13'31    |
|                  | 8535 Nov 06 08:57 | 0° $\text{M}$             |            | morning rise        | 8536 Oct 01 12:42 | 3° $\text{A}$ 58'51       |            |
| asc. node        | 8535 Nov 08 12:57 | 2° $\text{M}$ 41'52       |            | direct              | 8536 Oct 04 18:22 | 3° $\text{A}$ 35'09       |            |
| morning set      | 8535 Nov 21 21:12 | 26° $\text{M}$ 13'03      |            | morning max el      | 8536 Oct 16 07:33 | 9° $\text{A}$ 00'07       | 21°12'49   |
|                  | 8535 Nov 23 17:52 | 0° $\text{X}$             |            | asc. node           | 8536 Oct 25 09:57 | 20° $\text{A}$ 35'26      |            |
| superior conj    | 8535 Nov 29 16:34 | 12° $\text{X}$ 00'57      | 1°28'14    |                     | 8536 Oct 30 18:32 | 0° $\text{M}$             |            |
| minimum elong    | 8535 Nov 29 19:03 | 12° $\text{X}$ 13'18      | 1°28'11    | morning set         | 8536 Nov 05 05:49 | 10° $\text{M}$ 57'25      |            |
| max. Earth dist. | 8535 Dec 05 15:59 | 23° $\text{X}$ 33'10      | 1.37310 AU | superior conj       | 8536 Nov 12 13:07 | 26° $\text{M}$ 14'48      | 1°38'18    |
| evening rise     | 8535 Dec 09 09:54 | 0° $\text{Z}$ 24'24       |            | minimum elong       | 8536 Nov 12 14:20 | 26° $\text{M}$ 21'06      | 1°38'24    |
|                  | 8535 Dec 09 04:27 | 0° $\text{Z}$             |            |                     | 8536 Nov 14 08:57 | 0° $\text{X}$             |            |
| desc. node       | 8535 Dec 13 02:59 | 6° $\text{Z}$ 54'11       |            | max. Earth dist.    | 8536 Nov 17 02:10 | 5° $\text{X}$ 27'47       | 1.35350 AU |
|                  | 8535 Dec 27 19:40 | 0° $\text{A}$             |            | evening rise        | 8536 Nov 21 04:34 | 13° $\text{X}$ 23'16      |            |
| evening max el   | 8536 Jan 14 00:37 | 21° $\text{A}$ 22'45      | 25°29'00   | desc. node          | 8536 Nov 29 00:02 | 27° $\text{X}$ 21'18      |            |
| retrograde       | 8536 Jan 26 05:40 | 28° $\text{A}$ 24'16      |            |                     | 8536 Nov 30 13:53 | 0° $\text{Z}$             |            |
| evening set      | 8536 Feb 01 03:01 | 25° $\text{A}$ 58'30      |            |                     | 8536 Dec 21 17:57 | 0° $\text{A}$             |            |
| asc. node        | 8536 Feb 04 12:10 | 22° $\text{A}$ 25'42      |            | evening max el      | 8536 Dec 26 13:52 | 5° $\text{A}$ 07'33       | 26°31'11   |
| min. Earth dist. | 8536 Feb 05 12:10 | 21° $\text{A}$ 10'51      | 0.67445 AU | retrograde          | 8537 Jan 08 12:26 | 12° $\text{A}$ 23'43      |            |
| inferior conj    | 8536 Feb 06 19:13 | 19° $\text{A}$ 31'07      | 0°45'05    | evening set         | 8537 Jan 14 21:55 | 9° $\text{A}$ 49'49       |            |
| minimum elong    | 8536 Feb 06 18:08 | 19° $\text{A}$ 34'38      | 0°44'47    | min. Earth dist.    | 8537 Jan 19 00:40 | 5° $\text{A}$ 36'57       | 0.66375 AU |
| morning rise     | 8536 Feb 12 09:37 | 13° $\text{A}$ 37'45      |            | inferior conj       | 8537 Jan 20 19:24 | 3° $\text{A}$ 28'49       | -0°11'35   |
| direct           | 8536 Feb 15 19:35 | 12° $\text{A}$ 30'44      |            | minimum elong       | 8537 Jan 20 19:42 | 3° $\text{A}$ 27'53       | 0°11'17    |
| morning max el   | 8536 Feb 22 19:01 | 16° $\text{A}$ 21'09      | 19°11'48   | transit middle      | 8537 Jan 20 19:42 | 3° $\text{A}$ 27'53       | 0°11'17    |
|                  | 8536 Mar 04 08:11 | 0° $\text{X}$             |            | transit begin       | 8537 Jan 20 17:38 | 3° $\text{A}$ 34'06       |            |

|                     |                   |                       |                  |                     |                      |                       |
|---------------------|-------------------|-----------------------|------------------|---------------------|----------------------|-----------------------|
| transit end         | 8537 Jan 20 21:46 | 3° $\approx$ 21'40    | min. Earth dist. | 8538 Jan 02 06:02   | 19° $\approx$ 45'55  | 0.64950 AU            |
| asc. node           | 8537 Jan 21 09:15 | 2° $\approx$ 47'22    | inferior conj    | 8538 Jan 04 12:26   | 17° $\approx$ 16'18  | -1°15'15              |
|                     | 8537 Jan 23 21:53 | 30° $\approx$ 8'3     | minimum elong    | 8538 Jan 04 14:42   | 17° $\approx$ 10'04  | 1°14'07               |
| morning rise        | 8537 Jan 26 18:22 | 27° $\approx$ 345'54  | asc. node        | 8538 Jan 08 06:20   | 13° $\approx$ 30'50  |                       |
| direct              | 8537 Jan 29 17:48 | 26° $\approx$ 356'16  | morning rise     | 8538 Jan 10 22:02   | 11° $\approx$ 346'19 |                       |
|                     | 8537 Feb 04 19:27 | 0° $\approx$          | direct           | 8538 Jan 13 12:48   | 11° $\approx$ 310'20 |                       |
| morning max el      | 8537 Feb 05 06:55 | 0° $\approx$ 27'31    | 18°26'52         | morning max el      | 8538 Jan 19 23:03    | 14° $\approx$ 333'27  |
| desc. node          | 8537 Feb 24 23:33 | 29° $\approx$ 00'57   |                  |                     | 8538 Jan 30 23:57    | 0° $\approx$          |
| morning set         | 8537 Feb 25 10:27 | 29° $\approx$ 44'15   | morning set      | 8538 Feb 06 15:26   | 10° $\approx$ 57'47  |                       |
|                     | 8537 Feb 25 14:25 | 0° $\approx$          | desc. node       | 8538 Feb 11 20:28   | 19° $\approx$ 33'30  |                       |
|                     |                   |                       |                  | 8538 Feb 18 07:05   | 0° $\approx$         |                       |
| superior conj       | 8537 Mar 13 06:58 | 24° $\approx$ 43'48   | -1°41'21         | superior conj       | 8538 Feb 20 17:42    | 3° $\approx$ 53'55    |
| minimum elong       | 8537 Mar 12 21:23 | 24° $\approx$ 06'17   | 1°40'27          | minimum elong       | 8538 Feb 20 10:39    | 3° $\approx$ 25'53    |
| max. Earth dist.    | 8537 Mar 13 18:54 | 25° $\approx$ 30'28   | 1.45531 AU       | max. Earth dist.    | 8538 Feb 24 14:21    | 10° $\approx$ 00'11   |
|                     | 8537 Mar 16 15:47 | 0° $\approx$          |                  | evening rise        | 8538 Mar 08 20:55    | 29° $\approx$ 04'40   |
| evening rise        | 8537 Mar 29 03:09 | 19° $\approx$ 36'04   |                  |                     | 8538 Mar 09 11:18    | 0° $\approx$          |
|                     | 8537 Apr 04 17:14 | 0° $\approx$          |                  | greatest brilliancy | 8538 Mar 23 00:58    | 20° $\approx$ 34'51   |
| greatest brilliancy | 8537 Apr 07 18:28 | 4° $\approx$ 46'29    | -0.8m            |                     | 8538 Mar 29 17:36    | 0° $\approx$          |
| asc. node           | 8537 Apr 19 08:04 | 21° $\approx$ 02'59   |                  | evening max el      | 8538 Apr 03 17:53    | 5° $\approx$ 55'55    |
| evening max el      | 8537 Apr 20 12:15 | 22° $\approx$ 8'18'04 | 18°58'07         | asc. node           | 8538 Apr 06 05:11    | 8° $\approx$ 09'17    |
| retrograde          | 8537 Apr 27 07:18 | 26° $\approx$ 05'31   |                  | retrograde          | 8538 Apr 11 05:18    | 10° $\approx$ 8'13'52 |
| evening set         | 8537 Apr 30 16:35 | 24° $\approx$ 8'59'03 |                  | evening set         | 8538 Apr 14 22:53    | 8° $\approx$ 8'52'34  |
| inferior conj       | 8537 May 06 05:23 | 19° $\approx$ 8'14'37 | 3°22'48          | inferior conj       | 8538 Apr 20 07:41    | 2° $\approx$ 8'53'50  |
| minimum elong       | 8537 May 06 05:29 | 19° $\approx$ 8'14'18 | 3°22'39          | minimum elong       | 8538 Apr 20 06:40    | 2° $\approx$ 8'57'16  |
| min. Earth dist.    | 8537 May 07 21:05 | 17° $\approx$ 8'09'06 | 0.66056 AU       | min. Earth dist.    | 8538 Apr 21 08:41    | 1° $\approx$ 8'30'10  |
| morning rise        | 8537 May 11 17:53 | 12° $\approx$ 8'56'10 |                  |                     | 8538 Apr 22 12:21    | 30° $\approx$ 8'35'58 |
| direct              | 8537 May 18 03:10 | 10° $\approx$ 8'10'00 |                  | morning rise        | 8538 Apr 25 14:08    | 26° $\approx$ 35'58   |
| desc. node          | 8537 May 23 23:21 | 12° $\approx$ 8'01'05 |                  | direct              | 8538 May 01 12:28    | 23° $\approx$ 9'57'15 |
| morning max el      | 8537 May 31 02:39 | 17° $\approx$ 8'53'05 | 26°31'21         | desc. node          | 8538 May 10 20:18    | 28° $\approx$ 9'37'07 |
|                     | 8537 Jun 10 06:23 | 0° $\approx$          |                  |                     | 8538 May 12 08:24    | 0° $\approx$          |
|                     | 8537 Jun 29 15:57 | 0° $\approx$          |                  | morning max el      | 8538 May 13 12:20    | 1° $\approx$ 8'08'53  |
| morning set         | 8537 Jul 06 01:31 | 11° $\approx$ 36'14   |                  |                     | 8538 Jun 04 06:19    | 0° $\approx$          |
| max. Earth dist.    | 8537 Jul 10 03:27 | 19° $\approx$ 328'35  | 1.34598 AU       | morning set         | 8538 Jun 18 14:02    | 23° $\approx$ 1152'33 |
|                     |                   |                       |                  |                     | 8538 Jun 21 22:28    | 0° $\approx$          |
| superior conj       | 8537 Jul 14 22:25 | 29° $\approx$ 309'31  | -0°13'41         | max. Earth dist.    | 8538 Jun 22 05:18    | 0° $\approx$ 31'49    |
| minimum elong       | 8537 Jul 14 23:11 | 29° $\approx$ 13'31   | 0°13'43          |                     |                      | 1.36488 AU            |
| behind sun begin    | 8537 Jul 14 20:07 | 28° $\approx$ 357'37  |                  | superior conj       | 8538 Jun 28 11:31    | 12° $\approx$ 34'19   |
| behind sun end      | 8537 Jul 15 02:16 | 29° $\approx$ 329'26  |                  | minimum elong       | 8538 Jun 28 14:17    | 12° $\approx$ 348'01  |
|                     | 8537 Jul 15 08:11 | 0° $\approx$          |                  | asc. node           | 8538 Jul 03 04:13    | 22° $\approx$ 300'24  |
| asc. node           | 8537 Jul 16 07:12 | 1° $\approx$ 359'28   |                  | evening rise        | 8538 Jul 06 16:44    | 29° $\approx$ 309'42  |
| evening rise        | 8537 Jul 22 11:45 | 14° $\approx$ 357'26  |                  |                     | 8538 Jul 07 02:41    | 0° $\approx$          |
|                     | 8537 Jul 30 03:08 | 0° $\approx$          |                  | evening max el      | 8538 Jul 23 23:47    | 27° $\approx$ 827'42  |
| evening max el      | 8537 Aug 10 14:20 | 16° $\approx$ 16'12   | 20°57'38         |                     | 8538 Jul 27 00:09    | 0° $\approx$          |
| desc. node          | 8537 Aug 19 22:23 | 21° $\approx$ 150'05  |                  | retrograde          | 8538 Aug 02 23:34    | 2° $\approx$ 123'33   |
| retrograde          | 8537 Aug 22 07:03 | 22° $\approx$ 103'57  |                  | evening set         | 8538 Aug 04 19:59    | 2° $\approx$ 14'08    |
| evening set         | 8537 Aug 24 12:39 | 21° $\approx$ 152'06  |                  | desc. node          | 8538 Aug 06 19:27    | 1° $\approx$ 144'38   |
| inferior conj       | 8537 Sep 02 18:15 | 17° $\approx$ 155'19  | -3°58'12         |                     | 8538 Aug 10 16:27    | 30° $\approx$ 8'8     |
| minimum elong       | 8537 Sep 02 08:43 | 18° $\approx$ 108'49  | 3°55'27          | inferior conj       | 8538 Aug 13 17:09    | 28° $\approx$ 811'51  |
| min. Earth dist.    | 8537 Sep 03 09:48 | 17° $\approx$ 133'15  | 0.54685 AU       | minimum elong       | 8538 Aug 13 11:22    | 28° $\approx$ 820'49  |
| morning rise        | 8537 Sep 11 05:02 | 13° $\approx$ 159'14  |                  | min. Earth dist.    | 8538 Aug 15 21:25    | 26° $\approx$ 850'51  |
| direct              | 8537 Sep 15 02:12 | 13° $\approx$ 126'55  |                  | morning rise        | 8538 Aug 22 00:38    | 23° $\approx$ 847'49  |
| morning max el      | 8537 Sep 28 01:16 | 19° $\approx$ 138'38  | 22°53'31         | direct              | 8538 Aug 26 16:43    | 22° $\approx$ 859'29  |
|                     | 8537 Oct 06 15:30 | 0° $\approx$          |                  | morning max el      | 8538 Sep 09 13:40    | 29° $\approx$ 853'22  |
| asc. node           | 8537 Oct 12 06:54 | 9° $\approx$ 11'21    |                  |                     | 8538 Sep 09 16:28    | 0° $\approx$          |
| morning set         | 8537 Oct 20 16:52 | 25° $\approx$ 146'37  |                  | asc. node           | 8538 Sep 29 03:51    | 28° $\approx$ 19'22   |
|                     | 8537 Oct 22 16:26 | 0° $\approx$          |                  |                     | 8538 Sep 30 00:37    | 0° $\approx$          |
| superior conj       | 8537 Oct 27 17:01 | 10° $\approx$ 148'34  | 1°41'13          | morning set         | 8538 Oct 05 04:37    | 10° $\approx$ 135'47  |
| minimum elong       | 8537 Oct 27 16:57 | 10° $\approx$ 148'11  | 1°41'21          | superior conj       | 8538 Oct 12 01:37    | 25° $\approx$ 134'21  |
| max. Earth dist.    | 8537 Oct 30 19:50 | 17° $\approx$ 123'56  | 1.33745 AU       | minimum elong       | 8538 Oct 12 00:28    | 25° $\approx$ 128'02  |
| evening rise        | 8537 Nov 04 13:15 | 26° $\approx$ 159'29  |                  | max. Earth dist.    | 8538 Oct 13 21:32    | 29° $\approx$ 133'28  |
|                     | 8537 Nov 06 02:18 | 0° $\approx$          |                  |                     | 8538 Oct 14 02:27    | 0° $\approx$          |
| desc. node          | 8537 Nov 15 21:05 | 17° $\approx$ 132'25  |                  | evening rise        | 8538 Oct 19 08:27    | 11° $\approx$ 103'59  |
|                     | 8537 Nov 23 21:14 | 0° $\approx$          |                  |                     | 8538 Oct 29 08:40    | 0° $\approx$          |
| evening max el      | 8537 Dec 09 02:46 | 18° $\approx$ 340'01  | 27°13'37         | desc. node          | 8538 Nov 02 18:09    | 7° $\approx$ 120'34   |
| retrograde          | 8537 Dec 22 13:23 | 26° $\approx$ 301'06  |                  |                     | 8538 Nov 19 17:52    | 0° $\approx$          |
| evening set         | 8537 Dec 29 08:50 | 23° $\approx$ 325'06  |                  |                     |                      |                       |

|                  |                   |   |            |                  |                   |   |            |
|------------------|-------------------|---|------------|------------------|-------------------|---|------------|
| evening max el   | 8538 Nov 21 14:04 | 1°  49'17  | 27°29'28   | desc. node       | 8539 Oct 20 15:14 | 26°  35'35   |            |
| retrograde       | 8538 Dec 05 07:44 | 9°  07'37  |            |                  | 8539 Oct 22 22:41 | 0°   |            |
| evening set      | 8538 Dec 12 09:06 | 6°  37'55  |            | evening max el   | 8539 Nov 03 21:20 | 14°  21'15   | 27°13'17   |
| min. Earth dist. | 8538 Dec 16 02:20 | 3°  29'09  | 0.63206 AU | retrograde       | 8539 Nov 17 18:13 | 21°  32'57   |            |
| inferior conj    | 8538 Dec 18 19:41 | 0°  34'28  | -2°24'09   | evening set      | 8539 Nov 24 19:07 | 19°  19'32   |            |
| minimum elong    | 8538 Dec 19 00:16 | 0°  36'07  | 2°22'10    | min. Earth dist. | 8539 Nov 28 12:02 | 16°  34'11   | 0.61223 AU |
|                  | 8538 Dec 19 14:58 | 30°  R  |            | inferior conj    | 8539 Dec 01 13:53 | 13°  52'54   | -3°34'40   |
| morning rise     | 8538 Dec 25 17:26 | 25°  33'18   |            | minimum elong    | 8539 Dec 01 20:34 | 13°  38'15   | 3°32'16    |
| asc. node        | 8538 Dec 26 03:21 | 25°  32'57   |            | morning rise     | 8539 Dec 09 00:20 | 8°  57'53  |            |
| direct           | 8538 Dec 28 01:52 | 25°  37'00   |            | direct           | 8539 Dec 11 05:26 | 8°  37'37  |            |
| morning max el   | 8539 Jan 03 16:29 | 28°  31'27   | 17°47'47   | asc. node        | 8539 Dec 13 00:22 | 8°  51'20  |            |
|                  | 8539 Jan 05 01:39 | 0°   |            | morning max el   | 8539 Dec 18 07:53 | 12°  11'56   | 17°55'16   |
| morning set      | 8539 Jan 19 22:10 | 23°  26'18   |            |                  | 8539 Dec 30 05:55 | 0°   |            |
|                  | 8539 Jan 23 16:59 | 0°   |            | morning set      | 8540 Jan 02 23:56 | 6°  34'22  |            |
| desc. node       | 8539 Jan 29 17:24 | 10°  31'04   |            |                  |                   |   |            |
|                  |                   |   |            | superior conj    | 8540 Jan 13 10:27 | 25°  32'05   | 0°23'23    |
| superior conj    | 8539 Feb 01 01:18 | 14°  31'06   | -0°17'00   | minimum elong    | 8540 Jan 13 12:25 | 25°  34'07   | 0°23'16    |
| minimum elong    | 8539 Jan 31 23:31 | 13°  35'10   | 0°16'35    |                  | 8540 Jan 16 00:40 | 0°   |            |
| max. Earth dist. | 8539 Feb 07 08:03 | 24°  31'02   | 1.44276 AU | desc. node       | 8540 Jan 16 14:22 | 0°  58'20  |            |
|                  | 8539 Feb 10 22:03 | 0°   |            | max. Earth dist. | 8540 Jan 20 22:11 | 8°  12'19  | 1.42697 AU |
| evening rise     | 8539 Feb 16 08:09 | 8°  25'52  |            | evening rise     | 8540 Jan 27 04:03 | 18°  15'56   |            |
|                  | 8539 Mar 02 17:31 | 0°   |            |                  | 8540 Feb 03 18:43 | 0°   |            |
| evening max el   | 8539 Mar 17 18:07 | 19°  35'39   | 20°53'45   |                  | 8540 Feb 25 12:39 | 0°   |            |
| asc. node        | 8539 Mar 24 02:16 | 24°  10'00   |            | evening max el   | 8540 Feb 28 13:13 | 3°  17'13  | 22°08'37   |
| retrograde       | 8539 Mar 26 03:46 | 24°  31'38   |            | retrograde       | 8540 Mar 09 01:01 | 8°  54'33  |            |
| evening set      | 8539 Mar 30 06:51 | 22°  55'06   |            | asc. node        | 8540 Mar 09 23:21 | 8°  50'10  |            |
| inferior conj    | 8539 Apr 04 14:09 | 16°  44'09   | 3°00'46    | evening set      | 8540 Mar 13 14:48 | 7°  02'44  |            |
| minimum elong    | 8539 Apr 04 12:20 | 16°  50'26   | 3°00'23    | inferior conj    | 8540 Mar 18 22:37 | 0°  42'09  | 2°34'04    |
| min. Earth dist. | 8539 Apr 05 01:32 | 16°  04'49  | 0.68085 AU | minimum elong    | 8540 Mar 18 20:24 | 0°  49'52   | 2°33'30    |
| morning rise     | 8539 Apr 09 17:35 | 10°  09'06   |            | min. Earth dist. | 8540 Mar 18 21:24 | 0°  46'25  | 0.68434 AU |
| direct           | 8539 Apr 15 02:49 | 8°  06'03  |            |                  | 8540 Mar 19 10:45 | 30°  R  |            |
| morning max el   | 8539 Apr 25 21:21 | 14°  31'55   | 23°45'36   | morning rise     | 8540 Mar 24 01:51 | 24°  31'26   |            |
| desc. node       | 8539 Apr 27 17:15 | 16°  27'34   |            | direct           | 8540 Mar 28 21:07 | 22°  29'04   |            |
|                  | 8539 May 08 11:36 | 0°   |            | morning max el   | 8540 Apr 07 08:36 | 28°  03'00   | 22°16'35   |
|                  | 8539 May 28 04:18 | 0°   |            |                  | 8540 Apr 09 05:02 | 0°   |            |
| morning set      | 8539 May 31 05:24 | 5°  07'28  |            | desc. node       | 8540 Apr 13 14:12 | 5°  11'54  |            |
| max. Earth dist. | 8539 Jun 04 01:26 | 11°  46'38   | 1.38680 AU |                  | 8540 May 01 03:11 | 0°   |            |
|                  |                   |   |            | morning set      | 8540 May 10 18:33 | 15°  08'37   |            |
| superior conj    | 8539 Jun 11 11:40 | 25°  19'53   | -1°17'07   | max. Earth dist. | 8540 May 15 23:39 | 23°  45'32   | 1.40924 AU |
| minimum elong    | 8539 Jun 11 16:28 | 25°  42'29   | 1°16'35    |                  | 8540 May 19 15:21 | 0°   |            |
|                  | 8539 Jun 13 22:36 | 0°   |            |                  |                   |   |            |
| asc. node        | 8539 Jun 20 01:13 | 11°  52'46   |            | superior conj    | 8540 May 23 18:29 | 7°  15'47  | -1°45'35   |
| evening rise     | 8539 Jun 20 14:41 | 12°  58'32   |            | minimum elong    | 8540 May 24 00:23 | 7°  42'08  | 1°45'09    |
|                  | 8539 Jun 29 20:33 | 0°   |            | evening rise     | 8540 Jun 03 02:14 | 26°  15'25   |            |
| evening max el   | 8539 Jul 06 21:39 | 9°  02'43  | 18°50'42   |                  | 8540 Jun 05 02:23 | 0°   |            |
| retrograde       | 8539 Jul 15 07:23 | 13°  03'42   |            | asc. node        | 8540 Jun 05 22:15 | 1°  53'20'09   |            |
| evening set      | 8539 Jul 17 06:56 | 13°  02'10   |            | evening max el   | 8540 Jun 19 04:25 | 21°  57'57   | 18°18'11   |
| desc. node       | 8539 Jul 24 16:33 | 9°  33'12  |            | retrograde       | 8540 Jun 26 10:42 | 25°  56'39   |            |
| inferior conj    | 8539 Jul 25 09:59 | 9°  02'03  | -0°13'15   | evening set      | 8540 Jun 28 17:17 | 25°  16'00   |            |
| minimum elong    | 8539 Jul 25 09:26 | 9°  03'02  | 0°13'13    | inferior conj    | 8540 Jul 06 00:39 | 20°  56'22   | 1°18'31    |
| transit middle   | 8539 Jul 25 09:26 | 9°  03'02  | 0°13'13    | minimum elong    | 8540 Jul 06 03:05 | 20°  31'12   | 1°17'31    |
| transit begin    | 8539 Jul 25 07:19 | 9°  06'51  |            | min. Earth dist. | 8540 Jul 09 10:00 | 17°  56'12   | 0.58847 AU |
| transit end      | 8539 Jul 25 11:34 | 8°  05'13  |            | desc. node       | 8540 Jul 10 13:38 | 16°  52'52   |            |
| min. Earth dist. | 8539 Jul 28 12:51 | 6°  04'21  | 0.56813 AU | morning rise     | 8540 Jul 13 09:40 | 15°  50'15'59  |            |
| morning rise     | 8539 Aug 02 08:35 | 4°  01'20  |            | direct           | 8540 Jul 19 14:53 | 13°  58'09   |            |
| direct           | 8539 Aug 07 20:56 | 2°  04'06  |            | morning max el   | 8540 Aug 03 00:02 | 21°  54'25   | 27°22'11   |
| morning max el   | 8539 Aug 22 03:44 | 10°  01'30'08  | 26°14'14   |                  | 8540 Aug 10 18:02 | 0°   |            |
|                  | 8539 Sep 06 06:09 | 0°   |            |                  | 8540 Aug 29 02:44 | 0°   |            |
| asc. node        | 8539 Sep 16 00:47 | 17°  00'32   |            | asc. node        | 8540 Sep 01 21:45 | 7°  00'38'20   |            |
| morning set      | 8539 Sep 19 15:23 | 25°  00'19'30  |            | morning set      | 8540 Sep 02 23:34 | 9°  00'53'10   |            |
|                  | 8539 Sep 21 19:28 | 0°   |            | max. Earth dist. | 8540 Sep 09 15:28 | 24°  00'22'58  | 1.31629 AU |
|                  |                   |   |            |                  |                   |   |            |
| superior conj    | 8539 Sep 26 12:45 | 10°  02'43'30  | 1°28'40    | superior conj    | 8540 Sep 10 00:33 | 25°  00'13'23  | 1°14'18    |
| minimum elong    | 8539 Sep 26 10:50 | 10°  02'13'58  | 1°28'31    | minimum elong    | 8540 Sep 09 22:18 | 25°  00'00'57  | 1°13'57    |
| max. Earth dist. | 8539 Sep 27 05:13 | 11°  02'55'43  | 1.31873 AU |                  | 8540 Sep 12 04:12 | 0°   |            |
| evening rise     | 8539 Oct 03 11:09 | 25°  02'27'39  |            | evening rise     | 8540 Sep 16 18:55 | 10°  02'03'29  |            |
|                  | 8539 Oct 05 15:54 | 0°   |            |                  | 8540 Sep 26 22:58 | 0°   |            |

|                  |                   |                      |  |                     |                   |                      |
|------------------|-------------------|----------------------|--|---------------------|-------------------|----------------------|
| desc. node       | 8540 Oct 06 12:21 | 15°♄04'20            |  | 8541 Sep 03 17:20   | 0°♄               |                      |
| evening max el   | 8540 Oct 15 21:41 | 26°♄04'30 26°23'01   |  | 8541 Sep 21 09:17   | 0°♄               |                      |
|                  | 8540 Oct 20 17:52 | 0°♄                  |  | 8541 Sep 23 09:29   | 2°♄28'36          |                      |
| retrograde       | 8540 Oct 29 19:37 | 3°♄09'59             |  | evening max el      | 8541 Sep 27 13:49 | 6°♄57'01 25°03'14    |
| evening set      | 8540 Nov 05 10:26 | 1°♄23'02             |  | retrograde          | 8541 Oct 11 10:37 | 13°♄56'33            |
|                  | 8540 Nov 07 18:06 | 30°♄                 |  | evening set         | 8541 Oct 17 02:29 | 12°♄43'54            |
| min. Earth dist. | 8540 Nov 09 10:58 | 28°♄48'29 0.59133 AU |  | min. Earth dist.    | 8541 Oct 22 01:19 | 10°♄01'56 0.57150 AU |
| inferior conj    | 8540 Nov 12 15:31 | 26°♄23'01 -4°39'25   |  | inferior conj       | 8541 Oct 24 21:34 | 8°♄09'04 -5°25'20    |
| minimum elong    | 8540 Nov 12 22:49 | 26°♄09'06 4°37'31    |  | minimum elong       | 8541 Oct 25 02:00 | 8°♄01'43 5°24'45     |
| morning rise     | 8540 Nov 20 13:32 | 21°♄50'17            |  | morning rise        | 8541 Nov 02 03:50 | 3°♄59'16             |
| direct           | 8540 Nov 22 19:14 | 21°♄32'53            |  | direct              | 8541 Nov 04 14:55 | 3°♄41'50             |
| asc. node        | 8540 Nov 28 21:23 | 23°♄50'07            |  | morning max el      | 8541 Nov 13 18:36 | 8°♄03'22 19°11'13    |
| morning max el   | 8540 Nov 30 17:47 | 25°♄25'49 18°22'30   |  | asc. node           | 8541 Nov 15 18:24 | 10°♄09'14            |
|                  | 8540 Dec 04 14:52 | 0°♄                  |  |                     | 8541 Nov 28 00:15 | 0°♄                  |
| morning set      | 8540 Dec 16 15:03 | 20°♄47'00            |  | morning set         | 8541 Nov 30 15:20 | 5°♄10'20             |
|                  | 8540 Dec 21 11:00 | 0°♄                  |  |                     |                   |                      |
| superior conj    | 8540 Dec 25 18:28 | 8°♄02'37 0°55'38     |  | superior conj       | 8541 Dec 08 20:20 | 21°♄24'07 1°18'49    |
| minimum elong    | 8540 Dec 25 21:48 | 8°♄17'54 0°55'22     |  | minimum elong       | 8541 Dec 08 23:23 | 21°♄38'53 1°18'40    |
| desc. node       | 8541 Jan 02 11:21 | 21°♄42'49            |  |                     | 8541 Dec 13 09:21 | 0°♄                  |
| max. Earth dist. | 8541 Jan 02 07:31 | 21°♄26'22 1.40700 AU |  | max. Earth dist.    | 8541 Dec 15 13:16 | 3°♄57'22 1.38525 AU  |
| evening rise     | 8541 Jan 06 18:54 | 28°♄57'42            |  | evening rise        | 8541 Dec 19 07:45 | 10°♄38'03            |
|                  | 8541 Jan 07 10:04 | 0°♄                  |  | desc. node          | 8541 Dec 20 08:22 | 12°♄24'12            |
|                  | 8541 Jan 27 07:32 | 0°♄                  |  |                     | 8541 Dec 31 04:59 | 0°♄                  |
| evening max el   | 8541 Feb 10 04:25 | 17°♄00'52 23°28'30   |  |                     | 8542 Jan 22 22:44 | 0°♄                  |
| retrograde       | 8541 Feb 20 19:35 | 23°♄17'50            |  | evening max el      | 8542 Jan 23 17:45 | 0°♄47'43 24°47'07    |
| asc. node        | 8541 Feb 24 20:28 | 21°♄58'18            |  | retrograde          | 8542 Feb 04 10:25 | 7°♄36'49             |
| evening set      | 8541 Feb 25 21:11 | 21°♄11'17            |  | evening set         | 8542 Feb 10 00:27 | 5°♄17'14             |
| inferior conj    | 8541 Mar 03 07:11 | 14°♄44'26 1°58'22    |  | asc. node           | 8542 Feb 11 17:33 | 3°♄37'20             |
| minimum elong    | 8541 Mar 03 05:01 | 14°♄51'54 1°57'44    |  | min. Earth dist.    | 8542 Feb 14 13:28 | 0°♄09'41 0.67882 AU  |
| min. Earth dist. | 8541 Mar 02 18:06 | 15°♄29'21 0.68359 AU |  |                     | 8542 Feb 14 16:25 | 30°♄                 |
| morning rise     | 8541 Mar 08 12:50 | 8°♄39'16             |  | inferior conj       | 8542 Feb 15 14:02 | 28°♄48'22 1°14'13    |
| direct           | 8541 Mar 12 18:17 | 6°♄59'23             |  | minimum elong       | 8542 Feb 15 12:23 | 28°♄53'48 1°13'43    |
| morning max el   | 8541 Mar 21 01:33 | 11°♄45'00 20°54'37   |  | morning rise        | 8542 Feb 21 00:33 | 22°♄50'10            |
| desc. node       | 8541 Mar 31 11:08 | 24°♄34'55            |  | direct              | 8542 Feb 24 17:10 | 21°♄31'56            |
|                  | 8541 Apr 04 07:06 | 0°♄                  |  | morning max el      | 8542 Mar 04 02:15 | 25°♄39'20 19°45'03   |
| morning set      | 8541 Apr 20 05:23 | 23°♄58'47            |  |                     | 8542 Mar 07 22:55 | 0°♄                  |
|                  | 8541 Apr 24 01:04 | 0°♄                  |  | greatest brilliancy | 8542 Mar 16 20:58 | 12°♄17'04 -0.6m      |
| max. Earth dist. | 8541 Apr 28 04:13 | 6°♄38'31 1.42934 AU  |  | desc. node          | 8542 Mar 18 08:03 | 14°♄26'22            |
|                  |                   |                      |  |                     | 8542 Mar 28 14:55 | 0°♄                  |
| superior conj    | 8541 May 05 03:15 | 18°♄10'49 -2°05'52   |  | morning set         | 8542 Mar 30 03:04 | 2°♄18'59             |
| minimum elong    | 8541 May 05 07:37 | 18°♄29'18 2°05'49    |  | max. Earth dist.    | 8542 Apr 10 15:34 | 20°♄18'34 1.44466 AU |
|                  | 8541 May 11 23:39 | 0°♄                  |  |                     |                   |                      |
| evening rise     | 8541 May 16 23:07 | 8°♄49'27             |  | superior conj       | 8542 Apr 15 11:20 | 28°♄01'54 -2°11'48   |
| asc. node        | 8541 May 23 19:19 | 20°♄52'41            |  | minimum elong       | 8542 Apr 15 10:09 | 27°♄57'08 2°11'52    |
|                  | 8541 May 29 13:35 | 0°♄                  |  |                     | 8542 Apr 16 16:31 | 0°♄                  |
| evening max el   | 8541 Jun 02 16:12 | 4°♄58'56 18°05'26    |  | evening rise        | 8542 Apr 29 00:38 | 20°♄30'51            |
| retrograde       | 8541 Jun 09 06:41 | 8°♄22'07             |  |                     | 8542 May 04 15:06 | 0°♄                  |
| evening set      | 8541 Jun 11 20:45 | 7°♄50'50             |  | asc. node           | 8542 May 10 16:24 | 9°♄48'10             |
| inferior conj    | 8541 Jun 18 11:12 | 2°♄51'11 2°22'30     |  | evening max el      | 8542 May 17 05:38 | 18°♄18'59 18°11'41   |
| minimum elong    | 8541 Jun 18 14:12 | 2°♄43'53 2°21'32     |  | retrograde          | 8542 May 23 14:46 | 21°♄41'05            |
|                  | 8541 Jun 21 09:41 | 30°♄                 |  | evening set         | 8542 May 26 12:12 | 20°♄57'06            |
| min. Earth dist. | 8541 Jun 21 15:07 | 29°♄47'22 0.61095 AU |  | inferior conj       | 8542 Jun 01 13:44 | 15°♄39'03 3°01'14    |
| morning rise     | 8541 Jun 25 05:14 | 26°♄53'00            |  | minimum elong       | 8542 Jun 01 15:53 | 15°♄33'06 3°00'41    |
| desc. node       | 8541 Jun 27 10:42 | 25°♄38'10            |  | min. Earth dist.    | 8542 Jun 04 05:24 | 12°♄44'36 0.63268 AU |
| direct           | 8541 Jul 01 20:39 | 24°♄39'15            |  | morning rise        | 8542 Jun 07 18:05 | 9°♄27'30             |
|                  | 8541 Jul 13 06:29 | 0°♄                  |  | desc. node          | 8542 Jun 14 07:45 | 6°♄51'46             |
| morning max el   | 8541 Jul 16 03:10 | 2°♄38'44 27°53'53    |  | direct              | 8542 Jun 14 12:17 | 6°♄51'40             |
|                  | 8541 Aug 05 05:09 | 0°♄                  |  | morning max el      | 8542 Jun 28 11:12 | 14°♄54'42 27°47'23   |
| morning set      | 8541 Aug 18 03:15 | 24°♄11'00            |  |                     | 8542 Jul 10 17:40 | 0°♄                  |
| asc. node        | 8541 Aug 19 18:44 | 27°♄36'45            |  |                     | 8542 Jul 28 20:23 | 0°♄                  |
|                  | 8541 Aug 20 21:45 | 0°♄                  |  | morning set         | 8542 Aug 02 00:14 | 8°♄06'37             |
| max. Earth dist. | 8541 Aug 24 00:17 | 6°♄43'06 1.31839 AU  |  | asc. node           | 8542 Aug 06 15:42 | 17°♄41'15            |
|                  |                   |                      |  | max. Earth dist.    | 8542 Aug 07 03:41 | 18°♄44'43 1.32525 AU |
| superior conj    | 8541 Aug 25 11:13 | 9°♄54'58 0°55'03     |  |                     |                   |                      |
| minimum elong    | 8541 Aug 25 09:07 | 9°♄43'26 0°54'35     |  | superior conj       | 8542 Aug 09 18:53 | 24°♄23'47 0°31'20    |
| evening rise     | 8541 Sep 01 05:35 | 24°♄44'41            |  | minimum elong       | 8542 Aug 09 17:28 | 24°♄16'06 0°30'54    |
|                  |                   |                      |  |                     | 8542 Aug 12 08:44 | 0°♄                  |

|                  |                   |                     |            |                     |                   |                      |            |
|------------------|-------------------|---------------------|------------|---------------------|-------------------|----------------------|------------|
| evening rise     | 8542 Aug 16 17:13 | 9° $\cap$ 25'35     |            | asc. node           | 8543 Jul 24 12:41 | 7° $\Omega$ 47'49    |            |
|                  | 8542 Aug 27 06:27 | 0° $\Omega$         |            | evening rise        | 8543 Aug 01 03:59 | 24° $\Omega$ 00'49   |            |
| evening max el   | 8542 Sep 09 01:09 | 17° $\Omega$ 14'57  | 23°26'12   |                     | 8543 Aug 04 01:17 | 0° $\cap$            |            |
| desc. node       | 8542 Sep 10 06:36 | 18° $\Omega$ 23'22  |            | evening max el      | 8543 Aug 21 15:55 | 27° $\cap$ 31'44     | 21°48'32   |
| retrograde       | 8542 Sep 22 13:24 | 24° $\Omega$ 00'13  |            |                     | 8543 Aug 24 11:34 | 0° $\Omega$          |            |
| evening set      | 8542 Sep 26 18:41 | 23° $\Omega$ 21'18  |            | desc. node          | 8543 Aug 28 03:43 | 2° $\Omega$ 18'07    |            |
| min. Earth dist. | 8542 Oct 03 10:58 | 20° $\Omega$ 13'24  | 0.55586 AU | retrograde          | 8543 Sep 03 04:37 | 3° $\Omega$ 44'56    |            |
| inferior conj    | 8542 Oct 05 07:38 | 19° $\Omega$ 07'30  | -5°33'43   | evening set         | 8543 Sep 05 23:46 | 3° $\Omega$ 27'21    |            |
| minimum elong    | 8542 Oct 05 05:07 | 19° $\Omega$ 11'13  | 5°33'32    |                     | 8543 Sep 14 04:21 | 30° $\cap$ $\cap$    |            |
| morning rise     | 8542 Oct 13 17:39 | 15° $\Omega$ 14'59  |            | inferior conj       | 8543 Sep 15 03:12 | 29° $\cap$ 28'07     | -4°48'23   |
| direct           | 8542 Oct 16 15:14 | 14° $\Omega$ 54'30  |            | minimum elong       | 8543 Sep 14 18:21 | 29° $\cap$ 40'29     | 4°46'29    |
| morning max el   | 8542 Oct 27 07:10 | 19° $\Omega$ 54'48  | 20°22'20   | min. Earth dist.    | 8543 Sep 14 19:22 | 29° $\cap$ 39'04     | 0.54754 AU |
| asc. node        | 8542 Nov 02 15:24 | 27° $\Omega$ 32'44  |            | morning rise        | 8543 Sep 23 14:09 | 25° $\cap$ 39'08     |            |
|                  | 8542 Nov 04 06:17 | 0° $\cap$           |            | direct              | 8543 Sep 27 02:13 | 25° $\cap$ 12'14     |            |
| morning set      | 8542 Nov 14 21:36 | 19° $\cap$ 48'49    |            |                     | 8543 Oct 08 05:03 | 0° $\Omega$          |            |
|                  | 8542 Nov 19 20:07 | 0° $\times$         |            | morning max el      | 8543 Oct 09 06:46 | 0° $\Omega$ 57'30    | 21°54'01   |
|                  |                   |                     |            | asc. node           | 8543 Oct 20 12:22 | 15° $\Omega$ 46'16   |            |
| superior conj    | 8542 Nov 22 11:11 | 5° $\times$ 22'03   | 1°33'25    |                     | 8543 Oct 28 02:08 | 0° $\cap$            |            |
| minimum elong    | 8542 Nov 22 13:10 | 5° $\times$ 32'02   | 1°33'27    | morning set         | 8543 Oct 30 07:30 | 4° $\cap$ 36'12      |            |
| max. Earth dist. | 8542 Nov 27 20:04 | 15° $\times$ 57'50  | 1.36431 AU |                     |                   |                      |            |
| evening rise     | 8542 Dec 01 16:36 | 23° $\times$ 11'10  |            | superior conj       | 8543 Nov 06 11:14 | 19° $\cap$ 45'36     | 1°40'20    |
|                  | 8542 Dec 05 12:09 | 0° $\Sigma$         |            | minimum elong       | 8543 Nov 06 11:53 | 19° $\cap$ 49'03     | 1°40'29    |
| desc. node       | 8542 Dec 07 05:23 | 2° $\Sigma$ 57'50   |            | max. Earth dist.    | 8543 Nov 10 09:14 | 27° $\cap$ 51'27     | 1.34621 AU |
|                  | 8542 Dec 24 22:30 | 0° $\approx$        |            |                     | 8543 Nov 11 10:44 | 0° $\times$          |            |
| evening max el   | 8543 Jan 06 06:51 | 14° $\approx$ 35'00 | 25°57'31   | evening rise        | 8543 Nov 14 17:45 | 6° $\times$ 27'45    |            |
| retrograde       | 8543 Jan 18 20:24 | 21° $\approx$ 44'50 |            | desc. node          | 8543 Nov 24 02:26 | 23° $\times$ 19'07   |            |
| evening set      | 8543 Jan 24 22:54 | 19° $\approx$ 15'07 |            |                     | 8543 Nov 28 04:38 | 0° $\Sigma$          |            |
| min. Earth dist. | 8543 Jan 29 05:14 | 14° $\approx$ 42'05 | 0.67027 AU | evening max el      | 8543 Dec 19 20:15 | 28° $\Sigma$ 16'28   | 26°52'09   |
| asc. node        | 8543 Jan 29 14:39 | 14° $\approx$ 12'50 |            |                     | 8543 Dec 21 17:23 | 0° $\approx$         |            |
| inferior conj    | 8543 Jan 30 17:13 | 12° $\approx$ 49'29 | 0°21'59    | retrograde          | 8544 Jan 02 00:42 | 5° $\approx$ 35'21   |            |
| minimum elong    | 8543 Jan 30 16:39 | 12° $\approx$ 51'16 | 0°21'55    | evening set         | 8544 Jan 08 14:39 | 3° $\approx$ 00'06   |            |
| morning rise     | 8543 Feb 05 10:59 | 7° $\approx$ 00'05  |            |                     | 8544 Jan 11 18:03 | 30° $\cap$ $\Sigma$  |            |
| direct           | 8543 Feb 08 16:10 | 6° $\approx$ 00'58  |            | min. Earth dist.    | 8544 Jan 12 15:04 | 29° $\Sigma$ 01'28   | 0.65811 AU |
| morning max el   | 8543 Feb 15 10:26 | 9° $\approx$ 42'13  | 18°50'39   | inferior conj       | 8544 Jan 14 14:39 | 26° $\Sigma$ 43'32   | -0°37'47   |
|                  | 8543 Mar 02 05:12 | 0° $\times$         |            | minimum elong       | 8544 Jan 14 15:43 | 26° $\Sigma$ 40'24   | 0°37'09    |
| desc. node       | 8543 Mar 05 04:57 | 4° $\times$ 37'55   |            | asc. node           | 8544 Jan 16 11:43 | 24° $\Sigma$ 36'27   |            |
| morning set      | 8543 Mar 09 11:35 | 11° $\times$ 17'55  |            | morning rise        | 8544 Jan 20 17:53 | 21° $\Sigma$ 05'28   |            |
|                  | 8543 Mar 21 10:54 | 0° $\Upsilon$       |            | direct              | 8544 Jan 23 13:26 | 20° $\Sigma$ 22'00   |            |
| max. Earth dist. | 8543 Mar 24 08:07 | 4° $\Upsilon$ 31'00 | 1.45353 AU | morning max el      | 8544 Jan 30 00:21 | 23° $\Sigma$ 48'32   | 18°12'42   |
|                  |                   |                     |            |                     | 8544 Feb 04 02:34 | 0° $\approx$         |            |
| superior conj    | 8543 Mar 25 22:42 | 7° $\Upsilon$ 02'23 | -1°58'10   | morning set         | 8544 Feb 17 23:35 | 21° $\approx$ 41'13  |            |
| minimum elong    | 8543 Mar 25 14:46 | 6° $\Upsilon$ 31'16 | 1°57'40    | desc. node          | 8544 Feb 20 01:51 | 25° $\approx$ 04'07  |            |
|                  | 8543 Apr 09 08:53 | 0° $\Sigma$         |            |                     | 8544 Feb 23 03:29 | 0° $\times$          |            |
| evening rise     | 8543 Apr 10 02:55 | 1° $\Sigma$ 12'49   |            |                     |                   |                      |            |
| asc. node        | 8543 Apr 27 13:29 | 28° $\Sigma$ 10'00  |            | superior conj       | 8544 Mar 04 03:53 | 15° $\times$ 53'00   | -1°25'38   |
|                  | 8543 Apr 29 01:17 | 0° $\cap$           |            | minimum elong       | 8544 Mar 03 18:39 | 15° $\times$ 16'45   | 1°24'34    |
| evening max el   | 8543 Apr 30 17:48 | 1° $\cap$ 50'19     | 18°36'14   | max. Earth dist.    | 8544 Mar 06 03:42 | 19° $\times$ 00'33   | 1.45508 AU |
| retrograde       | 8543 May 07 06:47 | 5° $\cap$ 24'44     |            |                     | 8544 Mar 13 04:36 | 0° $\Upsilon$        |            |
| evening set      | 8543 May 10 11:38 | 4° $\cap$ 26'42     |            | evening rise        | 8544 Mar 20 06:33 | 11° $\Upsilon$ 01'58 |            |
|                  | 8543 May 15 05:19 | 30° $\cap$ $\Sigma$ |            | greatest brilliancy | 8544 Apr 01 00:47 | 29° $\Upsilon$ 13'40 | -0.7m      |
| inferior conj    | 8543 May 16 04:07 | 28° $\Sigma$ 51'39  | 3°19'39    |                     | 8544 Apr 01 13:02 | 0° $\Sigma$          |            |
| minimum elong    | 8543 May 16 04:58 | 28° $\Sigma$ 49'04  | 3°19'26    | evening max el      | 8544 Apr 13 02:20 | 15° $\Sigma$ 27'01   | 19°17'57   |
| min. Earth dist. | 8543 May 18 04:44 | 26° $\Sigma$ 24'47  | 0.65153 AU | asc. node           | 8544 Apr 13 10:34 | 15° $\Sigma$ 47'31   |            |
| morning rise     | 8543 May 21 21:32 | 22° $\Sigma$ 34'28  |            | retrograde          | 8544 Apr 20 03:19 | 19° $\Sigma$ 25'49   |            |
| direct           | 8543 May 28 11:44 | 19° $\Sigma$ 48'26  |            | evening set         | 8544 Apr 23 16:07 | 18° $\Sigma$ 12'57   |            |
| desc. node       | 8543 Jun 01 04:44 | 20° $\Sigma$ 33'21  |            | inferior conj       | 8544 Apr 29 02:53 | 12° $\Sigma$ 22'21   | 3°22'06    |
| morning max el   | 8543 Jun 10 21:22 | 27° $\Sigma$ 42'35  | 27°06'59   | minimum elong       | 8544 Apr 29 02:29 | 12° $\Sigma$ 23'41   | 3°21'57    |
|                  | 8543 Jun 13 01:23 | 0° $\cap$           |            | min. Earth dist.    | 8544 Apr 30 12:12 | 10° $\Sigma$ 34'10   | 0.66639 AU |
|                  | 8543 Jul 04 10:57 | 0° $\Sigma$         |            | morning rise        | 8544 May 04 12:28 | 6° $\Sigma$ 04'05    |            |
| morning set      | 8543 Jul 16 11:41 | 21° $\Sigma$ 32'17  |            | direct              | 8544 May 10 17:34 | 3° $\Sigma$ 19'56    |            |
|                  | 8543 Jul 20 18:10 | 0° $\Omega$         |            | desc. node          | 8544 May 18 01:41 | 6° $\Sigma$ 14'34    |            |
| max. Earth dist. | 8543 Jul 20 22:10 | 0° $\Omega$ 20'18   | 1.33701 AU | morning max el      | 8544 May 23 07:30 | 10° $\Sigma$ 50'45   | 26°00'22   |
|                  |                   |                     |            |                     | 8544 Jun 07 12:40 | 0° $\cap$            |            |
| superior conj    | 8543 Jul 24 21:28 | 8° $\Omega$ 33'56   | 0°03'42    |                     | 8544 Jun 26 01:26 | 0° $\Sigma$          |            |
| minimum elong    | 8543 Jul 24 21:17 | 8° $\Omega$ 32'59   | 0°03'30    | morning set         | 8544 Jun 28 09:51 | 4° $\Sigma$ 17'07    |            |
| behind sun begin | 8543 Jul 24 15:47 | 8° $\Omega$ 04'04   |            | max. Earth dist.    | 8544 Jul 02 06:00 | 11° $\Sigma$ 32'00   | 1.35357 AU |
| behind sun end   | 8543 Jul 25 02:47 | 9° $\Omega$ 01'56   |            |                     |                   |                      |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj    | 8544 Jul 07 16:22 | 22°☿17'34 | -0°26'56   | superior conj    | 8545 Jun 21 00:26 | 5°☿26'50  | -0°58'58   |
| minimum elong    | 8544 Jul 07 17:56 | 22°☿25'35 | 0°26'48    | minimum elong    | 8545 Jun 21 04:06 | 5°☿44'37  | 0°58'31    |
| asc. node        | 8544 Jul 10 09:40 | 27°☿51'52 |            | asc. node        | 8545 Jun 27 06:41 | 17°☿49'48 |            |
|                  | 8544 Jul 11 10:28 | 0°♌       |            | evening rise     | 8545 Jun 29 14:09 | 22°☿27'08 |            |
| evening rise     | 8544 Jul 15 11:45 | 8°♌23'30  |            |                  | 8545 Jul 03 10:21 | 0°♌       |            |
|                  | 8544 Jul 27 03:58 | 0°♍       |            | evening max el   | 8545 Jul 16 08:32 | 19°♌48'19 | 19°18'35   |
| evening max el   | 8544 Aug 02 17:35 | 8°♍17'48  | 20°23'46   | retrograde       | 8545 Jul 25 15:16 | 24°♌23'42 |            |
| retrograde       | 8544 Aug 13 16:51 | 13°♍43'22 |            | evening set      | 8545 Jul 27 12:04 | 24°♌13'21 |            |
| desc. node       | 8544 Aug 14 00:49 | 13°♍43'05 |            | desc. node       | 8545 Jul 31 21:53 | 22°♌36'46 |            |
| evening set      | 8544 Aug 15 16:48 | 13°♍33'21 |            | inferior conj    | 8545 Aug 05 02:07 | 20°♌04'25 | -1°16'55   |
| inferior conj    | 8544 Aug 24 20:32 | 9°♍35'53  | -3°13'09   | minimum elong    | 8545 Aug 04 22:42 | 20°♌10'04 | 1°15'44    |
| minimum elong    | 8544 Aug 24 12:02 | 9°♍48'16  | 3°10'22    | min. Earth dist. | 8545 Aug 07 17:45 | 18°♌19'56 | 0.55874 AU |
| min. Earth dist. | 8544 Aug 26 04:52 | 8°♍48'48  | 0.54850 AU | morning rise     | 8545 Aug 13 06:33 | 15°♌25'04 |            |
| morning rise     | 8544 Sep 02 06:34 | 5°♍30'16  |            | direct           | 8545 Aug 18 07:07 | 14°♌27'29 |            |
| direct           | 8544 Sep 06 11:38 | 4°♍52'11  |            | morning max el   | 8545 Sep 01 09:42 | 21°♌35'35 | 25°22'10   |
| morning max el   | 8544 Sep 19 21:11 | 11°♍22'02 | 23°38'47   |                  | 8545 Sep 08 18:21 | 0°♍       |            |
|                  | 8544 Oct 03 19:12 | 0°♎       |            | asc. node        | 8545 Sep 23 06:17 | 23°♍55'37 |            |
| asc. node        | 8544 Oct 06 09:20 | 4°♎36'59  |            |                  | 8545 Sep 26 06:26 | 0°♎       |            |
| morning set      | 8544 Oct 13 19:05 | 19°♎26'01 |            | morning set      | 8545 Sep 28 06:38 | 4°♎13'27  |            |
|                  | 8544 Oct 18 16:33 | 0°♏       |            |                  |                   |           |            |
| superior conj    | 8544 Oct 20 17:25 | 4°♏25'04  | 1°40'30    | superior conj    | 8545 Oct 05 03:21 | 19°♎13'16 | 1°34'36    |
| minimum elong    | 8544 Oct 20 16:51 | 4°♏22'01  | 1°40'35    | minimum elong    | 8545 Oct 05 01:50 | 19°♎04'54 | 1°34'33    |
| max. Earth dist. | 8544 Oct 23 06:44 | 9°♏53'50  | 1.33201 AU | max. Earth dist. | 8545 Oct 06 11:26 | 22°♎09'26 | 1.32226 AU |
| evening rise     | 8544 Oct 28 07:20 | 20°♏16'52 |            |                  | 8545 Oct 10 02:33 | 0°♏       |            |
|                  | 8544 Nov 02 08:07 | 0°♐       |            | evening rise     | 8545 Oct 12 06:03 | 4°♏30'00  |            |
| desc. node       | 8544 Nov 09 23:31 | 13°♐21'27 |            |                  | 8545 Oct 26 00:26 | 0°♐       |            |
|                  | 8544 Nov 21 04:57 | 0°♑       |            | desc. node       | 8545 Oct 27 20:36 | 2°♐56'44  |            |
| evening max el   | 8544 Dec 01 08:51 | 11°♑40'46 | 27°23'56   | evening max el   | 8545 Nov 13 18:34 | 24°♐34'39 | 27°26'34   |
| retrograde       | 8544 Dec 14 22:37 | 19°♑00'26 |            |                  | 8545 Nov 20 23:38 | 0°♑       |            |
| evening set      | 8544 Dec 21 21:21 | 16°♑26'04 |            | retrograde       | 8545 Nov 27 13:42 | 1°♑50'32  |            |
| min. Earth dist. | 8544 Dec 25 16:41 | 13°♑00'29 | 0.64249 AU |                  | 8545 Dec 03 18:35 | 30°♑♈     |            |
| inferior conj    | 8544 Dec 28 03:52 | 10°♑24'41 | -1°43'59   | evening set      | 8545 Dec 04 16:02 | 29°♐26'08 |            |
| minimum elong    | 8544 Dec 28 07:05 | 10°♑16'11 | 1°42'28    | min. Earth dist. | 8545 Dec 08 08:22 | 26°♐28'50 | 0.62388 AU |
| asc. node        | 8545 Jan 02 08:46 | 5°♑45'05  |            | inferior conj    | 8545 Dec 11 05:57 | 23°♐45'24 | -2°54'14   |
| morning rise     | 8545 Jan 03 18:29 | 5°♑00'59  |            | minimum elong    | 8545 Dec 11 11:30 | 23°♐32'19 | 2°52'00    |
| direct           | 8545 Jan 06 06:21 | 4°♑29'26  |            | morning rise     | 8545 Dec 18 09:09 | 18°♐39'20 |            |
| morning max el   | 8545 Jan 12 17:23 | 7°♑51'41  | 17°51'53   | asc. node        | 8545 Dec 20 05:48 | 18°♐16'50 |            |
|                  | 8545 Jan 27 14:51 | 0°♒       |            | direct           | 8545 Dec 20 15:48 | 18°♐16'02 |            |
| morning set      | 8545 Jan 29 16:18 | 3°♒29'10  |            | morning max el   | 8545 Dec 27 10:25 | 21°♐43'20 | 17°48'44   |
| desc. node       | 8545 Feb 05 22:48 | 15°♒40'34 |            |                  | 8546 Jan 02 18:30 | 0°♑       |            |
|                  |                   |           |            | morning set      | 8546 Jan 12 07:53 | 16°♑22'20 |            |
| superior conj    | 8545 Feb 11 22:08 | 25°♒25'57 | -0°42'30   |                  | 8546 Jan 20 01:57 | 0°♒       |            |
| minimum elong    | 8545 Feb 11 17:19 | 25°♒06'32 | 0°41'41    | superior conj    | 8546 Jan 23 16:39 | 6°♒09'49  | 0°00'58    |
|                  | 8545 Feb 14 18:29 | 0°♓       |            | minimum elong    | 8546 Jan 23 16:45 | 6°♒10'16  | 0°01'08    |
| max. Earth dist. | 8545 Feb 16 23:19 | 3°♓29'45  | 1.44919 AU | behind sun begin | 8546 Jan 23 07:52 | 5°♒32'47  |            |
| evening rise     | 8545 Feb 27 19:42 | 20°♓22'57 |            | behind sun end   | 8546 Jan 24 01:37 | 6°♒47'40  |            |
|                  | 8545 Mar 06 03:10 | 0°♈       |            | desc. node       | 8546 Jan 23 19:47 | 6°♒23'03  |            |
| evening max el   | 8545 Mar 27 05:43 | 29°♈05'45 | 20°15'03   | max. Earth dist. | 8546 Jan 30 15:40 | 17°♒39'11 | 1.43661 AU |
|                  | 8545 Mar 28 03:51 | 0°♉       |            | evening rise     | 8546 Feb 07 08:50 | 29°♒51'42 |            |
| asc. node        | 8545 Mar 31 07:39 | 2°♉27'56  |            |                  | 8546 Feb 07 10:58 | 0°♉       |            |
| retrograde       | 8545 Apr 04 01:49 | 3°♉39'03  |            |                  | 8546 Feb 27 19:17 | 0°♈       |            |
| evening set      | 8545 Apr 07 23:23 | 2°♉11'03  |            | evening max el   | 8546 Mar 10 03:29 | 12°♈45'08 | 21°24'38   |
|                  | 8545 Apr 10 06:18 | 30°♈♈     |            | asc. node        | 8546 Mar 18 04:45 | 17°♈55'53 |            |
| inferior conj    | 8545 Apr 13 07:14 | 26°♈06'40 | 3°11'42    | retrograde       | 8546 Mar 19 00:05 | 17°♈59'11 |            |
| minimum elong    | 8545 Apr 13 05:50 | 26°♈11'28 | 3°11'27    | evening set      | 8546 Mar 23 07:32 | 16°♈16'03 |            |
| min. Earth dist. | 8545 Apr 14 02:12 | 25°♈02'08 | 0.67681 AU | inferior conj    | 8546 Mar 28 14:48 | 10°♈00'22 | 2°50'34    |
| morning rise     | 8545 Apr 18 12:04 | 19°♈49'58 |            | minimum elong    | 8546 Mar 28 12:46 | 10°♈07'26 | 2°50'07    |
| direct           | 8545 Apr 24 04:56 | 17°♈17'24 |            | min. Earth dist. | 8546 Mar 28 20:39 | 9°♈39'59  | 0.68279 AU |
| desc. node       | 8545 May 04 22:37 | 23°♈25'14 |            | morning rise     | 8546 Apr 02 17:49 | 3°♈46'52  |            |
| morning max el   | 8545 May 05 16:52 | 24°♈10'34 | 24°37'09   | direct           | 8546 Apr 07 21:00 | 1°♈32'24  |            |
|                  | 8545 May 10 21:52 | 0°♉       |            | morning max el   | 8546 Apr 18 02:34 | 7°♈36'57  | 23°07'23   |
|                  | 8545 May 31 22:47 | 0°♊       |            | desc. node       | 8546 Apr 21 19:35 | 11°♈40'23 |            |
| morning set      | 8545 Jun 10 14:04 | 16°♊09'07 |            |                  | 8546 May 05 12:59 | 0°♉       |            |
| max. Earth dist. | 8545 Jun 14 05:06 | 22°♊38'21 | 1.37399 AU | morning set      | 8546 May 22 18:47 | 26°♉53'30 |            |
|                  | 8545 Jun 18 04:14 | 0°♋       |            |                  | 8546 May 24 15:10 | 0°♊       |            |
|                  |                   |           |            | max. Earth dist. | 8546 May 27 01:06 | 4°♊07'44  | 1.39640 AU |

|                  |                   |                                 |            |                  |                   |                         |            |
|------------------|-------------------|---------------------------------|------------|------------------|-------------------|-------------------------|------------|
| superior conj    | 8546 Jun 03 17:43 | 17° $\Pi$ 51'40                 | -1°29'51   | superior conj    | 8547 May 16 15:39 | 29° $\mathcal{B}$ 22'11 | -1°55'33   |
| minimum elong    | 8546 Jun 03 23:11 | 18° $\Pi$ 16'50                 | 1°29'19    | minimum elong    | 8547 May 16 21:20 | 29° $\mathcal{B}$ 47'00 | 1°55'16    |
|                  | 8546 Jun 10 04:28 | 0° $\mathcal{B}$                |            |                  | 8547 May 17 00:18 | 0° $\Pi$                |            |
| evening rise     | 8546 Jun 13 08:07 | 6° $\mathcal{B}$ 03'02          |            | evening rise     | 8547 May 27 13:56 | 19° $\Pi$ 02'04         |            |
| asc. node        | 8546 Jun 14 03:42 | 7° $\mathcal{B}$ 36'53          |            | asc. node        | 8547 Jun 01 00:44 | 27° $\Pi$ 08'24         |            |
|                  | 8546 Jun 27 14:05 | 0° $\Omega$                     |            |                  | 8547 Jun 02 15:23 | 0° $\mathcal{B}$        |            |
| evening max el   | 8546 Jun 29 10:36 | 2° $\Omega$ 01'12               | 18°34'25   | evening max el   | 8547 Jun 12 19:59 | 14° $\mathcal{B}$ 47'33 | 18°10'29   |
| retrograde       | 8546 Jul 07 07:29 | 5° $\Omega$ 56'13               |            | retrograde       | 8547 Jun 19 18:06 | 18° $\mathcal{B}$ 17'29 |            |
| evening set      | 8546 Jul 09 09:38 | 5° $\Omega$ 40'33               |            | evening set      | 8547 Jun 22 03:56 | 17° $\mathcal{B}$ 52'37 |            |
| inferior conj    | 8546 Jul 17 04:12 | 1° $\Omega$ 13'05               | 0°28'55    | inferior conj    | 8547 Jun 29 03:41 | 13° $\mathcal{B}$ 04'40 | 1°49'00    |
| minimum elong    | 8546 Jul 17 05:16 | 1° $\Omega$ 11'03               | 0°28'22    | minimum elong    | 8547 Jun 29 06:36 | 12° $\mathcal{B}$ 58'06 | 1°47'55    |
| desc. node       | 8546 Jul 18 18:57 | 29° $\mathcal{B}$ 58'03         |            | min. Earth dist. | 8547 Jul 02 12:04 | 10° $\mathcal{B}$ 05'28 | 0.59795 AU |
|                  | 8546 Jul 18 17:56 | 30° $\mathcal{R}$ $\mathcal{B}$ |            | desc. node       | 8547 Jul 05 16:02 | 7° $\mathcal{B}$ 41'14  |            |
| min. Earth dist. | 8546 Jul 20 11:41 | 28° $\mathcal{B}$ 41'06         | 0.57625 AU | morning rise     | 8547 Jul 06 06:18 | 7° $\mathcal{B}$ 18'56  |            |
| morning rise     | 8546 Jul 24 21:21 | 25° $\mathcal{B}$ 56'43         |            | direct           | 8547 Jul 12 16:59 | 5° $\mathcal{B}$ 21'25  |            |
| direct           | 8546 Jul 30 17:23 | 24° $\mathcal{B}$ 30'43         |            | morning max el   | 8547 Jul 27 01:22 | 13° $\mathcal{B}$ 14'43 | 27°40'22   |
|                  | 8546 Aug 11 18:34 | 0° $\Omega$                     |            |                  | 8547 Aug 09 09:18 | 0° $\Omega$             |            |
| morning max el   | 8546 Aug 14 02:17 | 2° $\Omega$ 06'50               | 26°47'08   |                  | 8547 Aug 26 08:06 | 0° $\mathcal{M}$        |            |
|                  | 8546 Sep 03 01:18 | 0° $\mathcal{M}$                |            | morning set      | 8547 Aug 27 23:02 | 3° $\mathcal{M}$ 21'08  |            |
| asc. node        | 8546 Sep 10 03:16 | 13° $\mathcal{M}$ 34'42         |            | asc. node        | 8547 Aug 28 00:13 | 3° $\mathcal{M}$ 27'21  |            |
| morning set      | 8546 Sep 12 16:33 | 18° $\mathcal{M}$ 53'51         |            | max. Earth dist. | 8547 Sep 03 06:28 | 16° $\mathcal{M}$ 59'16 | 1.31655 AU |
|                  | 8546 Sep 17 19:02 | 0° $\mathcal{L}$                |            |                  |                   |                         |            |
| superior conj    | 8546 Sep 19 15:02 | 4° $\mathcal{L}$ 04'04          | 1°23'13    | superior conj    | 8547 Sep 04 02:34 | 18° $\mathcal{M}$ 50'30 | 1°06'44    |
| minimum elong    | 8546 Sep 19 12:56 | 3° $\mathcal{L}$ 52'24          | 1°22'57    | minimum elong    | 8547 Sep 04 00:20 | 18° $\mathcal{M}$ 38'06 | 1°06'19    |
| max. Earth dist. | 8546 Sep 19 20:31 | 4° $\mathcal{L}$ 34'32          | 1.31708 AU |                  | 8547 Sep 09 03:55 | 0° $\mathcal{L}$        |            |
| evening rise     | 8546 Sep 26 11:12 | 18° $\mathcal{L}$ 59'48         |            | evening rise     | 8547 Sep 10 20:25 | 3° $\mathcal{L}$ 38'35  |            |
|                  | 8546 Oct 01 21:15 | 0° $\mathcal{M}$                |            |                  | 8547 Sep 24 18:48 | 0° $\mathcal{M}$        |            |
| desc. node       | 8546 Oct 14 17:42 | 21° $\mathcal{M}$ 54'15         |            | desc. node       | 8547 Oct 01 14:49 | 9° $\mathcal{M}$ 58'13  |            |
|                  | 8546 Oct 20 17:48 | 0° $\mathcal{J}$                |            | evening max el   | 8547 Oct 08 20:05 | 18° $\mathcal{M}$ 08'47 | 25°52'18   |
| evening max el   | 8546 Oct 26 23:04 | 6° $\mathcal{J}$ 46'54          | 26°55'56   | retrograde       | 8547 Oct 22 18:20 | 25° $\mathcal{M}$ 11'53 |            |
| retrograde       | 8546 Nov 09 20:59 | 13° $\mathcal{J}$ 56'45         |            | evening set      | 8547 Oct 29 00:47 | 23° $\mathcal{M}$ 39'15 |            |
| evening set      | 8546 Nov 16 18:50 | 11° $\mathcal{J}$ 53'13         |            | min. Earth dist. | 8547 Nov 02 08:47 | 21° $\mathcal{M}$ 03'38 | 0.58259 AU |
| min. Earth dist. | 8546 Nov 20 13:31 | 9° $\mathcal{J}$ 14'22          | 0.60332 AU | inferior conj    | 8547 Nov 05 11:16 | 18° $\mathcal{M}$ 50'11 | -5°02'12   |
| inferior conj    | 8546 Nov 23 17:36 | 6° $\mathcal{J}$ 37'26          | -4°03'29   | minimum elong    | 8547 Nov 05 17:52 | 18° $\mathcal{M}$ 38'16 | 5°00'50    |
| minimum elong    | 8546 Nov 24 00:50 | 6° $\mathcal{J}$ 22'28          | 4°01'10    | morning rise     | 8547 Nov 13 13:16 | 14° $\mathcal{M}$ 27'01 |            |
| morning rise     | 8546 Dec 01 09:16 | 1° $\mathcal{J}$ 51'51          |            | direct           | 8547 Nov 15 20:30 | 14° $\mathcal{M}$ 10'00 |            |
| direct           | 8546 Dec 03 13:55 | 1° $\mathcal{J}$ 33'19          |            | asc. node        | 8547 Nov 23 23:52 | 17° $\mathcal{M}$ 58'28 |            |
| asc. node        | 8546 Dec 07 02:50 | 2° $\mathcal{J}$ 23'51          |            | morning max el   | 8547 Nov 24 06:33 | 18° $\mathcal{M}$ 14'18 | 18°40'24   |
| morning max el   | 8546 Dec 11 00:04 | 5° $\mathcal{J}$ 14'39          | 18°04'20   |                  | 8547 Dec 02 20:09 | 0° $\mathcal{J}$        |            |
| morning set      | 8546 Dec 26 16:00 | 0° $\mathcal{Z}$ 01'59          |            | morning set      | 8547 Dec 10 11:29 | 14° $\mathcal{J}$ 12'23 |            |
|                  | 8546 Dec 26 15:34 | 0° $\mathcal{Z}$                |            |                  | 8547 Dec 18 15:54 | 0° $\mathcal{Z}$        |            |
| superior conj    | 8547 Jan 05 12:11 | 18° $\mathcal{Z}$ 05'13         | 0°38'09    | superior conj    | 8547 Dec 19 04:24 | 0° $\mathcal{Z}$ 58'48  | 1°06'33    |
| minimum elong    | 8547 Jan 05 14:59 | 18° $\mathcal{Z}$ 17'41         | 0°37'54    | minimum elong    | 8547 Dec 19 07:45 | 1° $\mathcal{Z}$ 14'34  | 1°06'18    |
| desc. node       | 8547 Jan 10 16:47 | 27° $\mathcal{Z}$ 08'08         |            | max. Earth dist. | 8547 Dec 26 10:39 | 14° $\mathcal{Z}$ 10'00 | 1.39788 AU |
|                  | 8547 Jan 12 09:21 | 0° $\approx$                    |            | desc. node       | 8547 Dec 28 13:47 | 17° $\mathcal{Z}$ 51'36 |            |
| max. Earth dist. | 8547 Jan 13 03:17 | 1° $\approx$ 15'12              | 1.41882 AU | evening rise     | 8547 Dec 30 12:21 | 21° $\mathcal{Z}$ 09'27 |            |
| evening rise     | 8547 Jan 18 12:04 | 10° $\approx$ 02'24             |            |                  | 8548 Jan 04 21:45 | 0° $\approx$            |            |
|                  | 8547 Jan 31 12:36 | 0° $\mathcal{H}$                |            |                  | 8548 Jan 25 14:50 | 0° $\mathcal{H}$        |            |
| evening max el   | 8547 Feb 20 20:41 | 26° $\mathcal{H}$ 27'15         | 22°42'20   | evening max el   | 8548 Feb 03 11:02 | 10° $\mathcal{H}$ 12'47 | 24°02'33   |
|                  | 8547 Feb 24 21:42 | 0° $\mathcal{Y}$                |            | retrograde       | 8548 Feb 14 13:28 | 16° $\mathcal{H}$ 44'09 |            |
| retrograde       | 8547 Mar 02 20:26 | 2° $\mathcal{Y}$ 22'29          |            | evening set      | 8548 Feb 19 20:14 | 14° $\mathcal{H}$ 32'03 |            |
| asc. node        | 8547 Mar 05 01:50 | 1° $\mathcal{Y}$ 57'41          |            | asc. node        | 8548 Feb 19 22:56 | 14° $\mathcal{H}$ 26'15 |            |
| evening set      | 8547 Mar 07 15:00 | 0° $\mathcal{Y}$ 24'29          |            | min. Earth dist. | 8548 Feb 24 13:44 | 9° $\mathcal{H}$ 04'36  | 0.68209 AU |
|                  | 8547 Mar 08 02:09 | 30° $\mathcal{R}$ $\mathcal{H}$ |            | inferior conj    | 8548 Feb 25 07:38 | 8° $\mathcal{H}$ 03'57  | 1°40'41    |
| inferior conj    | 8547 Mar 12 23:34 | 24° $\mathcal{H}$ 00'40         | 2°19'59    | minimum elong    | 8548 Feb 25 05:38 | 8° $\mathcal{H}$ 10'46  | 1°40'03    |
| minimum elong    | 8547 Mar 12 21:19 | 24° $\mathcal{H}$ 08'29         | 2°19'22    | morning rise     | 8548 Mar 01 15:02 | 2° $\mathcal{H}$ 01'24  |            |
| min. Earth dist. | 8547 Mar 12 17:17 | 24° $\mathcal{H}$ 22'30         | 0.68451 AU | direct           | 8548 Mar 05 14:59 | 0° $\mathcal{H}$ 30'42  |            |
| morning rise     | 8547 Mar 18 03:29 | 17° $\mathcal{H}$ 51'51         |            | morning max el   | 8548 Mar 13 11:46 | 4° $\mathcal{H}$ 58'25  | 20°23'11   |
| direct           | 8547 Mar 22 16:47 | 15° $\mathcal{H}$ 58'54         |            | desc. node       | 8548 Mar 25 13:30 | 20° $\mathcal{H}$ 18'38 |            |
| morning max el   | 8547 Mar 31 15:47 | 21° $\mathcal{H}$ 11'49         | 21°40'21   |                  | 8548 Apr 01 04:20 | 0° $\mathcal{Y}$        |            |
|                  | 8547 Apr 08 03:33 | 0° $\mathcal{Y}$                |            | morning set      | 8548 Apr 10 22:44 | 14° $\mathcal{Y}$ 51'03 |            |
| desc. node       | 8547 Apr 08 16:33 | 0° $\mathcal{Y}$ 42'32          |            | max. Earth dist. | 8548 Apr 20 08:40 | 29° $\mathcal{Y}$ 41'09 | 1.43660 AU |
|                  | 8547 Apr 28 19:07 | 0° $\mathcal{B}$                |            |                  | 8548 Apr 20 13:22 | 0° $\mathcal{B}$        |            |
| morning set      | 8547 May 02 20:05 | 6° $\mathcal{B}$ 21'40          |            | superior conj    | 8548 Apr 26 14:02 | 9° $\mathcal{B}$ 50'08  | -2°10'31   |
| max. Earth dist. | 8547 May 09 01:02 | 16° $\mathcal{B}$ 26'23         | 1.41822 AU | minimum elong    | 8548 Apr 26 16:31 | 10° $\mathcal{B}$ 00'26 | 2°10'35    |



|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                     | 8548 May 08 10:01 | 0°♂       |            | max. Earth dist. | 8549 Apr 02 23:07 | 13°♂38'57 | 1.44932 AU |
| evening rise        | 8548 May 09 03:07 | 1°♂14'35  |            |                  |                   |           |            |
| asc. node           | 8548 May 17 21:48 | 16°♂18'59 |            | superior conj    | 8549 Apr 06 12:08 | 19°♂15'42 | -2°08'32   |
| evening max el      | 8548 May 26 08:56 | 27°♂57'57 | 18°05'52   | minimum elong    | 8549 Apr 06 07:50 | 18°♂58'36 | 2°08'27    |
|                     | 8548 May 28 20:16 | 0°♂       |            |                  | 8549 Apr 13 04:22 | 0°♂       |            |
| retrograde          | 8548 Jun 01 19:44 | 1°♂18'37  |            | evening rise     | 8549 Apr 20 19:02 | 12°♂30'49 |            |
| evening set         | 8548 Jun 04 13:05 | 0°♂41'58  |            |                  | 8549 May 01 10:56 | 0°♂       |            |
|                     | 8548 Jun 05 20:24 | 30°♂♂     |            | asc. node        | 8549 May 04 18:52 | 5°♂00'56  |            |
| inferior conj       | 8548 Jun 10 21:31 | 25°♂34'13 | 2°41'44    | evening max el   | 8549 May 09 22:07 | 11°♂23'06 | 18°19'55   |
| minimum elong       | 8548 Jun 11 00:16 | 25°♂27'09 | 2°40'56    | retrograde       | 8549 May 16 07:45 | 14°♂48'57 |            |
| min. Earth dist.    | 8548 Jun 13 20:45 | 22°♂32'02 | 0.62045 AU | evening set      | 8549 May 19 08:21 | 13°♂58'59 |            |
| morning rise        | 8548 Jun 17 09:30 | 19°♂29'34 |            | inferior conj    | 8549 May 25 05:33 | 8°♂33'12  | 3°11'16    |
| desc. node          | 8548 Jun 21 13:04 | 17°♂26'07 |            | minimum elong    | 8549 May 25 07:10 | 8°♂28'32  | 3°10'52    |
| direct              | 8548 Jun 24 03:09 | 17°♂05'14 |            | min. Earth dist. | 8549 May 27 14:49 | 5°♂49'00  | 0.64112 AU |
| morning max el      | 8548 Jul 08 06:41 | 25°♂06'38 | 27°55'43   | morning rise     | 8549 May 31 04:52 | 2°♂18'30  |            |
|                     | 8548 Jul 12 17:58 | 0°♂       |            |                  | 8549 Jun 04 08:21 | 30°♂♂     |            |
|                     | 8548 Aug 01 20:20 | 0°♂       |            | direct           | 8549 Jun 06 21:57 | 29°♂37'11 |            |
| morning set         | 8548 Aug 11 00:08 | 17°♂29'56 |            | desc. node       | 8549 Jun 08 10:05 | 29°♂44'32 |            |
| asc. node           | 8548 Aug 13 21:12 | 23°♂28'43 |            |                  | 8549 Jun 09 14:19 | 0°♂       |            |
| max. Earth dist.    | 8548 Aug 16 13:30 | 29°♂12'52 | 1.32073 AU | morning max el   | 8549 Jun 20 16:03 | 7°♂37'34  | 27°34'03   |
|                     | 8548 Aug 16 22:11 | 0°♂       |            |                  | 8549 Jul 07 21:33 | 0°♂       |            |
|                     |                   |           |            |                  | 8549 Jul 25 02:31 | 0°♂       |            |
| superior conj       | 8548 Aug 18 12:11 | 3°♂27'12  | 0°45'31    | morning set      | 8549 Jul 25 17:24 | 1°♂13'09  |            |
| minimum elong       | 8548 Aug 18 10:18 | 3°♂16'55  | 0°45'03    | max. Earth dist. | 8549 Jul 30 13:42 | 11°♂04'32 | 1.32970 AU |
| evening rise        | 8548 Aug 25 07:43 | 18°♂20'25 |            | asc. node        | 8549 Jul 31 18:09 | 13°♂33'58 |            |
|                     | 8548 Aug 30 23:47 | 0°♂       |            |                  |                   |           |            |
| desc. node          | 8548 Sep 17 11:54 | 26°♂47'38 |            | superior conj    | 8549 Aug 02 17:54 | 17°♂47'58 | 0°20'02    |
| evening max el      | 8548 Sep 19 09:36 | 28°♂43'45 | 24°23'11   | minimum elong    | 8549 Aug 02 16:56 | 17°♂42'47 | 0°19'41    |
|                     | 8548 Sep 20 18:48 | 0°♂       |            |                  | 8549 Aug 08 09:41 | 0°♂       |            |
| retrograde          | 8548 Oct 03 03:45 | 5°♂37'56  |            | evening rise     | 8549 Aug 09 19:12 | 2°♂59'03  |            |
| evening set         | 8548 Oct 08 06:05 | 4°♂40'29  |            |                  | 8549 Aug 24 12:44 | 0°♂       |            |
| min. Earth dist.    | 8548 Oct 13 20:29 | 1°♂49'41  | 0.56422 AU | evening max el   | 8549 Aug 31 21:00 | 8°♂55'01  | 22°43'40   |
| inferior conj       | 8548 Oct 16 08:35 | 0°♂15'39  | -5°34'39   | desc. node       | 8549 Sep 04 09:00 | 11°♂54'36 |            |
| minimum elong       | 8548 Oct 16 10:26 | 0°♂12'43  | 5°34'29    | retrograde       | 8549 Sep 14 01:01 | 15°♂29'24 |            |
|                     | 8548 Oct 16 18:33 | 30°♂♂     |            | evening set      | 8549 Sep 17 15:00 | 15°♂01'14 |            |
| morning rise        | 8548 Oct 24 16:55 | 26°♂14'08 |            | min. Earth dist. | 8549 Sep 25 04:45 | 11°♂37'57 | 0.55127 AU |
| direct              | 8548 Oct 27 08:08 | 25°♂55'35 |            | inferior conj    | 8549 Sep 26 11:11 | 10°♂54'32 | -5°21'29   |
|                     | 8548 Nov 05 12:16 | 0°♂       |            | minimum elong    | 8549 Sep 26 05:27 | 11°♂02'44 | 5°20'44    |
| morning max el      | 8548 Nov 06 02:18 | 0°♂32'17  | 19°38'39   | morning rise     | 8549 Oct 04 21:53 | 7°♂06'13  |            |
| asc. node           | 8548 Nov 09 20:53 | 4°♂46'24  |            | direct           | 8549 Oct 08 01:19 | 6°♂43'30  |            |
| morning set         | 8548 Nov 23 14:38 | 28°♂43'01 |            | morning max el   | 8549 Oct 19 09:08 | 12°♂01'52 | 20°59'15   |
|                     | 8548 Nov 24 05:54 | 0°♂       |            | asc. node        | 8549 Oct 27 17:51 | 22°♂32'13 |            |
|                     |                   |           |            |                  | 8549 Nov 01 03:11 | 0°♂       |            |
| superior conj       | 8548 Dec 01 12:17 | 14°♂36'50 | 1°25'59    | morning set      | 8549 Nov 07 22:43 | 13°♂25'56 |            |
| minimum elong       | 8548 Dec 01 14:56 | 14°♂49'55 | 1°25'56    |                  |                   |           |            |
| max. Earth dist.    | 8548 Dec 07 16:37 | 26°♂27'07 | 1.37621 AU | superior conj    | 8549 Nov 15 07:28 | 28°♂46'54 | 1°37'14    |
|                     | 8548 Dec 09 15:05 | 0°♂       |            | minimum elong    | 8549 Nov 15 08:54 | 28°♂54'12 | 1°37'20    |
| evening rise        | 8548 Dec 11 10:05 | 3°♂12'51  |            |                  | 8549 Nov 15 21:43 | 0°♂       |            |
| desc. node          | 8548 Dec 14 10:47 | 8°♂29'51  |            | max. Earth dist. | 8549 Nov 20 01:45 | 8°♂22'26  | 1.35614 AU |
|                     | 8548 Dec 27 23:57 | 0°♂       |            | evening rise     | 8549 Nov 24 02:18 | 16°♂05'16 |            |
| evening max el      | 8549 Jan 16 00:13 | 24°♂00'19 | 25°18'29   | desc. node       | 8549 Dec 01 07:48 | 28°♂58'45 |            |
|                     | 8549 Jan 24 00:02 | 0°♂       |            |                  | 8549 Dec 01 22:17 | 0°♂       |            |
| retrograde          | 8549 Jan 28 02:08 | 0°♂58'52  |            |                  | 8549 Dec 22 12:00 | 0°♂       |            |
|                     | 8549 Jan 31 20:12 | 30°♂♂     |            | evening max el   | 8549 Dec 29 13:20 | 7°♂45'54  | 26°23'02   |
| evening set         | 8549 Feb 02 21:39 | 28°♂34'31 |            | retrograde       | 8550 Jan 11 09:48 | 15°♂01'01 |            |
| asc. node           | 8549 Feb 05 20:03 | 25°♂32'51 |            | evening set      | 8550 Jan 17 17:32 | 12°♂27'56 |            |
| min. Earth dist.    | 8549 Feb 07 07:45 | 23°♂41'49 | 0.67572 AU | min. Earth dist. | 8550 Jan 21 21:09 | 8°♂09'55  | 0.66556 AU |
| inferior conj       | 8549 Feb 08 13:09 | 22°♂06'38 | 0°53'02    | inferior conj    | 8550 Jan 23 14:09 | 6°♂05'28  | -0°02'28   |
| minimum elong       | 8549 Feb 08 11:53 | 22°♂10'41 | 0°52'40    | minimum elong    | 8550 Jan 23 14:13 | 6°♂05'17  | 0°02'17    |
| morning rise        | 8549 Feb 14 02:28 | 16°♂12'03 |            | transit middle   | 8550 Jan 23 14:13 | 6°♂05'17  | 0°02'17    |
| direct              | 8549 Feb 17 14:07 | 15°♂02'13 |            | transit begin    | 8550 Jan 23 11:22 | 6°♂13'59  |            |
| morning max el      | 8549 Feb 24 15:46 | 18°♂56'30 | 19°19'55   | transit end      | 8550 Jan 23 17:04 | 5°♂56'36  |            |
|                     | 8549 Mar 05 11:03 | 0°♂       |            | asc. node        | 8550 Jan 23 17:07 | 5°♂56'27  |            |
| greatest brilliancy | 8549 Mar 09 14:48 | 6°♂04'48  | -0.7m      | morning rise     | 8550 Jan 29 11:44 | 0°♂20'52  |            |
| desc. node          | 8549 Mar 12 10:24 | 10°♂19'06 |            |                  | 8550 Jan 30 04:17 | 30°♂♂     |            |
| morning set         | 8549 Mar 20 22:05 | 23°♂19'20 |            | direct           | 8550 Feb 01 12:34 | 29°♂28'57 |            |
|                     | 8549 Mar 25 05:37 | 0°♂       |            |                  | 8550 Feb 03 22:08 | 0°♂       |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| morning max el      | 8550 Feb 08 02:49 | 3°≈02'28  | 18°32'30   | morning max el      | 8551 Jan 22 18:28 | 17°308'35 | 18°01'45   |
|                     | 8550 Feb 26 21:48 | 0°✠       |            |                     | 8551 Feb 01 05:42 | 0°≈       |            |
| desc. node          | 8550 Feb 27 07:19 | 0°✠37'39  |            | morning set         | 8551 Feb 09 18:02 | 13°≈52'57 |            |
| morning set         | 8550 Feb 28 17:20 | 2°✠52'08  |            | desc. node          | 8551 Feb 14 04:15 | 21°≈08'34 |            |
|                     |                   |           |            |                     | 8551 Feb 19 15:34 | 0°✠       |            |
| superior conj       | 8550 Mar 16 18:35 | 28°✠05'50 | -1°46'20   | superior conj       | 8551 Feb 24 03:20 | 7°✠09'31  | -1°08'01   |
| minimum elong       | 8550 Mar 16 09:11 | 27°✠29'05 | 1°45'31    | minimum elong       | 8551 Feb 23 19:35 | 6°✠38'48  | 1°06'56    |
| max. Earth dist.    | 8550 Mar 16 17:28 | 28°✠01'27 | 1.45510 AU | max. Earth dist.    | 8551 Feb 27 12:49 | 12°✠30'47 | 1.45345 AU |
|                     | 8550 Mar 17 23:45 | 0°Υ       |            |                     | 8551 Mar 10 18:33 | 0°Υ       |            |
| evening rise        | 8550 Apr 01 11:20 | 22°Υ49'05 |            | evening rise        | 8551 Mar 12 07:18 | 2°Υ21'53  |            |
|                     | 8550 Apr 05 23:48 | 0°♁       |            | greatest brilliancy | 8551 Mar 25 22:13 | 23°Υ07'47 | -0.7m      |
| greatest brilliancy | 8550 Apr 10 07:32 | 6°♁49'51  | -0.8m      |                     | 8551 Mar 30 16:37 | 0°♁       |            |
| asc. node           | 8550 Apr 21 15:56 | 23°♁05'17 |            | evening max el      | 8551 Apr 06 15:21 | 8°♁34'30  | 19°40'31   |
| evening max el      | 8550 Apr 23 08:54 | 24°♁56'51 | 18°51'53   | asc. node           | 8551 Apr 08 13:02 | 10°♁20'11 |            |
| retrograde          | 8550 Apr 30 02:12 | 28°♁40'39 |            | retrograde          | 8551 Apr 13 23:52 | 12°♁47'10 |            |
| evening set         | 8550 May 03 10:16 | 27°♁36'28 |            | evening set         | 8551 Apr 17 16:10 | 11°♁28'06 |            |
| inferior conj       | 8550 May 08 23:56 | 21°♁54'25 | 3°22'25    | inferior conj       | 8551 Apr 23 01:25 | 5°♁31'32  | 3°19'05    |
| minimum elong       | 8550 May 09 00:13 | 21°♁53'30 | 3°22'15    | minimum elong       | 8551 Apr 23 00:33 | 5°♁34'26  | 3°18'55    |
| min. Earth dist.    | 8550 May 10 17:56 | 19°♁42'59 | 0.65837 AU | min. Earth dist.    | 8551 Apr 24 04:35 | 4°♁01'15  | 0.67139 AU |
| morning rise        | 8550 May 14 13:35 | 15°♁36'02 |            |                     | 8551 Apr 27 13:14 | 30°♁Υ     |            |
| direct              | 8550 May 21 00:16 | 12°♁49'31 |            | morning rise        | 8551 Apr 28 08:35 | 29°Υ13'28 |            |
| desc. node          | 8550 May 26 07:05 | 14°♁20'36 |            | direct              | 8551 May 04 08:47 | 26°Υ32'56 |            |
| morning max el      | 8550 Jun 03 02:41 | 20°♁36'15 | 26°41'15   |                     | 8551 May 12 06:47 | 0°♁       |            |
|                     | 8550 Jun 11 04:46 | 0°♁       |            | desc. node          | 8551 May 13 04:03 | 0°♁43'03  |            |
|                     | 8550 Jul 01 00:48 | 0°♁       |            | morning max el      | 8551 May 16 12:27 | 3°♁50'05  | 25°26'15   |
| morning set         | 8550 Jul 08 23:41 | 14°♁22'34 |            |                     | 8551 Jun 05 11:56 | 0°♁       |            |
| max. Earth dist.    | 8550 Jul 13 03:43 | 22°♁28'34 | 1.34351 AU | morning set         | 8551 Jun 21 14:55 | 26°♁47'00 |            |
|                     | 8550 Jul 16 20:49 | 0°♁       |            |                     | 8551 Jun 23 09:11 | 0°♁       |            |
| superior conj       | 8550 Jul 17 17:31 | 1°♁47'03  | -0°09'03   | max. Earth dist.    | 8551 Jun 25 06:56 | 3°♁33'02  | 1.36182 AU |
| minimum elong       | 8550 Jul 17 18:01 | 1°♁49'40  | 0°09'07    | superior conj       | 8551 Jul 01 08:16 | 15°♁17'23 | -0°40'29   |
| behind sun begin    | 8550 Jul 17 13:13 | 1°♁24'45  |            | minimum elong       | 8551 Jul 01 10:43 | 15°♁29'35 | 0°40'13    |
| behind sun end      | 8550 Jul 17 22:50 | 2°♁14'37  |            | asc. node           | 8551 Jul 05 12:07 | 23°♁41'29 |            |
| asc. node           | 8550 Jul 18 15:07 | 3°♁39'28  |            |                     | 8551 Jul 08 14:13 | 0°♁       |            |
| evening rise        | 8550 Jul 25 04:56 | 17°♁29'07 |            | evening rise        | 8551 Jul 09 10:45 | 1°♁44'33  |            |
|                     | 8550 Jul 31 10:54 | 0°♁       |            |                     | 8551 Jul 26 12:58 | 0°♁       |            |
| evening max el      | 8550 Aug 13 15:34 | 19°♁20'12 | 21°10'16   | evening max el      | 8551 Jul 26 23:08 | 0°♁25'40  | 19°53'35   |
| desc. node          | 8550 Aug 22 06:06 | 24°♁47'48 |            | retrograde          | 8551 Aug 06 04:54 | 5°♁28'56  |            |
| retrograde          | 8550 Aug 25 13:58 | 25°♁15'02 |            | evening set         | 8551 Aug 08 01:50 | 5°♁19'33  |            |
| evening set         | 8550 Aug 27 22:23 | 25°♁02'07 |            | desc. node          | 8551 Aug 09 03:12 | 5°♁06'22  |            |
| inferior conj       | 8550 Sep 06 03:56 | 21°♁05'09 | -4°12'46   | inferior conj       | 8551 Aug 17 01:06 | 1°♁19'02  | -2°24'19   |
| minimum elong       | 8550 Sep 05 18:19 | 21°♁18'41 | 4°10'10    | minimum elong       | 8551 Aug 16 18:31 | 1°♁29'03  | 2°22'00    |
| min. Earth dist.    | 8550 Sep 06 13:31 | 20°♁51'37 | 0.54670 AU | min. Earth dist.    | 8551 Aug 19 00:40 | 0°♁06'41  | 0.55177 AU |
| morning rise        | 8550 Sep 14 14:48 | 17°♁11'28 |            |                     | 8551 Aug 19 05:08 | 30°♁♁     |            |
| direct              | 8550 Sep 18 09:27 | 16°♁40'45 |            | morning rise        | 8551 Aug 25 09:24 | 27°♁00'11 |            |
| morning max el      | 8550 Oct 01 04:13 | 22°♁45'58 | 22°37'54   | direct              | 8551 Aug 29 22:40 | 26°♁14'41 |            |
|                     | 8550 Oct 07 12:27 | 0°♁       |            |                     | 8551 Sep 09 01:22 | 0°♁       |            |
| asc. node           | 8550 Oct 14 14:49 | 11°♁02'23 |            | morning max el      | 8551 Sep 12 16:56 | 3°♁02'38  | 24°23'55   |
| morning set         | 8550 Oct 23 09:30 | 28°♁14'26 |            | asc. node           | 8551 Oct 01 11:47 | 0°♁06'14  |            |
|                     | 8550 Oct 24 05:26 | 0°♁       |            |                     | 8551 Oct 01 10:28 | 0°♁       |            |
| superior conj       | 8550 Oct 30 10:26 | 13°♁18'01 | 1°41'12    | morning set         | 8551 Oct 07 21:16 | 13°♁03'52 |            |
| minimum elong       | 8550 Oct 30 10:33 | 13°♁18'37 | 1°41'20    | superior conj       | 8551 Oct 14 18:31 | 28°♁02'20 | 1°38'43    |
| max. Earth dist.    | 8550 Nov 02 18:03 | 20°♁16'28 | 1.33952 AU | minimum elong       | 8551 Oct 14 17:30 | 27°♁56'49 | 1°38'44    |
| evening rise        | 8550 Nov 07 09:08 | 29°♁36'24 |            |                     | 8551 Oct 15 16:08 | 0°♁       |            |
|                     | 8550 Nov 07 13:58 | 0°♁       |            | max. Earth dist.    | 8551 Oct 16 18:46 | 2°♁24'07  | 1.32727 AU |
| desc. node          | 8550 Nov 18 04:50 | 19°♁12'27 |            | evening rise        | 8551 Oct 22 03:01 | 13°♁37'17 |            |
|                     | 8550 Nov 25 00:44 | 0°♁       |            |                     | 8551 Oct 30 17:23 | 0°♁       |            |
| evening max el      | 8550 Dec 12 02:22 | 21°♁20'45 | 27°08'55   | desc. node          | 8551 Nov 05 01:56 | 9°♁04'23  |            |
| retrograde          | 8550 Dec 25 11:42 | 28°♁41'51 |            |                     | 8551 Nov 20 05:00 | 0°♁       |            |
| evening set         | 8551 Jan 01 05:46 | 26°♁05'50 |            | evening max el      | 8551 Nov 24 14:11 | 4°♁34'14  | 27°29'02   |
| min. Earth dist.    | 8551 Jan 05 03:45 | 22°♁21'38 | 0.65179 AU | retrograde          | 8551 Dec 08 06:59 | 11°♁52'51 |            |
| inferior conj       | 8551 Jan 07 08:25 | 19°♁54'42 | -1°05'12   | evening set         | 8551 Dec 15 07:47 | 9°♁21'48  |            |
| minimum elong       | 8551 Jan 07 10:21 | 19°♁49'17 | 1°04'11    | min. Earth dist.    | 8551 Dec 19 01:32 | 6°♁08'44  | 0.63484 AU |
| asc. node           | 8551 Jan 10 14:11 | 16°♁32'40 |            | inferior conj       | 8551 Dec 21 17:18 | 3°♁28'18  | -2°13'32   |
| morning rise        | 8551 Jan 13 16:18 | 14°♁22'30 |            | minimum elong       | 8551 Dec 21 21:31 | 3°♁17'39  | 2°11'39    |
| direct              | 8551 Jan 16 08:12 | 13°♁44'45 |            |                     |                   |           |            |

|                  |                   |                                |                |                   |                      |                                |
|------------------|-------------------|--------------------------------|----------------|-------------------|----------------------|--------------------------------|
|                  | 8551 Dec 25 11:40 | 30° $\text{R}\text{X}$         | direct         | 8552 Dec 13 03:41 | 11° $\text{X}$ 18'48 |                                |
| asc. node        | 8551 Dec 28 11:14 | 28° $\text{X}$ 13'17           | asc. node      | 8552 Dec 14 08:17 | 11° $\text{X}$ 25'00 |                                |
| morning rise     | 8551 Dec 28 13:09 | 28° $\text{X}$ 11'26           | morning max el | 8552 Dec 20 03:46 | 14° $\text{X}$ 50'53 | 17°52'59                       |
| direct           | 8551 Dec 30 22:24 | 27° $\text{X}$ 43'52           |                | 8552 Dec 30 14:18 | 0° $\text{Z}$        |                                |
|                  | 8552 Jan 05 06:06 | 0° $\text{Z}$                  | morning set    | 8553 Jan 04 20:40 | 9° $\text{Z}$ 26'16  |                                |
| morning max el   | 8552 Jan 06 11:50 | 1° $\text{Z}$ 07'31            | 17°48'17       |                   |                      |                                |
| morning set      | 8552 Jan 22 21:20 | 26° $\text{Z}$ 11'13           | superior conj  | 8553 Jan 15 12:38 | 28° $\text{Z}$ 25'31 | 0°17'45                        |
|                  | 8552 Jan 25 02:24 | 0° $\approx$                   | minimum elong  | 8553 Jan 15 14:11 | 28° $\text{Z}$ 32'14 | 0°17'40                        |
| desc. node       | 8552 Feb 01 01:12 | 11° $\approx$ 47'51            |                | 8553 Jan 16 10:36 | 0° $\approx$         |                                |
|                  |                   |                                | desc. node     | 8553 Jan 17 22:12 | 2° $\approx$ 31'43   |                                |
| superior conj    | 8552 Feb 04 07:12 | 17° $\approx$ 10'41            | -0°23'37       | max. Earth dist.  | 8553 Jan 22 22:07    | 10° $\approx$ 51'18            |
| minimum elong    | 8552 Feb 04 04:39 | 17° $\approx$ 00'15            | 0°23'05        | evening rise      | 8553 Jan 29 12:18    | 21° $\approx$ 25'09            |
| max. Earth dist. | 8552 Feb 10 07:08 | 26° $\approx$ 52'43            | 1.44464 AU     |                   | 8553 Feb 04 01:34    | 0° $\text{H}$                  |
|                  | 8552 Feb 12 06:20 | 0° $\text{H}$                  |                |                   | 8553 Feb 25 07:15    | 0° $\text{Y}$                  |
| evening rise     | 8552 Feb 19 18:30 | 11° $\text{H}$ 41'30           |                | evening max el    | 8553 Mar 02 12:13    | 5° $\text{Y}$ 55'03            |
|                  | 8552 Mar 02 22:13 | 0° $\text{Y}$                  |                | retrograde        | 8553 Mar 11 19:56    | 11° $\text{Y}$ 26'20           |
| evening max el   | 8552 Mar 19 16:27 | 22° $\text{Y}$ 14'03           | 20°43'24       | asc. node         | 8553 Mar 12 07:13    | 11° $\text{Y}$ 25'12           |
| asc. node        | 8552 Mar 25 10:08 | 26° $\text{Y}$ 31'49           |                | evening set       | 8553 Mar 16 08:06    | 9° $\text{Y}$ 36'37            |
| retrograde       | 8552 Mar 27 22:23 | 27° $\text{Y}$ 03'47           |                | inferior conj     | 8553 Mar 21 15:43    | 3° $\text{Y}$ 17'13            |
| evening set      | 8552 Apr 01 00:01 | 25° $\text{Y}$ 29'26           |                | minimum elong     | 8553 Mar 21 13:32    | 3° $\text{Y}$ 24'48            |
| inferior conj    | 8552 Apr 06 07:25 | 19° $\text{Y}$ 20'11           | 3°03'56        | min. Earth dist.  | 8553 Mar 21 16:16    | 3° $\text{Y}$ 15'17            |
| minimum elong    | 8552 Apr 06 05:41 | 19° $\text{Y}$ 26'07           | 3°03'36        |                   | 8553 Mar 24 02:14    | 30° $\text{R}\text{H}$         |
| min. Earth dist. | 8552 Apr 06 20:43 | 18° $\text{Y}$ 34'21           | 0.67996 AU     | morning rise      | 8553 Mar 26 18:49    | 27° $\text{H}$ 05'49           |
| morning rise     | 8552 Apr 11 11:08 | 13° $\text{Y}$ 04'45           |                | direct            | 8553 Mar 31 16:07    | 25° $\text{H}$ 00'18           |
| direct           | 8552 Apr 16 22:25 | 10° $\text{Y}$ 39'02           |                |                   | 8553 Apr 09 15:10    | 0° $\text{Y}$                  |
| morning max el   | 8552 Apr 27 21:27 | 17° $\text{Y}$ 12'01           | 23°59'03       | morning max el    | 8553 Apr 10 08:14    | 0° $\text{Y}$ 42'00            |
| desc. node       | 8552 Apr 29 01:02 | 18° $\text{Y}$ 23'37           |                | desc. node        | 8553 Apr 15 22:00    | 7° $\text{Y}$ 00'51            |
|                  | 8552 May 08 12:52 | 0° $\text{B}$                  |                |                   | 8553 May 02 09:22    | 0° $\text{B}$                  |
|                  | 8552 May 28 12:46 | 0° $\text{II}$                 |                | morning set       | 8553 May 14 03:06    | 18° $\text{B}$ 24'19           |
| morning set      | 8552 Jun 02 09:47 | 8° $\text{II}$ 11'40           |                | max. Earth dist.  | 8553 May 19 01:22    | 26° $\text{B}$ 36'15           |
| max. Earth dist. | 8552 Jun 06 03:42 | 14° $\text{II}$ 44'46          | 1.38346 AU     |                   | 8553 May 21 01:04    | 0° $\text{II}$                 |
|                  |                   |                                |                |                   |                      |                                |
| superior conj    | 8552 Jun 13 10:38 | 28° $\text{II}$ 09'19          | -1°12'24       | superior conj     | 8553 May 26 20:20    | 10° $\text{II}$ 13'03          |
| minimum elong    | 8552 Jun 13 15:09 | 28° $\text{II}$ 30'47          | 1°11'54        | minimum elong     | 8553 May 27 02:12    | 10° $\text{II}$ 39'25          |
|                  | 8552 Jun 14 09:51 | 0° $\text{E}$                  |                | evening rise      | 8553 Jun 05 23:22    | 28° $\text{II}$ 59'36          |
| asc. node        | 8552 Jun 21 09:08 | 13° $\text{E}$ 35'17           |                |                   | 8553 Jun 06 12:12    | 0° $\text{E}$                  |
| evening rise     | 8552 Jun 22 09:58 | 15° $\text{E}$ 37'23           |                | asc. node         | 8553 Jun 08 06:11    | 3° $\text{E}$ 16'48            |
|                  | 8552 Jun 30 01:16 | 0° $\Omega$                    |                | evening max el    | 8553 Jun 22 00:58    | 24° $\text{E}$ 43'41           |
| evening max el   | 8552 Jul 08 19:20 | 12° $\Omega$ 15'21             | 18°57'16       | retrograde        | 8553 Jun 29 10:41    | 28° $\text{E}$ 26'14           |
| retrograde       | 8552 Jul 17 10:07 | 16° $\Omega$ 31'27             |                | evening set       | 8553 Jul 01 16:04    | 28° $\text{E}$ 07'01           |
| evening set      | 8552 Jul 19 08:51 | 16° $\Omega$ 19'14             |                | inferior conj     | 8553 Jul 09 02:16    | 23° $\text{E}$ 30'25           |
| desc. node       | 8552 Jul 26 00:18 | 13° $\Omega$ 09'21             |                | minimum elong     | 8553 Jul 09 04:25    | 23° $\text{E}$ 25'57           |
| inferior conj    | 8552 Jul 27 14:50 | 12° $\Omega$ 02'55             | -0°29'25       | min. Earth dist.  | 8553 Jul 12 11:29    | 20° $\text{E}$ 44'17           |
| minimum elong    | 8552 Jul 27 13:36 | 12° $\Omega$ 05'06             | 0°29'05        | desc. node        | 8553 Jul 12 21:22    | 20° $\text{E}$ 25'12           |
| min. Earth dist. | 8552 Jul 30 15:15 | 9° $\Omega$ 56'31              | 0.56552 AU     | morning rise      | 8553 Jul 16 13:27    | 18° $\text{E}$ 00'20           |
| morning rise     | 8552 Aug 04 15:08 | 7° $\Omega$ 07'51              |                | direct            | 8553 Jul 22 16:24    | 16° $\text{E}$ 21'14           |
| direct           | 8552 Aug 10 00:32 | 5° $\Omega$ 58'59              |                | morning max el    | 8553 Aug 06 01:45    | 24° $\text{E}$ 05'06           |
| morning max el   | 8552 Aug 24 06:24 | 13° $\Omega$ 19'36             | 26°01'28       |                   | 8553 Aug 11 10:41    | 0° $\Omega$                    |
|                  | 8552 Sep 06 09:21 | 0° $\text{P}$                  |                |                   | 8553 Aug 30 13:12    | 0° $\text{P}$                  |
| asc. node        | 8552 Sep 17 08:45 | 19° $\text{P}$ 34'18           |                | asc. node         | 8553 Sep 04 05:44    | 9° $\text{P}$ 19'50            |
| morning set      | 8552 Sep 21 08:19 | 27° $\text{P}$ 48'37           |                | morning set       | 8553 Sep 05 17:01    | 12° $\text{P}$ 24'04           |
|                  | 8552 Sep 22 08:51 | 0° $\underline{\Omega}$        |                |                   |                      |                                |
|                  |                   |                                |                | superior conj     | 8553 Sep 12 17:14    | 27° $\text{P}$ 41'19           |
| superior conj    | 8552 Sep 28 05:24 | 12° $\underline{\Omega}$ 52'00 | 1°30'25        | minimum elong     | 8553 Sep 12 15:01    | 27° $\text{P}$ 29'00           |
| minimum elong    | 8552 Sep 28 03:36 | 12° $\underline{\Omega}$ 41'58 | 1°30'16        | max. Earth dist.  | 8553 Sep 12 11:58    | 27° $\text{P}$ 12'06           |
| max. Earth dist. | 8552 Sep 29 01:53 | 14° $\underline{\Omega}$ 45'12 | 1.31955 AU     |                   | 8553 Sep 13 18:12    | 0° $\underline{\Omega}$        |
| evening rise     | 8552 Oct 05 04:48 | 27° $\underline{\Omega}$ 58'21 |                | evening rise      | 8553 Sep 19 11:57    | 12° $\underline{\Omega}$ 32'31 |
|                  | 8552 Oct 06 04:14 | 0° $\text{M}$                  |                |                   | 8553 Sep 28 07:09    | 0° $\text{M}$                  |
| desc. node       | 8552 Oct 21 23:01 | 28° $\text{M}$ 24'52           |                | desc. node        | 8553 Oct 08 20:07    | 17° $\text{M}$ 01'35           |
|                  | 8552 Oct 23 00:10 | 0° $\text{X}$                  |                | evening max el    | 8553 Oct 18 23:38    | 29° $\text{M}$ 02'46           |
| evening max el   | 8552 Nov 05 22:14 | 17° $\text{X}$ 12'11           | 27°17'46       |                   | 8553 Oct 20 00:34    | 0° $\text{X}$                  |
| retrograde       | 8552 Nov 19 18:34 | 24° $\text{X}$ 24'39           |                | retrograde        | 8553 Nov 01 21:33    | 6° $\text{X}$ 09'29            |
| evening set      | 8552 Nov 26 20:10 | 22° $\text{X}$ 08'05           |                | evening set       | 8553 Nov 08 14:39    | 4° $\text{X}$ 17'50            |
| min. Earth dist. | 8552 Nov 30 12:48 | 19° $\text{X}$ 19'59           | 0.61531 AU     | min. Earth dist.  | 8553 Nov 12 13:12    | 1° $\text{X}$ 42'49            |
| inferior conj    | 8552 Dec 03 13:40 | 16° $\text{X}$ 37'48           | -3°24'11       |                   | 8553 Nov 14 18:26    | 30° $\text{R}\text{M}$         |
| minimum elong    | 8552 Dec 03 20:05 | 16° $\text{X}$ 23'28           | 3°21'48        | inferior conj     | 8553 Nov 15 18:00    | 29° $\text{M}$ 13'45           |
| morning rise     | 8552 Dec 10 22:14 | 11° $\text{X}$ 39'46           |                | minimum elong     | 8553 Nov 16 01:22    | 28° $\text{M}$ 59'23           |
|                  |                   |                                |                |                   |                      | 4°28'27                        |

|                  |                   |                               |            |                  |                   |                               |            |
|------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| morning rise     | 8553 Nov 23 14:29 | 24° $\mathbb{M}$ 37'47        |            | morning rise     | 8554 Nov 05 08:30 | 6° $\mathbb{M}$ 54'19         |            |
| direct           | 8553 Nov 25 19:47 | 24° $\mathbb{M}$ 20'11        |            | direct           | 8554 Nov 07 18:18 | 6° $\mathbb{M}$ 37'09         |            |
| asc. node        | 8553 Dec 01 05:20 | 26° $\mathbb{M}$ 10'33        |            | morning max el   | 8554 Nov 16 17:16 | 10° $\mathbb{M}$ 54'01        | 19°02'27   |
| morning max el   | 8553 Dec 03 14:48 | 28° $\mathbb{M}$ 09'42        | 18°17'09   | asc. node        | 8554 Nov 18 02:21 | 12° $\mathbb{M}$ 18'59        |            |
|                  | 8553 Dec 05 08:04 | 0° $\mathbb{A}$               |            |                  | 8554 Nov 29 10:25 | 0° $\mathbb{A}$               |            |
| morning set      | 8553 Dec 19 10:06 | 23° $\mathbb{A}$ 20'15        |            | morning set      | 8554 Dec 03 09:14 | 7° $\mathbb{A}$ 40'45         |            |
|                  | 8553 Dec 22 22:19 | 0° $\mathbb{B}$               |            |                  |                   |                               |            |
| superior conj    | 8553 Dec 28 17:34 | 10° $\mathbb{B}$ 47'23        | 0°51'19    | superior conj    | 8554 Dec 11 17:06 | 24° $\mathbb{A}$ 02'26        | 1°15'50    |
| minimum elong    | 8553 Dec 28 20:49 | 11° $\mathbb{B}$ 02'10        | 0°51'03    | minimum elong    | 8554 Dec 11 20:16 | 24° $\mathbb{A}$ 17'37        | 1°15'40    |
| desc. node       | 8554 Jan 04 19:10 | 23° $\mathbb{B}$ 16'21        |            |                  | 8554 Dec 14 20:42 | 0° $\mathbb{B}$               |            |
| max. Earth dist. | 8554 Jan 05 07:58 | 24° $\mathbb{B}$ 10'58        | 1.41009 AU | max. Earth dist. | 8554 Dec 18 13:52 | 6° $\mathbb{B}$ 47'32         | 1.38852 AU |
|                  | 8554 Jan 08 19:11 | 0° $\mathbb{A}$               |            | evening rise     | 8554 Dec 22 09:37 | 13° $\mathbb{B}$ 30'27        |            |
| evening rise     | 8554 Jan 09 23:57 | 1° $\mathbb{A}$ 58'14         |            | desc. node       | 8554 Dec 22 16:09 | 13° $\mathbb{B}$ 58'30        |            |
|                  | 8554 Jan 28 10:39 | 0° $\mathbb{H}$               |            |                  | 8555 Jan 01 11:53 | 0° $\mathbb{A}$               |            |
| evening max el   | 8554 Feb 13 03:48 | 19° $\mathbb{H}$ 37'55        | 23°16'32   | evening max el   | 8555 Jan 23 11:53 | 0° $\mathbb{H}$               |            |
| retrograde       | 8554 Feb 23 15:04 | 25° $\mathbb{H}$ 49'42        |            | retrograde       | 8555 Jan 26 17:18 | 3° $\mathbb{H}$ 24'16         | 24°35'46   |
| asc. node        | 8554 Feb 27 04:20 | 24° $\mathbb{H}$ 47'34        |            | evening set      | 8555 Feb 07 06:31 | 10° $\mathbb{H}$ 09'18        |            |
| evening set      | 8554 Feb 28 14:48 | 23° $\mathbb{H}$ 45'16        |            | asc. node        | 8555 Feb 12 18:37 | 7° $\mathbb{H}$ 51'38         |            |
| min. Earth dist. | 8554 Mar 05 13:01 | 17° $\mathbb{H}$ 58'07        | 0.68392 AU | min. Earth dist. | 8555 Feb 14 01:26 | 6° $\mathbb{H}$ 38'48         |            |
| inferior conj    | 8554 Mar 06 00:22 | 17° $\mathbb{H}$ 18'58        | 2°04'22    | inferior conj    | 8555 Feb 17 08:46 | 2° $\mathbb{H}$ 38'49         | 0.67980 AU |
| minimum elong    | 8554 Mar 05 22:10 | 17° $\mathbb{H}$ 26'35        | 2°03'43    | minimum elong    | 8555 Feb 18 07:35 | 1° $\mathbb{H}$ 22'43         | 1°21'30    |
| morning rise     | 8554 Mar 11 05:29 | 11° $\mathbb{H}$ 12'50        |            |                  | 8555 Feb 18 05:50 | 1° $\mathbb{H}$ 28'35         | 1°20'56    |
| direct           | 8554 Mar 15 12:55 | 9° $\mathbb{H}$ 29'38         |            | morning rise     | 8555 Feb 19 08:38 | 30° $\mathbb{R}$ $\mathbb{A}$ |            |
| morning max el   | 8554 Mar 24 00:10 | 14° $\mathbb{H}$ 22'12        | 21°06'09   | direct           | 8555 Feb 23 17:12 | 25° $\mathbb{A}$ 23'13        |            |
| desc. node       | 8554 Apr 02 18:56 | 26° $\mathbb{H}$ 18'41        |            | morning max el   | 8555 Feb 27 11:39 | 24° $\mathbb{A}$ 01'50        |            |
|                  | 8554 Apr 05 10:36 | 0° $\mathbb{Y}$               |            |                  | 8555 Mar 06 23:35 | 28° $\mathbb{A}$ 14'16        | 19°54'24   |
| morning set      | 8554 Apr 23 17:26 | 27° $\mathbb{Y}$ 23'40        |            | desc. node       | 8555 Mar 08 15:44 | 0° $\mathbb{H}$               |            |
|                  | 8554 Apr 25 09:08 | 0° $\mathbb{B}$               |            |                  | 8555 Mar 29 21:57 | 0° $\mathbb{Y}$               |            |
| max. Earth dist. | 8554 May 01 04:37 | 9° $\mathbb{B}$ 20'15         | 1.42658 AU | morning set      | 8555 Apr 02 15:29 | 5° $\mathbb{Y}$ 43'14         |            |
|                  |                   |                               |            | max. Earth dist. | 8555 Apr 13 14:44 | 22° $\mathbb{Y}$ 52'49        | 1.44275 AU |
| superior conj    | 8554 May 08 08:37 | 21° $\mathbb{B}$ 17'29        | -2°03'36   |                  | 8555 Apr 18 01:11 | 0° $\mathbb{B}$               |            |
| minimum elong    | 8554 May 08 13:28 | 21° $\mathbb{B}$ 38'10        | 2°03'27    | superior conj    | 8555 Apr 18 20:17 | 1° $\mathbb{B}$ 17'27         | -2°12'04   |
|                  | 8554 May 13 09:21 | 0° $\mathbb{H}$               |            | minimum elong    | 8555 Apr 18 20:10 | 1° $\mathbb{B}$ 16'57         | 2°12'11    |
| evening rise     | 8554 May 19 22:42 | 11° $\mathbb{H}$ 40'34        |            | evening rise     | 8555 May 02 03:18 | 23° $\mathbb{B}$ 29'45        |            |
| asc. node        | 8554 May 26 03:12 | 22° $\mathbb{H}$ 40'28        |            |                  | 8555 May 05 22:40 | 0° $\mathbb{H}$               |            |
|                  | 8554 May 30 13:44 | 0° $\mathbb{B}$               |            | asc. node        | 8555 May 13 00:15 | 11° $\mathbb{H}$ 40'01        |            |
| evening max el   | 8554 Jun 05 12:13 | 7° $\mathbb{B}$ 41'11         | 18°06'07   | evening max el   | 8555 May 20 01:36 | 20° $\mathbb{H}$ 58'54        | 18°09'38   |
| retrograde       | 8554 Jun 12 04:24 | 11° $\mathbb{B}$ 05'43        |            | retrograde       | 8555 May 26 10:51 | 24° $\mathbb{H}$ 20'07        |            |
| evening set      | 8554 Jun 14 17:19 | 10° $\mathbb{B}$ 36'14        |            | evening set      | 8555 May 29 07:14 | 23° $\mathbb{H}$ 38'05        |            |
| inferior conj    | 8554 Jun 21 10:04 | 5° $\mathbb{B}$ 39'37         | 2°14'30    | inferior conj    | 8555 Jun 04 10:26 | 18° $\mathbb{H}$ 22'47        | 2°56'46    |
| minimum elong    | 8554 Jun 21 13:06 | 5° $\mathbb{B}$ 32'24         | 2°13'29    | minimum elong    | 8555 Jun 04 12:46 | 18° $\mathbb{H}$ 16'28        | 2°56'09    |
| min. Earth dist. | 8554 Jun 24 15:26 | 2° $\mathbb{B}$ 36'06         | 0.60758 AU | min. Earth dist. | 8555 Jun 07 04:13 | 15° $\mathbb{H}$ 25'39        | 0.62957 AU |
|                  | 8554 Jun 27 20:49 | 30° $\mathbb{R}$ $\mathbb{H}$ |            | morning rise     | 8555 Jun 10 16:42 | 12° $\mathbb{H}$ 12'48        |            |
| morning rise     | 8554 Jun 28 06:17 | 29° $\mathbb{H}$ 44'12        |            | desc. node       | 8555 Jun 16 15:28 | 9° $\mathbb{H}$ 41'36         |            |
| desc. node       | 8554 Jun 29 18:25 | 28° $\mathbb{H}$ 51'46        |            | direct           | 8555 Jun 17 11:02 | 9° $\mathbb{H}$ 39'28         |            |
| direct           | 8554 Jul 04 20:42 | 27° $\mathbb{H}$ 34'23        |            | morning max el   | 8555 Jul 01 11:16 | 17° $\mathbb{H}$ 42'33        | 27°50'41   |
|                  | 8554 Jul 12 08:17 | 0° $\mathbb{B}$               |            |                  | 8555 Jul 11 17:25 | 0° $\mathbb{B}$               |            |
| morning max el   | 8554 Jul 19 03:58 | 5° $\mathbb{B}$ 32'54         | 27°51'38   |                  | 8555 Jul 30 06:48 | 0° $\mathbb{B}$               |            |
|                  | 8554 Aug 06 11:08 | 0° $\mathbb{Q}$               |            | morning set      | 8555 Aug 04 19:37 | 10° $\mathbb{Q}$ 44'04        |            |
| morning set      | 8554 Aug 20 21:31 | 26° $\mathbb{Q}$ 44'55        |            | asc. node        | 8555 Aug 08 23:37 | 19° $\mathbb{Q}$ 20'47        |            |
| asc. node        | 8554 Aug 22 02:41 | 29° $\mathbb{Q}$ 17'06        |            | max. Earth dist. | 8555 Aug 10 01:32 | 21° $\mathbb{Q}$ 38'28        | 1.32389 AU |
|                  | 8554 Aug 22 10:50 | 0° $\mathbb{H}$               |            |                  |                   |                               |            |
| max. Earth dist. | 8554 Aug 26 21:11 | 9° $\mathbb{H}$ 33'57         | 1.31772 AU | superior conj    | 8555 Aug 12 12:25 | 26° $\mathbb{Q}$ 55'46        | 0°35'12    |
| superior conj    | 8554 Aug 28 04:12 | 12° $\mathbb{H}$ 24'40        | 0°58'16    | minimum elong    | 8555 Aug 12 10:51 | 26° $\mathbb{Q}$ 47'18        | 0°34'46    |
| minimum elong    | 8554 Aug 28 02:03 | 12° $\mathbb{H}$ 12'48        | 0°57'50    |                  | 8555 Aug 13 22:15 | 0° $\mathbb{H}$               |            |
| evening rise     | 8554 Sep 03 22:17 | 27° $\mathbb{H}$ 13'31        |            | evening rise     | 8555 Aug 19 09:53 | 11° $\mathbb{H}$ 54'48        |            |
|                  | 8554 Sep 05 05:36 | 0° $\mathbb{Q}$               |            |                  | 8555 Aug 28 12:38 | 0° $\mathbb{Q}$               |            |
|                  | 8554 Sep 22 04:10 | 0° $\mathbb{M}$               |            | evening max el   | 8555 Sep 12 04:42 | 20° $\mathbb{Q}$ 24'39        | 23°41'12   |
| desc. node       | 8554 Sep 25 17:12 | 4° $\mathbb{M}$ 37'20         |            | desc. node       | 8555 Sep 12 14:18 | 20° $\mathbb{Q}$ 47'34        |            |
| evening max el   | 8554 Sep 30 16:59 | 10° $\mathbb{M}$ 03'02        | 25°16'41   | retrograde       | 8555 Sep 25 18:57 | 27° $\mathbb{Q}$ 12'38        |            |
| retrograde       | 8554 Oct 14 14:31 | 17° $\mathbb{M}$ 03'55        |            | evening set      | 8555 Sep 30 05:48 | 26° $\mathbb{Q}$ 29'18        |            |
| evening set      | 8554 Oct 20 10:29 | 15° $\mathbb{M}$ 45'59        |            | min. Earth dist. | 8555 Oct 06 14:58 | 23° $\mathbb{Q}$ 26'20        | 0.55781 AU |
| min. Earth dist. | 8554 Oct 25 04:48 | 13° $\mathbb{M}$ 06'15        | 0.57425 AU | inferior conj    | 8555 Oct 08 16:03 | 22° $\mathbb{Q}$ 12'55        | -5°35'43   |
| inferior conj    | 8554 Oct 28 03:10 | 11° $\mathbb{M}$ 07'28        | -5°20'21   | minimum elong    | 8555 Oct 08 14:43 | 22° $\mathbb{Q}$ 14'54        | 5°35'37    |
| minimum elong    | 8554 Oct 28 08:20 | 10° $\mathbb{M}$ 58'43        | 5°19'34    | morning rise     | 8555 Oct 17 01:43 | 18° $\mathbb{Q}$ 18'19        |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| direct           | 8555 Oct 19 21:30 | 17°♄58'26 |            | minimum elong       | 8556 Sep 17 04:46 | 2°♄48'47  | 4°57'16    |
| morning max el   | 8555 Oct 30 07:43 | 22°♄52'30 | 20°10'14   |                     | 8556 Sep 22 14:22 | 30°♄      |            |
| asc. node        | 8555 Nov 04 23:21 | 29°♄33'40 |            | morning rise        | 8556 Sep 25 23:57 | 28°♄49'08 |            |
|                  | 8555 Nov 05 06:44 | 0°♄       |            | direct              | 8556 Sep 29 09:51 | 28°♄23'21 |            |
| morning set      | 8555 Nov 17 14:47 | 22°♄17'34 |            |                     | 8556 Oct 05 19:16 | 0°♄       |            |
|                  | 8555 Nov 21 08:52 | 0°♄       |            | morning max el      | 8556 Oct 11 09:02 | 4°♄01'26  | 21°39'18   |
|                  |                   |           |            | asc. node           | 8556 Oct 21 20:19 | 17°♄40'08 |            |
| superior conj    | 8555 Nov 25 06:17 | 7°♄55'35  | 1°31'42    |                     | 8556 Oct 28 13:27 | 0°♄       |            |
| minimum elong    | 8555 Nov 25 08:27 | 8°♄06'28  | 1°31'43    | morning set         | 8556 Nov 01 00:17 | 7°♄03'51  |            |
| max. Earth dist. | 8555 Nov 30 20:18 | 18°♄51'44 | 1.36737 AU |                     |                   |           |            |
| evening rise     | 8555 Dec 04 15:44 | 25°♄56'26 |            | superior conj       | 8556 Nov 08 05:10 | 22°♄15'44 | 1°39'44    |
|                  | 8555 Dec 06 22:09 | 0°♄       |            | minimum elong       | 8556 Nov 08 06:01 | 22°♄20'13 | 1°39'52    |
| desc. node       | 8555 Dec 09 13:09 | 4°♄33'32  |            |                     | 8556 Nov 11 23:24 | 0°♄       |            |
|                  | 8555 Dec 26 00:16 | 0°♄       |            | max. Earth dist.    | 8556 Nov 12 08:25 | 0°♄45'26  | 1.34869 AU |
| evening max el   | 8556 Jan 09 06:28 | 17°♄12'06 | 25°47'49   | evening rise        | 8556 Nov 16 14:41 | 9°♄06'51  |            |
| retrograde       | 8556 Jan 21 17:12 | 24°♄19'10 |            | desc. node          | 8556 Nov 25 10:11 | 24°♄56'49 |            |
| evening set      | 8556 Jan 27 17:53 | 21°♄50'51 |            |                     | 8556 Nov 28 11:38 | 0°♄       |            |
| asc. node        | 8556 Jan 31 22:32 | 17°♄20'59 |            |                     | 8556 Dec 20 21:27 | 0°♄       |            |
| min. Earth dist. | 8556 Feb 01 01:13 | 17°♄12'37 | 0.67183 AU | evening max el      | 8556 Dec 21 19:52 | 0°♄55'06  | 26°45'15   |
| inferior conj    | 8556 Feb 02 11:26 | 15°♄24'29 | 0°30'27    | retrograde          | 8557 Jan 03 22:18 | 8°♄12'59  |            |
| minimum elong    | 8556 Feb 02 10:40 | 15°♄26'54 | 0°30'16    | evening set         | 8557 Jan 10 10:45 | 5°♄38'07  |            |
| morning rise     | 8556 Feb 08 03:58 | 9°♄33'34  |            | min. Earth dist.    | 8557 Jan 14 12:00 | 1°♄34'34  | 0.66018 AU |
| direct           | 8556 Feb 11 10:49 | 8°♄31'43  |            |                     | 8557 Jan 15 20:18 | 30°♄      |            |
| morning max el   | 8556 Feb 18 06:41 | 12°♄15'54 | 18°57'40   | inferior conj       | 8557 Jan 16 09:52 | 29°♄19'57 | -0°28'16   |
|                  | 8556 Mar 02 10:57 | 0°♄       |            | minimum elong       | 8557 Jan 16 10:40 | 29°♄17'37 | 0°27'45    |
| desc. node       | 8556 Mar 06 12:46 | 6°♄15'11  |            | asc. node           | 8557 Jan 17 19:37 | 27°♄42'35 |            |
| morning set      | 8556 Mar 11 20:59 | 14°♄32'27 |            | morning rise        | 8557 Jan 22 11:35 | 23°♄40'07 |            |
|                  | 8556 Mar 21 19:01 | 0°♄       |            | direct              | 8557 Jan 25 08:28 | 22°♄54'32 |            |
| max. Earth dist. | 8556 Mar 26 06:50 | 7°♄02'08  | 1.45266 AU | morning max el      | 8557 Jan 31 19:57 | 26°♄22'24 | 18°17'18   |
|                  |                   |           |            |                     | 8557 Feb 04 00:22 | 0°♄       |            |
| superior conj    | 8556 Mar 28 10:03 | 10°♄23'29 | -2°01'33   | morning set         | 8557 Feb 20 04:33 | 24°♄42'41 |            |
| minimum elong    | 8556 Mar 28 02:55 | 9°♄55'25  | 2°01'11    | desc. node          | 8557 Feb 21 09:41 | 26°♄39'35 |            |
|                  | 8556 Apr 09 16:55 | 0°♄       |            |                     | 8557 Feb 23 11:43 | 0°♄       |            |
| evening rise     | 8556 Apr 12 09:09 | 4°♄20'35  |            | superior conj       | 8557 Mar 07 14:55 | 19°♄12'07 | -1°31'30   |
| asc. node        | 8556 Apr 28 21:19 | 0°♄07'37  |            | minimum elong       | 8557 Mar 07 05:24 | 18°♄34'52 | 1°30'27    |
|                  | 8556 Apr 28 19:01 | 0°♄       |            | max. Earth dist.    | 8557 Mar 09 02:28 | 21°♄31'25 | 1.45533 AU |
| evening max el   | 8556 May 02 14:09 | 4°♄29'11  | 18°31'29   |                     | 8557 Mar 14 12:36 | 0°♄       |            |
| retrograde       | 8556 May 09 01:56 | 8°♄00'51  |            | evening rise        | 8557 Mar 23 15:52 | 14°♄16'44 |            |
| evening set      | 8556 May 12 05:43 | 7°♄04'52  |            |                     | 8557 Apr 02 18:00 | 0°♄       |            |
| inferior conj    | 8556 May 17 23:17 | 1°♄32'12  | 3°17'57    | greatest brilliancy | 8557 Apr 03 16:50 | 1°♄27'31  | -0.8m      |
| minimum elong    | 8556 May 18 00:21 | 1°♄29'02  | 3°17'41    | asc. node           | 8557 Apr 15 18:25 | 17°♄52'35 |            |
|                  | 8556 May 19 06:01 | 30°♄      |            | evening max el      | 8557 Apr 15 23:19 | 18°♄05'07 | 19°10'42   |
| min. Earth dist. | 8556 May 20 02:10 | 29°♄00'29 | 0.64894 AU | retrograde          | 8557 Apr 22 22:03 | 21°♄59'41 |            |
| morning rise     | 8556 May 23 18:09 | 25°♄15'37 |            | evening set         | 8557 Apr 26 09:37 | 20°♄49'01 |            |
| direct           | 8556 May 30 09:18 | 22°♄30'26 |            | inferior conj       | 8557 May 01 21:02 | 15°♄00'30 | 3°22'34    |
| desc. node       | 8556 Jun 02 12:28 | 23°♄02'26 |            | minimum elong       | 8557 May 01 20:48 | 15°♄01'15 | 3°22'26    |
|                  | 8556 Jun 12 10:42 | 0°♄       |            | min. Earth dist.    | 8557 May 03 08:32 | 13°♄06'13 | 0.66443 AU |
| morning max el   | 8556 Jun 12 21:13 | 0°♄26'20  | 27°14'56   | morning rise        | 8557 May 07 07:34 | 8°♄42'07  |            |
|                  | 8556 Jul 04 17:51 | 0°♄       |            | direct              | 8557 May 13 14:11 | 5°♄57'11  |            |
| morning set      | 8556 Jul 18 08:39 | 24°♄14'39 |            | desc. node          | 8557 May 20 09:28 | 8°♄27'32  |            |
|                  | 8556 Jul 21 06:29 | 0°♄       |            | morning max el      | 8557 May 26 07:36 | 13°♄32'30 | 26°11'38   |
| max. Earth dist. | 8556 Jul 22 21:37 | 3°♄18'41  | 1.33498 AU |                     | 8557 Jun 08 15:14 | 0°♄       |            |
| asc. node        | 8556 Jul 25 20:35 | 9°♄27'11  |            |                     | 8557 Jun 27 11:22 | 0°♄       |            |
| superior conj    | 8556 Jul 26 15:54 | 11°♄09'04 | 0°08'08    | morning set         | 8557 Jul 01 09:04 | 7°♄06'06  |            |
| minimum elong    | 8556 Jul 26 15:29 | 11°♄06'54 | 0°07'53    | max. Earth dist.    | 8557 Jul 05 07:10 | 14°♄33'38 | 1.35084 AU |
| behind sun begin | 8556 Jul 26 10:37 | 10°♄41'09 |            | superior conj       | 8557 Jul 10 12:06 | 24°♄56'50 | -0°22'09   |
| behind sun end   | 8556 Jul 26 20:21 | 11°♄32'41 |            | minimum elong       | 8557 Jul 10 13:23 | 25°♄03'23 | 0°22'05    |
| evening rise     | 8556 Aug 02 20:54 | 26°♄31'19 |            | asc. node           | 8557 Jul 12 17:33 | 29°♄31'42 |            |
|                  | 8556 Aug 04 12:46 | 0°♄       |            |                     | 8557 Jul 12 23:01 | 0°♄       |            |
|                  | 8556 Aug 23 02:51 | 0°♄       |            | evening rise        | 8557 Jul 18 05:15 | 10°♄56'09 |            |
| evening max el   | 8556 Aug 23 18:18 | 0°♄38'48  | 22°02'28   |                     | 8557 Jul 28 05:54 | 0°♄       |            |
| desc. node       | 8556 Aug 29 11:24 | 5°♄02'22  |            | evening max el      | 8557 Aug 05 17:58 | 11°♄18'40 | 20°35'12   |
| retrograde       | 8556 Sep 05 11:19 | 6°♄57'52  |            | desc. node          | 8557 Aug 16 08:31 | 16°♄51'12 |            |
| evening set      | 8556 Sep 08 11:03 | 6°♄38'00  |            | retrograde          | 8557 Aug 16 23:27 | 16°♄52'11 |            |
| min. Earth dist. | 8556 Sep 16 23:06 | 2°♄56'43  | 0.54827 AU | evening set         | 8557 Aug 19 01:02 | 16°♄41'41 |            |
| inferior conj    | 8556 Sep 17 13:01 | 2°♄37'13  | -4°58'51   |                     |                   |           |            |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| inferior conj       | 8557 Aug 28 05:43 | 12° $\mathbb{M}$ 44'37        | -3°29'46   | inferior conj    | 8558 Aug 08 08:48 | 23° $\mathbb{Q}$ 08'37        | -1°34'30   |
| minimum elong       | 8557 Aug 27 20:43 | 12° $\mathbb{M}$ 57'35        | 3°26'56    | minimum elong    | 8558 Aug 08 04:32 | 23° $\mathbb{Q}$ 15'30        | 1°32'58    |
| min. Earth dist.    | 8557 Aug 29 08:16 | 12° $\mathbb{M}$ 06'23        | 0.54774 AU | min. Earth dist. | 8558 Aug 10 20:46 | 21° $\mathbb{Q}$ 32'11        | 0.55663 AU |
| morning rise        | 8557 Sep 05 16:05 | 8° $\mathbb{M}$ 42'49         |            | morning rise     | 8558 Aug 16 14:22 | 18° $\mathbb{Q}$ 34'41        |            |
| direct              | 8557 Sep 09 18:20 | 8° $\mathbb{M}$ 06'55         |            | direct           | 8558 Aug 21 11:53 | 17° $\mathbb{Q}$ 40'33        |            |
| morning max el      | 8557 Sep 23 00:28 | 14° $\mathbb{M}$ 30'24        | 23°22'58   | morning max el   | 8558 Sep 04 12:52 | 24° $\mathbb{Q}$ 44'03        | 25°07'36   |
|                     | 8557 Oct 05 00:06 | 0° $\mathbb{L}$               |            |                  | 8558 Sep 09 09:53 | 0° $\mathbb{M}$               |            |
| asc. node           | 8557 Oct 08 17:17 | 6° $\mathbb{L}$ 25'51         |            | asc. node        | 8558 Sep 25 14:14 | 25° $\mathbb{M}$ 40'54        |            |
| morning set         | 8557 Oct 16 11:44 | 21° $\mathbb{L}$ 53'48        |            |                  | 8558 Sep 27 18:16 | 0° $\mathbb{L}$               |            |
|                     | 8557 Oct 20 06:12 | 0° $\mathbb{M}$               |            | morning set      | 8558 Sep 30 23:24 | 6° $\mathbb{L}$ 42'02         |            |
| superior conj       | 8557 Oct 23 10:37 | 6° $\mathbb{M}$ 53'32         | 1°40'53    | superior conj    | 8558 Oct 07 20:08 | 21° $\mathbb{L}$ 41'09        | 1°35'52    |
| minimum elong       | 8557 Oct 23 10:14 | 6° $\mathbb{M}$ 51'25         | 1°40'59    | minimum elong    | 8558 Oct 07 18:44 | 21° $\mathbb{L}$ 33'30        | 1°35'50    |
| max. Earth dist.    | 8557 Oct 26 04:39 | 12° $\mathbb{M}$ 45'49        | 1.33380 AU | max. Earth dist. | 8558 Oct 09 08:18 | 24° $\mathbb{L}$ 59'15        | 1.32336 AU |
| evening rise        | 8557 Oct 31 02:38 | 22° $\mathbb{M}$ 51'47        |            |                  | 8558 Oct 11 15:54 | 0° $\mathbb{M}$               |            |
|                     | 8557 Nov 03 18:56 | 0° $\mathbb{X}$               |            | evening rise     | 8558 Oct 15 00:11 | 7° $\mathbb{M}$ 02'03         |            |
| desc. node          | 8557 Nov 12 07:14 | 15° $\mathbb{X}$ 02'34        |            |                  | 8558 Oct 27 06:56 | 0° $\mathbb{X}$               |            |
|                     | 8557 Nov 22 04:29 | 0° $\mathbb{Z}$               |            | desc. node       | 8558 Oct 30 04:20 | 4° $\mathbb{X}$ 42'40         |            |
| evening max el      | 8557 Dec 04 08:37 | 14° $\mathbb{Z}$ 22'45        | 27°20'54   | evening max el   | 8558 Nov 16 18:54 | 27° $\mathbb{X}$ 22'08        | 27°28'17   |
| retrograde          | 8557 Dec 17 21:20 | 21° $\mathbb{Z}$ 43'07        |            |                  | 8558 Nov 19 19:22 | 0° $\mathbb{Z}$               |            |
| evening set         | 8557 Dec 24 19:02 | 19° $\mathbb{Z}$ 07'57        |            | retrograde       | 8558 Nov 30 13:39 | 4° $\mathbb{Z}$ 39'11         |            |
| min. Earth dist.    | 8557 Dec 28 14:58 | 15° $\mathbb{Z}$ 37'47        | 0.64500 AU | evening set      | 8558 Dec 07 15:46 | 2° $\mathbb{Z}$ 12'39         |            |
| inferior conj       | 8557 Dec 31 00:32 | 13° $\mathbb{Z}$ 03'53        | -1°33'37   |                  | 8558 Dec 10 10:54 | 30° $\mathbb{R}$ $\mathbb{X}$ |            |
| minimum elong       | 8557 Dec 31 03:24 | 12° $\mathbb{Z}$ 56'11        | 1°32'13    | min. Earth dist. | 8558 Dec 11 08:18 | 29° $\mathbb{X}$ 11'34        | 0.62677 AU |
| asc. node           | 8558 Jan 04 16:42 | 8° $\mathbb{Z}$ 41'46         |            | inferior conj    | 8558 Dec 14 04:30 | 26° $\mathbb{X}$ 28'21        | -2°43'31   |
| morning rise        | 8558 Jan 06 13:22 | 7° $\mathbb{Z}$ 38'01         |            | minimum elong    | 8558 Dec 14 09:43 | 26° $\mathbb{X}$ 15'51        | 2°41'20    |
| direct              | 8558 Jan 09 02:13 | 7° $\mathbb{Z}$ 04'59         |            | morning rise     | 8558 Dec 21 05:48 | 21° $\mathbb{X}$ 19'28        |            |
| morning max el      | 8558 Jan 15 12:49 | 10° $\mathbb{Z}$ 27'16        | 17°53'55   | asc. node        | 8558 Dec 22 13:46 | 20° $\mathbb{X}$ 59'35        |            |
|                     | 8558 Jan 28 22:55 | 0° $\mathbb{Z}$               |            | direct           | 8558 Dec 23 12:58 | 20° $\mathbb{X}$ 55'14        |            |
| morning set         | 8558 Feb 01 17:22 | 6° $\mathbb{Z}$ 19'33         |            | morning max el   | 8558 Dec 30 06:04 | 24° $\mathbb{X}$ 21'24        | 17°48'01   |
| desc. node          | 8558 Feb 08 06:38 | 17° $\mathbb{Z}$ 15'02        |            |                  | 8559 Jan 03 20:07 | 0° $\mathbb{Z}$               |            |
| superior conj       | 8558 Feb 15 06:21 | 28° $\mathbb{Z}$ 37'03        | -0°49'17   | morning set      | 8559 Jan 15 05:59 | 19° $\mathbb{Z}$ 04'25        |            |
| minimum elong       | 8558 Feb 15 00:44 | 28° $\mathbb{Z}$ 14'27        | 0°48'24    |                  | 8559 Jan 21 11:46 | 0° $\mathbb{Z}$               |            |
|                     | 8558 Feb 16 03:05 | 0° $\mathbb{X}$               |            | desc. node       | 8559 Jan 26 03:35 | 7° $\mathbb{Z}$ 56'50         |            |
| max. Earth dist.    | 8558 Feb 19 22:11 | 6° $\mathbb{X}$ 01'46         | 1.45054 AU | superior conj    | 8559 Jan 26 21:01 | 9° $\mathbb{Z}$ 10'00         | -0°05'22   |
| evening rise        | 8558 Mar 03 06:27 | 23° $\mathbb{X}$ 40'10        |            | minimum elong    | 8559 Jan 26 20:30 | 9° $\mathbb{Z}$ 07'50         | 0°05'08    |
|                     | 8558 Mar 07 09:45 | 0° $\mathbb{Y}$               |            | behind sun begin | 8559 Jan 26 11:50 | 8° $\mathbb{Z}$ 31'31         |            |
| greatest brilliancy | 8558 Mar 18 02:51 | 16° $\mathbb{Y}$ 03'16        | -0.6m      | behind sun end   | 8559 Jan 27 05:10 | 9° $\mathbb{Z}$ 44'04         |            |
|                     | 8558 Mar 28 13:01 | 0° $\mathbb{B}$               |            | max. Earth dist. | 8559 Feb 02 14:57 | 20° $\mathbb{Z}$ 14'30        | 1.43888 AU |
| evening max el      | 8558 Mar 30 03:30 | 1° $\mathbb{B}$ 43'35         | 20°05'37   |                  | 8559 Feb 08 18:48 | 0° $\mathbb{X}$               |            |
| asc. node           | 8558 Apr 02 15:31 | 4° $\mathbb{B}$ 42'42         |            | evening rise     | 8559 Feb 10 18:36 | 3° $\mathbb{X}$ 05'37         |            |
| retrograde          | 8558 Apr 06 20:28 | 6° $\mathbb{B}$ 11'27         |            |                  | 8559 Feb 28 21:30 | 0° $\mathbb{Y}$               |            |
| evening set         | 8558 Apr 10 16:37 | 4° $\mathbb{B}$ 45'47         |            | evening max el   | 8559 Mar 13 02:08 | 15° $\mathbb{Y}$ 23'17        | 21°13'35   |
|                     | 8558 Apr 15 01:54 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            | asc. node        | 8559 Mar 20 12:39 | 20° $\mathbb{Y}$ 22'56        |            |
| inferior conj       | 8558 Apr 16 00:45 | 28° $\mathbb{Y}$ 43'16        | 3°13'59    | retrograde       | 8559 Mar 21 18:53 | 20° $\mathbb{Y}$ 31'01        |            |
| minimum elong       | 8558 Apr 15 23:28 | 28° $\mathbb{Y}$ 47'35        | 3°13'45    | evening set      | 8559 Mar 26 00:45 | 18° $\mathbb{Y}$ 50'14        |            |
| min. Earth dist.    | 8558 Apr 16 21:47 | 27° $\mathbb{Y}$ 32'00        | 0.67556 AU | inferior conj    | 8559 Mar 31 07:59 | 12° $\mathbb{Y}$ 36'08        | 2°54'25    |
| morning rise        | 8558 Apr 21 06:05 | 22° $\mathbb{Y}$ 26'02        |            | minimum elong    | 8559 Mar 31 06:01 | 12° $\mathbb{Y}$ 42'58        | 2°53'59    |
| direct              | 8558 Apr 27 00:52 | 19° $\mathbb{Y}$ 51'14        |            | min. Earth dist. | 8559 Mar 31 15:47 | 12° $\mathbb{Y}$ 09'06        | 0.68223 AU |
| desc. node          | 8558 May 07 06:28 | 25° $\mathbb{Y}$ 26'28        |            | morning rise     | 8559 Apr 05 11:05 | 6° $\mathbb{Y}$ 21'59         |            |
| morning max el      | 8558 May 08 17:08 | 26° $\mathbb{Y}$ 51'13        | 24°50'07   | direct           | 8559 Apr 10 16:23 | 4° $\mathbb{Y}$ 04'25         |            |
|                     | 8558 May 11 15:20 | 0° $\mathbb{B}$               |            | morning max el   | 8559 Apr 21 02:33 | 10° $\mathbb{Y}$ 16'39        | 23°20'39   |
|                     | 8558 Jun 02 06:00 | 0° $\mathbb{I}$               |            | desc. node       | 8559 Apr 24 03:26 | 13° $\mathbb{Y}$ 33'24        |            |
| morning set         | 8558 Jun 13 16:18 | 19° $\mathbb{I}$ 06'44        |            |                  | 8559 May 06 17:01 | 0° $\mathbb{B}$               |            |
| max. Earth dist.    | 8558 Jun 17 07:05 | 25° $\mathbb{I}$ 37'56        | 1.37074 AU | morning set      | 8559 May 26 00:53 | 0° $\mathbb{I}$ 02'22         |            |
|                     | 8558 Jun 19 15:30 | 0° $\mathbb{E}$               |            |                  | 8559 May 26 00:19 | 0° $\mathbb{I}$               |            |
| superior conj       | 8558 Jun 23 22:00 | 8° $\mathbb{E}$ 11'24         | -0°54'07   | max. Earth dist. | 8559 May 30 02:54 | 7° $\mathbb{I}$ 01'24         | 1.39303 AU |
| minimum elong       | 8558 Jun 24 01:20 | 8° $\mathbb{E}$ 27'46         | 0°53'44    | superior conj    | 8559 Jun 06 17:48 | 20° $\mathbb{I}$ 43'58        | -1°25'24   |
| asc. node           | 8558 Jun 29 14:33 | 19° $\mathbb{E}$ 30'35        |            | minimum elong    | 8559 Jun 06 23:03 | 21° $\mathbb{I}$ 08'22        | 1°24'51    |
| evening rise        | 8558 Jul 02 08:37 | 25° $\mathbb{E}$ 02'48        |            |                  | 8559 Jun 11 15:31 | 0° $\mathbb{E}$               |            |
|                     | 8558 Jul 04 20:25 | 0° $\mathbb{Q}$               |            | evening rise     | 8559 Jun 16 04:05 | 8° $\mathbb{E}$ 43'36         |            |
| evening max el      | 8558 Jul 19 07:02 | 22° $\mathbb{Q}$ 42'25        | 19°27'02   | asc. node        | 8559 Jun 16 11:35 | 9° $\mathbb{E}$ 19'48         |            |
| retrograde          | 8558 Jul 28 19:41 | 27° $\mathbb{Q}$ 24'57        |            |                  | 8559 Jun 28 07:05 | 0° $\mathbb{Q}$               |            |
| evening set         | 8558 Jul 30 16:06 | 27° $\mathbb{Q}$ 15'03        |            | evening max el   | 8559 Jul 02 07:44 | 4° $\mathbb{Q}$ 50'00         | 18°39'44   |
| desc. node          | 8558 Aug 03 05:38 | 26° $\mathbb{Q}$ 05'50        |            | retrograde       | 8559 Jul 10 08:53 | 8° $\mathbb{Q}$ 49'54         |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening set      | 8559 Jul 12 10:04 | 8°♊35'15  |            | asc. node        | 8560 Jun 02 08:37 | 28°♊54'17 |            |
| inferior conj    | 8559 Jul 20 07:37 | 4°♊10'56  | 0°14'22    |                  | 8560 Jun 02 23:09 | 0°♊       |            |
| minimum elong    | 8559 Jul 20 08:10 | 4°♊09'55  | 0°14'00    | evening max el   | 8560 Jun 14 16:16 | 17°♊32'06 | 18°12'44   |
| transit middle   | 8559 Jul 20 08:10 | 4°♊09'55  | 0°14'00    | retrograde       | 8560 Jun 21 16:56 | 21°♊04'41 |            |
| transit begin    | 8559 Jul 20 06:21 | 4°♊13'19  |            | evening set      | 8560 Jun 24 01:39 | 20°♊41'19 |            |
| transit end      | 8559 Jul 20 09:58 | 4°♊06'31  |            | inferior conj    | 8560 Jul 01 04:00 | 15°♊56'14 | 1°38'43    |
| desc. node       | 8559 Jul 21 02:43 | 3°♊34'51  |            | minimum elong    | 8560 Jul 01 06:47 | 15°♊50'06 | 1°37'37    |
| min. Earth dist. | 8559 Jul 23 13:50 | 1°♊44'55  | 0.57328 AU | min. Earth dist. | 8560 Jul 04 12:58 | 12°♊59'45 | 0.59463 AU |
|                  | 8559 Jul 26 05:25 | 30°♋♊     |            | desc. node       | 8560 Jul 06 23:48 | 11°♊07'01 |            |
| morning rise     | 8559 Jul 28 02:44 | 28°♊59'56 |            | morning rise     | 8560 Jul 08 08:53 | 10°♊14'22 |            |
| direct           | 8559 Aug 02 20:13 | 27°♊38'25 |            | direct           | 8560 Jul 14 17:51 | 8°♊21'33  |            |
|                  | 8559 Aug 10 14:07 | 0°♊       |            | morning max el   | 8560 Jul 29 02:30 | 16°♊12'23 | 27°34'50   |
| morning max el   | 8559 Aug 17 04:31 | 5°♊11'03  | 26°36'16   |                  | 8560 Aug 09 09:41 | 0°♊       |            |
|                  | 8559 Sep 04 08:29 | 0°♋       |            |                  | 8560 Aug 26 19:57 | 0°♋       |            |
| asc. node        | 8559 Sep 12 11:11 | 15°♋17'24 |            | asc. node        | 8560 Aug 29 08:07 | 5°♋08'10  |            |
| morning set      | 8559 Sep 15 09:39 | 21°♋23'54 |            | morning set      | 8560 Aug 29 16:45 | 5°♋53'14  |            |
|                  | 8559 Sep 19 08:51 | 0°♌       |            | max. Earth dist. | 8560 Sep 05 03:02 | 19°♋49'05 | 1.31635 AU |
| superior conj    | 8559 Sep 22 07:40 | 6°♌32'08  | 1°25'17    | superior conj    | 8560 Sep 05 19:19 | 21°♋19'18 | 1°09'32    |
| minimum elong    | 8559 Sep 22 05:38 | 6°♌20'49  | 1°25'04    | minimum elong    | 8560 Sep 05 17:04 | 21°♋06'50 | 1°09'09    |
| max. Earth dist. | 8559 Sep 22 16:58 | 7°♌23'41  | 1.31755 AU |                  | 8560 Sep 09 17:25 | 0°♌       |            |
| evening rise     | 8559 Sep 29 04:32 | 21°♌30'07 |            | evening rise     | 8560 Sep 12 13:15 | 6°♌07'48  |            |
|                  | 8559 Oct 03 08:13 | 0°♍       |            |                  | 8560 Sep 24 23:27 | 0°♍       |            |
| desc. node       | 8559 Oct 17 01:25 | 23°♍46'50 |            | desc. node       | 8560 Oct 02 22:31 | 11°♍59'54 |            |
|                  | 8559 Oct 21 11:56 | 0°♎       |            | evening max el   | 8560 Oct 10 22:39 | 21°♍11'04 | 26°03'40   |
| evening max el   | 8559 Oct 30 00:27 | 9°♎41'38  | 27°02'43   | retrograde       | 8560 Oct 24 20:48 | 28°♍14'49 |            |
| retrograde       | 8559 Nov 12 22:07 | 16°♎52'09 |            | evening set      | 8560 Oct 31 06:28 | 26°♍37'06 |            |
| evening set      | 8559 Nov 19 21:10 | 14°♎44'59 |            | min. Earth dist. | 8560 Nov 04 11:34 | 24°♍02'14 | 0.58560 AU |
| min. Earth dist. | 8559 Nov 23 15:06 | 12°♎04'03 | 0.60647 AU | inferior conj    | 8560 Nov 07 14:59 | 21°♍44'19 | -4°54'36   |
| inferior conj    | 8559 Nov 26 18:30 | 9°♎25'16  | -3°53'23   | minimum elong    | 8560 Nov 07 21:55 | 21°♍31'34 | 4°53'02    |
| minimum elong    | 8559 Nov 27 01:34 | 9°♎10'20  | 3°51'02    | morning rise     | 8560 Nov 15 15:41 | 17°♍17'44 |            |
| morning rise     | 8559 Dec 04 08:23 | 4°♎36'15  |            | direct           | 8560 Nov 17 22:17 | 17°♍00'37 |            |
| direct           | 8559 Dec 06 13:04 | 4°♎17'13  |            | asc. node        | 8560 Nov 25 07:48 | 20°♍14'08 |            |
| asc. node        | 8559 Dec 09 10:47 | 4°♎52'03  |            | morning max el   | 8560 Nov 26 04:05 | 21°♍00'45 | 18°33'40   |
| morning max el   | 8559 Dec 13 20:22 | 7°♎55'59  | 18°00'42   |                  | 8560 Dec 03 00:56 | 0°♎       |            |
|                  | 8559 Dec 28 01:44 | 0°♏       |            | morning set      | 8560 Dec 12 05:58 | 16°♎44'43 |            |
| morning set      | 8559 Dec 29 11:56 | 2°♏37'57  |            |                  | 8560 Dec 19 03:21 | 0°♏       |            |
| superior conj    | 8560 Jan 08 12:56 | 20°♏54'48 | 0°33'02    | superior conj    | 8560 Dec 21 02:22 | 3°♏40'44  | 1°02'49    |
| minimum elong    | 8560 Jan 08 15:29 | 21°♏06'04 | 0°32'51    | minimum elong    | 8560 Dec 21 05:45 | 3°♏56'27  | 1°02'34    |
| desc. node       | 8560 Jan 13 00:33 | 28°♏41'30 |            | max. Earth dist. | 8560 Dec 28 11:24 | 16°♏58'13 | 1.40111 AU |
|                  | 8560 Jan 13 19:02 | 0°♐       |            | desc. node       | 8560 Dec 29 21:31 | 19°♏25'31 |            |
| max. Earth dist. | 8560 Jan 16 03:18 | 3°♐56'04  | 1.42177 AU | evening rise     | 8561 Jan 01 16:00 | 24°♏06'49 |            |
| evening rise     | 8560 Jan 21 19:02 | 13°♐08'25 |            |                  | 8561 Jan 05 06:00 | 0°♐       |            |
|                  | 8560 Feb 01 18:18 | 0°♑       |            |                  | 8561 Jan 25 14:33 | 0°♑       |            |
| evening max el   | 8560 Feb 23 19:58 | 29°♑05'10 | 22°30'29   | evening max el   | 8561 Feb 05 10:35 | 12°♑50'22 | 23°50'42   |
|                  | 8560 Feb 24 18:20 | 0°♒       |            | retrograde       | 8561 Feb 16 09:04 | 19°♑16'43 |            |
| retrograde       | 8560 Mar 04 15:32 | 4°♒54'11  |            | asc. node        | 8561 Feb 21 06:52 | 17°♑21'22 |            |
| asc. node        | 8560 Mar 06 09:46 | 4°♒38'37  |            | evening set      | 8561 Feb 21 14:03 | 17°♑06'31 |            |
| evening set      | 8560 Mar 09 08:24 | 2°♒58'22  |            | min. Earth dist. | 8561 Feb 26 08:43 | 11°♑34'04 | 0.68271 AU |
|                  | 8560 Mar 12 03:51 | 30°♓♒     |            | inferior conj    | 8561 Feb 27 00:56 | 10°♑38'51 | 1°47'12    |
| inferior conj    | 8560 Mar 14 16:40 | 26°♓35'40 | 2°25'13    | minimum elong    | 8561 Feb 26 22:52 | 10°♑45'55 | 1°46'34    |
| minimum elong    | 8560 Mar 14 14:26 | 26°♓43'29 | 2°24'37    | morning rise     | 8561 Mar 04 07:40 | 4°♓35'24  |            |
| min. Earth dist. | 8560 Mar 14 12:10 | 26°♓51'21 | 0.68455 AU | direct           | 8561 Mar 08 09:33 | 3°♓01'29  |            |
| morning rise     | 8560 Mar 19 20:18 | 20°♓26'10 |            | morning max el   | 8561 Mar 16 09:48 | 7°♓35'04  | 20°33'55   |
| direct           | 8560 Mar 24 11:42 | 18°♓29'48 |            | desc. node       | 8561 Mar 27 21:17 | 22°♓01'10 |            |
| morning max el   | 8560 Apr 02 14:56 | 23°♓49'57 | 21°52'48   |                  | 8561 Apr 02 09:37 | 0°♓       |            |
|                  | 8560 Apr 08 01:19 | 0°♓       |            | morning set      | 8561 Apr 14 11:28 | 18°♓17'51 |            |
| desc. node       | 8560 Apr 10 00:22 | 2°♓29'26  |            |                  | 8561 Apr 21 21:41 | 0°♔       |            |
|                  | 8560 Apr 29 02:17 | 0°♔       |            | max. Earth dist. | 8561 Apr 23 08:52 | 2°♔21'20  | 1.43419 AU |
| morning set      | 8560 May 05 06:17 | 9°♔41'57  |            | superior conj    | 8561 Apr 29 21:00 | 13°♔01'31 | -2°09'12   |
| max. Earth dist. | 8560 May 11 02:07 | 19°♔13'03 | 1.41517 AU | minimum elong    | 8561 Apr 30 00:15 | 13°♔15'05 | 2°09'14    |
|                  | 8560 May 17 10:05 | 0°♕       |            |                  | 8561 May 09 19:02 | 0°♕       |            |
| superior conj    | 8560 May 18 18:57 | 2°♕23'45  | -1°52'13   | evening rise     | 8561 May 12 03:58 | 4°♕09'42  |            |
| minimum elong    | 8560 May 19 00:46 | 2°♕49'24  | 1°51'52    | asc. node        | 8561 May 20 05:41 | 18°♕08'52 |            |
| evening rise     | 8560 May 29 12:00 | 21°♕49'08 |            |                  | 8561 May 28 13:27 | 0°♖       |            |

|                     |                   |           |            |                  |                   |           |            |
|---------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| evening max el      | 8561 May 29 04:52 | 0°☿39'35  | 18°05'16   |                  | 8562 Apr 14 12:45 | 0°♄       |            |
| retrograde          | 8561 Jun 04 16:43 | 4°☿00'49  |            | evening rise     | 8562 Apr 23 23:16 | 15°♄34'43 |            |
| evening set         | 8561 Jun 07 08:56 | 3°☿26'04  |            |                  | 8562 May 02 15:38 | 0°♄       |            |
|                     | 8561 Jun 12 03:11 | 30°♄      |            | asc. node        | 8562 May 07 02:45 | 6°♄55'54  |            |
| inferior conj       | 8561 Jun 13 19:23 | 28°♄21'01 | 2°35'19    | evening max el   | 8562 May 12 18:10 | 14°♄03'02 | 18°16'40   |
| minimum elong       | 8561 Jun 13 22:14 | 28°♄13'49 | 2°34'27    | retrograde       | 8562 May 19 03:30 | 17°♄27'25 |            |
| min. Earth dist.    | 8561 Jun 16 20:20 | 25°♄17'52 | 0.61719 AU | evening set      | 8562 May 22 02:57 | 16°♄39'35 |            |
| morning rise        | 8561 Jun 20 09:27 | 22°♄18'25 |            | inferior conj    | 8562 May 28 01:35 | 11°♄16'26 | 3°08'00    |
| desc. node          | 8561 Jun 23 20:51 | 20°♄30'00 |            | minimum elong    | 8562 May 28 03:24 | 11°♄11'16 | 3°07'34    |
| direct              | 8561 Jun 27 02:27 | 19°♄57'42 |            | min. Earth dist. | 8562 May 30 13:06 | 8°♄28'19  | 0.63822 AU |
| morning max el      | 8561 Jul 11 07:07 | 27°♄58'24 | 27°55'51   | morning rise     | 8562 Jun 03 02:37 | 5°♄02'37  |            |
|                     | 8561 Jul 13 05:52 | 0°♄       |            | direct           | 8562 Jun 09 20:09 | 2°♄23'00  |            |
|                     | 8561 Aug 03 04:32 | 0°♄       |            | desc. node       | 8562 Jun 10 17:52 | 2°♄25'39  |            |
| morning set         | 8561 Aug 13 18:46 | 20°♄05'09 |            | morning max el   | 8562 Jun 23 16:09 | 10°♄24'45 | 27°39'23   |
| asc. node           | 8561 Aug 16 05:04 | 25°♄08'27 |            |                  | 8562 Jul 09 01:06 | 0°♄       |            |
|                     | 8561 Aug 18 11:40 | 0°♄       |            |                  | 8562 Jul 26 13:48 | 0°♄       |            |
| max. Earth dist.    | 8561 Aug 19 10:47 | 2°♄05'16  | 1.31982 AU | morning set      | 8562 Jul 28 13:24 | 3°♄53'13  |            |
|                     |                   |           |            | max. Earth dist. | 8562 Aug 02 12:13 | 14°♄00'59 | 1.32802 AU |
| superior conj       | 8561 Aug 21 05:18 | 5°♄57'37  | 0°49'01    | asc. node        | 8562 Aug 03 02:02 | 15°♄13'48 |            |
| minimum elong       | 8561 Aug 21 03:20 | 5°♄46'49  | 0°48'33    |                  |                   |           |            |
| evening rise        | 8561 Aug 28 00:21 | 20°♄49'23 |            | superior conj    | 8562 Aug 05 11:46 | 20°♄21'37 | 0°24'09    |
|                     | 8561 Sep 01 10:15 | 0°♄       |            | minimum elong    | 8562 Aug 05 10:37 | 20°♄15'28 | 0°23'47    |
| desc. node          | 8561 Sep 19 19:37 | 29°♄02'08 |            |                  | 8562 Aug 09 22:40 | 0°♄       |            |
|                     | 8561 Sep 20 16:53 | 0°♄       |            | evening rise     | 8562 Aug 12 11:56 | 5°♄29'15  |            |
| evening max el      | 8561 Sep 22 12:57 | 1°♄51'27  | 24°37'27   |                  | 8562 Aug 25 12:15 | 0°♄       |            |
| retrograde          | 8561 Oct 06 08:07 | 8°♄47'40  |            | evening max el   | 8562 Sep 04 00:08 | 12°♄04'38 | 22°58'30   |
| evening set         | 8561 Oct 11 15:28 | 7°♄44'55  |            | desc. node       | 8562 Sep 06 16:44 | 14°♄27'14 |            |
| min. Earth dist.    | 8561 Oct 16 23:58 | 4°♄57'40  | 0.56664 AU | retrograde       | 8562 Sep 17 07:26 | 18°♄43'26 |            |
| inferior conj       | 8561 Oct 19 15:17 | 3°♄16'47  | -5°32'19   | evening set      | 8562 Sep 21 02:41 | 18°♄11'47 |            |
| minimum elong       | 8561 Oct 19 18:09 | 3°♄12'13  | 5°32'01    | min. Earth dist. | 8562 Sep 28 08:43 | 14°♄54'08 | 0.55269 AU |
|                     | 8561 Oct 25 12:42 | 30°♄      |            | inferior conj    | 8562 Sep 29 20:25 | 14°♄02'41 | -5°27'05   |
| morning rise        | 8561 Oct 27 23:01 | 29°♄12'36 |            | minimum elong    | 8562 Sep 29 15:46 | 14°♄09'24 | 5°26'35    |
| direct              | 8561 Oct 30 12:43 | 28°♄54'30 |            | morning rise     | 8562 Oct 08 06:54 | 10°♄13'17 |            |
|                     | 8561 Nov 04 05:56 | 0°♄       |            | direct           | 8562 Oct 11 08:10 | 9°♄51'27  |            |
| morning max el      | 8561 Nov 09 01:38 | 3°♄25'38  | 19°28'38   | morning max el   | 8562 Oct 22 10:33 | 15°♄03'25 | 20°45'57   |
| asc. node           | 8561 Nov 12 04:47 | 6°♄52'01  |            | asc. node        | 8562 Oct 30 01:45 | 24°♄30'26 |            |
|                     | 8561 Nov 25 17:34 | 0°♄       |            |                  | 8562 Nov 02 10:16 | 0°♄       |            |
| morning set         | 8561 Nov 26 08:10 | 1°♄13'03  |            | morning set      | 8562 Nov 10 15:41 | 15°♄54'56 |            |
|                     |                   |           |            |                  | 8562 Nov 17 10:27 | 0°♄       |            |
| superior conj       | 8561 Dec 04 08:14 | 17°♄13'22 | 1°23'35    |                  |                   |           |            |
| minimum elong       | 8561 Dec 04 11:02 | 17°♄27'07 | 1°23'29    | superior conj    | 8562 Nov 18 02:02 | 1°♄19'53  | 1°36'01    |
| max. Earth dist.    | 8561 Dec 10 17:18 | 29°♄20'27 | 1.37932 AU | minimum elong    | 8562 Nov 18 03:39 | 1°♄28'10  | 1°36'05    |
|                     | 8561 Dec 11 01:55 | 0°♄       |            | max. Earth dist. | 8562 Nov 23 01:28 | 11°♄17'07 | 1.35892 AU |
| evening rise        | 8561 Dec 14 10:38 | 6°♄02'16  |            | evening rise     | 8562 Nov 27 00:25 | 18°♄48'36 |            |
| desc. node          | 8561 Dec 16 18:29 | 10°♄04'56 |            |                  | 8562 Dec 03 07:07 | 0°♄       |            |
|                     | 8561 Dec 29 05:00 | 0°♄       |            | desc. node       | 8562 Dec 03 15:31 | 0°♄35'50  |            |
| evening max el      | 8562 Jan 18 23:45 | 26°♄37'43 | 25°07'43   |                  | 8562 Dec 23 08:45 | 0°♄       |            |
|                     | 8562 Jan 22 19:00 | 0°♄       |            | evening max el   | 8563 Jan 01 12:49 | 10°♄24'05 | 26°14'25   |
| retrograde          | 8562 Jan 30 22:29 | 3°♄33'12  |            | retrograde       | 8563 Jan 14 07:03 | 17°♄37'48 |            |
| evening set         | 8562 Feb 05 16:08 | 1°♄10'21  |            | evening set      | 8563 Jan 20 12:58 | 15°♄05'46 |            |
|                     | 8562 Feb 06 22:14 | 30°♄      |            | min. Earth dist. | 8563 Jan 24 17:30 | 10°♄42'30 | 0.66730 AU |
| asc. node           | 8562 Feb 08 03:57 | 28°♄38'50 |            | inferior conj    | 8563 Jan 26 08:46 | 8°♄41'57  | 0°06'26    |
| min. Earth dist.    | 8562 Feb 10 03:12 | 26°♄12'33 | 0.67690 AU | minimum elong    | 8563 Jan 26 08:35 | 8°♄42'30  | 0°06'32    |
| inferior conj       | 8562 Feb 11 06:56 | 24°♄42'00 | 1°00'47    | transit middle   | 8563 Jan 26 08:35 | 8°♄42'30  | 0°06'32    |
| minimum elong       | 8562 Feb 11 05:32 | 24°♄46'36 | 1°00'22    | transit begin    | 8563 Jan 26 05:58 | 8°♄50'34  |            |
| morning rise        | 8562 Feb 16 19:14 | 18°♄46'12 |            | transit end      | 8563 Jan 26 11:13 | 8°♄34'26  |            |
| direct              | 8562 Feb 20 08:35 | 17°♄33'31 |            | asc. node        | 8563 Jan 26 01:01 | 9°♄05'48  |            |
| morning max el      | 8562 Feb 27 12:41 | 21°♄32'05 | 19°28'22   | morning rise     | 8563 Feb 01 04:58 | 2°♄55'39  |            |
|                     | 8562 Mar 06 12:15 | 0°♄       |            | direct           | 8563 Feb 04 07:16 | 2°♄01'21  |            |
| greatest brilliancy | 8562 Mar 12 07:33 | 8°♄19'37  | -0.7m      | morning max el   | 8563 Feb 10 22:48 | 5°♄37'21  | 18°38'28   |
| desc. node          | 8562 Mar 14 18:10 | 11°♄58'28 |            |                  | 8563 Feb 28 04:49 | 0°♄       |            |
| morning set         | 8562 Mar 24 09:38 | 26°♄41'40 |            | desc. node       | 8563 Mar 01 15:06 | 2°♄14'44  |            |
|                     | 8562 Mar 26 13:00 | 0°♄       |            | morning set      | 8563 Mar 04 00:52 | 6°♄01'57  |            |
| max. Earth dist.    | 8562 Apr 05 22:16 | 16°♄13'20 | 1.44784 AU |                  | 8563 Mar 19 07:42 | 0°♄       |            |
|                     |                   |           |            | max. Earth dist. | 8563 Mar 19 15:52 | 0°♄32'00  | 1.45472 AU |
| superior conj       | 8562 Apr 09 22:23 | 22°♄35'17 | -2°10'08   |                  |                   |           |            |
| minimum elong       | 8562 Apr 09 19:11 | 22°♄22'31 | 2°10'07    | superior conj    | 8563 Mar 20 06:12 | 1°♄28'07  | -1°50'55   |



|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| minimum elong       | 8563 Mar 19 21:11 | 0°Υ52'47  | 1°50'12    |                     | 8564 Feb 20 23:55 | 0°Ϡ       |            |
| evening rise        | 8563 Apr 04 19:00 | 26°Υ00'56 |            |                     |                   |           |            |
|                     | 8563 Apr 07 06:49 | 0°Ϡ       |            | superior conj       | 8564 Feb 27 13:25 | 10°Ϡ26'45 | -1°14'27   |
| greatest brilliancy | 8563 Apr 12 18:39 | 8°Ϡ45'32  | -0.9m      | minimum elong       | 8564 Feb 27 05:03 | 9°Ϡ53'41  | 1°13'23    |
| asc. node           | 8563 Apr 23 23:50 | 25°Ϡ06'43 |            | max. Earth dist.    | 8564 Mar 01 11:23 | 15°Ϡ01'59 | 1.45417 AU |
| evening max el      | 8563 Apr 26 05:28 | 27°Ϡ35'57 | 18°46'06   |                     | 8564 Mar 11 01:54 | 0°Υ       |            |
|                     | 8563 Apr 29 02:25 | 0°Π       |            | evening rise        | 8564 Mar 14 17:30 | 5°Υ39'18  |            |
| retrograde          | 8563 May 02 21:09 | 1°Π16'17  |            | greatest brilliancy | 8564 Mar 27 17:47 | 25°Υ35'15 | -0.7m      |
| evening set         | 8563 May 06 04:04 | 0°Π14'18  |            |                     | 8564 Mar 30 17:48 | 0°Ϡ       |            |
|                     | 8563 May 06 12:47 | 30°ϠϠ     |            | evening max el      | 8564 Apr 08 12:44 | 11°Ϡ13'51 | 19°32'19   |
| inferior conj       | 8563 May 11 18:39 | 24°Ϡ34'43 | 3°21'40    | asc. node           | 8564 Apr 09 20:56 | 12°Ϡ30'22 |            |
| minimum elong       | 8563 May 11 19:08 | 24°Ϡ33'12 | 3°21'30    | retrograde          | 8564 Apr 15 18:28 | 15°Ϡ21'23 |            |
| min. Earth dist.    | 8563 May 13 14:59 | 22°Ϡ17'35 | 0.65605 AU | evening set         | 8564 Apr 19 09:32 | 14°Ϡ04'30 |            |
| morning rise        | 8563 May 17 09:33 | 18°Ϡ16'36 |            | inferior conj       | 8564 Apr 24 19:16 | 8°Ϡ10'03  | 3°20'23    |
| direct              | 8563 May 23 21:32 | 15°Ϡ29'57 |            | minimum elong       | 8564 Apr 24 18:33 | 8°Ϡ12'25  | 3°20'13    |
| desc. node          | 8563 May 28 14:53 | 16°Ϡ42'50 |            | min. Earth dist.    | 8564 Apr 26 00:35 | 6°Ϡ33'22  | 0.66975 AU |
| morning max el      | 8563 Jun 06 02:39 | 23°Ϡ19'49 | 26°50'43   | morning rise        | 8564 Apr 30 03:13 | 1°Ϡ51'53  |            |
|                     | 8563 Jun 12 00:45 | 0°Π       |            |                     | 8564 May 02 18:51 | 30°ϠΥ     |            |
|                     | 8563 Jul 02 09:05 | 0°Ϡ       |            | direct              | 8564 May 06 05:13 | 29°Υ09'51 |            |
| morning set         | 8563 Jul 11 21:35 | 17°Ϡ08'36 |            |                     | 8564 May 09 22:16 | 0°Ϡ       |            |
| max. Earth dist.    | 8563 Jul 16 03:47 | 25°Ϡ28'48 | 1.34112 AU | desc. node          | 8564 May 14 11:54 | 2°Ϡ51'34  |            |
|                     | 8563 Jul 18 09:17 | 0°Ω       |            | morning max el      | 8564 May 18 12:33 | 6°Ϡ32'01  | 25°38'28   |
|                     |                   |           |            |                     | 8564 Jun 05 16:41 | 0°Π       |            |
| superior conj       | 8563 Jul 20 12:29 | 4°Ω24'46  | -0°04'26   | morning set         | 8564 Jun 23 15:22 | 29°Π40'37 |            |
| minimum elong       | 8563 Jul 20 12:43 | 4°Ω26'04  | 0°04'34    |                     | 8564 Jun 23 19:37 | 0°Ϡ       |            |
| behind sun begin    | 8563 Jul 20 07:12 | 3°Ω57'18  |            | max. Earth dist.    | 8564 Jun 27 08:32 | 6°Ϡ35'18  | 1.35887 AU |
| behind sun end      | 8563 Jul 20 18:14 | 4°Ω54'51  |            |                     |                   |           |            |
| asc. node           | 8563 Jul 20 23:01 | 5°Ω19'50  |            | superior conj       | 8564 Jul 03 04:47 | 18°Ϡ00'10 | -0°35'37   |
| evening rise        | 8563 Jul 27 22:05 | 20°Ω01'15 |            | minimum elong       | 8564 Jul 03 06:55 | 18°Ϡ10'52 | 0°35'24    |
|                     | 8563 Aug 01 19:54 | 0°Π       |            | asc. node           | 8564 Jul 06 20:01 | 25°Ϡ22'47 |            |
| evening max el      | 8563 Aug 16 17:15 | 22°Π26'21 | 21°23'22   |                     | 8564 Jul 09 02:02 | 0°Ω       |            |
| desc. node          | 8563 Aug 24 13:51 | 27°Π43'05 |            | evening rise        | 8564 Jul 11 04:39 | 4°Ω19'29  |            |
| retrograde          | 8563 Aug 28 20:58 | 28°Π27'56 |            |                     | 8564 Jul 25 21:54 | 0°Π       |            |
| evening set         | 8563 Aug 31 08:44 | 28°Π13'40 |            | evening max el      | 8564 Jul 28 22:46 | 3°Π24'59  | 20°03'43   |
| inferior conj       | 8563 Sep 09 13:52 | 24°Π16'15 | -4°26'27   | retrograde          | 8564 Aug 08 10:36 | 8°Π35'52  |            |
| minimum elong       | 8563 Sep 09 04:22 | 24°Π29'35 | 4°24'03    | evening set         | 8564 Aug 10 08:19 | 8°Π26'23  |            |
| min. Earth dist.    | 8563 Sep 09 17:25 | 24°Π11'17 | 0.54679 AU | desc. node          | 8564 Aug 10 10:59 | 8°Π25'16  |            |
| morning rise        | 8563 Sep 18 00:46 | 20°Π24'34 |            | inferior conj       | 8564 Aug 19 09:25 | 4°Π27'15  | -2°42'01   |
| direct              | 8563 Sep 21 17:04 | 19°Π55'17 |            | minimum elong       | 8564 Aug 19 02:04 | 4°Π38'14  | 2°39'27    |
| morning max el      | 8563 Oct 04 07:07 | 25°Π53'45 | 22°22'20   | min. Earth dist.    | 8564 Aug 21 03:55 | 3°Π23'42  | 0.55047 AU |
|                     | 8563 Oct 08 03:44 | 0°Ω       |            | morning rise        | 8564 Aug 27 18:24 | 0°Π13'23  |            |
| asc. node           | 8563 Oct 16 22:44 | 12°Ω54'49 |            |                     | 8564 Aug 28 12:58 | 30°ϠΩ     |            |
|                     | 8563 Oct 25 18:02 | 0°Π       |            | direct              | 8564 Sep 01 04:53 | 29°Ω30'35 |            |
| morning set         | 8563 Oct 26 02:13 | 0°Π43'02  |            |                     | 8564 Sep 04 19:39 | 0°Π       |            |
|                     |                   |           |            | morning max el      | 8564 Sep 14 20:14 | 6°Π12'17  | 24°08'14   |
| superior conj       | 8563 Nov 02 04:03 | 15°Π48'30 | 1°41'01    |                     | 8564 Oct 01 19:10 | 0°Ω       |            |
| minimum elong       | 8563 Nov 02 04:22 | 15°Π50'07 | 1°41'09    | asc. node           | 8564 Oct 02 19:43 | 1°Ω54'08  |            |
| max. Earth dist.    | 8563 Nov 05 16:34 | 23°Π10'15 | 1.34178 AU | morning set         | 8564 Oct 09 13:57 | 15°Ω32'29 |            |
|                     | 8563 Nov 09 01:51 | 0°Ϡ       |            |                     |                   |           |            |
| evening rise        | 8563 Nov 10 05:22 | 2°Ϡ14'52  |            | superior conj       | 8564 Oct 16 11:30 | 0°Π30'58  | 1°39'27    |
| desc. node          | 8563 Nov 20 12:35 | 20°Ϡ52'17 |            | minimum elong       | 8564 Oct 16 10:39 | 0°Π26'19  | 1°39'31    |
|                     | 8563 Nov 26 05:18 | 0°Ϡ       |            |                     | 8564 Oct 16 05:48 | 0°Π       |            |
| evening max el      | 8563 Dec 15 02:03 | 24°Ϡ01'38 | 27°03'33   | max. Earth dist.    | 8564 Oct 18 16:14 | 5°Π15'57  | 1.32885 AU |
|                     | 8563 Dec 23 02:30 | 0°≈       |            | evening rise        | 8564 Oct 23 21:48 | 16°Π11'36 |            |
| retrograde          | 8563 Dec 28 09:52 | 1°≈22'11  |            |                     | 8564 Oct 31 02:39 | 0°Ϡ       |            |
|                     | 8564 Jan 02 07:06 | 30°ϠϠ     |            | desc. node          | 8564 Nov 06 09:39 | 10°Ϡ47'50 |            |
| evening set         | 8564 Jan 04 02:30 | 28°Ϡ46'22 |            |                     | 8564 Nov 19 20:54 | 0°Ϡ       |            |
| min. Earth dist.    | 8564 Jan 08 01:20 | 24°Ϡ57'05 | 0.65406 AU | evening max el      | 8564 Nov 26 14:15 | 7°Ϡ19'09  | 27°27'55   |
| inferior conj       | 8564 Jan 10 04:12 | 22°Ϡ33'08 | -0°55'15   | retrograde          | 8564 Dec 10 06:02 | 14°Ϡ38'02 |            |
| minimum elong       | 8564 Jan 10 05:49 | 22°Ϡ28'33 | 0°54'23    | evening set         | 8564 Dec 17 06:12 | 12°Ϡ05'45 |            |
| asc. node           | 8564 Jan 12 22:06 | 19°Ϡ36'24 |            | min. Earth dist.    | 8564 Dec 21 00:31 | 8°Ϡ48'21  | 0.63756 AU |
| morning rise        | 8564 Jan 16 10:25 | 16°Ϡ58'45 |            | inferior conj       | 8564 Dec 23 14:41 | 6°Ϡ09'24  | -2°02'55   |
| direct              | 8564 Jan 19 03:32 | 16°Ϡ19'04 |            | minimum elong       | 8564 Dec 23 18:32 | 5°Ϡ59'30  | 2°01'10    |
| morning max el      | 8564 Jan 25 13:55 | 19°Ϡ43'46 | 18°05'14   | asc. node           | 8564 Dec 29 19:11 | 1°Ϡ04'40  |            |
|                     | 8564 Feb 02 10:02 | 0°≈       |            | morning rise        | 8564 Dec 30 08:40 | 0°Ϡ50'01  |            |
| morning set         | 8564 Feb 12 21:15 | 16°≈50'12 |            | direct              | 8565 Jan 01 18:48 | 0°Ϡ21'06  |            |
| desc. node          | 8564 Feb 16 12:03 | 22°≈44'11 |            | morning max el      | 8565 Jan 08 07:13 | 3°Ϡ44'04  | 17°49'11   |

|                  |                   |                      |            |                  |                   |                      |            |
|------------------|-------------------|----------------------|------------|------------------|-------------------|----------------------|------------|
| morning set      | 8565 Jan 24 20:59 | 28° $\text{♁}$ 58'15 |            | superior conj    | 8566 Jan 18 15:22 | 1° $\text{♁}$ 21'42  | 0°11'53    |
|                  | 8565 Jan 25 11:23 | 0° $\text{♁}$        |            | minimum elong    | 8566 Jan 18 16:27 | 1° $\text{♁}$ 26'22  | 0°11'54    |
| desc. node       | 8565 Feb 02 08:59 | 13° $\text{♁}$ 22'21 |            | behind sun begin | 8566 Jan 18 10:40 | 1° $\text{♁}$ 01'34  |            |
|                  |                   |                      |            | behind sun end   | 8566 Jan 18 22:15 | 1° $\text{♁}$ 51'08  |            |
| superior conj    | 8565 Feb 06 13:43 | 20° $\text{♁}$ 17'25 | -0°30'18   | desc. node       | 8566 Jan 20 05:55 | 4° $\text{♁}$ 05'45  |            |
| minimum elong    | 8565 Feb 06 10:24 | 20° $\text{♁}$ 03'49 | 0°29'41    | max. Earth dist. | 8566 Jan 25 21:55 | 13° $\text{♁}$ 30'21 | 1.43215 AU |
| max. Earth dist. | 8565 Feb 12 06:19 | 29° $\text{♁}$ 27'09 | 1.44636 AU | evening rise     | 8566 Feb 01 20:59 | 24° $\text{♁}$ 36'37 |            |
|                  | 8565 Feb 12 14:35 | 0° $\text{♁}$        |            |                  | 8566 Feb 05 08:31 | 0° $\text{♁}$        |            |
| evening rise     | 8565 Feb 22 05:04 | 14° $\text{♁}$ 58'38 |            |                  | 8566 Feb 26 04:38 | 0° $\text{♁}$        |            |
|                  | 8565 Mar 04 03:21 | 0° $\text{♁}$        |            | evening max el   | 8566 Mar 05 11:06 | 8° $\text{♁}$ 33'41  | 21°45'29   |
| evening max el   | 8565 Mar 22 14:40 | 24° $\text{♁}$ 53'14 | 20°33'13   | retrograde       | 8566 Mar 14 14:51 | 13° $\text{♁}$ 58'57 |            |
| asc. node        | 8565 Mar 27 18:02 | 28° $\text{♁}$ 52'43 |            | asc. node        | 8566 Mar 14 15:09 | 13° $\text{♁}$ 58'57 |            |
| retrograde       | 8565 Mar 30 17:00 | 29° $\text{♁}$ 36'58 |            | evening set      | 8566 Mar 19 01:21 | 12° $\text{♁}$ 11'27 |            |
| evening set      | 8565 Apr 03 17:13 | 28° $\text{♁}$ 04'47 |            | inferior conj    | 8566 Mar 24 08:48 | 5° $\text{♁}$ 53'13  | 2°43'10    |
| inferior conj    | 8565 Apr 09 00:43 | 21° $\text{♁}$ 57'13 | 3°06'56    | minimum elong    | 8566 Mar 24 06:40 | 6° $\text{♁}$ 00'40  | 2°42'39    |
| minimum elong    | 8565 Apr 08 23:06 | 22° $\text{♁}$ 02'45 | 3°06'37    | min. Earth dist. | 8566 Mar 24 11:10 | 5° $\text{♁}$ 44'59  | 0.68374 AU |
| min. Earth dist. | 8565 Apr 09 15:59 | 21° $\text{♁}$ 04'52 | 0.67897 AU | morning rise     | 8566 Mar 29 11:49 | 29° $\text{♁}$ 41'06 |            |
| morning rise     | 8565 Apr 14 04:47 | 15° $\text{♁}$ 41'22 |            |                  | 8566 Mar 29 03:28 | 30° $\text{♁}$       |            |
| direct           | 8565 Apr 19 18:04 | 13° $\text{♁}$ 13'09 |            | direct           | 8566 Apr 03 11:09 | 27° $\text{♁}$ 32'28 |            |
| morning max el   | 8565 Apr 30 21:37 | 19° $\text{♁}$ 53'12 | 24°12'28   |                  | 8566 Apr 09 12:19 | 0° $\text{♁}$        |            |
| desc. node       | 8565 May 01 08:52 | 20° $\text{♁}$ 21'56 |            | morning max el   | 8566 Apr 13 07:59 | 3° $\text{♁}$ 22'06  | 22°42'43   |
|                  | 8565 May 09 12:25 | 0° $\text{♁}$        |            | desc. node       | 8566 Apr 18 05:47 | 8° $\text{♁}$ 51'38  |            |
|                  | 8565 May 29 20:44 | 0° $\text{♁}$        |            |                  | 8566 May 03 14:52 | 0° $\text{♁}$        |            |
| morning set      | 8565 Jun 05 13:36 | 11° $\text{♁}$ 14'56 |            | morning set      | 8566 May 17 10:58 | 21° $\text{♁}$ 38'55 |            |
| max. Earth dist. | 8565 Jun 09 06:01 | 17° $\text{♁}$ 44'34 | 1.38015 AU | max. Earth dist. | 8566 May 22 03:04 | 29° $\text{♁}$ 28'23 | 1.40270 AU |
|                  | 8565 Jun 15 21:00 | 0° $\text{♁}$        |            |                  | 8566 May 22 10:28 | 0° $\text{♁}$        |            |
| superior conj    | 8565 Jun 16 09:12 | 0° $\text{♁}$ 58'14  | -1°07'39   | superior conj    | 8566 May 29 21:38 | 13° $\text{♁}$ 09'29 | -1°37'35   |
| minimum elong    | 8565 Jun 16 13:26 | 1° $\text{♁}$ 18'27  | 1°07'09    | minimum elong    | 8566 May 30 03:24 | 13° $\text{♁}$ 35'38 | 1°37'05    |
| asc. node        | 8565 Jun 23 17:01 | 15° $\text{♁}$ 18'03 |            |                  | 8566 Jun 07 22:18 | 0° $\text{♁}$        |            |
| evening rise     | 8565 Jun 25 05:02 | 18° $\text{♁}$ 16'09 |            | evening rise     | 8566 Jun 08 20:06 | 1° $\text{♁}$ 43'23  |            |
|                  | 8565 Jul 01 07:55 | 0° $\text{♁}$        |            | asc. node        | 8566 Jun 10 14:02 | 5° $\text{♁}$ 01'37  |            |
| evening max el   | 8565 Jul 11 17:09 | 15° $\text{♁}$ 07'46 | 19°04'16   | evening max el   | 8566 Jun 24 21:34 | 27° $\text{♁}$ 30'37 | 18°25'41   |
| retrograde       | 8565 Jul 20 13:19 | 19° $\text{♁}$ 30'23 |            |                  | 8566 Jun 28 01:17 | 0° $\text{♁}$        |            |
| evening set      | 8565 Jul 22 11:15 | 19° $\text{♁}$ 18'54 |            | retrograde       | 8566 Jul 02 11:00 | 1° $\text{♁}$ 17'20  |            |
| desc. node       | 8565 Jul 28 08:06 | 16° $\text{♁}$ 44'37 |            | evening set      | 8566 Jul 04 15:11 | 0° $\text{♁}$ 59'26  |            |
| inferior conj    | 8565 Jul 30 20:08 | 15° $\text{♁}$ 05'11 | -0°45'59   |                  | 8566 Jul 07 02:03 | 30° $\text{♁}$       |            |
| minimum elong    | 8565 Jul 30 18:09 | 15° $\text{♁}$ 08'35 | 0°45'21    | inferior conj    | 8566 Jul 12 04:16 | 26° $\text{♁}$ 26'00 | 0°53'37    |
| min. Earth dist. | 8565 Aug 02 17:47 | 13° $\text{♁}$ 06'15 | 0.56302 AU | minimum elong    | 8566 Jul 12 06:06 | 26° $\text{♁}$ 22'19 | 0°52'46    |
| morning rise     | 8565 Aug 07 21:59 | 10° $\text{♁}$ 15'42 |            | desc. node       | 8566 Jul 15 05:11 | 23° $\text{♁}$ 59'41 |            |
| direct           | 8565 Aug 13 04:20 | 9° $\text{♁}$ 10'58  |            | min. Earth dist. | 8566 Jul 15 13:09 | 23° $\text{♁}$ 44'19 | 0.58202 AU |
| morning max el   | 8565 Aug 27 09:13 | 16° $\text{♁}$ 27'13 | 25°48'15   | morning rise     | 8566 Jul 19 17:35 | 21° $\text{♁}$ 00'25 |            |
|                  | 8565 Sep 07 10:16 | 0° $\text{♁}$        |            | direct           | 8566 Jul 25 18:09 | 19° $\text{♁}$ 25'58 |            |
| asc. node        | 8565 Sep 19 16:40 | 21° $\text{♁}$ 18'58 |            | morning max el   | 8566 Aug 09 03:36 | 27° $\text{♁}$ 07'25 | 27°05'32   |
|                  | 8565 Sep 23 21:46 | 0° $\text{♁}$        |            |                  | 8566 Aug 11 21:54 | 0° $\text{♁}$        |            |
| morning set      | 8565 Sep 24 01:12 | 0° $\text{♁}$ 18'19  |            |                  | 8566 Aug 31 22:45 | 0° $\text{♁}$        |            |
|                  |                   |                      |            | asc. node        | 8566 Sep 06 13:36 | 11° $\text{♁}$ 02'05 |            |
| superior conj    | 8565 Sep 30 22:05 | 15° $\text{♁}$ 20'13 | 1°32'01    | morning set      | 8566 Sep 08 10:20 | 14° $\text{♁}$ 55'29 |            |
| minimum elong    | 8565 Sep 30 20:22 | 15° $\text{♁}$ 10'44 | 1°31'55    |                  |                   |                      |            |
| max. Earth dist. | 8565 Oct 01 22:36 | 17° $\text{♁}$ 35'30 | 1.32038 AU | superior conj    | 8566 Sep 15 09:52 | 0° $\text{♁}$ 09'58  | 1°19'12    |
| evening rise     | 8565 Oct 07 22:33 | 0° $\text{♁}$ 30'00  |            | minimum elong    | 8566 Sep 15 07:41 | 29° $\text{♁}$ 57'51 | 1°18'54    |
|                  | 8565 Oct 07 16:48 | 0° $\text{♁}$        |            |                  | 8566 Sep 15 08:04 | 0° $\text{♁}$        |            |
| desc. node       | 8565 Oct 24 06:45 | 0° $\text{♁}$ 14'00  |            | max. Earth dist. | 8566 Sep 15 08:24 | 0° $\text{♁}$ 01'50  | 1.31647 AU |
|                  | 8565 Oct 24 03:08 | 0° $\text{♁}$        |            | evening rise     | 8566 Sep 22 05:00 | 15° $\text{♁}$ 02'32 |            |
| evening max el   | 8565 Nov 08 22:57 | 20° $\text{♁}$ 03'08 | 27°21'36   |                  | 8566 Sep 29 16:06 | 0° $\text{♁}$        |            |
| retrograde       | 8565 Nov 22 18:50 | 27° $\text{♁}$ 16'44 |            | desc. node       | 8566 Oct 11 03:51 | 18° $\text{♁}$ 58'29 |            |
| evening set      | 8565 Nov 29 20:55 | 24° $\text{♁}$ 57'10 |            |                  | 8566 Oct 20 00:46 | 0° $\text{♁}$        |            |
| min. Earth dist. | 8565 Dec 03 13:18 | 22° $\text{♁}$ 06'10 | 0.61833 AU | evening max el   | 8566 Oct 22 01:24 | 2° $\text{♁}$ 01'03  | 26°41'25   |
| inferior conj    | 8565 Dec 06 13:08 | 19° $\text{♁}$ 23'14 | -3°13'33   | retrograde       | 8566 Nov 04 23:21 | 9° $\text{♁}$ 09'02  |            |
| minimum elong    | 8565 Dec 06 19:16 | 19° $\text{♁}$ 09'17 | 3°11'12    | evening set      | 8566 Nov 11 18:23 | 7° $\text{♁}$ 12'55  |            |
| morning rise     | 8565 Dec 13 19:51 | 14° $\text{♁}$ 22'22 |            | min. Earth dist. | 8566 Nov 15 15:16 | 4° $\text{♁}$ 36'59  | 0.59751 AU |
| direct           | 8565 Dec 16 01:40 | 14° $\text{♁}$ 00'37 |            | inferior conj    | 8566 Nov 18 20:04 | 2° $\text{♁}$ 04'44  | -4°21'12   |
| asc. node        | 8565 Dec 16 16:14 | 14° $\text{♁}$ 02'15 |            | minimum elong    | 8566 Nov 19 03:27 | 1° $\text{♁}$ 50'02  | 4°19'02    |
| morning max el   | 8565 Dec 22 23:37 | 17° $\text{♁}$ 30'46 | 17°51'06   |                  | 8566 Nov 21 13:37 | 30° $\text{♁}$       |            |
|                  | 8565 Dec 31 21:19 | 0° $\text{♁}$        |            | morning rise     | 8566 Nov 26 14:57 | 27° $\text{♁}$ 25'27 |            |
| morning set      | 8566 Jan 07 17:43 | 12° $\text{♁}$ 06'10 |            | direct           | 8566 Nov 28 19:52 | 27° $\text{♁}$ 07'38 |            |
|                  | 8566 Jan 17 20:19 | 0° $\text{♁}$        |            | asc. node        | 8566 Dec 03 13:15 | 28° $\text{♁}$ 34'04 |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
|                  | 8566 Dec 05 12:00 | 0°♊       |            | morning set      | 8567 Dec 06 03:16 | 10°♊11'58 |            |
| morning max el   | 8566 Dec 06 11:38 | 0°♊54'03  | 18°12'14   |                  |                   |           |            |
| morning set      | 8566 Dec 22 05:20 | 25°♊55'04 |            | superior conj    | 8567 Dec 14 14:09 | 26°♊41'54 | 1°12'41    |
|                  | 8566 Dec 24 09:14 | 0°♋       |            | minimum elong    | 8567 Dec 14 17:24 | 26°♊57'23 | 1°12'29    |
|                  |                   |           |            |                  | 8567 Dec 16 08:04 | 0°♋       |            |
| superior conj    | 8566 Dec 31 17:05 | 13°♋34'21 | 0°46'46    | max. Earth dist. | 8567 Dec 21 14:26 | 9°♋37'12  | 1.39182 AU |
| minimum elong    | 8566 Dec 31 20:12 | 13°♋48'29 | 0°46'31    | desc. node       | 8567 Dec 24 23:51 | 15°♋32'51 |            |
| desc. node       | 8567 Jan 07 02:52 | 24°♋50'21 |            | evening rise     | 8567 Dec 25 11:55 | 16°♋24'28 |            |
| max. Earth dist. | 8567 Jan 08 08:17 | 26°♋55'26 | 1.41320 AU |                  | 8568 Jan 02 19:08 | 0°♌       |            |
|                  | 8567 Jan 10 04:16 | 0°♌       |            |                  | 8568 Jan 24 05:11 | 0°♌       |            |
| evening rise     | 8567 Jan 13 05:31 | 5°♌01'13  |            | evening max el   | 8568 Jan 29 16:51 | 6°♌01'29  | 24°24'18   |
|                  | 8567 Jan 29 14:25 | 0°♍       |            | retrograde       | 8568 Feb 10 02:27 | 12°♍42'02 |            |
| evening max el   | 8567 Feb 16 03:08 | 22°♍15'49 | 23°04'31   | evening set      | 8568 Feb 15 12:39 | 10°♍26'19 |            |
| retrograde       | 8567 Feb 26 10:27 | 28°♍22'07 |            | asc. node        | 8568 Feb 16 09:22 | 9°♍38'53  |            |
| asc. node        | 8567 Mar 01 12:16 | 27°♍35'13 |            | min. Earth dist. | 8568 Feb 20 03:58 | 5°♍08'19  | 0.68067 AU |
| evening set      | 8567 Mar 03 08:21 | 26°♍19'54 |            | inferior conj    | 8568 Feb 21 01:03 | 3°♍57'36  | 1°28'30    |
| inferior conj    | 8567 Mar 08 17:31 | 19°♍54'18 | 2°10'08    | minimum elong    | 8568 Feb 20 23:12 | 4°♍03'50  | 1°27'56    |
| minimum elong    | 8567 Mar 08 15:17 | 20°♍02'01 | 2°09'30    |                  | 8568 Feb 24 04:45 | 30°♎      |            |
| min. Earth dist. | 8567 Mar 08 07:55 | 20°♍27'31 | 0.68421 AU | morning rise     | 8568 Feb 26 09:50 | 27°♎56'54 |            |
| morning rise     | 8567 Mar 13 22:09 | 13°♍47'10 |            | direct           | 8568 Mar 01 06:10 | 26°♎32'16 |            |
| direct           | 8567 Mar 18 07:36 | 12°♍00'35 |            |                  | 8568 Mar 08 00:11 | 0°♏       |            |
| morning max el   | 8567 Mar 26 22:55 | 17°♍00'15 | 21°17'52   | morning max el   | 8568 Mar 08 21:03 | 0°♏49'51  | 20°04'08   |
| desc. node       | 8567 Apr 05 02:41 | 28°♏03'49 |            | desc. node       | 8568 Mar 21 23:35 | 17°♏47'00 |            |
|                  | 8567 Apr 06 12:46 | 0°♐       |            |                  | 8568 Mar 30 04:30 | 0°♐       |            |
|                  | 8567 Apr 26 16:49 | 0°♑       |            | morning set      | 8568 Apr 05 04:07 | 9°♐08'58  |            |
| morning set      | 8567 Apr 27 05:00 | 0°♑48'00  |            | max. Earth dist. | 8568 Apr 15 14:07 | 25°♐28'53 | 1.44070 AU |
| max. Earth dist. | 8567 May 04 05:00 | 12°♑03'08 | 1.42372 AU |                  | 8568 Apr 18 09:39 | 0°♑       |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8567 May 11 13:23 | 24°♒23'20 | -2°00'59   | superior conj    | 8568 Apr 21 04:45 | 4°♒32'36  | -2°11'55   |
| minimum elong    | 8567 May 11 18:37 | 24°♒45'50 | 2°00'48    | minimum elong    | 8568 Apr 21 05:38 | 4°♒36'10  | 2°12'01    |
|                  | 8567 May 14 18:58 | 0°♓       |            | evening rise     | 8568 May 04 05:29 | 26°♒28'11 |            |
| evening rise     | 8567 May 22 21:50 | 14°♓31'07 |            |                  | 8568 May 06 06:41 | 0°♓       |            |
| asc. node        | 8567 May 28 11:05 | 24°♓28'32 |            | asc. node        | 8568 May 14 08:10 | 13°♓32'06 |            |
|                  | 8567 May 31 16:52 | 0°♔       |            | evening max el   | 8568 May 21 21:35 | 23°♓40'02 | 18°07'58   |
| evening max el   | 8567 Jun 08 08:16 | 10°♔24'47 | 18°07'14   | retrograde       | 8568 May 28 07:10 | 27°♓00'43 |            |
| retrograde       | 8567 Jun 15 02:19 | 13°♔50'53 |            | evening set      | 8568 May 31 02:29 | 26°♓20'35 |            |
| evening set      | 8567 Jun 17 14:08 | 13°♔23'07 |            | inferior conj    | 8568 Jun 06 07:27 | 21°♓07'57 | 2°51'46    |
| inferior conj    | 8567 Jun 24 09:16 | 8°♔29'35  | 2°05'54    | minimum elong    | 8568 Jun 06 09:56 | 21°♓01'19 | 2°51'06    |
| minimum elong    | 8567 Jun 24 12:17 | 8°♔22'31  | 2°04'50    | min. Earth dist. | 8568 Jun 09 03:14 | 18°♓08'38 | 0.62642 AU |
| min. Earth dist. | 8567 Jun 27 15:53 | 5°♔27'00  | 0.60420 AU | morning rise     | 8568 Jun 12 15:40 | 14°♓59'45 |            |
| morning rise     | 8567 Jul 01 07:42 | 2°♔37'17  |            | desc. node       | 8568 Jun 17 23:15 | 12°♓35'55 |            |
| desc. node       | 8567 Jul 02 02:13 | 2°♔09'34  |            | direct           | 8568 Jun 19 09:57 | 12°♓29'17 |            |
| direct           | 8567 Jul 07 21:00 | 0°♔31'34  |            | morning max el   | 8568 Jul 03 11:21 | 20°♓31'55 | 27°53'12   |
| morning max el   | 8567 Jul 22 04:46 | 8°♔28'38  | 27°48'29   |                  | 8568 Jul 11 14:46 | 0°♕       |            |
|                  | 8567 Aug 07 15:42 | 0°♌       |            |                  | 8568 Jul 30 16:35 | 0°♌       |            |
| morning set      | 8567 Aug 23 15:35 | 29°♌18'54 |            | morning set      | 8568 Aug 06 14:47 | 13°♌21'30 |            |
|                  | 8567 Aug 23 23:28 | 0°♍       |            | asc. node        | 8568 Aug 10 07:29 | 21°♌00'45 |            |
| asc. node        | 8567 Aug 24 10:32 | 0°♍57'51  |            | max. Earth dist. | 8568 Aug 11 23:15 | 24°♌32'36 | 1.32269 AU |
| max. Earth dist. | 8567 Aug 29 17:54 | 12°♍24'49 | 1.31720 AU |                  |                   |           |            |
|                  |                   |           |            |                  |                   |           |            |
| superior conj    | 8567 Aug 30 21:05 | 14°♎54'47 | 1°01'25    | superior conj    | 8568 Aug 14 05:50 | 29°♌27'58 | 0°39'01    |
| minimum elong    | 8567 Aug 30 18:53 | 14°♎42'40 | 1°00'58    | minimum elong    | 8568 Aug 14 04:09 | 29°♌18'47 | 0°38'33    |
| evening rise     | 8567 Sep 06 14:59 | 29°♎43'00 |            |                  | 8568 Aug 14 11:43 | 0°♎       |            |
|                  | 8567 Sep 06 18:10 | 0°♏       |            | evening rise     | 8568 Aug 21 02:32 | 14°♎24'35 |            |
|                  | 8567 Sep 23 02:35 | 0°♐       |            |                  | 8568 Aug 28 20:14 | 0°♏       |            |
| desc. node       | 8567 Sep 28 00:58 | 6°♐44'50  |            | desc. node       | 8568 Sep 13 22:05 | 23°♏09'36 |            |
| evening max el   | 8567 Oct 03 19:58 | 13°♐08'34 | 25°29'37   | evening max el   | 8568 Sep 14 08:13 | 23°♏34'22 | 23°55'59   |
| retrograde       | 8567 Oct 17 17:56 | 20°♐10'22 |            |                  | 8568 Sep 24 17:16 | 0°♐       |            |
| evening set      | 8567 Oct 23 17:48 | 18°♐47'16 |            | retrograde       | 8568 Sep 28 00:03 | 0°♐24'34  |            |
| min. Earth dist. | 8567 Oct 28 08:08 | 16°♐09'17 | 0.57710 AU |                  | 8568 Oct 01 07:53 | 30°♑      |            |
| inferior conj    | 8567 Oct 31 08:12 | 14°♐05'03 | -5°14'37   | evening set      | 8568 Oct 02 16:28 | 29°♑36'32 |            |
| minimum elong    | 8567 Oct 31 13:58 | 13°♐55'03 | 5°13'37    | min. Earth dist. | 8568 Oct 08 18:47 | 26°♑38'06 | 0.55994 AU |
| morning rise     | 8567 Nov 08 12:29 | 9°♐48'25  |            | inferior conj    | 8568 Oct 10 23:58 | 25°♑17'23 | -5°36'25   |
| direct           | 8567 Nov 10 21:13 | 9°♐31'24  |            | minimum elong    | 8568 Oct 10 23:49 | 25°♑17'37 | 5°36'21    |
| morning max el   | 8567 Nov 19 15:33 | 13°♐43'46 | 18°54'16   | morning rise     | 8568 Oct 19 09:15 | 21°♑20'28 |            |
| asc. node        | 8567 Nov 20 10:14 | 14°♐30'28 |            | direct           | 8568 Oct 22 03:23 | 21°♑01'05 |            |
|                  | 8567 Nov 30 19:30 | 0°♑       |            | morning max el   | 8568 Nov 01 07:54 | 25°♑49'00 | 19°58'44   |
|                  |                   |           |            |                  | 8568 Nov 05 02:17 | 0°♑       |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node           | 8568 Nov 06 07:13 | 1°♍35'41  |            | direct              | 8569 Oct 02 17:16 | 1°♊33'56  |            |
| morning set         | 8568 Nov 19 08:04 | 24°♍46'51 |            | morning max el      | 8569 Oct 14 11:05 | 7°♊04'54  | 21°24'57   |
|                     | 8568 Nov 21 21:25 | 0°♊       |            |                     | 8569 Oct 24 04:11 | 19°♊34'55 |            |
|                     |                   |           |            |                     | 8569 Oct 29 23:54 | 0°♍       |            |
| superior conj       | 8568 Nov 27 01:35 | 10°♊30'00 | 1°29'49    | morning set         | 8569 Nov 03 17:07 | 9°♍32'05  |            |
| minimum elong       | 8568 Nov 27 03:56 | 10°♊41'43 | 1°29'47    |                     |                   |           |            |
| max. Earth dist.    | 8568 Dec 02 20:40 | 21°♊45'48 | 1.37042 AU | superior conj       | 8569 Nov 10 23:15 | 24°♍46'44 | 1°38'59    |
| evening rise        | 8568 Dec 06 15:13 | 28°♊42'54 |            | minimum elong       | 8569 Nov 11 00:18 | 24°♍52'14 | 1°39'06    |
|                     | 8568 Dec 07 08:25 | 0°♊       |            |                     | 8569 Nov 13 12:07 | 0°♊       |            |
| desc. node          | 8568 Dec 10 20:54 | 6°♊09'14  |            | max. Earth dist.    | 8569 Nov 15 07:48 | 3°♊40'06  | 1.35122 AU |
|                     | 8568 Dec 26 03:05 | 0°♊       |            | evening rise        | 8569 Nov 19 11:55 | 11°♊47'08 |            |
| evening max el      | 8569 Jan 11 06:07 | 19°♊49'49 | 25°37'52   | desc. node          | 8569 Nov 27 17:57 | 26°♊34'40 |            |
| retrograde          | 8569 Jan 23 13:51 | 26°♊53'57 |            |                     | 8569 Nov 29 19:11 | 0°♊       |            |
| evening set         | 8569 Jan 29 12:44 | 24°♊27'01 |            |                     | 8569 Dec 21 08:46 | 0°♊       |            |
| asc. node           | 8569 Feb 02 06:27 | 20°♊29'13 |            | evening max el      | 8569 Dec 24 19:27 | 3°♊33'53  | 26°37'54   |
| min. Earth dist.    | 8569 Feb 02 21:02 | 19°♊43'43 | 0.67327 AU | retrograde          | 8570 Jan 06 19:49 | 10°♊50'54 |            |
| inferior conj       | 8569 Feb 04 05:34 | 18°♊00'02 | 0°38'42    | evening set         | 8570 Jan 13 06:43 | 8°♊16'30  |            |
| minimum elong       | 8569 Feb 04 04:36 | 18°♊03'05 | 0°38'28    | min. Earth dist.    | 8570 Jan 17 08:46 | 4°♊07'59  | 0.66214 AU |
| morning rise        | 8569 Feb 09 20:55 | 12°♊07'47 |            | inferior conj       | 8570 Jan 19 04:58 | 1°♊56'46  | -0°18'52   |
| direct              | 8569 Feb 13 05:27 | 11°♊03'08 |            | minimum elong       | 8570 Jan 19 05:29 | 1°♊55'14  | 0°18'29    |
| morning max el      | 8569 Feb 20 03:08 | 14°♊50'31 | 19°05'06   | asc. node           | 8570 Jan 20 03:32 | 0°♊50'19  |            |
|                     | 8569 Mar 03 15:45 | 0°♊       |            |                     | 8570 Jan 20 21:13 | 30°♊      |            |
| greatest brilliancy | 8569 Mar 05 16:40 | 3°♊03'54  | -0.7m      | morning rise        | 8570 Jan 25 05:11 | 26°♊15'16 |            |
| desc. node          | 8569 Mar 08 20:30 | 7°♊53'08  |            | direct              | 8570 Jan 28 03:26 | 25°♊27'32 |            |
| morning set         | 8569 Mar 15 07:03 | 17°♊49'49 |            | morning max el      | 8570 Feb 03 15:42 | 28°♊57'02 | 18°22'17   |
|                     | 8569 Mar 23 02:54 | 0°♊       |            |                     | 8570 Feb 04 15:58 | 0°♊       |            |
| max. Earth dist.    | 8569 Mar 29 05:53 | 9°♊35'12  | 1.45165 AU | morning set         | 8570 Feb 23 10:15 | 27°♊46'45 |            |
|                     |                   |           |            | desc. node          | 8570 Feb 23 17:26 | 28°♊15'28 |            |
| superior conj       | 8569 Mar 31 21:14 | 13°♊44'50 | -2°04'29   |                     | 8570 Feb 24 19:38 | 0°♊       |            |
| minimum elong       | 8569 Mar 31 15:02 | 13°♊20'21 | 2°04'12    |                     |                   |           |            |
|                     | 8569 Apr 11 01:00 | 0°♊       |            | superior conj       | 8570 Mar 11 02:15 | 22°♊32'46 | -1°37'04   |
| evening rise        | 8569 Apr 15 14:53 | 7°♊27'50  |            | minimum elong       | 8570 Mar 10 16:38 | 21°♊55'07 | 1°36'06    |
|                     | 8569 Apr 29 17:42 | 0°♊       |            |                     | 8570 Mar 12 01:15 | 24°♊02'49 | 1.45543 AU |
| asc. node           | 8569 May 01 05:16 | 2°♊05'00  |            | max. Earth dist.    | 8570 Mar 15 20:35 | 0°♊       |            |
| evening max el      | 8569 May 05 10:27 | 7°♊08'39  | 18°27'06   | evening rise        | 8570 Mar 27 00:53 | 17°♊31'20 |            |
| retrograde          | 8569 May 11 21:16 | 10°♊37'57 |            |                     | 8570 Apr 03 23:40 | 0°♊       |            |
| evening set         | 8569 May 14 23:57 | 9°♊44'02  |            | greatest brilliancy | 8570 Apr 06 07:55 | 3°♊38'11  | -0.8m      |
| inferior conj       | 8569 May 20 18:43 | 4°♊13'43  | 3°15'51    | asc. node           | 8570 Apr 18 02:22 | 19°♊56'52 |            |
| minimum elong       | 8569 May 20 19:59 | 4°♊10'00  | 3°15'33    | evening max el      | 8570 Apr 18 20:12 | 20°♊43'30 | 19°03'46   |
| min. Earth dist.    | 8569 May 22 23:50 | 1°♊37'27  | 0.64628 AU | retrograde          | 8570 Apr 25 16:53 | 24°♊34'08 |            |
|                     | 8569 May 24 11:13 | 30°♊      |            | evening set         | 8570 Apr 29 03:13 | 23°♊25'43 |            |
| morning rise        | 8569 May 26 15:06 | 27°♊57'43 |            | inferior conj       | 8570 May 04 15:20 | 17°♊39'20 | 3°22'46    |
| direct              | 8569 Jun 02 07:02 | 25°♊13'45 |            | minimum elong       | 8570 May 04 15:17 | 17°♊39'29 | 3°22'37    |
| desc. node          | 8569 Jun 04 20:16 | 25°♊34'57 |            | min. Earth dist.    | 8570 May 06 05:05 | 15°♊38'58 | 0.66241 AU |
|                     | 8569 Jun 12 10:43 | 0°♊       |            | morning rise        | 8570 May 10 02:55 | 11°♊20'52 |            |
| morning max el      | 8569 Jun 15 21:11 | 3°♊11'17  | 27°22'14   | direct              | 8570 May 16 10:58 | 8°♊35'13  |            |
|                     | 8569 Jul 05 23:57 | 0°♊       |            | desc. node          | 8570 May 22 17:15 | 10°♊42'50 |            |
| morning set         | 8569 Jul 21 05:22 | 26°♊56'27 |            | morning max el      | 8570 May 29 07:44 | 16°♊14'52 | 26°22'24   |
|                     | 8569 Jul 22 18:34 | 0°♊       |            |                     | 8570 Jun 09 16:30 | 0°♊       |            |
| max. Earth dist.    | 8569 Jul 25 20:53 | 6°♊16'58  | 1.33305 AU |                     | 8570 Jun 28 20:55 | 0°♊       |            |
| asc. node           | 8569 Jul 28 04:29 | 11°♊06'50 |            | morning set         | 8570 Jul 04 07:57 | 9°♊54'13  |            |
|                     |                   |           |            | max. Earth dist.    | 8570 Jul 08 08:02 | 17°♊34'43 | 1.34815 AU |
| superior conj       | 8569 Jul 29 10:10 | 13°♊43'54 | 0°12'29    |                     |                   |           |            |
| minimum elong       | 8569 Jul 29 09:33 | 13°♊40'36 | 0°12'11    | superior conj       | 8570 Jul 13 07:37 | 27°♊35'31 | -0°17'25   |
| behind sun begin    | 8569 Jul 29 05:57 | 13°♊21'28 |            | minimum elong       | 8570 Jul 13 08:37 | 27°♊40'39 | 0°17'23    |
| behind sun end      | 8569 Jul 29 13:09 | 13°♊59'44 |            |                     | 8570 Jul 14 11:39 | 0°♊       |            |
| evening rise        | 8569 Aug 05 13:46 | 29°♊01'56 |            | asc. node           | 8570 Jul 15 01:30 | 1°♊11'47  |            |
|                     | 8569 Aug 06 00:46 | 0°♊       |            | evening rise        | 8570 Jul 20 22:40 | 13°♊28'37 |            |
|                     | 8569 Aug 23 10:19 | 0°♊       |            |                     | 8570 Jul 29 10:35 | 0°♊       |            |
| evening max el      | 8569 Aug 26 20:55 | 3°♊46'46  | 22°16'40   | evening max el      | 8570 Aug 08 18:42 | 14°♊21'05 | 20°47'10   |
| desc. node          | 8569 Aug 31 19:13 | 7°♊43'42  |            | desc. node          | 8570 Aug 18 16:19 | 19°♊56'10 |            |
| retrograde          | 8569 Sep 08 17:59 | 10°♊11'28 |            | retrograde          | 8570 Aug 20 06:21 | 20°♊02'28 |            |
| evening set         | 8569 Sep 11 22:35 | 9°♊48'57  |            | evening set         | 8570 Aug 22 09:56 | 19°♊51'20 |            |
| min. Earth dist.    | 8569 Sep 20 02:51 | 6°♊14'17  | 0.54917 AU | inferior conj       | 8570 Aug 31 15:13 | 15°♊54'32 | -3°45'53   |
| inferior conj       | 8569 Sep 20 22:44 | 5°♊46'19  | -5°08'05   | minimum elong       | 8570 Aug 31 05:51 | 16°♊07'53 | 3°43'02    |
| minimum elong       | 8569 Sep 20 15:16 | 5°♊56'50  | 5°06'49    | min. Earth dist.    | 8570 Sep 01 11:52 | 15°♊25'03 | 0.54713 AU |
| morning rise        | 8569 Sep 29 09:37 | 1°♊58'36  |            | morning rise        | 8570 Sep 09 01:48 | 11°♊56'02 |            |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| direct              | 8570 Sep 13 01:16 | 11° $\mathbb{M}$ 22'09        |            | min. Earth dist. | 8571 Aug 13 23:54 | 24° $\Omega$ 45'47            | 0.55469 AU |
| morning max el      | 8570 Sep 26 03:45 | 17° $\mathbb{M}$ 39'19        | 23°07'06   | morning rise     | 8571 Aug 19 22:32 | 21° $\Omega$ 45'27            |            |
|                     | 8570 Oct 06 02:33 | 0° $\mathbb{L}$               |            | direct           | 8571 Aug 24 17:08 | 20° $\Omega$ 54'31            |            |
| asc. node           | 8570 Oct 11 01:10 | 8° $\mathbb{L}$ 15'35         |            | morning max el   | 8571 Sep 07 16:06 | 27° $\Omega$ 53'04            | 24°52'38   |
| morning set         | 8570 Oct 19 04:25 | 24° $\mathbb{L}$ 22'05        |            |                  | 8571 Sep 09 18:35 | 0° $\mathbb{M}$               |            |
|                     | 8570 Oct 21 19:35 | 0° $\mathbb{M}$               |            | asc. node        | 8571 Sep 27 22:08 | 27° $\mathbb{M}$ 26'39        |            |
|                     |                   |                               |            |                  | 8571 Sep 29 05:26 | 0° $\mathbb{L}$               |            |
| superior conj       | 8570 Oct 26 03:55 | 9° $\mathbb{M}$ 22'50         | 1°41'06    | morning set      | 8571 Oct 03 16:07 | 9° $\mathbb{L}$ 10'38         |            |
| minimum elong       | 8570 Oct 26 03:43 | 9° $\mathbb{M}$ 21'41         | 1°41'14    |                  |                   |                               |            |
| max. Earth dist.    | 8570 Oct 29 02:41 | 15° $\mathbb{M}$ 38'31        | 1.33572 AU | superior conj    | 8571 Oct 10 12:57 | 24° $\mathbb{L}$ 09'19        | 1°37'00    |
| evening rise        | 8570 Nov 02 22:10 | 25° $\mathbb{M}$ 27'48        |            | minimum elong    | 8571 Oct 10 11:42 | 24° $\mathbb{L}$ 02'23        | 1°37'00    |
|                     | 8570 Nov 05 06:05 | 0° $\mathbb{X}$               |            | max. Earth dist. | 8571 Oct 12 05:18 | 27° $\mathbb{L}$ 49'34        | 1.32461 AU |
| desc. node          | 8570 Nov 14 15:01 | 16° $\mathbb{X}$ 43'36        |            |                  | 8571 Oct 13 05:23 | 0° $\mathbb{M}$               |            |
|                     | 8570 Nov 23 05:44 | 0° $\mathbb{Z}$               |            | evening rise     | 8571 Oct 17 18:28 | 9° $\mathbb{M}$ 34'45         |            |
| evening max el      | 8570 Dec 07 08:18 | 17° $\mathbb{Z}$ 04'15        | 27°17'12   |                  | 8571 Oct 28 14:23 | 0° $\mathbb{X}$               |            |
| retrograde          | 8570 Dec 20 19:55 | 24° $\mathbb{Z}$ 25'07        |            | desc. node       | 8571 Nov 01 12:06 | 6° $\mathbb{X}$ 27'59         |            |
| evening set         | 8570 Dec 27 16:27 | 21° $\mathbb{Z}$ 49'26        |            |                  | 8571 Nov 19 15:28 | 0° $\mathbb{Z}$               |            |
| min. Earth dist.    | 8570 Dec 31 13:02 | 18° $\mathbb{Z}$ 14'27        | 0.64747 AU | evening max el   | 8571 Nov 19 19:08 | 0° $\mathbb{Z}$ 08'43         | 27°29'12   |
| inferior conj       | 8571 Jan 02 20:56 | 15° $\mathbb{Z}$ 42'42        | -1°23'18   | retrograde       | 8571 Dec 03 13:21 | 7° $\mathbb{Z}$ 26'31         |            |
| minimum elong       | 8571 Jan 02 23:28 | 15° $\mathbb{Z}$ 35'49        | 1°22'04    | evening set      | 8571 Dec 10 15:06 | 4° $\mathbb{Z}$ 58'11         |            |
| asc. node           | 8571 Jan 07 00:35 | 11° $\mathbb{Z}$ 40'20        |            | min. Earth dist. | 8571 Dec 14 07:59 | 1° $\mathbb{Z}$ 52'59         | 0.62967 AU |
| morning rise        | 8571 Jan 09 08:01 | 10° $\mathbb{Z}$ 14'38        |            |                  | 8571 Dec 16 06:32 | 30° $\mathbb{R}$ $\mathbb{X}$ |            |
| direct              | 8571 Jan 11 21:53 | 9° $\mathbb{Z}$ 40'03         |            | inferior conj    | 8571 Dec 17 02:41 | 29° $\mathbb{X}$ 10'27        | -2°32'45   |
| morning max el      | 8571 Jan 18 08:13 | 13° $\mathbb{Z}$ 02'38        | 17°56'17   | minimum elong    | 8571 Dec 17 07:33 | 28° $\mathbb{X}$ 58'33        | 2°30'41    |
|                     | 8571 Jan 30 06:18 | 0° $\mathbb{A}$               |            | morning rise     | 8571 Dec 24 02:04 | 23° $\mathbb{X}$ 58'40        |            |
| morning set         | 8571 Feb 04 18:55 | 9° $\mathbb{A}$ 11'18         |            | asc. node        | 8571 Dec 24 21:37 | 23° $\mathbb{X}$ 44'08        |            |
| desc. node          | 8571 Feb 10 14:24 | 18° $\mathbb{A}$ 49'25        |            | direct           | 8571 Dec 26 09:51 | 23° $\mathbb{X}$ 33'22        |            |
|                     | 8571 Feb 17 11:40 | 0° $\mathbb{H}$               |            | morning max el   | 8572 Jan 02 01:34 | 26° $\mathbb{X}$ 58'33        | 17°47'41   |
|                     |                   |                               |            |                  | 8572 Jan 04 17:25 | 0° $\mathbb{Z}$               |            |
| superior conj       | 8571 Feb 18 15:05 | 1° $\mathbb{H}$ 49'37         | -0°56'02   | morning set      | 8572 Jan 18 04:22 | 21° $\mathbb{Z}$ 47'01        |            |
| minimum elong       | 8571 Feb 18 08:39 | 1° $\mathbb{H}$ 23'57         | 0°55'04    |                  | 8572 Jan 22 21:31 | 0° $\mathbb{A}$               |            |
| max. Earth dist.    | 8571 Feb 22 20:50 | 8° $\mathbb{H}$ 32'49         | 1.45172 AU | desc. node       | 8572 Jan 28 11:20 | 9° $\mathbb{A}$ 30'14         |            |
| evening rise        | 8571 Mar 06 17:06 | 26° $\mathbb{H}$ 57'20        |            |                  |                   |                               |            |
|                     | 8571 Mar 08 16:41 | 0° $\mathbb{Y}$               |            | superior conj    | 8572 Jan 30 01:52 | 12° $\mathbb{A}$ 11'08        | -0°11'47   |
| greatest brilliancy | 8571 Mar 21 06:22 | 18° $\mathbb{Y}$ 57'52        | -0.6m      | minimum elong    | 8572 Jan 30 00:40 | 12° $\mathbb{A}$ 06'09        | 0°11'26    |
|                     | 8571 Mar 29 06:00 | 0° $\mathbb{B}$               |            | behind sun begin | 8572 Jan 29 18:06 | 11° $\mathbb{A}$ 38'51        |            |
| evening max el      | 8571 Apr 02 01:10 | 4° $\mathbb{B}$ 21'31         | 19°56'30   | behind sun end   | 8572 Jan 30 07:13 | 12° $\mathbb{A}$ 33'25        |            |
| asc. node           | 8571 Apr 04 23:27 | 6° $\mathbb{B}$ 55'58         |            | max. Earth dist. | 8572 Feb 05 14:00 | 22° $\mathbb{A}$ 48'25        | 1.44102 AU |
| retrograde          | 8571 Apr 09 15:05 | 8° $\mathbb{B}$ 43'59         |            |                  | 8572 Feb 10 02:52 | 0° $\mathbb{H}$               |            |
| evening set         | 8571 Apr 13 09:51 | 7° $\mathbb{B}$ 20'40         |            | evening rise     | 8572 Feb 14 04:33 | 6° $\mathbb{H}$ 19'46         |            |
| inferior conj       | 8571 Apr 18 18:19 | 1° $\mathbb{B}$ 20'08         | 3°16'02    |                  | 8572 Mar 01 00:52 | 0° $\mathbb{Y}$               |            |
| minimum elong       | 8571 Apr 18 17:11 | 1° $\mathbb{B}$ 23'58         | 3°15'49    | evening max el   | 8572 Mar 15 00:39 | 18° $\mathbb{Y}$ 01'22        | 21°02'50   |
| min. Earth dist.    | 8571 Apr 19 17:29 | 0° $\mathbb{B}$ 02'07         | 0.67422 AU | asc. node        | 8572 Mar 21 20:32 | 22° $\mathbb{Y}$ 47'54        |            |
|                     | 8571 Apr 19 18:07 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            | retrograde       | 8572 Mar 23 13:34 | 23° $\mathbb{Y}$ 02'46        |            |
| morning rise        | 8571 Apr 24 00:14 | 25° $\mathbb{Y}$ 02'28        |            | evening set      | 8572 Mar 27 17:55 | 21° $\mathbb{Y}$ 24'17        |            |
| direct              | 8571 Apr 29 20:55 | 22° $\mathbb{Y}$ 25'31        |            | inferior conj    | 8572 Apr 02 01:09 | 15° $\mathbb{Y}$ 11'53        | 2°58'02    |
| desc. node          | 8571 May 09 14:15 | 27° $\mathbb{Y}$ 29'07        |            | minimum elong    | 8572 Apr 01 23:16 | 15° $\mathbb{Y}$ 18'24        | 2°57'38    |
| morning max el      | 8571 May 11 17:21 | 29° $\mathbb{Y}$ 31'57        | 25°02'55   | min. Earth dist. | 8572 Apr 02 10:53 | 14° $\mathbb{Y}$ 38'12        | 0.68153 AU |
|                     | 8571 May 12 04:18 | 0° $\mathbb{B}$               |            | morning rise     | 8572 Apr 07 04:25 | 8° $\mathbb{Y}$ 57'12         |            |
|                     | 8571 Jun 03 12:43 | 0° $\mathbb{I}$               |            | direct           | 8572 Apr 12 11:50 | 6° $\mathbb{Y}$ 36'35         |            |
| morning set         | 8571 Jun 16 18:04 | 22° $\mathbb{I}$ 03'12        |            | morning max el   | 8572 Apr 23 02:33 | 12° $\mathbb{Y}$ 56'19        | 23°34'05   |
| max. Earth dist.    | 8571 Jun 20 08:56 | 28° $\mathbb{I}$ 37'57        | 1.36753 AU | desc. node       | 8572 Apr 25 11:12 | 15° $\mathbb{Y}$ 27'13        |            |
|                     | 8571 Jun 21 02:36 | 0° $\mathbb{E}$               |            |                  | 8572 May 06 20:07 | 0° $\mathbb{B}$               |            |
|                     |                   |                               |            |                  | 8572 May 26 09:14 | 0° $\mathbb{I}$               |            |
| superior conj       | 8571 Jun 26 19:16 | 10° $\mathbb{E}$ 55'24        | -0°49'16   | morning set      | 8572 May 28 06:22 | 3° $\mathbb{I}$ 09'32         |            |
| minimum elong       | 8571 Jun 26 22:18 | 11° $\mathbb{E}$ 10'18        | 0°48'54    | max. Earth dist. | 8572 Jun 01 04:51 | 9° $\mathbb{I}$ 56'33         | 1.38969 AU |
| asc. node           | 8571 Jul 01 22:30 | 21° $\mathbb{E}$ 11'37        |            |                  |                   |                               |            |
| evening rise        | 8571 Jul 05 02:55 | 27° $\mathbb{E}$ 38'05        |            | superior conj    | 8572 Jun 08 17:29 | 23° $\mathbb{I}$ 35'11        | -1°20'50   |
|                     | 8571 Jul 06 07:11 | 0° $\Omega$                   |            | minimum elong    | 8572 Jun 08 22:29 | 23° $\mathbb{I}$ 58'39        | 1°20'18    |
| evening max el      | 8571 Jul 22 05:48 | 25° $\Omega$ 37'51            | 19°35'55   |                  | 8572 Jun 12 02:43 | 0° $\mathbb{E}$               |            |
|                     | 8571 Jul 28 23:13 | 0° $\mathbb{M}$               |            | evening rise     | 8572 Jun 17 23:47 | 11° $\mathbb{E}$ 23'21        |            |
| retrograde          | 8571 Aug 01 00:27 | 0° $\mathbb{M}$ 27'36         |            | asc. node        | 8572 Jun 17 19:31 | 11° $\mathbb{E}$ 02'35        |            |
| evening set         | 8571 Aug 02 20:45 | 0° $\mathbb{M}$ 18'01         |            |                  | 8572 Jun 28 06:25 | 0° $\Omega$                   |            |
|                     | 8571 Aug 04 04:29 | 30° $\mathbb{R}$ $\Omega$     |            | evening max el   | 8572 Jul 04 05:00 | 7° $\Omega$ 39'17             | 18°45'25   |
| desc. node          | 8571 Aug 05 13:25 | 29° $\Omega$ 32'25            |            | retrograde       | 8572 Jul 12 10:40 | 11° $\Omega$ 44'24            |            |
| inferior conj       | 8571 Aug 11 15:56 | 26° $\Omega$ 13'58            | -1°52'13   | evening set      | 8572 Jul 14 10:55 | 11° $\Omega$ 30'42            |            |
| minimum elong       | 8571 Aug 11 10:49 | 26° $\Omega$ 22'02            | 1°50'24    | inferior conj    | 8572 Jul 22 11:27 | 7° $\Omega$ 09'19             | -0°00'44   |

|                  |                   |          |            |                  |                   |          |            |
|------------------|-------------------|----------|------------|------------------|-------------------|----------|------------|
| minimum elong    | 8572 Jul 22 11:25 | 7°09'22  | 0°00'53    | evening set      | 8573 Jun 26 23:43 | 23°03'33 |            |
| transit middle   | 8572 Jul 22 11:25 | 7°09'22  | 0°00'53    | inferior conj    | 8573 Jul 04 04:45 | 18°04'20 | 1°27'43    |
| transit begin    | 8572 Jul 22 07:44 | 7°01'07  |            | minimum elong    | 8573 Jul 04 07:22 | 18°04'22 | 1°26'40    |
| transit end      | 8572 Jul 22 15:06 | 7°02'37  |            | min. Earth dist. | 8573 Jul 07 14:01 | 15°05'03 | 0.59134 AU |
| desc. node       | 8572 Jul 22 10:30 | 7°01'04  |            | desc. node       | 8573 Jul 09 07:34 | 14°03'45 |            |
| min. Earth dist. | 8572 Jul 25 16:02 | 4°04'45  | 0.57047 AU | morning rise     | 8573 Jul 11 11:52 | 13°01'02 |            |
| morning rise     | 8572 Jul 30 08:28 | 2°03'50  |            | direct           | 8573 Jul 17 18:54 | 11°02'23 |            |
| direct           | 8572 Aug 04 23:18 | 0°04'46  |            | morning max el   | 8573 Aug 01 03:49 | 19°01'41 | 27°28'25   |
| morning max el   | 8572 Aug 19 06:48 | 8°01'52  | 26°24'43   |                  | 8573 Aug 10 07:52 | 0°01     |            |
|                  | 8572 Sep 04 14:28 | 0°00     |            |                  | 8573 Aug 28 07:24 | 0°00     |            |
| asc. node        | 8572 Sep 13 19:06 | 16°05'58 |            | asc. node        | 8573 Aug 31 16:02 | 6°04'47  |            |
| morning set      | 8572 Sep 17 02:39 | 23°05'01 |            | morning set      | 8573 Sep 01 10:20 | 8°02'42  |            |
|                  | 8572 Sep 19 22:37 | 0°01     |            | max. Earth dist. | 8573 Sep 07 23:34 | 22°03'14 | 1.31624 AU |
| superior conj    | 8572 Sep 24 00:16 | 8°05'25  | 1°27'13    | superior conj    | 8573 Sep 08 12:00 | 23°04'13 | 1°12'15    |
| minimum elong    | 8572 Sep 23 22:18 | 8°04'31  | 1°27'02    | minimum elong    | 8573 Sep 08 09:45 | 23°03'45 | 1°11'52    |
| max. Earth dist. | 8572 Sep 24 13:24 | 10°01'10 | 1.31813 AU |                  | 8573 Sep 11 07:14 | 0°01     |            |
| evening rise     | 8572 Sep 30 21:55 | 24°00'02 |            | evening rise     | 8573 Sep 15 06:07 | 8°03'28  |            |
|                  | 8572 Oct 03 19:49 | 0°00     |            |                  | 8573 Sep 26 05:43 | 0°00     |            |
| desc. node       | 8572 Oct 18 09:10 | 25°03'37 |            | desc. node       | 8573 Oct 05 06:17 | 13°05'44 |            |
|                  | 8572 Oct 21 09:35 | 0°00     |            | evening max el   | 8573 Oct 14 01:02 | 24°01'46 | 26°14'27   |
| evening max el   | 8572 Nov 01 01:37 | 12°03'44 | 27°08'45   |                  | 8573 Oct 22 06:41 | 0°00     |            |
| retrograde       | 8572 Nov 14 22:54 | 19°04'55 |            | retrograde       | 8573 Oct 27 23:06 | 1°01'26  |            |
| evening set      | 8572 Nov 21 23:02 | 17°03'52 |            |                  | 8573 Nov 02 13:41 | 30°00    |            |
| min. Earth dist. | 8572 Nov 25 16:22 | 14°05'20 | 0.60957 AU | evening set      | 8573 Nov 03 11:39 | 29°03'42 |            |
| inferior conj    | 8572 Nov 28 18:58 | 12°01'14 | -3°43'09   | min. Earth dist. | 8573 Nov 07 14:08 | 26°05'14 | 0.58862 AU |
| minimum elong    | 8572 Nov 29 01:51 | 11°05'00 | 3°40'45    | inferior conj    | 8573 Nov 10 18:17 | 24°03'07 | -4°46'30   |
| morning rise     | 8572 Dec 06 07:02 | 7°01'31  |            | minimum elong    | 8573 Nov 11 01:27 | 24°02'39 | 4°44'45    |
| direct           | 8572 Dec 08 11:53 | 6°05'52  |            | morning rise     | 8573 Nov 18 17:35 | 20°00'13 |            |
| asc. node        | 8572 Dec 10 18:40 | 7°02'14  |            | direct           | 8573 Nov 20 23:38 | 19°04'59 |            |
| morning max el   | 8572 Dec 15 16:29 | 10°03'10 | 17°57'32   | asc. node        | 8573 Nov 27 15:40 | 22°03'13 |            |
|                  | 8572 Dec 28 11:21 | 0°00     |            | morning max el   | 8573 Nov 29 01:26 | 23°04'11 | 18°27'27   |
| morning set      | 8572 Dec 31 08:05 | 5°01'42  |            |                  | 8573 Dec 04 02:49 | 0°00     |            |
|                  |                   |          |            | morning set      | 8573 Dec 15 00:40 | 19°01'23 |            |
| superior conj    | 8573 Jan 10 14:07 | 23°04'22 | 0°27'45    |                  | 8573 Dec 20 14:49 | 0°00     |            |
| minimum elong    | 8573 Jan 10 16:22 | 23°05'12 | 0°27'35    | superior conj    | 8573 Dec 24 00:45 | 6°02'42  | 0°58'52    |
| desc. node       | 8573 Jan 14 08:16 | 0°01'42  |            | minimum elong    | 8573 Dec 24 04:07 | 6°03'14  | 0°58'36    |
|                  | 8573 Jan 14 04:52 | 0°00     |            | max. Earth dist. | 8573 Dec 31 12:13 | 19°04'45 | 1.40430 AU |
| max. Earth dist. | 8573 Jan 18 03:17 | 6°03'07  | 1.42461 AU | desc. node       | 8574 Jan 01 05:15 | 20°05'58 |            |
| evening rise     | 8573 Jan 24 02:25 | 16°01'15 |            | evening rise     | 8574 Jan 04 20:10 | 27°05'20 |            |
|                  | 8573 Feb 02 00:31 | 0°00     |            |                  | 8574 Jan 06 14:39 | 0°00     |            |
|                  | 8573 Feb 24 04:01 | 0°00     |            |                  | 8574 Jan 26 15:50 | 0°00     |            |
| evening max el   | 8573 Feb 25 19:07 | 1°04'25  | 22°18'42   | evening max el   | 8574 Feb 08 10:05 | 15°00'27 | 23°38'43   |
| retrograde       | 8573 Mar 07 10:30 | 7°02'53  |            | retrograde       | 8574 Feb 19 04:36 | 21°00'48 |            |
| asc. node        | 8573 Mar 08 17:38 | 7°01'04  |            | asc. node        | 8574 Feb 23 14:44 | 20°00'14 |            |
| evening set      | 8573 Mar 12 01:43 | 5°03'15  |            | evening set      | 8574 Feb 24 07:47 | 19°04'03 |            |
|                  | 8573 Mar 16 19:26 | 30°00    |            | min. Earth dist. | 8574 Mar 01 03:38 | 14°00'02 | 0.68327 AU |
| inferior conj    | 8573 Mar 17 09:44 | 29°00'10 | 2°30'13    | inferior conj    | 8574 Mar 01 18:11 | 13°00'13 | 1°53'30    |
| minimum elong    | 8573 Mar 17 07:30 | 29°00'18 | 2°29'39    | minimum elong    | 8574 Mar 01 16:03 | 13°00'20 | 1°52'52    |
| min. Earth dist. | 8573 Mar 17 07:00 | 29°00'19 | 0.68449 AU | morning rise     | 8574 Mar 07 00:18 | 7°00'08  |            |
| morning rise     | 8573 Mar 22 13:07 | 23°00'00 |            | direct           | 8574 Mar 11 04:07 | 5°00'31  |            |
| direct           | 8573 Mar 27 06:36 | 21°00'00 |            | morning max el   | 8574 Mar 19 08:04 | 10°00'11 | 20°44'53   |
| morning max el   | 8573 Apr 05 14:13 | 26°00'27 | 22°05'31   | desc. node       | 8574 Mar 30 05:01 | 23°00'43 |            |
|                  | 8573 Apr 08 20:12 | 0°00     |            |                  | 8574 Apr 03 14:27 | 0°00     |            |
| desc. node       | 8573 Apr 12 08:06 | 4°00'16  |            | morning set      | 8574 Apr 17 23:57 | 21°00'43 |            |
|                  | 8573 Apr 30 09:09 | 0°00     |            |                  | 8574 Apr 23 06:03 | 0°00     |            |
| morning set      | 8573 May 08 15:52 | 13°00'00 |            | max. Earth dist. | 8574 Apr 26 09:07 | 5°00'01  | 1.43167 AU |
| max. Earth dist. | 8573 May 14 03:27 | 22°00'01 | 1.41204 AU |                  |                   |          |            |
|                  | 8573 May 18 19:52 | 0°00     |            | superior conj    | 8574 May 03 03:20 | 16°00'10 | -2°07'31   |
| superior conj    | 8573 May 21 21:41 | 5°00'23  | -1°48'38   | minimum elong    | 8574 May 03 07:14 | 16°00'26 | 2°07'30    |
| minimum elong    | 8573 May 22 03:35 | 5°00'49  | 1°48'15    |                  | 8574 May 11 04:28 | 0°00     |            |
| evening rise     | 8573 Jun 01 09:40 | 24°00'34 |            | evening rise     | 8574 May 15 04:19 | 7°00'02  |            |
|                  | 8573 Jun 04 07:54 | 0°00     |            | asc. node        | 8574 May 22 13:35 | 19°00'57 |            |
| asc. node        | 8573 Jun 04 16:32 | 0°00     |            |                  | 8574 May 29 03:08 | 0°00     |            |
| evening max el   | 8573 Jun 17 12:36 | 20°00'16 | 18°15'26   | evening max el   | 8574 Jun 01 00:48 | 3°00'20  | 18°05'09   |
| retrograde       | 8573 Jun 24 16:09 | 23°00'52 |            | retrograde       | 8574 Jun 07 13:57 | 6°00'42  |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| evening set         | 8574 Jun 10 05:01 | 6°☿10'03  |            | evening max el      | 8575 May 15 14:12 | 16°♄42'29 | 18°13'51   |
| inferior conj       | 8574 Jun 16 17:35 | 1°☿07'50  | 2°28'20    | retrograde          | 8575 May 21 23:23 | 20°♄05'35 |            |
| minimum elong       | 8574 Jun 16 20:31 | 1°☿00'33  | 2°27'25    | evening set         | 8575 May 24 21:43 | 19°♄19'52 |            |
|                     | 8574 Jun 17 20:46 | 30°♄11    |            | inferior conj       | 8575 May 30 21:52 | 13°♄59'26 | 3°04'21    |
| min. Earth dist.    | 8574 Jun 19 20:10 | 28°♄04'08 | 0.61386 AU | minimum elong       | 8575 May 30 23:52 | 13°♄53'49 | 3°03'51    |
| morning rise        | 8574 Jun 23 09:46 | 25°♄07'27 |            | min. Earth dist.    | 8575 Jun 02 11:39 | 11°♄07'44 | 0.63523 AU |
| desc. node          | 8574 Jun 26 04:36 | 23°♄36'41 |            | morning rise        | 8575 Jun 06 00:40 | 7°♄46'45  |            |
| direct              | 8574 Jun 30 01:57 | 22°♄50'28 |            | direct              | 8575 Jun 12 18:36 | 5°♄09'03  |            |
|                     | 8574 Jul 13 10:57 | 0°☿       |            | desc. node          | 8575 Jun 13 01:38 | 5°♄09'20  |            |
| morning max el      | 8574 Jul 14 07:42 | 0°☿50'34  | 27°55'11   | morning max el      | 8575 Jun 26 16:16 | 13°♄11'46 | 27°44'04   |
|                     | 8574 Aug 04 12:04 | 0°♄       |            |                     | 8575 Jul 10 03:34 | 0°☿       |            |
| morning set         | 8574 Aug 16 13:16 | 22°♄39'29 |            |                     | 8575 Jul 28 00:52 | 0°♄       |            |
| asc. node           | 8574 Aug 18 13:00 | 26°♄48'03 |            | morning set         | 8575 Jul 31 09:13 | 6°♄32'08  |            |
|                     | 8574 Aug 20 01:07 | 0°♄       |            | asc. node           | 8575 Aug 05 09:59 | 16°♄53'18 |            |
| max. Earth dist.    | 8574 Aug 22 07:58 | 4°♄56'46  | 1.31898 AU | max. Earth dist.    | 8575 Aug 05 10:32 | 16°♄56'13 | 1.32646 AU |
| superior conj       | 8574 Aug 23 22:23 | 8°♄27'19  | 0°52'26    | superior conj       | 8575 Aug 08 05:33 | 22°♄54'23 | 0°28'12    |
| minimum elong       | 8574 Aug 23 20:20 | 8°♄16'05  | 0°51'58    | minimum elong       | 8575 Aug 08 04:15 | 22°♄47'20 | 0°27'48    |
| evening rise        | 8574 Aug 30 17:01 | 23°♄17'54 |            |                     | 8575 Aug 11 12:00 | 0°♄       |            |
|                     | 8574 Sep 02 21:36 | 0°♄       |            | evening rise        | 8575 Aug 15 04:41 | 7°♄58'46  |            |
|                     | 8574 Sep 21 02:14 | 0°♄       |            |                     | 8575 Aug 26 15:00 | 0°♄       |            |
| desc. node          | 8574 Sep 22 03:25 | 1°♄14'19  |            | evening max el      | 8575 Sep 07 03:27 | 15°♄13'54 | 23°13'24   |
| evening max el      | 8574 Sep 25 16:16 | 4°♄58'18  | 24°51'31   | desc. node          | 8575 Sep 09 00:32 | 16°♄56'24 |            |
| retrograde          | 8574 Oct 09 12:21 | 11°♄56'25 |            | retrograde          | 8575 Sep 20 13:34 | 21°♄56'25 |            |
| evening set         | 8574 Oct 15 00:26 | 10°♄48'18 |            | evening set         | 8575 Sep 24 14:15 | 21°♄20'57 |            |
| min. Earth dist.    | 8574 Oct 20 03:31 | 8°♄04'07  | 0.56917 AU | min. Earth dist.    | 8575 Oct 01 12:46 | 18°♄08'39 | 0.55432 AU |
| inferior conj       | 8574 Oct 22 21:39 | 6°♄16'41  | -5°28'57   | inferior conj       | 8575 Oct 03 05:24 | 17°♄09'22 | -5°31'22   |
| minimum elong       | 8574 Oct 23 01:25 | 6°♄10'32  | 5°28'31    | minimum elong       | 8575 Oct 03 01:55 | 17°♄14'28 | 5°31'04    |
| morning rise        | 8574 Oct 31 04:39 | 2°♄09'35  |            | morning rise        | 8575 Oct 11 15:39 | 13°♄18'27 |            |
| direct              | 8574 Nov 02 16:51 | 1°♄51'53  |            | direct              | 8575 Oct 14 14:53 | 12°♄57'23 |            |
| morning max el      | 8574 Nov 12 00:47 | 6°♄17'47  | 19°19'06   | morning max el      | 8575 Oct 25 11:41 | 18°♄03'04 | 20°33'03   |
| asc. node           | 8574 Nov 14 12:41 | 8°♄58'37  |            | asc. node           | 8575 Nov 01 09:41 | 26°♄28'51 |            |
|                     | 8574 Nov 27 04:53 | 0°♄       |            |                     | 8575 Nov 03 15:36 | 0°♄       |            |
| morning set         | 8574 Nov 29 01:53 | 3°♄43'02  |            | morning set         | 8575 Nov 13 08:45 | 18°♄23'05 |            |
|                     |                   |           |            |                     | 8575 Nov 18 23:25 | 0°♄       |            |
| superior conj       | 8574 Dec 07 04:32 | 19°♄50'25 | 1°20'58    | superior conj       | 8575 Nov 20 20:48 | 3°♄52'21  | 1°34'36    |
| minimum elong       | 8574 Dec 07 07:29 | 20°♄04'45 | 1°20'51    | minimum elong       | 8575 Nov 20 22:37 | 4°♄01'35  | 1°34'40    |
|                     | 8574 Dec 12 13:05 | 0°♄       |            | max. Earth dist.    | 8575 Nov 26 01:18 | 14°♄10'24 | 1.36180 AU |
| max. Earth dist.    | 8574 Dec 13 18:01 | 2°♄12'32  | 1.38250 AU | evening rise        | 8575 Nov 29 22:54 | 21°♄31'52 |            |
| evening rise        | 8574 Dec 17 11:44 | 8°♄52'39  |            |                     | 8575 Dec 04 16:39 | 0°♄       |            |
| desc. node          | 8574 Dec 19 02:16 | 11°♄39'27 |            | desc. node          | 8575 Dec 05 23:20 | 2°♄11'53  |            |
|                     | 8574 Dec 30 10:57 | 0°♄       |            |                     | 8575 Dec 24 07:59 | 0°♄       |            |
| evening max el      | 8575 Jan 21 23:18 | 29°♄14'27 | 24°56'40   | evening max el      | 8576 Jan 04 12:23 | 13°♄01'17 | 26°05'27   |
|                     | 8575 Jan 22 18:08 | 0°♄       |            | retrograde          | 8576 Jan 17 04:12 | 20°♄13'06 |            |
| retrograde          | 8575 Feb 02 18:49 | 6°♄06'40  |            | evening set         | 8576 Jan 23 08:16 | 17°♄42'18 |            |
| evening set         | 8575 Feb 08 10:32 | 3°♄45'29  |            | min. Earth dist.    | 8576 Jan 27 13:45 | 13°♄13'47 | 0.66894 AU |
| asc. node           | 8575 Feb 10 11:50 | 1°♄43'20  |            | asc. node           | 8576 Jan 28 08:55 | 12°♄14'30 |            |
|                     | 8575 Feb 11 22:28 | 30°♄11    |            | inferior conj       | 8576 Jan 29 03:16 | 11°♄17'23 | 0°15'13    |
| min. Earth dist.    | 8575 Feb 12 22:38 | 28°♄42'28 | 0.67803 AU | minimum elong       | 8576 Jan 29 02:52 | 11°♄18'38 | 0°15'12    |
| inferior conj       | 8575 Feb 14 00:40 | 27°♄16'47 | 1°08'23    | transit middle      | 8576 Jan 29 02:52 | 11°♄18'38 | 0°15'12    |
| minimum elong       | 8575 Feb 13 23:08 | 27°♄21'52 | 1°07'55    | transit begin       | 8576 Jan 29 01:56 | 11°♄21'32 |            |
| morning rise        | 8575 Feb 19 12:00 | 21°♄19'41 |            | transit end         | 8576 Jan 29 03:48 | 11°♄15'43 |            |
| direct              | 8575 Feb 23 03:05 | 20°♄04'03 |            | morning rise        | 8576 Feb 03 22:08 | 5°♄29'24  |            |
| morning max el      | 8575 Mar 02 09:48 | 24°♄07'13 | 19°37'08   | direct              | 8576 Feb 07 01:58 | 4°♄32'33  |            |
|                     | 8575 Mar 07 11:20 | 0°♄       |            | morning max el      | 8576 Feb 13 18:54 | 8°♄11'16  | 18°44'49   |
| greatest brilliancy | 8575 Mar 15 03:15 | 10°♄44'24 | -0.7m      |                     | 8576 Feb 29 11:35 | 0°♄       |            |
| desc. node          | 8575 Mar 17 01:56 | 13°♄37'24 |            | desc. node          | 8576 Mar 02 22:52 | 3°♄51'09  |            |
| morning set         | 8575 Mar 27 21:36 | 0°♄04'31  |            | morning set         | 8576 Mar 06 09:07 | 9°♄13'06  |            |
|                     | 8575 Mar 27 20:26 | 0°♄       |            |                     | 8576 Mar 19 15:50 | 0°♄       |            |
| max. Earth dist.    | 8575 Apr 08 21:21 | 18°♄46'46 | 1.44621 AU | max. Earth dist.    | 8576 Mar 21 14:23 | 3°♄02'15  | 1.45416 AU |
| superior conj       | 8575 Apr 13 08:15 | 25°♄53'09 | -2°11'16   | superior conj       | 8576 Mar 22 17:52 | 4°♄49'54  | -1°55'06   |
| minimum elong       | 8575 Apr 13 06:11 | 25°♄44'48 | 2°11'18    | minimum elong       | 8576 Mar 22 09:23 | 4°♄16'39  | 1°54'31    |
|                     | 8575 Apr 15 21:23 | 0°♄       |            | evening rise        | 8576 Apr 07 02:14 | 29°♄11'08 |            |
| evening rise        | 8575 Apr 27 02:58 | 18°♄36'26 |            |                     | 8576 Apr 07 14:24 | 0°♄       |            |
|                     | 8575 May 03 21:46 | 0°♄       |            | greatest brilliancy | 8576 Apr 14 02:04 | 10°♄25'29 | -0.9m      |
| asc. node           | 8575 May 09 10:40 | 8°♄49'24  |            |                     |                   |           |            |

|                  |                   |           |            |                     |                   |           |            |
|------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
| asc. node        | 8576 Apr 25 07:45 | 27°♄06'29 |            | superior conj       | 8577 Mar 01 23:54 | 13°♄44'26 | -1°20'44   |
|                  | 8576 Apr 27 20:14 | 0°♄       |            | minimum elong       | 8577 Mar 01 15:00 | 13°♄09'24 | 1°19'39    |
| evening max el   | 8576 Apr 28 02:00 | 0°♄14'39  | 18°40'38   | max. Earth dist.    | 8577 Mar 04 10:06 | 17°♄32'58 | 1.45474 AU |
| retrograde       | 8576 May 04 16:09 | 3°♄51'40  |            |                     | 8577 Mar 12 09:36 | 0°♄       |            |
| evening set      | 8576 May 07 21:57 | 2°♄51'50  |            | evening rise        | 8577 Mar 18 03:29 | 8°♄55'42  |            |
|                  | 8576 May 11 05:05 | 30°♄8     |            | greatest brilliancy | 8577 Mar 30 11:54 | 27°♄56'46 | -0.7m      |
| inferior conj    | 8576 May 13 13:31 | 27°♄14'44 | 3°20'38    |                     | 8577 Mar 31 20:51 | 0°♄       |            |
| minimum elong    | 8576 May 13 14:13 | 27°♄12'37 | 3°20'25    | evening max el      | 8577 Apr 11 10:00 | 13°♄52'27 | 19°24'24   |
| min. Earth dist. | 8576 May 15 12:12 | 24°♄52'11 | 0.65366 AU | asc. node           | 8577 Apr 12 04:50 | 14°♄38'23 |            |
| morning rise     | 8576 May 19 05:45 | 20°♄57'03 |            | retrograde          | 8577 Apr 18 13:05 | 17°♄55'04 |            |
| direct           | 8576 May 25 18:58 | 18°♄10'36 |            | evening set         | 8577 Apr 22 02:56 | 16°♄40'21 |            |
| desc. node       | 8576 May 29 22:39 | 19°♄07'00 |            | inferior conj       | 8577 Apr 27 13:12 | 10°♄47'58 | 3°21'23    |
| morning max el   | 8576 Jun 08 02:35 | 26°♄02'59 | 26°59'42   | minimum elong       | 8577 Apr 27 12:39 | 10°♄49'45 | 3°21'14    |
|                  | 8576 Jun 11 17:54 | 0°♄       |            | min. Earth dist.    | 8577 Apr 28 20:40 | 9°♄05'03  | 0.66803 AU |
|                  | 8576 Jul 02 17:02 | 0°♄       |            | morning rise        | 8577 May 02 22:00 | 4°♄29'44  |            |
| morning set      | 8576 Jul 13 19:09 | 19°♄52'52 |            | direct              | 8577 May 09 01:43 | 1°♄46'29  |            |
| max. Earth dist. | 8576 Jul 18 03:38 | 28°♄27'51 | 1.33885 AU | desc. node          | 8577 May 16 19:37 | 5°♄00'59  |            |
|                  | 8576 Jul 18 21:48 | 0°♄       |            | morning max el      | 8577 May 21 12:37 | 9°♄13'21  | 25°50'19   |
|                  |                   |           |            |                     | 8577 Jun 06 20:49 | 0°♄       |            |
| superior conj    | 8576 Jul 22 07:15 | 7°♄01'07  | 0°00'08    |                     | 8577 Jun 25 05:59 | 0°♄       |            |
| minimum elong    | 8576 Jul 22 07:15 | 7°♄01'08  | 0°00'02    | morning set         | 8577 Jun 26 15:18 | 2°♄31'46  |            |
| behind sun begin | 8576 Jul 22 01:50 | 6°♄32'46  |            | max. Earth dist.    | 8577 Jun 30 09:56 | 9°♄36'35  | 1.35601 AU |
| behind sun end   | 8576 Jul 22 12:40 | 7°♄29'33  |            |                     |                   |           |            |
| asc. node        | 8576 Jul 22 06:57 | 6°♄59'32  |            | superior conj       | 8577 Jul 06 00:58 | 20°♄40'57 | -0°30'47   |
| evening rise     | 8576 Jul 29 15:09 | 22°♄32'15 |            | minimum elong       | 8577 Jul 06 02:47 | 20°♄50'09 | 0°30'36    |
|                  | 8576 Aug 02 06:09 | 0°♄       |            | asc. node           | 8577 Jul 09 03:57 | 27°♄03'12 |            |
| evening max el   | 8576 Aug 18 19:12 | 25°♄32'26 | 21°36'47   |                     | 8577 Jul 10 14:16 | 0°♄       |            |
|                  | 8576 Aug 24 16:59 | 0°♄       |            | evening rise        | 8577 Jul 13 22:22 | 6°♄52'51  |            |
| desc. node       | 8576 Aug 25 21:40 | 0°♄33'53  |            |                     | 8577 Jul 26 16:16 | 0°♄       |            |
| retrograde       | 8576 Aug 31 03:53 | 1°♄40'20  |            | evening max el      | 8577 Jul 31 22:36 | 6°♄24'02  | 20°14'18   |
| evening set      | 8576 Sep 02 19:29 | 1°♄24'25  |            | retrograde          | 8577 Aug 11 16:34 | 11°♄42'46 |            |
|                  | 8576 Sep 07 01:45 | 30°♄8     |            | desc. node          | 8577 Aug 12 18:44 | 11°♄39'41 |            |
| inferior conj    | 8576 Sep 11 23:49 | 27°♄26'10 | -4°39'04   | evening set         | 8577 Aug 13 15:22 | 11°♄33'03 |            |
| minimum elong    | 8576 Sep 11 14:36 | 27°♄39'04 | 4°36'56    | inferior conj       | 8577 Aug 22 18:00 | 7°♄34'55  | -2°59'20   |
| min. Earth dist. | 8576 Sep 11 21:14 | 27°♄29'46 | 0.54712 AU | minimum elong       | 8577 Aug 22 09:58 | 7°♄46'45  | 2°56'38    |
| morning rise     | 8576 Sep 20 10:44 | 23°♄36'06 |            | min. Earth dist.    | 8577 Aug 24 07:08 | 6°♄40'13  | 0.54933 AU |
| direct           | 8576 Sep 24 00:47 | 23°♄08'06 |            | morning rise        | 8577 Aug 31 03:33 | 3°♄25'42  |            |
| morning max el   | 8576 Oct 06 09:49 | 28°♄59'34 | 22°06'59   | direct              | 8577 Sep 04 11:10 | 2°♄45'28  |            |
|                  | 8576 Oct 07 10:45 | 0°♄       |            | morning max el      | 8577 Sep 17 23:28 | 9°♄20'47  | 23°52'29   |
| asc. node        | 8576 Oct 18 06:40 | 14°♄47'07 |            |                     | 8577 Oct 03 02:43 | 0°♄       |            |
|                  | 8576 Oct 26 06:21 | 0°♄       |            | asc. node           | 8577 Oct 05 03:37 | 3°♄41'50  |            |
| morning set      | 8576 Oct 27 18:56 | 3°♄10'32  |            | morning set         | 8577 Oct 12 06:34 | 18°♄00'15 |            |
|                  |                   |           |            |                     | 8577 Oct 17 19:35 | 0°♄       |            |
| superior conj    | 8576 Nov 03 21:45 | 18°♄18'00 | 1°40'41    |                     |                   |           |            |
| minimum elong    | 8576 Nov 03 22:15 | 18°♄20'39 | 1°40'49    | superior conj       | 8577 Oct 19 04:30 | 2°♄58'55  | 1°40'05    |
| max. Earth dist. | 8576 Nov 07 15:18 | 26°♄03'22 | 1.34411 AU | minimum elong       | 8577 Oct 19 03:48 | 2°♄55'08  | 1°40'10    |
|                  | 8576 Nov 09 14:11 | 0°♄       |            | max. Earth dist.    | 8577 Oct 21 13:50 | 8°♄07'26  | 1.33049 AU |
| evening rise     | 8576 Nov 12 01:48 | 4°♄52'45  |            | evening rise        | 8577 Oct 26 16:42 | 18°♄45'31 |            |
| desc. node       | 8576 Nov 21 20:24 | 22°♄31'02 |            |                     | 8577 Nov 01 12:38 | 0°♄       |            |
|                  | 8576 Nov 26 11:05 | 0°♄       |            | desc. node          | 8577 Nov 08 17:28 | 12°♄30'30 |            |
| evening max el   | 8576 Dec 17 01:46 | 26°♄41'14 | 26°57'43   |                     | 8577 Nov 20 16:31 | 0°♄       |            |
|                  | 8576 Dec 20 21:22 | 0°♄       |            | evening max el      | 8577 Nov 29 14:11 | 10°♄02'37 | 27°26'08   |
| retrograde       | 8576 Dec 30 07:51 | 4°♄01'02  |            | retrograde          | 8577 Dec 13 04:55 | 17°♄21'57 |            |
| evening set      | 8577 Jan 05 23:02 | 1°♄25'30  |            | evening set         | 8577 Dec 20 04:22 | 14°♄48'32 |            |
|                  | 8577 Jan 07 14:03 | 30°♄8     |            | min. Earth dist.    | 8577 Dec 23 23:13 | 11°♄26'47 | 0.64021 AU |
| min. Earth dist. | 8577 Jan 09 22:43 | 27°♄31'11 | 0.65624 AU | inferior conj       | 8577 Dec 26 11:47 | 8°♄49'26  | -1°52'22   |
| inferior conj    | 8577 Jan 11 23:49 | 25°♄10'25 | -0°45'26   | minimum elong       | 8577 Dec 26 15:17 | 8°♄40'17  | 1°50'45    |
| minimum elong    | 8577 Jan 12 01:08 | 25°♄06'38 | 0°44'42    | asc. node           | 8578 Jan 01 03:03 | 3°♄57'47  |            |
| asc. node        | 8577 Jan 14 06:00 | 22°♄40'53 |            | morning rise        | 8578 Jan 02 03:56 | 3°♄27'41  |            |
| morning rise     | 8577 Jan 18 04:24 | 19°♄34'00 |            | direct              | 8578 Jan 04 15:00 | 2°♄57'23  |            |
| direct           | 8577 Jan 20 22:48 | 18°♄52'18 |            | morning max el      | 8578 Jan 11 02:34 | 6°♄19'49  | 17°50'29   |
| morning max el   | 8577 Jan 27 09:24 | 22°♄17'57 | 18°09'06   |                     | 8578 Jan 26 20:10 | 0°♄       |            |
|                  | 8577 Feb 02 12:43 | 0°♄       |            | morning set         | 8578 Jan 27 21:04 | 1°♄45'58  |            |
| morning set      | 8577 Feb 15 01:04 | 19°♄48'33 |            | desc. node          | 8578 Feb 04 16:45 | 14°♄56'29 |            |
| desc. node       | 8577 Feb 17 19:49 | 24°♄19'10 |            |                     |                   |           |            |
|                  | 8577 Feb 21 08:22 | 0°♄       |            | superior conj       | 8578 Feb 09 20:50 | 23°♄25'18 | -0°37'04   |
|                  |                   |           |            | minimum elong       | 8578 Feb 09 16:41 | 23°♄08'30 | 0°36'20    |



|                  |                   |                           |            |                  |                   |                           |            |
|------------------|-------------------|---------------------------|------------|------------------|-------------------|---------------------------|------------|
|                  | 8578 Feb 13 23:05 | 0° $\text{H}$             |            | minimum elong    | 8579 Jan 21 19:11 | 4° $\approx$ 21'10        | 0°05'58    |
| max. Earth dist. | 8578 Feb 15 05:26 | 2° $\text{H}$ 00'34       | 1.44796 AU | behind sun begin | 8579 Jan 21 11:01 | 3° $\approx$ 46'23        |            |
| evening rise     | 8578 Feb 25 15:45 | 18° $\text{H}$ 15'37      |            | behind sun end   | 8579 Jan 22 03:22 | 4° $\approx$ 55'51        |            |
|                  | 8578 Mar 05 09:10 | 0° $\text{Y}$             |            | desc. node       | 8579 Jan 22 13:43 | 5° $\approx$ 39'35        |            |
| evening max el   | 8578 Mar 25 12:42 | 27° $\text{Y}$ 31'34      | 20°23'15   | max. Earth dist. | 8579 Jan 28 21:28 | 16° $\approx$ 07'25       | 1.43462 AU |
|                  | 8578 Mar 28 06:46 | 0° $\text{B}$             |            | evening rise     | 8579 Feb 05 06:00 | 27° $\approx$ 48'20       |            |
| asc. node        | 8578 Mar 30 01:56 | 1° $\text{B}$ 11'06       |            |                  | 8579 Feb 06 15:58 | 0° $\text{H}$             |            |
| retrograde       | 8578 Apr 02 11:35 | 2° $\text{B}$ 09'34       |            |                  | 8579 Feb 27 04:25 | 0° $\text{Y}$             |            |
| evening set      | 8578 Apr 06 10:24 | 0° $\text{B}$ 39'35       |            | evening max el   | 8579 Mar 08 09:50 | 11° $\text{Y}$ 11'29      | 21°34'09   |
|                  | 8578 Apr 07 05:21 | 30° $\text{R}$ $\text{Y}$ |            | asc. node        | 8579 Mar 16 23:01 | 16° $\text{Y}$ 29'42      |            |
| inferior conj    | 8578 Apr 11 18:04 | 24° $\text{Y}$ 33'44      | 3°09'38    | retrograde       | 8579 Mar 17 09:43 | 16° $\text{Y}$ 30'43      |            |
| minimum elong    | 8578 Apr 11 16:34 | 24° $\text{Y}$ 38'51      | 3°09'21    | evening set      | 8579 Mar 21 18:34 | 14° $\text{Y}$ 45'32      |            |
| min. Earth dist. | 8578 Apr 12 11:19 | 23° $\text{Y}$ 34'50      | 0.67791 AU | inferior conj    | 8579 Mar 27 01:53 | 8° $\text{Y}$ 28'36       | 2°47'21    |
| morning rise     | 8578 Apr 16 22:32 | 18° $\text{Y}$ 17'23      |            | minimum elong    | 8579 Mar 26 23:48 | 8° $\text{Y}$ 35'51       | 2°46'53    |
| direct           | 8578 Apr 22 13:44 | 15° $\text{Y}$ 46'49      |            | min. Earth dist. | 8579 Mar 27 06:07 | 8° $\text{Y}$ 13'53       | 0.68329 AU |
| desc. node       | 8578 May 03 16:34 | 22° $\text{Y}$ 20'40      |            | morning rise     | 8579 Apr 01 04:53 | 2° $\text{Y}$ 15'44       |            |
| morning max el   | 8578 May 03 21:49 | 22° $\text{Y}$ 33'53      | 24°25'44   | direct           | 8579 Apr 06 06:17 | 0° $\text{Y}$ 03'57       |            |
|                  | 8578 May 10 10:16 | 0° $\text{B}$             |            | morning max el   | 8579 Apr 16 07:50 | 6° $\text{Y}$ 01'41       | 22°55'55   |
|                  | 8578 May 31 04:29 | 0° $\text{II}$            |            | desc. node       | 8579 Apr 20 13:31 | 10° $\text{Y}$ 42'35      |            |
| morning set      | 8578 Jun 08 16:49 | 14° $\text{II}$ 15'50     |            |                  | 8579 May 04 19:59 | 0° $\text{B}$             |            |
| max. Earth dist. | 8578 Jun 12 08:16 | 20° $\text{II}$ 44'12     | 1.37685 AU | morning set      | 8579 May 20 18:12 | 24° $\text{B}$ 51'18      |            |
|                  | 8578 Jun 17 08:16 | 0° $\text{E}$             |            |                  | 8579 May 23 19:49 | 0° $\text{II}$            |            |
|                  |                   |                           |            | max. Earth dist. | 8579 May 25 04:47 | 2° $\text{II}$ 20'48      | 1.39933 AU |
| superior conj    | 8578 Jun 19 07:24 | 3° $\text{E}$ 45'15       | -1°02'51   |                  |                   |                           |            |
| minimum elong    | 8578 Jun 19 11:19 | 4° $\text{E}$ 04'09       | 1°02'23    | superior conj    | 8579 Jun 01 22:30 | 16° $\text{II}$ 04'15     | -1°33'21   |
| asc. node        | 8578 Jun 26 00:57 | 17° $\text{E}$ 00'06      |            | minimum elong    | 8579 Jun 02 04:07 | 16° $\text{II}$ 29'57     | 1°32'50    |
| evening rise     | 8578 Jun 27 23:52 | 20° $\text{E}$ 53'29      |            |                  | 8579 Jun 09 08:51 | 0° $\text{E}$             |            |
|                  | 8578 Jul 02 16:11 | 0° $\text{O}$             |            | evening rise     | 8579 Jun 11 16:34 | 4° $\text{E}$ 25'55       |            |
| evening max el   | 8578 Jul 14 15:09 | 18° $\text{O}$ 00'17      | 19°11'45   | asc. node        | 8579 Jun 12 21:58 | 6° $\text{E}$ 45'54       |            |
| retrograde       | 8578 Jul 23 16:56 | 22° $\text{O}$ 29'45      |            |                  | 8579 Jun 27 11:06 | 0° $\text{O}$             |            |
| evening set      | 8578 Jul 25 14:10 | 22° $\text{O}$ 18'56      |            | evening max el   | 8579 Jun 27 18:21 | 0° $\text{O}$ 18'09       | 18°30'09   |
| desc. node       | 8578 Jul 30 15:48 | 20° $\text{O}$ 17'48      |            | retrograde       | 8579 Jul 05 11:42 | 4° $\text{O}$ 09'14       |            |
| inferior conj    | 8578 Aug 03 01:52 | 18° $\text{O}$ 07'50      | -1°02'58   | evening set      | 8579 Jul 07 14:44 | 3° $\text{O}$ 52'36       |            |
| minimum elong    | 8578 Aug 02 23:06 | 18° $\text{O}$ 12'28      | 1°02'02    |                  | 8579 Jul 14 11:30 | 30° $\text{R}$ $\text{E}$ |            |
| min. Earth dist. | 8578 Aug 05 20:26 | 16° $\text{O}$ 16'34      | 0.56061 AU | inferior conj    | 8579 Jul 15 06:47 | 29° $\text{E}$ 22'24      | 0°40'08    |
| morning rise     | 8578 Aug 11 05:07 | 13° $\text{O}$ 23'52      |            | minimum elong    | 8579 Jul 15 08:12 | 29° $\text{E}$ 19'36      | 0°39'26    |
| direct           | 8578 Aug 16 08:22 | 12° $\text{O}$ 23'06      |            | desc. node       | 8579 Jul 17 12:52 | 27° $\text{E}$ 35'41      |            |
| morning max el   | 8578 Aug 30 12:10 | 19° $\text{O}$ 35'04      | 25°34'32   | min. Earth dist. | 8579 Jul 18 15:02 | 26° $\text{E}$ 45'43      | 0.57887 AU |
|                  | 8578 Sep 08 08:29 | 0° $\text{H}$             |            | morning rise     | 8579 Jul 22 22:09 | 24° $\text{E}$ 01'40      |            |
| asc. node        | 8578 Sep 22 00:35 | 23° $\text{H}$ 03'46      |            | direct           | 8579 Jul 28 20:21 | 22° $\text{E}$ 31'46      |            |
|                  | 8578 Sep 25 10:19 | 0° $\text{A}$             |            | morning max el   | 8579 Aug 12 05:36 | 0° $\text{O}$ 10'34       | 26°56'01   |
| morning set      | 8578 Sep 26 18:01 | 2° $\text{A}$ 47'33       |            |                  | 8579 Aug 12 01:14 | 0° $\text{O}$             |            |
|                  |                   |                           |            |                  | 8579 Sep 02 07:31 | 0° $\text{H}$             |            |
| superior conj    | 8578 Oct 03 14:46 | 17° $\text{A}$ 48'11      | 1°33'31    | asc. node        | 8579 Sep 08 21:32 | 12° $\text{H}$ 44'44      |            |
| minimum elong    | 8578 Oct 03 13:09 | 17° $\text{A}$ 39'19      | 1°33'26    | morning set      | 8579 Sep 11 03:35 | 17° $\text{H}$ 26'28      |            |
| max. Earth dist. | 8578 Oct 04 19:23 | 20° $\text{A}$ 25'41      | 1.32130 AU |                  | 8579 Sep 16 21:56 | 0° $\text{A}$             |            |
|                  | 8578 Oct 09 05:43 | 0° $\text{M}$             |            |                  |                   |                           |            |
| evening rise     | 8578 Oct 10 16:23 | 3° $\text{M}$ 01'37       |            | superior conj    | 8579 Sep 18 02:30 | 2° $\text{A}$ 38'29       | 1°21'30    |
|                  | 8578 Oct 25 07:38 | 0° $\text{J}$             |            | minimum elong    | 8579 Sep 18 00:21 | 2° $\text{A}$ 26'36       | 1°21'13    |
| desc. node       | 8578 Oct 26 14:31 | 2° $\text{J}$ 02'09       |            | max. Earth dist. | 8579 Sep 18 04:47 | 2° $\text{A}$ 51'13       | 1.31672 AU |
| evening max el   | 8578 Nov 11 23:29 | 22° $\text{J}$ 52'30      | 27°24'37   | evening rise     | 8579 Sep 24 22:08 | 17° $\text{A}$ 32'38      |            |
|                  | 8578 Nov 24 03:23 | 0° $\text{Z}$             |            |                  | 8579 Oct 01 01:56 | 0° $\text{M}$             |            |
| retrograde       | 8578 Nov 25 18:57 | 0° $\text{Z}$ 07'20       |            | desc. node       | 8579 Oct 13 11:36 | 20° $\text{M}$ 53'56      |            |
|                  | 8578 Nov 27 09:53 | 30° $\text{R}$ $\text{J}$ |            |                  | 8579 Oct 20 10:18 | 0° $\text{J}$             |            |
| evening set      | 8578 Dec 02 21:15 | 27° $\text{J}$ 45'02      |            | evening max el   | 8579 Oct 25 02:58 | 4° $\text{J}$ 57'55       | 26°49'34   |
| min. Earth dist. | 8578 Dec 06 13:32 | 24° $\text{J}$ 50'46      | 0.62134 AU | retrograde       | 8579 Nov 08 00:56 | 12° $\text{J}$ 07'01      |            |
| inferior conj    | 8578 Dec 09 12:14 | 22° $\text{J}$ 07'24      | -3°02'53   | evening set      | 8579 Nov 14 21:36 | 10° $\text{J}$ 06'47      |            |
| minimum elong    | 8578 Dec 09 18:03 | 21° $\text{J}$ 53'54      | 3°00'34    | min. Earth dist. | 8579 Nov 18 17:12 | 7° $\text{J}$ 29'26       | 0.60063 AU |
| morning rise     | 8578 Dec 16 17:04 | 17° $\text{J}$ 03'43      |            | inferior conj    | 8579 Nov 21 21:41 | 4° $\text{J}$ 54'28       | -4°11'34   |
| direct           | 8578 Dec 18 23:18 | 16° $\text{J}$ 41'09      |            | minimum elong    | 8579 Nov 22 05:01 | 4° $\text{J}$ 39'34       | 4°09'18    |
| asc. node        | 8578 Dec 19 00:05 | 16° $\text{J}$ 41'10      |            | morning rise     | 8579 Nov 29 14:54 | 0° $\text{J}$ 11'48       |            |
| morning max el   | 8578 Dec 25 19:21 | 20° $\text{J}$ 09'38      | 17°49'38   |                  | 8579 Nov 30 12:40 | 30° $\text{R}$ $\text{M}$ |            |
|                  | 8579 Jan 02 02:55 | 0° $\text{Z}$             |            | direct           | 8579 Dec 01 19:35 | 29° $\text{M}$ 53'40      |            |
| morning set      | 8579 Jan 10 15:04 | 14° $\text{Z}$ 46'15      |            |                  | 8579 Dec 03 02:07 | 0° $\text{J}$             |            |
|                  | 8579 Jan 19 06:10 | 0° $\approx$              |            | asc. node        | 8579 Dec 05 21:07 | 0° $\text{J}$ 59'04       |            |
|                  |                   |                           |            | morning max el   | 8579 Dec 09 08:16 | 3° $\text{J}$ 37'15       | 18°07'46   |
| superior conj    | 8579 Jan 21 18:37 | 4° $\approx$ 18'45        | 0°05'54    | morning set      | 8579 Dec 25 00:49 | 28° $\text{J}$ 30'06      |            |

|                  |                   |                      |  |                  |                   |           |            |
|------------------|-------------------|----------------------|--|------------------|-------------------|-----------|------------|
|                  | 8579 Dec 25 20:00 | 0°♄                  |  | superior conj    | 8580 Dec 16 11:31 | 29°♄22'18 | 1°09'19    |
|                  |                   |                      |  | minimum elong    | 8580 Dec 16 14:51 | 29°♄38'00 | 1°09'06    |
| superior conj    | 8580 Jan 03 17:01 | 16°♄22'04 0°42'03    |  |                  | 8580 Dec 16 19:31 | 0°♄       |            |
| minimum elong    | 8580 Jan 03 19:59 | 16°♄35'21 0°41'48    |  | max. Earth dist. | 8580 Dec 23 15:07 | 12°♄26'40 | 1.39507 AU |
| desc. node       | 8580 Jan 09 10:41 | 26°♄24'24            |  | desc. node       | 8580 Dec 26 07:41 | 17°♄07'34 |            |
| max. Earth dist. | 8580 Jan 11 08:21 | 29°♄37'52 1.41626 AU |  | evening rise     | 8580 Dec 27 14:43 | 19°♄19'52 |            |
|                  | 8580 Jan 11 13:37 | 0°♄                  |  |                  | 8581 Jan 03 02:46 | 0°♄       |            |
| evening rise     | 8580 Jan 16 11:35 | 8°♄05'05             |  |                  | 8581 Jan 24 01:27 | 0°♄       |            |
|                  | 8580 Jan 30 19:03 | 0°♄                  |  | evening max el   | 8581 Jan 31 16:30 | 8°♄39'22  | 24°12'42   |
| evening max el   | 8580 Feb 19 02:27 | 24°♄53'33 22°52'37   |  | retrograde       | 8581 Feb 11 22:19 | 15°♄15'04 |            |
|                  | 8580 Feb 25 16:26 | 0°♄                  |  | evening set      | 8581 Feb 17 06:40 | 13°♄01'19 |            |
| retrograde       | 8580 Feb 29 05:45 | 0°♄54'06             |  | asc. node        | 8581 Feb 17 17:14 | 12°♄37'55 |            |
| asc. node        | 8580 Mar 02 20:07 | 0°♄20'26             |  | min. Earth dist. | 8581 Feb 21 23:09 | 7°♄38'13  | 0.68146 AU |
|                  | 8580 Mar 03 12:23 | 30°♄♄                |  | inferior conj    | 8581 Feb 22 18:31 | 6°♄32'52  | 1°35'24    |
| evening set      | 8580 Mar 05 01:50 | 28°♄54'08            |  | minimum elong    | 8581 Feb 22 16:34 | 6°♄39'27  | 1°34'48    |
| inferior conj    | 8580 Mar 10 10:40 | 22°♄29'27 2°15'44    |  | morning rise     | 8581 Feb 28 02:31 | 0°♄31'09  |            |
| minimum elong    | 8580 Mar 10 08:25 | 22°♄37'14 2°15'06    |  |                  | 8581 Feb 28 20:54 | 30°♄♄     |            |
| min. Earth dist. | 8580 Mar 10 02:51 | 22°♄56'33 0.68438 AU |  | direct           | 8581 Mar 04 00:48 | 29°♄03'14 |            |
| morning rise     | 8580 Mar 15 14:53 | 16°♄21'22            |  |                  | 8581 Mar 07 09:40 | 0°♄       |            |
| direct           | 8580 Mar 20 02:22 | 14°♄31'21            |  | morning max el   | 8581 Mar 11 18:46 | 3°♄26'07  | 20°14'13   |
| morning max el   | 8580 Mar 28 21:49 | 19°♄38'12 21°29'53   |  | desc. node       | 8581 Mar 24 07:24 | 19°♄28'48 |            |
| desc. node       | 8580 Apr 06 10:28 | 29°♄49'29            |  |                  | 8581 Mar 31 10:34 | 0°♄       |            |
|                  | 8580 Apr 06 13:37 | 0°♄                  |  | morning set      | 8581 Apr 08 16:54 | 12°♄35'36 |            |
|                  | 8580 Apr 27 00:21 | 0°♄                  |  | max. Earth dist. | 8581 Apr 18 13:53 | 28°♄06'53 | 1.43854 AU |
| morning set      | 8580 Apr 29 16:09 | 4°♄11'04             |  |                  | 8581 Apr 19 18:03 | 0°♄       |            |
| max. Earth dist. | 8580 May 06 05:35 | 14°♄47'07 1.42077 AU |  |                  |                   |           |            |
|                  |                   |                      |  | superior conj    | 8581 Apr 24 12:45 | 7°♄46'43  | -2°11'20   |
| superior conj    | 8580 May 13 17:39 | 27°♄27'41 -1°58'06   |  | minimum elong    | 8581 Apr 24 14:33 | 7°♄54'08  | 2°11'25    |
| minimum elong    | 8580 May 13 23:10 | 27°♄51'37 1°57'51    |  | evening rise     | 8581 May 07 07:13 | 29°♄25'36 |            |
|                  | 8580 May 15 04:39 | 0°♄                  |  |                  | 8581 May 07 15:09 | 0°♄       |            |
| evening rise     | 8580 May 24 20:35 | 17°♄20'25            |  | asc. node        | 8581 May 16 16:04 | 15°♄23'23 |            |
| asc. node        | 8580 May 29 19:00 | 26°♄15'52            |  | evening max el   | 8581 May 24 17:36 | 26°♄21'33 | 18°06'41   |
|                  | 8580 May 31 22:16 | 0°♄                  |  | retrograde       | 8581 May 31 03:43 | 29°♄42'04 |            |
| evening max el   | 8580 Jun 10 04:26 | 13°♄08'53 18°08'47   |  | evening set      | 8581 Jun 02 22:00 | 29°♄03'49 |            |
| retrograde       | 8580 Jun 17 00:35 | 16°♄36'54            |  | inferior conj    | 8581 Jun 09 04:47 | 23°♄53'48 | 2°46'19    |
| evening set      | 8580 Jun 19 11:18 | 16°♄10'44            |  | minimum elong    | 8581 Jun 09 07:25 | 23°♄46'54 | 2°45'33    |
| inferior conj    | 8580 Jun 26 08:54 | 11°♄20'13 1°56'40    |  | min. Earth dist. | 8581 Jun 12 02:28 | 20°♄52'47 | 0.62323 AU |
| minimum elong    | 8580 Jun 26 11:53 | 11°♄13'24 1°55'35    |  | morning rise     | 8581 Jun 15 15:01 | 17°♄47'27 |            |
| min. Earth dist. | 8580 Jun 29 16:34 | 8°♄19'15 0.60085 AU  |  | desc. node       | 8581 Jun 20 06:59 | 15°♄33'54 |            |
| morning rise     | 8580 Jul 03 09:36 | 5°♄31'21             |  | direct           | 8581 Jun 22 09:02 | 15°♄20'13 |            |
| desc. node       | 8580 Jul 03 09:56 | 5°♄30'50             |  | morning max el   | 8581 Jul 06 11:35 | 23°♄22'11 | 27°54'51   |
| direct           | 8580 Jul 09 21:35 | 3°♄29'58             |  |                  | 8581 Jul 12 09:23 | 0°♄       |            |
| morning max el   | 8580 Jul 24 05:41 | 11°♄25'03 27°44'26   |  |                  | 8581 Aug 01 01:48 | 0°♄       |            |
|                  | 8580 Aug 07 18:54 | 0°♄                  |  | morning set      | 8581 Aug 09 09:46 | 15°♄58'10 |            |
|                  | 8580 Aug 24 11:52 | 0°♄                  |  | asc. node        | 8581 Aug 12 15:28 | 22°♄41'08 |            |
| morning set      | 8580 Aug 25 09:31 | 1°♄52'06             |  | max. Earth dist. | 8581 Aug 14 20:50 | 27°♄26'14 | 1.32161 AU |
| asc. node        | 8580 Aug 25 18:30 | 2°♄39'00             |  |                  | 8581 Aug 16 01:14 | 0°♄       |            |
| max. Earth dist. | 8580 Aug 31 14:31 | 15°♄15'03 1.31683 AU |  |                  |                   |           |            |
|                  |                   |                      |  | superior conj    | 8581 Aug 16 23:11 | 1°♄59'38  | 0°42'41    |
| superior conj    | 8580 Sep 01 13:56 | 17°♄24'23 1°04'26    |  | minimum elong    | 8581 Aug 16 21:23 | 1°♄49'49  | 0°42'14    |
| minimum elong    | 8580 Sep 01 11:42 | 17°♄12'05 1°04'00    |  | evening rise     | 8581 Aug 23 19:13 | 16°♄54'16 |            |
|                  | 8580 Sep 07 07:11 | 0°♄                  |  |                  | 8581 Aug 30 05:07 | 0°♄       |            |
| evening rise     | 8580 Sep 08 07:46 | 2°♄12'20             |  | desc. node       | 8581 Sep 16 05:49 | 25°♄28'53 |            |
|                  | 8580 Sep 23 03:55 | 0°♄                  |  | evening max el   | 8581 Sep 17 11:48 | 26°♄43'47 | 24°10'40   |
| desc. node       | 8580 Sep 29 08:43 | 8°♄50'04             |  |                  | 8581 Sep 21 09:08 | 0°♄       |            |
| evening max el   | 8580 Oct 05 22:51 | 16°♄12'57 25°42'01   |  | retrograde       | 8581 Oct 01 04:57 | 3°♄36'07  |            |
| retrograde       | 8580 Oct 19 21:03 | 23°♄15'28            |  | evening set      | 8581 Oct 06 02:47 | 2°♄43'05  |            |
| evening set      | 8580 Oct 26 00:33 | 21°♄47'16            |  |                  | 8581 Oct 11 15:10 | 30°♄♄     |            |
| min. Earth dist. | 8580 Oct 30 11:20 | 19°♄10'40 0.58001 AU |  | min. Earth dist. | 8581 Oct 11 22:32 | 29°♄48'56 | 0.56217 AU |
| inferior conj    | 8580 Nov 02 12:47 | 17°♄01'23 -5°08'07   |  | inferior conj    | 8581 Oct 14 07:33 | 28°♄21'02 | -5°36'02   |
| minimum elong    | 8580 Nov 02 19:04 | 16°♄50'16 5°06'56    |  | minimum elong    | 8581 Oct 14 08:31 | 28°♄19'31 | 5°35'55    |
| morning rise     | 8580 Nov 10 15:54 | 12°♄41'14            |  | morning rise     | 8581 Oct 22 16:21 | 24°♄21'43 |            |
| direct           | 8580 Nov 12 23:45 | 12°♄24'15            |  | direct           | 8581 Oct 25 08:52 | 24°♄02'48 |            |
| morning max el   | 8580 Nov 21 13:35 | 16°♄32'20 18°46'36   |  | morning max el   | 8581 Nov 04 07:48 | 28°♄44'41 | 19°47'46   |
| asc. node        | 8580 Nov 21 18:09 | 16°♄43'25            |  |                  | 8581 Nov 05 13:48 | 0°♄       |            |
|                  | 8580 Dec 01 03:17 | 0°♄                  |  | asc. node        | 8581 Nov 08 15:09 | 3°♄39'25  |            |
| morning set      | 8580 Dec 07 21:28 | 12°♄43'43            |  | morning set      | 8581 Nov 22 01:27 | 27°♄16'51 |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8581 Nov 23 09:38 | 0°♊       |            | morning set         | 8582 Nov 06 10:00 | 12°♎01'00 |            |
| superior conj       | 8581 Nov 29 21:08 | 13°♊05'35 | 1°27'43    | superior conj       | 8582 Nov 13 17:29 | 27°♎18'50 | 1°38'02    |
| minimum elong       | 8581 Nov 29 23:39 | 13°♊18'05 | 1°27'41    | minimum elong       | 8582 Nov 13 18:45 | 27°♎25'21 | 1°38'09    |
| max. Earth dist.    | 8581 Dec 05 21:19 | 24°♊40'39 | 1.37349 AU |                     | 8582 Nov 15 00:49 | 0°♊       |            |
|                     | 8581 Dec 08 18:52 | 0°♊       |            | max. Earth dist.    | 8582 Nov 18 07:18 | 6°♊35'14  | 1.35384 AU |
| evening rise        | 8581 Dec 09 15:07 | 1°♊30'53  |            | evening rise        | 8582 Nov 22 09:25 | 14°♊28'47 |            |
| desc. node          | 8581 Dec 13 04:42 | 7°♊45'21  |            | desc. node          | 8582 Nov 30 01:43 | 28°♊12'39 |            |
|                     | 8581 Dec 27 06:47 | 0°♊       |            |                     | 8582 Dec 01 03:13 | 0°♊       |            |
| evening max el      | 8582 Jan 14 05:47 | 22°♊27'56 | 25°27'32   |                     | 8582 Dec 22 00:40 | 0°♊       |            |
| retrograde          | 8582 Jan 26 10:23 | 29°♊29'05 |            | evening max el      | 8582 Dec 27 18:57 | 6°♊12'36  | 26°30'03   |
| evening set         | 8582 Feb 01 07:28 | 27°♊03'30 |            | retrograde          | 8583 Jan 09 17:15 | 13°♊28'44 |            |
| asc. node           | 8582 Feb 04 14:19 | 23°♊37'30 |            | evening set         | 8583 Jan 16 02:28 | 10°♊54'59 |            |
| min. Earth dist.    | 8582 Feb 05 16:44 | 22°♊15'10 | 0.67465 AU | min. Earth dist.    | 8583 Jan 20 05:21 | 6°♊41'24  | 0.66404 AU |
| inferior conj       | 8582 Feb 06 23:35 | 20°♊36'00 | 0°46'49    | inferior conj       | 8583 Jan 21 23:51 | 4°♊33'43  | -0°09'39   |
| minimum elong       | 8582 Feb 06 22:28 | 20°♊39'38 | 0°46'30    | minimum elong       | 8583 Jan 22 00:07 | 4°♊32'56  | 0°09'22    |
| morning rise        | 8582 Feb 12 13:50 | 14°♊42'29 |            | transit middle      | 8583 Jan 22 00:07 | 4°♊32'56  | 0°09'22    |
| direct              | 8582 Feb 16 00:03 | 13°♊35'03 |            | transit begin       | 8583 Jan 21 21:45 | 4°♊40'02  |            |
| morning max el      | 8582 Feb 22 23:46 | 17°♊25'56 | 19°12'55   | transit end         | 8583 Jan 22 02:28 | 4°♊25'50  |            |
|                     | 8582 Mar 04 19:23 | 0°♋       |            | asc. node           | 8583 Jan 22 11:24 | 3°♊59'04  |            |
| greatest brilliancy | 8582 Mar 08 04:33 | 5°♋00'27  | -0.7m      |                     | 8583 Jan 26 06:41 | 30°♋♊     |            |
| desc. node          | 8582 Mar 11 04:20 | 9°♋32'12  |            | morning rise        | 8583 Jan 27 22:37 | 28°♊50'35 |            |
| morning set         | 8582 Mar 18 17:44 | 21°♋09'27 |            | direct              | 8583 Jan 30 22:16 | 28°♊00'37 |            |
|                     | 8582 Mar 24 10:34 | 0°♌       |            |                     | 8583 Feb 04 17:57 | 0°♊       |            |
| max. Earth dist.    | 8582 Apr 01 05:03 | 12°♌09'13 | 1.45051 AU | morning max el      | 8583 Feb 06 11:31 | 1°♊32'06  | 18°27'36   |
|                     |                   |           |            | desc. node          | 8583 Feb 26 01:16 | 29°♊52'26 |            |
| superior conj       | 8582 Apr 04 08:10 | 17°♌06'00 | -2°06'55   |                     | 8583 Feb 26 03:10 | 0°♋       |            |
| minimum elong       | 8582 Apr 04 02:59 | 16°♌45'27 | 2°06'46    | morning set         | 8583 Feb 26 16:33 | 0°♋53'10  |            |
|                     | 8582 Apr 12 09:11 | 0°♋       |            |                     |                   |           |            |
| evening rise        | 8582 Apr 18 20:09 | 10°♋34'12 |            | superior conj       | 8583 Mar 14 13:45 | 25°♋54'36 | -1°42'20   |
|                     | 8582 Apr 30 19:26 | 0°♋       |            | minimum elong       | 8583 Mar 14 04:11 | 25°♋17'10 | 1°41'26    |
| asc. node           | 8582 May 03 13:08 | 4°♋01'17  |            | max. Earth dist.    | 8583 Mar 14 23:51 | 26°♋34'04 | 1.45535 AU |
| evening max el      | 8582 May 08 06:38 | 9°♋48'12  | 18°23'03   |                     | 8583 Mar 17 04:29 | 0°♌       |            |
| retrograde          | 8582 May 14 16:43 | 13°♋15'29 |            | evening rise        | 8583 Mar 30 09:28 | 20°♌45'31 |            |
| evening set         | 8582 May 17 18:18 | 12°♋23'41 |            |                     | 8583 Apr 05 05:48 | 0°♋       |            |
| inferior conj       | 8582 May 23 14:19 | 6°♋55'45  | 3°13'23    | greatest brilliancy | 8583 Apr 08 22:08 | 5°♋46'17  | -0.8m      |
| minimum elong       | 8582 May 23 15:47 | 6°♋51'29  | 3°13'02    | asc. node           | 8583 Apr 20 10:12 | 22°♋00'16 |            |
| min. Earth dist.    | 8582 May 25 21:40 | 4°♋15'07  | 0.64354 AU | evening max el      | 8583 Apr 21 16:56 | 23°♋22'28 | 18°57'13   |
| morning rise        | 8582 May 29 12:16 | 0°♋40'23  |            | retrograde          | 8583 Apr 28 11:43 | 27°♋09'22 |            |
|                     | 8582 May 30 09:25 | 30°♋♋     |            | evening set         | 8583 May 01 20:50 | 26°♋03'13 |            |
| direct              | 8582 Jun 05 04:52 | 27°♋57'48 |            | inferior conj       | 8583 May 07 09:45 | 20°♋19'08 | 3°22'38    |
| desc. node          | 8582 Jun 07 04:02 | 28°♋10'21 |            | minimum elong       | 8583 May 07 09:53 | 20°♋18'41 | 3°22'29    |
|                     | 8582 Jun 11 14:45 | 0°♋       |            | min. Earth dist.    | 8583 May 09 01:48 | 18°♋12'42 | 0.66026 AU |
| morning max el      | 8582 Jun 18 21:11 | 5°♋56'57  | 27°28'53   | morning rise        | 8583 May 12 22:25 | 14°♋00'38 |            |
|                     | 8582 Jul 07 05:11 | 0°♌       |            | direct              | 8583 May 19 07:53 | 11°♋14'26 |            |
| morning set         | 8582 Jul 24 01:50 | 29°♌37'40 |            | desc. node          | 8583 May 25 01:02 | 13°♋00'56 |            |
|                     | 8582 Jul 24 06:22 | 0°♍       |            | morning max el      | 8583 Jun 01 07:49 | 18°♋58'09 | 26°32'48   |
| max. Earth dist.    | 8582 Jul 28 19:54 | 9°♍14'40  | 1.33118 AU |                     | 8583 Jun 10 15:58 | 0°♋       |            |
| asc. node           | 8582 Jul 30 12:26 | 12°♍46'50 |            |                     | 8583 Jun 30 05:54 | 0°♌       |            |
|                     |                   |           |            | morning set         | 8583 Jul 07 06:28 | 12°♌42'06 |            |
| superior conj       | 8582 Aug 01 04:17 | 16°♍18'19 | 0°16'44    | max. Earth dist.    | 8583 Jul 11 08:39 | 20°♌36'10 | 1.34556 AU |
| minimum elong       | 8582 Aug 01 03:28 | 16°♍13'56 | 0°16'25    |                     |                   |           |            |
|                     | 8582 Aug 07 13:13 | 0°♎       |            | superior conj       | 8583 Jul 16 02:56 | 0°♍14'14  | -0°12'43   |
| evening rise        | 8582 Aug 08 06:36 | 1°♎32'29  |            | minimum elong       | 8583 Jul 16 03:39 | 0°♍17'57  | 0°12'45    |
|                     | 8582 Aug 24 02:08 | 0°♎       |            | behind sun begin    | 8583 Jul 16 00:03 | 29°♌59'25 |            |
| evening max el      | 8582 Aug 29 23:42 | 6°♎55'31  | 22°31'08   | behind sun end      | 8583 Jul 16 07:14 | 0°♍36'30  |            |
| desc. node          | 8582 Sep 03 02:56 | 10°♎21'53 |            |                     | 8583 Jul 16 00:10 | 0°♍       |            |
| retrograde          | 8582 Sep 12 00:37 | 13°♎25'38 |            | asc. node           | 8583 Jul 17 09:24 | 2°♍52'15  |            |
| evening set         | 8582 Sep 15 10:15 | 13°♎00'10 |            | evening rise        | 8583 Jul 23 15:58 | 16°♍01'18 |            |
| min. Earth dist.    | 8582 Sep 23 06:40 | 9°♎31'48  | 0.55021 AU |                     | 8583 Jul 30 17:12 | 0°♎       |            |
| inferior conj       | 8582 Sep 24 08:20 | 8°♎55'28  | -5°16'07   | evening max el      | 8583 Aug 11 19:42 | 17°♎24'59 | 20°59'30   |
| minimum elong       | 8582 Sep 24 01:45 | 9°♎04'47  | 5°15'08    | desc. node          | 8583 Aug 21 00:02 | 22°♎57'41 |            |
| morning rise        | 8582 Oct 02 19:07 | 5°♎07'39  |            | retrograde          | 8583 Aug 23 13:17 | 23°♎13'51 |            |
| direct              | 8582 Oct 06 00:29 | 4°♎44'04  |            | evening set         | 8583 Aug 25 19:18 | 23°♎01'51 |            |
| morning max el      | 8582 Oct 17 12:57 | 10°♎08'09 | 21°10'56   | inferior conj       | 8583 Sep 04 00:52 | 19°♎05'06 | -4°01'08   |
| asc. node           | 8582 Oct 26 12:09 | 21°♎31'32 |            | minimum elong       | 8583 Sep 03 15:18 | 19°♎18'38 | 3°58'25    |
|                     | 8582 Oct 31 09:12 | 0°♏       |            | min. Earth dist.    | 8583 Sep 04 15:33 | 18°♎44'16 | 0.54679 AU |

|                     |                   |                                 |            |                  |                   |                                   |            |
|---------------------|-------------------|---------------------------------|------------|------------------|-------------------|-----------------------------------|------------|
| morning rise        | 8583 Sep 12 11:36 | 15° $\mathbb{M}$ 09'25          |            | minimum elong    | 8584 Aug 13 17:31 | 29° $\Omega$ 29'47                | 2°07'52    |
| direct              | 8583 Sep 16 08:26 | 14° $\mathbb{M}$ 37'19          |            | min. Earth dist. | 8584 Aug 16 03:02 | 28° $\Omega$ 00'52                | 0.55303 AU |
| morning max el      | 8583 Sep 29 06:55 | 20° $\mathbb{M}$ 48'07          | 22°51'16   | morning rise     | 8584 Aug 22 06:59 | 24° $\Omega$ 57'23                |            |
|                     | 8583 Oct 07 01:47 | 0° $\mathfrak{A}$               |            | direct           | 8584 Aug 26 22:45 | 24° $\Omega$ 09'24                |            |
| asc. node           | 8583 Oct 13 09:07 | 10° $\mathfrak{A}$ 06'44        |            |                  | 8584 Sep 08 15:56 | 0° $\mathbb{M}$                   |            |
| morning set         | 8583 Oct 21 21:02 | 26° $\mathfrak{A}$ 50'27        |            | morning max el   | 8584 Sep 09 19:18 | 1° $\mathbb{M}$ 02'26             | 24°37'19   |
|                     | 8583 Oct 23 08:41 | 0° $\mathbb{M}$                 |            | asc. node        | 8584 Sep 29 06:04 | 29° $\mathbb{M}$ 13'26            |            |
|                     |                   |                                 |            |                  | 8584 Sep 29 15:45 | 0° $\mathfrak{A}$                 |            |
| superior conj       | 8583 Oct 28 21:16 | 11° $\mathbb{M}$ 52'33          | 1°41'12    | morning set      | 8584 Oct 05 08:47 | 11° $\mathfrak{A}$ 39'08          |            |
| minimum elong       | 8583 Oct 28 21:14 | 11° $\mathbb{M}$ 52'23          | 1°41'20    |                  |                   |                                   |            |
| max. Earth dist.    | 8583 Nov 01 00:48 | 18° $\mathbb{M}$ 31'23          | 1.33775 AU | superior conj    | 8584 Oct 12 05:47 | 26° $\mathfrak{A}$ 37'35          | 1°38'00    |
| evening rise        | 8583 Nov 05 17:52 | 28° $\mathbb{M}$ 04'34          |            | minimum elong    | 8584 Oct 12 04:40 | 26° $\mathfrak{A}$ 31'27          | 1°38'01    |
|                     | 8583 Nov 06 17:30 | 0° $\mathfrak{A}$               |            |                  | 8584 Oct 13 18:57 | 0° $\mathbb{M}$                   |            |
| desc. node          | 8583 Nov 16 22:46 | 18° $\mathfrak{A}$ 24'16        |            | max. Earth dist. | 8584 Oct 14 02:21 | 0° $\mathbb{M}$ 40'04             | 1.32599 AU |
|                     | 8583 Nov 24 08:24 | 0° $\mathfrak{B}$               |            | evening rise     | 8584 Oct 19 12:51 | 12° $\mathbb{M}$ 07'59            |            |
| evening max el      | 8583 Dec 10 07:53 | 19° $\mathfrak{B}$ 45'21        | 27°12'55   |                  | 8584 Oct 28 22:34 | 0° $\mathfrak{A}$                 |            |
| retrograde          | 8583 Dec 23 18:20 | 27° $\mathfrak{B}$ 06'26        |            | desc. node       | 8584 Nov 02 19:50 | 8° $\mathfrak{A}$ 12'45           |            |
| evening set         | 8583 Dec 30 13:33 | 24° $\mathfrak{B}$ 30'29        |            |                  | 8584 Nov 18 22:08 | 0° $\mathfrak{B}$                 |            |
| min. Earth dist.    | 8584 Jan 03 10:53 | 20° $\mathfrak{B}$ 50'34        | 0.64986 AU | evening max el   | 8584 Nov 21 19:16 | 2° $\mathfrak{B}$ 54'48           | 27°29'27   |
| inferior conj       | 8584 Jan 05 17:04 | 18° $\mathfrak{B}$ 21'16        | -1°13'12   | retrograde       | 8584 Dec 05 12:48 | 10° $\mathfrak{B}$ 13'09          |            |
| minimum elong       | 8584 Jan 05 19:16 | 18° $\mathfrak{B}$ 15'12        | 1°12'05    | evening set      | 8584 Dec 12 14:04 | 7° $\mathfrak{B}$ 43'19           |            |
| asc. node           | 8584 Jan 09 08:29 | 14° $\mathfrak{B}$ 40'35        |            | min. Earth dist. | 8584 Dec 16 07:25 | 4° $\mathfrak{B}$ 33'54           | 0.63247 AU |
| morning rise        | 8584 Jan 12 02:25 | 12° $\mathfrak{B}$ 50'59        |            | inferior conj    | 8584 Dec 19 00:33 | 1° $\mathfrak{B}$ 52'23           | -2°22'06   |
| direct              | 8584 Jan 14 17:20 | 12° $\mathfrak{B}$ 14'44        |            | minimum elong    | 8584 Dec 19 05:03 | 1° $\mathfrak{B}$ 41'10           | 2°20'08    |
| morning max el      | 8584 Jan 21 03:34 | 15° $\mathfrak{B}$ 37'54        | 17°59'00   |                  | 8584 Dec 20 23:07 | 30° $\mathfrak{R}$ $\mathfrak{A}$ |            |
|                     | 8584 Jan 31 12:42 | 0° $\approx$                    |            | morning rise     | 8584 Dec 25 22:02 | 26° $\mathfrak{A}$ 37'49          |            |
| morning set         | 8584 Feb 07 20:54 | 12° $\approx$ 04'44             |            | asc. node        | 8584 Dec 26 05:32 | 26° $\mathfrak{A}$ 31'20          |            |
| desc. node          | 8584 Feb 12 22:10 | 20° $\approx$ 24'31             |            | direct           | 8584 Dec 28 06:33 | 26° $\mathfrak{A}$ 11'22          |            |
|                     | 8584 Feb 18 20:07 | 0° $\mathfrak{H}$               |            | morning max el   | 8585 Jan 03 20:59 | 29° $\mathfrak{A}$ 35'39          | 17°47'47   |
|                     |                   |                                 |            |                  | 8585 Jan 04 06:37 | 0° $\mathfrak{B}$                 |            |
| superior conj       | 8584 Feb 22 00:12 | 5° $\mathfrak{H}$ 03'48         | -1°02'42   | morning set      | 8585 Jan 20 03:08 | 24° $\mathfrak{B}$ 31'27          |            |
| minimum elong       | 8584 Feb 21 17:01 | 4° $\mathfrak{H}$ 35'15         | 1°01'39    |                  | 8585 Jan 23 06:56 | 0° $\approx$                      |            |
| max. Earth dist.    | 8584 Feb 25 19:16 | 11° $\mathfrak{H}$ 03'39        | 1.45271 AU | desc. node       | 8585 Jan 29 19:07 | 11° $\approx$ 04'33               |            |
|                     | 8584 Mar 08 23:43 | 0° $\mathbb{Y}$                 |            |                  |                   |                                   |            |
| evening rise        | 8584 Mar 09 03:31 | 0° $\mathbb{Y}$ 14'39           |            | superior conj    | 8585 Feb 01 07:14 | 15° $\approx$ 14'27               | -0°18'17   |
| greatest brilliancy | 8584 Mar 23 05:52 | 21° $\mathbb{Y}$ 39'07          | -0.6m      | minimum elong    | 8585 Feb 01 05:19 | 15° $\approx$ 06'31               | 0°17'51    |
|                     | 8584 Mar 29 03:02 | 0° $\mathfrak{B}$               |            | max. Earth dist. | 8585 Feb 07 13:03 | 25° $\approx$ 22'46               | 1.44303 AU |
| evening max el      | 8584 Apr 03 22:41 | 7° $\mathfrak{B}$ 00'23         | 19°47'46   |                  | 8585 Feb 10 10:54 | 0° $\mathfrak{H}$                 |            |
| asc. node           | 8584 Apr 06 07:17 | 9° $\mathfrak{B}$ 08'26         |            | evening rise     | 8585 Feb 16 14:42 | 9° $\mathfrak{H}$ 35'22           |            |
| retrograde          | 8584 Apr 11 09:39 | 11° $\mathfrak{B}$ 17'31        |            |                  | 8585 Mar 02 04:56 | 0° $\mathbb{Y}$                   |            |
| evening set         | 8584 Apr 15 03:05 | 9° $\mathfrak{B}$ 56'31         |            | evening max el   | 8585 Mar 17 23:03 | 20° $\mathbb{Y}$ 40'12            | 20°52'16   |
| inferior conj       | 8584 Apr 20 11:56 | 3° $\mathfrak{B}$ 58'06         | 3°17'47    | asc. node        | 8585 Mar 24 04:24 | 25° $\mathbb{Y}$ 11'39            |            |
| minimum elong       | 8584 Apr 20 10:57 | 4° $\mathfrak{B}$ 01'25         | 3°17'36    | retrograde       | 8585 Mar 26 08:10 | 25° $\mathbb{Y}$ 35'17            |            |
| min. Earth dist.    | 8584 Apr 21 13:15 | 2° $\mathfrak{B}$ 33'25         | 0.67273 AU | evening set      | 8585 Mar 30 11:03 | 23° $\mathbb{Y}$ 59'01            |            |
|                     | 8584 Apr 23 13:32 | 30° $\mathfrak{R}$ $\mathbb{Y}$ |            | inferior conj    | 8585 Apr 04 18:21 | 17° $\mathbb{Y}$ 48'20            | 3°01'23    |
| morning rise        | 8584 Apr 25 18:30 | 27° $\mathbb{Y}$ 40'09          |            | minimum elong    | 8585 Apr 04 16:33 | 17° $\mathbb{Y}$ 54'32            | 3°01'01    |
| direct              | 8584 May 01 17:05 | 25° $\mathbb{Y}$ 01'11          |            | min. Earth dist. | 8585 Apr 05 06:00 | 17° $\mathbb{Y}$ 08'04            | 0.68075 AU |
| desc. node          | 8584 May 10 22:00 | 29° $\mathbb{Y}$ 34'17          |            | morning rise     | 8585 Apr 09 21:50 | 11° $\mathbb{Y}$ 33'14            |            |
|                     | 8584 May 11 09:40 | 0° $\mathfrak{B}$               |            | direct           | 8585 Apr 15 07:21 | 9° $\mathbb{Y}$ 09'46             |            |
| morning max el      | 8584 May 13 17:30 | 2° $\mathfrak{B}$ 13'39         | 25°15'34   | morning max el   | 8585 Apr 26 02:32 | 15° $\mathbb{Y}$ 36'41            | 23°47'30   |
|                     | 8584 Jun 03 18:35 | 0° $\mathbb{I}$                 |            | desc. node       | 8585 Apr 27 18:57 | 17° $\mathbb{Y}$ 22'51            |            |
| morning set         | 8584 Jun 18 19:19 | 24° $\mathbb{I}$ 59'13          |            |                  | 8585 May 07 21:56 | 0° $\mathfrak{B}$                 |            |
|                     | 8584 Jun 21 13:18 | 0° $\mathfrak{B}$               |            |                  | 8585 May 27 17:43 | 0° $\mathbb{I}$                   |            |
| max. Earth dist.    | 8584 Jun 22 10:39 | 1° $\mathfrak{B}$ 39'16         | 1.36443 AU | morning set      | 8585 May 31 11:11 | 6° $\mathbb{I}$ 15'32             |            |
|                     |                   |                                 |            | max. Earth dist. | 8585 Jun 04 06:54 | 12° $\mathbb{I}$ 53'45            | 1.38637 AU |
| superior conj       | 8584 Jun 28 16:14 | 13° $\mathfrak{B}$ 39'30        | -0°44'22   |                  |                   |                                   |            |
| minimum elong       | 8584 Jun 28 18:57 | 13° $\mathfrak{B}$ 52'54        | 0°44'05    | superior conj    | 8585 Jun 11 16:43 | 26° $\mathbb{I}$ 25'55            | -1°16'11   |
| asc. node           | 8584 Jul 03 06:22 | 22° $\mathfrak{B}$ 53'01        |            | minimum elong    | 8585 Jun 11 21:28 | 26° $\mathbb{I}$ 48'19            | 1°15'40    |
| evening rise        | 8584 Jul 06 21:03 | 0° $\Omega$ 13'40               |            |                  | 8585 Jun 13 13:48 | 0° $\mathfrak{B}$                 |            |
|                     | 8584 Jul 06 18:21 | 0° $\Omega$                     |            | asc. node        | 8585 Jun 20 03:23 | 12° $\mathfrak{B}$ 45'37          |            |
| evening max el      | 8584 Jul 24 04:51 | 28° $\Omega$ 35'03              | 19°45'13   | evening rise     | 8585 Jun 20 19:13 | 14° $\mathfrak{B}$ 03'03          |            |
|                     | 8584 Jul 25 18:00 | 0° $\mathbb{M}$                 |            |                  | 8585 Jun 29 09:22 | 0° $\Omega$                       |            |
| retrograde          | 8584 Aug 03 05:29 | 3° $\mathbb{M}$ 32'00           |            | evening max el   | 8585 Jul 07 02:27 | 10° $\Omega$ 30'04                | 18°51'33   |
| evening set         | 8584 Aug 05 01:58 | 3° $\mathbb{M}$ 22'36           |            | retrograde       | 8585 Jul 15 12:53 | 14° $\Omega$ 40'54                |            |
| desc. node          | 8584 Aug 06 21:09 | 2° $\mathbb{M}$ 56'36           |            | evening set      | 8585 Jul 17 12:18 | 14° $\Omega$ 28'01                |            |
|                     | 8584 Aug 12 21:48 | 30° $\mathfrak{R}$ $\Omega$     |            | desc. node       | 8585 Jul 24 18:13 | 10° $\Omega$ 47'40                |            |
| inferior conj       | 8584 Aug 13 23:27 | 29° $\Omega$ 20'36              | -2°09'58   | inferior conj    | 8585 Jul 25 15:47 | 10° $\Omega$ 09'22                | -0°16'24   |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| minimum elong    | 8585 Jul 25 15:06 | 10°Ω10'35 | 0°16'18    | desc. node       | 8586 Jul 11 15:17 | 18°Ω06'18 |            |
| min. Earth dist. | 8585 Jul 28 18:18 | 7°Ω56'42  | 0.56777 AU | morning rise     | 8586 Jul 14 15:16 | 16°Ω08'31 |            |
| morning rise     | 8585 Aug 02 14:35 | 5°Ω09'29  |            | direct           | 8586 Jul 20 20:11 | 14°Ω25'18 |            |
| direct           | 8585 Aug 08 02:35 | 3°Ω56'48  |            | morning max el   | 8586 Aug 04 05:23 | 22°Ω11'16 | 27°21'15   |
| morning max el   | 8585 Aug 22 09:13 | 11°Ω21'07 | 26°12'33   |                  | 8586 Aug 11 02:43 | 0°Ω       |            |
|                  | 8585 Sep 05 18:43 | 0°Π       |            |                  | 8586 Aug 29 18:03 | 0°Π       |            |
| asc. node        | 8585 Sep 16 03:01 | 18°Π43'37 |            | asc. node        | 8586 Sep 02 23:59 | 8°Π30'50  |            |
| morning set      | 8585 Sep 19 19:36 | 26°Π22'37 |            | morning set      | 8586 Sep 04 03:53 | 10°Π56'30 |            |
|                  | 8585 Sep 21 12:04 | 0°Ω       |            |                  |                   |           |            |
| superior conj    | 8585 Sep 26 16:54 | 11°Ω27'21 | 1°29'03    | superior conj    | 8586 Sep 11 04:44 | 26°Π16'16 | 1°14'51    |
| minimum elong    | 8585 Sep 26 15:01 | 11°Ω16'55 | 1°28'53    | minimum elong    | 8586 Sep 11 02:30 | 26°Π03'52 | 1°14'30    |
| max. Earth dist. | 8585 Sep 27 09:56 | 13°Ω01'36 | 1.31881 AU | max. Earth dist. | 8586 Sep 10 20:11 | 25°Π28'48 | 1.31621 AU |
| evening rise     | 8585 Oct 03 15:26 | 26°Ω30'56 |            | evening rise     | 8586 Sep 12 21:02 | 0°Ω       |            |
|                  | 8585 Oct 05 07:48 | 0°Π       |            |                  | 8586 Sep 17 23:07 | 11°Ω06'31 |            |
| desc. node       | 8585 Oct 20 16:55 | 27°Π28'33 |            | desc. node       | 8586 Sep 27 13:02 | 0°Π       |            |
|                  | 8585 Oct 22 09:35 | 0°♂       |            | evening max el   | 8586 Oct 07 14:01 | 15°Π58'57 |            |
| evening max el   | 8585 Nov 04 02:40 | 15°♂27'34 | 27°14'01   |                  | 8586 Oct 17 03:14 | 27°Π12'18 | 26°24'32   |
| retrograde       | 8585 Nov 17 23:28 | 22°♂39'23 |            | retrograde       | 8586 Oct 20 09:32 | 0°♂       |            |
| evening set      | 8585 Nov 25 00:28 | 20°♂25'34 |            | evening set      | 8586 Oct 31 01:11 | 4°♂18'01  |            |
| min. Earth dist. | 8585 Nov 28 17:21 | 17°♂39'50 | 0.61264 AU | min. Earth dist. | 8586 Nov 06 16:21 | 2°♂30'21  |            |
| inferior conj    | 8585 Dec 01 19:05 | 14°♂58'23 | -3°32'44   |                  | 8586 Nov 10 16:33 | 29°Π55'49 | 0.59171 AU |
| minimum elong    | 8585 Dec 02 01:43 | 14°♂43'48 | 3°30'20    | inferior conj    | 8586 Nov 10 14:16 | 30°RΠ     |            |
| morning rise     | 8585 Dec 09 05:17 | 10°♂02'57 |            | minimum elong    | 8586 Nov 13 21:10 | 27°Π29'49 | -4°37'51   |
| direct           | 8585 Dec 11 10:25 | 9°♂42'37  |            | morning rise     | 8586 Nov 14 04:30 | 27°Π15'47 | 4°35'56    |
| asc. node        | 8585 Dec 13 02:36 | 9°♂54'40  |            | direct           | 8586 Nov 21 19:00 | 22°Π56'38 |            |
| morning max el   | 8585 Dec 18 12:30 | 13°♂16'35 | 17°54'54   | asc. node        | 8586 Nov 24 00:35 | 22°Π39'14 |            |
|                  | 8585 Dec 29 20:06 | 0°♂       |            | morning max el   | 8586 Nov 29 23:38 | 24°Π51'07 |            |
| morning set      | 8586 Jan 03 04:37 | 7°♂52'38  |            |                  | 8586 Dec 01 22:39 | 26°Π31'43 | 18°21'43   |
|                  |                   |           |            |                  | 8586 Dec 04 23:55 | 0°♂       |            |
| superior conj    | 8586 Jan 13 15:54 | 26°♂38'32 | 0°22'14    | morning set      | 8586 Dec 17 19:35 | 21°♂51'14 |            |
| minimum elong    | 8586 Jan 13 17:47 | 26°♂46'43 | 0°22'08    |                  | 8586 Dec 22 02:05 | 0°♂       |            |
|                  | 8586 Jan 15 14:37 | 0°≈       |            | superior conj    | 8586 Dec 26 23:35 | 9°♂08'30  | 0°54'42    |
| desc. node       | 8586 Jan 16 16:04 | 1°≈48'32  |            | minimum elong    | 8586 Dec 27 02:53 | 9°♂23'40  | 0°54'27    |
| max. Earth dist. | 8586 Jan 21 03:21 | 9°≈16'53  | 1.42736 AU | max. Earth dist. | 8587 Jan 03 12:54 | 22°♂32'32 | 1.40747 AU |
| evening rise     | 8586 Jan 27 10:20 | 19°≈24'31 |            | desc. node       | 8587 Jan 03 13:04 | 22°♂33'14 |            |
|                  | 8586 Feb 03 06:55 | 0°♂       |            |                  | 8587 Jan 07 23:28 | 0°≈       |            |
|                  | 8586 Feb 24 19:49 | 0°Υ       |            | evening rise     | 8587 Jan 08 00:52 | 0°≈05'44  |            |
| evening max el   | 8586 Feb 28 18:14 | 4°Υ21'26  | 22°06'57   |                  | 8587 Jan 27 18:09 | 0°♂       |            |
| retrograde       | 8586 Mar 10 05:27 | 9°Υ57'53  |            | evening max el   | 8587 Feb 11 09:32 | 18°♂05'09 | 23°26'43   |
| asc. node        | 8586 Mar 11 01:31 | 9°Υ54'21  |            | retrograde       | 8587 Feb 22 00:08 | 24°♂21'20 |            |
| evening set      | 8586 Mar 14 19:02 | 8°Υ06'20  |            | asc. node        | 8587 Feb 25 22:38 | 23°♂05'36 |            |
| inferior conj    | 8586 Mar 20 02:49 | 1°Υ45'55  | 2°35'01    | evening set      | 8587 Feb 27 01:29 | 22°♂15'02 |            |
| minimum elong    | 8586 Mar 20 00:36 | 1°Υ53'36  | 2°34'28    | inferior conj    | 8587 Mar 04 11:26 | 15°♂48'14 | 1°59'40    |
| min. Earth dist. | 8586 Mar 20 01:50 | 1°Υ49'19  | 0.68435 AU | minimum elong    | 8587 Mar 04 09:15 | 15°♂55'43 | 1°59'01    |
|                  | 8586 Mar 21 09:31 | 30°R♂     |            | min. Earth dist. | 8587 Mar 03 22:34 | 16°♂32'22 | 0.68373 AU |
| morning rise     | 8586 Mar 25 06:01 | 25°♂35'06 |            | morning rise     | 8587 Mar 09 16:59 | 9°♂42'55  |            |
| direct           | 8586 Mar 30 01:34 | 23°♂32'17 |            | direct           | 8587 Mar 13 22:44 | 8°♂02'33  |            |
| morning max el   | 8586 Apr 08 13:42 | 29°♂07'15 | 22°18'21   | morning max el   | 8587 Mar 22 06:33 | 12°♂49'05 | 20°56'07   |
|                  | 8586 Apr 09 10:14 | 0°Υ       |            | desc. node       | 8587 Apr 01 12:51 | 25°♂27'14 |            |
| desc. node       | 8586 Apr 14 15:54 | 6°Υ05'23  |            |                  | 8587 Apr 04 18:24 | 0°Υ       |            |
|                  | 8586 May 01 15:26 | 0°♂       |            | morning set      | 8587 Apr 21 12:12 | 25°Υ09'07 |            |
| morning set      | 8586 May 12 00:53 | 16°♂17'51 |            |                  | 8587 Apr 24 14:07 | 0°♂       |            |
| max. Earth dist. | 8586 May 17 05:01 | 24°♂51'14 | 1.40883 AU | max. Earth dist. | 8587 Apr 29 09:24 | 7°♂42'44  | 1.42900 AU |
|                  | 8586 May 20 05:28 | 0°Π       |            |                  |                   |           |            |
| superior conj    | 8586 May 24 23:54 | 8°Π22'25  | -1°44'52   | superior conj    | 8587 May 06 09:08 | 19°♂18'30 | -2°05'30   |
| minimum elong    | 8586 May 25 05:49 | 8°Π48'50  | 1°44'25    | minimum elong    | 8587 May 06 13:36 | 19°♂37'27 | 2°05'25    |
| evening rise     | 8586 Jun 04 07:01 | 27°Π20'16 |            |                  | 8587 May 12 13:57 | 0°Π       |            |
|                  | 8586 Jun 05 17:12 | 0°Ω       |            | evening rise     | 8587 May 18 04:14 | 9°Π55'05  |            |
| asc. node        | 8586 Jun 07 00:25 | 2°Ω25'09  |            | asc. node        | 8587 May 24 21:28 | 21°Π46'12 |            |
| evening max el   | 8586 Jun 20 09:03 | 23°Ω02'42 | 18°18'36   |                  | 8587 May 30 00:19 | 0°Ω       |            |
| retrograde       | 8586 Jun 27 15:48 | 26°Ω41'58 |            | evening max el   | 8587 Jun 03 20:47 | 6°Ω03'07  | 18°05'30   |
| evening set      | 8586 Jun 29 22:11 | 26°Ω21'32 |            | retrograde       | 8587 Jun 10 11:29 | 9°Ω26'28  |            |
| inferior conj    | 8586 Jul 07 05:58 | 21°Ω42'17 | 1°16'06    | evening set      | 8587 Jun 13 01:23 | 8°Ω55'28  |            |
| minimum elong    | 8586 Jul 07 08:21 | 21°Ω37'16 | 1°15'06    | inferior conj    | 8587 Jun 19 16:10 | 3°Ω56'14  | 2°20'50    |
| min. Earth dist. | 8586 Jul 10 15:19 | 18°Ω52'39 | 0.58801 AU | minimum elong    | 8587 Jun 19 19:09 | 3°Ω48'57  | 2°19'50    |
|                  |                   |           |            | min. Earth dist. | 8587 Jun 22 20:16 | 0°Ω52'26  | 0.61046 AU |

|                     |                   |                         |            |                  |                   |                       |            |
|---------------------|-------------------|-------------------------|------------|------------------|-------------------|-----------------------|------------|
|                     | 8587 Jun 23 19:37 | 30° $\text{R}\text{II}$ |            | minimum elong    | 8588 Jun 01 20:35 | 16° $\text{II}$ 37'30 | 2°59'39    |
| morning rise        | 8587 Jun 26 10:29 | 27° $\text{II}$ 58'24   |            | min. Earth dist. | 8588 Jun 04 10:23 | 13° $\text{II}$ 48'40 | 0.63221 AU |
| desc. node          | 8587 Jun 28 12:22 | 26° $\text{II}$ 47'56   |            | morning rise     | 8588 Jun 07 23:02 | 10° $\text{II}$ 32'11 |            |
| direct              | 8587 Jul 03 01:46 | 25° $\text{II}$ 45'12   |            | desc. node       | 8588 Jun 14 09:24 | 7° $\text{II}$ 57'03  |            |
|                     | 8587 Jul 13 03:20 | 0° $\text{☿}$           |            | direct           | 8588 Jun 14 17:14 | 7° $\text{II}$ 56'43  |            |
| morning max el      | 8587 Jul 17 08:25 | 3° $\text{☿}$ 44'38     | 27°53'42   | morning max el   | 8588 Jun 28 16:21 | 15° $\text{II}$ 59'49 | 27°47'56   |
|                     | 8587 Aug 05 18:29 | 0° $\text{♊}$           |            |                  | 8588 Jul 10 04:18 | 0° $\text{☿}$         |            |
| morning set         | 8587 Aug 19 07:39 | 25° $\text{♊}$ 14'28    |            |                  | 8588 Jul 28 11:27 | 0° $\text{♊}$         |            |
| asc. node           | 8587 Aug 20 20:56 | 28° $\text{♊}$ 28'47    |            | morning set      | 8588 Aug 02 04:46 | 9° $\text{♊}$ 10'33   |            |
|                     | 8587 Aug 21 14:11 | 0° $\text{♋}$           |            | asc. node        | 8588 Aug 06 17:53 | 18° $\text{♊}$ 33'07  |            |
| max. Earth dist.    | 8587 Aug 25 05:01 | 7° $\text{♋}$ 48'51     | 1.31823 AU | max. Earth dist. | 8588 Aug 07 08:34 | 19° $\text{♊}$ 50'56  | 1.32503 AU |
|                     |                   |                         |            |                  |                   |                       |            |
| superior conj       | 8587 Aug 26 15:25 | 10° $\text{♋}$ 57'52    | 0°55'45    | superior conj    | 8588 Aug 09 23:10 | 25° $\text{♊}$ 26'59  | 0°32'09    |
| minimum elong       | 8587 Aug 26 13:19 | 10° $\text{♋}$ 46'14    | 0°55'18    | minimum elong    | 8588 Aug 09 21:42 | 25° $\text{♊}$ 19'07  | 0°31'45    |
| evening rise        | 8587 Sep 02 09:43 | 25° $\text{♋}$ 47'24    |            |                  | 8588 Aug 12 01:23 | 0° $\text{♋}$         |            |
|                     | 8587 Sep 04 09:25 | 0° $\text{♌}$           |            | evening rise     | 8588 Aug 16 21:21 | 10° $\text{♋}$ 28'20  |            |
|                     | 8587 Sep 21 17:55 | 0° $\text{♌}$           |            |                  | 8588 Aug 26 19:58 | 0° $\text{♌}$         |            |
| desc. node          | 8587 Sep 24 11:08 | 3° $\text{♌}$ 25'12     |            | evening max el   | 8588 Sep 09 06:51 | 18° $\text{♌}$ 23'34  | 23°28'21   |
| evening max el      | 8587 Sep 28 19:30 | 8° $\text{♌}$ 05'25     | 25°05'16   | desc. node       | 8588 Sep 10 08:14 | 19° $\text{♌}$ 22'51  |            |
| retrograde          | 8587 Oct 12 16:25 | 15° $\text{♌}$ 05'10    |            | retrograde       | 8588 Sep 22 19:22 | 25° $\text{♌}$ 09'09  |            |
| evening set         | 8587 Oct 18 08:55 | 13° $\text{♌}$ 51'43    |            | evening set      | 8588 Sep 27 01:32 | 24° $\text{♌}$ 29'34  |            |
| min. Earth dist.    | 8587 Oct 23 07:04 | 11° $\text{♌}$ 10'06    | 0.57185 AU | min. Earth dist. | 8588 Oct 03 16:45 | 21° $\text{♌}$ 22'22  | 0.55614 AU |
| inferior conj       | 8587 Oct 26 03:37 | 9° $\text{♌}$ 16'26     | -5°24'41   | inferior conj    | 8588 Oct 05 14:01 | 20° $\text{♌}$ 15'27  | -5°34'24   |
| minimum elong       | 8587 Oct 26 08:12 | 9° $\text{♌}$ 08'48     | 5°24'03    | minimum elong    | 8588 Oct 05 11:43 | 20° $\text{♌}$ 18'52  | 5°34'13    |
| morning rise        | 8587 Nov 03 09:48 | 5° $\text{♌}$ 06'10     |            | morning rise     | 8588 Oct 13 23:59 | 16° $\text{♌}$ 22'37  |            |
| direct              | 8587 Nov 05 20:38 | 4° $\text{♌}$ 48'48     |            | direct           | 8588 Oct 16 21:20 | 16° $\text{♌}$ 02'13  |            |
| morning max el      | 8587 Nov 14 23:41 | 9° $\text{♌}$ 09'44     | 19°09'57   | morning max el   | 8588 Oct 27 12:28 | 21° $\text{♌}$ 01'42  | 20°20'36   |
| asc. node           | 8587 Nov 16 20:38 | 11° $\text{♌}$ 07'34    |            | asc. node        | 8588 Nov 02 17:37 | 28° $\text{♌}$ 28'54  |            |
|                     | 8587 Nov 28 15:27 | 0° $\text{♍}$           |            |                  | 8588 Nov 03 18:09 | 0° $\text{♌}$         |            |
| morning set         | 8587 Dec 01 19:42 | 6° $\text{♍}$ 13'42     |            | morning set      | 8588 Nov 15 01:50 | 20° $\text{♌}$ 51'34  |            |
|                     |                   |                         |            |                  | 8588 Nov 19 12:14 | 0° $\text{♍}$         |            |
|                     |                   |                         |            |                  |                   |                       |            |
| superior conj       | 8587 Dec 10 01:05 | 22° $\text{♍}$ 28'35    | 1°18'09    | superior conj    | 8588 Nov 22 15:41 | 6° $\text{♍}$ 25'26   | 1°33'02    |
| minimum elong       | 8587 Dec 10 04:10 | 22° $\text{♍}$ 43'25    | 1°18'01    | minimum elong    | 8588 Nov 22 17:42 | 6° $\text{♍}$ 35'36   | 1°33'04    |
|                     | 8587 Dec 14 00:19 | 0° $\text{☿}$           |            | max. Earth dist. | 8588 Nov 28 01:17 | 17° $\text{♍}$ 04'06  | 1.36475 AU |
| max. Earth dist.    | 8587 Dec 16 18:35 | 5° $\text{☿}$ 03'37     | 1.38574 AU | evening rise     | 8588 Dec 01 21:41 | 24° $\text{♍}$ 16'16  |            |
| evening rise        | 8587 Dec 20 13:14 | 11° $\text{☿}$ 44'30    |            |                  | 8588 Dec 05 02:26 | 0° $\text{☿}$         |            |
| desc. node          | 8587 Dec 21 10:04 | 13° $\text{☿}$ 14'19    |            | desc. node       | 8588 Dec 07 07:04 | 3° $\text{☿}$ 47'52   |            |
|                     | 8587 Dec 31 17:26 | 0° $\text{♎}$           |            |                  | 8588 Dec 24 08:48 | 0° $\text{☿}$         |            |
|                     | 8588 Jan 23 03:22 | 0° $\text{♎}$           |            | evening max el   | 8589 Jan 06 12:00 | 15° $\text{☿}$ 38'53  | 25°56'10   |
| evening max el      | 8588 Jan 24 22:51 | 1° $\text{♎}$ 51'33     | 24°45'29   | retrograde       | 8589 Jan 19 01:10 | 22° $\text{☿}$ 48'20  |            |
| retrograde          | 8588 Feb 05 15:04 | 8° $\text{♎}$ 40'08     |            | evening set      | 8589 Jan 25 03:24 | 20° $\text{☿}$ 18'50  |            |
| evening set         | 8588 Feb 11 04:50 | 6° $\text{♎}$ 20'48     |            | min. Earth dist. | 8589 Jan 29 09:52 | 15° $\text{☿}$ 45'05  | 0.67051 AU |
| asc. node           | 8588 Feb 12 19:44 | 4° $\text{♎}$ 46'48     |            | asc. node        | 8589 Jan 29 16:50 | 15° $\text{☿}$ 23'25  |            |
| min. Earth dist.    | 8588 Feb 15 18:00 | 1° $\text{♎}$ 12'31     | 0.67902 AU | inferior conj    | 8589 Jan 30 21:37 | 13° $\text{☿}$ 53'03  | 0°23'48    |
| inferior conj       | 8588 Feb 16 18:20 | 29° $\text{☿}$ 51'53    | 1°15'49    | minimum elong    | 8589 Jan 30 21:00 | 13° $\text{☿}$ 54'58  | 0°23'42    |
| minimum elong       | 8588 Feb 16 16:40 | 29° $\text{☿}$ 57'25    | 1°15'17    | morning rise     | 8589 Feb 05 15:11 | 8° $\text{☿}$ 03'27   |            |
|                     | 8588 Feb 16 15:53 | 30° $\text{☿}$          |            | direct           | 8589 Feb 08 20:38 | 7° $\text{☿}$ 03'54   |            |
| morning rise        | 8588 Feb 22 04:43 | 23° $\text{☿}$ 53'29    |            | morning max el   | 8589 Feb 15 15:05 | 10° $\text{☿}$ 45'30  | 18°51'34   |
| direct              | 8588 Feb 25 21:35 | 22° $\text{☿}$ 34'48    |            |                  | 8589 Mar 01 17:39 | 0° $\text{♏}$         |            |
| morning max el      | 8588 Mar 04 07:03 | 26° $\text{☿}$ 42'50    | 19°46'15   | desc. node       | 8589 Mar 05 06:42 | 5° $\text{♏}$ 28'42   |            |
|                     | 8588 Mar 07 06:51 | 0° $\text{♏}$           |            | morning set      | 8589 Mar 09 18:03 | 12° $\text{♏}$ 26'45  |            |
| greatest brilliancy | 8588 Mar 17 02:32 | 13° $\text{♏}$ 22'41    | -0.6m      |                  | 8589 Mar 20 23:51 | 0° $\text{♐}$         |            |
| desc. node          | 8588 Mar 18 09:47 | 15° $\text{♏}$ 17'42    |            | max. Earth dist. | 8589 Mar 24 13:07 | 5° $\text{♐}$ 33'49   | 1.45344 AU |
|                     | 8588 Mar 28 03:29 | 0° $\text{♐}$           |            |                  |                   |                       |            |
| morning set         | 8588 Mar 30 09:55 | 3° $\text{♐}$ 29'05     |            | superior conj    | 8589 Mar 26 05:27 | 8° $\text{♐}$ 12'07   | -1°58'52   |
| max. Earth dist.    | 8588 Apr 10 20:31 | 21° $\text{♐}$ 21'27    | 1.44441 AU | minimum elong    | 8589 Mar 25 21:39 | 7° $\text{♐}$ 41'29   | 1°58'23    |
|                     |                   |                         |            |                  | 8589 Apr 08 22:09 | 0° $\text{♑}$         |            |
| superior conj       | 8588 Apr 15 17:43 | 29° $\text{♐}$ 10'44    | -2°11'54   | evening rise     | 8589 Apr 10 08:59 | 2° $\text{♑}$ 20'43   |            |
| minimum elong       | 8588 Apr 15 16:44 | 29° $\text{♐}$ 06'45    | 2°12'00    | asc. node        | 8589 Apr 27 15:36 | 29° $\text{♑}$ 05'28  |            |
|                     | 8588 Apr 16 05:54 | 0° $\text{♑}$           |            |                  | 8589 Apr 28 08:49 | 0° $\text{♑}$         |            |
| evening rise        | 8588 Apr 29 06:11 | 21° $\text{♑}$ 37'31    |            | evening max el   | 8589 Apr 30 22:27 | 2° $\text{♑}$ 53'55   | 18°35'30   |
|                     | 8588 May 04 04:41 | 0° $\text{♒}$           |            | retrograde       | 8589 May 07 11:13 | 6° $\text{♑}$ 27'51   |            |
| asc. node           | 8588 May 10 18:32 | 10° $\text{♒}$ 42'32    |            | evening set      | 8589 May 10 15:56 | 5° $\text{♑}$ 30'06   |            |
| evening max el      | 8588 May 17 10:14 | 29° $\text{♒}$ 22'54    | 18°11'24   | inferior conj    | 8589 May 16 08:34 | 29° $\text{♑}$ 55'24  | 3°19'11    |
| retrograde          | 8588 May 23 19:22 | 22° $\text{♒}$ 44'53    |            | minimum elong    | 8589 May 16 09:27 | 29° $\text{♑}$ 52'41  | 3°18'57    |
| evening set         | 8588 May 26 16:38 | 22° $\text{♒}$ 01'11    |            |                  | 8589 May 16 07:02 | 30° $\text{☿}$        |            |
| inferior conj       | 8588 Jun 01 18:24 | 16° $\text{♒}$ 43'31    | 3°00'13    |                  |                   |                       |            |

|                     |                   |                      |            |                     |                   |                      |            |
|---------------------|-------------------|----------------------|------------|---------------------|-------------------|----------------------|------------|
| min. Earth dist.    | 8589 May 18 09:30 | 27° $\text{♄}$ 27'48 | 0.65120 AU | asc. node           | 8590 Apr 14 12:42 | 16° $\text{♄}$ 44'49 |            |
| morning rise        | 8589 May 22 02:11 | 23° $\text{♄}$ 38'14 |            | retrograde          | 8590 Apr 21 07:44 | 20° $\text{♄}$ 28'54 |            |
| direct              | 8589 May 28 16:31 | 20° $\text{♄}$ 52'21 |            | evening set         | 8590 Apr 24 20:22 | 19° $\text{♄}$ 16'20 |            |
| desc. node          | 8589 Jun 01 06:26 | 21° $\text{♄}$ 34'15 |            | inferior conj       | 8590 Apr 30 07:13 | 13° $\text{♄}$ 26'00 | 3°22'05    |
| morning max el      | 8589 Jun 11 02:28 | 28° $\text{♄}$ 46'45 | 27°08'05   | minimum elong       | 8590 Apr 30 06:51 | 13° $\text{♄}$ 27'13 | 3°21'57    |
|                     | 8589 Jun 12 06:44 | 0° $\text{♄}$        |            | min. Earth dist.    | 8590 May 01 16:51 | 11° $\text{♄}$ 36'55 | 0.66620 AU |
|                     | 8589 Jul 04 00:19 | 0° $\text{♄}$        |            | morning rise        | 8590 May 05 16:57 | 7° $\text{♄}$ 07'40  |            |
| morning set         | 8589 Jul 16 16:22 | 22° $\text{♄}$ 36'08 |            | direct              | 8590 May 11 22:15 | 4° $\text{♄}$ 23'26  |            |
|                     | 8589 Jul 20 10:10 | 0° $\text{♄}$        |            | desc. node          | 8590 May 19 03:26 | 7° $\text{♄}$ 12'30  |            |
| max. Earth dist.    | 8589 Jul 21 03:11 | 1° $\text{♄}$ 26'16  | 1.33673 AU | morning max el      | 8590 May 24 12:40 | 11° $\text{♄}$ 54'49 | 26°01'53   |
| asc. node           | 8589 Jul 24 14:50 | 8° $\text{♄}$ 39'04  |            |                     | 8590 Jun 08 00:00 | 0° $\text{♄}$        |            |
|                     |                   |                      |            |                     | 8590 Jun 26 16:05 | 0° $\text{♄}$        |            |
| superior conj       | 8589 Jul 25 01:49 | 9° $\text{♄}$ 36'53  | 0°04'38    | morning set         | 8590 Jun 29 14:51 | 5° $\text{♄}$ 21'44  |            |
| minimum elong       | 8589 Jul 25 01:35 | 9° $\text{♄}$ 35'38  | 0°04'25    | max. Earth dist.    | 8590 Jul 03 11:13 | 12° $\text{♄}$ 38'04 | 1.35321 AU |
| behind sun begin    | 8589 Jul 24 20:10 | 9° $\text{♄}$ 07'09  |            |                     |                   |                      |            |
| behind sun end      | 8589 Jul 25 07:00 | 10° $\text{♄}$ 04'11 |            | superior conj       | 8590 Jul 08 20:54 | 23° $\text{♄}$ 20'55 | -0°25'57   |
| evening rise        | 8589 Aug 01 08:06 | 25° $\text{♄}$ 03'00 |            | minimum elong       | 8590 Jul 08 22:25 | 23° $\text{♄}$ 28'39 | 0°25'51    |
|                     | 8589 Aug 03 17:12 | 0° $\text{♄}$        |            | asc. node           | 8590 Jul 11 11:48 | 28° $\text{♄}$ 43'04 |            |
| evening max el      | 8589 Aug 21 21:22 | 28° $\text{♄}$ 39'05 | 21°50'28   |                     | 8590 Jul 12 02:42 | 0° $\text{♄}$        |            |
|                     | 8589 Aug 23 08:14 | 0° $\text{♄}$        |            | evening rise        | 8590 Jul 16 15:57 | 9° $\text{♄}$ 25'51  |            |
| desc. node          | 8589 Aug 28 05:20 | 3° $\text{♄}$ 21'00  |            |                     | 8590 Jul 27 15:54 | 0° $\text{♄}$        |            |
| retrograde          | 8589 Sep 03 10:39 | 4° $\text{♄}$ 53'04  |            | evening max el      | 8590 Aug 03 22:43 | 9° $\text{♄}$ 24'03  | 20°25'20   |
| evening set         | 8589 Sep 06 06:30 | 4° $\text{♄}$ 35'10  |            | retrograde          | 8590 Aug 14 22:54 | 14° $\text{♄}$ 50'49 |            |
| inferior conj       | 8589 Sep 15 09:40 | 0° $\text{♄}$ 35'45  | -4°50'31   | desc. node          | 8590 Aug 15 02:27 | 14° $\text{♄}$ 50'45 |            |
| minimum elong       | 8589 Sep 15 00:54 | 0° $\text{♄}$ 48'00  | 4°48'41    | evening set         | 8590 Aug 16 23:03 | 14° $\text{♄}$ 40'44 |            |
| min. Earth dist.    | 8589 Sep 15 01:00 | 0° $\text{♄}$ 47'52  | 0.54763 AU | inferior conj       | 8590 Aug 26 02:54 | 10° $\text{♄}$ 43'20 | -3°16'22   |
|                     | 8589 Sep 16 11:18 | 30° $\text{♄}$       |            | minimum elong       | 8590 Aug 25 18:17 | 10° $\text{♄}$ 55'51 | 3°13'33    |
| morning rise        | 8589 Sep 23 20:35 | 26° $\text{♄}$ 46'58 |            | min. Earth dist.    | 8590 Aug 27 10:27 | 9° $\text{♄}$ 57'29  | 0.54835 AU |
| direct              | 8589 Sep 27 08:24 | 26° $\text{♄}$ 20'10 |            | morning rise        | 8590 Sep 03 12:55 | 6° $\text{♄}$ 38'21  |            |
|                     | 8589 Oct 07 01:09 | 0° $\text{♄}$        |            | direct              | 8590 Sep 07 17:38 | 6° $\text{♄}$ 00'32  |            |
| morning max el      | 8589 Oct 09 12:13 | 2° $\text{♄}$ 04'29  | 21°52'01   | morning max el      | 8590 Sep 21 02:45 | 12° $\text{♄}$ 29'31 | 23°36'41   |
| asc. node           | 8589 Oct 20 14:35 | 16° $\text{♄}$ 40'38 |            |                     | 8590 Oct 04 08:41 | 0° $\text{♄}$        |            |
|                     | 8589 Oct 27 18:01 | 0° $\text{♄}$        |            | asc. node           | 8590 Oct 07 11:32 | 5° $\text{♄}$ 30'22  |            |
| morning set         | 8589 Oct 30 11:39 | 5° $\text{♄}$ 38'26  |            | morning set         | 8590 Oct 14 23:13 | 20° $\text{♄}$ 28'16 |            |
|                     |                   |                      |            |                     | 8590 Oct 19 09:15 | 0° $\text{♄}$        |            |
| superior conj       | 8589 Nov 06 15:32 | 20° $\text{♄}$ 48'08 | 1°40'12    | superior conj       | 8590 Oct 21 21:36 | 5° $\text{♄}$ 27'21  | 1°40'34    |
| minimum elong       | 8589 Nov 06 16:14 | 20° $\text{♄}$ 51'49 | 1°40'20    | minimum elong       | 8590 Oct 21 21:04 | 5° $\text{♄}$ 24'30  | 1°40'40    |
| max. Earth dist.    | 8589 Nov 10 14:17 | 28° $\text{♄}$ 57'32 | 1.34651 AU | max. Earth dist.    | 8590 Oct 24 11:37 | 10° $\text{♄}$ 59'37 | 1.33220 AU |
|                     | 8589 Nov 11 02:40 | 0° $\text{♄}$        |            | evening rise        | 8590 Oct 29 11:48 | 21° $\text{♄}$ 20'07 |            |
| evening rise        | 8589 Nov 14 22:29 | 7° $\text{♄}$ 31'40  |            |                     | 8590 Nov 02 23:07 | 0° $\text{♄}$        |            |
| desc. node          | 8589 Nov 24 04:05 | 24° $\text{♄}$ 09'19 |            | desc. node          | 8590 Nov 11 01:08 | 14° $\text{♄}$ 12'09 |            |
|                     | 8589 Nov 27 17:33 | 0° $\text{♄}$        |            |                     | 8590 Nov 21 14:43 | 0° $\text{♄}$        |            |
| evening max el      | 8589 Dec 20 01:24 | 29° $\text{♄}$ 20'44 | 26°51'17   | evening max el      | 8590 Dec 02 14:00 | 12° $\text{♄}$ 45'19 | 27°23'36   |
|                     | 8589 Dec 20 18:01 | 0° $\text{♄}$        |            | retrograde          | 8590 Dec 16 03:40 | 20° $\text{♄}$ 05'12 |            |
| retrograde          | 8590 Jan 02 05:35 | 6° $\text{♄}$ 39'35  |            | evening set         | 8590 Dec 23 02:13 | 17° $\text{♄}$ 30'46 |            |
| evening set         | 8590 Jan 08 19:18 | 4° $\text{♄}$ 04'24  |            | min. Earth dist.    | 8590 Dec 26 21:38 | 14° $\text{♄}$ 04'33 | 0.64283 AU |
|                     | 8590 Jan 12 21:38 | 30° $\text{♄}$       |            | inferior conj       | 8590 Dec 29 08:37 | 11° $\text{♄}$ 28'56 | -1°41'55   |
| min. Earth dist.    | 8590 Jan 12 19:51 | 0° $\text{♄}$ 05'06  | 0.65837 AU | minimum elong       | 8590 Dec 29 11:47 | 11° $\text{♄}$ 20'36 | 1°40'24    |
| inferior conj       | 8590 Jan 14 19:12 | 27° $\text{♄}$ 47'34 | -0°35'48   | asc. node           | 8591 Jan 03 10:59 | 6° $\text{♄}$ 52'50  |            |
| minimum elong       | 8590 Jan 14 20:13 | 27° $\text{♄}$ 44'37 | 0°35'10    | morning rise        | 8591 Jan 04 22:58 | 6° $\text{♄}$ 04'57  |            |
| asc. node           | 8590 Jan 16 13:55 | 25° $\text{♄}$ 46'40 |            | direct              | 8591 Jan 07 10:59 | 5° $\text{♄}$ 33'12  |            |
| morning rise        | 8590 Jan 20 22:12 | 22° $\text{♄}$ 09'17 |            | morning max el      | 8591 Jan 13 21:56 | 8° $\text{♄}$ 55'24  | 17°52'09   |
| direct              | 8590 Jan 23 17:57 | 21° $\text{♄}$ 25'30 |            |                     | 8591 Jan 28 04:34 | 0° $\text{♄}$        |            |
| morning max el      | 8590 Jan 30 04:56 | 24° $\text{♄}$ 52'11 | 18°13'22   | morning set         | 8591 Jan 30 21:38 | 4° $\text{♄}$ 34'50  |            |
|                     | 8590 Feb 03 12:39 | 0° $\text{♄}$        |            | desc. node          | 8591 Feb 07 00:31 | 16° $\text{♄}$ 30'34 |            |
| morning set         | 8590 Feb 18 05:31 | 22° $\text{♄}$ 48'50 |            |                     |                   |                      |            |
| desc. node          | 8590 Feb 20 03:36 | 25° $\text{♄}$ 54'43 |            | superior conj       | 8591 Feb 13 04:30 | 26° $\text{♄}$ 34'37 | -0°43'50   |
|                     | 8590 Feb 22 16:39 | 0° $\text{♄}$        |            | minimum elong       | 8591 Feb 12 23:31 | 26° $\text{♄}$ 14'35 | 0°43'01    |
| superior conj       | 8590 Mar 05 10:42 | 17° $\text{♄}$ 03'10 | -1°26'48   |                     | 8591 Feb 15 07:41 | 0° $\text{♄}$        |            |
| minimum elong       | 8590 Mar 05 01:25 | 16° $\text{♄}$ 26'41 | 1°25'44    | max. Earth dist.    | 8591 Feb 18 04:23 | 4° $\text{♄}$ 32'57  | 1.44942 AU |
| max. Earth dist.    | 8590 Mar 07 08:49 | 20° $\text{♄}$ 04'00 | 1.45516 AU | evening rise        | 8591 Mar 01 02:25 | 21° $\text{♄}$ 32'23 |            |
|                     | 8590 Mar 13 17:26 | 0° $\text{♄}$        |            |                     | 8591 Mar 06 15:31 | 0° $\text{♄}$        |            |
| evening rise        | 8590 Mar 21 13:08 | 12° $\text{♄}$ 09'11 |            | greatest brilliancy | 8591 Mar 15 18:07 | 13° $\text{♄}$ 35'42 | -0.6m      |
| greatest brilliancy | 8590 Apr 02 04:48 | 0° $\text{♄}$ 13'59  | -0.7m      |                     | 8591 Mar 28 06:54 | 0° $\text{♄}$        |            |
|                     | 8590 Apr 02 01:07 | 0° $\text{♄}$        |            | evening max el      | 8591 Mar 28 10:36 | 0° $\text{♄}$ 09'28  | 20°13'39   |
| evening max el      | 8590 Apr 14 07:06 | 16° $\text{♄}$ 30'49 | 19°16'48   | asc. node           | 8591 Apr 01 09:49 | 3° $\text{♄}$ 27'19  |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| retrograde       | 8591 Apr 05 06:14 | 4°♄41'56  |            |                  | 8592 Feb 28 05:56 | 0°♄       |            |
| evening set      | 8591 Apr 09 03:37 | 3°♄14'13  |            | evening max el   | 8592 Mar 10 08:30 | 13°♄48'54 | 21°23'04   |
|                  | 8591 Apr 12 07:53 | 30°♄      |            | asc. node        | 8592 Mar 18 06:57 | 18°♄57'56 |            |
| inferior conj    | 8591 Apr 14 11:30 | 27°♄10'07 | 3°12'08    | retrograde       | 8592 Mar 19 04:33 | 19°♄02'03 |            |
| minimum elong    | 8591 Apr 14 10:07 | 27°♄14'48 | 3°11'53    | evening set      | 8592 Mar 23 11:48 | 17°♄19'13 |            |
| min. Earth dist. | 8591 Apr 15 06:46 | 26°♄04'34 | 0.67668 AU | inferior conj    | 8592 Mar 28 19:02 | 11°♄03'45 | 2°51'23    |
| morning rise     | 8591 Apr 19 16:25 | 20°♄53'16 |            | minimum elong    | 8592 Mar 28 17:01 | 11°♄10'47 | 2°50'56    |
| direct           | 8591 Apr 25 09:31 | 18°♄20'25 |            | min. Earth dist. | 8592 Mar 29 01:10 | 10°♄42'25 | 0.68273 AU |
| desc. node       | 8591 May 06 00:24 | 24°♄20'49 |            | morning rise     | 8592 Apr 02 22:03 | 4°♄50'09  |            |
| morning max el   | 8591 May 06 22:05 | 25°♄14'34 | 24°38'56   | direct           | 8592 Apr 08 01:32 | 2°♄35'14  |            |
|                  | 8591 May 11 05:41 | 0°♄       |            | morning max el   | 8592 Apr 18 07:46 | 8°♄40'57  | 23°09'13   |
|                  | 8591 Jun 01 11:53 | 0°♄       |            | desc. node       | 8592 Apr 21 21:20 | 12°♄34'22 |            |
| morning set      | 8591 Jun 11 19:34 | 17°♄15'20 |            |                  | 8592 May 05 00:33 | 0°♄       |            |
| max. Earth dist. | 8591 Jun 15 10:31 | 23°♄44'38 | 1.37354 AU | morning set      | 8592 May 23 00:52 | 28°♄01'39 |            |
|                  | 8591 Jun 18 19:30 | 0°♄       |            |                  | 8592 May 24 05:05 | 0°♄       |            |
|                  |                   |           |            | max. Earth dist. | 8592 May 27 06:33 | 5°♄13'39  | 1.39594 AU |
| superior conj    | 8591 Jun 22 05:17 | 6°♄31'17  | -0°58'00   |                  |                   |           |            |
| minimum elong    | 8591 Jun 22 08:54 | 6°♄48'48  | 0°57'35    | superior conj    | 8592 Jun 03 22:58 | 18°♄57'32 | -1°29'00   |
| asc. node        | 8591 Jun 28 08:49 | 18°♄41'23 |            | minimum elong    | 8592 Jun 04 04:24 | 19°♄22'36 | 1°28'27    |
| evening rise     | 8591 Jun 30 18:33 | 23°♄30'18 |            |                  | 8592 Jun 09 19:47 | 0°♄       |            |
|                  | 8591 Jul 04 01:36 | 0°♄       |            | evening rise     | 8592 Jun 13 12:47 | 7°♄07'17  |            |
| evening max el   | 8591 Jul 17 13:27 | 20°♄54'00 | 19°19'45   | asc. node        | 8592 Jun 14 05:51 | 8°♄29'08  |            |
| retrograde       | 8591 Jul 26 21:03 | 25°♄30'29 |            |                  | 8592 Jun 26 21:44 | 0°♄       |            |
| evening set      | 8591 Jul 28 17:45 | 25°♄20'13 |            | evening max el   | 8592 Jun 29 15:22 | 3°♄06'21  | 18°35'06   |
| desc. node       | 8591 Aug 01 23:34 | 23°♄49'14 |            | retrograde       | 8592 Jul 07 12:51 | 7°♄02'02  |            |
| inferior conj    | 8591 Aug 06 08:12 | 21°♄11'41 | -1°20'20   | evening set      | 8592 Jul 09 14:49 | 6°♄46'32  |            |
| minimum elong    | 8591 Aug 06 04:37 | 21°♄17'34 | 1°19'05    | inferior conj    | 8592 Jul 17 09:50 | 2°♄19'31  | 0°26'04    |
| min. Earth dist. | 8591 Aug 08 23:20 | 19°♄28'20 | 0.55839 AU | minimum elong    | 8592 Jul 17 10:47 | 2°♄17'40  | 0°25'31    |
| morning rise     | 8591 Aug 14 12:44 | 16°♄33'10 |            | desc. node       | 8592 Jul 18 20:41 | 1°♄12'13  |            |
| direct           | 8591 Aug 19 12:54 | 15°♄36'03 |            |                  | 8592 Jul 20 10:48 | 30°♄      |            |
| morning max el   | 8591 Sep 02 15:19 | 22°♄43'34 | 25°20'14   | min. Earth dist. | 8592 Jul 20 17:07 | 29°♄48'23 | 0.57584 AU |
|                  | 8591 Sep 09 03:04 | 0°♄       |            | morning rise     | 8592 Jul 25 03:14 | 27°♄03'56 |            |
| asc. node        | 8591 Sep 24 08:29 | 24°♄48'31 |            | direct           | 8592 Jul 30 22:58 | 25°♄38'30 |            |
|                  | 8591 Sep 26 22:28 | 0°♄       |            |                  | 8592 Aug 10 14:44 | 0°♄       |            |
| morning set      | 8591 Sep 29 10:49 | 5°♄16'15  |            | morning max el   | 8592 Aug 14 07:45 | 3°♄14'05  | 26°45'41   |
|                  |                   |           |            |                  | 8592 Sep 02 15:28 | 0°♄       |            |
| superior conj    | 8591 Oct 06 07:31 | 20°♄15'52 | 1°34'52    | asc. node        | 8592 Sep 10 05:26 | 14°♄26'44 |            |
| minimum elong    | 8591 Oct 06 06:01 | 20°♄07'40 | 1°34'50    | morning set      | 8592 Sep 12 20:47 | 19°♄56'28 |            |
| max. Earth dist. | 8591 Oct 07 16:13 | 23°♄15'26 | 1.32237 AU |                  | 8592 Sep 17 11:54 | 0°♄       |            |
|                  | 8591 Oct 10 18:59 | 0°♄       |            |                  |                   |           |            |
| evening rise     | 8591 Oct 13 10:24 | 5°♄33'13  |            | superior conj    | 8592 Sep 19 19:10 | 5°♄06'20  | 1°23'39    |
|                  | 8591 Oct 26 13:31 | 0°♄       |            | minimum elong    | 8592 Sep 19 17:05 | 4°♄54'45  | 1°23'25    |
| desc. node       | 8591 Oct 28 22:14 | 3°♄48'33  |            | max. Earth dist. | 8592 Sep 20 01:11 | 5°♄39'44  | 1.31713 AU |
| evening max el   | 8591 Nov 14 23:50 | 25°♄40'10 | 27°26'52   | evening rise     | 8592 Sep 26 15:25 | 20°♄02'21 |            |
|                  | 8591 Nov 20 08:45 | 0°♄       |            |                  | 8592 Oct 01 12:40 | 0°♄       |            |
| retrograde       | 8591 Nov 28 18:55 | 2°♄56'14  |            | desc. node       | 8592 Oct 14 19:21 | 22°♄47'03 |            |
| evening set      | 8591 Dec 05 21:12 | 0°♄31'32  |            |                  | 8592 Oct 20 01:55 | 0°♄       |            |
|                  | 8591 Dec 06 15:09 | 30°♄      |            | evening max el   | 8592 Oct 27 04:26 | 7°♄52'57  | 26°56'57   |
| min. Earth dist. | 8591 Dec 09 13:35 | 27°♄33'41 | 0.62431 AU | retrograde       | 8592 Nov 10 02:20 | 15°♄02'55 |            |
| inferior conj    | 8591 Dec 12 10:59 | 24°♄50'14 | -2°52'09   | evening set      | 8592 Nov 17 00:20 | 12°♄58'55 |            |
| minimum elong    | 8591 Dec 12 16:29 | 24°♄37'16 | 2°49'55    | min. Earth dist. | 8592 Nov 20 18:57 | 10°♄19'44 | 0.60374 AU |
| morning rise     | 8591 Dec 19 13:56 | 19°♄43'45 |            | inferior conj    | 8592 Nov 23 22:55 | 7°♄42'35  | -4°01'39   |
| asc. node        | 8591 Dec 21 08:02 | 19°♄21'36 |            | minimum elong    | 8592 Nov 24 06:08 | 7°♄27'36  | 3°59'20    |
| direct           | 8591 Dec 21 20:37 | 19°♄20'21 |            | morning rise     | 8592 Dec 01 14:23 | 2°♄56'30  |            |
| morning max el   | 8591 Dec 28 15:01 | 22°♄47'26 | 17°48'33   | direct           | 8592 Dec 03 18:59 | 2°♄37'56  |            |
|                  | 8592 Jan 03 06:26 | 0°♄       |            | asc. node        | 8592 Dec 07 05:04 | 3°♄25'17  |            |
| morning set      | 8592 Jan 13 12:45 | 17°♄26'35 |            | morning max el   | 8592 Dec 11 04:44 | 6°♄18'55  | 18°03'47   |
|                  | 8592 Jan 20 16:09 | 0°♄       |            |                  | 8592 Dec 26 06:31 | 0°♄       |            |
|                  |                   |           |            | morning set      | 8592 Dec 26 20:34 | 1°♄05'17  |            |
| superior conj    | 8592 Jan 24 22:24 | 7°♄16'38  | -0°00'18   |                  |                   |           |            |
| minimum elong    | 8592 Jan 24 22:24 | 7°♄16'37  | 0°00'07    | superior conj    | 8593 Jan 05 17:25 | 19°♄10'27 | 0°37'05    |
| behind sun begin | 8592 Jan 24 13:34 | 6°♄39'19  |            | minimum elong    | 8593 Jan 05 20:10 | 19°♄22'41 | 0°36'53    |
| behind sun end   | 8592 Jan 25 07:14 | 7°♄53'50  |            | desc. node       | 8593 Jan 10 18:26 | 27°♄57'30 |            |
| desc. node       | 8592 Jan 24 21:27 | 7°♄12'34  |            |                  | 8593 Jan 11 23:17 | 0°♄       |            |
| max. Earth dist. | 8592 Jan 31 20:44 | 18°♄42'32 | 1.43697 AU | max. Earth dist. | 8593 Jan 13 08:24 | 2°♄19'07  | 1.41924 AU |
|                  | 8592 Feb 07 23:48 | 0°♄       |            | evening rise     | 8593 Jan 18 18:10 | 11°♄09'52 |            |
| evening rise     | 8592 Feb 08 15:21 | 1°♄00'21  |            |                  | 8593 Jan 31 00:29 | 0°♄       |            |



|                  |                   |                           |            |                  |                   |                            |            |
|------------------|-------------------|---------------------------|------------|------------------|-------------------|----------------------------|------------|
| evening max el   | 8593 Feb 21 01:46 | 27° $\text{K}$ 31'02      | 22°40'42   | evening max el   | 8594 Feb 03 16:08 | 11° $\text{K}$ 16'42       | 24°00'52   |
|                  | 8593 Feb 23 18:09 | 0° $\text{Y}$             |            | retrograde       | 8594 Feb 14 18:01 | 17° $\text{K}$ 47'21       |            |
| retrograde       | 8593 Mar 03 00:56 | 3° $\text{Y}$ 25'28       |            | evening set      | 8594 Feb 20 00:33 | 15° $\text{K}$ 35'30       |            |
| asc. node        | 8593 Mar 05 04:03 | 3° $\text{Y}$ 02'44       |            | asc. node        | 8594 Feb 20 01:09 | 15° $\text{K}$ 34'12       |            |
| evening set      | 8593 Mar 07 19:17 | 1° $\text{Y}$ 27'44       |            | inferior conj    | 8594 Feb 25 11:52 | 9° $\text{K}$ 07'27        | 1°42'04    |
|                  | 8593 Mar 09 07:41 | 30° $\text{R}$ $\text{K}$ |            | minimum elong    | 8594 Feb 25 09:51 | 9° $\text{K}$ 14'19        | 1°41'27    |
| inferior conj    | 8593 Mar 13 03:47 | 25° $\text{K}$ 04'06      | 2°21'07    | min. Earth dist. | 8594 Feb 24 18:12 | 10° $\text{K}$ 07'22       | 0.68222 AU |
| minimum elong    | 8593 Mar 13 01:32 | 25° $\text{K}$ 11'55      | 2°20'30    | morning rise     | 8594 Mar 02 19:10 | 3° $\text{K}$ 04'47        |            |
| min. Earth dist. | 8593 Mar 12 21:46 | 25° $\text{K}$ 25'03      | 0.68451 AU | direct           | 8594 Mar 06 19:24 | 1° $\text{K}$ 33'36        |            |
| morning rise     | 8593 Mar 18 07:39 | 18° $\text{K}$ 55'12      |            | morning max el   | 8594 Mar 14 16:39 | 6° $\text{K}$ 02'04        | 20°24'38   |
| direct           | 8593 Mar 22 21:15 | 17° $\text{K}$ 01'44      |            | desc. node       | 8594 Mar 26 15:11 | 21° $\text{K}$ 10'21       |            |
| morning max el   | 8593 Mar 31 20:51 | 22° $\text{K}$ 15'42      | 21°42'07   |                  | 8594 Apr 01 16:21 | 0° $\text{Y}$              |            |
|                  | 8593 Apr 07 12:53 | 0° $\text{Y}$             |            | morning set      | 8594 Apr 12 05:40 | 16° $\text{Y}$ 01'36       |            |
| desc. node       | 8593 Apr 08 18:16 | 1° $\text{Y}$ 35'19       |            |                  | 8594 Apr 21 02:36 | 0° $\text{B}$              |            |
|                  | 8593 Apr 28 07:49 | 0° $\text{B}$             |            | max. Earth dist. | 8594 Apr 21 13:52 | 0° $\text{B}$ 45'13        | 1.43630 AU |
| morning set      | 8593 May 03 02:47 | 7° $\text{B}$ 31'53       |            |                  |                   |                            |            |
| max. Earth dist. | 8593 May 09 06:24 | 17° $\text{B}$ 31'44      | 1.41778 AU | superior conj    | 8594 Apr 27 20:09 | 10° $\text{B}$ 58'27       | -2°10'20   |
|                  |                   |                           |            | minimum elong    | 8594 Apr 27 22:47 | 11° $\text{B}$ 09'24       | 2°10'24    |
| superior conj    | 8593 May 16 21:22 | 0° $\text{II}$ 29'46      | -1°54'57   |                  | 8594 May 09 00:09 | 0° $\text{II}$             |            |
| minimum elong    | 8593 May 17 03:06 | 0° $\text{II}$ 54'48      | 1°54'39    | evening rise     | 8594 May 10 08:25 | 2° $\text{II}$ 20'45       |            |
|                  | 8593 May 16 14:33 | 0° $\text{II}$            |            | asc. node        | 8594 May 18 23:58 | 17° $\text{II}$ 12'57      |            |
| evening rise     | 8593 May 27 18:56 | 20° $\text{II}$ 07'40     |            | evening max el   | 8594 May 27 13:31 | 29° $\text{II}$ 02'07      | 18°05'46   |
| asc. node        | 8593 Jun 01 02:55 | 28° $\text{II}$ 01'43     |            |                  | 8594 May 28 14:41 | 0° $\text{E}$              |            |
|                  | 8593 Jun 02 05:24 | 0° $\text{E}$             |            | retrograde       | 8594 Jun 03 00:28 | 2° $\text{E}$ 22'51        |            |
| evening max el   | 8593 Jun 13 00:40 | 15° $\text{E}$ 52'32      | 18°10'44   | evening set      | 8594 Jun 05 17:39 | 1° $\text{E}$ 46'29        |            |
| retrograde       | 8593 Jun 19 23:08 | 19° $\text{E}$ 22'50      |            |                  | 8594 Jun 08 13:01 | 30° $\text{R}$ $\text{II}$ |            |
| evening set      | 8593 Jun 22 08:47 | 18° $\text{E}$ 58'12      |            | inferior conj    | 8594 Jun 12 02:22 | 26° $\text{II}$ 39'07      | 2°40'19    |
| inferior conj    | 8593 Jun 29 08:55 | 14° $\text{E}$ 10'37      | 1°46'52    | minimum elong    | 8594 Jun 12 05:07 | 26° $\text{II}$ 32'01      | 2°39'31    |
| minimum elong    | 8593 Jun 29 11:48 | 14° $\text{E}$ 04'08      | 1°45'46    | min. Earth dist. | 8594 Jun 15 01:50 | 23° $\text{II}$ 36'46      | 0.61997 AU |
| min. Earth dist. | 8593 Jul 02 17:23 | 11° $\text{E}$ 11'50      | 0.59750 AU | morning rise     | 8594 Jun 18 14:39 | 20° $\text{II}$ 34'43      |            |
| desc. node       | 8593 Jul 05 17:45 | 8° $\text{E}$ 53'54       |            | desc. node       | 8594 Jun 22 14:47 | 18° $\text{II}$ 34'05      |            |
| morning rise     | 8593 Jul 06 11:51 | 8° $\text{E}$ 25'25       |            | direct           | 8594 Jun 25 08:11 | 18° $\text{II}$ 10'56      |            |
| direct           | 8593 Jul 12 22:19 | 6° $\text{E}$ 28'35       |            | morning max el   | 8594 Jul 09 11:54 | 26° $\text{II}$ 12'19      | 27°55'51   |
| morning max el   | 8593 Jul 27 06:42 | 14° $\text{E}$ 21'23      | 27°39'37   |                  | 8594 Jul 13 00:38 | 0° $\text{E}$              |            |
|                  | 8593 Aug 08 20:39 | 0° $\text{O}$             |            |                  | 8594 Aug 02 10:32 | 0° $\text{O}$              |            |
|                  | 8593 Aug 26 00:04 | 0° $\text{M}$             |            | morning set      | 8594 Aug 12 04:36 | 18° $\text{O}$ 33'38       |            |
| morning set      | 8593 Aug 28 03:21 | 4° $\text{M}$ 24'09       |            | asc. node        | 8594 Aug 14 23:21 | 24° $\text{O}$ 20'30       |            |
| asc. node        | 8593 Aug 28 02:24 | 4° $\text{M}$ 19'07       |            |                  | 8594 Aug 17 14:49 | 0° $\text{M}$              |            |
| max. Earth dist. | 8593 Sep 03 11:09 | 18° $\text{M}$ 04'35      | 1.31653 AU | max. Earth dist. | 8594 Aug 17 18:18 | 0° $\text{M}$ 18'56        | 1.32055 AU |
|                  |                   |                           |            |                  |                   |                            |            |
| superior conj    | 8593 Sep 04 06:45 | 19° $\text{M}$ 53'01      | 1°07'20    | superior conj    | 8594 Aug 19 16:25 | 4° $\text{M}$ 30'16        | 0°46'17    |
| minimum elong    | 8593 Sep 04 04:30 | 19° $\text{M}$ 40'36      | 1°06'56    | minimum elong    | 8594 Aug 19 14:31 | 4° $\text{M}$ 19'51        | 0°45'49    |
|                  | 8593 Sep 08 20:38 | 0° $\text{A}$             |            | evening rise     | 8594 Aug 26 11:52 | 19° $\text{M}$ 23'13       |            |
| evening rise     | 8593 Sep 11 00:35 | 4° $\text{A}$ 41'05       |            |                  | 8594 Aug 31 15:06 | 0° $\text{A}$              |            |
|                  | 8593 Sep 24 07:35 | 0° $\text{M}$             |            | desc. node       | 8594 Sep 18 13:34 | 27° $\text{A}$ 45'26       |            |
| desc. node       | 8593 Oct 01 16:28 | 10° $\text{M}$ 52'50      |            | evening max el   | 8594 Sep 20 15:20 | 29° $\text{A}$ 52'27       | 24°25'18   |
| evening max el   | 8593 Oct 09 01:38 | 19° $\text{M}$ 15'56      | 25°53'55   |                  | 8594 Sep 20 18:29 | 0° $\text{M}$              |            |
| retrograde       | 8593 Oct 22 23:51 | 26° $\text{M}$ 19'01      |            | retrograde       | 8594 Oct 04 09:36 | 6° $\text{M}$ 46'54        |            |
| evening set      | 8593 Oct 29 06:46 | 24° $\text{M}$ 45'42      |            | evening set      | 8594 Oct 09 12:44 | 5° $\text{M}$ 48'37        |            |
| min. Earth dist. | 8593 Nov 02 14:21 | 22° $\text{M}$ 10'11      | 0.58297 AU | min. Earth dist. | 8594 Oct 15 02:13 | 2° $\text{M}$ 58'24        | 0.56453 AU |
| inferior conj    | 8593 Nov 05 16:57 | 19° $\text{M}$ 56'10      | -5°01'01   | inferior conj    | 8594 Oct 17 14:46 | 1° $\text{M}$ 23'25        | -5°34'31   |
| minimum elong    | 8593 Nov 05 23:38 | 19° $\text{M}$ 44'05      | 4°59'36    | minimum elong    | 8594 Oct 17 16:49 | 1° $\text{M}$ 20'11        | 5°34'19    |
| morning rise     | 8593 Nov 13 18:49 | 15° $\text{M}$ 32'31      |            |                  | 8594 Oct 19 21:08 | 30° $\text{R}$ $\text{A}$  |            |
| direct           | 8593 Nov 16 01:55 | 15° $\text{M}$ 15'31      |            | morning rise     | 8594 Oct 25 23:03 | 27° $\text{A}$ 21'32       |            |
| asc. node        | 8593 Nov 24 02:04 | 18° $\text{M}$ 57'23      |            | direct           | 8594 Oct 28 14:01 | 27° $\text{A}$ 03'05       |            |
| morning max el   | 8593 Nov 24 11:23 | 19° $\text{M}$ 19'20      | 18°39'27   |                  | 8594 Nov 05 09:09 | 0° $\text{M}$              |            |
|                  | 8593 Dec 02 09:29 | 0° $\text{A}$             |            | morning max el   | 8594 Nov 07 07:27 | 1° $\text{M}$ 39'02        | 19°37'12   |
| morning set      | 8593 Dec 10 15:52 | 15° $\text{A}$ 15'27      |            | asc. node        | 8594 Nov 10 23:03 | 5° $\text{M}$ 43'49        |            |
|                  | 8593 Dec 18 07:06 | 0° $\text{B}$             |            | morning set      | 8594 Nov 24 18:56 | 29° $\text{M}$ 46'27       |            |
|                  |                   |                           |            |                  | 8594 Nov 24 21:37 | 0° $\text{A}$              |            |
| superior conj    | 8593 Dec 19 09:16 | 2° $\text{B}$ 03'13       | 1°05'45    | superior conj    | 8594 Dec 02 16:54 | 15° $\text{A}$ 41'11       | 1°25'28    |
| minimum elong    | 8593 Dec 19 12:37 | 2° $\text{B}$ 18'58       | 1°05'31    | minimum elong    | 8594 Dec 02 19:35 | 15° $\text{A}$ 54'25       | 1°25'23    |
| max. Earth dist. | 8593 Dec 26 15:58 | 15° $\text{B}$ 15'32      | 1.39832 AU | max. Earth dist. | 8594 Dec 08 22:00 | 27° $\text{A}$ 34'13       | 1.37665 AU |
| desc. node       | 8593 Dec 28 15:25 | 18° $\text{B}$ 41'10      |            |                  | 8594 Dec 10 05:44 | 0° $\text{B}$              |            |
| evening rise     | 8593 Dec 30 18:01 | 22° $\text{B}$ 16'04      |            | evening rise     | 8594 Dec 12 15:23 | 4° $\text{B}$ 19'07        |            |
|                  | 8594 Jan 04 10:54 | 0° $\text{A}$             |            | desc. node       | 8594 Dec 15 12:25 | 9° $\text{B}$ 20'07        |            |
|                  | 8594 Jan 25 00:11 | 0° $\text{K}$             |            |                  |                   |                            |            |

|                     |                   |           |            |                     |                   |           |            |
|---------------------|-------------------|-----------|------------|---------------------|-------------------|-----------|------------|
|                     | 8594 Dec 28 11:35 | 0°♊       |            |                     | 8595 Dec 02 11:57 | 0°♊       |            |
| evening max el      | 8595 Jan 17 05:20 | 25°♊04'44 | 25°16'54   |                     | 8595 Dec 22 20:08 | 0°♊       |            |
|                     | 8595 Jan 23 05:35 | 0°♊       |            | evening max el      | 8595 Dec 30 18:26 | 8°♊50'12  | 26°21'46   |
| retrograde          | 8595 Jan 29 06:47 | 2°♊02'52  |            | retrograde          | 8596 Jan 12 14:36 | 16°♊05'10 |            |
|                     | 8595 Feb 03 15:34 | 30°♊      |            | evening set         | 8596 Jan 18 22:03 | 13°♊32'15 |            |
| evening set         | 8595 Feb 04 02:03 | 29°♊38'43 |            | min. Earth dist.    | 8596 Jan 23 01:47 | 9°♊13'30  | 0.66584 AU |
| asc. node           | 8595 Feb 06 22:14 | 26°♊43'32 |            | inferior conj       | 8596 Jan 24 18:35 | 7°♊09'31  | -0°00'36   |
| min. Earth dist.    | 8595 Feb 08 12:17 | 24°♊45'20 | 0.67596 AU | minimum elong       | 8596 Jan 24 18:35 | 7°♊09'30  | 0°00'26    |
| inferior conj       | 8595 Feb 09 17:28 | 23°♊10'43 | 0°54'43    | transit middle      | 8596 Jan 24 18:35 | 7°♊09'30  | 0°00'26    |
| minimum elong       | 8595 Feb 09 16:10 | 23°♊14'55 | 0°54'20    | transit begin       | 8596 Jan 24 15:42 | 7°♊18'17  |            |
| morning rise        | 8595 Feb 15 06:38 | 17°♊15'59 |            | transit end         | 8596 Jan 24 21:28 | 7°♊00'43  |            |
| direct              | 8595 Feb 18 18:32 | 16°♊05'44 |            | asc. node           | 8596 Jan 24 19:19 | 7°♊07'18  |            |
| morning max el      | 8595 Feb 25 20:30 | 20°♊00'31 | 19°21'01   | morning rise        | 8596 Jan 30 15:56 | 1°♊24'44  |            |
|                     | 8595 Mar 05 21:52 | 0°♊       |            | direct              | 8596 Feb 02 17:00 | 0°♊32'28  |            |
| greatest brilliancy | 8595 Mar 10 19:00 | 7°♊05'59  | -0.7m      | morning max el      | 8596 Feb 09 07:24 | 4°♊06'16  | 18°33'16   |
| desc. node          | 8595 Mar 13 12:06 | 11°♊10'30 |            |                     | 8596 Feb 27 10:35 | 0°♊       |            |
| morning set         | 8595 Mar 22 04:50 | 24°♊29'34 |            | desc. node          | 8596 Feb 28 09:01 | 1°♊28'35  |            |
|                     | 8595 Mar 25 18:17 | 0°♊       |            | morning set         | 8596 Feb 29 23:30 | 4°♊00'39  |            |
| max. Earth dist.    | 8595 Apr 04 04:07 | 14°♊42'16 | 1.44919 AU |                     |                   |           |            |
|                     |                   |           |            | superior conj       | 8596 Mar 17 01:21 | 29°♊16'10 | -1°47'14   |
| superior conj       | 8595 Apr 07 18:42 | 20°♊25'21 | -2°08'54   | minimum elong       | 8596 Mar 16 16:01 | 28°♊39'38 | 1°46'26    |
| minimum elong       | 8595 Apr 07 14:35 | 20°♊09'00 | 2°08'50    | max. Earth dist.    | 8596 Mar 16 22:22 | 29°♊04'27 | 1.45507 AU |
|                     | 8595 Apr 13 17:41 | 0°♊       |            |                     | 8596 Mar 17 12:33 | 0°♊       |            |
| evening rise        | 8595 Apr 22 00:48 | 13°♊38'17 |            | evening rise        | 8596 Apr 01 17:35 | 23°♊58'01 |            |
|                     | 8595 May 01 23:24 | 0°♊       |            |                     | 8596 Apr 05 12:37 | 0°♊       |            |
| asc. node           | 8595 May 05 21:01 | 5°♊56'01  |            | greatest brilliancy | 8596 Apr 10 11:08 | 7°♊49'02  | -0.8m      |
| evening max el      | 8595 May 11 02:41 | 12°♊26'56 | 18°19'26   | asc. node           | 8596 Apr 21 18:06 | 24°♊02'09 |            |
| retrograde          | 8595 May 17 12:17 | 15°♊52'34 |            | evening max el      | 8596 Apr 23 13:34 | 26°♊01'02 | 18°51'01   |
| evening set         | 8595 May 20 12:43 | 15°♊02'55 |            | retrograde          | 8596 Apr 30 06:37 | 29°♊44'18 |            |
| inferior conj       | 8595 May 26 10:06 | 9°♊37'30  | 3°10'29    | evening set         | 8596 May 03 14:31 | 28°♊40'25 |            |
| minimum elong       | 8595 May 26 11:46 | 9°♊32'43  | 3°10'06    | inferior conj       | 8596 May 09 04:18 | 22°♊58'45 | 3°22'11    |
| min. Earth dist.    | 8595 May 28 19:42 | 6°♊52'42  | 0.64070 AU | minimum elong       | 8596 May 09 04:38 | 22°♊57'42 | 3°22'00    |
| morning rise        | 8595 Jun 01 09:41 | 3°♊22'52  |            | min. Earth dist.    | 8596 May 10 22:40 | 20°♊46'25 | 0.65804 AU |
| direct              | 8595 Jun 08 02:48 | 0°♊41'49  |            | morning rise        | 8596 May 14 18:09 | 16°♊40'21 |            |
| desc. node          | 8595 Jun 09 11:49 | 0°♊47'58  |            | direct              | 8596 May 21 05:00 | 13°♊53'50 |            |
| morning max el      | 8595 Jun 21 21:12 | 8°♊42'31  | 27°34'53   | desc. node          | 8596 May 26 08:49 | 15°♊20'48 |            |
|                     | 8595 Jul 08 09:36 | 0°♊       |            | morning max el      | 8596 Jun 03 07:50 | 21°♊41'08 | 26°42'39   |
|                     | 8595 Jul 25 17:58 | 0°♊       |            |                     | 8596 Jun 10 13:35 | 0°♊       |            |
| morning set         | 8595 Jul 26 22:01 | 2°♊17'33  |            |                     | 8596 Jun 30 14:35 | 0°♊       |            |
| max. Earth dist.    | 8595 Jul 31 18:39 | 12°♊11'10 | 1.32938 AU | morning set         | 8596 Jul 09 04:35 | 15°♊28'03 |            |
| asc. node           | 8595 Aug 01 20:18 | 14°♊25'53 |            | max. Earth dist.    | 8596 Jul 13 08:54 | 23°♊36'00 | 1.34313 AU |
|                     |                   |           |            |                     | 8596 Jul 16 12:48 | 0°♊       |            |
| superior conj       | 8595 Aug 03 22:14 | 18°♊51'34 | 0°20'55    |                     |                   |           |            |
| minimum elong       | 8595 Aug 03 21:13 | 18°♊46'10 | 0°20'34    | superior conj       | 8596 Jul 17 22:00 | 2°♊51'26  | -0°08'04   |
|                     | 8595 Aug 09 02:07 | 0°♊       |            | minimum elong       | 8596 Jul 17 22:27 | 2°♊53'48  | 0°08'10    |
| evening rise        | 8595 Aug 10 23:20 | 4°♊02'08  |            | behind sun begin    | 8596 Jul 17 17:26 | 2°♊27'46  |            |
|                     | 8595 Aug 24 23:25 | 0°♊       |            | behind sun end      | 8596 Jul 18 03:28 | 3°♊19'52  |            |
| evening max el      | 8595 Sep 02 02:41 | 10°♊04'13 | 22°45'53   | asc. node           | 8596 Jul 18 17:16 | 4°♊31'46  |            |
| desc. node          | 8595 Sep 05 10:41 | 12°♊56'28 |            | evening rise        | 8596 Jul 25 09:08 | 18°♊32'41 |            |
| retrograde          | 8595 Sep 15 07:11 | 16°♊39'19 |            |                     | 8596 Jul 31 01:37 | 0°♊       |            |
| evening set         | 8595 Sep 18 22:01 | 16°♊10'37 |            | evening max el      | 8596 Aug 13 21:00 | 20°♊28'52 | 21°12'10   |
| min. Earth dist.    | 8595 Sep 26 10:33 | 12°♊48'12 | 0.55145 AU | desc. node          | 8596 Aug 22 07:48 | 25°♊54'23 |            |
| inferior conj       | 8595 Sep 27 17:46 | 12°♊03'37 | -5°22'48   | retrograde          | 8596 Aug 25 20:11 | 26°♊24'43 |            |
| minimum elong       | 8595 Sep 27 12:13 | 12°♊11'33 | 5°22'06    | evening set         | 8596 Aug 28 05:06 | 26°♊11'37 |            |
| morning rise        | 8595 Oct 06 04:25 | 8°♊15'11  |            | inferior conj       | 8596 Sep 06 10:34 | 22°♊14'38 | -4°15'33   |
| direct              | 8595 Oct 09 07:33 | 7°♊52'36  |            | minimum elong       | 8596 Sep 06 00:57 | 22°♊28'10 | 4°12'59    |
| morning max el      | 8595 Oct 20 14:36 | 13°♊10'05 | 20°57'16   | min. Earth dist.    | 8596 Sep 06 19:17 | 22°♊02'21 | 0.54669 AU |
| asc. node           | 8595 Oct 28 20:02 | 23°♊28'17 |            | morning rise        | 8596 Sep 14 21:23 | 18°♊21'18 |            |
|                     | 8595 Nov 01 17:20 | 0°♊       |            | direct              | 8596 Sep 18 15:46 | 17°♊50'45 |            |
| morning set         | 8595 Nov 09 02:55 | 14°♊29'20 |            | morning max el      | 8596 Oct 01 09:52 | 23°♊55'04 | 22°35'40   |
|                     |                   |           |            |                     | 8596 Oct 06 21:02 | 0°♊       |            |
| superior conj       | 8595 Nov 16 11:53 | 29°♊50'47 | 1°36'57    | asc. node           | 8596 Oct 14 17:00 | 11°♊57'23 |            |
| minimum elong       | 8595 Nov 16 13:21 | 29°♊58'18 | 1°37'02    | morning set         | 8596 Oct 23 13:41 | 29°♊17'56 |            |
|                     | 8595 Nov 16 13:41 | 0°♊       |            |                     | 8596 Oct 23 21:39 | 0°♊       |            |
| max. Earth dist.    | 8595 Nov 21 06:56 | 9°♊29'30  | 1.35657 AU |                     |                   |           |            |
| evening rise        | 8595 Nov 25 07:15 | 17°♊10'40 |            | superior conj       | 8596 Oct 30 14:44 | 14°♊21'43 | 1°41'08    |
| desc. node          | 8595 Dec 02 09:26 | 29°♊49'20 |            | minimum elong       | 8596 Oct 30 14:54 | 14°♊22'33 | 1°41'17    |

|                     |                   |                               |            |                  |                   |                               |            |
|---------------------|-------------------|-------------------------------|------------|------------------|-------------------|-------------------------------|------------|
| max. Earth dist.    | 8596 Nov 02 23:04 | 21° $\mathbb{M}$ 23'39        | 1.33986 AU | superior conj    | 8597 Oct 14 22:43 | 29° $\mathbb{L}$ 05'35        | 1°38'51    |
|                     | 8596 Nov 07 05:24 | 0° $\mathbb{A}$               |            | minimum elong    | 8597 Oct 14 21:44 | 29° $\mathbb{L}$ 00'16        | 1°38'55    |
| evening rise        | 8596 Nov 07 13:49 | 0° $\mathbb{A}$ 41'17         |            |                  | 8597 Oct 15 08:42 | 0° $\mathbb{M}$               |            |
| desc. node          | 8596 Nov 18 06:29 | 20° $\mathbb{A}$ 03'39        |            | max. Earth dist. | 8597 Oct 16 23:36 | 3° $\mathbb{M}$ 30'43         | 1.32743 AU |
|                     | 8596 Nov 24 12:30 | 0° $\mathbb{B}$               |            | evening rise     | 8597 Oct 22 07:28 | 14° $\mathbb{M}$ 41'24        |            |
| evening max el      | 8596 Dec 12 07:31 | 22° $\mathbb{B}$ 25'43        | 27°08'09   |                  | 8597 Oct 30 07:34 | 0° $\mathbb{A}$               |            |
| retrograde          | 8596 Dec 25 16:38 | 29° $\mathbb{B}$ 46'43        |            | desc. node       | 8597 Nov 05 03:34 | 9° $\mathbb{A}$ 56'27         |            |
| evening set         | 8597 Jan 01 10:29 | 27° $\mathbb{B}$ 10'46        |            |                  | 8597 Nov 19 11:17 | 0° $\mathbb{B}$               |            |
| min. Earth dist.    | 8597 Jan 05 08:37 | 23° $\mathbb{B}$ 25'49        | 0.65214 AU | evening max el   | 8597 Nov 24 19:25 | 5° $\mathbb{B}$ 40'16         | 27°29'01   |
| inferior conj       | 8597 Jan 07 13:02 | 20° $\mathbb{B}$ 59'16        | -1°03'09   | retrograde       | 8597 Dec 08 12:07 | 12° $\mathbb{B}$ 59'00        |            |
| minimum elong       | 8597 Jan 07 14:54 | 20° $\mathbb{B}$ 54'02        | 1°02'10    | evening set      | 8597 Dec 15 12:48 | 10° $\mathbb{B}$ 27'50        |            |
| asc. node           | 8597 Jan 10 16:24 | 17° $\mathbb{B}$ 42'19        |            | min. Earth dist. | 8597 Dec 19 06:38 | 7° $\mathbb{B}$ 14'10         | 0.63520 AU |
| morning rise        | 8597 Jan 13 20:40 | 15° $\mathbb{B}$ 26'45        |            | inferior conj    | 8597 Dec 21 22:12 | 4° $\mathbb{B}$ 33'53         | -2°11'24   |
| direct              | 8597 Jan 16 12:44 | 14° $\mathbb{B}$ 48'43        |            | minimum elong    | 8597 Dec 22 02:21 | 4° $\mathbb{B}$ 23'23         | 2°09'33    |
| morning max el      | 8597 Jan 22 22:59 | 18° $\mathbb{B}$ 12'38        | 18°02'10   |                  | 8597 Dec 27 06:21 | 30° $\mathbb{R}$ $\mathbb{A}$ |            |
|                     | 8597 Jan 31 18:04 | 0° $\mathbb{A}$               |            | morning rise     | 8597 Dec 28 17:47 | 29° $\mathbb{A}$ 16'41        |            |
| morning set         | 8597 Feb 09 23:35 | 14° $\mathbb{A}$ 59'47        |            | asc. node        | 8597 Dec 28 13:28 | 29° $\mathbb{A}$ 20'56        |            |
| desc. node          | 8597 Feb 14 05:55 | 21° $\mathbb{A}$ 59'12        |            | direct           | 8597 Dec 31 03:09 | 28° $\mathbb{A}$ 48'56        |            |
|                     | 8597 Feb 19 04:40 | 0° $\mathbb{H}$               |            |                  | 8598 Jan 03 22:40 | 0° $\mathbb{B}$               |            |
|                     |                   |                               |            | morning max el   | 8598 Jan 06 16:25 | 2° $\mathbb{B}$ 12'26         | 17°48'22   |
| superior conj       | 8597 Feb 24 09:53 | 8° $\mathbb{H}$ 19'14         | -1°09'15   | morning set      | 8598 Jan 23 02:28 | 27° $\mathbb{B}$ 17'24        |            |
| minimum elong       | 8597 Feb 24 02:00 | 7° $\mathbb{H}$ 48'04         | 1°08'11    |                  | 8598 Jan 24 16:12 | 0° $\mathbb{A}$               |            |
| max. Earth dist.    | 8597 Feb 27 17:46 | 13° $\mathbb{H}$ 34'07        | 1.45356 AU | desc. node       | 8598 Feb 01 02:51 | 12° $\mathbb{A}$ 38'31        |            |
|                     | 8597 Mar 10 07:06 | 0° $\mathbb{Y}$               |            |                  |                   |                               |            |
| evening rise        | 8597 Mar 12 13:53 | 3° $\mathbb{Y}$ 31'40         |            | superior conj    | 8598 Feb 04 13:19 | 18° $\mathbb{A}$ 19'41        | -0°24'57   |
| greatest brilliancy | 8597 Mar 26 02:58 | 24° $\mathbb{Y}$ 11'25        | -0.7m      | minimum elong    | 8598 Feb 04 10:38 | 18° $\mathbb{A}$ 08'39        | 0°24'24    |
|                     | 8597 Mar 30 03:05 | 0° $\mathbb{B}$               |            | max. Earth dist. | 8598 Feb 10 12:15 | 27° $\mathbb{A}$ 57'12        | 1.44491 AU |
| evening max el      | 8597 Apr 06 20:09 | 9° $\mathbb{B}$ 39'00         | 19°39'18   |                  | 8598 Feb 11 19:10 | 0° $\mathbb{H}$               |            |
| asc. node           | 8597 Apr 08 15:13 | 11° $\mathbb{B}$ 19'10        |            | evening rise     | 8598 Feb 20 01:11 | 12° $\mathbb{B}$ 51'53        |            |
| retrograde          | 8597 Apr 14 04:15 | 13° $\mathbb{B}$ 50'53        |            |                  | 8598 Mar 03 09:48 | 0° $\mathbb{Y}$               |            |
| evening set         | 8597 Apr 17 20:24 | 12° $\mathbb{B}$ 32'06        |            | evening max el   | 8598 Mar 20 21:24 | 23° $\mathbb{Y}$ 18'59        | 20°41'53   |
| inferior conj       | 8597 Apr 23 05:41 | 6° $\mathbb{B}$ 35'51         | 3°19'18    | asc. node        | 8598 Mar 26 12:20 | 27° $\mathbb{Y}$ 33'28        |            |
| minimum elong       | 8597 Apr 23 04:51 | 6° $\mathbb{B}$ 38'38         | 3°19'07    | retrograde       | 8598 Mar 29 02:48 | 28° $\mathbb{Y}$ 07'47        |            |
| min. Earth dist.    | 8597 Apr 24 09:10 | 5° $\mathbb{B}$ 04'38         | 0.67119 AU | evening set      | 8598 Apr 02 04:15 | 26° $\mathbb{Y}$ 33'42        |            |
| morning rise        | 8597 Apr 28 12:59 | 0° $\mathbb{B}$ 17'44         |            | inferior conj    | 8598 Apr 07 11:39 | 20° $\mathbb{Y}$ 24'43        | 3°04'33    |
|                     | 8597 Apr 28 21:02 | 30° $\mathbb{R}$ $\mathbb{Y}$ |            | minimum elong    | 8598 Apr 07 09:57 | 20° $\mathbb{Y}$ 30'33        | 3°04'12    |
| direct              | 8597 May 04 13:25 | 27° $\mathbb{Y}$ 37'01        |            | min. Earth dist. | 8598 Apr 08 01:15 | 19° $\mathbb{Y}$ 37'55        | 0.67989 AU |
|                     | 8597 May 11 00:25 | 0° $\mathbb{B}$               |            | morning rise     | 8598 Apr 12 15:25 | 14° $\mathbb{Y}$ 09'12        |            |
| desc. node          | 8597 May 13 05:48 | 1° $\mathbb{B}$ 40'43         |            | direct           | 8598 Apr 18 02:59 | 11° $\mathbb{Y}$ 43'07        |            |
| morning max el      | 8597 May 16 17:36 | 4° $\mathbb{B}$ 54'53         | 25°27'57   | morning max el   | 8598 Apr 29 02:39 | 18° $\mathbb{Y}$ 17'03        | 24°00'52   |
|                     | 8597 Jun 04 23:56 | 0° $\mathbb{I}$               |            | desc. node       | 8598 Apr 30 02:45 | 19° $\mathbb{Y}$ 19'27        |            |
| morning set         | 8597 Jun 21 20:06 | 27° $\mathbb{I}$ 53'13        |            |                  | 8598 May 08 22:36 | 0° $\mathbb{B}$               |            |
|                     | 8597 Jun 22 23:56 | 0° $\mathbb{B}$               |            |                  | 8598 May 29 02:01 | 0° $\mathbb{I}$               |            |
| max. Earth dist.    | 8597 Jun 25 12:15 | 4° $\mathbb{B}$ 40'13         | 1.36144 AU | morning set      | 8598 Jun 03 15:27 | 9° $\mathbb{I}$ 19'29         |            |
|                     |                   |                               |            | max. Earth dist. | 8598 Jun 07 09:09 | 15° $\mathbb{I}$ 51'59        | 1.38304 AU |
| superior conj       | 8597 Jul 01 12:56 | 16° $\mathbb{B}$ 22'10        | -0°39'31   |                  |                   |                               |            |
| minimum elong       | 8597 Jul 01 15:20 | 16° $\mathbb{B}$ 34'04        | 0°39'15    | superior conj    | 8598 Jun 14 15:36 | 29° $\mathbb{I}$ 15'10        | -1°11'29   |
| asc. node           | 8597 Jul 05 14:16 | 24° $\mathbb{B}$ 33'49        |            | minimum elong    | 8598 Jun 14 20:04 | 29° $\mathbb{I}$ 36'25        | 1°10'58    |
|                     | 8597 Jul 08 06:04 | 0° $\mathbb{Q}$               |            |                  | 8598 Jun 15 01:01 | 0° $\mathbb{B}$               |            |
| evening rise        | 8597 Jul 09 15:02 | 2° $\mathbb{Q}$ 48'10         |            | asc. node        | 8598 Jun 22 11:18 | 14° $\mathbb{B}$ 28'11        |            |
|                     | 8597 Jul 25 17:09 | 0° $\mathbb{M}$               |            | evening rise     | 8598 Jun 23 14:27 | 16° $\mathbb{B}$ 41'46        |            |
| evening max el      | 8597 Jul 27 04:11 | 1° $\mathbb{M}$ 32'32         | 19°54'55   |                  | 8598 Jun 30 14:58 | 0° $\mathbb{Q}$               |            |
| retrograde          | 8597 Aug 06 10:48 | 6° $\mathbb{M}$ 36'52         |            | evening max el   | 8598 Jul 10 00:07 | 13° $\mathbb{Q}$ 21'21        | 18°58'10   |
| evening set         | 8597 Aug 08 07:49 | 6° $\mathbb{M}$ 27'29         |            | retrograde       | 8598 Jul 18 15:39 | 17° $\mathbb{Q}$ 38'23        |            |
| desc. node          | 8597 Aug 09 04:55 | 6° $\mathbb{M}$ 16'54         |            | evening set      | 8598 Jul 20 14:15 | 17° $\mathbb{Q}$ 26'18        |            |
| inferior conj       | 8597 Aug 17 07:20 | 2° $\mathbb{M}$ 27'11         | -2°27'43   | desc. node       | 8598 Jul 27 02:02 | 14° $\mathbb{Q}$ 23'19        |            |
| minimum elong       | 8597 Aug 17 00:36 | 2° $\mathbb{M}$ 37'24         | 2°25'20    | inferior conj    | 8598 Jul 28 20:39 | 13° $\mathbb{Q}$ 10'19        | -0°32'34   |
| min. Earth dist.    | 8597 Aug 19 06:14 | 1° $\mathbb{M}$ 16'02         | 0.55157 AU | minimum elong    | 8598 Jul 28 19:17 | 13° $\mathbb{Q}$ 12'43        | 0°32'12    |
|                     | 8597 Aug 21 11:16 | 30° $\mathbb{R}$ $\mathbb{Q}$ |            | min. Earth dist. | 8598 Jul 31 20:42 | 11° $\mathbb{Q}$ 04'55        | 0.56516 AU |
| morning rise        | 8597 Aug 25 15:40 | 28° $\mathbb{Q}$ 09'08        |            | morning rise     | 8598 Aug 05 21:06 | 8° $\mathbb{Q}$ 16'04         |            |
| direct              | 8597 Aug 30 04:38 | 27° $\mathbb{Q}$ 23'56        |            | direct           | 8598 Aug 11 06:08 | 7° $\mathbb{Q}$ 07'43         |            |
|                     | 8597 Sep 07 13:42 | 0° $\mathbb{M}$               |            | morning max el   | 8598 Aug 25 11:53 | 14° $\mathbb{Q}$ 27'43        | 25°59'48   |
| morning max el      | 8597 Sep 12 22:30 | 4° $\mathbb{M}$ 11'02         | 24°21'52   |                  | 8598 Sep 06 21:06 | 0° $\mathbb{M}$               |            |
|                     | 8597 Oct 01 01:14 | 0° $\mathbb{L}$               |            | asc. node        | 8598 Sep 18 10:55 | 20° $\mathbb{M}$ 27'29        |            |
| asc. node           | 8597 Oct 01 13:58 | 1° $\mathbb{L}$ 00'02         |            | morning set      | 8598 Sep 22 12:31 | 28° $\mathbb{M}$ 52'05        |            |
| morning set         | 8597 Oct 08 01:27 | 14° $\mathbb{L}$ 07'10        |            |                  | 8598 Sep 23 01:14 | 0° $\mathbb{L}$               |            |

|                  |                   |           |            |                  |                   |           |            |
|------------------|-------------------|-----------|------------|------------------|-------------------|-----------|------------|
| superior conj    | 8598 Sep 29 09:33 | 13°♄55'13 | 1°30'45    | minimum elong    | 8599 Sep 13 19:10 | 28°♄32'41 | 1°17'01    |
| minimum elong    | 8598 Sep 29 07:46 | 13°♄45'18 | 1°30'38    | max. Earth dist. | 8599 Sep 13 16:40 | 28°♄18'48 | 1.31631 AU |
| max. Earth dist. | 8598 Sep 30 06:37 | 15°♄51'34 | 1.31958 AU |                  | 8599 Sep 14 10:53 | 0°♄       |            |
| evening rise     | 8598 Oct 06 09:05 | 29°♄02'05 |            | evening rise     | 8599 Sep 20 16:08 | 13°♄36'21 |            |
|                  | 8598 Oct 06 20:12 | 0°♄       |            |                  | 8599 Sep 28 21:28 | 0°♄       |            |
| desc. node       | 8598 Oct 23 00:41 | 29°♄18'14 |            | desc. node       | 8599 Oct 09 21:48 | 17°♄56'43 |            |
|                  | 8598 Oct 23 11:37 | 0°♄       |            | evening max el   | 8599 Oct 20 05:07 | 0°♄10'57  | 26°33'53   |
| evening max el   | 8598 Nov 07 03:35 | 18°♄19'17 | 27°18'29   |                  | 8599 Oct 20 00:30 | 0°♄       |            |
| retrograde       | 8598 Nov 20 23:53 | 25°♄31'59 |            | retrograde       | 8599 Nov 03 03:02 | 7°♄17'53  |            |
| evening set      | 8598 Nov 28 01:33 | 23°♄15'00 |            | evening set      | 8599 Nov 09 20:26 | 5°♄25'35  |            |
| min. Earth dist. | 8598 Dec 01 18:07 | 20°♄26'34 | 0.61570 AU | min. Earth dist. | 8599 Nov 13 18:44 | 2°♄50'26  | 0.59484 AU |
| inferior conj    | 8598 Dec 04 18:52 | 17°♄44'12 | -3°22'10   | inferior conj    | 8599 Nov 16 23:32 | 0°♄20'56  | -4°28'52   |
| minimum elong    | 8598 Dec 05 01:15 | 17°♄29'56 | 3°19'47    | minimum elong    | 8599 Nov 17 06:56 | 0°♄06'28  | 4°26'48    |
| morning rise     | 8598 Dec 12 03:12 | 12°♄45'47 |            |                  | 8599 Nov 17 10:15 | 30°♄      |            |
| direct           | 8598 Dec 14 08:40 | 12°♄24'44 |            | morning rise     | 8599 Nov 24 19:50 | 25°♄44'29 |            |
| asc. node        | 8598 Dec 15 10:31 | 12°♄29'48 |            | direct           | 8599 Nov 27 01:01 | 25°♄26'54 |            |
| morning max el   | 8598 Dec 21 08:26 | 15°♄56'32 | 17°52'41   | asc. node        | 8599 Dec 02 07:31 | 27°♄12'25 |            |
|                  | 8598 Dec 31 03:56 | 0°♄       |            | morning max el   | 8599 Dec 04 19:35 | 29°♄15'59 | 18°16'25   |
| morning set      | 8599 Jan 06 01:27 | 10°♄31'39 |            | morning set      | 8599 Dec 05 12:57 | 0°♄       |            |
|                  |                   |           |            |                  | 8599 Dec 20 14:37 | 24°♄24'58 |            |
| superior conj    | 8599 Jan 16 18:13 | 29°♄33'13 | 0°16'32    |                  | 8599 Dec 23 13:15 | 0°♄       |            |
| minimum elong    | 8599 Jan 16 19:41 | 29°♄39'32 | 0°16'30    |                  |                   |           |            |
|                  | 8599 Jan 17 00:27 | 0°♄       |            | superior conj    | 8599 Dec 29 22:42 | 11°♄53'51 | 0°50'21    |
| desc. node       | 8599 Jan 18 23:49 | 3°♄22'16  |            | minimum elong    | 8599 Dec 30 01:56 | 12°♄08'30 | 0°50'06    |
| max. Earth dist. | 8599 Jan 24 03:23 | 11°♄56'50 | 1.43001 AU | desc. node       | 8600 Jan 05 20:48 | 24°♄06'58 |            |
| evening rise     | 8599 Jan 30 18:43 | 22°♄34'51 |            | max. Earth dist. | 8600 Jan 06 13:15 | 25°♄17'09 | 1.41058 AU |
|                  | 8599 Feb 04 13:46 | 0°♄       |            |                  | 8600 Jan 09 08:34 | 0°♄       |            |
|                  | 8599 Feb 25 15:36 | 0°♄       |            | evening rise     | 8600 Jan 11 05:57 | 3°♄06'53  |            |
| evening max el   | 8599 Mar 03 17:15 | 6°♄59'52  | 21°55'19   |                  | 8600 Jan 28 21:29 | 0°♄       |            |
| retrograde       | 8599 Mar 13 00:24 | 12°♄30'13 |            | evening max el   | 8600 Feb 14 08:53 | 20°♄42'38 | 23°14'46   |
| asc. node        | 8599 Mar 13 09:28 | 12°♄29'30 |            | retrograde       | 8600 Feb 24 19:35 | 26°♄53'39 |            |
| evening set      | 8599 Mar 17 12:21 | 10°♄40'47 |            | asc. node        | 8600 Feb 28 06:34 | 25°♄54'48 |            |
| inferior conj    | 8599 Mar 22 19:56 | 4°♄21'31  | 2°39'38    | evening set      | 8600 Mar 01 19:05 | 24°♄49'30 |            |
| minimum elong    | 8599 Mar 22 17:45 | 4°♄29'05  | 2°39'06    | min. Earth dist. | 8600 Mar 06 17:29 | 19°♄01'36 | 0.68404 AU |
| min. Earth dist. | 8599 Mar 22 20:44 | 4°♄18'43  | 0.68410 AU | inferior conj    | 8600 Mar 07 04:36 | 18°♄23'16 | 2°05'35    |
|                  | 8599 Mar 26 03:44 | 30°♄      |            | minimum elong    | 8600 Mar 07 02:23 | 18°♄30'54 | 2°04'57    |
| morning rise     | 8599 Mar 27 23:01 | 28°♄10'01 |            | morning rise     | 8600 Mar 12 09:38 | 12°♄16'58 |            |
| direct           | 8599 Apr 01 20:36 | 26°♄04'04 |            | direct           | 8600 Mar 16 17:21 | 10°♄33'17 |            |
|                  | 8599 Apr 09 16:15 | 0°♄       |            | morning max el   | 8600 Mar 25 05:09 | 15°♄26'48 | 21°07'41   |
| morning max el   | 8599 Apr 11 13:23 | 1°♄46'51  | 22°31'21   | desc. node       | 8600 Apr 03 20:36 | 27°♄11'38 |            |
| desc. node       | 8599 Apr 16 23:41 | 7°♄54'58  |            |                  | 8600 Apr 05 21:19 | 0°♄       |            |
|                  | 8599 May 02 21:19 | 0°♄       |            | morning set      | 8600 Apr 25 00:10 | 28°♄34'27 |            |
| morning set      | 8599 May 15 09:20 | 19°♄33'46 |            |                  | 8600 Apr 25 21:55 | 0°♄       |            |
| max. Earth dist. | 8599 May 20 06:43 | 27°♄42'29 | 1.40554 AU | max. Earth dist. | 8600 May 02 09:44 | 10°♄24'59 | 1.42620 AU |
|                  | 8599 May 21 14:58 | 0°♄       |            |                  |                   |           |            |
| superior conj    | 8599 May 28 01:40 | 11°♄20'01 | -1°40'54   | superior conj    | 8600 May 09 14:25 | 22°♄25'39 | -2°03'09   |
| minimum elong    | 8599 May 28 07:32 | 11°♄46'25 | 1°40'26    | minimum elong    | 8600 May 09 19:21 | 22°♄46'44 | 2°03'01    |
| evening rise     | 8599 Jun 07 04:05 | 0°♄04'54  |            |                  | 8600 May 13 23:29 | 0°♄       |            |
|                  | 8599 Jun 07 03:02 | 0°♄       |            | evening rise     | 8600 May 21 03:45 | 12°♄46'45 |            |
| asc. node        | 8599 Jun 09 08:21 | 4°♄10'26  |            | asc. node        | 8600 May 27 05:23 | 23°♄34'48 |            |
| evening max el   | 8599 Jun 23 05:37 | 25°♄49'20 | 18°22'14   |                  | 8600 May 31 01:41 | 0°♄       |            |
| retrograde       | 8599 Jun 30 15:52 | 29°♄32'31 |            | evening max el   | 8600 Jun 06 16:47 | 8°♄46'16  | 18°06'15   |
| evening set      | 8599 Jul 02 21:02 | 29°♄13'30 |            | retrograde       | 8600 Jun 13 09:14 | 12°♄11'02 |            |
| inferior conj    | 8599 Jul 10 07:40 | 24°♄37'21 | 1°03'49    | evening set      | 8600 Jun 15 21:58 | 11°♄41'50 |            |
| minimum elong    | 8599 Jul 10 09:45 | 24°♄33'03 | 1°02'53    | inferior conj    | 8600 Jun 22 15:04 | 6°♄45'39  | 2°12'41    |
| min. Earth dist. | 8599 Jul 13 16:50 | 21°♄51'52 | 0.58474 AU | minimum elong    | 8600 Jun 22 18:05 | 6°♄38'27  | 2°11'40    |
| desc. node       | 8599 Jul 13 23:06 | 21°♄39'44 |            | min. Earth dist. | 8600 Jun 25 20:36 | 3°♄42'15  | 0.60708 AU |
| morning rise     | 8599 Jul 17 19:07 | 19°♄07'55 |            | morning rise     | 8600 Jun 29 11:35 | 0°♄50'40  |            |
| direct           | 8599 Jul 23 21:45 | 17°♄29'28 |            | desc. node       | 8600 Jun 30 20:09 | 0°♄03'00  |            |
| morning max el   | 8599 Aug 07 07:09 | 25°♄13'03 | 27°13'10   |                  | 8600 Jun 30 22:29 | 30°♄      |            |
|                  | 8599 Aug 11 17:24 | 0°♄       |            | direct           | 8600 Jul 06 01:50 | 28°♄41'24 |            |
|                  | 8599 Aug 31 04:02 | 0°♄       |            |                  | 8600 Jul 11 11:48 | 0°♄       |            |
| asc. node        | 8599 Sep 05 07:52 | 10°♄12'51 |            | morning max el   | 8600 Jul 20 09:10 | 6°♄39'45  | 27°51'17   |
| morning set      | 8599 Sep 06 21:17 | 13°♄28'09 |            |                  | 8600 Aug 06 23:47 | 0°♄       |            |
|                  |                   |           |            | morning set      | 8600 Aug 22 01:51 | 27°♄48'58 |            |
| superior conj    | 8599 Sep 13 21:23 | 28°♄44'58 | 1°17'20    | asc. node        | 8600 Aug 23 04:48 | 0°♄09'39  |            |
|                  |                   |           |            |                  | 8600 Aug 23 02:58 | 0°♄       |            |

|                  |                   |                            |            |                  |                   |                        |            |
|------------------|-------------------|----------------------------|------------|------------------|-------------------|------------------------|------------|
| max. Earth dist. | 8600 Aug 28 01:52 | 10° $\mathbb{M}$ 40'18     | 1.31763 AU | superior conj    | 8601 Aug 13 16:39 | 27° $\Omega$ 59'31     | 0°36'02    |
|                  |                   |                            |            | minimum elong    | 8601 Aug 13 15:04 | 27° $\Omega$ 50'53     | 0°35'35    |
| superior conj    | 8600 Aug 29 08:21 | 13° $\mathbb{M}$ 28'10     | 0°58'58    |                  | 8601 Aug 14 14:47 | 0° $\mathbb{M}$        |            |
| minimum elong    | 8600 Aug 29 06:11 | 13° $\mathbb{M}$ 16'15     | 0°58'30    | evening rise     | 8601 Aug 20 13:59 | 12° $\mathbb{M}$ 58'06 |            |
| evening rise     | 8600 Sep 05 02:24 | 28° $\mathbb{M}$ 16'52     |            |                  | 8601 Aug 29 02:39 | 0° $\Omega$            |            |
|                  | 8600 Sep 05 21:44 | 0° $\Omega$                |            | evening max el   | 8601 Sep 13 10:21 | 21° $\Omega$ 33'39     | 23°43'17   |
|                  | 8600 Sep 22 14:10 | 0° $\mathbb{M}$            |            | desc. node       | 8601 Sep 13 16:01 | 21° $\Omega$ 47'15     |            |
| desc. node       | 8600 Sep 26 18:54 | 5° $\mathbb{M}$ 34'12      |            | retrograde       | 8601 Sep 27 00:48 | 28° $\Omega$ 21'50     |            |
| evening max el   | 8600 Oct 01 22:33 | 11° $\mathbb{M}$ 11'29     | 25°18'31   | evening set      | 8601 Oct 01 12:30 | 27° $\Omega$ 37'48     |            |
| retrograde       | 8600 Oct 15 20:08 | 18° $\mathbb{M}$ 12'25     |            | min. Earth dist. | 8601 Oct 07 20:39 | 24° $\Omega$ 35'29     | 0.55810 AU |
| evening set      | 8600 Oct 21 16:41 | 16° $\mathbb{M}$ 53'45     |            | inferior conj    | 8601 Oct 09 22:17 | 23° $\Omega$ 21'06     | -5°36'07   |
| min. Earth dist. | 8600 Oct 26 10:26 | 14° $\mathbb{M}$ 14'16     | 0.57463 AU | minimum elong    | 8601 Oct 09 21:11 | 23° $\Omega$ 22'46     | 5°36'02    |
| inferior conj    | 8600 Oct 29 09:00 | 12° $\mathbb{M}$ 14'47     | -5°19'33   | morning rise     | 8601 Oct 18 07:55 | 19° $\Omega$ 26'09     |            |
| minimum elong    | 8600 Oct 29 14:18 | 12° $\mathbb{M}$ 05'47     | 5°18'43    | direct           | 8601 Oct 21 03:28 | 19° $\Omega$ 06'20     |            |
| morning rise     | 8600 Nov 06 14:14 | 8° $\mathbb{M}$ 01'08      |            | morning max el   | 8601 Oct 31 12:54 | 23° $\Omega$ 59'37     | 20°08'37   |
| direct           | 8600 Nov 08 23:51 | 7° $\mathbb{M}$ 44'00      |            |                  | 8601 Nov 05 16:44 | 0° $\mathbb{M}$        |            |
| morning max el   | 8600 Nov 17 22:12 | 12° $\mathbb{M}$ 00'20     | 19°01'19   | asc. node        | 8601 Nov 06 01:28 | 0° $\mathbb{M}$ 30'25  |            |
| asc. node        | 8600 Nov 19 04:29 | 13° $\mathbb{M}$ 17'43     |            | morning set      | 8601 Nov 18 18:59 | 23° $\mathbb{M}$ 20'55 |            |
|                  | 8600 Nov 30 01:09 | 0° $\mathbb{X}$            |            |                  | 8601 Nov 22 00:47 | 0° $\mathbb{X}$        |            |
| morning set      | 8600 Dec 04 13:33 | 8° $\mathbb{X}$ 44'30      |            | superior conj    | 8601 Nov 26 10:45 | 8° $\mathbb{X}$ 59'38  | 1°31'17    |
| superior conj    | 8600 Dec 12 21:50 | 25° $\mathbb{X}$ 07'21     | 1°15'10    | minimum elong    | 8601 Nov 26 12:57 | 9° $\mathbb{X}$ 10'41  | 1°31'17    |
| minimum elong    | 8600 Dec 13 01:01 | 25° $\mathbb{X}$ 22'35     | 1°14'59    | max. Earth dist. | 8601 Dec 02 01:30 | 19° $\mathbb{X}$ 58'41 | 1.36776 AU |
|                  | 8600 Dec 15 11:37 | 0° $\mathbb{Z}$            |            | evening rise     | 8601 Dec 05 20:48 | 27° $\mathbb{X}$ 02'15 |            |
| max. Earth dist. | 8600 Dec 19 19:05 | 7° $\mathbb{Z}$ 53'49      | 1.38897 AU |                  | 8601 Dec 07 12:24 | 0° $\mathbb{Z}$        |            |
| evening rise     | 8600 Dec 23 15:06 | 14° $\mathbb{Z}$ 37'28     |            | desc. node       | 8601 Dec 10 14:48 | 5° $\mathbb{Z}$ 24'17  |            |
| desc. node       | 8600 Dec 23 17:48 | 14° $\mathbb{Z}$ 49'03     |            |                  | 8601 Dec 26 10:48 | 0° $\approx$           |            |
|                  | 8601 Jan 02 00:22 | 0° $\approx$               |            | evening max el   | 8602 Jan 10 11:36 | 18° $\approx$ 17'00    | 25°46'29   |
|                  | 8601 Jan 23 18:08 | 0° $\mathbb{X}$            |            |                  |                   |                        |            |
| evening max el   | 8601 Jan 27 22:24 | 4° $\mathbb{X}$ 29'05      | 24°34'11   |                  |                   |                        |            |
| retrograde       | 8601 Feb 08 11:09 | 11° $\mathbb{X}$ 13'33     |            |                  |                   |                        |            |
| evening set      | 8601 Feb 13 22:58 | 8° $\mathbb{X}$ 56'10      |            |                  |                   |                        |            |
| asc. node        | 8601 Feb 15 03:38 | 7° $\mathbb{X}$ 48'53      |            |                  |                   |                        |            |
| min. Earth dist. | 8601 Feb 18 13:16 | 3° $\mathbb{X}$ 42'39      | 0.67993 AU |                  |                   |                        |            |
| inferior conj    | 8601 Feb 19 11:51 | 2° $\mathbb{X}$ 27'16      | 1°22'59    |                  |                   |                        |            |
| minimum elong    | 8601 Feb 19 10:05 | 2° $\mathbb{X}$ 33'12      | 1°22'27    |                  |                   |                        |            |
|                  | 8601 Feb 21 09:10 | 30° $\mathbb{R}$ $\approx$ |            |                  |                   |                        |            |
| morning rise     | 8601 Feb 24 21:21 | 26° $\approx$ 27'36        |            |                  |                   |                        |            |
| direct           | 8601 Feb 28 16:04 | 25° $\approx$ 05'43        |            |                  |                   |                        |            |
| morning max el   | 8601 Mar 08 04:24 | 29° $\approx$ 18'50        | 19°55'45   |                  |                   |                        |            |
|                  | 8601 Mar 08 20:36 | 0° $\mathbb{X}$            |            |                  |                   |                        |            |
| desc. node       | 8601 Mar 21 17:31 | 16° $\mathbb{X}$ 58'29     |            |                  |                   |                        |            |
|                  | 8601 Mar 30 10:08 | 0° $\mathbb{Y}$            |            |                  |                   |                        |            |
| morning set      | 8601 Apr 03 22:29 | 6° $\mathbb{Y}$ 54'57      |            |                  |                   |                        |            |
| max. Earth dist. | 8601 Apr 14 19:50 | 23° $\mathbb{Y}$ 57'27     | 1.44249 AU |                  |                   |                        |            |
|                  | 8601 Apr 18 14:16 | 0° $\mathbb{Z}$            |            |                  |                   |                        |            |
| superior conj    | 8601 Apr 20 02:41 | 2° $\mathbb{Z}$ 27'34      | -2°12'07   |                  |                   |                        |            |
| minimum elong    | 8601 Apr 20 02:45 | 2° $\mathbb{Z}$ 27'51      | 2°12'13    |                  |                   |                        |            |
| evening rise     | 8601 May 03 08:51 | 24° $\mathbb{Z}$ 37'35     |            |                  |                   |                        |            |
|                  | 8601 May 06 12:14 | 0° $\mathbb{I}$            |            |                  |                   |                        |            |
| asc. node        | 8601 May 14 02:27 | 12° $\mathbb{I}$ 35'32     |            |                  |                   |                        |            |
| evening max el   | 8601 May 21 06:13 | 22° $\mathbb{I}$ 03'58     | 18°09'20   |                  |                   |                        |            |
| retrograde       | 8601 May 27 15:29 | 25° $\mathbb{I}$ 25'03     |            |                  |                   |                        |            |
| evening set      | 8601 May 30 11:42 | 24° $\mathbb{I}$ 43'18     |            |                  |                   |                        |            |
| inferior conj    | 8601 Jun 05 15:09 | 19° $\mathbb{I}$ 28'23     | 2°55'37    |                  |                   |                        |            |
| minimum elong    | 8601 Jun 05 17:31 | 19° $\mathbb{I}$ 22'00     | 2°55'00    |                  |                   |                        |            |
| min. Earth dist. | 8601 Jun 08 09:14 | 16° $\mathbb{I}$ 30'54     | 0.62914 AU |                  |                   |                        |            |
| morning rise     | 8601 Jun 11 21:43 | 13° $\mathbb{I}$ 18'36     |            |                  |                   |                        |            |
| desc. node       | 8601 Jun 17 17:11 | 10° $\mathbb{I}$ 48'36     |            |                  |                   |                        |            |
| direct           | 8601 Jun 18 16:02 | 10° $\mathbb{I}$ 45'42     |            |                  |                   |                        |            |
| morning max el   | 8601 Jul 02 16:25 | 18° $\mathbb{I}$ 48'43     | 27°51'04   |                  |                   |                        |            |
|                  | 8601 Jul 12 03:03 | 0° $\mathbb{Z}$            |            |                  |                   |                        |            |
|                  | 8601 Jul 30 21:29 | 0° $\Omega$                |            |                  |                   |                        |            |
| morning set      | 8601 Aug 06 00:05 | 11° $\Omega$ 48'32         |            |                  |                   |                        |            |
| asc. node        | 8601 Aug 10 01:46 | 20° $\Omega$ 13'17         |            |                  |                   |                        |            |
| max. Earth dist. | 8601 Aug 11 06:21 | 22° $\Omega$ 45'11         | 1.32371 AU |                  |                   |                        |            |