

|                  |                    |                        |             |                  |                    |                        |             |
|------------------|--------------------|------------------------|-------------|------------------|--------------------|------------------------|-------------|
| conjunction      | 100 Mar 08 j 07:51 | 16° <del>✕</del> 43'33 | -16°43'19   | minimum elong    | 108 Mar 16 j 17:07 | 24° <del>✕</del> 59'57 | 16°53'09    |
| minimum elong    | 100 Mar 08 j 07:51 | 16° <del>✕</del> 43'33 | 16°43'19    | max. Earth dist. | 108 Mar 18 j 18:16 | 25° <del>✕</del> 02'52 | 48.88280 AU |
| max. Earth dist. | 100 Mar 10 j 16:17 | 16° <del>✕</del> 46'58 | 47.96033 AU | retrograde       | 108 Jun 27 j 23:02 | 26° <del>✕</del> 33'08 |             |
| retrograde       | 100 Jun 19 j 13:07 | 18° <del>✕</del> 18'49 |             | min. Earth dist. | 108 Sep 17 j 21:48 | 25° <del>✕</del> 33'54 | 47.02358 AU |
| min. Earth dist. | 100 Sep 09 j 07:38 | 17° <del>✕</del> 19'09 | 46.11531 AU | opposition       | 108 Sep 19 j 19:08 | 25° <del>✕</del> 31'43 | -17°35'33   |
| opposition       | 100 Sep 11 j 13:06 | 17° <del>✕</del> 16'33 | -17°27'28   | direct           | 108 Dec 09 j 20:06 | 24° <del>✕</del> 31'41 |             |
| direct           | 100 Dec 01 j 13:56 | 16° <del>✕</del> 15'44 |             |                  |                    |                        |             |
| conjunction      | 101 Mar 09 j 15:37 | 17° <del>✕</del> 46'41 | -16°45'37   | conjunction      | 109 Mar 17 j 23:42 | 26° <del>✕</del> 00'43 | -16°52'58   |
| minimum elong    | 101 Mar 09 j 15:39 | 17° <del>✕</del> 46'41 | 16°45'37    | minimum elong    | 109 Mar 17 j 23:45 | 26° <del>✕</del> 00'43 | 16°52'59    |
| max. Earth dist. | 101 Mar 11 j 23:39 | 17° <del>✕</del> 50'05 | 48.09107 AU | max. Earth dist. | 109 Mar 19 j 23:32 | 26° <del>✕</del> 03'32 | 48.98290 AU |
| retrograde       | 101 Jun 20 j 20:06 | 19° <del>✕</del> 21'42 |             | retrograde       | 109 Jun 29 j 05:48 | 27° <del>✕</del> 33'40 |             |
| min. Earth dist. | 101 Sep 10 j 16:00 | 18° <del>✕</del> 22'06 | 46.24377 AU | min. Earth dist. | 109 Sep 19 j 03:47 | 26° <del>✕</del> 34'33 | 47.12200 AU |
| opposition       | 101 Sep 12 j 20:22 | 18° <del>✕</del> 19'33 | -17°29'34   | opposition       | 109 Sep 21 j 01:17 | 26° <del>✕</del> 32'22 | -17°35'07   |
| direct           | 101 Dec 02 j 22:50 | 17° <del>✕</del> 18'52 |             | direct           | 109 Dec 11 j 00:37 | 25° <del>✕</del> 32'27 |             |
| conjunction      | 102 Mar 10 j 23:03 | 18° <del>✕</del> 49'34 | -16°47'36   | conjunction      | 110 Mar 19 j 06:12 | 27° <del>✕</del> 01'17 | -16°52'30   |
| minimum elong    | 102 Mar 10 j 23:04 | 18° <del>✕</del> 49'34 | 16°47'35    | minimum elong    | 110 Mar 19 j 06:17 | 27° <del>✕</del> 01'17 | 16°52'30    |
| max. Earth dist. | 102 Mar 13 j 04:43 | 18° <del>✕</del> 52'47 | 48.21661 AU | max. Earth dist. | 110 Mar 21 j 05:00 | 27° <del>✕</del> 04'02 | 49.07966 AU |
| retrograde       | 102 Jun 22 j 05:47 | 20° <del>✕</del> 24'17 |             | retrograde       | 110 Jun 30 j 09:55 | 28° <del>✕</del> 34'02 |             |
| min. Earth dist. | 102 Sep 11 j 23:55 | 19° <del>✕</del> 24'47 | 46.36714 AU | min. Earth dist. | 110 Sep 20 j 11:47 | 27° <del>✕</del> 34'56 | 47.21693 AU |
| opposition       | 102 Sep 14 j 03:29 | 19° <del>✕</del> 22'16 | -17°31'22   | opposition       | 110 Sep 22 j 07:25 | 27° <del>✕</del> 32'51 | -17°34'23   |
| direct           | 102 Dec 04 j 04:09 | 18° <del>✕</del> 21'41 |             | direct           | 110 Dec 12 j 08:34 | 26° <del>✕</del> 33'02 |             |
| conjunction      | 103 Mar 12 j 06:26 | 19° <del>✕</del> 52'07 | -16°49'18   | conjunction      | 111 Mar 20 j 12:48 | 28° <del>✕</del> 01'42 | -16°51'43   |
| minimum elong    | 103 Mar 12 j 06:28 | 19° <del>✕</del> 52'07 | 16°49'19    | minimum elong    | 111 Mar 20 j 12:52 | 28° <del>✕</del> 01'42 | 16°51'43    |
| max. Earth dist. | 103 Mar 14 j 11:49 | 19° <del>✕</del> 55'19 | 48.33716 AU | max. Earth dist. | 111 Mar 22 j 11:17 | 28° <del>✕</del> 04'26 | 49.17285 AU |
| retrograde       | 103 Jun 23 j 13:10 | 21° <del>✕</del> 26'34 |             | retrograde       | 111 Jul 01 j 13:29 | 29° <del>✕</del> 34'14 |             |
| min. Earth dist. | 103 Sep 13 j 08:55 | 20° <del>✕</del> 27'04 | 46.48561 AU | min. Earth dist. | 111 Sep 21 j 18:26 | 28° <del>✕</del> 35'14 | 47.30779 AU |
| opposition       | 103 Sep 15 j 10:32 | 20° <del>✕</del> 24'39 | -17°32'52   | opposition       | 111 Sep 23 j 13:21 | 28° <del>✕</del> 33'11 | -17°33'21   |
| direct           | 103 Dec 05 j 10:32 | 19° <del>✕</del> 24'10 |             | direct           | 111 Dec 13 j 17:32 | 27° <del>✕</del> 33'28 |             |
| conjunction      | 104 Mar 12 j 13:35 | 20° <del>✕</del> 54'20 | -16°50'42   | conjunction      | 112 Mar 20 j 19:14 | 29° <del>✕</del> 01'57 | -16°50'40   |
| minimum elong    | 104 Mar 12 j 13:37 | 20° <del>✕</del> 54'20 | 16°50'41    | minimum elong    | 112 Mar 20 j 19:19 | 29° <del>✕</del> 01'57 | 16°50'40    |
| max. Earth dist. | 104 Mar 14 j 17:30 | 20° <del>✕</del> 57'27 | 48.45330 AU | max. Earth dist. | 112 Mar 22 j 15:29 | 29° <del>✕</del> 04'33 | 49.26165 AU |
| retrograde       | 104 Jun 23 j 19:07 | 22° <del>✕</del> 28'30 |             | retrograde       | 112 May 04 j 09:34 | 0° <del>°</del>        |             |
| min. Earth dist. | 104 Sep 13 j 15:44 | 21° <del>✕</del> 29'05 | 46.59985 AU | retrograde       | 112 Jul 01 j 21:35 | 0° <del>°</del> 34'18  |             |
| opposition       | 104 Sep 15 j 17:18 | 21° <del>✕</del> 26'41 | -17°34'03   | min. Earth dist. | 112 Aug 30 j 18:24 | 30° <del>°</del> 8'8   |             |
| direct           | 104 Dec 05 j 17:17 | 20° <del>✕</del> 26'16 |             | opposition       | 112 Sep 22 j 01:38 | 29° <del>✕</del> 35'21 | 47.39399 AU |
| conjunction      | 105 Mar 13 j 20:39 | 21° <del>✕</del> 56'12 | -16°51'47   | opposition       | 112 Sep 23 j 19:20 | 29° <del>✕</del> 33'21 | -17°32'02   |
| minimum elong    | 105 Mar 13 j 20:41 | 21° <del>✕</del> 56'12 | 16°51'47    | direct           | 112 Dec 13 j 22:51 | 28° <del>✕</del> 33'43 |             |
| max. Earth dist. | 105 Mar 15 j 23:29 | 21° <del>✕</del> 59'14 | 48.56537 AU |                  | 113 Mar 20 j 15:08 | 0° <del>°</del>        |             |
| retrograde       | 105 Jun 25 j 00:25 | 23° <del>✕</del> 30'06 |             | conjunction      | 113 Mar 22 j 01:53 | 0° <del>°</del> 02'02  | -16°49'22   |
| min. Earth dist. | 105 Sep 15 j 00:10 | 22° <del>✕</del> 30'41 | 46.71042 AU | minimum elong    | 113 Mar 22 j 01:58 | 0° <del>°</del> 02'02  | 16°49'21    |
| opposition       | 105 Sep 16 j 23:55 | 22° <del>✕</del> 28'22 | -17°34'55   | max. Earth dist. | 113 Mar 23 j 21:34 | 0° <del>°</del> 04'35  | 49.34539 AU |
| direct           | 105 Dec 07 j 01:09 | 21° <del>✕</del> 28'03 |             | retrograde       | 113 Jul 03 j 04:49 | 1° <del>°</del> 34'11  |             |
| conjunction      | 106 Mar 15 j 03:40 | 22° <del>✕</del> 57'44 | -16°52'33   | min. Earth dist. | 113 Sep 23 j 09:27 | 0° <del>°</del> 35'13  | 47.47476 AU |
| minimum elong    | 106 Mar 15 j 03:43 | 22° <del>✕</del> 57'44 | 16°52'33    | opposition       | 113 Sep 25 j 01:08 | 0° <del>°</del> 33'19  | -17°30'28   |
| max. Earth dist. | 106 Mar 17 j 06:24 | 23° <del>✕</del> 00'45 | 48.67415 AU | direct           | 113 Oct 25 j 19:09 | 30° <del>°</del> 8'8   |             |
| retrograde       | 106 Jun 26 j 04:57 | 24° <del>✕</del> 31'23 |             |                  | 113 Dec 15 j 04:40 | 29° <del>✕</del> 33'46 |             |
| min. Earth dist. | 106 Sep 16 j 06:58 | 23° <del>✕</del> 32'03 | 46.81768 AU | conjunction      | 114 Feb 02 j 11:59 | 0° <del>°</del>        |             |
| opposition       | 106 Sep 18 j 06:23 | 23° <del>✕</del> 29'45 | -17°35'28   | minimum elong    | 114 Mar 23 j 08:22 | 1° <del>°</del> 01'54  | -16°47'49   |
| direct           | 106 Dec 08 j 10:29 | 22° <del>✕</del> 29'31 |             | max. Earth dist. | 114 Mar 23 j 08:28 | 1° <del>°</del> 01'54  | 16°47'49    |
| conjunction      | 107 Mar 16 j 10:15 | 23° <del>✕</del> 58'58 | -16°53'01   | retrograde       | 114 Mar 25 j 02:03 | 1° <del>°</del> 04'19  | 49.42380 AU |
| minimum elong    | 107 Mar 16 j 10:17 | 23° <del>✕</del> 58'58 | 16°53'01    | min. Earth dist. | 114 Jul 04 j 12:13 | 2° <del>°</del> 33'50  |             |
| max. Earth dist. | 107 Mar 18 j 11:13 | 24° <del>✕</del> 01'53 | 48.77989 AU | opposition       | 114 Sep 24 j 15:40 | 1° <del>°</del> 34'55  | 47.55011 AU |
| retrograde       | 107 Jun 27 j 14:13 | 25° <del>✕</del> 32'23 |             | direct           | 114 Sep 26 j 06:53 | 1° <del>°</del> 33'02  | -17°28'39   |
| min. Earth dist. | 107 Sep 17 j 14:00 | 24° <del>✕</del> 33'07 | 46.92212 AU |                  | 114 Dec 16 j 08:34 | 0° <del>°</del> 33'32  |             |
| opposition       | 107 Sep 19 j 12:53 | 24° <del>✕</del> 30'51 | -17°35'40   | conjunction      | 115 Mar 24 j 14:32 | 2° <del>°</del> 01'29  | -16°46'00   |
| direct           | 107 Dec 09 j 15:39 | 23° <del>✕</del> 30'43 |             | minimum elong    | 115 Mar 24 j 14:37 | 2° <del>°</del> 01'29  | 16°46'00    |
| conjunction      | 108 Mar 16 j 17:02 | 24° <del>✕</del> 59'57 | -16°53'09   | max. Earth dist. | 115 Mar 26 j 06:48 | 2° <del>°</del> 03'50  | 49.49677 AU |
|                  |                    |                        |             | retrograde       | 115 Jul 05 j 17:33 | 3° <del>°</del> 33'13  |             |
|                  |                    |                        |             | min. Earth dist. | 115 Sep 25 j 23:39 | 2° <del>°</del> 34'14  | 47.62027 AU |

|                  |                    |                       |                  |                    |                       |
|------------------|--------------------|-----------------------|------------------|--------------------|-----------------------|
| opposition       | 115 Sep 27 j 12:41 | 2°♊32'28 -17°26'35    | conjunction      | 124 Apr 01 j 19:41 | 10°♊47'45 -16°17'42   |
| direct           | 115 Dec 17 j 14:20 | 1°♊33'01              | minimum elong    | 124 Apr 01 j 19:48 | 10°♊47'46 16°17'41    |
|                  |                    |                       | max. Earth dist. | 124 Apr 03 j 02:45 | 10°♊49'32 49.98348 AU |
| conjunction      | 116 Mar 24 j 20:51 | 3°♊00'46 -16°43'57    | retrograde       | 124 Jul 13 j 20:36 | 12°♊18'07             |
| minimum elong    | 116 Mar 24 j 20:57 | 3°♊00'47 16°43'57     | min. Earth dist. | 124 Oct 04 j 06:20 | 11°♊19'24 48.08543 AU |
| max. Earth dist. | 116 Mar 26 j 12:33 | 3°♊03'05 49.56494 AU  | opposition       | 124 Oct 05 j 11:04 | 11°♊18'02 -16°55'28   |
| retrograde       | 116 Jul 05 j 20:22 | 4°♊32'17              | direct           | 124 Dec 25 j 14:39 | 10°♊19'07             |
| min. Earth dist. | 116 Sep 26 j 05:38 | 3°♊33'20 47.68573 AU  |                  |                    |                       |
| opposition       | 116 Sep 27 j 18:04 | 3°♊31'36 -17°24'15    | conjunction      | 125 Apr 03 j 01:31 | 11°♊45'48 -16°13'14   |
| direct           | 116 Dec 17 j 22:57 | 2°♊32'11              | minimum elong    | 125 Apr 03 j 01:40 | 11°♊45'49 16°13'15    |
|                  |                    |                       | max. Earth dist. | 125 Apr 04 j 07:04 | 11°♊47'29 50.01890 AU |
| conjunction      | 117 Mar 26 j 02:56 | 3°♊59'46 -16°41'38    | retrograde       | 125 Jul 15 j 02:38 | 13°♊16'03             |
| minimum elong    | 117 Mar 26 j 03:03 | 3°♊59'46 16°41'37     | opposition       | 125 Oct 06 j 16:04 | 12°♊16'02 -16°50'42   |
| max. Earth dist. | 117 Mar 27 j 16:29 | 4°♊01'56 49.62876 AU  | min. Earth dist. | 125 Oct 05 j 13:41 | 12°♊17'17 48.11754 AU |
| retrograde       | 117 Jul 07 j 02:47 | 5°♊31'05              | direct           | 125 Dec 26 j 18:29 | 11°♊17'10             |
| opposition       | 117 Sep 28 j 23:32 | 4°♊30'27 -17°21'38    |                  |                    |                       |
| min. Earth dist. | 117 Sep 27 j 12:11 | 4°♊32'08 47.74725 AU  | conjunction      | 126 Apr 04 j 07:16 | 12°♊43'46 -16°08'34   |
| direct           | 117 Dec 19 j 04:54 | 3°♊31'04              | minimum elong    | 126 Apr 04 j 07:25 | 12°♊43'46 16°08'33    |
|                  |                    |                       | max. Earth dist. | 126 Apr 05 j 11:54 | 12°♊45'24 50.04915 AU |
| conjunction      | 118 Mar 27 j 08:57 | 4°♊58'29 -16°39'02    | retrograde       | 126 Jul 16 j 04:47 | 14°♊13'53             |
| minimum elong    | 118 Mar 27 j 09:03 | 4°♊58'29 16°39'02     | opposition       | 126 Oct 07 j 20:50 | 13°♊13'56 -16°45'41   |
| max. Earth dist. | 118 Mar 28 j 22:34 | 5°♊00'39 49.68882 AU  | min. Earth dist. | 126 Oct 06 j 19:02 | 13°♊15'09 48.14422 AU |
| retrograde       | 118 Jul 08 j 09:37 | 6°♊29'37              | direct           | 126 Dec 28 j 02:13 | 12°♊15'05             |
| min. Earth dist. | 118 Sep 28 j 18:58 | 5°♊30'39 47.80515 AU  |                  |                    |                       |
| opposition       | 118 Sep 30 j 04:50 | 5°♊29'02 -17°18'45    | conjunction      | 127 Apr 05 j 12:54 | 13°♊41'35 -16°03'39   |
| direct           | 118 Dec 20 j 09:47 | 4°♊29'43              | minimum elong    | 127 Apr 05 j 13:03 | 13°♊41'35 16°03'40    |
|                  |                    |                       | max. Earth dist. | 127 Apr 06 j 15:07 | 13°♊43'05 50.07414 AU |
| conjunction      | 119 Mar 28 j 14:50 | 5°♊56'58 -16°36'10    | retrograde       | 127 Jul 17 j 09:16 | 15°♊11'35             |
| minimum elong    | 119 Mar 28 j 14:58 | 5°♊56'59 16°36'09     | min. Earth dist. | 127 Oct 08 j 01:26 | 14°♊12'48 48.16592 AU |
| max. Earth dist. | 119 Mar 30 j 02:57 | 5°♊59'03 49.74576 AU  | opposition       | 127 Oct 09 j 01:38 | 14°♊11'40 -16°40'27   |
| retrograde       | 119 Jul 09 j 16:58 | 7°♊27'56              | direct           | 127 Dec 29 j 08:42 | 13°♊12'50             |
| min. Earth dist. | 119 Sep 29 j 23:58 | 6°♊29'03 47.86005 AU  |                  |                    |                       |
| opposition       | 119 Oct 01 j 10:00 | 6°♊27'26 -17°15'34    | conjunction      | 128 Apr 05 j 18:34 | 14°♊39'13 -15°58'31   |
| direct           | 119 Dec 21 j 12:35 | 5°♊28'09              | minimum elong    | 128 Apr 05 j 18:44 | 14°♊39'14 15°58'31    |
|                  |                    |                       | max. Earth dist. | 128 Apr 06 j 20:29 | 14°♊40'42 50.09429 AU |
| conjunction      | 120 Mar 28 j 20:37 | 6°♊55'17 -16°33'01    | retrograde       | 128 Jul 17 j 15:07 | 16°♊09'07             |
| minimum elong    | 120 Mar 28 j 20:43 | 6°♊55'17 16°33'01     | min. Earth dist. | 128 Oct 08 j 07:43 | 15°♊10'16 48.18289 AU |
| max. Earth dist. | 120 Mar 30 j 07:47 | 6°♊57'19 49.79967 AU  | opposition       | 128 Oct 09 j 06:20 | 15°♊09'12 -16°34'58   |
| retrograde       | 120 Jul 09 j 21:02 | 8°♊26'06              | direct           | 128 Dec 29 j 14:24 | 14°♊10'22             |
| min. Earth dist. | 120 Sep 30 j 07:03 | 7°♊27'12 47.91198 AU  |                  |                    |                       |
| opposition       | 120 Oct 01 j 15:16 | 7°♊25'40 -17°12'06    | conjunction      | 129 Apr 07 j 00:09 | 15°♊36'40 -15°53'09   |
| direct           | 120 Dec 21 j 18:49 | 6°♊26'27              | minimum elong    | 129 Apr 07 j 00:18 | 15°♊36'41 15°53'09    |
|                  |                    |                       | max. Earth dist. | 129 Apr 08 j 00:12 | 15°♊38'02 50.11016 AU |
| conjunction      | 121 Mar 30 j 02:32 | 7°♊53'28 -16°29'35    | retrograde       | 129 Jul 18 j 23:09 | 17°♊06'25             |
| minimum elong    | 121 Mar 30 j 02:41 | 7°♊53'29 16°29'35     | opposition       | 129 Oct 10 j 10:46 | 16°♊06'32 -16°29'14   |
| max. Earth dist. | 121 Mar 31 j 13:31 | 7°♊55'29 49.85075 AU  | min. Earth dist. | 129 Oct 09 j 12:25 | 16°♊07'35 48.19589 AU |
| retrograde       | 121 Jul 10 j 23:24 | 9°♊24'09              | direct           | 129 Dec 30 j 16:21 | 15°♊07'42             |
| opposition       | 121 Oct 02 j 20:10 | 8°♊23'48 -17°08'21    |                  |                    |                       |
| min. Earth dist. | 121 Oct 01 j 12:14 | 8°♊25'19 47.96083 AU  | conjunction      | 130 Apr 08 j 05:37 | 16°♊33'55 -15°47'31   |
| direct           | 121 Dec 23 j 02:42 | 7°♊24'40              | minimum elong    | 130 Apr 08 j 05:47 | 16°♊33'56 15°47'30    |
|                  |                    |                       | max. Earth dist. | 130 Apr 09 j 04:35 | 16°♊35'13 50.12223 AU |
| conjunction      | 122 Mar 31 j 08:13 | 8°♊51'35 -16°25'53    | retrograde       | 130 Jul 20 j 03:39 | 18°♊03'33             |
| minimum elong    | 122 Mar 31 j 08:20 | 8°♊51'36 16°25'53     | opposition       | 130 Oct 11 j 15:25 | 17°♊03'41 -16°23'15   |
| max. Earth dist. | 122 Apr 01 j 17:10 | 8°♊53'29 49.89869 AU  | min. Earth dist. | 130 Oct 10 j 18:58 | 17°♊04'39 48.20541 AU |
| retrograde       | 122 Jul 12 j 06:20 | 10°♊22'10             | direct           | 130 Dec 31 j 20:40 | 16°♊04'51             |
| min. Earth dist. | 122 Oct 02 j 18:23 | 9°♊23'22 48.00647 AU  |                  |                    |                       |
| opposition       | 122 Oct 04 j 01:15 | 9°♊21'54 -17°04'19    | conjunction      | 131 Apr 09 j 10:58 | 17°♊30'59 -15°41'38   |
| direct           | 122 Dec 24 j 07:28 | 8°♊22'51              | minimum elong    | 131 Apr 09 j 11:07 | 17°♊31'00 15°41'38    |
|                  |                    |                       | max. Earth dist. | 131 Apr 10 j 09:44 | 17°♊32'17 50.13118 AU |
| conjunction      | 123 Apr 01 j 13:53 | 9°♊49'41 -16°21'55    | retrograde       | 131 Jul 21 j 05:18 | 19°♊00'31             |
| minimum elong    | 123 Apr 01 j 14:02 | 9°♊49'41 16°21'55     | opposition       | 131 Oct 12 j 19:53 | 18°♊00'39 -16°17'00   |
| max. Earth dist. | 123 Apr 02 j 22:48 | 9°♊51'34 49.94313 AU  | min. Earth dist. | 131 Oct 11 j 23:35 | 18°♊01'37 48.21181 AU |
| retrograde       | 123 Jul 13 j 12:45 | 11°♊20'09             | direct           | 132 Jan 02 j 03:45 | 17°♊01'50             |
| min. Earth dist. | 123 Oct 04 j 01:00 | 10°♊21'22 48.04817 AU |                  |                    |                       |
| opposition       | 123 Oct 05 j 06:16 | 10°♊19'59 -17°00'01   | conjunction      | 132 Apr 09 j 16:20 | 18°♊27'55 -15°35'30   |
| direct           | 123 Dec 25 j 12:40 | 9°♊21'00              | minimum elong    | 132 Apr 09 j 16:31 | 18°♊27'56 15°35'30    |
|                  |                    |                       | max. Earth dist. | 132 Apr 10 j 13:06 | 18°♊29'06 50.13716 AU |

|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
| retrograde       | 132 Jul 21 j 09:57 | 19°♈57'21 |             | minimum elong    | 140 Apr 17 j 12:16 | 26°♈03'09 | 14°37'40    |
| min. Earth dist. | 132 Oct 12 j 05:06 | 18°♈58'26 | 48.21540 AU | max. Earth dist. | 140 Apr 17 j 22:40 | 26°♈03'44 | 50.04974 AU |
| opposition       | 132 Oct 13 j 00:19 | 18°♈57'32 | -16°10'28   | morning rise     | 140 Apr 21 j 02:05 | 26°♈08'00 |             |
| direct           | 133 Jan 02 j 09:17 | 17°♈58'43 |             | retrograde       | 140 Jul 29 j 07:29 | 27°♈32'17 |             |
|                  |                    |           |             | opposition       | 140 Oct 20 j 11:36 | 26°♈32'44 | -15°09'26   |
| conjunction      | 133 Apr 10 j 21:51 | 19°♈24'45 | -15°29'06   | min. Earth dist. | 140 Oct 20 j 02:57 | 26°♈33'08 | 48.10091 AU |
| minimum elong    | 133 Apr 10 j 22:01 | 19°♈24'46 | 15°29'06    | direct           | 141 Jan 09 j 17:59 | 25°♈34'01 |             |
| max. Earth dist. | 133 Apr 11 j 18:35 | 19°♈25'56 | 50.14029 AU | evening set      | 141 Apr 14 j 13:51 | 26°♈54'23 |             |
| retrograde       | 133 Jul 22 j 14:40 | 20°♈54'08 |             |                  |                    |           |             |
| min. Earth dist. | 133 Oct 13 j 10:51 | 19°♈55'12 | 48.21596 AU | conjunction      | 141 Apr 18 j 17:39 | 27°♈00'02 | -14°29'26   |
| opposition       | 133 Oct 14 j 04:48 | 19°♈54'21 | -16°03'41   | minimum elong    | 141 Apr 18 j 17:51 | 27°♈00'03 | 14°29'26    |
| direct           | 134 Jan 03 j 15:00 | 18°♈55'34 |             | max. Earth dist. | 141 Apr 19 j 03:36 | 27°♈00'36 | 50.01734 AU |
|                  |                    |           |             | morning rise     | 141 Apr 22 j 22:00 | 27°♈05'42 |             |
| conjunction      | 134 Apr 12 j 03:06 | 20°♈21'34 | -15°22'27   | retrograde       | 141 Jul 30 j 09:28 | 28°♈29'08 |             |
| minimum elong    | 134 Apr 12 j 03:18 | 20°♈21'34 | 15°22'27    | opposition       | 141 Oct 21 j 15:50 | 27°♈29'35 | -15°00'47   |
| max. Earth dist. | 134 Apr 12 j 22:22 | 20°♈22'39 | 50.14049 AU | min. Earth dist. | 141 Oct 21 j 07:32 | 27°♈29'58 | 48.06508 AU |
| retrograde       | 134 Jul 23 j 22:08 | 21°♈50'53 |             | direct           | 142 Jan 11 j 01:06 | 26°♈30'50 |             |
| opposition       | 134 Oct 15 j 09:11 | 20°♈51'10 | -15°56'38   | evening set      | 142 Apr 15 j 06:23 | 27°♈50'31 |             |
| min. Earth dist. | 134 Oct 14 j 15:25 | 20°♈52'00 | 48.21339 AU |                  |                    |           |             |
| direct           | 135 Jan 04 j 17:06 | 19°♈52'24 |             | conjunction      | 142 Apr 19 j 22:54 | 27°♈56'53 | -14°20'58   |
|                  |                    |           |             | minimum elong    | 142 Apr 19 j 23:05 | 27°♈56'53 | 14°20'58    |
| conjunction      | 135 Apr 13 j 08:30 | 21°♈18'24 | -15°15'33   | max. Earth dist. | 142 Apr 20 j 06:37 | 27°♈57'19 | 49.98085 AU |
| minimum elong    | 135 Apr 13 j 08:39 | 21°♈18'24 | 15°15'33    | morning rise     | 142 Apr 24 j 16:04 | 28°♈03'16 |             |
| max. Earth dist. | 135 Apr 14 j 02:31 | 21°♈19'25 | 50.13720 AU | retrograde       | 142 Jul 31 j 13:10 | 29°♈25'58 |             |
| retrograde       | 135 Jul 25 j 04:50 | 22°♈47'41 |             | opposition       | 142 Oct 22 j 20:10 | 28°♈26'24 | -14°51'53   |
| opposition       | 135 Oct 16 j 13:39 | 21°♈48'00 | -15°49'20   | min. Earth dist. | 142 Oct 22 j 13:14 | 28°♈26'43 | 48.02556 AU |
| min. Earth dist. | 135 Oct 15 j 22:00 | 21°♈48'45 | 48.20709 AU | direct           | 143 Jan 12 j 07:10 | 27°♈27'37 |             |
| direct           | 136 Jan 05 j 19:51 | 20°♈49'17 |             | evening set      | 143 Apr 16 j 00:09 | 28°♈46'40 |             |
|                  |                    |           |             |                  |                    |           |             |
| conjunction      | 136 Apr 13 j 14:02 | 22°♈15'17 | -15°08'24   | conjunction      | 143 Apr 21 j 04:23 | 28°♈53'41 | -14°12'16   |
| minimum elong    | 136 Apr 13 j 14:14 | 22°♈15'18 | 15°08'25    | minimum elong    | 143 Apr 21 j 04:35 | 28°♈53'42 | 14°12'15    |
| max. Earth dist. | 136 Apr 14 j 07:25 | 22°♈16'16 | 50.12996 AU | max. Earth dist. | 143 Apr 21 j 12:04 | 28°♈54'07 | 49.94088 AU |
| retrograde       | 136 Jul 25 j 08:03 | 23°♈44'32 |             | morning rise     | 143 Apr 26 j 09:15 | 29°♈00'45 |             |
| opposition       | 136 Oct 16 j 18:00 | 22°♈44'55 | -15°41'48   |                  | 143 Jun 15 j 04:11 | 0°♈       |             |
| min. Earth dist. | 136 Oct 16 j 02:55 | 22°♈45'37 | 48.19628 AU | retrograde       | 143 Aug 01 j 17:16 | 0°♈22'46  |             |
| direct           | 137 Jan 06 j 01:46 | 21°♈46'13 |             |                  | 143 Sep 18 j 21:53 | 30°♈      |             |
|                  |                    |           |             | opposition       | 143 Oct 24 j 00:25 | 29°♈23'12 | -14°42'43   |
| conjunction      | 137 Apr 14 j 19:33 | 23°♈12'14 | -15°01'02   | min. Earth dist. | 143 Oct 23 j 18:39 | 29°♈23'28 | 47.98265 AU |
| minimum elong    | 137 Apr 14 j 19:43 | 23°♈12'14 | 15°01'01    | direct           | 144 Jan 13 j 13:11 | 28°♈24'24 |             |
| max. Earth dist. | 137 Apr 15 j 10:22 | 23°♈13'04 | 50.11781 AU | evening set      | 144 Apr 15 j 18:49 | 29°♈42'53 |             |
| retrograde       | 137 Jul 26 j 12:48 | 24°♈41'28 |             |                  |                    |           |             |
| opposition       | 137 Oct 17 j 22:24 | 23°♈41'52 | -15°34'02   | conjunction      | 144 Apr 21 j 09:48 | 29°♈50'30 | -14°03'18   |
| min. Earth dist. | 137 Oct 17 j 09:08 | 23°♈42'30 | 48.18040 AU | minimum elong    | 144 Apr 21 j 09:59 | 29°♈50'30 | 14°03'18    |
| direct           | 138 Jan 07 j 07:08 | 22°♈43'12 |             | max. Earth dist. | 144 Apr 21 j 15:51 | 29°♈50'50 | 49.89785 AU |
| evening set      | 138 Apr 14 j 02:49 | 24°♈06'35 |             | morning rise     | 144 Apr 27 j 01:29 | 29°♈58'10 |             |
|                  |                    |           |             |                  | 144 Apr 28 j 10:01 | 0°♈       |             |
| conjunction      | 138 Apr 16 j 01:10 | 24°♈09'13 | -14°53'28   | retrograde       | 144 Aug 02 j 00:49 | 1°♈19'35  |             |
| minimum elong    | 138 Apr 16 j 01:21 | 24°♈09'13 | 14°53'28    | opposition       | 144 Oct 24 j 04:40 | 0°♈20'01  | -14°33'19   |
| morning rise     | 138 Apr 17 j 23:57 | 24°♈11'52 |             | min. Earth dist. | 144 Oct 23 j 23:09 | 0°♈20'17  | 47.93674 AU |
| max. Earth dist. | 138 Apr 16 j 15:23 | 24°♈10'01 | 50.10038 AU |                  | 144 Nov 11 j 04:48 | 30°♈      |             |
| retrograde       | 138 Jul 27 j 17:43 | 25°♈38'25 |             | direct           | 145 Jan 13 j 15:28 | 29°♈21'12 |             |
| opposition       | 138 Oct 19 j 02:53 | 24°♈38'51 | -15°26'03   |                  | 145 Mar 16 j 18:14 | 0°♈       |             |
| min. Earth dist. | 138 Oct 18 j 15:16 | 24°♈39'24 | 48.15902 AU | evening set      | 145 Apr 16 j 14:03 | 0°♈39'08  |             |
| direct           | 139 Jan 08 j 12:57 | 23°♈40'11 |             |                  |                    |           |             |
| evening set      | 139 Apr 14 j 09:59 | 25°♈02'19 |             | conjunction      | 145 Apr 22 j 15:16 | 0°♈47'20  | -13°54'06   |
|                  |                    |           |             | minimum elong    | 145 Apr 22 j 15:29 | 0°♈47'21  | 13°54'06    |
| conjunction      | 139 Apr 17 j 06:33 | 25°♈06'11 | -14°45'40   | max. Earth dist. | 145 Apr 22 j 20:08 | 0°♈47'37  | 49.85168 AU |
| minimum elong    | 139 Apr 17 j 06:44 | 25°♈06'12 | 14°45'40    | morning rise     | 145 Apr 28 j 17:18 | 0°♈55'35  |             |
| max. Earth dist. | 139 Apr 17 j 18:37 | 25°♈06'52 | 50.07766 AU | retrograde       | 145 Aug 03 j 08:07 | 2°♈16'27  |             |
| morning rise     | 139 Apr 20 j 03:35 | 25°♈10'06 |             | opposition       | 145 Oct 25 j 08:59 | 1°♈16'53  | -14°23'38   |
| retrograde       | 139 Jul 29 j 01:57 | 26°♈35'22 |             | min. Earth dist. | 145 Oct 25 j 05:18 | 1°♈17'03  | 47.88773 AU |
| opposition       | 139 Oct 20 j 07:17 | 25°♈35'49 | -15°17'52   | direct           | 146 Jan 14 j 17:31 | 0°♈18'03  |             |
| min. Earth dist. | 139 Oct 19 j 20:15 | 25°♈36'20 | 48.13242 AU | evening set      | 146 Apr 17 j 09:55 | 1°♈35'30  |             |
| direct           | 140 Jan 09 j 14:41 | 24°♈37'07 |             |                  |                    |           |             |
| evening set      | 140 Apr 13 j 22:35 | 25°♈58'18 |             | conjunction      | 146 Apr 23 j 20:48 | 1°♈44'16  | -13°44'39   |
|                  |                    |           |             | minimum elong    | 146 Apr 23 j 20:59 | 1°♈44'16  | 13°44'39    |
| conjunction      | 140 Apr 17 j 12:05 | 26°♈03'08 | -14°37'40   | max. Earth dist. | 146 Apr 24 j 01:17 | 1°♈44'31  | 49.80258 AU |

|                  |                    |                       |                  |                    |                        |
|------------------|--------------------|-----------------------|------------------|--------------------|------------------------|
| morning rise     | 146 Apr 30 j 08:24 | 1°8'53"03             | conjunction      | 153 Apr 30 j 12:53 | 8°8'25"14 -12°32'06    |
| retrograde       | 146 Aug 04 j 12:05 | 3°8'13"23             | minimum elong    | 153 Apr 30 j 13:05 | 8°8'25"15 12°32'06     |
| opposition       | 146 Oct 26 j 13:15 | 2°8'13"50 -14°13'43   | max. Earth dist. | 153 Apr 30 j 07:08 | 8°8'24"55 49.33458 AU  |
| min. Earth dist. | 146 Oct 26 j 09:43 | 2°8'14"00 47.83551 AU | morning rise     | 153 May 09 j 10:29 | 8°8'37"20              |
| direct           | 147 Jan 15 j 22:14 | 1°8'14"59             | retrograde       | 153 Aug 10 j 21:48 | 9°8'54"42              |
| evening set      | 147 Apr 18 j 06:05 | 2°8'32"01             | opposition       | 153 Nov 01 j 20:14 | 8°8'54"57 -12°57'43    |
|                  |                    |                       | min. Earth dist. | 153 Nov 02 j 02:43 | 8°8'54"38 47.34075 AU  |
| conjunction      | 147 Apr 25 j 02:08 | 2°8'41"17 -13°34'57   | direct           | 154 Jan 22 j 11:06 | 7°8'55"43              |
| minimum elong    | 147 Apr 25 j 02:21 | 2°8'41"18 13°34'57    | evening set      | 154 Apr 22 j 14:53 | 9°8'10"10              |
| max. Earth dist. | 147 Apr 25 j 04:32 | 2°8'41"25 49.75003 AU |                  |                    |                        |
| morning rise     | 147 May 01 j 23:07 | 2°8'50"36             | conjunction      | 154 May 01 j 18:38 | 9°8'22"37 -12°20'50    |
| retrograde       | 147 Aug 05 j 16:32 | 4°8'10"28             | minimum elong    | 154 May 01 j 18:50 | 9°8'22"37 12°20'49     |
| opposition       | 147 Oct 27 j 17:40 | 3°8'10"55 -14°03'32   | max. Earth dist. | 154 May 01 j 11:08 | 9°8'22"11 49.24897 AU  |
| min. Earth dist. | 147 Oct 27 j 15:48 | 3°8'11"01 47.77965 AU | morning rise     | 154 May 10 j 23:28 | 9°8'35"08              |
| direct           | 148 Jan 17 j 03:36 | 2°8'12"03             | retrograde       | 154 Aug 12 j 04:29 | 10°8'52"08             |
| evening set      | 148 Apr 18 j 02:54 | 3°8'28"40             | opposition       | 154 Nov 03 j 00:40 | 9°8'52"20 -12°45'55    |
|                  |                    |                       | min. Earth dist. | 154 Nov 03 j 07:31 | 9°8'52"00 47.25191 AU  |
| conjunction      | 148 Apr 25 j 07:55 | 3°8'38"26 -13°25'02   | direct           | 155 Jan 23 j 14:39 | 8°8'53"01              |
| minimum elong    | 148 Apr 25 j 08:06 | 3°8'38"27 13°25'01    | evening set      | 155 Apr 23 j 13:28 | 10°8'07"10             |
| max. Earth dist. | 148 Apr 25 j 09:51 | 3°8'38"33 49.69339 AU |                  |                    |                        |
| morning rise     | 148 May 02 j 13:44 | 3°8'48"16             | conjunction      | 155 May 03 j 00:20 | 10°8'20"01 -12°09'20   |
| retrograde       | 148 Aug 05 j 19:31 | 5°8'07"40             | minimum elong    | 155 May 03 j 00:31 | 10°8'20"02 12°09'19    |
| opposition       | 148 Oct 27 j 21:57 | 4°8'08"08 -13°53'08   | max. Earth dist. | 155 May 02 j 15:38 | 10°8'19"31 49.15988 AU |
| min. Earth dist. | 148 Oct 27 j 21:37 | 4°8'08"09 47.71926 AU | morning rise     | 155 May 12 j 12:21 | 10°8'32"57             |
| direct           | 149 Jan 17 j 10:58 | 3°8'09"14             | retrograde       | 155 Aug 13 j 11:36 | 11°8'49"37             |
| evening set      | 149 Apr 19 j 00:17 | 4°8'25"27             | opposition       | 155 Nov 04 j 05:16 | 10°8'49"46 -12°33'52   |
|                  |                    |                       | min. Earth dist. | 155 Nov 04 j 13:58 | 10°8'49"21 47.15981 AU |
| conjunction      | 149 Apr 26 j 13:40 | 4°8'35"42 -13°14'52   | direct           | 156 Jan 24 j 17:44 | 9°8'50"22              |
| minimum elong    | 149 Apr 26 j 13:53 | 4°8'35"43 13°14'53    | evening set      | 156 Apr 23 j 12:34 | 11°8'04"15             |
| max. Earth dist. | 149 Apr 26 j 13:28 | 4°8'35"42 49.63206 AU |                  |                    |                        |
| morning rise     | 149 May 04 j 04:00 | 4°8'46"02             | conjunction      | 156 May 03 j 06:19 | 11°8'17"31 -11°57'34   |
| retrograde       | 149 Aug 07 j 03:30 | 6°8'05"00             | minimum elong    | 156 May 03 j 06:31 | 11°8'17"31 11°57'34    |
| opposition       | 149 Oct 29 j 02:21 | 5°8'05"27 -13°42'30   | max. Earth dist. | 156 May 02 j 21:19 | 11°8'17"00 49.06788 AU |
| min. Earth dist. | 149 Oct 29 j 02:47 | 5°8'05"26 47.65388 AU | morning rise     | 156 May 13 j 01:03 | 11°8'30"51             |
| direct           | 150 Jan 18 j 13:36 | 4°8'06"31             | retrograde       | 156 Aug 13 j 16:41 | 12°8'47"12             |
| evening set      | 150 Apr 19 j 21:42 | 5°8'22"21             | opposition       | 156 Nov 04 j 09:40 | 11°8'47"18 -12°21'33   |
|                  |                    |                       | min. Earth dist. | 156 Nov 04 j 18:24 | 11°8'46"53 47.06486 AU |
| conjunction      | 150 Apr 27 j 19:20 | 5°8'33"04 -13°04'30   | direct           | 157 Jan 24 j 22:21 | 10°8'47"49             |
| minimum elong    | 150 Apr 27 j 19:32 | 5°8'33"05 13°04'30    | evening set      | 157 Apr 24 j 11:52 | 12°8'01"29             |
| max. Earth dist. | 150 Apr 27 j 17:28 | 5°8'32"58 49.56535 AU |                  |                    |                        |
| morning rise     | 150 May 05 j 17:57 | 5°8'43"51             | conjunction      | 157 May 04 j 12:12 | 12°8'15"08 -11°45'34   |
| retrograde       | 150 Aug 08 j 10:52 | 7°8'02"24             | minimum elong    | 157 May 04 j 12:24 | 12°8'15"09 11°45'34    |
| opposition       | 150 Oct 30 j 06:57 | 6°8'02"49 -13°31'38   | max. Earth dist. | 157 May 04 j 01:08 | 12°8'14"30 48.97309 AU |
| min. Earth dist. | 150 Oct 30 j 09:47 | 6°8'02"41 47.58306 AU | morning rise     | 157 May 14 j 13:48 | 12°8'28"52             |
| direct           | 151 Jan 19 j 15:59 | 5°8'03"50             | retrograde       | 157 Aug 14 j 22:13 | 13°8'44"57             |
| evening set      | 151 Apr 20 j 19:41 | 6°8'19"17             | opposition       | 157 Nov 05 j 14:21 | 12°8'45"00 -12°08'58   |
|                  |                    |                       | min. Earth dist. | 157 Nov 06 j 00:31 | 12°8'44"31 46.96728 AU |
| conjunction      | 151 Apr 29 j 01:13 | 6°8'30"28 -12°53'55   | direct           | 158 Jan 26 j 03:15 | 11°8'45"29             |
| minimum elong    | 151 Apr 29 j 01:25 | 6°8'30"28 12°53'56    | evening set      | 158 Apr 25 j 11:07 | 12°8'58"55             |
| max. Earth dist. | 151 Apr 28 j 22:25 | 6°8'30"18 49.49339 AU |                  |                    |                        |
| morning rise     | 151 May 07 j 07:38 | 6°8'41"42             | conjunction      | 158 May 05 j 18:08 | 13°8'12"57 -11°33'18   |
| retrograde       | 151 Aug 09 j 14:35 | 7°8'59"50             | minimum elong    | 158 May 05 j 18:20 | 13°8'12"58 11°33'18    |
| opposition       | 151 Oct 31 j 11:19 | 7°8'00"12 -13°20'34   | max. Earth dist. | 158 May 05 j 07:03 | 13°8'12"19 48.87557 AU |
| min. Earth dist. | 151 Oct 31 j 14:41 | 7°8'00"03 47.50696 AU | morning rise     | 158 May 16 j 02:10 | 13°8'27"04             |
| direct           | 152 Jan 20 j 22:09 | 6°8'01"08             | retrograde       | 158 Aug 16 j 01:07 | 14°8'42"55             |
| evening set      | 152 Apr 20 j 17:52 | 7°8'16"15             | opposition       | 158 Nov 06 j 19:03 | 13°8'42"57 -11°56'07   |
|                  |                    |                       | min. Earth dist. | 158 Nov 07 j 06:06 | 13°8'42"25 46.86675 AU |
| conjunction      | 152 Apr 29 j 06:59 | 7°8'27"51 -12°43'07   | direct           | 159 Jan 27 j 10:43 | 12°8'43"22             |
| minimum elong    | 152 Apr 29 j 07:11 | 7°8'27"52 12°43'07    | evening set      | 159 Apr 26 j 10:56 | 13°8'56"37             |
| max. Earth dist. | 152 Apr 29 j 01:35 | 7°8'27"33 49.41631 AU | max. Earth dist. | 159 May 06 j 11:26 | 14°8'10"18 48.77514 AU |
| morning rise     | 152 May 07 j 21:13 | 7°8'39"32             |                  |                    |                        |
| retrograde       | 152 Aug 09 j 18:36 | 8°8'57"16             | conjunction      | 159 May 07 j 00:12 | 14°8'11"02 -11°20'46   |
| opposition       | 152 Oct 31 j 15:50 | 7°8'57"35 -13°09'15   | minimum elong    | 159 May 07 j 00:23 | 14°8'11"03 11°20'47    |
| min. Earth dist. | 152 Oct 31 j 20:58 | 7°8'57"20 47.42606 AU | morning rise     | 159 May 17 j 14:42 | 14°8'25"33             |
| direct           | 153 Jan 21 j 04:06 | 6°8'58"26             |                  | 159 Jun 13 j 15:08 | 15°8'                  |
| evening set      | 153 Apr 21 j 16:13 | 8°8'13"12             | retrograde       | 159 Aug 17 j 09:06 | 15°8'41"09             |
|                  |                    |                       |                  | 159 Oct 22 j 07:22 | 15°8'                  |

|                  |                    |                       |                  |                    |                       |
|------------------|--------------------|-----------------------|------------------|--------------------|-----------------------|
| opposition       | 159 Nov 07 j 23:40 | 14°841'10 -11°43'01   | conjunction      | 166 May 13 j 22:03 | 21°804'43 -9°46'31    |
| min. Earth dist. | 159 Nov 08 j 11:17 | 14°840'37 46.76306 AU | minimum elong    | 166 May 13 j 22:14 | 21°804'43 9°46'31     |
| direct           | 160 Jan 28 j 13:44 | 13°841'32             | max. Earth dist. | 166 May 12 j 23:42 | 21°803'25 47.94726 AU |
| evening set      | 160 Apr 26 j 10:54 | 14°854'37             | morning rise     | 166 May 26 j 05:06 | 21°821'43             |
|                  | 160 Apr 30 j 09:40 | 15°8                  | retrograde       | 166 Aug 24 j 06:38 | 22°835'58             |
|                  |                    |                       | opposition       | 166 Nov 14 j 11:03 | 21°835'29 -10°04'24   |
| conjunction      | 160 May 07 j 06:30 | 15°809'25 -11°08'01   | min. Earth dist. | 166 Nov 15 j 07:45 | 21°834'29 45.90882 AU |
| minimum elong    | 160 May 07 j 06:43 | 15°809'26 11°08'01    | direct           | 167 Feb 04 j 00:30 | 20°835'07             |
| max. Earth dist. | 160 May 06 j 16:23 | 15°808'37 48.67099 AU | evening set      | 167 May 02 j 17:42 | 21°847'14             |
| morning rise     | 160 May 18 j 03:18 | 15°824'18             | max. Earth dist. | 167 May 14 j 04:19 | 22°803'04 47.81195 AU |
| retrograde       | 160 Aug 17 j 18:12 | 16°839'42             |                  |                    |                       |
| opposition       | 160 Nov 08 j 04:33 | 15°839'42 -11°29'39   | conjunction      | 167 May 15 j 04:50 | 22°804'30 -9°32'05    |
| min. Earth dist. | 160 Nov 08 j 18:28 | 15°839'02 46.65532 AU | minimum elong    | 167 May 15 j 05:02 | 22°804'30 9°32'05     |
|                  | 160 Dec 15 j 22:03 | 15°88                 | morning rise     | 167 May 27 j 17:17 | 22°821'50             |
| direct           | 161 Jan 28 j 15:18 | 14°840'00             | retrograde       | 167 Aug 25 j 13:39 | 23°835'56             |
|                  | 161 Mar 13 j 04:14 | 15°8                  | opposition       | 167 Nov 15 j 16:21 | 22°835'20 -9°49'17    |
| evening set      | 161 Apr 27 j 11:16 | 15°852'56             | min. Earth dist. | 167 Nov 16 j 14:43 | 22°834'15 45.77061 AU |
|                  |                    |                       | direct           | 168 Feb 05 j 05:34 | 21°834'49             |
| conjunction      | 161 May 08 j 12:57 | 16°808'06 -10°55'01   | evening set      | 168 May 02 j 19:28 | 22°846'51             |
| minimum elong    | 161 May 08 j 13:08 | 16°808'07 10°55'00    | max. Earth dist. | 168 May 14 j 11:15 | 23°803'01 47.67372 AU |
| max. Earth dist. | 161 May 07 j 21:56 | 16°807'15 48.56253 AU |                  |                    |                       |
| morning rise     | 161 May 19 j 15:42 | 16°823'22             | conjunction      | 168 May 15 j 11:55 | 23°804'27 -9°17'24    |
| retrograde       | 161 Aug 18 j 23:34 | 17°838'33             | minimum elong    | 168 May 15 j 12:05 | 23°804'28 9°17'24     |
| opposition       | 161 Nov 09 j 09:22 | 16°838'30 -11°16'03   | morning rise     | 168 May 28 j 05:19 | 23°822'08             |
| min. Earth dist. | 161 Nov 09 j 23:42 | 16°837'49 46.54287 AU | retrograde       | 168 Aug 25 j 16:28 | 24°836'05             |
| direct           | 162 Jan 29 j 21:02 | 15°838'44             | opposition       | 168 Nov 15 j 21:49 | 23°835'23 -9°33'54    |
| evening set      | 162 Apr 28 j 11:51 | 16°851'31             | min. Earth dist. | 168 Nov 16 j 20:53 | 23°834'16 45.62952 AU |
|                  |                    |                       | direct           | 169 Feb 05 j 14:20 | 22°834'44             |
| conjunction      | 162 May 09 j 19:22 | 17°807'04 -10°41'47   | evening set      | 169 May 03 j 21:36 | 23°846'42             |
| minimum elong    | 162 May 09 j 19:34 | 17°807'04 10°41'47    |                  |                    |                       |
| max. Earth dist. | 162 May 09 j 01:43 | 17°806'03 48.44911 AU | conjunction      | 169 May 16 j 18:52 | 24°804'37 -9°02'27    |
| morning rise     | 162 May 21 j 04:13 | 17°822'41             | minimum elong    | 169 May 16 j 19:04 | 24°804'38 9°02'27     |
| retrograde       | 162 Aug 20 j 04:50 | 18°837'40             | max. Earth dist. | 169 May 15 j 16:36 | 24°803'05 47.53288 AU |
| opposition       | 162 Nov 10 j 14:26 | 17°837'34 -11°02'13   | morning rise     | 169 May 29 j 17:20 | 24°822'38             |
| min. Earth dist. | 162 Nov 11 j 06:45 | 17°836'47 46.42544 AU | retrograde       | 169 Aug 26 j 22:42 | 25°836'29             |
| direct           | 163 Jan 31 j 03:12 | 16°837'42             | opposition       | 169 Nov 17 j 03:18 | 24°835'41 -9°18'15    |
| evening set      | 163 Apr 29 j 12:29 | 17°850'20             | min. Earth dist. | 169 Nov 18 j 02:48 | 24°834'32 45.48597 AU |
| max. Earth dist. | 163 May 10 j 07:46 | 18°805'11 48.33060 AU | direct           | 170 Feb 06 j 20:25 | 23°834'55             |
|                  |                    |                       | evening set      | 170 May 04 j 23:49 | 24°846'50             |
| conjunction      | 163 May 11 j 01:59 | 18°806'14 -10°28'19   | max. Earth dist. | 170 May 16 j 22:46 | 25°803'29 47.38940 AU |
| minimum elong    | 163 May 11 j 02:10 | 18°806'15 10°28'18    |                  |                    |                       |
| morning rise     | 163 May 22 j 16:30 | 18°822'12             | conjunction      | 170 May 18 j 02:02 | 25°805'05 -8°47'14    |
| retrograde       | 163 Aug 21 j 08:06 | 19°837'00             | minimum elong    | 170 May 18 j 02:13 | 25°805'05 8°47'14     |
| opposition       | 163 Nov 11 j 19:34 | 18°836'49 -10°48'08   | morning rise     | 170 May 31 j 05:20 | 25°823'24             |
| min. Earth dist. | 163 Nov 12 j 13:15 | 18°835'58 46.30281 AU | retrograde       | 170 Aug 28 j 07:14 | 26°837'11             |
| direct           | 164 Feb 01 j 11:37 | 17°836'51             | opposition       | 170 Nov 18 j 09:03 | 25°836'18 -9°02'18    |
| evening set      | 164 Apr 29 j 13:38 | 18°849'20             | min. Earth dist. | 170 Nov 19 j 10:21 | 25°835'04 45.33974 AU |
|                  |                    |                       | direct           | 171 Feb 08 j 00:14 | 24°835'25             |
| conjunction      | 164 May 11 j 08:39 | 19°805'35 -10°14'37   | evening set      | 171 May 06 j 02:19 | 25°847'19             |
| minimum elong    | 164 May 11 j 08:50 | 19°805'35 10°14'38    | max. Earth dist. | 171 May 18 j 05:32 | 26°804'15 47.24325 AU |
| max. Earth dist. | 164 May 10 j 12:14 | 19°804'24 48.20717 AU |                  |                    |                       |
| morning rise     | 164 May 23 j 04:54 | 19°821'54             | conjunction      | 171 May 19 j 09:20 | 26°805'53 -8°31'45    |
| retrograde       | 164 Aug 21 j 14:47 | 20°836'31             | minimum elong    | 171 May 19 j 09:31 | 26°805'54 8°31'45     |
| opposition       | 164 Nov 12 j 00:33 | 19°836'14 -10°33'49   | morning rise     | 171 Jun 01 j 17:17 | 26°824'32             |
| min. Earth dist. | 164 Nov 12 j 19:06 | 19°835'21 46.17553 AU | retrograde       | 171 Aug 29 j 15:10 | 27°838'15             |
| direct           | 165 Feb 01 j 16:34 | 18°836'09             | opposition       | 171 Nov 19 j 14:48 | 26°837'18 -8°46'05    |
| evening set      | 165 Apr 30 j 14:49 | 19°848'29             | min. Earth dist. | 171 Nov 20 j 16:12 | 26°836'03 45.19045 AU |
|                  |                    |                       | direct           | 172 Feb 09 j 05:08 | 25°836'17             |
| conjunction      | 165 May 12 j 15:24 | 20°805'04 -10°00'42   | evening set      | 172 May 06 j 05:22 | 26°848'12             |
| minimum elong    | 165 May 12 j 15:36 | 20°805'05 10°00'41    | max. Earth dist. | 172 May 18 j 10:43 | 27°805'19 47.09356 AU |
| max. Earth dist. | 165 May 11 j 17:32 | 20°803'49 48.07913 AU |                  |                    |                       |
| morning rise     | 165 May 24 j 17:11 | 20°821'45             | conjunction      | 172 May 19 j 16:51 | 27°807'05 -8°16'00    |
| retrograde       | 165 Aug 22 j 22:42 | 21°836'10             | minimum elong    | 172 May 19 j 17:01 | 27°807'06 8°16'00     |
| opposition       | 165 Nov 13 j 05:50 | 20°835'48 -10°19'14   | morning rise     | 172 Jun 02 j 05:31 | 27°826'04             |
| min. Earth dist. | 165 Nov 14 j 02:24 | 20°834'48 46.04398 AU | retrograde       | 172 Aug 29 j 23:35 | 28°839'44             |
| direct           | 166 Feb 02 j 20:25 | 19°835'34             | opposition       | 172 Nov 19 j 20:41 | 27°838'41 -8°29'35    |
| evening set      | 166 May 01 j 16:03 | 20°847'47             | min. Earth dist. | 172 Nov 21 j 00:09 | 27°837'21 45.03742 AU |

|                  |                    |                    |             |                  |                    |                     |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|---------------------|-------------|
| direct           | 173 Feb 09 j 10:38 | 26° <b>8</b> 37'34 |             | max. Earth dist. | 179 May 26 j 10:01 | 4° <b>II</b> 24'07  | 45.91796 AU |
| evening set      | 173 May 07 j 08:35 | 27° <b>8</b> 49'31 |             |                  |                    |                     |             |
| max. Earth dist. | 173 May 19 j 18:10 | 28° <b>8</b> 06'55 | 46.93970 AU | conjunction      | 179 May 28 j 02:09 | 4° <b>II</b> 26'32  | -6°18'45    |
|                  |                    |                    |             | minimum elong    | 179 May 28 j 02:18 | 4° <b>II</b> 26'32  | 6°18'45     |
| conjunction      | 173 May 21 j 00:42 | 28° <b>8</b> 08'43 | -8°00'00    | morning rise     | 179 Jun 11 j 18:53 | 4° <b>II</b> 47'36  |             |
| minimum elong    | 173 May 21 j 00:52 | 28° <b>8</b> 08'44 | 8°00'00     | retrograde       | 179 Sep 07 j 04:01 | 6° <b>II</b> 01'20  |             |
| morning rise     | 173 Jun 03 j 17:37 | 28° <b>8</b> 28'00 |             | opposition       | 179 Nov 27 j 18:18 | 4° <b>II</b> 59'21  | -6°26'42    |
| retrograde       | 173 Aug 31 j 04:41 | 29° <b>8</b> 41'39 |             | min. Earth dist. | 179 Nov 29 j 06:10 | 4° <b>II</b> 57'33  | 43.83770 AU |
| opposition       | 173 Nov 21 j 02:51 | 28° <b>8</b> 40'31 | -8°12'50    | direct           | 180 Feb 17 j 12:03 | 3° <b>II</b> 57'00  |             |
| min. Earth dist. | 173 Nov 22 j 07:27 | 28° <b>8</b> 39'07 | 44.87981 AU | evening set      | 180 May 13 j 15:33 | 5° <b>II</b> 09'29  |             |
| direct           | 174 Feb 10 j 19:27 | 27° <b>8</b> 39'16 |             | max. Earth dist. | 180 May 26 j 18:01 | 5° <b>II</b> 28'17  | 45.73449 AU |
| evening set      | 174 May 08 j 12:08 | 28° <b>8</b> 51'15 |             |                  |                    |                     |             |
| max. Earth dist. | 174 May 20 j 23:32 | 29° <b>8</b> 08'49 | 46.78111 AU | conjunction      | 180 May 28 j 11:01 | 5° <b>II</b> 30'46  | -6°00'57    |
|                  |                    |                    |             | minimum elong    | 180 May 28 j 11:10 | 5° <b>II</b> 30'47  | 6°00'56     |
| conjunction      | 174 May 22 j 08:25 | 29° <b>8</b> 10'46 | -7°43'46    | morning rise     | 180 Jun 12 j 07:04 | 5° <b>II</b> 52'07  |             |
| minimum elong    | 174 May 22 j 08:34 | 29° <b>8</b> 10'47 | 7°43'45     | retrograde       | 180 Sep 07 j 12:04 | 7° <b>II</b> 05'56  |             |
| morning rise     | 174 Jun 05 j 05:45 | 29° <b>8</b> 30'22 |             | opposition       | 180 Nov 28 j 01:24 | 6° <b>II</b> 03'47  | -6°08'01    |
|                  | 174 Jun 27 j 18:40 | 0° <b>II</b>       |             | min. Earth dist. | 180 Nov 29 j 14:52 | 6° <b>II</b> 01'54  | 43.65184 AU |
| retrograde       | 174 Sep 01 j 12:25 | 0° <b>II</b> 44'00 |             | direct           | 181 Feb 17 j 18:48 | 5° <b>II</b> 01'14  |             |
|                  | 174 Nov 07 j 14:38 | 30° <b>8</b>       |             | evening set      | 181 May 14 j 21:11 | 6° <b>II</b> 13'52  |             |
| opposition       | 174 Nov 22 j 09:08 | 29° <b>8</b> 42'46 | -7°55'49    | max. Earth dist. | 181 May 28 j 02:19 | 6° <b>II</b> 32'54  | 45.54870 AU |
| min. Earth dist. | 174 Nov 23 j 14:48 | 29° <b>8</b> 41'18 | 44.71736 AU |                  |                    |                     |             |
| direct           | 175 Feb 12 j 01:38 | 28° <b>8</b> 41'21 |             | conjunction      | 181 May 29 j 19:59 | 6° <b>II</b> 35'26  | -5°42'53    |
| evening set      | 175 May 09 j 16:00 | 29° <b>8</b> 53'23 |             | minimum elong    | 181 May 29 j 20:06 | 6° <b>II</b> 35'26  | 5°42'53     |
|                  | 175 May 14 j 09:10 | 0° <b>II</b>       |             | morning rise     | 181 Jun 13 j 19:18 | 6° <b>II</b> 57'03  |             |
| max. Earth dist. | 175 May 22 j 06:07 | 0° <b>II</b> 11'10 | 46.61738 AU | retrograde       | 181 Sep 08 j 22:09 | 8° <b>II</b> 10'58  |             |
|                  |                    |                    |             | opposition       | 181 Nov 29 j 08:39 | 7° <b>II</b> 08'41  | -5°49'03    |
| conjunction      | 175 May 23 j 16:34 | 0° <b>II</b> 13'12 | -7°27'16    | min. Earth dist. | 181 Nov 30 j 21:56 | 7° <b>II</b> 06'48  | 43.46379 AU |
| minimum elong    | 175 May 23 j 16:44 | 0° <b>II</b> 13'13 | 7°27'17     | direct           | 182 Feb 19 j 00:02 | 6° <b>II</b> 05'56  |             |
| morning rise     | 175 Jun 06 j 18:01 | 0° <b>II</b> 33'07 |             | evening set      | 182 May 16 j 03:00 | 7° <b>II</b> 18'44  |             |
| retrograde       | 175 Sep 02 j 20:20 | 1° <b>II</b> 46'45 |             | max. Earth dist. | 182 May 29 j 09:26 | 7° <b>II</b> 37'56  | 45.36062 AU |
| opposition       | 175 Nov 23 j 15:32 | 0° <b>II</b> 45'23 | -7°38'32    |                  |                    |                     |             |
| min. Earth dist. | 175 Nov 24 j 23:24 | 0° <b>II</b> 43'48 | 44.54980 AU | conjunction      | 182 May 31 j 04:54 | 7° <b>II</b> 40'35  | -5°24'32    |
|                  | 176 Jan 05 j 15:14 | 30° <b>8</b>       |             | minimum elong    | 182 May 31 j 05:02 | 7° <b>II</b> 40'35  | 5°24'32     |
| direct           | 176 Feb 13 j 07:32 | 29° <b>8</b> 43'48 |             | morning rise     | 182 Jun 15 j 07:26 | 8° <b>II</b> 02'29  |             |
|                  | 176 Mar 22 j 16:23 | 0° <b>II</b>       |             | retrograde       | 182 Sep 10 j 09:21 | 9° <b>II</b> 16'31  |             |
| evening set      | 176 May 09 j 20:14 | 0° <b>II</b> 55'54 |             | opposition       | 182 Nov 30 j 16:14 | 8° <b>II</b> 14'05  | -5°29'47    |
| max. Earth dist. | 176 May 22 j 13:24 | 1° <b>II</b> 13'54 | 46.44881 AU | min. Earth dist. | 182 Dec 02 j 07:14 | 8° <b>II</b> 12'06  | 43.27355 AU |
|                  |                    |                    |             | direct           | 183 Feb 20 j 06:01 | 7° <b>II</b> 11'09  |             |
| conjunction      | 176 May 24 j 00:53 | 1° <b>II</b> 16'01 | -7°10'31    | evening set      | 183 May 17 j 09:16 | 8° <b>II</b> 24'09  |             |
| minimum elong    | 176 May 24 j 01:02 | 1° <b>II</b> 16'01 | 7°10'31     | max. Earth dist. | 183 May 30 j 18:58 | 8° <b>II</b> 43'37  | 45.17022 AU |
| morning rise     | 176 Jun 07 j 06:19 | 1° <b>II</b> 36'13 |             |                  |                    |                     |             |
| retrograde       | 176 Sep 03 j 06:12 | 2° <b>II</b> 49'51 |             | conjunction      | 183 Jun 01 j 14:22 | 8° <b>II</b> 46'16  | -5°05'54    |
| opposition       | 176 Nov 23 j 22:01 | 1° <b>II</b> 48'21 | -7°21'00    | minimum elong    | 183 Jun 01 j 14:29 | 8° <b>II</b> 46'17  | 5°05'55     |
| min. Earth dist. | 176 Nov 25 j 06:18 | 1° <b>II</b> 46'45 | 44.37751 AU | morning rise     | 183 Jun 16 j 19:44 | 9° <b>II</b> 08'27  |             |
| direct           | 177 Feb 13 j 12:39 | 0° <b>II</b> 46'35 |             | retrograde       | 183 Sep 11 j 17:56 | 10° <b>II</b> 22'37 |             |
| evening set      | 177 May 11 j 00:41 | 1° <b>II</b> 58'45 |             | opposition       | 183 Dec 01 j 23:47 | 9° <b>II</b> 20'02  | -5°10'13    |
| max. Earth dist. | 177 May 23 j 19:11 | 2° <b>II</b> 16'54 | 46.27558 AU | min. Earth dist. | 183 Dec 03 j 15:20 | 9° <b>II</b> 18'02  | 43.08073 AU |
|                  |                    |                    |             | direct           | 184 Feb 21 j 15:31 | 8° <b>II</b> 16'55  |             |
| conjunction      | 177 May 25 j 09:08 | 2° <b>II</b> 19'10 | -6°53'32    | evening set      | 184 May 17 j 16:10 | 9° <b>II</b> 30'10  |             |
| minimum elong    | 177 May 25 j 09:17 | 2° <b>II</b> 19'11 | 6°53'32     | max. Earth dist. | 184 May 31 j 02:24 | 9° <b>II</b> 49'45  | 44.97701 AU |
| morning rise     | 177 Jun 08 j 18:32 | 2° <b>II</b> 39'40 |             |                  |                    |                     |             |
| retrograde       | 177 Sep 04 j 16:02 | 3° <b>II</b> 53'19 |             | conjunction      | 184 Jun 01 j 23:59 | 9° <b>II</b> 52'33  | -4°47'00    |
| opposition       | 177 Nov 25 j 04:40 | 2° <b>II</b> 51'40 | -7°03'11    | minimum elong    | 184 Jun 02 j 00:06 | 9° <b>II</b> 52'34  | 4°47'00     |
| min. Earth dist. | 177 Nov 26 j 15:03 | 2° <b>II</b> 49'57 | 44.20101 AU | morning rise     | 184 Jun 17 j 08:19 | 10° <b>II</b> 15'00 |             |
| direct           | 178 Feb 14 j 18:02 | 1° <b>II</b> 49'42 |             | retrograde       | 184 Sep 12 j 04:01 | 11° <b>II</b> 29'21 |             |
| evening set      | 178 May 12 j 05:17 | 3° <b>II</b> 01'58 |             | opposition       | 184 Dec 02 j 07:39 | 10° <b>II</b> 26'36 | -4°50'22    |
| max. Earth dist. | 178 May 25 j 03:28 | 3° <b>II</b> 20'23 | 46.09843 AU | min. Earth dist. | 184 Dec 04 j 00:23 | 10° <b>II</b> 24'32 | 42.88489 AU |
|                  |                    |                    |             | direct           | 185 Feb 21 j 23:33 | 9° <b>II</b> 23'17  |             |
| conjunction      | 178 May 26 j 17:40 | 3° <b>II</b> 22'40 | -6°36'16    | evening set      | 185 May 18 j 23:17 | 10° <b>II</b> 36'47 |             |
| minimum elong    | 178 May 26 j 17:49 | 3° <b>II</b> 22'41 | 6°36'16     | max. Earth dist. | 185 Jun 01 j 11:20 | 10° <b>II</b> 56'34 | 44.78015 AU |
| morning rise     | 178 Jun 10 j 06:38 | 3° <b>II</b> 43'27 |             |                  |                    |                     |             |
| retrograde       | 178 Sep 05 j 21:23 | 4° <b>II</b> 57'08 |             | conjunction      | 185 Jun 03 j 09:53 | 10° <b>II</b> 59'26 | -4°27'50    |
| opposition       | 178 Nov 26 j 11:24 | 3° <b>II</b> 55'19 | -6°45'05    | minimum elong    | 185 Jun 03 j 09:59 | 10° <b>II</b> 59'27 | 4°27'49     |
| min. Earth dist. | 178 Nov 27 j 22:24 | 3° <b>II</b> 53'35 | 44.02084 AU | morning rise     | 185 Jun 18 j 20:41 | 11° <b>II</b> 22'09 |             |
| direct           | 179 Feb 16 j 03:30 | 2° <b>II</b> 53'10 |             | retrograde       | 185 Sep 13 j 10:47 | 12° <b>II</b> 36'41 |             |
| evening set      | 179 May 13 j 10:16 | 4° <b>II</b> 05'32 |             | opposition       | 185 Dec 03 j 15:50 | 11° <b>II</b> 33'47 | -4°30'13    |

|                  |                    |            |             |                  |                    |            |             |
|------------------|--------------------|------------|-------------|------------------|--------------------|------------|-------------|
| min. Earth dist. | 185 Dec 05 j 10:20 | 11°II31'37 | 42.68513 AU | morning rise     | 192 Jun 27 j 14:13 | 19°II27'34 |             |
| direct           | 186 Feb 23 j 09:09 | 10°II30'15 |             | retrograde       | 192 Sep 21 j 14:15 | 20°II43'53 |             |
| evening set      | 186 May 20 j 06:55 | 11°II44'01 |             | opposition       | 192 Dec 11 j 07:04 | 19°II39'26 | -2°01'06    |
| max. Earth dist. | 186 Jun 02 j 20:15 | 12°II03'57 | 44.57932 AU | min. Earth dist. | 192 Dec 13 j 09:30 | 19°II36'47 | 41.18036 AU |
|                  |                    |            |             | direct           | 193 Mar 02 j 22:25 | 18°II34'00 |             |
| conjunction      | 186 Jun 04 j 20:01 | 12°II06'55 | -4°08'23    | evening set      | 193 May 27 j 23:49 | 19°II50'08 |             |
| minimum elong    | 186 Jun 04 j 20:08 | 12°II06'56 | 4°08'24     | max. Earth dist. | 193 Jun 10 j 17:36 | 20°II11'04 | 43.06818 AU |
| morning rise     | 186 Jun 20 j 09:21 | 12°II29'53 |             |                  |                    |            |             |
| retrograde       | 186 Sep 14 j 21:23 | 13°II44'38 |             | conjunction      | 193 Jun 13 j 01:43 | 20°II14'40 | -1°44'46    |
| opposition       | 186 Dec 05 j 00:07 | 12°II41'33 | -4°09'48    | minimum elong    | 193 Jun 13 j 01:46 | 20°II14'40 | 1°44'45     |
| min. Earth dist. | 186 Dec 06 j 19:05 | 12°II39'21 | 42.48122 AU | morning rise     | 193 Jun 29 j 03:03 | 20°II39'12 |             |
| direct           | 187 Feb 24 j 16:19 | 11°II37'47 |             | retrograde       | 193 Sep 23 j 03:18 | 21°II55'53 |             |
| evening set      | 187 May 21 j 14:57 | 12°II51'49 |             | opposition       | 193 Dec 12 j 17:05 | 20°II51'12 | -1°38'37    |
| max. Earth dist. | 187 Jun 04 j 04:13 | 13°II11'51 | 44.37401 AU | min. Earth dist. | 193 Dec 14 j 19:22 | 20°II48'33 | 40.95546 AU |
|                  |                    |            |             | direct           | 194 Mar 04 j 08:04 | 19°II45'30 |             |
| conjunction      | 187 Jun 06 j 06:24 | 13°II14'58 | -3°48'41    | evening set      | 194 May 29 j 11:00 | 21°II02'06 |             |
| minimum elong    | 187 Jun 06 j 06:29 | 13°II14'59 | 3°48'40     | max. Earth dist. | 194 Jun 12 j 03:40 | 21°II23'06 | 42.84304 AU |
| morning rise     | 187 Jun 21 j 22:04 | 13°II38'11 |             |                  |                    |            |             |
| retrograde       | 187 Sep 16 j 10:15 | 14°II53'09 |             | conjunction      | 194 Jun 14 j 13:46 | 21°II26'51 | -1°23'09    |
| opposition       | 187 Dec 06 j 08:48 | 13°II49'51 | -3°49'04    | minimum elong    | 194 Jun 14 j 13:48 | 21°II26'51 | 1°23'10     |
| min. Earth dist. | 187 Dec 08 j 06:05 | 13°II47'32 | 42.27291 AU | morning rise     | 194 Jun 30 j 16:11 | 21°II51'35 |             |
| direct           | 188 Feb 25 j 21:44 | 12°II45'50 |             | retrograde       | 194 Sep 24 j 17:20 | 23°II08'41 |             |
| evening set      | 188 May 21 j 23:22 | 14°II00'09 |             | opposition       | 194 Dec 14 j 03:23 | 22°II03'46 | -1°15'50    |
| max. Earth dist. | 188 Jun 04 j 14:29 | 14°II20'24 | 44.16437 AU | min. Earth dist. | 194 Dec 16 j 06:54 | 22°II01'03 | 40.72938 AU |
|                  |                    |            |             | direct           | 195 Mar 05 j 17:16 | 20°II57'48 |             |
| conjunction      | 188 Jun 06 j 17:10 | 14°II23'34 | -3°28'42    | evening set      | 195 May 30 j 22:34 | 22°II14'56 |             |
| minimum elong    | 188 Jun 06 j 17:15 | 14°II23'34 | 3°28'43     | max. Earth dist. | 195 Jun 13 j 16:09 | 22°II36'05 | 42.61646 AU |
| morning rise     | 188 Jun 22 j 10:49 | 14°II47'00 |             |                  |                    |            |             |
| retrograde       | 188 Sep 16 j 19:53 | 16°II02'11 |             | conjunction      | 195 Jun 16 j 02:21 | 22°II39'52 | -1°01'17    |
| opposition       | 188 Dec 06 j 17:31 | 14°II58'41 | -3°28'04    | minimum elong    | 195 Jun 16 j 02:22 | 22°II39'52 | 1°01'16     |
| min. Earth dist. | 188 Dec 08 j 15:19 | 14°II56'19 | 42.06040 AU | morning rise     | 195 Jul 02 j 05:20 | 23°II04'49 |             |
| direct           | 189 Feb 26 j 08:05 | 13°II54'23 |             | retrograde       | 195 Sep 26 j 03:39 | 24°II22'21 |             |
| evening set      | 189 May 23 j 08:20 | 15°II09'02 |             | opposition       | 195 Dec 15 j 14:06 | 23°II17'14 | -0°52'45    |
| max. Earth dist. | 189 Jun 05 j 22:58 | 15°II29'20 | 43.95080 AU | min. Earth dist. | 195 Dec 17 j 18:27 | 23°II14'27 | 40.50165 AU |
|                  |                    |            |             | direct           | 196 Mar 06 j 05:42 | 22°II11'00 |             |
| conjunction      | 189 Jun 08 j 03:58 | 15°II32'40 | -3°08'28    | evening set      | 196 May 31 j 10:58 | 23°II28'41 |             |
| minimum elong    | 189 Jun 08 j 04:03 | 15°II32'40 | 3°08'27     | max. Earth dist. | 196 Jun 14 j 03:40 | 23°II49'55 | 42.38808 AU |
| morning rise     | 189 Jun 23 j 23:42 | 15°II56'20 |             |                  |                    |            |             |
| retrograde       | 189 Sep 18 j 06:42 | 17°II11'46 |             | conjunction      | 196 Jun 16 j 15:11 | 23°II53'49 | -0°39'08    |
| opposition       | 189 Dec 08 j 02:33 | 16°II08'01 | -3°06'46    | minimum elong    | 196 Jun 16 j 15:12 | 23°II53'49 | 0°39'08     |
| min. Earth dist. | 189 Dec 10 j 01:44 | 16°II05'35 | 41.84440 AU | morning rise     | 196 Jul 02 j 18:46 | 24°II18'57 |             |
| direct           | 190 Feb 27 j 18:02 | 15°II03'27 |             | retrograde       | 196 Sep 26 j 15:42 | 25°II36'57 |             |
| evening set      | 190 May 24 j 17:21 | 16°II18'25 |             | opposition       | 196 Dec 16 j 00:58 | 24°II31'38 | -0°29'24    |
| max. Earth dist. | 190 Jun 07 j 09:24 | 16°II38'54 | 43.73377 AU | min. Earth dist. | 196 Dec 18 j 05:50 | 24°II28'49 | 40.27195 AU |
|                  |                    |            |             | direct           | 197 Mar 07 j 16:47 | 23°II25'09 |             |
| conjunction      | 190 Jun 09 j 14:58 | 16°II42'18 | -2°47'57    | evening set      | 197 Jun 01 j 23:55 | 24°II43'24 |             |
| minimum elong    | 190 Jun 09 j 15:02 | 16°II42'18 | 2°47'57     | max. Earth dist. | 197 Jun 15 j 15:30 | 25°II04'43 | 42.15711 AU |
| morning rise     | 190 Jun 25 j 12:18 | 17°II06'11 |             |                  |                    |            |             |
| retrograde       | 190 Sep 19 j 15:10 | 18°II21'53 |             | conjunction      | 197 Jun 18 j 04:30 | 25°II08'44 | -0°16'44    |
| opposition       | 190 Dec 09 j 11:53 | 17°II17'54 | -2°45'11    | minimum elong    | 197 Jun 18 j 04:30 | 25°II08'44 | 0°16'44     |
| min. Earth dist. | 190 Dec 11 j 12:25 | 17°II15'22 | 41.62525 AU | morning rise     | 197 Jul 04 j 08:14 | 25°II34'02 |             |
| direct           | 191 Mar 01 j 05:24 | 16°II13'03 |             | retrograde       | 197 Sep 28 j 05:05 | 26°II52'34 |             |
| evening set      | 191 May 26 j 03:06 | 17°II28'21 |             | opposition       | 197 Dec 17 j 12:28 | 25°II47'02 | -0°05'44    |
| max. Earth dist. | 191 Jun 08 j 19:34 | 17°II48'59 | 43.51403 AU | min. Earth dist. | 197 Dec 19 j 19:21 | 25°II44'05 | 40.03950 AU |
|                  |                    |            |             | direct           | 198 Mar 09 j 01:25 | 24°II40'16 |             |
| conjunction      | 191 Jun 11 j 02:16 | 17°II52'28 | -2°27'10    | asc. node        | 198 Mar 15 j 19:58 | 24°II40'49 |             |
| minimum elong    | 191 Jun 11 j 02:20 | 17°II52'28 | 2°27'09     | evening set      | 198 Jun 03 j 13:18 | 25°II59'07 |             |
| morning rise     | 191 Jun 27 j 01:16 | 18°II16'35 |             | max. Earth dist. | 198 Jun 17 j 04:31 | 26°II20'32 | 41.92317 AU |
| retrograde       | 191 Sep 21 j 01:55 | 19°II32'34 |             |                  |                    |            |             |
| opposition       | 191 Dec 10 j 21:11 | 18°II28'21 | -2°23'17    | conjunction      | 198 Jun 19 j 18:02 | 26°II24'37 | 0°06'01     |
| min. Earth dist. | 191 Dec 12 j 21:53 | 18°II25'48 | 41.40377 AU | minimum elong    | 198 Jun 19 j 18:02 | 26°II24'37 | 0°06'01     |
| direct           | 192 Mar 01 j 14:28 | 17°II23'12 |             | behind sun begin | 198 Jun 19 j 11:50 | 26°II24'14 |             |
| evening set      | 192 May 26 j 13:19 | 18°II38'54 |             | behind sun end   | 198 Jun 20 j 00:14 | 26°II25'00 |             |
| max. Earth dist. | 192 Jun 09 j 05:36 | 18°II59'38 | 43.29194 AU | morning rise     | 198 Jul 05 j 21:47 | 26°II50'06 |             |
|                  |                    |            |             | retrograde       | 198 Sep 29 j 19:32 | 28°II09'10 |             |
| conjunction      | 192 Jun 11 j 13:54 | 19°II03'14 | -2°06'06    | opposition       | 198 Dec 19 j 00:12 | 27°II03'23 | 0°18'12     |
| minimum elong    | 192 Jun 11 j 13:58 | 19°II03'14 | 2°06'06     | min. Earth dist. | 198 Dec 21 j 07:16 | 27°II00'25 | 39.80383 AU |

|                  |                    |                          |             |                  |                    |                          |             |
|------------------|--------------------|--------------------------|-------------|------------------|--------------------|--------------------------|-------------|
| direct           | 199 Mar 10 j 12:17 | 25° $\Pi$ 56'19          |             | max. Earth dist. | 205 Jun 26 j 07:05 | 5° $\mathfrak{C}$ 37'03  | 40.20426 AU |
| evening set      | 199 Jun 05 j 03:37 | 27° $\Pi$ 15'49          |             |                  |                    |                          |             |
| max. Earth dist. | 199 Jun 18 j 16:06 | 27° $\Pi$ 37'12          | 41.68572 AU | conjunction      | 205 Jun 29 j 04:13 | 5° $\mathfrak{C}$ 41'51  | 2°51'31     |
|                  |                    |                          |             | minimum elong    | 205 Jun 29 j 04:08 | 5° $\mathfrak{C}$ 41'51  | 2°51'31     |
| conjunction      | 199 Jun 21 j 08:06 | 27° $\Pi$ 41'28          | 0°28'54     | morning rise     | 205 Jul 15 j 00:27 | 6° $\mathfrak{C}$ 08'06  |             |
| minimum elong    | 199 Jun 21 j 08:05 | 27° $\Pi$ 41'28          | 0°28'54     | retrograde       | 205 Oct 09 j 06:27 | 7° $\mathfrak{C}$ 31'41  |             |
| morning rise     | 199 Jul 07 j 11:42 | 28° $\Pi$ 07'06          |             | opposition       | 205 Dec 27 j 20:51 | 6° $\mathfrak{C}$ 23'45  | 3°13'18     |
| retrograde       | 199 Oct 01 j 12:24 | 29° $\Pi$ 26'43          |             | min. Earth dist. | 205 Dec 30 j 10:31 | 6° $\mathfrak{C}$ 20'18  | 38.08064 AU |
| opposition       | 199 Dec 20 j 12:17 | 28° $\Pi$ 20'41          | 0°42'25     | direct           | 206 Mar 19 j 07:16 | 5° $\mathfrak{C}$ 14'07  |             |
| min. Earth dist. | 199 Dec 22 j 21:20 | 28° $\Pi$ 17'35          | 39.56479 AU | evening set      | 206 Jun 15 j 01:06 | 6° $\mathfrak{C}$ 38'58  |             |
| direct           | 200 Mar 10 j 22:57 | 27° $\Pi$ 13'17          |             | max. Earth dist. | 206 Jun 27 j 22:02 | 7° $\mathfrak{C}$ 00'23  | 39.95295 AU |
| evening set      | 200 Jun 05 j 18:26 | 28° $\Pi$ 33'27          |             |                  |                    |                          |             |
| max. Earth dist. | 200 Jun 19 j 06:21 | 28° $\Pi$ 54'56          | 41.44481 AU | conjunction      | 206 Jun 30 j 20:47 | 7° $\mathfrak{C}$ 05'20  | 3°16'04     |
|                  |                    |                          |             | minimum elong    | 206 Jun 30 j 20:41 | 7° $\mathfrak{C}$ 05'20  | 3°16'04     |
| conjunction      | 200 Jun 21 j 22:41 | 28° $\Pi$ 59'15          | 0°52'04     | morning rise     | 206 Jul 16 j 14:57 | 7° $\mathfrak{C}$ 31'37  |             |
| minimum elong    | 200 Jun 21 j 22:39 | 28° $\Pi$ 59'15          | 0°52'04     | retrograde       | 206 Oct 11 j 01:50 | 8° $\mathfrak{C}$ 56'01  |             |
| morning rise     | 200 Jul 08 j 01:37 | 29° $\Pi$ 25'01          |             | opposition       | 206 Dec 29 j 11:46 | 7° $\mathfrak{C}$ 47'46  | 3°39'17     |
|                  | 200 Jul 31 j 22:15 | 0° $\mathfrak{C}$        |             | min. Earth dist. | 207 Jan 01 j 02:13 | 7° $\mathfrak{C}$ 44'15  | 37.83012 AU |
| retrograde       | 200 Oct 02 j 02:57 | 0° $\mathfrak{C}$ 45'13  |             | direct           | 207 Mar 20 j 21:56 | 6° $\mathfrak{C}$ 37'46  |             |
|                  | 200 Dec 04 j 14:21 | 30° $\mathfrak{K}$ $\Pi$ |             | evening set      | 207 Jun 16 j 20:49 | 8° $\mathfrak{C}$ 03'34  |             |
| opposition       | 200 Dec 21 j 00:49 | 29° $\Pi$ 38'53          | 1°06'54     | max. Earth dist. | 207 Jun 29 j 15:26 | 8° $\mathfrak{C}$ 24'59  | 39.70131 AU |
| min. Earth dist. | 200 Dec 23 j 10:44 | 29° $\Pi$ 35'44          | 39.32242 AU |                  |                    |                          |             |
| direct           | 201 Mar 12 j 13:36 | 28° $\Pi$ 31'09          |             | conjunction      | 207 Jul 02 j 14:11 | 8° $\mathfrak{C}$ 29'59  | 3°40'48     |
| evening set      | 201 Jun 07 j 09:53 | 29° $\Pi$ 52'00          |             | minimum elong    | 207 Jul 02 j 14:04 | 8° $\mathfrak{C}$ 29'59  | 3°40'47     |
|                  | 201 Jun 12 j 10:48 | 0° $\mathfrak{C}$        |             | morning rise     | 207 Jul 18 j 05:37 | 8° $\mathfrak{C}$ 56'18  |             |
| max. Earth dist. | 201 Jun 20 j 19:01 | 0° $\mathfrak{C}$ 13'28  | 41.20080 AU | retrograde       | 207 Oct 12 j 18:51 | 10° $\mathfrak{C}$ 21'34 |             |
|                  |                    |                          |             | opposition       | 207 Dec 31 j 03:09 | 9° $\mathfrak{C}$ 13'01  | 4°05'30     |
| conjunction      | 201 Jun 23 j 13:17 | 0° $\mathfrak{C}$ 17'56  | 1°15'29     | min. Earth dist. | 208 Jan 02 j 18:34 | 9° $\mathfrak{C}$ 09'25  | 37.57925 AU |
| minimum elong    | 201 Jun 23 j 13:14 | 0° $\mathfrak{C}$ 17'56  | 1°15'29     | direct           | 208 Mar 21 j 14:13 | 8° $\mathfrak{C}$ 02'38  |             |
| morning rise     | 201 Jul 09 j 15:36 | 0° $\mathfrak{C}$ 43'50  |             | evening set      | 208 Jun 17 j 17:35 | 9° $\mathfrak{C}$ 29'28  |             |
| retrograde       | 201 Oct 03 j 18:09 | 2° $\mathfrak{C}$ 04'38  |             | max. Earth dist. | 208 Jun 30 j 08:20 | 9° $\mathfrak{C}$ 50'47  | 39.44926 AU |
| opposition       | 201 Dec 22 j 13:37 | 0° $\mathfrak{C}$ 58'00  | 1°31'40     |                  |                    |                          |             |
| min. Earth dist. | 201 Dec 25 j 00:21 | 0° $\mathfrak{C}$ 54'47  | 39.07736 AU | conjunction      | 208 Jul 03 j 07:59 | 9° $\mathfrak{C}$ 55'53  | 4°05'43     |
|                  | 202 Feb 13 j 09:05 | 30° $\mathfrak{K}$ $\Pi$ |             | minimum elong    | 208 Jul 03 j 07:52 | 9° $\mathfrak{C}$ 55'53  | 4°05'43     |
| direct           | 202 Mar 14 j 02:36 | 29° $\Pi$ 49'54          |             | morning rise     | 208 Jul 18 j 20:37 | 10° $\mathfrak{C}$ 22'14 |             |
|                  | 202 Apr 11 j 15:09 | 0° $\mathfrak{C}$        |             | retrograde       | 208 Oct 13 j 12:18 | 11° $\mathfrak{C}$ 48'25 |             |
| evening set      | 202 Jun 09 j 01:53 | 1° $\mathfrak{C}$ 11'28  |             | opposition       | 208 Dec 31 j 19:01 | 10° $\mathfrak{C}$ 39'33 | 4°31'55     |
| max. Earth dist. | 202 Jun 22 j 09:12 | 1° $\mathfrak{C}$ 32'57  | 40.95408 AU | min. Earth dist. | 209 Jan 03 j 10:31 | 10° $\mathfrak{C}$ 35'56 | 37.32786 AU |
|                  |                    |                          |             | direct           | 209 Mar 23 j 05:52 | 9° $\mathfrak{C}$ 28'49  |             |
| conjunction      | 202 Jun 25 j 04:28 | 1° $\mathfrak{C}$ 37'32  | 1°39'09     | evening set      | 209 Jun 19 j 15:02 | 10° $\mathfrak{C}$ 56'43 |             |
| minimum elong    | 202 Jun 25 j 04:25 | 1° $\mathfrak{C}$ 37'31  | 1°39'09     | max. Earth dist. | 209 Jul 02 j 01:16 | 11° $\mathfrak{C}$ 17'53 | 39.19607 AU |
| morning rise     | 202 Jul 11 j 05:37 | 2° $\mathfrak{C}$ 03'32  |             |                  |                    |                          |             |
| retrograde       | 202 Oct 05 j 05:51 | 3° $\mathfrak{C}$ 24'58  |             | conjunction      | 209 Jul 05 j 02:15 | 11° $\mathfrak{C}$ 23'08 | 4°30'48     |
| opposition       | 202 Dec 24 j 02:48 | 2° $\mathfrak{C}$ 18'01  | 1°56'42     | minimum elong    | 209 Jul 05 j 02:06 | 11° $\mathfrak{C}$ 23'07 | 4°30'48     |
| min. Earth dist. | 202 Dec 26 j 15:07 | 2° $\mathfrak{C}$ 14'41  | 38.83000 AU | morning rise     | 209 Jul 20 j 11:30 | 11° $\mathfrak{C}$ 49'28 |             |
| direct           | 203 Mar 15 j 16:44 | 1° $\mathfrak{C}$ 09'33  |             | retrograde       | 209 Oct 15 j 05:53 | 13° $\mathfrak{C}$ 16'38 |             |
| evening set      | 203 Jun 10 j 18:37 | 2° $\mathfrak{C}$ 31'51  |             | opposition       | 210 Jan 02 j 11:34 | 12° $\mathfrak{C}$ 07'28 | 4°58'32     |
| max. Earth dist. | 203 Jun 24 j 00:13 | 2° $\mathfrak{C}$ 53'22  | 40.70545 AU | min. Earth dist. | 210 Jan 05 j 04:49 | 12° $\mathfrak{C}$ 03'43 | 37.07526 AU |
|                  |                    |                          |             | direct           | 210 Mar 24 j 20:18 | 10° $\mathfrak{C}$ 56'21 |             |
| conjunction      | 203 Jun 26 j 19:58 | 2° $\mathfrak{C}$ 58'01  | 2°03'03     | evening set      | 210 Jun 21 j 13:31 | 12° $\mathfrak{C}$ 25'21 |             |
| minimum elong    | 203 Jun 26 j 19:54 | 2° $\mathfrak{C}$ 58'01  | 2°03'03     | max. Earth dist. | 210 Jul 03 j 20:08 | 12° $\mathfrak{C}$ 46'28 | 38.94145 AU |
| morning rise     | 203 Jul 12 j 19:53 | 3° $\mathfrak{C}$ 24'07  |             |                  |                    |                          |             |
| retrograde       | 203 Oct 06 j 20:41 | 4° $\mathfrak{C}$ 46'13  |             | conjunction      | 210 Jul 06 j 21:11 | 12° $\mathfrak{C}$ 51'45 | 4°56'03     |
| opposition       | 203 Dec 25 j 16:20 | 3° $\mathfrak{C}$ 38'57  | 2°21'59     | minimum elong    | 210 Jul 06 j 21:02 | 12° $\mathfrak{C}$ 51'45 | 4°56'03     |
| min. Earth dist. | 203 Dec 28 j 04:33 | 3° $\mathfrak{C}$ 35'36  | 38.58105 AU | morning rise     | 210 Jul 22 j 02:46 | 13° $\mathfrak{C}$ 18'03 |             |
| direct           | 204 Mar 16 j 05:24 | 2° $\mathfrak{C}$ 30'05  |             | retrograde       | 210 Oct 17 j 01:17 | 14° $\mathfrak{C}$ 46'15 |             |
| evening set      | 204 Jun 11 j 12:08 | 3° $\mathfrak{C}$ 53'11  |             | opposition       | 211 Jan 04 j 04:27 | 13° $\mathfrak{C}$ 36'45 | 5°25'19     |
| max. Earth dist. | 204 Jun 24 j 14:21 | 4° $\mathfrak{C}$ 14'38  | 40.45523 AU | min. Earth dist. | 211 Jan 06 j 21:43 | 13° $\mathfrak{C}$ 32'59 | 36.82105 AU |
|                  |                    |                          |             | direct           | 211 Mar 26 j 11:43 | 12° $\mathfrak{C}$ 25'14 |             |
| conjunction      | 204 Jun 27 j 11:51 | 4° $\mathfrak{C}$ 19'26  | 2°27'11     | evening set      | 211 Jun 23 j 13:05 | 13° $\mathfrak{C}$ 55'26 |             |
| minimum elong    | 204 Jun 27 j 11:47 | 4° $\mathfrak{C}$ 19'26  | 2°27'12     | max. Earth dist. | 211 Jul 05 j 13:26 | 14° $\mathfrak{C}$ 16'16 | 38.68490 AU |
| morning rise     | 204 Jul 13 j 10:09 | 4° $\mathfrak{C}$ 45'37  |             |                  |                    |                          |             |
| retrograde       | 204 Oct 07 j 13:43 | 6° $\mathfrak{C}$ 08'26  |             | conjunction      | 211 Jul 08 j 16:41 | 14° $\mathfrak{C}$ 21'46 | 5°21'27     |
| opposition       | 204 Dec 26 j 06:21 | 5° $\mathfrak{C}$ 00'50  | 2°47'31     | minimum elong    | 211 Jul 08 j 16:31 | 14° $\mathfrak{C}$ 21'45 | 5°21'26     |
| min. Earth dist. | 204 Dec 28 j 20:16 | 4° $\mathfrak{C}$ 57'23  | 38.33109 AU | morning rise     | 211 Jul 23 j 18:21 | 14° $\mathfrak{C}$ 48'00 |             |
| direct           | 205 Mar 17 j 15:57 | 3° $\mathfrak{C}$ 51'35  |             | retrograde       | 211 Oct 18 j 22:41 | 16° $\mathfrak{C}$ 17'16 |             |
| evening set      | 205 Jun 13 j 06:13 | 5° $\mathfrak{C}$ 15'32  |             | opposition       | 212 Jan 05 j 22:04 | 15° $\mathfrak{C}$ 07'25 | 5°52'17     |



|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
| min. Earth dist. | 212 Jan 08 j 17:04 | 15°☾03'32 | 36.56506 AU | morning rise     | 218 Aug 02 j 09:49 | 25°☾56'20 |             |
| direct           | 212 Mar 27 j 02:59 | 13°☾55'29 |             | retrograde       | 218 Oct 30 j 09:35 | 27°☾34'41 |             |
| evening set      | 212 Jun 24 j 13:28 | 15°☾26'55 |             | opposition       | 219 Jan 16 j 17:09 | 26°☾22'04 | 9°03'41     |
| max. Earth dist. | 212 Jul 06 j 09:31 | 15°☾47'37 | 38.42643 AU | min. Earth dist. | 219 Jan 19 j 15:24 | 26°☾17'48 | 34.75950 AU |
|                  |                    |           |             | direct           | 219 Apr 07 j 17:31 | 25°☾06'55 |             |
| conjunction      | 212 Jul 09 j 12:50 | 15°☾53'10 | 5°46'58     | evening set      | 219 Jul 08 j 20:58 | 26°☾48'38 |             |
| minimum elong    | 212 Jul 09 j 12:39 | 15°☾53'09 | 5°46'59     | max. Earth dist. | 219 Jul 18 j 18:24 | 27°☾07'08 | 36.60864 AU |
| morning rise     | 212 Jul 24 j 09:53 | 16°☾19'18 |             |                  |                    |           |             |
| retrograde       | 212 Oct 19 j 19:21 | 17°☾49'42 |             | conjunction      | 219 Jul 22 j 00:49 | 27°☾13'18 | 8°47'15     |
| opposition       | 213 Jan 06 j 16:13 | 16°☾39'29 | 6°19'23     | minimum elong    | 219 Jul 22 j 00:32 | 27°☾13'16 | 8°47'14     |
| min. Earth dist. | 213 Jan 09 j 11:46 | 16°☾35'32 | 36.30731 AU | morning rise     | 219 Aug 04 j 02:11 | 27°☾37'48 |             |
| direct           | 213 Mar 28 j 22:39 | 15°☾27'07 |             | retrograde       | 219 Nov 01 j 11:14 | 29°☾17'43 |             |
| evening set      | 213 Jun 26 j 14:58 | 16°☾59'49 |             | opposition       | 220 Jan 18 j 15:40 | 28°☾04'44 | 9°31'01     |
| max. Earth dist. | 213 Jul 08 j 04:23 | 17°☾20'14 | 38.16647 AU | min. Earth dist. | 220 Jan 21 j 13:57 | 28°☾00'26 | 34.50700 AU |
|                  |                    |           |             | direct           | 220 Apr 08 j 17:09 | 26°☾49'08 |             |
| conjunction      | 213 Jul 11 j 09:22 | 17°☾25'57 | 6°12'37     | evening set      | 220 Jul 10 j 06:11 | 28°☾32'39 |             |
| minimum elong    | 213 Jul 11 j 09:09 | 17°☾25'57 | 6°12'36     | max. Earth dist. | 220 Jul 19 j 18:24 | 28°☾50'37 | 36.35485 AU |
| morning rise     | 213 Jul 26 j 01:43 | 17°☾51'58 |             |                  |                    |           |             |
| retrograde       | 213 Oct 21 j 18:09 | 19°☾23'31 |             | conjunction      | 220 Jul 23 j 01:32 | 28°☾56'54 | 9°12'50     |
| opposition       | 214 Jan 08 j 10:50 | 18°☾12'56 | 6°46'38     | minimum elong    | 220 Jul 23 j 01:13 | 28°☾56'52 | 9°12'50     |
| min. Earth dist. | 214 Jan 11 j 06:55 | 18°☾08'56 | 36.04852 AU | morning rise     | 220 Aug 04 j 18:44 | 29°☾21'00 |             |
| direct           | 214 Mar 30 j 17:44 | 17°☾00'07 |             |                  | 220 Aug 26 j 15:33 | 0°♂       |             |
| evening set      | 214 Jun 28 j 17:09 | 18°☾34'09 |             | retrograde       | 220 Nov 02 j 14:38 | 1°♂02'36  |             |
| max. Earth dist. | 214 Jul 10 j 01:01 | 18°☾54'20 | 37.90539 AU |                  | 221 Jan 12 j 07:05 | 30°☾☿     |             |
|                  |                    |           |             | opposition       | 221 Jan 19 j 14:47 | 29°☾49'13 | 9°58'14     |
| conjunction      | 214 Jul 13 j 06:29 | 19°☾00'09 | 6°38'20     | min. Earth dist. | 221 Jan 22 j 12:49 | 29°☾44'55 | 34.25677 AU |
| minimum elong    | 214 Jul 13 j 06:15 | 19°☾00'08 | 6°38'21     | direct           | 221 Apr 10 j 15:53 | 28°☾33'10 |             |
| morning rise     | 214 Jul 27 j 17:27 | 19°☾26'00 |             |                  | 221 Jul 02 j 16:30 | 0°♂       |             |
| retrograde       | 214 Oct 23 j 14:05 | 20°☾58'47 |             | evening set      | 221 Jul 12 j 16:35 | 0°♂18'35  |             |
| opposition       | 215 Jan 10 j 06:10 | 19°☾47'48 | 7°13'58     | max. Earth dist. | 221 Jul 21 j 20:05 | 0°♂36'02  | 36.10287 AU |
| min. Earth dist. | 215 Jan 13 j 03:34 | 19°☾43'41 | 35.78900 AU |                  |                    |           |             |
| direct           | 215 Apr 01 j 13:03 | 18°☾34'31 |             | conjunction      | 221 Jul 25 j 03:11 | 0°♂42'22  | 9°38'17     |
| evening set      | 215 Jun 30 j 20:38 | 20°☾09'56 |             | minimum elong    | 221 Jul 25 j 02:52 | 0°♂42'21  | 9°38'17     |
| max. Earth dist. | 215 Jul 11 j 22:24 | 20°☾29'51 | 37.64400 AU | morning rise     | 221 Aug 06 j 11:24 | 1°♂06'00  |             |
|                  |                    |           |             | retrograde       | 221 Nov 04 j 15:30 | 2°♂49'21  |             |
| conjunction      | 215 Jul 15 j 04:11 | 20°☾35'44 | 7°04'08     | opposition       | 222 Jan 21 j 14:49 | 1°♂35'36  | 10°25'18    |
| minimum elong    | 215 Jul 15 j 03:57 | 20°☾35'43 | 7°04'07     | min. Earth dist. | 222 Jan 24 j 13:50 | 1°♂31'12  | 34.00832 AU |
| morning rise     | 215 Jul 29 j 09:29 | 21°☾01'25 |             | direct           | 222 Apr 12 j 15:04 | 0°♂19'07  |             |
| retrograde       | 215 Oct 25 j 10:36 | 22°☾35'28 |             | evening set      | 222 Jul 15 j 04:27 | 2°♂06'28  |             |
| opposition       | 216 Jan 12 j 01:49 | 21°☾24'05 | 7°41'23     | max. Earth dist. | 222 Jul 23 j 22:29 | 2°♂23'21  | 35.85252 AU |
| min. Earth dist. | 216 Jan 14 j 22:54 | 21°☾19'58 | 35.52964 AU |                  |                    |           |             |
| direct           | 216 Apr 02 j 08:33 | 20°☾10'19 |             | conjunction      | 222 Jul 27 j 05:25 | 2°♂29'45  | 10°03'33    |
| evening set      | 216 Jul 02 j 01:06 | 21°☾47'12 |             | minimum elong    | 222 Jul 27 j 05:04 | 2°♂29'43  | 10°03'34    |
| max. Earth dist. | 216 Jul 12 j 19:27 | 22°☾06'45 | 37.38284 AU | morning rise     | 222 Aug 08 j 04:11 | 2°♂52'51  |             |
|                  |                    |           |             | retrograde       | 222 Nov 06 j 18:27 | 4°♂38'01  |             |
| conjunction      | 216 Jul 16 j 02:28 | 22°☾12'47 | 7°29'57     | opposition       | 223 Jan 23 j 15:30 | 3°♂23'53  | 10°52'11    |
| minimum elong    | 216 Jul 16 j 02:13 | 22°☾12'46 | 7°29'57     | min. Earth dist. | 223 Jan 26 j 13:56 | 3°♂19'30  | 33.76130 AU |
| morning rise     | 216 Jul 30 j 01:34 | 22°☾38'14 |             | direct           | 223 Apr 14 j 15:20 | 2°♂06'57  |             |
| retrograde       | 216 Oct 26 j 08:42 | 24°☾13'38 |             | evening set      | 223 Jul 17 j 17:49 | 3°♂56'21  |             |
| opposition       | 217 Jan 12 j 22:23 | 23°☾01'51 | 8°08'50     | max. Earth dist. | 223 Jul 26 j 00:35 | 4°♂12'29  | 35.60323 AU |
| min. Earth dist. | 217 Jan 15 j 20:44 | 22°☾57'37 | 35.27115 AU |                  |                    |           |             |
| direct           | 217 Apr 04 j 01:39 | 21°☾47'37 |             | conjunction      | 223 Jul 29 j 08:37 | 4°♂19'02  | 10°28'37    |
| evening set      | 217 Jul 04 j 06:27 | 23°☾26'01 |             | minimum elong    | 223 Jul 29 j 08:17 | 4°♂19'00  | 10°28'37    |
| max. Earth dist. | 217 Jul 14 j 19:05 | 23°☾45'19 | 37.12287 AU | morning rise     | 223 Aug 09 j 21:15 | 4°♂41'33  |             |
|                  |                    |           |             | retrograde       | 223 Nov 08 j 21:47 | 6°♂28'38  |             |
| conjunction      | 217 Jul 18 j 01:11 | 23°☾51'20 | 7°55'46     | opposition       | 224 Jan 25 j 17:04 | 5°♂14'05  | 11°18'51    |
| minimum elong    | 217 Jul 18 j 00:55 | 23°☾51'19 | 7°55'46     | min. Earth dist. | 224 Jan 28 j 16:52 | 5°♂09'35  | 33.51550 AU |
| morning rise     | 217 Jul 31 j 17:29 | 24°☾16'30 |             | direct           | 224 Apr 15 j 13:20 | 3°♂56'40  |             |
| retrograde       | 217 Oct 28 j 07:36 | 25°☾53'21 |             | evening set      | 224 Jul 19 j 08:43 | 5°♂48'11  |             |
| opposition       | 218 Jan 14 j 19:29 | 24°☾41'09 | 8°36'16     | max. Earth dist. | 224 Jul 27 j 05:18 | 6°♂03'39  | 35.35522 AU |
| min. Earth dist. | 218 Jan 17 j 17:03 | 24°☾36'56 | 35.01421 AU |                  |                    |           |             |
| direct           | 218 Apr 05 j 21:34 | 23°☾26'27 |             | conjunction      | 224 Jul 30 j 12:36 | 6°♂10'12  | 10°53'26    |
| evening set      | 218 Jul 06 j 13:08 | 25°☾06'28 |             | minimum elong    | 224 Jul 30 j 12:14 | 6°♂10'10  | 10°53'25    |
| max. Earth dist. | 218 Jul 16 j 17:16 | 25°☾25'18 | 36.86468 AU | morning rise     | 224 Aug 10 j 14:15 | 6°♂32'04  |             |
|                  |                    |           |             | retrograde       | 224 Nov 10 j 01:19 | 8°♂21'08  |             |
| conjunction      | 218 Jul 20 j 00:34 | 25°☾31'28 | 8°21'33     | opposition       | 225 Jan 26 j 19:29 | 7°♂06'10  | 11°45'15    |
| minimum elong    | 218 Jul 20 j 00:17 | 25°☾31'27 | 8°21'32     | min. Earth dist. | 225 Jan 29 j 18:36 | 7°♂01'40  | 33.27105 AU |

|                  |                    |                    |             |                  |                    |                    |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|--------------------|-------------|
| direct           | 225 Apr 17 j 15:42 | 5° $\Omega$ 48'16  |             | conjunction      | 231 Aug 14 j 12:29 | 20° $\Omega$ 01'30 | 13°35'08    |
| evening set      | 225 Jul 22 j 00:55 | 7° $\Omega$ 41'59  |             | minimum elong    | 231 Aug 14 j 12:07 | 20° $\Omega$ 01'28 | 13°35'07    |
| max. Earth dist. | 225 Jul 29 j 08:33 | 7° $\Omega$ 56'32  | 35.10867 AU | morning rise     | 231 Aug 21 j 07:56 | 20° $\Omega$ 15'57 |             |
|                  |                    |                    |             | retrograde       | 231 Nov 25 j 07:45 | 22° $\Omega$ 22'02 |             |
| conjunction      | 225 Aug 01 j 17:03 | 8° $\Omega$ 03'15  | 11°17'56    | opposition       | 232 Feb 10 j 10:45 | 21° $\Omega$ 04'01 | 14°36'56    |
| minimum elong    | 225 Aug 01 j 16:42 | 8° $\Omega$ 03'14  | 11°17'56    | min. Earth dist. | 232 Feb 13 j 07:03 | 20° $\Omega$ 59'30 | 31.64857 AU |
| morning rise     | 225 Aug 12 j 07:14 | 8° $\Omega$ 24'23  |             | direct           | 232 May 01 j 00:52 | 19° $\Omega$ 42'43 |             |
| retrograde       | 225 Nov 12 j 07:43 | 10° $\Omega$ 15'32 |             | evening set      | 232 Aug 09 j 22:03 | 21° $\Omega$ 55'25 |             |
| opposition       | 226 Jan 28 j 22:39 | 9° $\Omega$ 00'07  | 12°11'19    | max. Earth dist. | 232 Aug 12 j 18:25 | 22° $\Omega$ 01'31 | 33.47964 AU |
| min. Earth dist. | 226 Jan 31 j 22:23 | 8° $\Omega$ 55'33  | 33.02846 AU |                  |                    |                    |             |
| direct           | 226 Apr 19 j 16:38 | 7° $\Omega$ 41'42  |             | conjunction      | 232 Aug 15 j 22:27 | 22° $\Omega$ 08'19 | 13°55'40    |
| evening set      | 226 Jul 24 j 18:49 | 9° $\Omega$ 37'44  |             | minimum elong    | 232 Aug 15 j 22:03 | 22° $\Omega$ 08'17 | 13°55'40    |
| max. Earth dist. | 226 Jul 31 j 15:06 | 9° $\Omega$ 51'30  | 34.86407 AU | morning rise     | 232 Aug 21 j 21:36 | 22° $\Omega$ 21'06 |             |
|                  |                    |                    |             | retrograde       | 232 Nov 26 j 19:05 | 24° $\Omega$ 30'18 |             |
| conjunction      | 226 Aug 03 j 22:32 | 9° $\Omega$ 58'11  | 11°42'05    | opposition       | 233 Feb 11 j 19:55 | 23° $\Omega$ 11'55 | 14°58'39    |
| minimum elong    | 226 Aug 03 j 22:09 | 9° $\Omega$ 58'09  | 11°42'05    | min. Earth dist. | 233 Feb 14 j 16:06 | 23° $\Omega$ 07'23 | 31.43749 AU |
| morning rise     | 226 Aug 14 j 00:07 | 10° $\Omega$ 18'29 |             | direct           | 233 May 03 j 05:57 | 21° $\Omega$ 50'13 |             |
| retrograde       | 226 Nov 14 j 13:03 | 12° $\Omega$ 11'48 |             | evening set      | 233 Aug 13 j 08:15 | 24° $\Omega$ 06'28 |             |
| opposition       | 227 Jan 31 j 02:30 | 10° $\Omega$ 55'56 | 12°37'00    | max. Earth dist. | 233 Aug 15 j 07:25 | 24° $\Omega$ 10'43 | 33.26846 AU |
| min. Earth dist. | 227 Feb 03 j 02:11 | 10° $\Omega$ 51'21 | 32.78810 AU |                  |                    |                    |             |
| direct           | 227 Apr 21 j 20:26 | 9° $\Omega$ 37'01  |             | conjunction      | 233 Aug 18 j 09:09 | 24° $\Omega$ 17'23 | 14°15'21    |
| evening set      | 227 Jul 27 j 14:28 | 11° $\Omega$ 35'27 |             | minimum elong    | 233 Aug 18 j 08:47 | 24° $\Omega$ 17'21 | 14°15'21    |
| max. Earth dist. | 227 Aug 02 j 20:38 | 11° $\Omega$ 48'10 | 34.62215 AU | morning rise     | 233 Aug 23 j 08:57 | 24° $\Omega$ 28'12 |             |
|                  |                    |                    |             | retrograde       | 233 Nov 29 j 06:14 | 26° $\Omega$ 40'48 |             |
| conjunction      | 227 Aug 06 j 04:38 | 11° $\Omega$ 54'58 | 12°05'49    | opposition       | 234 Feb 14 j 05:59 | 25° $\Omega$ 22'05 | 15°19'26    |
| minimum elong    | 227 Aug 06 j 04:15 | 11° $\Omega$ 54'56 | 12°05'49    | min. Earth dist. | 234 Feb 17 j 00:49 | 25° $\Omega$ 17'36 | 31.23214 AU |
| morning rise     | 227 Aug 15 j 17:01 | 12° $\Omega$ 14'22 |             | direct           | 234 May 05 j 14:57 | 24° $\Omega$ 00'00 |             |
| retrograde       | 227 Nov 16 j 21:35 | 14° $\Omega$ 09'57 |             | evening set      | 234 Aug 17 j 00:09 | 26° $\Omega$ 20'16 |             |
| opposition       | 228 Feb 02 j 07:12 | 12° $\Omega$ 53'37 | 13°02'14    | max. Earth dist. | 234 Aug 17 j 18:56 | 26° $\Omega$ 21'59 | 33.06301 AU |
| min. Earth dist. | 228 Feb 05 j 06:27 | 12° $\Omega$ 49'02 | 32.55089 AU |                  |                    |                    |             |
| direct           | 228 Apr 23 j 00:35 | 11° $\Omega$ 34'11 |             | conjunction      | 234 Aug 20 j 20:43 | 26° $\Omega$ 28'42 | 14°34'07    |
| evening set      | 228 Jul 29 j 11:37 | 13° $\Omega$ 35'10 |             | minimum elong    | 234 Aug 20 j 20:20 | 26° $\Omega$ 28'40 | 14°34'07    |
| max. Earth dist. | 228 Aug 04 j 04:20 | 13° $\Omega$ 46'51 | 34.38352 AU | morning rise     | 234 Aug 24 j 16:21 | 26° $\Omega$ 37'03 |             |
|                  |                    |                    |             | retrograde       | 234 Dec 01 j 20:29 | 28° $\Omega$ 53'34 |             |
| conjunction      | 228 Aug 07 j 11:29 | 13° $\Omega$ 53'39 | 12°29'04    | opposition       | 235 Feb 16 j 16:47 | 27° $\Omega$ 34'29 | 15°39'13    |
| minimum elong    | 228 Aug 07 j 11:05 | 13° $\Omega$ 53'37 | 12°29'04    | min. Earth dist. | 235 Feb 19 j 11:00 | 27° $\Omega$ 30'02 | 31.03243 AU |
| morning rise     | 228 Aug 16 j 09:27 | 14° $\Omega$ 12'00 |             | direct           | 235 May 08 j 00:25 | 26° $\Omega$ 12'01 |             |
|                  | 228 Sep 09 j 23:05 | 15° $\Omega$       |             | max. Earth dist. | 235 Aug 20 j 09:35 | 28° $\Omega$ 35'40 | 32.86301 AU |
| retrograde       | 228 Nov 18 j 04:56 | 16° $\Omega$ 09'59 |             | evening set      | 235 Aug 21 j 05:15 | 28° $\Omega$ 37'28 |             |
|                  | 229 Jan 30 j 04:15 | 15° $\Omega$       |             |                  |                    |                    |             |
| opposition       | 229 Feb 03 j 12:54 | 14° $\Omega$ 53'13 | 13°26'55    | conjunction      | 235 Aug 23 j 09:20 | 28° $\Omega$ 42'16 | 14°51'55    |
| min. Earth dist. | 229 Feb 06 j 12:20 | 14° $\Omega$ 48'35 | 32.31747 AU | minimum elong    | 235 Aug 23 j 08:59 | 28° $\Omega$ 42'14 | 14°51'55    |
| direct           | 229 Apr 25 j 06:24 | 13° $\Omega$ 33'17 |             | morning rise     | 235 Aug 25 j 12:40 | 28° $\Omega$ 46'59 |             |
|                  | 229 Jul 14 j 00:49 | 15° $\Omega$       |             |                  | 235 Sep 29 j 08:49 | 0° $\Omega$        |             |
| evening set      | 229 Aug 01 j 10:50 | 15° $\Omega$ 36'55 |             | retrograde       | 235 Dec 04 j 09:21 | 1° $\Omega$ 08'32  |             |
| max. Earth dist. | 229 Aug 06 j 12:36 | 15° $\Omega$ 47'27 | 34.14933 AU |                  | 236 Feb 12 j 10:53 | 30° $\Omega$       |             |
|                  |                    |                    |             | opposition       | 236 Feb 19 j 04:51 | 29° $\Omega$ 49'06 | 15°57'57    |
| conjunction      | 229 Aug 09 j 18:58 | 15° $\Omega$ 54'15 | 12°51'45    | min. Earth dist. | 236 Feb 21 j 22:33 | 29° $\Omega$ 44'40 | 30.83793 AU |
| minimum elong    | 229 Aug 09 j 18:36 | 15° $\Omega$ 54'13 | 12°51'45    | direct           | 236 May 09 j 11:41 | 28° $\Omega$ 26'16 |             |
| morning rise     | 229 Aug 18 j 01:32 | 16° $\Omega$ 11'27 |             |                  | 236 Jul 29 j 04:59 | 0° $\Omega$        |             |
| retrograde       | 229 Nov 20 j 14:40 | 18° $\Omega$ 11'58 |             | max. Earth dist. | 236 Aug 21 j 23:08 | 0° $\Omega$ 51'22  | 32.66852 AU |
| opposition       | 230 Feb 05 j 19:13 | 16° $\Omega$ 54'45 | 13°50'59    |                  |                    |                    |             |
| min. Earth dist. | 230 Feb 08 j 17:04 | 16° $\Omega$ 50'11 | 32.08892 AU | conjunction      | 236 Aug 24 j 22:27 | 0° $\Omega$ 57'59  | 15°08'39    |
| direct           | 230 Apr 27 j 12:40 | 15° $\Omega$ 34'20 |             | minimum elong    | 236 Aug 24 j 22:05 | 0° $\Omega$ 57'57  | 15°08'39    |
| evening set      | 230 Aug 04 j 11:53 | 17° $\Omega$ 40'47 |             | retrograde       | 236 Dec 06 j 01:28 | 3° $\Omega$ 25'38  |             |
| max. Earth dist. | 230 Aug 08 j 21:23 | 17° $\Omega$ 50'00 | 33.92020 AU | opposition       | 237 Feb 20 j 17:40 | 2° $\Omega$ 05'50  | 16°15'31    |
|                  |                    |                    |             | min. Earth dist. | 237 Feb 23 j 09:50 | 2° $\Omega$ 01'29  | 30.64892 AU |
| conjunction      | 230 Aug 12 j 03:18 | 17° $\Omega$ 56'50 | 13°13'48    | direct           | 237 May 11 j 23:47 | 0° $\Omega$ 42'38  |             |
| minimum elong    | 230 Aug 12 j 02:54 | 17° $\Omega$ 56'48 | 13°13'48    | max. Earth dist. | 237 Aug 24 j 14:50 | 3° $\Omega$ 09'16  | 32.47958 AU |
| morning rise     | 230 Aug 19 j 17:10 | 18° $\Omega$ 12'45 |             |                  |                    |                    |             |
| retrograde       | 230 Nov 22 j 22:23 | 20° $\Omega$ 15'58 |             | conjunction      | 237 Aug 27 j 12:35 | 3° $\Omega$ 15'47  | 15°24'17    |
| opposition       | 231 Feb 08 j 02:38 | 18° $\Omega$ 58'20 | 14°14'21    | minimum elong    | 237 Aug 27 j 12:16 | 3° $\Omega$ 15'46  | 15°24'16    |
| min. Earth dist. | 231 Feb 11 j 00:44 | 18° $\Omega$ 53'43 | 31.86580 AU | retrograde       | 237 Dec 08 j 16:44 | 5° $\Omega$ 44'45  |             |
| direct           | 231 Apr 29 j 17:35 | 17° $\Omega$ 37'27 |             | opposition       | 238 Feb 23 j 07:26 | 4° $\Omega$ 24'36  | 16°31'52    |
| evening set      | 231 Aug 07 j 15:39 | 19° $\Omega$ 46'55 |             | min. Earth dist. | 238 Feb 25 j 23:23 | 4° $\Omega$ 20'15  | 30.46550 AU |
| max. Earth dist. | 231 Aug 11 j 08:25 | 19° $\Omega$ 54'45 | 33.69690 AU | direct           | 238 May 14 j 13:11 | 3° $\Omega$ 01'01  |             |
|                  |                    |                    |             | max. Earth dist. | 238 Aug 27 j 06:50 | 5° $\Omega$ 29'06  | 32.29677 AU |

|                  |                    |                    |             |                  |                    |                    |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|--------------------|-------------|
| conjunction      | 238 Aug 30 j 03:19 | 5° <u>♏</u> 35'34  | 15°38'42    | opposition       | 247 Mar 17 j 21:43 | 26° <u>♏</u> 28'32 | 17°48'36    |
| minimum elong    | 238 Aug 30 j 02:59 | 5° <u>♏</u> 35'32  | 15°38'42    | min. Earth dist. | 247 Mar 19 j 20:08 | 26° <u>♏</u> 25'16 | 29.17048 AU |
| retrograde       | 238 Dec 11 j 09:47 | 8° <u>♏</u> 05'47  |             | direct           | 247 Jun 05 j 18:54 | 25° <u>♏</u> 02'32 |             |
| opposition       | 239 Feb 25 j 21:57 | 6° <u>♏</u> 45'17  | 16°46'54    | max. Earth dist. | 247 Sep 19 j 18:47 | 27° <u>♏</u> 41'38 | 31.03085 AU |
| min. Earth dist. | 239 Feb 28 j 11:43 | 6° <u>♏</u> 41'03  | 30.28815 AU |                  |                    |                    |             |
| direct           | 239 May 17 j 04:21 | 5° <u>♏</u> 21'20  |             | conjunction      | 247 Sep 21 j 18:18 | 27° <u>♏</u> 46'23 | 16°40'44    |
| max. Earth dist. | 239 Aug 29 j 23:38 | 7° <u>♏</u> 50'47  | 32.12032 AU | minimum elong    | 247 Sep 21 j 18:16 | 27° <u>♏</u> 46'23 | 16°40'44    |
|                  |                    |                    |             |                  | 247 Nov 26 j 10:36 | 0° <u>♏</u>        |             |
| conjunction      | 239 Sep 01 j 18:50 | 7° <u>♏</u> 57'11  | 15°51'50    | retrograde       | 248 Jan 03 j 06:20 | 0° <u>♏</u> 25'31  |             |
| minimum elong    | 239 Sep 01 j 18:33 | 7° <u>♏</u> 57'09  | 15°51'50    |                  | 248 Feb 11 j 08:38 | 30° <u>♏</u>       |             |
| retrograde       | 239 Dec 14 j 00:56 | 10° <u>♏</u> 28'38 |             | opposition       | 248 Mar 19 j 18:35 | 29° <u>♏</u> 02'39 | 17°47'54    |
| opposition       | 240 Feb 28 j 13:24 | 9° <u>♏</u> 07'46  | 17°00'32    | min. Earth dist. | 248 Mar 21 j 13:41 | 28° <u>♏</u> 59'37 | 29.07420 AU |
| min. Earth dist. | 240 Mar 02 j 02:53 | 9° <u>♏</u> 03'32  | 30.11744 AU | direct           | 248 Jun 07 j 15:35 | 27° <u>♏</u> 36'33 |             |
| direct           | 240 May 18 j 17:54 | 7° <u>♏</u> 43'27  |             |                  | 248 Sep 14 j 20:30 | 0° <u>♏</u>        |             |
| max. Earth dist. | 240 Aug 31 j 18:12 | 10° <u>♏</u> 14'20 | 31.95126 AU | max. Earth dist. | 248 Sep 21 j 17:59 | 0° <u>♏</u> 16'34  | 30.93954 AU |
|                  |                    |                    |             |                  |                    |                    |             |
| conjunction      | 240 Sep 03 j 10:56 | 10° <u>♏</u> 20'33 | 16°03'36    | conjunction      | 248 Sep 23 j 14:23 | 0° <u>♏</u> 21'01  | 16°38'55    |
| minimum elong    | 240 Sep 03 j 10:39 | 10° <u>♏</u> 20'31 | 16°03'36    | minimum elong    | 248 Sep 23 j 14:22 | 0° <u>♏</u> 21'01  | 16°38'56    |
| retrograde       | 240 Dec 15 j 18:17 | 12° <u>♏</u> 53'09 |             | retrograde       | 249 Jan 05 j 02:54 | 3° <u>♏</u> 00'47  |             |
| opposition       | 241 Mar 02 j 05:35 | 11° <u>♏</u> 31'56 | 17°12'38    | opposition       | 249 Mar 22 j 16:07 | 1° <u>♏</u> 37'46  | 17°45'11    |
| min. Earth dist. | 241 Mar 04 j 16:29 | 11° <u>♏</u> 27'51 | 29.95421 AU | min. Earth dist. | 249 Mar 24 j 09:47 | 1° <u>♏</u> 34'50  | 28.98735 AU |
| direct           | 241 May 21 j 10:13 | 10° <u>♏</u> 07'16 |             | direct           | 249 Jun 10 j 12:05 | 0° <u>♏</u> 11'36  |             |
| max. Earth dist. | 241 Sep 03 j 12:01 | 12° <u>♏</u> 39'24 | 31.79023 AU | max. Earth dist. | 249 Sep 24 j 16:41 | 2° <u>♏</u> 52'21  | 30.85809 AU |
|                  |                    |                    |             |                  |                    |                    |             |
| conjunction      | 241 Sep 06 j 03:26 | 12° <u>♏</u> 45'32 | 16°13'54    | conjunction      | 249 Sep 26 j 10:30 | 2° <u>♏</u> 56'34  | 16°35'13    |
| minimum elong    | 241 Sep 06 j 03:12 | 12° <u>♏</u> 45'31 | 16°13'54    | minimum elong    | 249 Sep 26 j 10:33 | 2° <u>♏</u> 56'34  | 16°35'13    |
| retrograde       | 241 Dec 18 j 11:31 | 15° <u>♏</u> 19'15 |             | retrograde       | 250 Jan 08 j 01:22 | 5° <u>♏</u> 36'50  |             |
| opposition       | 242 Mar 04 j 22:33 | 13° <u>♏</u> 57'42 | 17°23'09    | opposition       | 250 Mar 25 j 13:52 | 4° <u>♏</u> 13'42  | 17°40'26    |
| min. Earth dist. | 242 Mar 07 j 08:23 | 13° <u>♏</u> 53'40 | 29.79937 AU | min. Earth dist. | 250 Mar 27 j 04:01 | 4° <u>♏</u> 11'00  | 28.90985 AU |
| direct           | 242 May 24 j 00:22 | 12° <u>♏</u> 32'41 |             | direct           | 250 Jun 13 j 11:11 | 2° <u>♏</u> 47'29  |             |
| max. Earth dist. | 242 Sep 06 j 08:35 | 15° <u>♏</u> 06'13 | 31.63826 AU | max. Earth dist. | 250 Sep 27 j 15:54 | 5° <u>♏</u> 28'51  | 30.78623 AU |
|                  |                    |                    |             |                  |                    |                    |             |
| conjunction      | 242 Sep 08 j 20:43 | 15° <u>♏</u> 12'04 | 16°22'39    | conjunction      | 250 Sep 29 j 07:02 | 5° <u>♏</u> 32'48  | 16°29'39    |
| minimum elong    | 242 Sep 08 j 20:29 | 15° <u>♏</u> 12'03 | 16°22'39    | minimum elong    | 250 Sep 29 j 07:07 | 5° <u>♏</u> 32'49  | 16°29'39    |
| retrograde       | 242 Dec 21 j 03:51 | 17° <u>♏</u> 46'50 |             | retrograde       | 251 Jan 10 j 21:41 | 8° <u>♏</u> 13'29  |             |
| opposition       | 243 Mar 07 j 16:08 | 16° <u>♏</u> 24'59 | 17°31'57    | opposition       | 251 Mar 28 j 12:01 | 6° <u>♏</u> 50'14  | 17°33'40    |
| min. Earth dist. | 243 Mar 09 j 23:18 | 16° <u>♏</u> 21'07 | 29.65359 AU | min. Earth dist. | 251 Mar 30 j 00:41 | 6° <u>♏</u> 47'39  | 28.84183 AU |
| direct           | 243 May 26 j 18:22 | 14° <u>♏</u> 59'41 |             | direct           | 251 Jun 16 j 08:15 | 5° <u>♏</u> 23'59  |             |
| max. Earth dist. | 243 Sep 09 j 03:46 | 17° <u>♏</u> 34'22 | 31.49608 AU | max. Earth dist. | 251 Sep 30 j 15:46 | 8° <u>♏</u> 05'55  | 30.72444 AU |
|                  |                    |                    |             |                  |                    |                    |             |
| conjunction      | 243 Sep 11 j 14:27 | 17° <u>♏</u> 40'07 | 16°29'47    | conjunction      | 251 Oct 02 j 03:38 | 8° <u>♏</u> 09'33  | 16°22'10    |
| minimum elong    | 243 Sep 11 j 14:17 | 17° <u>♏</u> 40'06 | 16°29'46    | minimum elong    | 251 Oct 02 j 03:45 | 8° <u>♏</u> 09'34  | 16°22'10    |
| retrograde       | 243 Dec 23 j 22:35 | 20° <u>♏</u> 15'53 |             | retrograde       | 252 Jan 13 j 19:16 | 10° <u>♏</u> 50'30 |             |
| opposition       | 244 Mar 09 j 10:34 | 18° <u>♏</u> 53'45 | 17°38'57    | opposition       | 252 Mar 30 j 10:25 | 9° <u>♏</u> 27'10  | 17°24'50    |
| min. Earth dist. | 244 Mar 11 j 15:38 | 18° <u>♏</u> 50'02 | 29.51775 AU | min. Earth dist. | 252 Mar 31 j 19:26 | 9° <u>♏</u> 24'50  | 28.78354 AU |
| direct           | 244 May 28 j 10:25 | 17° <u>♏</u> 28'12 |             | direct           | 252 Jun 18 j 07:54 | 8° <u>♏</u> 00'54  |             |
| max. Earth dist. | 244 Sep 11 j 01:50 | 20° <u>♏</u> 04'12 | 31.36426 AU | max. Earth dist. | 252 Oct 02 j 14:41 | 10° <u>♏</u> 43'10 | 30.67284 AU |
|                  |                    |                    |             |                  |                    |                    |             |
| conjunction      | 244 Sep 13 j 08:43 | 20° <u>♏</u> 09'37 | 16°35'12    | conjunction      | 252 Oct 04 j 00:03 | 10° <u>♏</u> 46'34 | 16°12'48    |
| minimum elong    | 244 Sep 13 j 08:34 | 20° <u>♏</u> 09'36 | 16°35'12    | minimum elong    | 252 Oct 04 j 00:12 | 10° <u>♏</u> 46'34 | 16°12'49    |
| retrograde       | 244 Dec 25 j 16:48 | 22° <u>♏</u> 46'20 |             | retrograde       | 253 Jan 15 j 16:57 | 13° <u>♏</u> 27'42 |             |
| opposition       | 245 Mar 12 j 05:45 | 21° <u>♏</u> 23'58 | 17°44'06    | opposition       | 253 Apr 02 j 09:04 | 12° <u>♏</u> 04'16 | 17°13'57    |
| min. Earth dist. | 245 Mar 14 j 08:32 | 21° <u>♏</u> 20'24 | 29.39195 AU | min. Earth dist. | 253 Apr 03 j 15:53 | 12° <u>♏</u> 02'06 | 28.73555 AU |
| direct           | 245 May 31 j 04:15 | 19° <u>♏</u> 58'14 |             | direct           | 253 Jun 21 j 05:23 | 10° <u>♏</u> 38'00 |             |
| max. Earth dist. | 245 Sep 13 j 22:19 | 22° <u>♏</u> 35'17 | 31.24295 AU |                  |                    |                    |             |
|                  |                    |                    |             | conjunction      | 253 Oct 06 j 20:34 | 13° <u>♏</u> 23'38 | 16°01'32    |
| conjunction      | 245 Sep 16 j 03:25 | 22° <u>♏</u> 40'33 | 16°38'51    | minimum elong    | 253 Oct 06 j 20:45 | 13° <u>♏</u> 23'39 | 16°01'31    |
| minimum elong    | 245 Sep 16 j 03:18 | 22° <u>♏</u> 40'32 | 16°38'51    | max. Earth dist. | 253 Oct 05 j 15:13 | 13° <u>♏</u> 20'39 | 30.63217 AU |
| retrograde       | 245 Dec 28 j 13:16 | 25° <u>♏</u> 18'09 |             | retrograde       | 254 Jan 18 j 12:17 | 16° <u>♏</u> 04'49 |             |
| opposition       | 246 Mar 15 j 01:17 | 23° <u>♏</u> 55'36 | 17°47'19    | opposition       | 254 Apr 05 j 07:33 | 14° <u>♏</u> 41'20 | 17°01'01    |
| min. Earth dist. | 246 Mar 17 j 01:21 | 23° <u>♏</u> 52'13 | 29.27636 AU | min. Earth dist. | 254 Apr 06 j 10:51 | 14° <u>♏</u> 39'25 | 28.69831 AU |
| direct           | 246 Jun 02 j 22:50 | 22° <u>♏</u> 29'42 |             | direct           | 254 Jun 24 j 05:17 | 13° <u>♏</u> 15'05 |             |
| max. Earth dist. | 246 Sep 16 j 21:13 | 25° <u>♏</u> 07'55 | 31.13188 AU |                  |                    |                    |             |
|                  |                    |                    |             | conjunction      | 254 Oct 09 j 16:51 | 16° <u>♏</u> 00'34 | 15°48'21    |
| conjunction      | 246 Sep 18 j 22:45 | 25° <u>♏</u> 12'51 | 16°40'42    | minimum elong    | 254 Oct 09 j 17:04 | 16° <u>♏</u> 00'35 | 15°48'22    |
| minimum elong    | 246 Sep 18 j 22:40 | 25° <u>♏</u> 12'51 | 16°40'43    | max. Earth dist. | 254 Oct 08 j 13:57 | 15° <u>♏</u> 57'50 | 30.60290 AU |
| retrograde       | 246 Dec 31 j 08:34 | 27° <u>♏</u> 51'16 |             | retrograde       | 255 Jan 21 j 08:51 | 18° <u>♏</u> 41'43 |             |

|                  |                    |                    |             |                  |                    |                    |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|--------------------|-------------|
| opposition       | 255 Apr 08 j 06:14 | 17° <u>♂</u> 18'12 | 16°46'02    | morning rise     | 261 Nov 03 j 05:26 | 4° <u>♂</u> 22'09  |             |
| min. Earth dist. | 255 Apr 09 j 06:28 | 17° <u>♂</u> 16'29 | 28.67269 AU | retrograde       | 262 Feb 07 j 22:22 | 6° <u>♂</u> 43'59  |             |
| direct           | 255 Jun 27 j 02:56 | 15° <u>♂</u> 51'59 |             | opposition       | 262 Apr 26 j 16:44 | 5° <u>♂</u> 21'11  | 14°08'00    |
|                  |                    |                    |             | min. Earth dist. | 262 Apr 26 j 17:56 | 5° <u>♂</u> 21'06  | 28.82835 AU |
| conjunction      | 255 Oct 12 j 12:59 | 18° <u>♂</u> 37'14 | 15°33'18    | direct           | 262 Jul 15 j 12:48 | 3° <u>♂</u> 56'27  |             |
| minimum elong    | 255 Oct 12 j 13:14 | 18° <u>♂</u> 37'15 | 15°33'18    | evening set      | 262 Oct 22 j 07:28 | 6° <u>♂</u> 18'41  |             |
| max. Earth dist. | 255 Oct 11 j 14:48 | 18° <u>♂</u> 34'58 | 30.58580 AU |                  |                    |                    |             |
| retrograde       | 256 Jan 24 j 04:12 | 21° <u>♂</u> 18'15 |             | conjunction      | 262 Oct 30 j 01:15 | 6° <u>♂</u> 37'10  | 12°59'51    |
| opposition       | 256 Apr 10 j 04:58 | 19° <u>♂</u> 54'44 | 16°29'01    | minimum elong    | 262 Oct 30 j 01:40 | 6° <u>♂</u> 37'13  | 12°59'51    |
| min. Earth dist. | 256 Apr 11 j 01:49 | 19° <u>♂</u> 53'16 | 28.65908 AU | max. Earth dist. | 262 Oct 30 j 02:43 | 6° <u>♂</u> 37'19  | 30.80551 AU |
| direct           | 256 Jun 29 j 01:39 | 18° <u>♂</u> 28'38 |             | morning rise     | 262 Nov 06 j 19:19 | 6° <u>♂</u> 55'43  |             |
|                  |                    |                    |             | retrograde       | 263 Feb 10 j 16:52 | 9° <u>♂</u> 14'52  |             |
| conjunction      | 256 Oct 14 j 08:49 | 21° <u>♂</u> 13'30 | 15°16'24    | opposition       | 263 Apr 29 j 13:32 | 7° <u>♂</u> 52'15  | 13°38'53    |
| minimum elong    | 256 Oct 14 j 09:06 | 21° <u>♂</u> 13'32 | 15°16'25    | min. Earth dist. | 263 Apr 29 j 10:47 | 7° <u>♂</u> 52'26  | 28.89412 AU |
| max. Earth dist. | 256 Oct 13 j 13:16 | 21° <u>♂</u> 11'31 | 30.58131 AU | direct           | 263 Jul 18 j 11:40 | 6° <u>♂</u> 27'48  |             |
| retrograde       | 257 Jan 26 j 00:33 | 23° <u>♂</u> 54'18 |             | evening set      | 263 Oct 24 j 06:09 | 8° <u>♂</u> 47'17  |             |
| opposition       | 257 Apr 13 j 03:26 | 22° <u>♂</u> 30'50 | 16°10'00    |                  |                    |                    |             |
| min. Earth dist. | 257 Apr 13 j 20:20 | 22° <u>♂</u> 29'38 | 28.65806 AU | conjunction      | 263 Nov 01 j 18:22 | 9° <u>♂</u> 07'31  | 12°32'03    |
| direct           | 257 Jul 01 j 23:21 | 21° <u>♂</u> 04'52 |             | minimum elong    | 263 Nov 01 j 18:45 | 9° <u>♂</u> 07'33  | 12°32'03    |
| evening set      | 257 Oct 16 j 01:48 | 23° <u>♂</u> 46'36 |             | max. Earth dist. | 263 Nov 01 j 22:41 | 9° <u>♂</u> 07'56  | 30.88000 AU |
|                  |                    |                    |             | morning rise     | 263 Nov 10 j 06:48 | 9° <u>♂</u> 27'46  |             |
| conjunction      | 257 Oct 17 j 04:29 | 23° <u>♂</u> 49'18 | 14°57'41    | retrograde       | 264 Feb 13 j 10:52 | 11° <u>♂</u> 44'24 |             |
| minimum elong    | 257 Oct 17 j 04:47 | 23° <u>♂</u> 49'20 | 14°57'41    | opposition       | 264 May 01 j 10:00 | 10° <u>♂</u> 21'57 | 13°08'26    |
| max. Earth dist. | 257 Oct 16 j 13:39 | 23° <u>♂</u> 47'48 | 30.58953 AU | min. Earth dist. | 264 May 01 j 04:47 | 10° <u>♂</u> 22'18 | 28.96966 AU |
| morning rise     | 257 Oct 18 j 07:46 | 23° <u>♂</u> 52'04 |             | direct           | 264 Jul 20 j 08:38 | 8° <u>♂</u> 57'48  |             |
| retrograde       | 258 Jan 28 j 18:24 | 26° <u>♂</u> 29'48 |             | evening set      | 264 Oct 25 j 06:00 | 11° <u>♂</u> 14'39 |             |
| opposition       | 258 Apr 16 j 01:51 | 25° <u>♂</u> 06'25 | 15°49'05    |                  |                    |                    |             |
| min. Earth dist. | 258 Apr 16 j 15:53 | 25° <u>♂</u> 05'26 | 28.66924 AU | conjunction      | 264 Nov 03 j 11:01 | 11° <u>♂</u> 36'25 | 12°03'05    |
| direct           | 258 Jul 04 j 21:58 | 23° <u>♂</u> 40'39 |             | minimum elong    | 264 Nov 03 j 11:25 | 11° <u>♂</u> 36'28 | 12°03'06    |
| evening set      | 258 Oct 16 j 12:13 | 26° <u>♂</u> 16'05 |             | max. Earth dist. | 264 Nov 03 j 18:49 | 11° <u>♂</u> 37'11 | 30.96427 AU |
|                  |                    |                    |             | morning rise     | 264 Nov 12 j 16:07 | 11° <u>♂</u> 58'13 |             |
| conjunction      | 258 Oct 19 j 23:43 | 26° <u>♂</u> 24'32 | 14°37'15    | retrograde       | 265 Feb 15 j 02:47 | 14° <u>♂</u> 12'25 |             |
| minimum elong    | 258 Oct 20 j 00:04 | 26° <u>♂</u> 24'34 | 14°37'15    | opposition       | 265 May 04 j 05:40 | 12° <u>♂</u> 50'09 | 12°36'46    |
| max. Earth dist. | 258 Oct 19 j 11:28 | 26° <u>♂</u> 23'17 | 30.61012 AU | min. Earth dist. | 265 May 03 j 21:06 | 12° <u>♂</u> 50'44 | 29.05473 AU |
| morning rise     | 258 Oct 23 j 11:50 | 26° <u>♂</u> 33'02 |             | direct           | 265 Jul 23 j 06:48 | 11° <u>♂</u> 26'17 |             |
| retrograde       | 259 Jan 31 j 15:09 | 29° <u>♂</u> 04'38 |             | evening set      | 265 Oct 27 j 06:21 | 13° <u>♂</u> 40'35 |             |
| opposition       | 259 Apr 18 j 23:52 | 27° <u>♂</u> 41'22 | 15°26'20    |                  |                    |                    |             |
| min. Earth dist. | 259 Apr 19 j 09:40 | 27° <u>♂</u> 40'41 | 28.69241 AU | conjunction      | 265 Nov 06 j 02:51 | 14° <u>♂</u> 03'45 | 11°33'02    |
| direct           | 259 Jul 07 j 19:20 | 26° <u>♂</u> 15'50 |             | minimum elong    | 265 Nov 06 j 03:14 | 14° <u>♂</u> 03'47 | 11°33'01    |
| evening set      | 259 Oct 17 j 22:14 | 28° <u>♂</u> 47'20 |             | max. Earth dist. | 265 Nov 06 j 12:59 | 14° <u>♂</u> 04'45 | 31.05809 AU |
|                  |                    |                    |             | morning rise     | 265 Nov 15 j 23:32 | 14° <u>♂</u> 26'56 |             |
| conjunction      | 259 Oct 22 j 18:47 | 28° <u>♂</u> 59'04 | 14°15'09    |                  | 265 Nov 30 j 12:13 | 15° <u>♂</u>       |             |
| minimum elong    | 259 Oct 22 j 19:08 | 28° <u>♂</u> 59'06 | 14°15'08    | retrograde       | 266 Feb 17 j 18:44 | 16° <u>♂</u> 38'47 |             |
| max. Earth dist. | 259 Oct 22 j 10:51 | 28° <u>♂</u> 58'16 | 30.64253 AU | opposition       | 266 May 07 j 00:48 | 15° <u>♂</u> 16'43 | 12°03'58    |
| morning rise     | 259 Oct 27 j 15:47 | 29° <u>♂</u> 10'52 |             | min. Earth dist. | 266 May 06 j 13:13 | 15° <u>♂</u> 17'30 | 29.14961 AU |
|                  | 259 Nov 17 j 13:52 | 0° <u>♂</u>        |             |                  | 266 May 17 j 08:11 | 15° <u>♂</u>       |             |
| retrograde       | 260 Feb 03 j 08:59 | 1° <u>♂</u> 38'43  |             | direct           | 266 Jul 26 j 01:52 | 13° <u>♂</u> 53'09 |             |
| opposition       | 260 Apr 20 j 21:58 | 0° <u>♂</u> 15'36  | 15°01'49    |                  | 266 Sep 29 j 02:01 | 15° <u>♂</u>       |             |
| min. Earth dist. | 260 Apr 21 j 05:26 | 0° <u>♂</u> 15'04  | 28.72699 AU | evening set      | 266 Oct 29 j 07:10 | 16° <u>♂</u> 05'00 |             |
|                  | 260 Apr 30 j 06:51 | 30° <u>♂</u>       |             |                  |                    |                    |             |
| direct           | 260 Jul 09 j 16:55 | 28° <u>♂</u> 50'19 |             | conjunction      | 266 Nov 08 j 18:03 | 16° <u>♂</u> 29'24 | 11°01'58    |
|                  | 260 Sep 13 j 13:07 | 0° <u>♂</u>        |             | minimum elong    | 266 Nov 08 j 18:27 | 16° <u>♂</u> 29'27 | 11°01'58    |
| evening set      | 260 Oct 18 j 14:26 | 1° <u>♂</u> 18'27  |             | max. Earth dist. | 266 Nov 09 j 08:18 | 16° <u>♂</u> 30'48 | 31.16177 AU |
|                  |                    |                    |             | morning rise     | 266 Nov 19 j 04:51 | 16° <u>♂</u> 53'49 |             |
| conjunction      | 260 Oct 24 j 13:14 | 1° <u>♂</u> 32'48  | 13°51'29    | retrograde       | 267 Feb 20 j 08:29 | 19° <u>♂</u> 03'26 |             |
| minimum elong    | 260 Oct 24 j 13:37 | 1° <u>♂</u> 32'50  | 13°51'29    | opposition       | 267 May 09 j 19:16 | 17° <u>♂</u> 41'34 | 11°30'09    |
| max. Earth dist. | 260 Oct 24 j 08:05 | 1° <u>♂</u> 32'17  | 30.68632 AU | min. Earth dist. | 267 May 09 j 04:47 | 17° <u>♂</u> 42'33 | 29.25443 AU |
| morning rise     | 260 Oct 30 j 12:30 | 1° <u>♂</u> 47'12  |             | direct           | 267 Jul 28 j 22:42 | 16° <u>♂</u> 18'20 |             |
| retrograde       | 261 Feb 05 j 04:45 | 4° <u>♂</u> 11'53  |             | evening set      | 267 Oct 31 j 08:28 | 18° <u>♂</u> 27'48 |             |
| opposition       | 261 Apr 23 j 19:32 | 2° <u>♂</u> 48'55  | 14°35'41    |                  |                    |                    |             |
| min. Earth dist. | 261 Apr 23 j 22:49 | 2° <u>♂</u> 48'41  | 28.77247 AU | conjunction      | 267 Nov 11 j 08:25 | 18° <u>♂</u> 53'19 | 10°30'00    |
| direct           | 261 Jul 12 j 16:12 | 1° <u>♂</u> 23'54  |             | minimum elong    | 267 Nov 11 j 08:48 | 18° <u>♂</u> 53'22 | 10°29'59    |
| evening set      | 261 Oct 20 j 09:51 | 3° <u>♂</u> 49'00  |             | max. Earth dist. | 267 Nov 12 j 00:55 | 18° <u>♂</u> 54'56 | 31.27563 AU |
|                  |                    |                    |             | morning rise     | 267 Nov 22 j 08:32 | 19° <u>♂</u> 18'51 |             |
| conjunction      | 261 Oct 27 j 07:29 | 4° <u>♂</u> 05'33  | 13°26'21    | retrograde       | 268 Feb 22 j 23:33 | 21° <u>♂</u> 26'20 |             |
| minimum elong    | 261 Oct 27 j 07:52 | 4° <u>♂</u> 05'35  | 13°26'20    | opposition       | 268 May 11 j 13:06 | 20° <u>♂</u> 04'41 | 10°55'25    |
| max. Earth dist. | 261 Oct 27 j 05:57 | 4° <u>♂</u> 05'24  | 30.74075 AU | min. Earth dist. | 268 May 10 j 18:37 | 20° <u>♂</u> 05'56 | 29.36989 AU |

|                  |                    |                        |             |                  |                    |                        |             |
|------------------|--------------------|------------------------|-------------|------------------|--------------------|------------------------|-------------|
| direct           | 268 Jul 30 j 16:31 | 18° <del>ℳ</del> 41'47 |             | minimum elong    | 274 Nov 26 j 18:12 | 4° <del>♊</del> 53'34  | 6°28'49     |
| evening set      | 268 Nov 01 j 09:51 | 20° <del>ℳ</del> 49'00 |             | max. Earth dist. | 274 Nov 28 j 06:38 | 4° <del>♊</del> 56'55  | 32.34605 AU |
|                  |                    |                        |             | morning rise     | 274 Dec 10 j 12:53 | 5° <del>♊</del> 23'55  |             |
| conjunction      | 268 Nov 12 j 22:09 | 21° <del>ℳ</del> 15'30 | 9°57'12     | retrograde       | 275 Mar 10 j 08:24 | 7° <del>♊</del> 18'51  |             |
| minimum elong    | 268 Nov 12 j 22:32 | 21° <del>ℳ</del> 15'32 | 9°57'12     | min. Earth dist. | 275 May 27 j 08:14 | 6° <del>♊</del> 01'56  | 30.44882 AU |
| max. Earth dist. | 268 Nov 13 j 18:59 | 21° <del>ℳ</del> 17'31 | 31.40003 AU | opposition       | 275 May 28 j 22:17 | 5° <del>♊</del> 59'28  | 6°35'20     |
| morning rise     | 268 Nov 24 j 10:20 | 21° <del>ℳ</del> 42'01 |             | direct           | 275 Aug 17 j 03:19 | 4° <del>♊</del> 39'33  |             |
| retrograde       | 269 Feb 24 j 10:42 | 23° <del>ℳ</del> 47'27 |             | evening set      | 275 Nov 15 j 01:52 | 6° <del>♊</del> 33'18  |             |
| min. Earth dist. | 269 May 13 j 09:21 | 22° <del>ℳ</del> 27'29 | 29.49589 AU |                  |                    |                        |             |
| opposition       | 269 May 14 j 06:17 | 22° <del>ℳ</del> 26'05 | 10°19'50    | conjunction      | 275 Nov 29 j 03:00 | 7° <del>♊</del> 03'59  | 5°53'04     |
| direct           | 269 Aug 02 j 10:43 | 21° <del>ℳ</del> 03'34 |             | minimum elong    | 275 Nov 29 j 03:14 | 7° <del>♊</del> 04'00  | 5°53'04     |
| evening set      | 269 Nov 03 j 11:45 | 23° <del>ℳ</del> 08'35 |             | max. Earth dist. | 275 Nov 30 j 18:34 | 7° <del>♊</del> 07'37  | 32.53013 AU |
|                  |                    |                        |             | morning rise     | 275 Dec 13 j 04:08 | 7° <del>♊</del> 34'41  |             |
| conjunction      | 269 Nov 15 j 11:09 | 23° <del>ℳ</del> 35'59 | 9°23'41     | retrograde       | 276 Mar 11 j 17:22 | 9° <del>♊</del> 28'07  |             |
| minimum elong    | 269 Nov 15 j 11:30 | 23° <del>ℳ</del> 36'01 | 9°23'41     | min. Earth dist. | 276 May 28 j 18:29 | 8° <del>♊</del> 11'39  | 30.63341 AU |
| max. Earth dist. | 269 Nov 16 j 10:04 | 23° <del>ℳ</del> 38'11 | 31.53493 AU | opposition       | 276 May 30 j 10:30 | 8° <del>♊</del> 09'04  | 5°57'03     |
| morning rise     | 269 Nov 27 j 10:40 | 24° <del>ℳ</del> 03'23 |             | direct           | 276 Aug 18 j 18:30 | 6° <del>♊</del> 49'34  |             |
| retrograde       | 270 Feb 26 j 23:58 | 26° <del>ℳ</del> 06'51 |             | evening set      | 276 Nov 16 j 04:34 | 8° <del>♊</del> 41'41  |             |
| opposition       | 270 May 16 j 22:30 | 24° <del>ℳ</del> 45'47 | 9°43'33     |                  |                    |                        |             |
| min. Earth dist. | 270 May 15 j 21:24 | 24° <del>ℳ</del> 47'27 | 29.63238 AU | conjunction      | 276 Nov 30 j 11:08 | 9° <del>♊</del> 12'37  | 5°17'15     |
| direct           | 270 Aug 05 j 02:38 | 23° <del>ℳ</del> 23'40 |             | minimum elong    | 276 Nov 30 j 11:22 | 9° <del>♊</del> 12'39  | 5°17'15     |
| evening set      | 270 Nov 05 j 13:42 | 25° <del>ℳ</del> 26'37 |             | max. Earth dist. | 276 Dec 02 j 03:51 | 9° <del>♊</del> 16'19  | 32.71980 AU |
|                  |                    |                        |             | morning rise     | 276 Dec 14 j 18:06 | 9° <del>♊</del> 43'35  |             |
| conjunction      | 270 Nov 17 j 23:35 | 25° <del>ℳ</del> 54'47 | 8°49'33     | retrograde       | 277 Mar 14 j 02:06 | 11° <del>♊</del> 35'35 |             |
| minimum elong    | 270 Nov 17 j 23:56 | 25° <del>ℳ</del> 54'49 | 8°49'33     | min. Earth dist. | 277 May 31 j 03:09 | 10° <del>♊</del> 19'34 | 30.82372 AU |
| max. Earth dist. | 270 Nov 19 j 02:26 | 25° <del>ℳ</del> 57'21 | 31.67988 AU | opposition       | 277 Jun 01 j 21:55 | 10° <del>♊</del> 16'50 | 5°18'46     |
| morning rise     | 270 Nov 30 j 09:22 | 26° <del>ℳ</del> 22'58 |             | direct           | 277 Aug 21 j 05:58 | 8° <del>♊</del> 57'44  |             |
| retrograde       | 271 Mar 01 j 11:10 | 28° <del>ℳ</del> 24'35 |             | evening set      | 277 Nov 18 j 07:09 | 10° <del>♊</del> 48'16 |             |
| min. Earth dist. | 271 May 18 j 11:17 | 27° <del>ℳ</del> 05'38 | 29.77882 AU |                  |                    |                        |             |
| opposition       | 271 May 19 j 14:22 | 27° <del>ℳ</del> 03'50 | 9°06'40     | conjunction      | 277 Dec 02 j 18:47 | 11° <del>♊</del> 19'24 | 4°41'27     |
| direct           | 271 Aug 07 j 17:23 | 25° <del>ℳ</del> 42'09 |             | minimum elong    | 277 Dec 02 j 18:58 | 11° <del>♊</del> 19'25 | 4°41'27     |
| evening set      | 271 Nov 07 j 15:51 | 27° <del>ℳ</del> 43'06 |             | max. Earth dist. | 277 Dec 04 j 14:27 | 11° <del>♊</del> 23'20 | 32.91474 AU |
|                  |                    |                        |             | morning rise     | 277 Dec 17 j 06:31 | 11° <del>♊</del> 50'33 |             |
| conjunction      | 271 Nov 20 j 11:06 | 28° <del>ℳ</del> 11'57 | 8°14'54     | retrograde       | 278 Mar 16 j 06:40 | 13° <del>♊</del> 41'09 |             |
| minimum elong    | 271 Nov 20 j 11:25 | 28° <del>ℳ</del> 11'59 | 8°14'54     | min. Earth dist. | 278 Jun 02 j 12:35 | 12° <del>♊</del> 25'30 | 31.01938 AU |
| max. Earth dist. | 271 Nov 21 j 16:19 | 28° <del>ℳ</del> 14'43 | 31.83436 AU | opposition       | 278 Jun 04 j 08:30 | 12° <del>♊</del> 22'42 | 4°40'33     |
| morning rise     | 271 Dec 03 j 06:23 | 28° <del>ℳ</del> 40'49 |             | direct           | 278 Aug 23 j 19:05 | 11° <del>♊</del> 03'59 |             |
|                  | 272 Jan 12 j 19:09 | 0° <del>♊</del>        |             | evening set      | 278 Nov 20 j 09:46 | 12° <del>♊</del> 53'01 |             |
| retrograde       | 272 Mar 02 j 23:28 | 0° <del>♊</del> 40'40  |             |                  |                    |                        |             |
|                  | 272 Apr 24 j 23:06 | 30° <del>♋</del>       |             | conjunction      | 278 Dec 05 j 01:30 | 13° <del>♊</del> 24'15 | 4°05'43     |
| min. Earth dist. | 272 May 19 j 22:22 | 29° <del>ℳ</del> 22'18 | 29.93449 AU | minimum elong    | 278 Dec 05 j 01:40 | 13° <del>♊</del> 24'16 | 4°05'43     |
| opposition       | 272 May 21 j 05:24 | 29° <del>ℳ</del> 20'15 | 8°29'18     | max. Earth dist. | 278 Dec 06 j 22:09 | 13° <del>♊</del> 28'15 | 33.11498 AU |
| direct           | 272 Aug 09 j 09:49 | 27° <del>ℳ</del> 59'00 |             | morning rise     | 278 Dec 19 j 17:40 | 13° <del>♊</del> 55'32 |             |
| evening set      | 272 Nov 08 j 18:10 | 29° <del>ℳ</del> 58'02 |             | retrograde       | 279 Mar 18 j 13:08 | 15° <del>♊</del> 44'47 |             |
|                  | 272 Nov 09 j 15:30 | 0° <del>♊</del>        |             | min. Earth dist. | 279 Jun 04 j 19:17 | 14° <del>♊</del> 29'37 | 31.22073 AU |
|                  |                    |                        |             | opposition       | 279 Jun 06 j 18:21 | 14° <del>♊</del> 26'38 | 4°02'28     |
| conjunction      | 272 Nov 21 j 22:05 | 0° <del>♊</del> 27'29  | 7°39'50     | direct           | 279 Aug 26 j 05:49 | 13° <del>♊</del> 08'17 |             |
| minimum elong    | 272 Nov 21 j 22:24 | 0° <del>♊</del> 27'31  | 7°39'50     | evening set      | 279 Nov 22 j 12:02 | 14° <del>♊</del> 55'52 |             |
| max. Earth dist. | 272 Nov 23 j 06:24 | 0° <del>♊</del> 30'31  | 31.99739 AU |                  |                    |                        |             |
| morning rise     | 272 Dec 05 j 02:04 | 0° <del>♊</del> 56'56  |             | conjunction      | 279 Dec 07 j 07:26 | 15° <del>♊</del> 27'10 | 3°30'07     |
| retrograde       | 273 Mar 05 j 11:12 | 2° <del>♊</del> 55'05  |             | minimum elong    | 279 Dec 07 j 07:34 | 15° <del>♊</del> 27'11 | 3°30'07     |
| min. Earth dist. | 273 May 22 j 10:50 | 1° <del>♊</del> 37'10  | 30.09867 AU | max. Earth dist. | 279 Dec 09 j 07:06 | 15° <del>♊</del> 31'24 | 33.32069 AU |
| opposition       | 273 May 23 j 19:44 | 1° <del>♊</del> 35'00  | 7°51'33     | morning rise     | 279 Dec 22 j 03:11 | 15° <del>♊</del> 58'30 |             |
| direct           | 273 Aug 11 j 23:09 | 0° <del>♊</del> 14'13  |             | retrograde       | 280 Mar 19 j 17:18 | 17° <del>♊</del> 46'31 |             |
| evening set      | 273 Nov 10 j 20:38 | 2° <del>♊</del> 11'25  |             | min. Earth dist. | 280 Jun 06 j 03:22 | 16° <del>♊</del> 31'41 | 31.42804 AU |
|                  |                    |                        |             | opposition       | 280 Jun 08 j 03:35 | 16° <del>♊</del> 28'39 | 3°24'35     |
| conjunction      | 273 Nov 24 j 08:25 | 2° <del>♊</del> 41'21  | 7°04'26     | direct           | 280 Aug 27 j 15:25 | 15° <del>♊</del> 10'40 |             |
| minimum elong    | 273 Nov 24 j 08:42 | 2° <del>♊</del> 41'23  | 7°04'26     | evening set      | 280 Nov 23 j 14:23 | 16° <del>♊</del> 56'53 |             |
| max. Earth dist. | 273 Nov 25 j 19:12 | 2° <del>♊</del> 44'36  | 32.16832 AU |                  |                    |                        |             |
| morning rise     | 273 Dec 07 j 20:11 | 3° <del>♊</del> 11'19  |             | conjunction      | 280 Dec 08 j 12:44 | 17° <del>♊</del> 28'10 | 2°54'42     |
| retrograde       | 274 Mar 07 j 21:32 | 5° <del>♊</del> 07'49  |             | minimum elong    | 280 Dec 08 j 12:51 | 17° <del>♊</del> 28'11 | 2°54'42     |
| min. Earth dist. | 274 May 24 j 21:25 | 3° <del>♊</del> 50'26  | 30.27030 AU | max. Earth dist. | 280 Dec 10 j 14:02 | 17° <del>♊</del> 32'31 | 33.53235 AU |
| opposition       | 274 May 26 j 09:17 | 3° <del>♊</del> 48'06  | 7°13'32     | morning rise     | 280 Dec 23 j 11:32 | 17° <del>♊</del> 59'31 |             |
| direct           | 274 Aug 14 j 13:58 | 2° <del>♊</del> 27'45  |             | retrograde       | 281 Mar 21 j 21:57 | 19° <del>♊</del> 46'20 |             |
| evening set      | 274 Nov 12 j 23:14 | 4° <del>♊</del> 23'11  |             | min. Earth dist. | 281 Jun 08 j 08:21 | 18° <del>♊</del> 32'00 | 31.64151 AU |
|                  |                    |                        |             | opposition       | 281 Jun 10 j 11:40 | 18° <del>♊</del> 28'47 | 2°46'58     |
| conjunction      | 274 Nov 26 j 17:56 | 4° <del>♊</del> 53'32  | 6°28'50     | direct           | 281 Aug 30 j 00:21 | 17° <del>♊</del> 11'11 |             |

|                  |                    |                       |  |                  |                    |                       |
|------------------|--------------------|-----------------------|--|------------------|--------------------|-----------------------|
| evening set      | 281 Nov 25 j 16:37 | 18°♄56'07             |  | conjunction      | 287 Dec 22 j 07:36 | 0°♄48'51 -1°03'51     |
|                  |                    |                       |  | minimum elong    | 287 Dec 22 j 07:34 | 0°♄48'51 1°03'51      |
| conjunction      | 281 Dec 10 j 17:18 | 19°♄27'22 2°19'32     |  | max. Earth dist. | 287 Dec 24 j 20:35 | 0°♄53'56 35.15550 AU  |
| minimum elong    | 281 Dec 10 j 17:23 | 19°♄27'22 2°19'32     |  | morning rise     | 288 Jan 06 j 12:23 | 1°♄18'59              |
| max. Earth dist. | 281 Dec 12 j 20:51 | 19°♄31'52 33.74989 AU |  | retrograde       | 288 Apr 03 j 16:47 | 2°♄59'25              |
| morning rise     | 281 Dec 25 j 18:36 | 19°♄58'40             |  | min. Earth dist. | 288 Jun 21 j 11:25 | 1°♄48'06 33.27689 AU  |
| retrograde       | 282 Mar 24 j 03:16 | 21°♄44'22             |  | opposition       | 288 Jun 24 j 02:33 | 1°♄44'18 -1°24'59     |
| min. Earth dist. | 282 Jun 10 j 14:21 | 20°♄30'25 31.86121 AU |  | direct           | 288 Sep 12 j 18:18 | 0°♄29'37              |
| opposition       | 282 Jun 12 j 19:18 | 20°♄27'08 2°09'39     |  | evening set      | 288 Dec 08 j 05:28 | 2°♄07'34              |
| direct           | 282 Sep 01 j 06:26 | 19°♄09'56             |  |                  |                    |                       |
| evening set      | 282 Nov 27 j 18:36 | 20°♄53'40             |  | conjunction      | 288 Dec 23 j 08:07 | 2°♄37'17 -1°36'07     |
|                  |                    |                       |  | minimum elong    | 288 Dec 23 j 08:03 | 2°♄37'17 1°36'07      |
| conjunction      | 282 Dec 12 j 21:12 | 21°♄24'49 1°44'39     |  | max. Earth dist. | 288 Dec 25 j 22:31 | 2°♄42'27 35.39957 AU  |
| minimum elong    | 282 Dec 12 j 21:16 | 21°♄24'49 1°44'39     |  | morning rise     | 289 Jan 07 j 11:51 | 3°♄07'06              |
| max. Earth dist. | 282 Dec 15 j 02:59 | 21°♄29'29 33.97334 AU |  | retrograde       | 289 Apr 05 j 17:22 | 4°♄46'50              |
| morning rise     | 282 Dec 28 j 00:15 | 21°♄56'01             |  | min. Earth dist. | 289 Jun 23 j 14:06 | 3°♄35'50 33.52227 AU  |
| retrograde       | 283 Mar 26 j 06:44 | 23°♄40'42             |  | opposition       | 289 Jun 26 j 05:29 | 3°♄32'02 -1°58'52     |
| min. Earth dist. | 283 Jun 12 j 18:56 | 22°♄27'13 32.08660 AU |  | direct           | 289 Sep 14 j 19:54 | 2°♄17'45              |
| opposition       | 283 Jun 15 j 02:08 | 22°♄23'48 1°32'42     |  | evening set      | 289 Dec 10 j 06:54 | 3°♄54'54              |
| direct           | 283 Sep 03 j 14:18 | 21°♄07'01             |  |                  |                    |                       |
| evening set      | 283 Nov 29 j 20:40 | 22°♄49'38             |  | conjunction      | 289 Dec 25 j 08:06 | 4°♄24'16 -2°07'51     |
|                  |                    |                       |  | minimum elong    | 289 Dec 25 j 08:01 | 4°♄24'15 2°07'52      |
| conjunction      | 283 Dec 15 j 00:23 | 23°♄20'38 1°10'06     |  | max. Earth dist. | 289 Dec 27 j 23:29 | 4°♄29'28 35.64493 AU  |
| minimum elong    | 283 Dec 15 j 00:26 | 23°♄20'38 1°10'07     |  | morning rise     | 290 Jan 09 j 10:13 | 4°♄53'43              |
| max. Earth dist. | 283 Dec 17 j 07:27 | 23°♄25'22 34.20204 AU |  | retrograde       | 290 Apr 07 j 17:09 | 6°♄32'47              |
| morning rise     | 283 Dec 30 j 04:57 | 23°♄51'42             |  | min. Earth dist. | 290 Jun 25 j 15:01 | 5°♄22'09 33.76876 AU  |
| retrograde       | 284 Mar 27 j 11:38 | 25°♄35'25             |  | opposition       | 290 Jun 28 j 07:45 | 5°♄18'18 -2°32'09     |
| min. Earth dist. | 284 Jun 13 j 23:00 | 24°♄22'23 32.31740 AU |  | direct           | 290 Sep 16 j 23:29 | 4°♄04'21              |
| opposition       | 284 Jun 16 j 08:20 | 24°♄18'52 0°56'10     |  | evening set      | 290 Dec 12 j 08:08 | 5°♄40'46              |
| direct           | 284 Sep 04 j 20:13 | 23°♄02'31             |  |                  |                    |                       |
| evening set      | 284 Nov 30 j 22:26 | 24°♄44'04             |  | conjunction      | 290 Dec 27 j 07:12 | 6°♄09'45 -2°39'02     |
|                  |                    |                       |  | minimum elong    | 290 Dec 27 j 07:06 | 6°♄09'44 2°39'02      |
| conjunction      | 284 Dec 16 j 03:05 | 25°♄14'54 0°35'57     |  | max. Earth dist. | 290 Dec 29 j 23:03 | 6°♄14'56 35.89126 AU  |
| minimum elong    | 284 Dec 16 j 03:06 | 25°♄14'54 0°35'58     |  | morning rise     | 291 Jan 11 j 07:32 | 6°♄38'49              |
| max. Earth dist. | 284 Dec 18 j 12:51 | 25°♄19'49 34.43548 AU |  | retrograde       | 291 Apr 09 j 18:50 | 8°♄17'15              |
| morning rise     | 284 Dec 31 j 08:19 | 25°♄45'47             |  | min. Earth dist. | 291 Jun 27 j 15:37 | 7°♄06'57 34.01674 AU  |
| retrograde       | 285 Mar 29 j 13:41 | 27°♄28'35             |  | opposition       | 291 Jun 30 j 09:33 | 7°♄03'03 -3°04'48     |
| min. Earth dist. | 285 Jun 16 j 03:29 | 26°♄15'58 32.55254 AU |  | direct           | 291 Sep 18 j 23:51 | 5°♄49'27              |
| opposition       | 285 Jun 18 j 13:51 | 26°♄12'24 0°20'06     |  | evening set      | 291 Dec 14 j 09:04 | 7°♄25'09              |
| direct           | 285 Sep 07 j 03:59 | 24°♄56'29             |  |                  |                    |                       |
| evening set      | 285 Dec 03 j 00:22 | 26°♄37'04             |  | conjunction      | 291 Dec 29 j 05:57 | 7°♄53'43 -3°09'39     |
|                  |                    |                       |  | minimum elong    | 291 Dec 29 j 05:51 | 7°♄53'43 3°09'39      |
| conjunction      | 285 Dec 18 j 05:06 | 27°♄07'40 0°02'17     |  | max. Earth dist. | 291 Dec 31 j 23:46 | 7°♄59'02 36.13909 AU  |
| minimum elong    | 285 Dec 18 j 05:05 | 27°♄07'40 0°02'16     |  | morning rise     | 292 Jan 13 j 03:49 | 8°♄22'23              |
| behind sun begin | 285 Dec 17 j 22:44 | 27°♄07'09             |  | retrograde       | 292 Apr 10 j 16:50 | 10°♄00'13             |
| behind sun end   | 285 Dec 18 j 11:27 | 27°♄08'10             |  | min. Earth dist. | 292 Jun 28 j 16:09 | 8°♄50'12 34.26644 AU  |
| max. Earth dist. | 285 Dec 20 j 15:21 | 27°♄12'35 34.67267 AU |  | opposition       | 292 Jul 01 j 10:32 | 8°♄46'18 -3°36'49     |
| morning rise     | 286 Jan 02 j 10:46 | 27°♄38'20             |  | direct           | 292 Sep 20 j 02:10 | 7°♄33'01              |
| desc. node       | 286 Jan 11 j 11:38 | 27°♄55'50             |  | evening set      | 292 Dec 15 j 09:57 | 9°♄08'04              |
| retrograde       | 286 Mar 31 j 16:54 | 29°♄20'18             |  |                  |                    |                       |
| min. Earth dist. | 286 Jun 18 j 05:47 | 28°♄08'10 32.79138 AU |  | conjunction      | 292 Dec 30 j 03:57 | 9°♄36'12 -3°39'40     |
| opposition       | 286 Jun 20 j 18:35 | 28°♄04'28 -0°15'28    |  | minimum elong    | 292 Dec 30 j 03:49 | 9°♄36'12 3°39'40      |
| direct           | 286 Sep 09 j 08:43 | 26°♄48'59             |  | max. Earth dist. | 293 Jan 01 j 21:56 | 9°♄41'29 36.38874 AU  |
| evening set      | 286 Dec 05 j 02:07 | 28°♄28'38             |  | morning rise     | 293 Jan 13 j 23:16 | 10°♄04'27             |
|                  |                    |                       |  | retrograde       | 293 Apr 12 j 14:48 | 11°♄41'43             |
| conjunction      | 286 Dec 20 j 06:41 | 28°♄58'58 -0°31'04    |  | min. Earth dist. | 293 Jun 30 j 14:23 | 10°♄32'05 34.51840 AU |
| minimum elong    | 286 Dec 20 j 06:40 | 28°♄58'58 0°31'04     |  | opposition       | 293 Jul 03 j 10:55 | 10°♄28'05 -4°08'10    |
| max. Earth dist. | 286 Dec 22 j 19:17 | 29°♄04'04 34.91291 AU |  | direct           | 293 Sep 22 j 03:09 | 9°♄15'08              |
| morning rise     | 287 Jan 04 j 12:04 | 29°♄29'24             |  | evening set      | 293 Dec 17 j 10:33 | 10°♄49'34             |
|                  | 287 Jan 20 j 18:34 | 0°♄                   |  |                  |                    |                       |
| retrograde       | 287 Apr 02 j 16:06 | 1°♄10'34              |  | conjunction      | 294 Jan 01 j 01:31 | 11°♄17'16 -4°09'04    |
|                  | 287 Jun 19 j 14:00 | 30°♄                  |  | minimum elong    | 294 Jan 01 j 01:23 | 11°♄17'15 4°09'05     |
| min. Earth dist. | 287 Jun 20 j 09:55 | 29°♄58'48 33.03309 AU |  | max. Earth dist. | 294 Jan 03 j 21:43 | 11°♄22'41 36.64056 AU |
| opposition       | 287 Jun 22 j 22:58 | 29°♄55'06 -0°50'30    |  | morning rise     | 294 Jan 15 j 17:39 | 11°♄45'03             |
| direct           | 287 Sep 11 j 14:25 | 28°♄40'02             |  | retrograde       | 294 Apr 14 j 09:38 | 13°♄21'50             |
|                  | 287 Nov 27 j 06:22 | 0°♄                   |  | min. Earth dist. | 294 Jul 02 j 14:01 | 12°♄12'29 34.77272 AU |
| evening set      | 287 Dec 07 j 03:47 | 0°♄18'48              |  | opposition       | 294 Jul 05 j 10:44 | 12°♄08'28 -4°38'51    |

|                  |                    |                                      |                  |                    |                                      |             |
|------------------|--------------------|--------------------------------------|------------------|--------------------|--------------------------------------|-------------|
| direct           | 294 Sep 24 j 05:44 | 10° $\overline{3}$ 55'53             | retrograde       | 301 Apr 25 j 04:48 | 24° $\overline{3}$ 29'16             |             |
| evening set      | 294 Dec 19 j 11:05 | 12° $\overline{3}$ 29'45             | min. Earth dist. | 301 Jul 13 j 17:28 | 23° $\overline{3}$ 22'11             | 36.59009 AU |
|                  |                    |                                      | opposition       | 301 Jul 16 j 18:53 | 23° $\overline{3}$ 18'03             | -7°54'10    |
| conjunction      | 295 Jan 02 j 22:34 | 12° $\overline{3}$ 56'59 -4°37'51    | direct           | 301 Oct 05 j 14:28 | 22° $\overline{3}$ 07'52             |             |
| minimum elong    | 295 Jan 02 j 22:25 | 12° $\overline{3}$ 56'58 4°37'51     | evening set      | 301 Dec 31 j 10:56 | 23° $\overline{3}$ 38'59             |             |
| max. Earth dist. | 295 Jan 05 j 19:08 | 13° $\overline{3}$ 02'24 36.89480 AU |                  |                    |                                      |             |
| morning rise     | 295 Jan 17 j 11:18 | 13° $\overline{3}$ 24'18             | conjunction      | 302 Jan 13 j 13:47 | 24° $\overline{3}$ 02'30 -7°41'35    |             |
| retrograde       | 295 Apr 16 j 05:57 | 15° $\overline{3}$ 00'37             | minimum elong    | 302 Jan 13 j 13:35 | 24° $\overline{3}$ 02'29 7°41'36     |             |
| min. Earth dist. | 295 Jul 04 j 11:05 | 13° $\overline{3}$ 51'41 35.02944 AU | max. Earth dist. | 302 Jan 16 j 14:49 | 24° $\overline{3}$ 08'00 38.70063 AU |             |
| opposition       | 295 Jul 07 j 09:58 | 13° $\overline{3}$ 47'34 -5°08'50    | morning rise     | 302 Jan 26 j 17:50 | 24° $\overline{3}$ 26'07             |             |
| direct           | 295 Sep 26 j 05:49 | 12° $\overline{3}$ 35'20             | retrograde       | 302 Apr 26 j 21:46 | 26° $\overline{3}$ 00'16             |             |
| evening set      | 295 Dec 21 j 11:21 | 14° $\overline{3}$ 08'41             | min. Earth dist. | 302 Jul 15 j 12:13 | 24° $\overline{3}$ 53'30 36.84743 AU |             |
|                  |                    |                                      | opposition       | 302 Jul 18 j 14:39 | 24° $\overline{3}$ 49'19 -8°19'20    |             |
| conjunction      | 296 Jan 04 j 19:02 | 14° $\overline{3}$ 35'25 -5°06'01    | direct           | 302 Oct 07 j 11:28 | 23° $\overline{3}$ 39'26             |             |
| minimum elong    | 296 Jan 04 j 18:53 | 14° $\overline{3}$ 35'25 5°06'01     | evening set      | 303 Jan 02 j 10:30 | 25° $\overline{3}$ 10'15             |             |
| max. Earth dist. | 296 Jan 07 j 17:03 | 14° $\overline{3}$ 40'55 37.15108 AU |                  |                    |                                      |             |
| morning rise     | 296 Jan 19 j 04:06 | 15° $\overline{3}$ 02'16             | conjunction      | 303 Jan 15 j 07:30 | 25° $\overline{3}$ 33'12 -8°05'19    |             |
| retrograde       | 296 Apr 17 j 02:35 | 16° $\overline{3}$ 38'11             | minimum elong    | 303 Jan 15 j 07:18 | 25° $\overline{3}$ 33'11 8°05'19     |             |
| min. Earth dist. | 296 Jul 05 j 09:38 | 15° $\overline{3}$ 29'33 35.28825 AU | max. Earth dist. | 303 Jan 18 j 08:42 | 25° $\overline{3}$ 38'40 38.95513 AU |             |
| opposition       | 296 Jul 08 j 08:48 | 15° $\overline{3}$ 25'26 -5°38'07    | morning rise     | 303 Jan 28 j 05:53 | 25° $\overline{3}$ 56'14             |             |
| direct           | 296 Sep 27 j 04:00 | 14° $\overline{3}$ 13'34             | retrograde       | 303 Apr 28 j 16:00 | 27° $\overline{3}$ 30'11             |             |
| evening set      | 296 Dec 22 j 11:32 | 15° $\overline{3}$ 46'27             | min. Earth dist. | 303 Jul 17 j 08:03 | 26° $\overline{3}$ 23'36 37.10330 AU |             |
|                  |                    |                                      | opposition       | 303 Jul 20 j 10:10 | 26° $\overline{3}$ 19'28 -8°43'49    |             |
| conjunction      | 297 Jan 05 j 15:15 | 16° $\overline{3}$ 12'41 -5°33'32    | direct           | 303 Oct 09 j 06:23 | 25° $\overline{3}$ 09'51             |             |
| minimum elong    | 297 Jan 05 j 15:05 | 16° $\overline{3}$ 12'40 5°33'31     | evening set      | 304 Jan 04 j 09:40 | 26° $\overline{3}$ 40'24             |             |
| max. Earth dist. | 297 Jan 08 j 14:23 | 16° $\overline{3}$ 18'13 37.40913 AU |                  |                    |                                      |             |
| morning rise     | 297 Jan 19 j 20:07 | 16° $\overline{3}$ 39'01             | conjunction      | 304 Jan 17 j 00:48 | 27° $\overline{3}$ 02'46 -8°28'25    |             |
| retrograde       | 297 Apr 18 j 23:12 | 18° $\overline{3}$ 14'34             | minimum elong    | 304 Jan 17 j 00:36 | 27° $\overline{3}$ 02'45 8°28'26     |             |
| min. Earth dist. | 297 Jul 07 j 06:32 | 17° $\overline{3}$ 06'17 35.54841 AU | max. Earth dist. | 304 Jan 20 j 02:51 | 27° $\overline{3}$ 08'15 39.20829 AU |             |
| opposition       | 297 Jul 10 j 06:46 | 17° $\overline{3}$ 02'08 -6°06'43    | morning rise     | 304 Jan 29 j 17:02 | 27° $\overline{3}$ 25'12             |             |
| direct           | 297 Sep 29 j 01:49 | 15° $\overline{3}$ 50'37             | retrograde       | 304 Apr 29 j 09:40 | 28° $\overline{3}$ 58'57             |             |
| evening set      | 297 Dec 24 j 11:43 | 17° $\overline{3}$ 23'05             | min. Earth dist. | 304 Jul 18 j 02:45 | 27° $\overline{3}$ 52'37 37.35788 AU |             |
|                  |                    |                                      | opposition       | 304 Jul 21 j 05:03 | 27° $\overline{3}$ 48'29 -9°07'38    |             |
| conjunction      | 298 Jan 07 j 10:53 | 17° $\overline{3}$ 48'48 -6°00'24    | direct           | 304 Oct 10 j 01:04 | 26° $\overline{3}$ 39'08             |             |
| minimum elong    | 298 Jan 07 j 10:42 | 17° $\overline{3}$ 48'48 6°00'25     | evening set      | 305 Jan 05 j 08:56 | 28° $\overline{3}$ 09'28             |             |
| max. Earth dist. | 298 Jan 10 j 10:10 | 17° $\overline{3}$ 54'19 37.66810 AU |                  |                    |                                      |             |
| morning rise     | 298 Jan 21 j 11:31 | 18° $\overline{3}$ 14'38             | conjunction      | 305 Jan 17 j 17:38 | 28° $\overline{3}$ 31'13 -8°50'54    |             |
| retrograde       | 298 Apr 20 j 21:47 | 19° $\overline{3}$ 49'51             | minimum elong    | 305 Jan 17 j 17:26 | 28° $\overline{3}$ 31'12 8°50'54     |             |
| min. Earth dist. | 298 Jul 09 j 03:18 | 18° $\overline{3}$ 41'55 35.80948 AU | max. Earth dist. | 305 Jan 20 j 19:12 | 28° $\overline{3}$ 36'38 39.46037 AU |             |
| opposition       | 298 Jul 12 j 04:31 | 18° $\overline{3}$ 37'44 -6°34'36    | morning rise     | 305 Jan 30 j 03:42 | 28° $\overline{3}$ 53'04             |             |
| direct           | 298 Sep 30 j 20:44 | 17° $\overline{3}$ 26'34             |                  | 305 Mar 16 j 03:26 | 0° $\approx$                         |             |
| evening set      | 298 Dec 26 j 11:30 | 18° $\overline{3}$ 58'39             | retrograde       | 305 May 01 j 04:19 | 0° $\approx$ 26'39                   |             |
|                  |                    |                                      |                  | 305 Jun 17 j 13:54 | 30° $\overline{R}$ $\overline{3}$    |             |
| conjunction      | 299 Jan 09 j 06:07 | 19° $\overline{3}$ 23'50 -6°26'39    | min. Earth dist. | 305 Jul 19 j 20:08 | 29° $\overline{3}$ 20'35 37.61188 AU |             |
| minimum elong    | 299 Jan 09 j 05:56 | 19° $\overline{3}$ 23'50 6°26'38     | opposition       | 305 Jul 22 j 23:21 | 29° $\overline{3}$ 16'25 -9°30'47    |             |
| max. Earth dist. | 299 Jan 12 j 06:59 | 19° $\overline{3}$ 29'26 37.92748 AU | direct           | 305 Oct 11 j 17:41 | 28° $\overline{3}$ 07'20             |             |
| morning rise     | 299 Jan 23 j 01:54 | 19° $\overline{3}$ 49'08             | evening set      | 306 Jan 07 j 07:50 | 29° $\overline{3}$ 37'29             |             |
| retrograde       | 299 Apr 22 j 16:20 | 21° $\overline{3}$ 24'03             |                  |                    |                                      |             |
| min. Earth dist. | 299 Jul 11 j 00:49 | 20° $\overline{3}$ 16'24 36.07053 AU | conjunction      | 306 Jan 19 j 10:10 | 29° $\overline{3}$ 58'38 -9°12'45    |             |
| opposition       | 299 Jul 14 j 01:48 | 20° $\overline{3}$ 12'15 -7°01'49    | minimum elong    | 306 Jan 19 j 09:57 | 29° $\overline{3}$ 58'37 9°12'45     |             |
| direct           | 299 Oct 02 j 19:10 | 19° $\overline{3}$ 01'26             |                  | 306 Jan 20 j 04:50 | 0° $\approx$                         |             |
| evening set      | 299 Dec 28 j 11:30 | 20° $\overline{3}$ 33'10             | max. Earth dist. | 306 Jan 22 j 13:12 | 0° $\approx$ 04'07 39.71200 AU       |             |
|                  |                    |                                      | morning rise     | 306 Jan 31 j 13:36 | 0° $\approx$ 19'52                   |             |
| conjunction      | 300 Jan 11 j 01:01 | 20° $\overline{3}$ 57'48 -6°52'15    | retrograde       | 306 May 02 j 19:12 | 1° $\approx$ 53'19                   |             |
| minimum elong    | 300 Jan 11 j 00:50 | 20° $\overline{3}$ 57'47 6°52'16     | min. Earth dist. | 306 Jul 21 j 14:40 | 0° $\approx$ 47'27 37.86552 AU       |             |
| max. Earth dist. | 300 Jan 14 j 01:17 | 21° $\overline{3}$ 03'19 38.18647 AU | opposition       | 306 Jul 24 j 17:23 | 0° $\approx$ 43'20 -9°53'15          |             |
| morning rise     | 300 Jan 24 j 15:57 | 21° $\overline{3}$ 22'33             |                  | 306 Aug 29 j 00:58 | 30° $\overline{R}$ $\overline{3}$    |             |
| retrograde       | 300 Apr 23 j 11:36 | 22° $\overline{3}$ 57'11             | direct           | 306 Oct 13 j 13:21 | 29° $\overline{3}$ 34'33             |             |
| min. Earth dist. | 300 Jul 11 j 20:16 | 21° $\overline{3}$ 49'53 36.33099 AU |                  | 306 Nov 26 j 13:57 | 0° $\approx$                         |             |
| opposition       | 300 Jul 14 j 22:29 | 21° $\overline{3}$ 45'41 -7°28'20    | evening set      | 307 Jan 09 j 06:38 | 1° $\approx$ 04'33                   |             |
| direct           | 300 Oct 03 j 16:29 | 20° $\overline{3}$ 35'11             |                  |                    |                                      |             |
| evening set      | 300 Dec 29 j 11:16 | 22° $\overline{3}$ 06'37             | conjunction      | 307 Jan 21 j 02:08 | 1° $\approx$ 25'04 -9°33'58          |             |
|                  |                    |                                      | minimum elong    | 307 Jan 21 j 01:55 | 1° $\approx$ 25'03 9°33'58           |             |
| conjunction      | 301 Jan 11 j 19:38 | 22° $\overline{3}$ 30'42 -7°17'14    | max. Earth dist. | 307 Jan 24 j 04:41 | 1° $\approx$ 30'30 39.96349 AU       |             |
| minimum elong    | 301 Jan 11 j 19:26 | 22° $\overline{3}$ 30'41 7°17'14     | morning rise     | 307 Feb 01 j 22:46 | 1° $\approx$ 45'41                   |             |
| max. Earth dist. | 301 Jan 14 j 21:04 | 22° $\overline{3}$ 36'16 38.44433 AU | retrograde       | 307 May 04 j 10:24 | 3° $\approx$ 19'03                   |             |
| morning rise     | 301 Jan 25 j 05:17 | 22° $\overline{3}$ 54'53             | min. Earth dist. | 307 Jul 23 j 06:47 | 2° $\approx$ 13'31 38.11906 AU       |             |

|                  |                    |                      |                  |                    |          |             |
|------------------|--------------------|----------------------|------------------|--------------------|----------|-------------|
| opposition       | 307 Jul 26 j 10:58 | 2°09'19 -10°15'02    | morning rise     | 314 Feb 09 j 00:58 | 11°24'01 |             |
| direct           | 307 Oct 15 j 08:01 | 1°00'49              | retrograde       | 314 May 13 j 18:28 | 12°57'30 |             |
| evening set      | 308 Jan 11 j 05:19 | 2°30'42              | min. Earth dist. | 314 Aug 02 j 00:30 | 11°53'38 | 39.85663 AU |
|                  |                    |                      | opposition       | 314 Aug 05 j 03:43 | 11°49'37 | -12°29'36   |
| conjunction      | 308 Jan 22 j 17:53 | 2°50'37 -9°54'34     | direct           | 314 Oct 25 j 01:32 | 10°43'04 |             |
| minimum elong    | 308 Jan 22 j 17:40 | 2°50'36 9°54'33      | evening set      | 315 Jan 22 j 18:48 | 12°12'53 |             |
| max. Earth dist. | 308 Jan 25 j 21:30 | 2°56'05 40.21472 AU  |                  |                    |          |             |
| morning rise     | 308 Feb 03 j 07:37 | 3°10'36              | conjunction      | 315 Feb 01 j 00:02 | 12°28'12 | -12°02'05   |
| retrograde       | 308 May 05 j 01:20 | 4°43'55              | minimum elong    | 315 Jan 31 j 23:50 | 12°28'11 | 12°02'05    |
| min. Earth dist. | 308 Jul 24 j 00:35 | 3°38'36 38.37234 AU  | max. Earth dist. | 315 Feb 04 j 02:34 | 12°33'23 | 41.92935 AU |
| opposition       | 308 Jul 27 j 04:09 | 3°34'28 -10°36'09    | morning rise     | 315 Feb 10 j 06:03 | 12°43'35 |             |
| direct           | 308 Oct 16 j 01:57 | 2°26'16              | retrograde       | 315 May 15 j 08:23 | 14°17'09 |             |
| evening set      | 309 Jan 12 j 03:56 | 3°56'04              | min. Earth dist. | 315 Aug 03 j 16:26 | 13°13'24 | 40.09335 AU |
|                  |                    |                      | opposition       | 315 Aug 06 j 18:37 | 13°09'27 | -12°46'27   |
| conjunction      | 309 Jan 23 j 09:22 | 4°15'20 -10°14'32    | direct           | 315 Oct 26 j 16:45 | 12°03'07 |             |
| minimum elong    | 309 Jan 23 j 09:10 | 4°15'19 10°14'32     | evening set      | 316 Jan 24 j 17:13 | 13°32'59 |             |
| max. Earth dist. | 309 Jan 26 j 13:15 | 4°20'48 40.46559 AU  |                  |                    |          |             |
| morning rise     | 309 Feb 03 j 15:44 | 4°34'41              | conjunction      | 316 Feb 02 j 13:35 | 13°47'36 | -12°18'05   |
| retrograde       | 309 May 06 j 16:17 | 6°07'59              | minimum elong    | 316 Feb 02 j 13:24 | 13°47'35 | 12°18'04    |
| min. Earth dist. | 309 Jul 25 j 16:30 | 5°02'59 38.62483 AU  | max. Earth dist. | 316 Feb 05 j 16:24 | 13°52'46 | 42.16237 AU |
| opposition       | 309 Jul 28 j 20:52 | 4°58'49 -10°56'36    | morning rise     | 316 Feb 11 j 10:30 | 14°02'17 |             |
| direct           | 309 Oct 17 j 19:20 | 3°50'55              |                  | 316 Mar 21 j 11:09 | 15°      |             |
| evening set      | 310 Jan 14 j 02:26 | 5°20'39              | retrograde       | 316 May 15 j 21:27 | 15°35'56 |             |
|                  |                    |                      |                  | 316 Jul 12 j 12:23 | 15°R     |             |
| conjunction      | 310 Jan 25 j 00:20 | 5°39'18 -10°33'54    | min. Earth dist. | 316 Aug 04 j 06:59 | 14°32'20 | 40.32686 AU |
| minimum elong    | 310 Jan 25 j 00:07 | 5°39'17 10°33'54     | opposition       | 316 Aug 07 j 08:50 | 14°28'25 | -13°02'44   |
| max. Earth dist. | 310 Jan 28 j 03:53 | 5°44'42 40.71537 AU  | direct           | 316 Oct 27 j 07:52 | 13°22'17 |             |
| morning rise     | 310 Feb 04 j 23:21 | 5°58'01              | evening set      | 317 Jan 25 j 15:40 | 14°52'13 |             |
| retrograde       | 310 May 08 j 10:23 | 7°31'19              |                  | 317 Jan 30 j 09:20 | 15°      |             |
| min. Earth dist. | 310 Jul 27 j 09:00 | 6°26'34 38.87621 AU  |                  |                    |          |             |
| opposition       | 310 Jul 30 j 13:23 | 6°22'25 -11°16'25    | conjunction      | 317 Feb 03 j 02:40 | 15°06'08 | -12°33'33   |
| direct           | 310 Oct 19 j 09:14 | 5°14'49              | minimum elong    | 317 Feb 03 j 02:29 | 15°06'07 | 12°33'34    |
| evening set      | 311 Jan 16 j 00:52 | 6°44'32              | max. Earth dist. | 317 Feb 06 j 04:16 | 15°11'11 | 42.39251 AU |
|                  |                    |                      | morning rise     | 317 Feb 11 j 14:21 | 15°20'06 |             |
| conjunction      | 311 Jan 26 j 15:16 | 7°02'32 -10°52'40    | retrograde       | 317 May 17 j 13:23 | 16°53'51 |             |
| minimum elong    | 311 Jan 26 j 15:04 | 7°02'32 10°52'40     | min. Earth dist. | 317 Aug 05 j 20:48 | 15°50'26 | 40.55793 AU |
| max. Earth dist. | 311 Jan 29 j 19:48 | 7°07'59 40.96376 AU  | opposition       | 317 Aug 08 j 22:53 | 15°46'31 | -13°18'27   |
| morning rise     | 311 Feb 06 j 06:28 | 7°20'37              |                  | 317 Sep 18 j 12:36 | 15°R     |             |
| retrograde       | 311 May 10 j 02:25 | 8°53'56              | direct           | 317 Oct 28 j 19:10 | 14°40'34 |             |
| min. Earth dist. | 311 Jul 29 j 01:48 | 7°49'24 39.12569 AU  |                  | 317 Dec 07 j 03:04 | 15°      |             |
| opposition       | 311 Aug 01 j 05:30 | 7°45'19 -11°35'37    | evening set      | 318 Jan 27 j 13:55 | 16°10'37 |             |
| direct           | 311 Oct 21 j 00:13 | 6°38'00              |                  |                    |          |             |
| evening set      | 312 Jan 17 j 23:24 | 8°07'43              | conjunction      | 318 Feb 04 j 15:27 | 16°23'49 | -12°48'28   |
|                  |                    |                      | minimum elong    | 318 Feb 04 j 15:16 | 16°23'48 | 12°48'28    |
| conjunction      | 312 Jan 28 j 05:47 | 8°25'05 -11°10'51    | max. Earth dist. | 318 Feb 07 j 18:01 | 16°28'54 | 42.62041 AU |
| minimum elong    | 312 Jan 28 j 05:34 | 8°25'04 11°10'51     | morning rise     | 318 Feb 12 j 17:28 | 16°37'02 |             |
| max. Earth dist. | 312 Jan 31 j 09:11 | 8°30'24 41.20994 AU  | retrograde       | 318 May 19 j 01:59 | 18°10'56 |             |
| morning rise     | 312 Feb 07 j 13:06 | 8°42'29              | min. Earth dist. | 318 Aug 07 j 11:35 | 17°07'38 | 40.78689 AU |
| retrograde       | 312 May 10 j 18:25 | 10°15'51             | opposition       | 318 Aug 10 j 12:38 | 17°03'48 | -13°33'35   |
| min. Earth dist. | 312 Jul 29 j 16:58 | 9°11'36 39.37270 AU  | direct           | 318 Oct 30 j 09:03 | 15°58'03 |             |
| opposition       | 312 Aug 01 j 21:17 | 9°07'30 -11°54'12    | evening set      | 319 Jan 29 j 12:28 | 17°28'14 |             |
| direct           | 312 Oct 21 j 14:47 | 8°00'28              |                  |                    |          |             |
| evening set      | 313 Jan 18 j 21:54 | 9°30'12              | conjunction      | 319 Feb 06 j 04:00 | 17°40'42 | -13°02'51   |
|                  |                    |                      | minimum elong    | 319 Feb 06 j 03:49 | 17°40'41 | 13°02'52    |
| conjunction      | 313 Jan 28 j 20:14 | 9°46'54 -11°28'29    | max. Earth dist. | 319 Feb 09 j 05:44 | 17°45'42 | 42.84661 AU |
| minimum elong    | 313 Jan 28 j 20:02 | 9°46'53 11°28'29     | morning rise     | 319 Feb 13 j 19:57 | 17°53'10 |             |
| max. Earth dist. | 313 Feb 01 j 00:11 | 9°52'14 41.45317 AU  | retrograde       | 319 May 20 j 12:49 | 19°27'15 |             |
| morning rise     | 313 Feb 07 j 19:24 | 10°03'38             | min. Earth dist. | 319 Aug 08 j 23:58 | 18°24'11 | 41.01424 AU |
| retrograde       | 313 May 12 j 06:20 | 11°37'03             | opposition       | 319 Aug 12 j 01:59 | 18°20'18 | -13°48'09   |
| min. Earth dist. | 313 Jul 31 j 09:52 | 10°32'57 39.61646 AU | direct           | 319 Oct 31 j 23:21 | 17°14'45 |             |
| opposition       | 313 Aug 03 j 12:39 | 10°28'57 -12°12'11   | evening set      | 320 Jan 31 j 10:58 | 18°45'08 |             |
| direct           | 313 Oct 23 j 08:38 | 9°22'10              |                  |                    |          |             |
| evening set      | 314 Jan 20 j 20:28 | 10°51'57             | conjunction      | 320 Feb 07 j 16:14 | 18°56'50 | -13°16'42   |
|                  |                    |                      | minimum elong    | 320 Feb 07 j 16:04 | 18°56'49 | 13°16'41    |
| conjunction      | 314 Jan 30 j 10:23 | 11°07'57 -11°45'33   | max. Earth dist. | 320 Feb 10 j 18:16 | 19°01'51 | 43.07115 AU |
| minimum elong    | 314 Jan 30 j 10:10 | 11°07'56 11°45'32    | morning rise     | 320 Feb 14 j 21:56 | 19°08'33 |             |
| max. Earth dist. | 314 Feb 02 j 13:17 | 11°13'12 41.69310 AU | retrograde       | 320 May 20 j 23:37 | 20°42'51 |             |



|                  |                    |          |             |                  |                    |          |             |
|------------------|--------------------|----------|-------------|------------------|--------------------|----------|-------------|
| min. Earth dist. | 320 Aug 09 j 14:07 | 19°39'55 | 41.23993 AU | morning rise     | 327 Feb 19 j 07:39 | 27°39'01 |             |
| opposition       | 320 Aug 12 j 15:10 | 19°36'06 | -14°02'09   | max. Earth dist. | 327 Feb 18 j 22:34 | 27°38'25 | 44.57234 AU |
| direct           | 320 Nov 01 j 14:05 | 18°30'47 |             | retrograde       | 327 May 30 j 09:04 | 29°16'30 |             |
| evening set      | 321 Feb 01 j 09:50 | 20°01'24 |             | min. Earth dist. | 327 Aug 19 j 06:18 | 28°14'44 | 42.74174 AU |
|                  |                    |          |             | opposition       | 327 Aug 22 j 03:29 | 28°11'12 | -15°25'44   |
| conjunction      | 321 Feb 08 j 04:22 | 20°12'19 | -13°30'01   | direct           | 327 Nov 11 j 02:23 | 27°07'23 |             |
| minimum elong    | 321 Feb 08 j 04:12 | 20°12'18 | 13°30'01    | evening set      | 328 Feb 15 j 02:12 | 28°41'49 |             |
| max. Earth dist. | 321 Feb 11 j 06:26 | 20°17'18 | 43.29408 AU |                  |                    |          |             |
| morning rise     | 321 Feb 14 j 23:07 | 20°23'15 |             | conjunction      | 328 Feb 17 j 11:03 | 28°45'31 | -14°49'38   |
| retrograde       | 321 May 22 j 10:41 | 21°57'48 |             | minimum elong    | 328 Feb 17 j 10:56 | 28°45'31 | 14°49'39    |
| min. Earth dist. | 321 Aug 11 j 02:37 | 20°55'05 | 41.46368 AU | morning rise     | 328 Feb 19 j 19:45 | 28°49'13 |             |
| opposition       | 321 Aug 14 j 03:47 | 20°51'16 | -14°15'37   | max. Earth dist. | 328 Feb 20 j 09:30 | 28°50'06 | 44.77169 AU |
| direct           | 321 Nov 03 j 03:59 | 19°46'11 |             |                  | 328 Apr 10 j 23:06 | 0°       |             |
| evening set      | 322 Feb 03 j 08:55 | 21°17'05 |             | retrograde       | 328 May 30 j 19:44 | 0°       |             |
|                  |                    |          |             |                  | 328 Jul 21 j 00:31 | 30°      |             |
| conjunction      | 322 Feb 09 j 16:05 | 21°27'11 | -13°42'49   | min. Earth dist. | 328 Aug 19 j 18:25 | 29°26'04 | 42.94061 AU |
| minimum elong    | 322 Feb 09 j 15:56 | 21°27'11 | 13°42'48    | opposition       | 328 Aug 22 j 14:29 | 29°22'36 | -15°35'47   |
| max. Earth dist. | 322 Feb 12 j 17:16 | 21°32'05 | 43.51499 AU | direct           | 328 Nov 11 j 13:38 | 28°18'56 |             |
| morning rise     | 322 Feb 15 j 23:34 | 21°37'19 |             |                  |                    |          |             |
| retrograde       | 322 May 24 j 00:41 | 23°12'12 |             | conjunction      | 329 Feb 17 j 21:23 | 29°56'36 | -14°59'13   |
| min. Earth dist. | 322 Aug 12 j 15:25 | 22°09'40 | 41.68537 AU | minimum elong    | 329 Feb 17 j 21:15 | 29°56'36 | 14°59'13    |
| opposition       | 322 Aug 15 j 16:26 | 22°05'53 | -14°28'32   | evening set      | 329 Feb 17 j 05:39 | 29°55'35 |             |
| direct           | 322 Nov 04 j 14:44 | 21°01'01 |             | morning rise     | 329 Feb 18 j 12:54 | 29°57'36 |             |
| evening set      | 323 Feb 05 j 08:19 | 22°32'15 |             |                  | 329 Feb 20 j 01:51 | 0°       |             |
|                  |                    |          |             | max. Earth dist. | 329 Feb 20 j 18:13 | 0°       | 44.96733 AU |
| conjunction      | 323 Feb 11 j 03:39 | 22°41'32 | -13°55'06   | retrograde       | 329 Jun 01 j 07:34 | 1°38'21  |             |
| minimum elong    | 323 Feb 11 j 03:29 | 22°41'31 | 13°55'07    | min. Earth dist. | 329 Aug 21 j 04:52 | 0°36'50  | 43.13619 AU |
| max. Earth dist. | 323 Feb 14 j 05:38 | 22°46'27 | 43.73356 AU | opposition       | 329 Aug 24 j 01:06 | 0°33'22  | -15°45'22   |
| morning rise     | 323 Feb 16 j 23:06 | 22°50'48 |             |                  | 329 Sep 21 j 17:39 | 30°      |             |
| retrograde       | 323 May 25 j 13:02 | 24°26'03 |             | direct           | 329 Nov 12 j 22:20 | 29°29'52 |             |
| min. Earth dist. | 323 Aug 14 j 04:53 | 23°23'41 | 41.90426 AU |                  | 330 Jan 02 j 14:54 | 0°       |             |
| opposition       | 323 Aug 17 j 04:46 | 23°19'58 | -14°40'56   |                  |                    |          |             |
| direct           | 323 Nov 06 j 02:20 | 22°15'20 |             | conjunction      | 330 Feb 19 j 07:32 | 1°07'05  | -15°08'22   |
| evening set      | 324 Feb 07 j 08:37 | 23°46'58 |             | minimum elong    | 330 Feb 19 j 07:26 | 1°07'04  | 15°08'23    |
|                  |                    |          |             | max. Earth dist. | 330 Feb 22 j 04:49 | 1°11'33  | 45.15994 AU |
| conjunction      | 324 Feb 12 j 15:06 | 23°55'22 | -14°06'55   | retrograde       | 330 Jun 02 j 16:14 | 2°48'22  |             |
| minimum elong    | 324 Feb 12 j 14:58 | 23°55'21 | 14°06'55    | min. Earth dist. | 330 Aug 22 j 16:51 | 1°46'56  | 43.32899 AU |
| max. Earth dist. | 324 Feb 15 j 15:33 | 24°00'10 | 43.94917 AU | opposition       | 330 Aug 25 j 11:40 | 1°43'32  | -15°54'30   |
| morning rise     | 324 Feb 17 j 21:43 | 24°03'45 |             | direct           | 330 Nov 14 j 09:36 | 0°40'12  |             |
| retrograde       | 324 May 26 j 01:59 | 25°39'25 |             |                  |                    |          |             |
| min. Earth dist. | 324 Aug 14 j 16:32 | 24°37'16 | 42.11989 AU | conjunction      | 331 Feb 20 j 17:22 | 2°16'58  | -15°17'04   |
| opposition       | 324 Aug 17 j 16:39 | 24°33'33 | -14°52'50   | minimum elong    | 331 Feb 20 j 17:16 | 2°16'58  | 15°17'03    |
| direct           | 324 Nov 06 j 12:40 | 23°29'08 |             | max. Earth dist. | 331 Feb 23 j 13:55 | 2°21'23  | 45.35019 AU |
| evening set      | 325 Feb 08 j 09:43 | 25°01'16 |             | retrograde       | 331 Jun 03 j 23:42 | 3°57'50  |             |
|                  |                    |          |             | min. Earth dist. | 331 Aug 24 j 02:30 | 2°56'34  | 43.51940 AU |
| conjunction      | 325 Feb 13 j 02:26 | 25°08'42 | -14°18'16   | opposition       | 331 Aug 26 j 21:51 | 2°53'09  | -16°03'09   |
| minimum elong    | 325 Feb 13 j 02:16 | 25°08'42 | 14°18'16    | direct           | 331 Nov 15 j 21:02 | 1°49'58  |             |
| max. Earth dist. | 325 Feb 16 j 02:48 | 25°13'29 | 44.16108 AU |                  |                    |          |             |
| morning rise     | 325 Feb 17 j 19:11 | 25°16'08 |             | conjunction      | 332 Feb 22 j 03:06 | 3°26'20  | -15°25'19   |
| retrograde       | 325 May 27 j 11:44 | 26°52'18 |             | minimum elong    | 332 Feb 22 j 03:00 | 3°26'19  | 15°25'19    |
| min. Earth dist. | 325 Aug 16 j 06:18 | 25°50'15 | 42.33153 AU | max. Earth dist. | 332 Feb 24 j 23:03 | 3°30'41  | 45.53813 AU |
| opposition       | 325 Aug 19 j 04:32 | 25°46'38 | -15°04'15   | retrograde       | 332 Jun 04 j 09:06 | 5°06'47  |             |
| direct           | 325 Nov 08 j 01:31 | 24°42'27 |             | min. Earth dist. | 332 Aug 24 j 13:35 | 4°05'37  | 43.70766 AU |
| evening set      | 326 Feb 10 j 12:16 | 26°15'09 |             | opposition       | 332 Aug 27 j 07:51 | 4°02'16  | -16°11'21   |
|                  |                    |          |             | direct           | 332 Nov 16 j 08:15 | 2°59'16  |             |
| conjunction      | 326 Feb 14 j 13:30 | 26°21'32 | -14°29'10   |                  |                    |          |             |
| minimum elong    | 326 Feb 14 j 13:22 | 26°21'32 | 14°29'10    | conjunction      | 333 Feb 22 j 12:45 | 4°35'12  | -15°33'07   |
| morning rise     | 326 Feb 18 j 14:43 | 26°27'56 |             | minimum elong    | 333 Feb 22 j 12:40 | 4°35'12  | 15°33'06    |
| max. Earth dist. | 326 Feb 17 j 13:05 | 26°26'15 | 44.36892 AU | max. Earth dist. | 333 Feb 25 j 09:06 | 4°39'34  | 45.72398 AU |
| retrograde       | 326 May 28 j 20:27 | 28°04'41 |             | retrograde       | 333 Jun 05 j 18:34 | 6°15'16  |             |
| min. Earth dist. | 326 Aug 17 j 17:51 | 27°02'49 | 42.53875 AU | min. Earth dist. | 333 Aug 25 j 23:45 | 5°14'14  | 43.89350 AU |
| opposition       | 326 Aug 20 j 16:05 | 26°59'12 | -15°15'13   | opposition       | 333 Aug 28 j 17:37 | 5°10'55  | -16°19'06   |
| direct           | 326 Nov 09 j 15:40 | 25°55'12 |             | direct           | 333 Nov 17 j 19:06 | 4°08'05  |             |
| evening set      | 327 Feb 12 j 16:56 | 27°28'38 |             |                  |                    |          |             |
|                  |                    |          |             | conjunction      | 334 Feb 23 j 21:57 | 5°43'38  | -15°40'30   |
| conjunction      | 327 Feb 16 j 00:20 | 27°33'49 | -14°39'37   | minimum elong    | 334 Feb 23 j 21:51 | 5°43'38  | 15°40'30    |
| minimum elong    | 327 Feb 16 j 00:11 | 27°33'49 | 14°39'37    | max. Earth dist. | 334 Feb 26 j 16:48 | 5°47'53  | 45.90741 AU |

|                  |                    |                                    |                  |                    |                                    |
|------------------|--------------------|------------------------------------|------------------|--------------------|------------------------------------|
| retrograde       | 334 Jun 07 j 07:28 | 7° <del>✕</del> 23'19              | direct           | 342 Nov 28 j 02:10 | 14° <del>✕</del> 08'55             |
| min. Earth dist. | 334 Aug 27 j 09:25 | 6° <del>✕</del> 22'27 44.07685 AU  |                  |                    |                                    |
| opposition       | 334 Aug 30 j 03:19 | 6° <del>✕</del> 19'09 -16°26'24    | conjunction      | 343 Mar 06 j 04:32 | 15° <del>✕</del> 41'17 -16°29'52   |
| direct           | 334 Nov 19 j 01:25 | 5° <del>✕</del> 16'30              | minimum elong    | 343 Mar 06 j 04:31 | 15° <del>✕</del> 41'17 16°29'53    |
|                  |                    |                                    | max. Earth dist. | 343 Mar 08 j 16:44 | 15° <del>✕</del> 44'58 47.38457 AU |
| conjunction      | 335 Feb 25 j 07:15 | 6° <del>✕</del> 51'41 -15°47'28    | retrograde       | 343 Jun 17 j 07:57 | 17° <del>✕</del> 17'43             |
| minimum elong    | 335 Feb 25 j 07:11 | 6° <del>✕</del> 51'41 15°47'28     | min. Earth dist. | 343 Sep 07 j 00:38 | 16° <del>✕</del> 17'41 45.54417 AU |
| max. Earth dist. | 335 Feb 28 j 02:31 | 6° <del>✕</del> 55'56 46.08811 AU  | opposition       | 343 Sep 09 j 09:55 | 16° <del>✕</del> 14'51 -17°14'44   |
| retrograde       | 335 Jun 08 j 17:10 | 8° <del>✕</del> 30'59              | direct           | 343 Nov 29 j 12:47 | 15° <del>✕</del> 13'28             |
| min. Earth dist. | 335 Aug 28 j 20:36 | 7° <del>✕</del> 30'13 44.25710 AU  |                  |                    |                                    |
| opposition       | 335 Aug 31 j 12:48 | 7° <del>✕</del> 27'00 -16°33'17    | conjunction      | 344 Mar 06 j 12:25 | 16° <del>✕</del> 45'32 -16°33'33   |
| direct           | 335 Nov 20 j 10:15 | 6° <del>✕</del> 24'32              | minimum elong    | 344 Mar 06 j 12:23 | 16° <del>✕</del> 45'32 16°33'33    |
|                  |                    |                                    | max. Earth dist. | 344 Mar 08 j 22:56 | 16° <del>✕</del> 49'07 47.52963 AU |
| conjunction      | 336 Feb 26 j 16:26 | 7° <del>✕</del> 59'21 -15°54'02    | retrograde       | 344 Jun 17 j 18:31 | 18° <del>✕</del> 21'40             |
| minimum elong    | 336 Feb 26 j 16:21 | 7° <del>✕</del> 59'20 15°54'02     | min. Earth dist. | 344 Sep 07 j 09:01 | 17° <del>✕</del> 21'43 45.68854 AU |
| max. Earth dist. | 336 Feb 29 j 10:27 | 8° <del>✕</del> 03'30 46.26559 AU  | opposition       | 344 Sep 09 j 17:48 | 17° <del>✕</del> 18'56 -17°18'15   |
| retrograde       | 336 Jun 09 j 00:27 | 9° <del>✕</del> 38'16              | direct           | 344 Nov 29 j 18:55 | 16° <del>✕</del> 17'41             |
| min. Earth dist. | 336 Aug 29 j 05:46 | 8° <del>✕</del> 37'41 44.43366 AU  |                  |                    |                                    |
| opposition       | 336 Aug 31 j 22:01 | 8° <del>✕</del> 34'28 -16°39'45    | conjunction      | 345 Mar 07 j 20:15 | 17° <del>✕</del> 49'27 -16°36'53   |
| direct           | 336 Nov 20 j 20:21 | 7° <del>✕</del> 32'10              | minimum elong    | 345 Mar 07 j 20:15 | 17° <del>✕</del> 49'27 16°36'53    |
|                  |                    |                                    | max. Earth dist. | 345 Mar 10 j 07:11 | 17° <del>✕</del> 53'03 47.67195 AU |
| conjunction      | 337 Feb 27 j 01:27 | 9° <del>✕</del> 06'38 -16°00'13    | retrograde       | 345 Jun 19 j 03:08 | 19° <del>✕</del> 25'18             |
| minimum elong    | 337 Feb 27 j 01:24 | 9° <del>✕</del> 06'38 16°00'13     | min. Earth dist. | 345 Sep 08 j 18:01 | 18° <del>✕</del> 25'26 45.82999 AU |
| max. Earth dist. | 337 Mar 01 j 18:26 | 9° <del>✕</del> 10'43 46.43891 AU  | opposition       | 345 Sep 11 j 01:24 | 18° <del>✕</del> 22'43 -17°21'23   |
| retrograde       | 337 Jun 10 j 08:05 | 10° <del>✕</del> 45'12             | direct           | 345 Dec 01 j 02:03 | 17° <del>✕</del> 21'37             |
| min. Earth dist. | 337 Aug 30 j 16:39 | 9° <del>✕</del> 44'41 44.60588 AU  |                  |                    |                                    |
| opposition       | 337 Sep 02 j 07:09 | 9° <del>✕</del> 41'34 -16°45'51    | conjunction      | 346 Mar 09 j 03:53 | 18° <del>✕</del> 53'06 -16°39'51   |
| direct           | 337 Nov 22 j 06:51 | 8° <del>✕</del> 39'26              | minimum elong    | 346 Mar 09 j 03:53 | 18° <del>✕</del> 53'06 16°39'50    |
|                  |                    |                                    | max. Earth dist. | 346 Mar 11 j 13:24 | 18° <del>✕</del> 56'36 47.81157 AU |
| conjunction      | 338 Feb 28 j 10:30 | 10° <del>✕</del> 13'33 -16°06'02   | retrograde       | 346 Jun 20 j 10:59 | 20° <del>✕</del> 28'40             |
| minimum elong    | 338 Feb 28 j 10:26 | 10° <del>✕</del> 13'32 16°06'02    | min. Earth dist. | 346 Sep 10 j 01:15 | 19° <del>✕</del> 28'58 45.96857 AU |
| max. Earth dist. | 338 Mar 03 j 03:01 | 10° <del>✕</del> 17'35 46.60777 AU | opposition       | 346 Sep 12 j 08:54 | 19° <del>✕</del> 26'15 -17°24'10   |
| retrograde       | 338 Jun 11 j 15:41 | 11° <del>✕</del> 51'45             | direct           | 346 Dec 02 j 07:48 | 18° <del>✕</del> 25'17             |
| min. Earth dist. | 338 Sep 01 j 02:28 | 10° <del>✕</del> 51'20 44.77318 AU |                  |                    |                                    |
| opposition       | 338 Sep 03 j 16:06 | 10° <del>✕</del> 48'16 -16°51'34   | conjunction      | 347 Mar 10 j 11:22 | 19° <del>✕</del> 56'32 -16°42'28   |
| direct           | 338 Nov 23 j 17:38 | 9° <del>✕</del> 46'17              | minimum elong    | 347 Mar 10 j 11:23 | 19° <del>✕</del> 56'32 16°42'29    |
|                  |                    |                                    | max. Earth dist. | 347 Mar 12 j 20:21 | 19° <del>✕</del> 59'59 47.94801 AU |
| conjunction      | 339 Mar 01 j 19:09 | 11° <del>✕</del> 20'01 -16°11'31   | retrograde       | 347 Jun 21 j 17:04 | 21° <del>✕</del> 31'49             |
| minimum elong    | 339 Mar 01 j 19:07 | 11° <del>✕</del> 20'01 16°11'30    | min. Earth dist. | 347 Sep 11 j 10:36 | 20° <del>✕</del> 32'10 46.10374 AU |
| max. Earth dist. | 339 Mar 04 j 09:40 | 11° <del>✕</del> 23'55 46.77171 AU | opposition       | 347 Sep 13 j 16:24 | 20° <del>✕</del> 29'33 -17°26'36   |
| retrograde       | 339 Jun 13 j 02:33 | 12° <del>✕</del> 57'52             | direct           | 347 Dec 03 j 16:06 | 19° <del>✕</del> 28'45             |
| min. Earth dist. | 339 Sep 02 j 12:07 | 11° <del>✕</del> 57'32 44.93562 AU |                  |                    |                                    |
| opposition       | 339 Sep 05 j 00:58 | 11° <del>✕</del> 54'31 -16°56'56   | conjunction      | 348 Mar 10 j 19:01 | 20° <del>✕</del> 59'44 -16°44'46   |
| direct           | 339 Nov 25 j 01:05 | 10° <del>✕</del> 52'40             | minimum elong    | 348 Mar 10 j 19:02 | 20° <del>✕</del> 59'44 16°44'45    |
|                  |                    |                                    | max. Earth dist. | 348 Mar 13 j 03:24 | 21° <del>✕</del> 03'09 48.08092 AU |
| conjunction      | 340 Mar 02 j 03:53 | 12° <del>✕</del> 26'03 -16°16'38   | retrograde       | 348 Jun 21 j 22:07 | 22° <del>✕</del> 34'46             |
| minimum elong    | 340 Mar 02 j 03:49 | 12° <del>✕</del> 26'02 16°16'38    | min. Earth dist. | 348 Sep 11 j 18:10 | 21° <del>✕</del> 35'15 46.23486 AU |
| max. Earth dist. | 340 Mar 04 j 18:21 | 12° <del>✕</del> 29'55 46.93082 AU | opposition       | 348 Sep 13 j 23:27 | 21° <del>✕</del> 32'39 -17°28'41   |
| retrograde       | 340 Jun 13 j 11:34 | 14° <del>✕</del> 03'31             | direct           | 348 Dec 04 j 01:40 | 20° <del>✕</del> 31'59             |
| min. Earth dist. | 340 Sep 02 j 22:26 | 13° <del>✕</del> 03'13 45.09329 AU |                  |                    |                                    |
| opposition       | 340 Sep 05 j 09:26 | 13° <del>✕</del> 00'18 -17°01'57   | conjunction      | 349 Mar 12 j 02:27 | 22° <del>✕</del> 02'44 -16°46'44   |
| direct           | 340 Nov 25 j 09:02 | 11° <del>✕</del> 58'33             | minimum elong    | 349 Mar 12 j 02:27 | 22° <del>✕</del> 02'44 16°46'44    |
|                  |                    |                                    | max. Earth dist. | 349 Mar 14 j 08:50 | 22° <del>✕</del> 06'01 48.20944 AU |
| conjunction      | 341 Mar 03 j 12:19 | 13° <del>✕</del> 31'35 -16°21'24   | retrograde       | 349 Jun 23 j 06:53 | 23° <del>✕</del> 37'32             |
| minimum elong    | 341 Mar 03 j 12:18 | 13° <del>✕</del> 31'35 16°21'25    | min. Earth dist. | 349 Sep 13 j 02:46 | 22° <del>✕</del> 38'05 46.36142 AU |
| max. Earth dist. | 341 Mar 06 j 01:10 | 13° <del>✕</del> 35'21 47.08564 AU | opposition       | 349 Sep 15 j 06:42 | 22° <del>✕</del> 35'33 -17°30'28   |
| retrograde       | 341 Jun 14 j 19:59 | 15° <del>✕</del> 08'41             | direct           | 349 Dec 05 j 08:39 | 21° <del>✕</del> 35'01             |
| min. Earth dist. | 341 Sep 04 j 06:36 | 14° <del>✕</del> 08'30 45.24691 AU |                  |                    |                                    |
| opposition       | 341 Sep 06 j 17:44 | 14° <del>✕</del> 05'35 -17°06'35   | conjunction      | 350 Mar 13 j 09:48 | 23° <del>✕</del> 05'31 -16°48'25   |
| direct           | 341 Nov 26 j 16:17 | 13° <del>✕</del> 03'57             | minimum elong    | 350 Mar 13 j 09:51 | 23° <del>✕</del> 05'31 16°48'25    |
|                  |                    |                                    | max. Earth dist. | 350 Mar 15 j 16:02 | 23° <del>✕</del> 08'46 48.33309 AU |
| conjunction      | 342 Mar 04 j 20:22 | 14° <del>✕</del> 36'39 -16°25'49   | retrograde       | 350 Jun 24 j 15:31 | 24° <del>✕</del> 40'03             |
| minimum elong    | 342 Mar 04 j 20:19 | 14° <del>✕</del> 36'39 16°25'49    | min. Earth dist. | 350 Sep 14 j 11:34 | 23° <del>✕</del> 40'38 46.48269 AU |
| max. Earth dist. | 342 Mar 07 j 08:37 | 14° <del>✕</del> 40'21 47.23663 AU | opposition       | 350 Sep 16 j 13:50 | 23° <del>✕</del> 38'12 -17°31'57   |
| retrograde       | 342 Jun 16 j 02:16 | 16° <del>✕</del> 13'25             | direct           | 350 Dec 06 j 15:25 | 22° <del>✕</del> 37'46             |
| min. Earth dist. | 342 Sep 05 j 16:34 | 15° <del>✕</del> 13'15 45.39708 AU |                  |                    |                                    |
| opposition       | 342 Sep 08 j 02:03 | 15° <del>✕</del> 10'25 -17°10'51   | conjunction      | 351 Mar 14 j 17:09 | 24° <del>✕</del> 08'01 -16°49'49   |

|                  |                    |                           |             |                  |                    |                      |             |
|------------------|--------------------|---------------------------|-------------|------------------|--------------------|----------------------|-------------|
| minimum elong    | 351 Mar 14 j 17:10 | 24° $\text{H}$ 08'01      | 16°49'49    | conjunction      | 359 Mar 22 j 22:46 | 2° $\text{V}$ 15'06  | -16°50'16   |
| max. Earth dist. | 351 Mar 16 j 21:07 | 24° $\text{H}$ 11'08      | 48.45154 AU | minimum elong    | 359 Mar 22 j 22:50 | 2° $\text{V}$ 15'07  | 16°50'16    |
| retrograde       | 351 Jun 26 j 01:32 | 25° $\text{H}$ 42'16      |             | max. Earth dist. | 359 Mar 24 j 19:16 | 2° $\text{V}$ 17'43  | 49.25237 AU |
| min. Earth dist. | 351 Sep 15 j 18:51 | 24° $\text{H}$ 42'55      | 46.59870 AU | retrograde       | 359 Jul 03 j 23:43 | 3° $\text{V}$ 47'22  |             |
| opposition       | 351 Sep 17 j 20:40 | 24° $\text{H}$ 40'31      | -17°33'09   | min. Earth dist. | 359 Sep 24 j 04:55 | 2° $\text{V}$ 48'20  | 47.38543 AU |
| direct           | 351 Dec 07 j 19:19 | 23° $\text{H}$ 40'11      |             | opposition       | 359 Sep 25 j 22:54 | 2° $\text{V}$ 46'19  | -17°31'38   |
|                  |                    |                           |             | direct           | 359 Dec 16 j 02:48 | 1° $\text{V}$ 46'37  |             |
| conjunction      | 352 Mar 15 j 00:22 | 25° $\text{H}$ 10'10      | -16°50'55   |                  |                    |                      |             |
| minimum elong    | 352 Mar 15 j 00:25 | 25° $\text{H}$ 10'10      | 16°50'55    | conjunction      | 360 Mar 23 j 05:13 | 3° $\text{V}$ 14'50  | -16°48'58   |
| max. Earth dist. | 352 Mar 17 j 03:24 | 25° $\text{H}$ 13'13      | 48.56470 AU | minimum elong    | 360 Mar 23 j 05:18 | 3° $\text{V}$ 14'51  | 16°48'59    |
| retrograde       | 352 Jun 26 j 07:16 | 26° $\text{H}$ 44'08      |             | max. Earth dist. | 360 Mar 25 j 01:45 | 3° $\text{V}$ 17'27  | 49.33811 AU |
| min. Earth dist. | 352 Sep 16 j 03:57 | 25° $\text{H}$ 44'46      | 46.70959 AU | retrograde       | 360 Jul 04 j 05:57 | 4° $\text{V}$ 46'56  |             |
| opposition       | 352 Sep 18 j 03:32 | 25° $\text{H}$ 42'28      | -17°34'03   | min. Earth dist. | 360 Sep 24 j 12:02 | 3° $\text{V}$ 47'56  | 47.46888 AU |
| direct           | 352 Dec 08 j 02:25 | 24° $\text{H}$ 42'12      |             | opposition       | 360 Sep 26 j 04:40 | 3° $\text{V}$ 45'59  | -17°30'03   |
|                  |                    |                           |             | direct           | 360 Dec 16 j 09:42 | 2° $\text{V}$ 46'24  |             |
| conjunction      | 353 Mar 16 j 07:24 | 26° $\text{H}$ 11'56      | -16°51'44   |                  |                    |                      |             |
| minimum elong    | 353 Mar 16 j 07:26 | 26° $\text{H}$ 11'56      | 16°51'44    | conjunction      | 361 Mar 24 j 11:27 | 4° $\text{V}$ 14'28  | -16°47'23   |
| max. Earth dist. | 353 Mar 18 j 09:40 | 26° $\text{H}$ 14'55      | 48.67316 AU | minimum elong    | 361 Mar 24 j 11:33 | 4° $\text{V}$ 14'28  | 16°47'23    |
| retrograde       | 353 Jun 27 j 09:46 | 27° $\text{H}$ 45'36      |             | max. Earth dist. | 361 Mar 26 j 05:51 | 4° $\text{V}$ 16'57  | 49.41974 AU |
| min. Earth dist. | 353 Sep 17 j 10:44 | 26° $\text{H}$ 46'18      | 46.81593 AU | retrograde       | 361 Jul 05 j 15:13 | 5° $\text{V}$ 46'23  |             |
| opposition       | 353 Sep 19 j 10:00 | 26° $\text{H}$ 44'01      | -17°34'39   | min. Earth dist. | 361 Sep 25 j 18:10 | 4° $\text{V}$ 47'29  | 47.54792 AU |
| direct           | 353 Dec 09 j 12:37 | 25° $\text{H}$ 43'49      |             | opposition       | 361 Sep 27 j 10:20 | 4° $\text{V}$ 45'34  | -17°28'12   |
|                  |                    |                           |             | direct           | 361 Dec 17 j 12:21 | 3° $\text{V}$ 46'04  |             |
| conjunction      | 354 Mar 17 j 14:11 | 27° $\text{H}$ 13'17      | -16°52'16   |                  |                    |                      |             |
| minimum elong    | 354 Mar 17 j 14:15 | 27° $\text{H}$ 13'17      | 16°52'16    | conjunction      | 362 Mar 25 j 17:46 | 5° $\text{V}$ 13'59  | -16°45'33   |
| max. Earth dist. | 354 Mar 19 j 14:38 | 27° $\text{H}$ 16'10      | 48.77746 AU | minimum elong    | 362 Mar 25 j 17:51 | 5° $\text{V}$ 14'00  | 16°45'34    |
| retrograde       | 354 Jun 28 j 16:15 | 28° $\text{H}$ 46'41      |             | max. Earth dist. | 362 Mar 27 j 11:17 | 5° $\text{V}$ 16'24  | 49.49657 AU |
| min. Earth dist. | 354 Sep 18 j 18:21 | 27° $\text{H}$ 47'24      | 46.91857 AU | retrograde       | 362 Jul 06 j 22:08 | 6° $\text{V}$ 45'44  |             |
| opposition       | 354 Sep 20 j 16:31 | 27° $\text{H}$ 45'10      | -17°34'56   | min. Earth dist. | 362 Sep 27 j 02:17 | 5° $\text{V}$ 46'49  | 47.62192 AU |
| direct           | 354 Dec 10 j 20:22 | 26° $\text{H}$ 45'02      |             | opposition       | 362 Sep 28 j 16:04 | 5° $\text{V}$ 45'01  | -17°26'06   |
|                  |                    |                           |             | direct           | 362 Dec 18 j 16:38 | 4° $\text{V}$ 45'36  |             |
| conjunction      | 355 Mar 18 j 20:56 | 28° $\text{H}$ 14'15      | -16°52'29   |                  |                    |                      |             |
| minimum elong    | 355 Mar 18 j 20:59 | 28° $\text{H}$ 14'15      | 16°52'29    | conjunction      | 363 Mar 27 j 00:03 | 6° $\text{V}$ 13'22  | -16°43'28   |
| max. Earth dist. | 355 Mar 20 j 21:37 | 28° $\text{H}$ 17'08      | 48.87830 AU | minimum elong    | 363 Mar 27 j 00:10 | 6° $\text{V}$ 13'23  | 16°43'28    |
| retrograde       | 355 Jun 29 j 22:41 | 29° $\text{H}$ 47'24      |             | max. Earth dist. | 363 Mar 28 j 16:24 | 6° $\text{V}$ 15'43  | 49.56838 AU |
| min. Earth dist. | 355 Sep 20 j 01:53 | 28° $\text{H}$ 48'07      | 47.01778 AU | retrograde       | 363 Jul 08 j 00:57 | 7° $\text{V}$ 44'56  |             |
| opposition       | 355 Sep 21 j 22:50 | 28° $\text{H}$ 45'57      | -17°34'55   | min. Earth dist. | 363 Sep 28 j 08:14 | 6° $\text{V}$ 46'05  | 47.69060 AU |
| direct           | 355 Dec 12 j 03:48 | 27° $\text{H}$ 45'53      |             | opposition       | 363 Sep 29 j 21:35 | 6° $\text{V}$ 44'18  | -17°23'45   |
|                  |                    |                           |             | direct           | 363 Dec 20 j 00:52 | 5° $\text{V}$ 44'57  |             |
| conjunction      | 356 Mar 19 j 03:35 | 29° $\text{H}$ 14'52      | -16°52'24   |                  |                    |                      |             |
| minimum elong    | 356 Mar 19 j 03:39 | 29° $\text{H}$ 14'52      | 16°52'24    | conjunction      | 364 Mar 27 j 06:14 | 7° $\text{V}$ 12'34  | -16°41'08   |
| max. Earth dist. | 356 Mar 21 j 02:38 | 29° $\text{H}$ 17'38      | 48.97610 AU | minimum elong    | 364 Mar 27 j 06:19 | 7° $\text{V}$ 12'34  | 16°41'08    |
|                  | 356 Apr 21 j 09:46 | 0° $\text{V}$             |             | max. Earth dist. | 364 Mar 28 j 20:16 | 7° $\text{V}$ 14'47  | 49.63487 AU |
| retrograde       | 356 Jun 30 j 07:02 | 0° $\text{V}$ 47'46       |             | retrograde       | 364 Jul 08 j 05:46 | 8° $\text{V}$ 43'57  |             |
|                  | 356 Sep 10 j 07:45 | 30° $\text{R}$ $\text{H}$ |             | min. Earth dist. | 364 Sep 28 j 15:26 | 7° $\text{V}$ 45'04  | 47.75423 AU |
| min. Earth dist. | 356 Sep 20 j 07:55 | 29° $\text{H}$ 48'34      | 47.11410 AU | opposition       | 364 Sep 30 j 03:00 | 7° $\text{V}$ 43'23  | -17°21'08   |
| opposition       | 356 Sep 22 j 04:51 | 29° $\text{H}$ 46'24      | -17°34'34   | direct           | 364 Dec 20 j 08:08 | 6° $\text{V}$ 44'05  |             |
| direct           | 356 Dec 12 j 07:41 | 28° $\text{H}$ 46'24      |             |                  |                    |                      |             |
|                  | 357 Mar 09 j 15:18 | 0° $\text{V}$             |             | conjunction      | 365 Mar 28 j 12:22 | 8° $\text{V}$ 11'33  | -16°38'34   |
|                  |                    |                           |             | minimum elong    | 365 Mar 28 j 12:30 | 8° $\text{V}$ 11'33  | 16°38'34    |
| conjunction      | 357 Mar 20 j 10:06 | 0° $\text{V}$ 15'10       | -16°52'00   | max. Earth dist. | 365 Mar 30 j 02:18 | 8° $\text{V}$ 13'45  | 49.69658 AU |
| minimum elong    | 357 Mar 20 j 10:10 | 0° $\text{V}$ 15'11       | 16°51'59    | retrograde       | 365 Jul 09 j 11:06 | 9° $\text{V}$ 42'45  |             |
| max. Earth dist. | 357 Mar 22 j 08:41 | 0° $\text{V}$ 17'55       | 49.07099 AU | min. Earth dist. | 365 Sep 29 j 22:03 | 8° $\text{V}$ 43'52  | 47.81319 AU |
| retrograde       | 357 Jul 01 j 13:20 | 1° $\text{V}$ 47'50       |             | opposition       | 365 Oct 01 j 08:21 | 8° $\text{V}$ 42'14  | -17°18'16   |
| min. Earth dist. | 357 Sep 21 j 15:45 | 0° $\text{V}$ 48'39       | 47.20755 AU | direct           | 365 Dec 21 j 15:07 | 7° $\text{V}$ 42'59  |             |
| opposition       | 357 Sep 23 j 11:02 | 0° $\text{V}$ 46'34       | -17°33'54   |                  |                    |                      |             |
|                  | 357 Nov 08 j 13:51 | 30° $\text{R}$ $\text{H}$ |             | conjunction      | 366 Mar 29 j 18:07 | 9° $\text{V}$ 10'17  | -16°35'44   |
| direct           | 357 Dec 13 j 13:10 | 29° $\text{H}$ 46'40      |             | minimum elong    | 366 Mar 29 j 18:13 | 9° $\text{V}$ 10'17  | 16°35'43    |
|                  | 358 Jan 17 j 04:20 | 0° $\text{V}$             |             | max. Earth dist. | 366 Mar 31 j 06:07 | 9° $\text{V}$ 12'22  | 49.75410 AU |
|                  |                    |                           |             | retrograde       | 366 Jul 10 j 19:10 | 10° $\text{V}$ 41'19 |             |
| conjunction      | 358 Mar 21 j 16:26 | 1° $\text{V}$ 15'14       | -16°51'17   | min. Earth dist. | 366 Oct 01 j 03:40 | 9° $\text{V}$ 42'28  | 47.86831 AU |
| minimum elong    | 358 Mar 21 j 16:31 | 1° $\text{V}$ 15'14       | 16°51'17    | opposition       | 366 Oct 02 j 13:37 | 9° $\text{V}$ 40'51  | -17°15'08   |
| max. Earth dist. | 358 Mar 23 j 14:35 | 1° $\text{V}$ 17'57       | 49.16321 AU | direct           | 366 Dec 22 j 18:27 | 8° $\text{V}$ 41'39  |             |
| retrograde       | 358 Jul 02 j 17:08 | 2° $\text{V}$ 47'41       |             |                  |                    |                      |             |
| min. Earth dist. | 358 Sep 22 j 21:42 | 1° $\text{V}$ 48'36       | 47.29806 AU | conjunction      | 367 Mar 31 j 00:02 | 10° $\text{V}$ 08'48 | -16°32'37   |
| opposition       | 358 Sep 24 j 17:00 | 1° $\text{V}$ 46'31       | -17°32'55   | minimum elong    | 367 Mar 31 j 00:10 | 10° $\text{V}$ 08'48 | 16°32'38    |
| direct           | 358 Dec 14 j 20:25 | 0° $\text{V}$ 46'43       |             | max. Earth dist. | 367 Apr 01 j 11:28 | 10° $\text{V}$ 10'50 | 49.80788 AU |

|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
| retrograde       | 367 Jul 12 j 01:20 | 11°♈39'39 |             | direct           | 375 Dec 31 j 18:19 | 17°♈23'20 |             |
| min. Earth dist. | 367 Oct 02 j 10:40 | 10°♈40'46 | 47.91993 AU |                  |                    |           |             |
| opposition       | 367 Oct 03 j 18:45 | 10°♈39'15 | -17°11'43   | conjunction      | 376 Apr 08 j 03:14 | 18°♈49'36 | -15°52'50   |
| direct           | 367 Dec 23 j 22:21 | 9°♈40'05  |             | minimum elong    | 376 Apr 08 j 03:24 | 18°♈49'37 | 15°52'49    |
|                  |                    |           |             | max. Earth dist. | 376 Apr 09 j 03:44 | 18°♈51'00 | 50.13791 AU |
| conjunction      | 368 Mar 31 j 05:55 | 11°♈07'06 | -16°29'15   | retrograde       | 376 Jul 19 j 23:51 | 20°♈19'21 |             |
| minimum elong    | 368 Mar 31 j 06:02 | 11°♈07'07 | 16°29'14    | opposition       | 376 Oct 11 j 14:35 | 19°♈19'31 | -16°28'54   |
| max. Earth dist. | 368 Apr 01 j 16:37 | 11°♈09'06 | 49.85857 AU | min. Earth dist. | 376 Oct 10 j 15:50 | 19°♈20'35 | 48.22452 AU |
| retrograde       | 368 Jul 12 j 04:48 | 12°♈37'47 |             | direct           | 376 Dec 31 j 22:05 | 18°♈20'46 |             |
| opposition       | 368 Oct 03 j 23:45 | 11°♈37'27 | -17°08'01   |                  |                    |           |             |
| min. Earth dist. | 368 Oct 02 j 15:37 | 11°♈38'58 | 47.96844 AU | conjunction      | 377 Apr 09 j 08:43 | 19°♈46'56 | -15°47'14   |
| direct           | 368 Dec 24 j 03:50 | 10°♈38'20 |             | minimum elong    | 377 Apr 09 j 08:51 | 19°♈46'57 | 15°47'14    |
|                  |                    |           |             | max. Earth dist. | 377 Apr 10 j 08:13 | 19°♈48'17 | 50.15139 AU |
| conjunction      | 369 Apr 01 j 11:29 | 12°♈05'14 | -16°25'36   | retrograde       | 377 Jul 21 j 05:58 | 21°♈16'35 |             |
| minimum elong    | 369 Apr 01 j 11:37 | 12°♈05'14 | 16°25'36    | opposition       | 377 Oct 12 j 19:15 | 20°♈16'46 | -16°22'56   |
| max. Earth dist. | 369 Apr 02 j 20:36 | 12°♈07'08 | 49.90622 AU | min. Earth dist. | 377 Oct 11 j 22:38 | 20°♈17'44 | 48.23470 AU |
| retrograde       | 369 Jul 13 j 09:28 | 13°♈35'46 |             | direct           | 378 Jan 02 j 01:52 | 19°♈18'01 |             |
| min. Earth dist. | 369 Oct 03 j 22:04 | 12°♈36'57 | 48.01410 AU |                  |                    |           |             |
| opposition       | 369 Oct 05 j 04:50 | 12°♈35'30 | -17°04'02   | conjunction      | 378 Apr 10 j 14:14 | 20°♈44'07 | -15°41'23   |
| direct           | 369 Dec 25 j 10:06 | 11°♈36'26 |             | minimum elong    | 378 Apr 10 j 14:25 | 20°♈44'07 | 15°41'24    |
|                  |                    |           |             | max. Earth dist. | 378 Apr 11 j 12:48 | 20°♈45'23 | 50.16043 AU |
| conjunction      | 370 Apr 02 j 17:14 | 13°♈03'13 | -16°21'40   | retrograde       | 378 Jul 22 j 10:18 | 22°♈13'37 |             |
| minimum elong    | 370 Apr 02 j 17:22 | 13°♈03'13 | 16°21'40    | opposition       | 378 Oct 13 j 23:41 | 21°♈13'50 | -16°16'45   |
| max. Earth dist. | 370 Apr 04 j 02:28 | 13°♈05'07 | 49.95110 AU | min. Earth dist. | 378 Oct 13 j 03:17 | 21°♈14'47 | 48.24063 AU |
| retrograde       | 370 Jul 14 j 13:07 | 14°♈33'38 |             | direct           | 379 Jan 03 j 06:18 | 20°♈15'04 |             |
| min. Earth dist. | 370 Oct 05 j 03:48 | 13°♈34'51 | 48.05675 AU |                  |                    |           |             |
| opposition       | 370 Oct 06 j 09:45 | 13°♈33'26 | -16°59'46   | conjunction      | 379 Apr 11 j 19:37 | 21°♈41'07 | -15°35'19   |
| direct           | 370 Dec 26 j 17:47 | 12°♈34'26 |             | minimum elong    | 379 Apr 11 j 19:46 | 21°♈41'08 | 15°35'19    |
|                  |                    |           |             | max. Earth dist. | 379 Apr 12 j 16:15 | 21°♈42'17 | 50.16540 AU |
| conjunction      | 371 Apr 03 j 22:48 | 14°♈01'06 | -16°17'28   | retrograde       | 379 Jul 23 j 14:43 | 23°♈10'32 |             |
| minimum elong    | 371 Apr 03 j 22:56 | 14°♈01'07 | 16°17'29    | min. Earth dist. | 379 Oct 14 j 09:34 | 22°♈11'39 | 48.24283 AU |
| max. Earth dist. | 371 Apr 05 j 06:10 | 14°♈02'54 | 49.99302 AU | opposition       | 379 Oct 15 j 04:14 | 22°♈10'46 | -16°10'18   |
| retrograde       | 371 Jul 15 j 21:48 | 15°♈31'24 |             | direct           | 380 Jan 04 j 11:41 | 21°♈12'01 |             |
| min. Earth dist. | 371 Oct 06 j 09:08 | 14°♈32'41 | 48.09622 AU |                  |                    |           |             |
| opposition       | 371 Oct 07 j 14:39 | 14°♈31'17 | -16°55'14   | conjunction      | 380 Apr 12 j 01:09 | 22°♈38'00 | -15°29'00   |
| direct           | 371 Dec 27 j 20:29 | 13°♈32'21 |             | minimum elong    | 380 Apr 12 j 01:20 | 22°♈38'01 | 15°29'00    |
|                  |                    |           |             | max. Earth dist. | 380 Apr 12 j 21:43 | 22°♈39'10 | 50.16685 AU |
| conjunction      | 372 Apr 04 j 04:31 | 14°♈58'56 | -16°13'01   | retrograde       | 380 Jul 23 j 17:17 | 24°♈07'21 |             |
| minimum elong    | 372 Apr 04 j 04:40 | 14°♈58'57 | 16°13'00    | opposition       | 380 Oct 15 j 08:33 | 23°♈07'36 | -16°03'36   |
| max. Earth dist. | 372 Apr 05 j 11:15 | 15°♈00'42 | 50.03134 AU | min. Earth dist. | 380 Oct 14 j 14:40 | 23°♈08'27 | 48.24156 AU |
| retrograde       | 372 Jul 16 j 05:48 | 16°♈29'08 |             | direct           | 381 Jan 04 j 18:57 | 22°♈08'51 |             |
| opposition       | 372 Oct 07 j 19:28 | 15°♈29'05 | -16°50'26   |                  |                    |           |             |
| min. Earth dist. | 372 Oct 06 j 16:06 | 15°♈30'23 | 48.13181 AU | conjunction      | 381 Apr 13 j 06:28 | 23°♈34'48 | -15°22'25   |
| direct           | 372 Dec 27 j 22:56 | 14°♈30'13 |             | minimum elong    | 381 Apr 13 j 06:38 | 23°♈34'49 | 15°22'25    |
|                  |                    |           |             | max. Earth dist. | 381 Apr 14 j 01:08 | 23°♈35'52 | 50.16519 AU |
| conjunction      | 373 Apr 05 j 10:14 | 15°♈56'44 | -16°08'18   | retrograde       | 381 Jul 25 j 00:42 | 25°♈04'06 |             |
| minimum elong    | 373 Apr 05 j 10:22 | 15°♈56'44 | 16°08'19    | opposition       | 381 Oct 16 j 12:59 | 24°♈04'23 | -15°56'37   |
| max. Earth dist. | 373 Apr 06 j 15:54 | 15°♈58'25 | 50.06565 AU | min. Earth dist. | 381 Oct 15 j 19:30 | 24°♈05'12 | 48.23733 AU |
| retrograde       | 373 Jul 17 j 09:23 | 17°♈26'48 |             | direct           | 382 Jan 05 j 21:56 | 23°♈05'40 |             |
| min. Earth dist. | 373 Oct 07 j 21:13 | 16°♈28'07 | 48.16291 AU |                  |                    |           |             |
| opposition       | 373 Oct 09 j 00:14 | 16°♈26'51 | -16°45'23   | conjunction      | 382 Apr 14 j 11:42 | 24°♈31'35 | -15°15'36   |
| direct           | 373 Dec 29 j 04:28 | 15°♈28'01 |             | minimum elong    | 382 Apr 14 j 11:53 | 24°♈31'36 | 15°15'36    |
|                  |                    |           |             | max. Earth dist. | 382 Apr 15 j 05:56 | 24°♈32'37 | 50.16047 AU |
| conjunction      | 374 Apr 06 j 15:44 | 16°♈54'27 | -16°03'22   | retrograde       | 382 Jul 26 j 08:38 | 26°♈00'50 |             |
| minimum elong    | 374 Apr 06 j 15:54 | 16°♈54'28 | 16°03'21    | opposition       | 382 Oct 17 j 17:31 | 25°♈01'10 | -15°49'24   |
| max. Earth dist. | 374 Apr 07 j 19:11 | 16°♈56'02 | 50.09507 AU | min. Earth dist. | 382 Oct 17 j 01:50 | 25°♈01'54 | 48.22997 AU |
| retrograde       | 374 Jul 18 j 13:13 | 18°♈24'26 |             | direct           | 383 Jan 06 j 23:52 | 24°♈02'28 |             |
| min. Earth dist. | 374 Oct 09 j 04:07 | 17°♈25'42 | 48.18893 AU |                  |                    |           |             |
| opposition       | 374 Oct 10 j 05:11 | 17°♈24'31 | -16°40'07   | conjunction      | 383 Apr 15 j 17:09 | 25°♈28'24 | -15°08'31   |
| direct           | 374 Dec 30 j 10:50 | 16°♈25'44 |             | minimum elong    | 383 Apr 15 j 17:20 | 25°♈28'24 | 15°08'30    |
|                  |                    |           |             | max. Earth dist. | 383 Apr 16 j 10:30 | 25°♈29'22 | 50.15276 AU |
| conjunction      | 375 Apr 07 j 21:35 | 17°♈52'06 | -15°58'12   | retrograde       | 383 Jul 27 j 12:56 | 26°♈57'36 |             |
| minimum elong    | 375 Apr 07 j 21:43 | 17°♈52'06 | 15°58'12    | opposition       | 383 Oct 18 j 21:44 | 25°♈57'59 | -15°41'54   |
| max. Earth dist. | 375 Apr 09 j 00:33 | 17°♈53'38 | 50.11920 AU | min. Earth dist. | 383 Oct 18 j 06:05 | 25°♈58'43 | 48.21936 AU |
| retrograde       | 375 Jul 19 j 16:44 | 19°♈21'58 |             | direct           | 384 Jan 08 j 03:48 | 24°♈59'19 |             |
| min. Earth dist. | 375 Oct 10 j 10:17 | 18°♈23'12 | 48.20936 AU |                  |                    |           |             |
| opposition       | 375 Oct 11 j 09:51 | 18°♈22'06 | -16°34'37   | conjunction      | 384 Apr 15 j 22:32 | 26°♈25'15 | -15°01'11   |

|                  |                    |                           |             |                  |                    |                                    |
|------------------|--------------------|---------------------------|-------------|------------------|--------------------|------------------------------------|
| minimum elong    | 384 Apr 15 j 22:42 | 26° $\Upsilon$ 25'16      | 15°01'12    | retrograde       | 390 Aug 02 j 20:42 | 3° $\mathcal{B}$ 36'13             |
| max. Earth dist. | 384 Apr 16 j 13:55 | 26° $\Upsilon$ 26'08      | 50.14149 AU | opposition       | 390 Oct 25 j 04:15 | 2° $\mathcal{B}$ 36'40 -14°43'02   |
| retrograde       | 384 Jul 27 j 16:31 | 27° $\Upsilon$ 54'27      |             | min. Earth dist. | 390 Oct 24 j 22:17 | 2° $\mathcal{B}$ 36'57 48.01557 AU |
| opposition       | 384 Oct 19 j 02:11 | 26° $\Upsilon$ 54'53      | -15°34'10   | direct           | 391 Jan 14 j 15:46 | 1° $\mathcal{B}$ 37'55             |
| min. Earth dist. | 384 Oct 18 j 12:27 | 26° $\Upsilon$ 55'32      | 48.20502 AU | evening set      | 391 Apr 17 j 22:16 | 2° $\mathcal{B}$ 56'20             |
| direct           | 385 Jan 08 j 09:44 | 25° $\Upsilon$ 56'15      |             |                  |                    |                                    |
| evening set      | 385 Apr 15 j 06:09 | 27° $\Upsilon$ 19'37      |             | conjunction      | 391 Apr 23 j 12:45 | 3° $\mathcal{B}$ 03'56 -14°03'40   |
|                  |                    |                           |             | minimum elong    | 391 Apr 23 j 12:57 | 3° $\mathcal{B}$ 03'56 14°03'40    |
| conjunction      | 385 Apr 17 j 03:56 | 27° $\Upsilon$ 22'12      | -14°53'37   | max. Earth dist. | 391 Apr 23 j 18:29 | 3° $\mathcal{B}$ 04'15 49.93012 AU |
| minimum elong    | 385 Apr 17 j 04:08 | 27° $\Upsilon$ 22'13      | 14°53'37    | morning rise     | 391 Apr 29 j 03:59 | 3° $\mathcal{B}$ 11'34             |
| max. Earth dist. | 385 Apr 17 j 19:11 | 27° $\Upsilon$ 23'04      | 50.12618 AU | retrograde       | 391 Aug 04 j 01:57 | 4° $\mathcal{B}$ 32'57             |
| morning rise     | 385 Apr 19 j 02:09 | 27° $\Upsilon$ 24'50      |             | opposition       | 391 Oct 26 j 08:24 | 3° $\mathcal{B}$ 33'23 -14°33'42   |
| retrograde       | 385 Jul 28 j 19:08 | 28° $\Upsilon$ 51'23      |             | min. Earth dist. | 391 Oct 26 j 03:11 | 3° $\mathcal{B}$ 33'38 47.96831 AU |
| opposition       | 385 Oct 20 j 06:33 | 27° $\Upsilon$ 51'52      | -15°26'12   | direct           | 392 Jan 15 j 20:48 | 2° $\mathcal{B}$ 34'35             |
| min. Earth dist. | 385 Oct 19 j 17:56 | 27° $\Upsilon$ 52'28      | 48.18617 AU | evening set      | 392 Apr 17 j 17:30 | 3° $\mathcal{B}$ 52'27             |
| direct           | 386 Jan 09 j 17:20 | 26° $\Upsilon$ 53'15      |             |                  |                    |                                    |
| evening set      | 386 Apr 15 j 13:17 | 28° $\Upsilon$ 15'23      |             | conjunction      | 392 Apr 23 j 18:13 | 4° $\mathcal{B}$ 00'36 -13°54'33   |
|                  |                    |                           |             | minimum elong    | 392 Apr 23 j 18:24 | 4° $\mathcal{B}$ 00'37 13°54'32    |
| conjunction      | 386 Apr 18 j 09:23 | 28° $\Upsilon$ 19'14      | -14°45'50   | max. Earth dist. | 392 Apr 23 j 23:15 | 4° $\mathcal{B}$ 00'53 49.88244 AU |
| minimum elong    | 386 Apr 18 j 09:33 | 28° $\Upsilon$ 19'14      | 14°45'51    | morning rise     | 392 Apr 29 j 19:40 | 4° $\mathcal{B}$ 08'49             |
| max. Earth dist. | 386 Apr 18 j 22:10 | 28° $\Upsilon$ 19'57      | 50.10619 AU | retrograde       | 392 Aug 04 j 09:07 | 5° $\mathcal{B}$ 29'37             |
| morning rise     | 386 Apr 21 j 05:57 | 28° $\Upsilon$ 23'07      |             | opposition       | 392 Oct 26 j 12:43 | 4° $\mathcal{B}$ 30'02 -14°24'07   |
| retrograde       | 386 Jul 30 j 02:12 | 29° $\Upsilon$ 48'24      |             | min. Earth dist. | 392 Oct 26 j 09:14 | 4° $\mathcal{B}$ 30'12 47.91775 AU |
| opposition       | 386 Oct 21 j 10:53 | 28° $\Upsilon$ 48'55      | -15°18'01   | direct           | 393 Jan 15 j 23:52 | 3° $\mathcal{B}$ 31'11             |
| min. Earth dist. | 386 Oct 20 j 23:18 | 28° $\Upsilon$ 49'28      | 48.16241 AU | evening set      | 393 Apr 18 j 13:15 | 4° $\mathcal{B}$ 48'32             |
| direct           | 387 Jan 10 j 20:47 | 27° $\Upsilon$ 50'18      |             |                  |                    |                                    |
| evening set      | 387 Apr 16 j 01:50 | 29° $\Upsilon$ 11'29      |             | conjunction      | 393 Apr 24 j 23:29 | 4° $\mathcal{B}$ 57'14 -13°45'10   |
|                  |                    |                           |             | minimum elong    | 393 Apr 24 j 23:41 | 4° $\mathcal{B}$ 57'15 13°45'11    |
| conjunction      | 387 Apr 19 j 14:58 | 29° $\Upsilon$ 16'17      | -14°37'50   | max. Earth dist. | 393 Apr 25 j 03:49 | 4° $\mathcal{B}$ 57'29 49.83184 AU |
| minimum elong    | 387 Apr 19 j 15:10 | 29° $\Upsilon$ 16'18      | 14°37'50    | morning rise     | 393 May 01 j 10:31 | 5° $\mathcal{B}$ 05'59             |
| max. Earth dist. | 387 Apr 20 j 02:33 | 29° $\Upsilon$ 16'57      | 50.08090 AU | retrograde       | 393 Aug 05 j 14:50 | 6° $\mathcal{B}$ 26'15             |
| morning rise     | 387 Apr 23 j 04:38 | 29° $\Upsilon$ 21'08      |             | opposition       | 393 Oct 27 j 16:56 | 5° $\mathcal{B}$ 26'38 -14°14'16   |
|                  | 387 May 23 j 05:26 | 0° $\mathcal{B}$          |             | min. Earth dist. | 393 Oct 27 j 13:15 | 5° $\mathcal{B}$ 26'49 47.86432 AU |
| retrograde       | 387 Jul 31 j 09:04 | 0° $\mathcal{B}$ 45'27    |             | direct           | 394 Jan 17 j 02:34 | 4° $\mathcal{B}$ 27'45             |
|                  | 387 Oct 10 j 02:06 | 30° $\mathcal{K}\Upsilon$ |             | evening set      | 394 Apr 19 j 09:24 | 5° $\mathcal{B}$ 44'38             |
| opposition       | 387 Oct 22 j 15:22 | 29° $\Upsilon$ 45'58      | -15°09'36   |                  |                    |                                    |
| min. Earth dist. | 387 Oct 22 j 06:02 | 29° $\Upsilon$ 46'24      | 48.13315 AU | conjunction      | 394 Apr 26 j 04:51 | 5° $\mathcal{B}$ 53'52 -13°35'33   |
| direct           | 388 Jan 12 j 00:03 | 28° $\Upsilon$ 47'20      |             | minimum elong    | 394 Apr 26 j 05:02 | 5° $\mathcal{B}$ 53'53 13°35'32    |
|                  | 388 Apr 09 j 23:57 | 0° $\mathcal{B}$          |             | max. Earth dist. | 394 Apr 26 j 07:24 | 5° $\mathcal{B}$ 54'01 49.77841 AU |
| evening set      | 388 Apr 15 j 17:07 | 0° $\mathcal{B}$ 07'43    |             | morning rise     | 394 May 03 j 01:11 | 6° $\mathcal{B}$ 03'08             |
|                  |                    |                           |             | retrograde       | 394 Aug 06 j 19:14 | 7° $\mathcal{B}$ 22'54             |
| conjunction      | 388 Apr 19 j 20:33 | 0° $\mathcal{B}$ 13'20    | -14°29'37   | opposition       | 394 Oct 28 j 21:14 | 6° $\mathcal{B}$ 23'17 -14°04'10   |
| minimum elong    | 388 Apr 19 j 20:43 | 0° $\mathcal{B}$ 13'21    | 14°29'37    | min. Earth dist. | 394 Oct 28 j 19:13 | 6° $\mathcal{B}$ 23'22 47.80819 AU |
| max. Earth dist. | 388 Apr 20 j 06:48 | 0° $\mathcal{B}$ 13'55    | 50.05029 AU | direct           | 395 Jan 18 j 07:25 | 5° $\mathcal{B}$ 24'22             |
| morning rise     | 388 Apr 24 j 00:30 | 0° $\mathcal{B}$ 18'59    |             | evening set      | 395 Apr 20 j 06:03 | 6° $\mathcal{B}$ 40'49             |
| retrograde       | 388 Jul 31 j 14:47 | 1° $\mathcal{B}$ 42'26    |             |                  |                    |                                    |
| opposition       | 388 Oct 22 j 19:34 | 0° $\mathcal{B}$ 42'58    | -15°00'58   | conjunction      | 395 Apr 27 j 10:24 | 6° $\mathcal{B}$ 50'33 -13°25'40   |
| min. Earth dist. | 388 Oct 22 j 10:45 | 0° $\mathcal{B}$ 43'22    | 48.09858 AU | minimum elong    | 395 Apr 27 j 10:36 | 6° $\mathcal{B}$ 50'34 13°25'41    |
|                  | 388 Dec 04 j 10:12 | 30° $\mathcal{K}\Upsilon$ |             | max. Earth dist. | 395 Apr 27 j 13:01 | 6° $\mathcal{B}$ 50'42 49.72223 AU |
| direct           | 389 Jan 12 j 03:21 | 29° $\Upsilon$ 44'18      |             | morning rise     | 395 May 04 j 15:33 | 7° $\mathcal{B}$ 00'20             |
|                  | 389 Feb 19 j 15:25 | 0° $\mathcal{B}$          |             | retrograde       | 395 Aug 07 j 21:18 | 8° $\mathcal{B}$ 19'38             |
| evening set      | 389 Apr 16 j 09:49 | 1° $\mathcal{B}$ 03'58    |             | opposition       | 395 Oct 30 j 01:31 | 7° $\mathcal{B}$ 20'01 -13°53'48   |
|                  |                    |                           |             | min. Earth dist. | 395 Oct 30 j 00:13 | 7° $\mathcal{B}$ 20'04 47.74898 AU |
| conjunction      | 389 Apr 21 j 01:57 | 1° $\mathcal{B}$ 10'18    | -14°21'12   | direct           | 396 Jan 19 j 14:47 | 6° $\mathcal{B}$ 21'04             |
| minimum elong    | 389 Apr 21 j 02:09 | 1° $\mathcal{B}$ 10'19    | 14°21'12    | evening set      | 396 Apr 20 j 03:10 | 7° $\mathcal{B}$ 37'09             |
| max. Earth dist. | 389 Apr 21 j 09:57 | 1° $\mathcal{B}$ 10'45    | 50.01453 AU |                  |                    |                                    |
| morning rise     | 389 Apr 25 j 18:45 | 1° $\mathcal{B}$ 16'40    |             | conjunction      | 396 Apr 27 j 15:53 | 7° $\mathcal{B}$ 47'22 -13°15'33   |
| retrograde       | 389 Aug 01 j 19:10 | 2° $\mathcal{B}$ 39'22    |             | minimum elong    | 396 Apr 27 j 16:05 | 7° $\mathcal{B}$ 47'22 13°15'32    |
| opposition       | 389 Oct 23 j 23:59 | 1° $\mathcal{B}$ 39'52    | -14°52'07   | max. Earth dist. | 396 Apr 27 j 16:25 | 7° $\mathcal{B}$ 47'23 49.66289 AU |
| min. Earth dist. | 389 Oct 23 j 17:07 | 1° $\mathcal{B}$ 40'11    | 48.05925 AU | morning rise     | 396 May 05 j 05:35 | 7° $\mathcal{B}$ 57'38             |
| direct           | 390 Jan 13 j 08:01 | 0° $\mathcal{B}$ 41'10    |             | retrograde       | 396 Aug 08 j 03:36 | 9° $\mathcal{B}$ 16'30             |
| evening set      | 390 Apr 17 j 03:32 | 2° $\mathcal{B}$ 00'10    |             | opposition       | 396 Oct 30 j 05:44 | 8° $\mathcal{B}$ 16'53 -13°43'11   |
|                  |                    |                           |             | min. Earth dist. | 396 Oct 30 j 05:12 | 8° $\mathcal{B}$ 16'55 47.68644 AU |
| conjunction      | 390 Apr 22 j 07:21 | 2° $\mathcal{B}$ 07'10    | -14°12'33   | direct           | 397 Jan 19 j 18:32 | 7° $\mathcal{B}$ 17'56             |
| minimum elong    | 390 Apr 22 j 07:31 | 2° $\mathcal{B}$ 07'11    | 14°12'33    | evening set      | 397 Apr 21 j 00:29 | 8° $\mathcal{B}$ 33'40             |
| max. Earth dist. | 390 Apr 22 j 15:06 | 2° $\mathcal{B}$ 07'36    | 49.97430 AU |                  |                    |                                    |
| morning rise     | 390 Apr 27 j 11:45 | 2° $\mathcal{B}$ 14'12    |             | conjunction      | 397 Apr 28 j 21:32 | 8° $\mathcal{B}$ 44'20 -13°05'12   |

|                  |                    |           |             |                  |  |                    |                       |
|------------------|--------------------|-----------|-------------|------------------|--|--------------------|-----------------------|
| minimum elong    | 397 Apr 28 j 21:43 | 8°844'20  | 13°05'12    |                  |  | 403 Nov 05 j 17:29 | 15°88                 |
| max. Earth dist. | 397 Apr 28 j 21:11 | 8°844'19  | 49.59976 AU | opposition       |  | 403 Nov 06 j 13:04 | 14°859'04 -12°22'24   |
| morning rise     | 397 May 06 j 19:30 | 8°855'04  |             | min. Earth dist. |  | 403 Nov 06 j 21:30 | 14°858'40 47.11676 AU |
| retrograde       | 397 Aug 09 j 10:17 | 10°813'33 |             | direct           |  | 404 Jan 26 j 23:32 | 13°859'43             |
| opposition       | 397 Oct 31 j 10:10 | 9°813'57  | -13°32'20   |                  |  | 404 Apr 15 j 13:46 | 15°8                  |
| min. Earth dist. | 397 Oct 31 j 11:43 | 9°813'53  | 47.61975 AU | evening set      |  | 404 Apr 25 j 14:38 | 15°813'21             |
| direct           | 398 Jan 20 j 22:03 | 8°814'59  |             |                  |  |                    |                       |
| evening set      | 398 Apr 21 j 22:17 | 9°830'22  |             | conjunction      |  | 404 May 05 j 14:24 | 15°826'58 -11°46'26   |
|                  |                    |           |             | minimum elong    |  | 404 May 05 j 14:36 | 15°826'58 11°46'26    |
| conjunction      | 398 Apr 30 j 03:11 | 9°841'29  | -12°54'37   | max. Earth dist. |  | 404 May 05 j 03:34 | 15°826'21 49.02460 AU |
| minimum elong    | 398 Apr 30 j 03:24 | 9°841'30  | 12°54'36    | morning rise     |  | 404 May 15 j 15:25 | 15°840'39             |
| max. Earth dist. | 398 Apr 30 j 01:43 | 9°841'24  | 49.53230 AU | retrograde       |  | 404 Aug 16 j 02:39 | 16°856'45             |
| morning rise     | 398 May 08 j 09:02 | 9°852'41  |             | opposition       |  | 404 Nov 06 j 17:40 | 15°856'54 -12°09'53   |
| retrograde       | 398 Aug 10 j 16:54 | 11°810'47 |             | min. Earth dist. |  | 404 Nov 07 j 03:57 | 15°856'24 47.01854 AU |
| opposition       | 398 Nov 01 j 14:33 | 10°811'11 | -13°21'15   |                  |  | 405 Jan 12 j 00:42 | 15°88                 |
| min. Earth dist. | 398 Nov 01 j 16:34 | 10°811'06 | 47.54829 AU | direct           |  | 405 Jan 27 j 04:36 | 14°857'28             |
| direct           | 399 Jan 22 j 01:13 | 9°812'11  |             |                  |  | 405 Feb 11 j 12:20 | 15°8                  |
| evening set      | 399 Apr 22 j 20:27 | 10°827'15 |             | evening set      |  | 405 Apr 26 j 14:02 | 16°810'51             |
|                  |                    |           |             |                  |  |                    |                       |
| conjunction      | 399 May 01 j 09:01 | 10°838'49 | -12°43'48   | conjunction      |  | 405 May 06 j 20:26 | 16°824'51 -11°34'15   |
| minimum elong    | 399 May 01 j 09:12 | 10°838'50 | 12°43'48    | minimum elong    |  | 405 May 06 j 20:37 | 16°824'52 11°34'14    |
| max. Earth dist. | 399 May 01 j 05:00 | 10°838'36 | 49.45968 AU | max. Earth dist. |  | 405 May 06 j 09:36 | 16°824'14 48.92638 AU |
| morning rise     | 399 May 09 j 22:41 | 10°850'27 |             | morning rise     |  | 405 May 17 j 03:50 | 16°838'56             |
| retrograde       | 399 Aug 11 j 22:39 | 12°808'11 |             | retrograde       |  | 405 Aug 17 j 04:20 | 17°854'45             |
| opposition       | 399 Nov 02 j 19:01 | 11°808'35 | -13°09'56   | opposition       |  | 405 Nov 07 j 22:17 | 16°854'50 -11°57'07   |
| min. Earth dist. | 399 Nov 02 j 23:19 | 11°808'22 | 47.47162 AU | min. Earth dist. |  | 405 Nov 08 j 09:01 | 16°854'20 46.91735 AU |
| direct           | 400 Jan 23 j 05:24 | 10°809'32 |             | direct           |  | 406 Jan 28 j 12:52 | 15°855'20             |
| evening set      | 400 Apr 22 j 18:56 | 11°824'17 |             | evening set      |  | 406 Apr 27 j 13:40 | 17°808'31             |
|                  |                    |           |             |                  |  |                    |                       |
| conjunction      | 400 May 01 j 15:01 | 11°836'17 | -12°32'47   | conjunction      |  | 406 May 08 j 02:18 | 17°822'54 -11°21'48   |
| minimum elong    | 400 May 01 j 15:13 | 11°836'18 | 12°32'47    | minimum elong    |  | 406 May 08 j 02:30 | 17°822'54 11°21'49    |
| max. Earth dist. | 400 May 01 j 10:26 | 11°836'01 | 49.38183 AU | max. Earth dist. |  | 406 May 07 j 13:31 | 17°822'10 48.82539 AU |
| morning rise     | 400 May 10 j 12:02 | 11°848'21 |             | morning rise     |  | 406 May 18 j 16:13 | 17°837'21             |
| retrograde       | 400 Aug 12 j 01:28 | 13°805'44 |             | retrograde       |  | 406 Aug 18 j 09:53 | 18°852'55             |
| opposition       | 400 Nov 02 j 23:33 | 12°806'05 | -12°58'24   | opposition       |  | 406 Nov 09 j 03:01 | 17°852'57 -11°44'05   |
| min. Earth dist. | 400 Nov 03 j 04:51 | 12°805'50 | 47.38961 AU | min. Earth dist. |  | 406 Nov 09 j 14:26 | 17°852'25 46.81346 AU |
| direct           | 401 Jan 23 j 12:42 | 11°806'58 |             | direct           |  | 407 Jan 29 j 18:16 | 16°853'22             |
| evening set      | 401 Apr 23 j 17:29 | 12°821'25 |             | evening set      |  | 407 Apr 28 j 13:32 | 18°806'22             |
|                  |                    |           |             |                  |  |                    |                       |
| conjunction      | 401 May 02 j 20:40 | 12°833'50 | -12°21'33   | conjunction      |  | 407 May 09 j 08:31 | 18°821'07 -11°09'07   |
| minimum elong    | 401 May 02 j 20:51 | 12°833'51 | 12°21'33    | minimum elong    |  | 407 May 09 j 08:43 | 18°821'07 11°09'06    |
| max. Earth dist. | 401 May 02 j 13:46 | 12°833'26 | 49.29891 AU | max. Earth dist. |  | 407 May 08 j 19:06 | 18°820'21 48.72149 AU |
| morning rise     | 401 May 12 j 00:58 | 12°846'19 |             | morning rise     |  | 407 May 20 j 04:39 | 18°835'57             |
| retrograde       | 401 Aug 13 j 06:42 | 14°803'22 |             | retrograde       |  | 407 Aug 19 j 16:17 | 19°851'17             |
| opposition       | 401 Nov 04 j 04:04 | 13°803'40 | -12°46'39   | opposition       |  | 407 Nov 10 j 07:46 | 18°851'17 -11°30'48   |
| min. Earth dist. | 401 Nov 04 j 10:28 | 13°803'22 | 47.30284 AU | min. Earth dist. |  | 407 Nov 10 j 20:54 | 18°850'40 46.70654 AU |
| direct           | 402 Jan 24 j 17:59 | 12°804'29 |             | direct           |  | 408 Jan 30 j 23:00 | 17°851'39             |
| evening set      | 402 Apr 24 j 16:16 | 13°818'39 |             | evening set      |  | 408 Apr 28 j 13:46 | 19°804'27             |
|                  |                    |           |             |                  |  |                    |                       |
| conjunction      | 402 May 04 j 02:35 | 13°831'28 | -12°10'05   | conjunction      |  | 408 May 09 j 14:48 | 19°819'34 -10°56'09   |
| minimum elong    | 402 May 04 j 02:48 | 13°831'29 | 12°10'05    | minimum elong    |  | 408 May 09 j 14:59 | 19°819'35 10°56'10    |
| max. Earth dist. | 402 May 03 j 18:42 | 13°831'01 | 49.21133 AU | max. Earth dist. |  | 408 May 09 j 00:30 | 19°818'45 48.61460 AU |
| morning rise     | 402 May 13 j 14:00 | 13°844'22 |             | morning rise     |  | 408 May 20 j 16:58 | 19°834'47             |
|                  | 402 Aug 04 j 12:34 | 15°8      |             | retrograde       |  | 408 Aug 20 j 00:17 | 20°849'54             |
| retrograde       | 402 Aug 14 j 13:51 | 15°801'05 |             | opposition       |  | 408 Nov 10 j 12:36 | 19°849'52 -11°17'14   |
|                  | 402 Aug 24 j 14:55 | 15°88     |             | min. Earth dist. |  | 408 Nov 11 j 01:56 | 19°849'14 46.59632 AU |
| opposition       | 402 Nov 05 j 08:35 | 14°801'20 | -12°34'39   | direct           |  | 409 Jan 31 j 01:46 | 18°850'09             |
| min. Earth dist. | 402 Nov 05 j 16:56 | 14°800'56 | 47.21168 AU | evening set      |  | 409 Apr 29 j 14:03 | 20°802'48             |
| direct           | 403 Jan 25 j 21:35 | 13°802'04 |             |                  |  |                    |                       |
| evening set      | 403 Apr 25 j 15:24 | 14°815'57 |             | conjunction      |  | 409 May 10 j 20:57 | 20°818'18 -10°42'58   |
|                  |                    |           |             | minimum elong    |  | 409 May 10 j 21:09 | 20°818'18 10°42'57    |
| conjunction      | 403 May 05 j 08:32 | 14°829'10 | -11°58'23   | max. Earth dist. |  | 409 May 10 j 04:33 | 20°817'21 48.50393 AU |
| minimum elong    | 403 May 05 j 08:43 | 14°829'11 | 11°58'23    | morning rise     |  | 409 May 22 j 05:11 | 20°833'52             |
| max. Earth dist. | 403 May 04 j 23:36 | 14°828'40 | 49.11980 AU | retrograde       |  | 409 Aug 21 j 08:35 | 21°848'47             |
| morning rise     | 403 May 15 j 02:43 | 14°842'28 |             | opposition       |  | 409 Nov 11 j 17:37 | 20°848'43 -11°03'26   |
|                  | 403 May 28 j 08:24 | 15°8      |             | min. Earth dist. |  | 409 Nov 12 j 09:02 | 20°847'59 46.48209 AU |
| retrograde       | 403 Aug 15 j 21:36 | 15°858'52 |             | direct           |  | 410 Feb 01 j 04:46 | 19°848'55             |

|                  |                    |                        |             |                  |                    |                               |             |
|------------------|--------------------|------------------------|-------------|------------------|--------------------|-------------------------------|-------------|
| evening set      | 410 Apr 30 j 14:43 | 21° <del>8</del> 01'27 |             | opposition       | 416 Nov 18 j 06:29 | 27° <del>8</del> 46'21        | -9°19'54    |
| max. Earth dist. | 410 May 11 j 10:44 | 21° <del>8</del> 16'20 | 48.38891 AU | min. Earth dist. | 416 Nov 19 j 06:28 | 27° <del>8</del> 45'11        | 45.54704 AU |
|                  |                    |                        |             | direct           | 417 Feb 07 j 23:15 | 26° <del>8</del> 45'39        |             |
| conjunction      | 410 May 12 j 03:34 | 21° <del>8</del> 17'18 | -10°29'32   | evening set      | 417 May 06 j 02:10 | 27° <del>8</del> 57'29        |             |
| minimum elong    | 410 May 12 j 03:45 | 21° <del>8</del> 17'18 | 10°29'32    | max. Earth dist. | 417 May 18 j 00:33 | 28° <del>8</del> 14'05        | 47.44899 AU |
| morning rise     | 410 May 23 j 17:27 | 21° <del>8</del> 33'13 |             |                  |                    |                               |             |
| retrograde       | 410 Aug 22 j 12:48 | 22° <del>8</del> 47'57 |             | conjunction      | 417 May 19 j 03:46 | 28° <del>8</del> 15'40        | -8°48'54    |
| opposition       | 410 Nov 12 j 22:35 | 21° <del>8</del> 47'49 | -10°49'23   | minimum elong    | 417 May 19 j 03:57 | 28° <del>8</del> 15'41        | 8°48'55     |
| min. Earth dist. | 410 Nov 13 j 15:00 | 21° <del>8</del> 47'02 | 46.36305 AU | morning rise     | 417 Jun 01 j 06:24 | 28° <del>8</del> 33'56        |             |
| direct           | 411 Feb 02 j 12:03 | 20° <del>8</del> 47'56 |             | retrograde       | 417 Aug 29 j 07:22 | 29° <del>8</del> 47'39        |             |
| evening set      | 411 May 01 j 15:53 | 22° <del>8</del> 00'20 |             | opposition       | 417 Nov 19 j 12:13 | 28° <del>8</del> 46'48        | -9°04'04    |
|                  |                    |                        |             | min. Earth dist. | 417 Nov 20 j 13:38 | 28° <del>8</del> 45'34        | 45.39812 AU |
| conjunction      | 411 May 13 j 10:14 | 22° <del>8</del> 16'32 | -10°15'52   | direct           | 418 Feb 09 j 05:39 | 27° <del>8</del> 45'58        |             |
| minimum elong    | 411 May 13 j 10:26 | 22° <del>8</del> 16'32 | 10°15'51    | evening set      | 418 May 07 j 04:44 | 28° <del>8</del> 57'45        |             |
| max. Earth dist. | 411 May 12 j 14:49 | 22° <del>8</del> 15'24 | 48.26887 AU | max. Earth dist. | 418 May 19 j 06:56 | 29° <del>8</del> 14'37        | 47.30031 AU |
| morning rise     | 411 May 25 j 05:54 | 22° <del>8</del> 32'48 |             |                  |                    |                               |             |
| retrograde       | 411 Aug 23 j 17:53 | 23° <del>8</del> 47'22 |             | conjunction      | 418 May 20 j 11:01 | 29° <del>8</del> 16'15        | -8°33'32    |
| opposition       | 411 Nov 14 j 03:46 | 22° <del>8</del> 47'10 | -10°35'05   | minimum elong    | 418 May 20 j 11:11 | 29° <del>8</del> 16'16        | 8°33'31     |
| min. Earth dist. | 411 Nov 14 j 21:35 | 22° <del>8</del> 46'18 | 46.23885 AU | morning rise     | 418 Jun 02 j 18:21 | 29° <del>8</del> 34'51        |             |
| direct           | 412 Feb 03 j 18:17 | 21° <del>8</del> 47'10 |             |                  | 418 Jun 21 j 19:21 | 0° <del>II</del>              |             |
| evening set      | 412 May 01 j 17:02 | 22° <del>8</del> 59'26 |             | retrograde       | 418 Aug 30 j 15:51 | 0° <del>II</del> 48'30        |             |
|                  |                    |                        |             |                  | 418 Nov 10 j 01:29 | 30° <del>R</del> <del>8</del> |             |
| conjunction      | 412 May 13 j 17:01 | 23° <del>8</del> 15'58 | -10°01'58   | opposition       | 418 Nov 20 j 17:48 | 29° <del>8</del> 47'33        | -8°47'57    |
| minimum elong    | 412 May 13 j 17:12 | 23° <del>8</del> 15'59 | 10°01'58    | min. Earth dist. | 418 Nov 21 j 19:13 | 29° <del>8</del> 46'18        | 45.24675 AU |
| max. Earth dist. | 412 May 12 j 20:17 | 23° <del>8</del> 14'46 | 48.14339 AU | direct           | 419 Feb 10 j 09:39 | 28° <del>8</del> 46'34        |             |
| morning rise     | 412 May 25 j 18:08 | 23° <del>8</del> 32'35 |             | evening set      | 419 May 08 j 07:34 | 29° <del>8</del> 58'22        |             |
| retrograde       | 412 Aug 23 j 23:35 | 24° <del>8</del> 46'59 |             |                  | 419 May 09 j 11:55 | 0° <del>II</del>              |             |
| opposition       | 412 Nov 14 j 09:01 | 23° <del>8</del> 46'41 | -10°20'33   |                  |                    |                               |             |
| min. Earth dist. | 412 Nov 15 j 04:53 | 23° <del>8</del> 45'43 | 46.10923 AU | conjunction      | 419 May 21 j 18:25 | 0° <del>II</del> 17'12        | -8°17'53    |
| direct           | 413 Feb 04 j 00:35 | 22° <del>8</del> 46'34 |             | minimum elong    | 419 May 21 j 18:35 | 0° <del>II</del> 17'12        | 8°17'54     |
| evening set      | 413 May 02 j 18:32 | 23° <del>8</del> 58'42 |             | max. Earth dist. | 419 May 20 j 12:28 | 0° <del>II</del> 15'26        | 47.14902 AU |
|                  |                    |                        |             | morning rise     | 419 Jun 04 j 06:26 | 0° <del>II</del> 36'07        |             |
| conjunction      | 413 May 14 j 23:51 | 24° <del>8</del> 15'35 | -9°47'51    | retrograde       | 419 Sep 01 j 01:46 | 1° <del>II</del> 49'42        |             |
| minimum elong    | 413 May 15 j 00:03 | 24° <del>8</del> 15'35 | 9°47'51     | opposition       | 419 Nov 21 j 23:46 | 0° <del>II</del> 48'40        | -8°31'34    |
| max. Earth dist. | 413 May 14 j 01:47 | 24° <del>8</del> 14'18 | 48.01288 AU | min. Earth dist. | 419 Nov 23 j 02:59 | 0° <del>II</del> 47'20        | 45.09279 AU |
| morning rise     | 413 May 27 j 06:18 | 24° <del>8</del> 32'32 |             |                  | 420 Jan 08 j 20:01 | 30° <del>R</del> <del>8</del> |             |
| retrograde       | 413 Aug 25 j 08:01 | 25° <del>8</del> 46'46 |             | direct           | 420 Feb 11 j 13:11 | 29° <del>8</del> 47'34        |             |
| opposition       | 413 Nov 15 j 14:14 | 24° <del>8</del> 46'22 | -10°05'47   |                  | 420 Mar 16 j 06:05 | 0° <del>II</del>              |             |
| min. Earth dist. | 413 Nov 16 j 10:28 | 24° <del>8</del> 45'23 | 45.97476 AU | evening set      | 420 May 08 j 10:32 | 0° <del>II</del> 59'24        |             |
| direct           | 414 Feb 05 j 03:57 | 23° <del>8</del> 46'06 |             | max. Earth dist. | 420 May 20 j 20:04 | 1° <del>II</del> 16'47        | 46.99507 AU |
| evening set      | 414 May 03 j 20:05 | 24° <del>8</del> 58'08 |             |                  |                    |                               |             |
| max. Earth dist. | 414 May 15 j 06:22 | 25° <del>8</del> 13'56 | 47.87759 AU | conjunction      | 420 May 22 j 01:59 | 1° <del>II</del> 18'33        | -8°01'58    |
|                  |                    |                        |             | minimum elong    | 420 May 22 j 02:09 | 1° <del>II</del> 18'33        | 8°01'57     |
| conjunction      | 414 May 16 j 06:38 | 25° <del>8</del> 15'20 | -9°33'29    | morning rise     | 420 Jun 04 j 18:16 | 1° <del>II</del> 37'46        |             |
| minimum elong    | 414 May 16 j 06:49 | 25° <del>8</del> 15'21 | 9°33'29     | retrograde       | 420 Sep 01 j 08:12 | 2° <del>II</del> 51'21        |             |
| morning rise     | 414 May 28 j 18:28 | 25° <del>8</del> 32'38 |             | opposition       | 420 Nov 22 j 05:42 | 1° <del>II</del> 50'13        | -8°14'53    |
| retrograde       | 414 Aug 26 j 15:25 | 26° <del>8</del> 46'42 |             | min. Earth dist. | 420 Nov 23 j 09:18 | 1° <del>II</del> 48'52        | 44.93588 AU |
| opposition       | 414 Nov 16 j 19:40 | 25° <del>8</del> 46'11 | -9°50'45    | direct           | 421 Feb 11 j 20:32 | 0° <del>II</del> 49'00        |             |
| min. Earth dist. | 414 Nov 17 j 18:08 | 25° <del>8</del> 45'06 | 45.83586 AU | evening set      | 421 May 09 j 13:59 | 2° <del>II</del> 00'54        |             |
| direct           | 415 Feb 06 j 08:27 | 24° <del>8</del> 45'46 |             | max. Earth dist. | 421 May 22 j 01:30 | 2° <del>II</del> 18'27        | 46.83797 AU |
| evening set      | 415 May 04 j 21:57 | 25° <del>8</del> 57'43 |             |                  |                    |                               |             |
|                  |                    |                        |             | conjunction      | 421 May 23 j 09:36 | 2° <del>II</del> 20'21        | -7°45'47    |
| conjunction      | 415 May 17 j 13:45 | 26° <del>8</del> 15'15 | -9°18'53    | minimum elong    | 421 May 23 j 09:46 | 2° <del>II</del> 20'21        | 7°45'48     |
| minimum elong    | 415 May 17 j 13:56 | 26° <del>8</del> 15'16 | 9°18'53     | morning rise     | 421 Jun 06 j 06:22 | 2° <del>II</del> 39'53        |             |
| max. Earth dist. | 415 May 16 j 13:10 | 26° <del>8</del> 13'50 | 47.73814 AU | retrograde       | 421 Sep 02 j 15:10 | 3° <del>II</del> 53'27        |             |
| morning rise     | 415 May 30 j 06:31 | 26° <del>8</del> 32'53 |             | opposition       | 421 Nov 23 j 11:48 | 2° <del>II</del> 52'15        | -7°57'56    |
| retrograde       | 415 Aug 27 j 19:31 | 27° <del>8</del> 46'48 |             | min. Earth dist. | 421 Nov 24 j 16:46 | 2° <del>II</del> 50'49        | 44.77564 AU |
| opposition       | 415 Nov 18 j 00:58 | 26° <del>8</del> 46'10 | -9°35'28    | direct           | 422 Feb 13 j 02:53 | 1° <del>II</del> 50'55        |             |
| min. Earth dist. | 415 Nov 19 j 00:00 | 26° <del>8</del> 45'03 | 45.69303 AU | evening set      | 422 May 10 j 17:34 | 3° <del>II</del> 02'51        |             |
| direct           | 416 Feb 07 j 16:42 | 25° <del>8</del> 45'37 |             | max. Earth dist. | 422 May 23 j 08:33 | 3° <del>II</del> 20'40        | 46.67694 AU |
| evening set      | 416 May 05 j 00:08 | 26° <del>8</del> 57'29 |             |                  |                    |                               |             |
|                  |                    |                        |             | conjunction      | 422 May 24 j 17:33 | 3° <del>II</del> 22'37        | -7°29'21    |
| conjunction      | 416 May 17 j 20:44 | 27° <del>8</del> 15'21 | -9°04'01    | minimum elong    | 422 May 24 j 17:43 | 3° <del>II</del> 22'38        | 7°29'20     |
| minimum elong    | 416 May 17 j 20:55 | 27° <del>8</del> 15'22 | 9°04'01     | morning rise     | 422 Jun 07 j 18:23 | 3° <del>II</del> 42'28        |             |
| max. Earth dist. | 416 May 16 j 18:00 | 27° <del>8</del> 13'48 | 47.59513 AU | retrograde       | 422 Sep 03 j 20:41 | 4° <del>II</del> 56'03        |             |
| morning rise     | 416 May 30 j 18:37 | 27° <del>8</del> 33'18 |             | opposition       | 422 Nov 24 j 18:11 | 3° <del>II</del> 54'45        | -7°40'43    |
| retrograde       | 416 Aug 28 j 01:25 | 28° <del>8</del> 47'06 |             | min. Earth dist. | 422 Nov 26 j 00:54 | 3° <del>II</del> 53'14        | 44.61107 AU |

|                  |                    |            |             |                  |                    |            |             |
|------------------|--------------------|------------|-------------|------------------|--------------------|------------|-------------|
| direct           | 423 Feb 14 j 11:14 | 2°II53'16  |             | retrograde       | 429 Sep 11 j 08:26 | 12°II25'11 |             |
| evening set      | 423 May 11 j 21:45 | 4°II05'17  |             | opposition       | 429 Dec 01 j 18:23 | 11°II22'45 | -5°32'32    |
| max. Earth dist. | 423 May 24 j 15:11 | 4°II23'17  | 46.51146 AU | min. Earth dist. | 429 Dec 03 j 09:22 | 11°II20'47 | 43.34013 AU |
|                  |                    |            |             | direct           | 430 Feb 21 j 10:04 | 10°II19'51 |             |
| conjunction      | 423 May 26 j 01:44 | 4°II25'21  | -7°12'40    | evening set      | 430 May 18 j 10:18 | 11°II32'40 |             |
| minimum elong    | 423 May 26 j 01:53 | 4°II25'21  | 7°12'39     | max. Earth dist. | 430 May 31 j 19:44 | 11°II52'04 | 45.23623 AU |
| morning rise     | 423 Jun 09 j 06:37 | 4°II45'29  |             |                  |                    |            |             |
| retrograde       | 423 Sep 05 j 06:24 | 5°II59'06  |             | conjunction      | 430 Jun 02 j 14:50 | 11°II54'42 | -5°08'36    |
| opposition       | 423 Nov 26 j 00:31 | 4°II57'41  | -7°23'13    | minimum elong    | 430 Jun 02 j 14:58 | 11°II54'43 | 5°08'36     |
| min. Earth dist. | 423 Nov 27 j 07:49 | 4°II56'08  | 44.44184 AU | morning rise     | 430 Jun 17 j 19:44 | 12°II16'48 |             |
| direct           | 424 Feb 15 j 15:39 | 3°II56'02  |             | retrograde       | 430 Sep 12 j 18:37 | 13°II30'51 |             |
| evening set      | 424 May 12 j 02:11 | 5°II08'08  |             | opposition       | 430 Dec 03 j 01:56 | 12°II28'14 | -5°13'04    |
| max. Earth dist. | 424 May 24 j 21:15 | 5°II26'18  | 46.34105 AU | min. Earth dist. | 430 Dec 04 j 16:53 | 12°II26'16 | 43.14663 AU |
|                  |                    |            |             | direct           | 431 Feb 22 j 17:04 | 11°II25'07 |             |
| conjunction      | 424 May 26 j 10:02 | 5°II28'30  | -6°55'43    | evening set      | 431 May 19 j 17:00 | 12°II38'09 |             |
| minimum elong    | 424 May 26 j 10:12 | 5°II28'30  | 6°55'43     | max. Earth dist. | 431 Jun 02 j 03:06 | 12°II57'42 | 45.04277 AU |
| morning rise     | 424 Jun 09 j 18:51 | 5°II48'56  |             |                  |                    |            |             |
| retrograde       | 424 Sep 05 j 16:29 | 7°II02'34  |             | conjunction      | 431 Jun 04 j 00:16 | 13°II00'28 | -4°49'48    |
| opposition       | 424 Nov 26 j 07:16 | 6°II01'01  | -7°05'28    | minimum elong    | 431 Jun 04 j 00:23 | 13°II00'28 | 4°49'47     |
| min. Earth dist. | 424 Nov 27 j 16:54 | 5°II59'21  | 44.26781 AU | morning rise     | 431 Jun 19 j 08:08 | 13°II22'50 |             |
| direct           | 425 Feb 15 j 19:30 | 4°II59'11  |             | retrograde       | 431 Sep 14 j 04:38 | 14°II37'01 |             |
| evening set      | 425 May 13 j 06:37 | 6°II11'22  |             | opposition       | 431 Dec 04 j 09:40 | 13°II34'15 | -4°53'19    |
| max. Earth dist. | 425 May 26 j 05:06 | 6°II29'47  | 46.16598 AU | min. Earth dist. | 431 Dec 06 j 01:56 | 13°II32'12 | 42.95120 AU |
|                  |                    |            |             | direct           | 432 Feb 24 j 00:13 | 12°II30'56 |             |
| conjunction      | 425 May 27 j 18:23 | 6°II32'01  | -6°38'32    | evening set      | 432 May 19 j 23:54 | 13°II44'12 |             |
| minimum elong    | 425 May 27 j 18:32 | 6°II32'01  | 6°38'32     | max. Earth dist. | 432 Jun 02 j 12:39 | 14°II03'59 | 44.84715 AU |
| morning rise     | 425 Jun 11 j 06:48 | 6°II52'44  |             |                  |                    |            |             |
| retrograde       | 425 Sep 07 j 00:01 | 8°II06'24  |             | conjunction      | 432 Jun 04 j 10:04 | 14°II06'47 | -4°30'43    |
| opposition       | 425 Nov 27 j 14:01 | 7°II04'41  | -6°47'27    | minimum elong    | 432 Jun 04 j 10:11 | 14°II06'47 | 4°30'43     |
| min. Earth dist. | 425 Nov 29 j 00:10 | 7°II02'59  | 44.08920 AU | morning rise     | 432 Jun 19 j 20:25 | 14°II29'24 |             |
| direct           | 426 Feb 17 j 04:19 | 6°II02'39  |             | retrograde       | 432 Sep 14 j 11:24 | 15°II43'47 |             |
| evening set      | 426 May 14 j 11:40 | 7°II14'56  |             | opposition       | 432 Dec 04 j 17:44 | 14°II40'51 | -4°33'15    |
| max. Earth dist. | 426 May 27 j 11:11 | 7°II33'29  | 45.98657 AU | min. Earth dist. | 432 Dec 06 j 11:00 | 14°II38'45 | 42.75343 AU |
|                  |                    |            |             | direct           | 433 Feb 24 j 10:50 | 13°II37'21 |             |
| conjunction      | 426 May 29 j 02:56 | 7°II35'52  | -6°21'05    | evening set      | 433 May 21 j 07:12 | 14°II50'53 |             |
| minimum elong    | 426 May 29 j 03:05 | 7°II35'53  | 6°21'05     | max. Earth dist. | 433 Jun 03 j 21:06 | 15°II10'50 | 44.64909 AU |
| morning rise     | 426 Jun 12 j 19:07 | 7°II56'53  |             |                  |                    |            |             |
| retrograde       | 426 Sep 08 j 07:39 | 9°II10'34  |             | conjunction      | 433 Jun 05 j 19:49 | 15°II13'43 | -4°11'21    |
| opposition       | 426 Nov 28 j 20:48 | 8°II08'41  | -6°29'09    | minimum elong    | 433 Jun 05 j 19:56 | 15°II13'44 | 4°11'20     |
| min. Earth dist. | 426 Nov 30 j 08:26 | 8°II06'54  | 43.90664 AU | morning rise     | 433 Jun 21 j 08:48 | 15°II36'36 |             |
| direct           | 427 Feb 18 j 12:36 | 7°II06'26  |             | retrograde       | 433 Sep 15 j 21:11 | 16°II51'12 |             |
| evening set      | 427 May 15 j 16:52 | 8°II18'49  |             | opposition       | 433 Dec 06 j 01:55 | 15°II48'07 | -4°12'54    |
| max. Earth dist. | 427 May 28 j 19:26 | 8°II37'37  | 45.80328 AU | min. Earth dist. | 433 Dec 07 j 19:38 | 15°II45'59 | 42.55292 AU |
|                  |                    |            |             | direct           | 434 Feb 25 j 18:39 | 14°II44'25 |             |
| conjunction      | 427 May 30 j 11:48 | 8°II40'03  | -6°03'22    | evening set      | 434 May 22 j 15:08 | 15°II58'15 |             |
| minimum elong    | 427 May 30 j 11:56 | 8°II40'03  | 6°03'22     | max. Earth dist. | 434 Jun 05 j 05:44 | 16°II18'20 | 44.44763 AU |
| morning rise     | 427 Jun 14 j 07:17 | 9°II01'20  |             |                  |                    |            |             |
| retrograde       | 427 Sep 09 j 13:40 | 10°II15'05 |             | conjunction      | 434 Jun 07 j 06:09 | 16°II21'20 | -3°51'43    |
| opposition       | 427 Nov 30 j 03:53 | 9°II13'01  | -6°10'34    | minimum elong    | 434 Jun 07 j 06:15 | 16°II21'21 | 3°51'44     |
| min. Earth dist. | 427 Dec 01 j 16:56 | 9°II11'09  | 43.72048 AU | morning rise     | 434 Jun 22 j 21:25 | 16°II44'29 |             |
| direct           | 428 Feb 19 j 21:53 | 8°II10'33  |             | retrograde       | 434 Sep 17 j 08:25 | 17°II59'19 |             |
| evening set      | 428 May 15 j 22:24 | 9°II23'03  |             | opposition       | 434 Dec 07 j 10:24 | 16°II56'05 | -3°52'16    |
| max. Earth dist. | 428 May 29 j 03:01 | 9°II42'02  | 45.61682 AU | min. Earth dist. | 434 Dec 09 j 06:25 | 16°II53'49 | 42.34879 AU |
|                  |                    |            |             | direct           | 435 Feb 27 j 00:39 | 15°II52'10 |             |
| conjunction      | 428 May 30 j 20:34 | 9°II44'33  | -5°45'23    | evening set      | 435 May 23 j 23:31 | 17°II06'19 |             |
| minimum elong    | 428 May 30 j 20:43 | 9°II44'34  | 5°45'23     | max. Earth dist. | 435 Jun 06 j 15:44 | 17°II26'35 | 44.24230 AU |
| morning rise     | 428 Jun 14 j 19:25 | 10°II06'07 |             |                  |                    |            |             |
| retrograde       | 428 Sep 09 j 21:44 | 11°II19'56 |             | conjunction      | 435 Jun 08 j 16:51 | 17°II29'39 | -3°31'49    |
| opposition       | 428 Nov 30 j 10:58 | 10°II17'41 | -5°51'42    | minimum elong    | 435 Jun 08 j 16:56 | 17°II29'40 | 3°31'48     |
| min. Earth dist. | 428 Dec 02 j 00:13 | 10°II15'49 | 43.53150 AU | morning rise     | 435 Jun 24 j 10:10 | 17°II53'02 |             |
| direct           | 429 Feb 20 j 04:59 | 9°II15'00  |             | retrograde       | 435 Sep 18 j 19:47 | 19°II08'08 |             |
| evening set      | 429 May 17 j 04:14 | 10°II27'39 |             | opposition       | 435 Dec 08 j 19:08 | 18°II04'43 | -3°31'20    |
| max. Earth dist. | 429 May 30 j 10:23 | 10°II46'48 | 45.42759 AU | min. Earth dist. | 435 Dec 10 j 15:34 | 18°II02'26 | 42.14052 AU |
|                  |                    |            |             | direct           | 436 Feb 28 j 09:28 | 17°II00'34 |             |
| conjunction      | 429 Jun 01 j 05:35 | 10°II49'25 | -5°27'08    | evening set      | 436 May 24 j 08:21 | 18°II15'04 |             |
| minimum elong    | 429 Jun 01 j 05:42 | 10°II49'26 | 5°27'08     | max. Earth dist. | 436 Jun 06 j 23:47 | 18°II35'24 | 44.03260 AU |
| morning rise     | 429 Jun 16 j 07:34 | 11°II11'15 |             |                  |                    |            |             |



|                  |                    |                        |                  |                    |            |             |
|------------------|--------------------|------------------------|------------------|--------------------|------------|-------------|
| conjunction      | 436 Jun 09 j 03:33 | 18°II38'39 -3°11'39    | evening set      | 443 Jun 02 j 10:33 | 26°II34'55 |             |
| minimum elong    | 436 Jun 09 j 03:38 | 18°II38'39 3°11'39     | max. Earth dist. | 443 Jun 16 j 02:58 | 26°II56'06 | 42.46897 AU |
| morning rise     | 436 Jun 24 j 22:56 | 19°II02'16             |                  |                    |            |             |
| retrograde       | 436 Sep 19 j 08:29 | 20°II17'38             | conjunction      | 443 Jun 18 j 14:35 | 27°II00'00 | -0°42'58    |
| opposition       | 436 Dec 09 j 04:12 | 19°II14'01 -3°10'07    | minimum elong    | 443 Jun 18 j 14:37 | 27°II00'00 | 0°42'58     |
| min. Earth dist. | 436 Dec 11 j 02:30 | 19°II11'38 41.92798 AU | morning rise     | 443 Jul 04 j 18:08 | 27°II25'04 |             |
| direct           | 437 Feb 28 j 17:49 | 18°II09'38             | retrograde       | 443 Sep 28 j 17:54 | 28°II42'55 |             |
| evening set      | 437 May 25 j 17:30 | 19°II24'29             | opposition       | 443 Dec 18 j 02:20 | 27°II37'40 | -0°33'27    |
| max. Earth dist. | 437 Jun 08 j 10:27 | 19°II45'00 43.81860 AU | min. Earth dist. | 443 Dec 20 j 07:00 | 27°II34'52 | 40.35233 AU |
|                  |                    |                        | direct           | 444 Mar 08 j 17:17 | 26°II31'17 |             |
| conjunction      | 437 Jun 10 j 14:43 | 19°II48'18 -2°51'13    | evening set      | 444 Jun 02 j 23:07 | 27°II49'18 |             |
| minimum elong    | 437 Jun 10 j 14:48 | 19°II48'19 2°51'12     | max. Earth dist. | 444 Jun 16 j 15:23 | 28°II10'37 | 42.23726 AU |
| morning rise     | 437 Jun 26 j 11:43 | 20°II12'09             |                  |                    |            |             |
| retrograde       | 437 Sep 20 j 18:02 | 21°II27'47             | conjunction      | 444 Jun 19 j 03:37 | 28°II14'34 | -0°20'40    |
| opposition       | 437 Dec 10 j 13:26 | 20°II23'59 -2°48'37    | minimum elong    | 444 Jun 19 j 03:38 | 28°II14'34 | 0°20'39     |
| min. Earth dist. | 437 Dec 12 j 12:54 | 20°II21'31 41.71126 AU | morning rise     | 444 Jul 05 j 07:18 | 28°II39'49 |             |
| direct           | 438 Mar 02 j 05:10 | 19°II19'19             | retrograde       | 444 Sep 29 j 05:13 | 29°II58'10 |             |
| evening set      | 438 May 27 j 03:11 | 20°II34'33             | opposition       | 444 Dec 18 j 13:40 | 28°II52'41 | -0°09'54    |
| max. Earth dist. | 438 Jun 09 j 19:48 | 20°II55'09 43.60069 AU | min. Earth dist. | 444 Dec 20 j 19:48 | 28°II49'47 | 40.11973 AU |
|                  |                    |                        | direct           | 445 Mar 10 j 04:50 | 27°II46'01 |             |
| conjunction      | 438 Jun 12 j 02:00 | 20°II58'35 -2°30'30    | asc. node        | 445 May 20 j 11:02 | 28°II42'19 |             |
| minimum elong    | 438 Jun 12 j 02:04 | 20°II58'36 2°30'31     | evening set      | 445 Jun 04 j 12:24 | 29°II04'37 |             |
| morning rise     | 438 Jun 28 j 00:45 | 21°II22'40             | max. Earth dist. | 445 Jun 18 j 04:14 | 29°II26'02 | 42.00392 AU |
| retrograde       | 438 Sep 22 j 04:01 | 22°II38'36             |                  |                    |            |             |
| opposition       | 438 Dec 11 j 22:52 | 21°II34'34 -2°26'49    | conjunction      | 445 Jun 20 j 17:03 | 29°II30'03 | 0°02'00     |
| min. Earth dist. | 438 Dec 13 j 23:09 | 21°II32'03 41.49092 AU | minimum elong    | 445 Jun 20 j 17:03 | 29°II30'03 | 0°01'59     |
| direct           | 439 Mar 03 j 15:11 | 20°II29'38             | behind sun begin | 445 Jun 20 j 10:31 | 29°II29'39 |             |
| evening set      | 439 May 28 j 13:20 | 21°II45'14             | behind sun end   | 445 Jun 20 j 23:35 | 29°II30'27 |             |
| max. Earth dist. | 439 Jun 11 j 05:57 | 22°II05'57 43.37910 AU | morning rise     | 445 Jul 06 j 20:52 | 29°II55'28 |             |
|                  |                    |                        |                  | 445 Jul 09 j 19:44 | 0°☾        |             |
| conjunction      | 439 Jun 13 j 13:39 | 22°II09'31 -2°09'32    | retrograde       | 445 Sep 30 j 18:11 | 1°☾14'21   |             |
| minimum elong    | 439 Jun 13 j 13:42 | 22°II09'31 2°09'32     | opposition       | 445 Dec 20 j 01:06 | 0°☾08'38   | 0°13'55     |
| morning rise     | 439 Jun 29 j 13:41 | 22°II33'48             | min. Earth dist. | 445 Dec 22 j 07:20 | 0°☾05'42   | 39.88528 AU |
| retrograde       | 439 Sep 23 j 14:24 | 23°II50'04             |                  | 445 Dec 26 j 17:34 | 30°R II    |             |
| opposition       | 439 Dec 13 j 08:36 | 22°II45'48 -2°04'44    | direct           | 446 Mar 11 j 15:23 | 29°II01'40 |             |
| min. Earth dist. | 439 Dec 15 j 10:46 | 22°II43'10 41.26731 AU |                  | 446 May 23 j 02:58 | 0°☾        |             |
| direct           | 440 Mar 04 j 00:15 | 21°II40'35             | evening set      | 446 Jun 06 j 02:26 | 0°☾20'54   |             |
| evening set      | 440 May 28 j 23:52 | 22°II56'36             | max. Earth dist. | 446 Jun 19 j 15:58 | 0°☾42'19   | 41.76814 AU |
| max. Earth dist. | 440 Jun 11 j 17:26 | 23°II17'29 43.15466 AU |                  |                    |            |             |
|                  |                    |                        | conjunction      | 446 Jun 22 j 06:56 | 0°☾46'30   | 0°24'47     |
| conjunction      | 440 Jun 14 j 01:29 | 23°II21'05 -1°48'18    | minimum elong    | 446 Jun 22 j 06:55 | 0°☾46'30   | 0°24'48     |
| minimum elong    | 440 Jun 14 j 01:32 | 23°II21'05 1°48'17     | morning rise     | 446 Jul 08 j 10:35 | 1°☾12'05   |             |
| morning rise     | 440 Jun 30 j 02:41 | 23°II45'34             | retrograde       | 446 Oct 02 j 10:25 | 2°☾31'31   |             |
| retrograde       | 440 Sep 24 j 03:37 | 25°II02'12             | opposition       | 446 Dec 21 j 13:09 | 1°☾25'33   | 0°38'02     |
| opposition       | 440 Dec 13 j 18:34 | 23°II57'41 -1°42'21    | min. Earth dist. | 446 Dec 23 j 21:26 | 1°☾22'30   | 39.64822 AU |
| min. Earth dist. | 440 Dec 15 j 20:39 | 23°II55'02 41.04119 AU | direct           | 447 Mar 13 j 00:04 | 0°☾18'16   |             |
| direct           | 441 Mar 05 j 07:59 | 22°II52'10             | evening set      | 447 Jun 07 j 17:05 | 1°☾38'11   |             |
| evening set      | 441 May 30 j 10:49 | 24°II08'38             | max. Earth dist. | 447 Jun 21 j 06:11 | 1°☾59'42   | 41.52936 AU |
| max. Earth dist. | 441 Jun 13 j 03:21 | 24°II29'34 42.92782 AU |                  |                    |            |             |
|                  |                    |                        | conjunction      | 447 Jun 23 j 21:20 | 2°☾03'55   | 0°47'51     |
| conjunction      | 441 Jun 15 j 13:22 | 24°II33'19 -1°26'47    | minimum elong    | 447 Jun 23 j 21:19 | 2°☾03'55   | 0°47'51     |
| minimum elong    | 441 Jun 15 j 13:25 | 24°II33'19 1°26'47     | morning rise     | 447 Jul 10 j 00:24 | 2°☾29'38   |             |
| morning rise     | 441 Jul 01 j 15:38 | 24°II58'00             | retrograde       | 447 Oct 04 j 01:24 | 3°☾49'40   |             |
| retrograde       | 441 Sep 25 j 17:13 | 26°II15'01             | opposition       | 447 Dec 23 j 01:29 | 2°☾43'25   | 1°02'25     |
| opposition       | 441 Dec 15 j 04:54 | 25°II10'15 -1°19'41    | min. Earth dist. | 447 Dec 25 j 10:17 | 2°☾40'20   | 39.40794 AU |
| min. Earth dist. | 441 Dec 17 j 08:40 | 25°II07'31 40.81310 AU | direct           | 448 Mar 13 j 12:17 | 1°☾35'49   |             |
| direct           | 442 Mar 06 j 16:20 | 24°II04'26             | evening set      | 448 Jun 08 j 08:31 | 2°☾56'26   |             |
| evening set      | 442 May 31 j 22:18 | 25°II21'23             | max. Earth dist. | 448 Jun 21 j 18:29 | 3°☾17'53   | 41.28728 AU |
| max. Earth dist. | 442 Jun 14 j 15:55 | 25°II42'31 42.69912 AU |                  |                    |            |             |
|                  |                    |                        | conjunction      | 448 Jun 24 j 11:59 | 3°☾22'18   | 1°11'11     |
| conjunction      | 442 Jun 17 j 01:52 | 25°II46'16 -1°05'00    | minimum elong    | 448 Jun 24 j 11:57 | 3°☾22'18   | 1°11'11     |
| minimum elong    | 442 Jun 17 j 01:54 | 25°II46'16 1°05'00     | morning rise     | 448 Jul 10 j 14:29 | 3°☾48'08   |             |
| morning rise     | 442 Jul 03 j 04:44 | 26°II11'09             | retrograde       | 448 Oct 04 j 17:30 | 5°☾08'46   |             |
| retrograde       | 442 Sep 27 j 04:59 | 27°II28'34             | opposition       | 448 Dec 23 j 14:17 | 4°☾02'15   | 1°27'05     |
| opposition       | 442 Dec 16 j 15:25 | 26°II23'33 -0°56'43    | min. Earth dist. | 448 Dec 26 j 00:30 | 3°☾59'04   | 39.16452 AU |
| min. Earth dist. | 442 Dec 18 j 19:32 | 26°II20'47 40.58334 AU | direct           | 449 Mar 15 j 00:32 | 2°☾54'17   |             |
| direct           | 443 Mar 08 j 05:17 | 25°II17'27             | evening set      | 449 Jun 10 j 00:18 | 4°☾15'37   |             |

|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
| max. Earth dist. | 449 Jun 23 j 08:46 | 4°☾37'07  | 41.04181 AU | min. Earth dist. | 456 Jan 05 j 10:15 | 13°☾37'35 | 37.40320 AU |
|                  |                    |           |             | direct           | 456 Mar 24 j 05:19 | 12°☾30'31 |             |
| conjunction      | 449 Jun 26 j 03:03 | 4°☾41'37  | 1°34'45     | evening set      | 456 Jun 20 j 12:07 | 13°☾58'03 |             |
| minimum elong    | 449 Jun 26 j 03:01 | 4°☾41'37  | 1°34'44     | max. Earth dist. | 456 Jul 02 j 23:34 | 14°☾19'15 | 39.27110 AU |
| morning rise     | 449 Jul 12 j 04:26 | 5°☾07'34  |             |                  |                    |           |             |
| retrograde       | 449 Oct 06 j 06:38 | 6°☾28'50  |             | conjunction      | 456 Jul 06 j 00:02 | 14°☾24'27 | 4°25'49     |
| opposition       | 449 Dec 25 j 03:32 | 5°☾22'00  | 1°52'00     | minimum elong    | 456 Jul 05 j 23:54 | 14°☾24'26 | 4°25'49     |
| min. Earth dist. | 449 Dec 27 j 15:09 | 5°☾18'43  | 38.91785 AU | morning rise     | 456 Jul 21 j 10:00 | 14°☾50'45 |             |
| direct           | 450 Mar 16 j 16:12 | 4°☾13'40  |             | retrograde       | 456 Oct 16 j 03:57 | 16°☾17'37 |             |
| evening set      | 450 Jun 11 j 17:03 | 5°☾35'44  |             | opposition       | 457 Jan 03 j 11:06 | 15°☾08'29 | 4°53'12     |
| max. Earth dist. | 450 Jun 24 j 22:59 | 5°☾57'13  | 40.79339 AU | min. Earth dist. | 457 Jan 06 j 03:47 | 15°☾04'46 | 37.14988 AU |
|                  |                    |           |             | direct           | 457 Mar 25 j 20:49 | 13°☾57'26 |             |
| conjunction      | 450 Jun 27 j 18:33 | 6°☾01'51  | 1°58'33     | evening set      | 457 Jun 22 j 10:04 | 15°☾26'04 |             |
| minimum elong    | 450 Jun 27 j 18:30 | 6°☾01'51  | 1°58'34     | max. Earth dist. | 457 Jul 04 j 18:01 | 15°☾47'13 | 39.01665 AU |
| morning rise     | 450 Jul 13 j 18:47 | 6°☾27'54  |             |                  |                    |           |             |
| retrograde       | 450 Oct 07 j 21:39 | 7°☾49'49  |             | conjunction      | 457 Jul 07 j 18:30 | 15°☾52'27 | 4°50'58     |
| opposition       | 450 Dec 26 j 16:53 | 6°☾42'40  | 2°17'12     | minimum elong    | 457 Jul 07 j 18:21 | 15°☾52'26 | 4°50'58     |
| min. Earth dist. | 450 Dec 29 j 04:50 | 6°☾39'21  | 38.66856 AU | morning rise     | 457 Jul 23 j 00:59 | 16°☾18'44 |             |
| direct           | 451 Mar 18 j 05:58 | 5°☾33'57  |             | retrograde       | 457 Oct 17 j 22:38 | 17°☾46'37 |             |
| evening set      | 451 Jun 13 j 10:28 | 6°☾56'48  |             | opposition       | 458 Jan 05 j 03:47 | 16°☾37'11 | 5°19'54     |
| max. Earth dist. | 451 Jun 26 j 13:17 | 7°☾18'14  | 40.54231 AU | min. Earth dist. | 458 Jan 07 j 20:05 | 16°☾33'28 | 36.89655 AU |
|                  |                    |           |             | direct           | 458 Mar 27 j 11:44 | 15°☾25'46 |             |
| conjunction      | 451 Jun 29 j 10:31 | 7°☾23'01  | 2°22'35     | evening set      | 458 Jun 24 j 09:14 | 16°☾55'35 |             |
| minimum elong    | 451 Jun 29 j 10:26 | 7°☾23'00  | 2°22'35     | max. Earth dist. | 458 Jul 06 j 11:33 | 17°☾16'30 | 38.76166 AU |
| morning rise     | 451 Jul 15 j 09:08 | 7°☾49'09  |             |                  |                    |           |             |
| retrograde       | 451 Oct 09 j 12:46 | 9°☾11'46  |             | conjunction      | 458 Jul 09 j 13:44 | 17°☾21'54 | 5°16'17     |
| opposition       | 451 Dec 28 j 06:54 | 8°☾04'17  | 2°42'38     | minimum elong    | 458 Jul 09 j 13:33 | 17°☾21'54 | 5°16'17     |
| min. Earth dist. | 451 Dec 30 j 20:47 | 8°☾00'51  | 38.41710 AU | morning rise     | 458 Jul 24 j 16:18 | 17°☾48'08 |             |
| direct           | 452 Mar 18 j 18:04 | 6°☾55'11  |             | retrograde       | 458 Oct 19 j 19:08 | 19°☾17'07 |             |
| evening set      | 452 Jun 14 j 04:20 | 8°☾18'51  |             | opposition       | 459 Jan 06 j 21:03 | 18°☾07'21 | 5°46'45     |
| max. Earth dist. | 452 Jun 27 j 05:31 | 8°☾40'19  | 40.28939 AU | min. Earth dist. | 459 Jan 09 j 15:09 | 18°☾03'31 | 36.64266 AU |
|                  |                    |           |             | direct           | 459 Mar 29 j 02:22 | 16°☾55'33 |             |
| conjunction      | 452 Jun 30 j 02:41 | 8°☾45'07  | 2°46'51     | evening set      | 459 Jun 26 j 09:19 | 18°☾26'36 |             |
| minimum elong    | 452 Jun 30 j 02:35 | 8°☾45'07  | 2°46'51     | max. Earth dist. | 459 Jul 08 j 07:42 | 18°☾47'25 | 38.50574 AU |
| morning rise     | 452 Jul 15 j 23:23 | 9°☾11'20  |             |                  |                    |           |             |
| retrograde       | 452 Oct 10 j 05:11 | 10°☾34'42 |             | conjunction      | 459 Jul 11 j 09:39 | 18°☾52'51 | 5°41'42     |
| opposition       | 452 Dec 28 j 21:11 | 9°☾26'53  | 3°08'19     | minimum elong    | 459 Jul 11 j 09:28 | 18°☾52'51 | 5°41'42     |
| min. Earth dist. | 452 Dec 31 j 10:55 | 9°☾23'25  | 38.16419 AU | morning rise     | 459 Jul 26 j 07:44 | 19°☾19'00 |             |
| direct           | 453 Mar 20 j 08:15 | 8°☾17'22  |             | retrograde       | 459 Oct 21 j 16:40 | 20°☾49'07 |             |
| evening set      | 453 Jun 15 j 23:08 | 9°☾41'55  |             | opposition       | 460 Jan 08 j 15:01 | 19°☾39'01 | 6°13'45     |
| max. Earth dist. | 453 Jun 28 j 20:11 | 10°☾03'17 | 40.03524 AU | min. Earth dist. | 460 Jan 11 j 09:18 | 19°☾35'09 | 36.38765 AU |
|                  |                    |           |             | direct           | 460 Mar 29 j 20:02 | 18°☾26'49 |             |
| conjunction      | 453 Jul 01 j 19:15 | 10°☾08'15 | 3°11'18     | evening set      | 460 Jun 27 j 10:24 | 19°☾59'09 |             |
| minimum elong    | 453 Jul 01 j 19:09 | 10°☾08'14 | 3°11'18     | max. Earth dist. | 460 Jul 09 j 01:57 | 20°☾19'40 | 38.24852 AU |
| morning rise     | 453 Jul 17 j 13:54 | 10°☾34'30 |             |                  |                    |           |             |
| retrograde       | 453 Oct 12 j 00:35 | 11°☾58'40 |             | conjunction      | 460 Jul 12 j 05:51 | 20°☾25'18 | 6°07'15     |
| opposition       | 453 Dec 30 j 11:52 | 10°☾50'30 | 3°34'14     | minimum elong    | 460 Jul 12 j 05:39 | 20°☾25'17 | 6°07'15     |
| min. Earth dist. | 454 Jan 02 j 02:50 | 10°☾46'57 | 37.91063 AU | morning rise     | 460 Jul 26 j 23:21 | 20°☾51'19 |             |
| direct           | 454 Mar 21 j 21:13 | 9°☾40'35  |             | retrograde       | 460 Oct 22 j 15:46 | 22°☾22'37 |             |
| evening set      | 454 Jun 17 j 18:34 | 11°☾06'04 |             | opposition       | 461 Jan 09 j 09:32 | 21°☾12'10 | 6°40'53     |
| max. Earth dist. | 454 Jun 30 j 13:40 | 11°☾27'28 | 39.78050 AU | min. Earth dist. | 461 Jan 12 j 04:50 | 21°☾08'13 | 36.13150 AU |
|                  |                    |           |             | direct           | 461 Mar 31 j 13:22 | 19°☾59'32 |             |
| conjunction      | 454 Jul 03 j 12:27 | 11°☾32'27 | 3°35'58     | evening set      | 461 Jun 29 j 12:27 | 21°☾33'12 |             |
| minimum elong    | 454 Jul 03 j 12:20 | 11°☾32'26 | 3°35'59     | max. Earth dist. | 461 Jul 10 j 22:47 | 21°☾53'31 | 37.98990 AU |
| morning rise     | 454 Jul 19 j 04:26 | 11°☾58'44 |             |                  |                    |           |             |
| retrograde       | 454 Oct 13 j 17:11 | 13°☾23'45 |             | conjunction      | 461 Jul 14 j 02:56 | 21°☾59'13 | 6°32'53     |
| opposition       | 455 Jan 01 j 03:09 | 12°☾15'14 | 4°00'22     | minimum elong    | 461 Jul 14 j 02:44 | 21°☾59'12 | 6°32'53     |
| min. Earth dist. | 455 Jan 03 j 18:27 | 12°☾11'39 | 37.65676 AU | morning rise     | 461 Jul 28 j 15:06 | 22°☾25'06 |             |
| direct           | 455 Mar 23 j 13:10 | 11°☾04'56 |             | retrograde       | 461 Oct 24 j 12:09 | 23°☾57'36 |             |
| evening set      | 455 Jun 19 j 15:00 | 12°☾31'25 |             | opposition       | 462 Jan 11 j 04:36 | 22°☾46'46 | 7°08'07     |
| max. Earth dist. | 455 Jul 02 j 06:04 | 12°☾52'42 | 39.52574 AU | min. Earth dist. | 462 Jan 14 j 00:56 | 22°☾42'44 | 35.87410 AU |
|                  |                    |           |             | direct           | 462 Apr 02 j 09:15 | 21°☾33'42 |             |
| conjunction      | 455 Jul 05 j 05:56 | 12°☾57'49 | 4°00'48     | evening set      | 462 Jul 01 j 15:44 | 23°☾08'45 |             |
| minimum elong    | 455 Jul 05 j 05:48 | 12°☾57'48 | 4°00'48     | max. Earth dist. | 462 Jul 12 j 19:21 | 23°☾28'45 | 37.73029 AU |
| morning rise     | 455 Jul 20 j 19:13 | 13°☾24'07 |             |                  |                    |           |             |
| retrograde       | 455 Oct 15 j 11:06 | 14°☾50'01 |             | conjunction      | 462 Jul 16 j 00:31 | 23°☾34'35 | 6°58'36     |
| opposition       | 456 Jan 02 j 18:48 | 13°☾41'12 | 4°26'41     | minimum elong    | 462 Jul 16 j 00:17 | 23°☾34'34 | 6°58'35     |

|                  |                    |                              |             |                  |                    |                              |             |
|------------------|--------------------|------------------------------|-------------|------------------|--------------------|------------------------------|-------------|
| morning rise     | 462 Jul 30 j 07:12 | 24° $\Omega$ 00'17           |             | opposition       | 469 Jan 22 j 12:00 | 4° $\Omega$ 31'04            | 10°19'10    |
| retrograde       | 462 Oct 26 j 10:05 | 25° $\Omega$ 34'03           |             | min. Earth dist. | 469 Jan 25 j 10:25 | 4° $\Omega$ 26'43            | 34.08706 AU |
| opposition       | 463 Jan 13 j 00:14 | 24° $\Omega$ 22'50           | 7°35'27     | direct           | 469 Apr 13 j 11:46 | 3° $\Omega$ 14'40            |             |
| min. Earth dist. | 463 Jan 15 j 20:39 | 24° $\Omega$ 18'46           | 35.61601 AU | evening set      | 469 Jul 15 j 21:20 | 5° $\Omega$ 01'21            |             |
| direct           | 463 Apr 04 j 05:59 | 23° $\Omega$ 09'18           |             | max. Earth dist. | 469 Jul 24 j 17:55 | 5° $\Omega$ 18'23            | 35.93200 AU |
| evening set      | 463 Jul 03 j 19:55 | 24° $\Omega$ 45'47           |             |                  |                    |                              |             |
| max. Earth dist. | 463 Jul 14 j 16:29 | 25° $\Omega$ 05'27           | 37.46987 AU | conjunction      | 469 Jul 28 j 00:34 | 5° $\Omega$ 24'43            | 9°57'50     |
|                  |                    |                              |             | minimum elong    | 469 Jul 28 j 00:15 | 5° $\Omega$ 24'42            | 9°57'50     |
| conjunction      | 463 Jul 17 j 22:43 | 25° $\Omega$ 11'25           | 7°24'21     | morning rise     | 469 Aug 09 j 01:40 | 5° $\Omega$ 47'56            |             |
| minimum elong    | 463 Jul 17 j 22:29 | 25° $\Omega$ 11'23           | 7°24'21     | retrograde       | 469 Nov 07 j 15:04 | 7° $\Omega$ 32'33            |             |
| morning rise     | 463 Jul 31 j 23:13 | 25° $\Omega$ 36'53           |             | opposition       | 470 Jan 24 j 12:15 | 6° $\Omega$ 18'27            | 10°46'02    |
| retrograde       | 463 Oct 28 j 07:30 | 27° $\Omega$ 11'59           |             | min. Earth dist. | 470 Jan 27 j 09:59 | 6° $\Omega$ 14'07            | 33.84049 AU |
| opposition       | 464 Jan 14 j 20:35 | 26° $\Omega$ 00'21           | 8°02'49     | direct           | 470 Apr 15 j 12:02 | 5° $\Omega$ 01'36            |             |
| min. Earth dist. | 464 Jan 17 j 18:33 | 25° $\Omega$ 56'10           | 35.35763 AU | evening set      | 470 Jul 18 j 10:10 | 6° $\Omega$ 50'20            |             |
| direct           | 464 Apr 05 j 00:39 | 24° $\Omega$ 46'20           |             | max. Earth dist. | 470 Jul 26 j 20:27 | 7° $\Omega$ 06'42            | 35.68376 AU |
| evening set      | 464 Jul 05 j 01:13 | 26° $\Omega$ 24'19           |             |                  |                    |                              |             |
| max. Earth dist. | 464 Jul 15 j 15:30 | 26° $\Omega$ 43'41           | 37.20959 AU | conjunction      | 470 Jul 30 j 03:30 | 7° $\Omega$ 13'08            | 10°22'52    |
|                  |                    |                              |             | minimum elong    | 470 Jul 30 j 03:09 | 7° $\Omega$ 13'07            | 10°22'51    |
| conjunction      | 464 Jul 18 j 21:27 | 26° $\Omega$ 49'41           | 7°50'07     | morning rise     | 470 Aug 10 j 18:37 | 7° $\Omega$ 35'47            |             |
| minimum elong    | 464 Jul 18 j 21:11 | 26° $\Omega$ 49'40           | 7°50'07     | retrograde       | 470 Nov 09 j 17:38 | 9° $\Omega$ 22'18            |             |
| morning rise     | 464 Aug 01 j 15:23 | 27° $\Omega$ 14'54           |             | opposition       | 471 Jan 26 j 13:36 | 8° $\Omega$ 07'50            | 11°12'40    |
| retrograde       | 464 Oct 29 j 05:16 | 28° $\Omega$ 51'23           |             | min. Earth dist. | 471 Jan 29 j 12:31 | 8° $\Omega$ 03'23            | 33.59618 AU |
| opposition       | 465 Jan 15 j 17:25 | 27° $\Omega$ 39'20           | 8°30'13     | direct           | 471 Apr 17 j 10:52 | 6° $\Omega$ 50'33            |             |
| min. Earth dist. | 465 Jan 18 j 14:46 | 27° $\Omega$ 35'09           | 35.09980 AU | evening set      | 471 Jul 21 j 00:32 | 8° $\Omega$ 41'24            |             |
| direct           | 465 Apr 06 j 21:09 | 26° $\Omega$ 24'49           |             | max. Earth dist. | 471 Jul 29 j 00:44 | 8° $\Omega$ 57'06            | 35.43760 AU |
| evening set      | 465 Jul 07 j 07:31 | 28° $\Omega$ 04'22           |             |                  |                    |                              |             |
| max. Earth dist. | 465 Jul 17 j 13:21 | 28° $\Omega$ 23'17           | 36.95000 AU | conjunction      | 471 Aug 01 j 07:05 | 9° $\Omega$ 03'34            | 10°47'39    |
|                  |                    |                              |             | minimum elong    | 471 Aug 01 j 06:44 | 9° $\Omega$ 03'32            | 10°47'39    |
| conjunction      | 465 Jul 20 j 20:40 | 28° $\Omega$ 29'26           | 8°15'52     | morning rise     | 471 Aug 12 j 11:28 | 9° $\Omega$ 25'34            |             |
| minimum elong    | 465 Jul 20 j 20:23 | 28° $\Omega$ 29'25           | 8°15'52     | retrograde       | 471 Nov 11 j 21:06 | 11° $\Omega$ 14'05           |             |
| morning rise     | 465 Aug 03 j 07:38 | 28° $\Omega$ 54'21           |             | opposition       | 472 Jan 28 j 15:39 | 9° $\Omega$ 59'14            | 11°39'01    |
|                  | 465 Sep 13 j 04:49 | 0° $\Omega$                  |             | min. Earth dist. | 472 Jan 31 j 13:49 | 9° $\Omega$ 54'48            | 33.35376 AU |
| retrograde       | 465 Oct 31 j 05:30 | 0° $\Omega$ 32'18            |             | direct           | 472 Apr 18 j 12:18 | 8° $\Omega$ 41'30            |             |
|                  | 465 Dec 19 j 07:50 | 30° $\mathcal{R}\mathcal{S}$ |             | evening set      | 472 Jul 22 j 16:24 | 10° $\Omega$ 34'34           |             |
| opposition       | 466 Jan 17 j 15:01 | 29° $\Omega$ 19'49           | 8°57'36     | max. Earth dist. | 472 Jul 30 j 03:53 | 10° $\Omega$ 49'24           | 35.19310 AU |
| min. Earth dist. | 466 Jan 20 j 13:26 | 29° $\Omega$ 15'32           | 34.84322 AU |                  |                    |                              |             |
| direct           | 466 Apr 08 j 16:03 | 28° $\Omega$ 04'48           |             | conjunction      | 472 Aug 02 j 11:28 | 10° $\Omega$ 56'01           | 11°12'08    |
| evening set      | 466 Jul 09 j 15:05 | 29° $\Omega$ 46'00           |             | minimum elong    | 472 Aug 02 j 11:06 | 10° $\Omega$ 55'59           | 11°12'08    |
|                  | 466 Jul 17 j 03:38 | 0° $\Omega$                  |             | morning rise     | 472 Aug 13 j 04:34 | 11° $\Omega$ 17'18           |             |
| max. Earth dist. | 466 Jul 19 j 14:24 | 0° $\Omega$ 04'35            | 36.69186 AU | retrograde       | 472 Nov 13 j 02:45 | 13° $\Omega$ 07'55           |             |
|                  |                    |                              |             | opposition       | 473 Jan 29 j 18:37 | 11° $\Omega$ 52'40           | 12°05'04    |
| conjunction      | 466 Jul 22 j 20:44 | 0° $\Omega$ 10'43            | 8°41'33     | min. Earth dist. | 473 Feb 01 j 17:44 | 11° $\Omega$ 48'09           | 33.11315 AU |
| minimum elong    | 466 Jul 22 j 20:26 | 0° $\Omega$ 10'42            | 8°41'32     | direct           | 473 Apr 20 j 11:36 | 10° $\Omega$ 34'28           |             |
| morning rise     | 466 Aug 04 j 23:56 | 0° $\Omega$ 35'17            |             | evening set      | 473 Jul 25 j 09:51 | 12° $\Omega$ 29'52           |             |
| retrograde       | 466 Nov 02 j 05:55 | 2° $\Omega$ 14'46            |             | max. Earth dist. | 473 Aug 01 j 10:08 | 12° $\Omega$ 43'54           | 34.95030 AU |
| opposition       | 467 Jan 19 j 13:13 | 1° $\Omega$ 01'51            | 9°24'55     |                  |                    |                              |             |
| min. Earth dist. | 467 Jan 22 j 11:18 | 0° $\Omega$ 57'35            | 34.58850 AU | conjunction      | 473 Aug 04 j 16:43 | 12° $\Omega$ 50'30           | 11°36'16    |
|                  | 467 Mar 10 j 01:01 | 30° $\mathcal{R}\mathcal{S}$ |             | minimum elong    | 473 Aug 04 j 16:21 | 12° $\Omega$ 50'28           | 11°36'17    |
| direct           | 467 Apr 10 j 14:02 | 29° $\Omega$ 46'22           |             | morning rise     | 473 Aug 14 j 21:30 | 13° $\Omega$ 11'00           |             |
|                  | 467 May 11 j 21:13 | 0° $\Omega$                  |             |                  | 473 Oct 30 j 21:08 | 15° $\Omega$                 |             |
| evening set      | 467 Jul 11 j 23:59 | 1° $\Omega$ 29'18            |             | retrograde       | 473 Nov 15 j 08:12 | 15° $\Omega$ 03'47           |             |
| max. Earth dist. | 467 Jul 21 j 14:02 | 1° $\Omega$ 47'22            | 36.43592 AU |                  | 473 Dec 01 j 00:50 | 15° $\mathcal{R}\mathcal{S}$ |             |
|                  |                    |                              |             | opposition       | 474 Jan 31 j 22:26 | 13° $\Omega$ 48'07           | 12°30'45    |
| conjunction      | 467 Jul 24 j 21:19 | 1° $\Omega$ 53'38            | 9°07'08     | min. Earth dist. | 474 Feb 03 j 21:11 | 13° $\Omega$ 43'36           | 32.87418 AU |
| minimum elong    | 467 Jul 24 j 21:01 | 1° $\Omega$ 53'36            | 9°07'08     | direct           | 474 Apr 22 j 14:28 | 12° $\Omega$ 29'28           |             |
| morning rise     | 467 Aug 06 j 16:31 | 2° $\Omega$ 17'48            |             | evening set      | 474 Jul 28 j 05:04 | 14° $\Omega$ 27'16           |             |
| retrograde       | 467 Nov 04 j 08:46 | 3° $\Omega$ 58'54            |             | max. Earth dist. | 474 Aug 03 j 15:04 | 14° $\Omega$ 40'15           | 34.70931 AU |
| opposition       | 468 Jan 21 j 12:12 | 2° $\Omega$ 45'34            | 9°52'07     |                  |                    |                              |             |
| min. Earth dist. | 468 Jan 24 j 10:18 | 2° $\Omega$ 41'16            | 34.33643 AU | conjunction      | 474 Aug 06 j 22:42 | 14° $\Omega$ 47'00           | 12°00'02    |
| direct           | 468 Apr 11 j 11:20 | 1° $\Omega$ 29'37            |             | minimum elong    | 474 Aug 06 j 22:19 | 14° $\Omega$ 46'58           | 12°00'01    |
| evening set      | 468 Jul 13 j 09:50 | 3° $\Omega$ 14'23            |             |                  | 474 Aug 13 j 07:57 | 15° $\Omega$                 |             |
| max. Earth dist. | 468 Jul 22 j 15:56 | 3° $\Omega$ 31'59            | 36.18254 AU | morning rise     | 474 Aug 16 j 14:33 | 15° $\Omega$ 06'37           |             |
|                  |                    |                              |             | retrograde       | 474 Nov 17 j 16:54 | 17° $\Omega$ 01'40           |             |
| conjunction      | 468 Jul 25 j 22:34 | 3° $\Omega$ 38'15            | 9°32'34     | opposition       | 475 Feb 03 j 02:57 | 15° $\Omega$ 45'35           | 12°56'00    |
| minimum elong    | 468 Jul 25 j 22:15 | 3° $\Omega$ 38'14            | 9°32'34     | min. Earth dist. | 475 Feb 06 j 01:55 | 15° $\Omega$ 41'02           | 32.63737 AU |
| morning rise     | 468 Aug 07 j 08:54 | 4° $\Omega$ 01'59            |             |                  | 475 Mar 06 j 14:22 | 15° $\mathcal{R}\mathcal{S}$ |             |
| retrograde       | 468 Nov 05 j 10:41 | 5° $\Omega$ 44'47            |             | direct           | 475 Apr 24 j 18:04 | 14° $\Omega$ 26'26           |             |

|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
|                  | 475 Jun 11 j 21:35 | 15°♏      |             |                  | 481 Sep 09 j 22:18 | 0°♏       |             |
| evening set      | 475 Jul 31 j 01:59 | 16°♏26'46 |             | retrograde       | 481 Dec 02 j 13:08 | 1°♏42'45  |             |
| max. Earth dist. | 475 Aug 05 j 22:53 | 16°♏38'47 | 34.47056 AU | opposition       | 482 Feb 17 j 10:57 | 0°♏23'43  | 15°34'16    |
|                  |                    |           |             | min. Earth dist. | 482 Feb 20 j 05:31 | 0°♏19'15  | 31.09589 AU |
| conjunction      | 475 Aug 09 j 05:36 | 16°♏45'31 | 12°23'19    |                  | 482 Mar 04 j 09:11 | 30°♏♏     |             |
| minimum elong    | 475 Aug 09 j 05:14 | 16°♏45'29 | 12°23'20    | direct           | 482 May 08 j 18:30 | 29°♏01'21 |             |
| morning rise     | 475 Aug 18 j 07:19 | 17°♏04'08 |             |                  | 482 Jul 10 j 12:56 | 0°♏       |             |
| retrograde       | 475 Nov 20 j 00:40 | 19°♏01'34 |             | evening set      | 482 Aug 21 j 09:20 | 1°♏25'07  |             |
| opposition       | 476 Feb 05 j 08:31 | 17°♏45'02 | 13°20'45    | max. Earth dist. | 482 Aug 21 j 02:10 | 1°♏24'27  | 32.92614 AU |
| min. Earth dist. | 476 Feb 08 j 07:42 | 17°♏40'26 | 32.40311 AU |                  |                    |           |             |
| direct           | 476 Apr 26 j 00:13 | 16°♏25'25 |             | conjunction      | 482 Aug 24 j 02:05 | 1°♏31'03  | 14°47'28    |
| evening set      | 476 Aug 02 j 00:38 | 18°♏28'22 |             | minimum elong    | 482 Aug 24 j 01:43 | 1°♏31'01  | 14°47'28    |
| max. Earth dist. | 476 Aug 07 j 06:09 | 18°♏39'11 | 34.23487 AU | morning rise     | 482 Aug 26 j 18:00 | 1°♏36'55  |             |
|                  |                    |           |             | retrograde       | 482 Dec 05 j 01:34 | 3°♏56'52  |             |
| conjunction      | 476 Aug 10 j 12:54 | 18°♏46'00 | 12°46'06    | opposition       | 483 Feb 19 j 22:32 | 2°♏37'29  | 15°53'13    |
| minimum elong    | 476 Aug 10 j 12:31 | 18°♏45'58 | 12°46'05    | min. Earth dist. | 483 Feb 22 j 15:57 | 2°♏33'05  | 30.89948 AU |
| morning rise     | 476 Aug 18 j 23:33 | 19°♏03'30 |             | direct           | 483 May 11 j 04:28 | 1°♏14'44  |             |
| retrograde       | 476 Nov 21 j 10:12 | 21°♏03'26 |             | max. Earth dist. | 483 Aug 23 j 15:30 | 3°♏39'19  | 32.73021 AU |
| opposition       | 477 Feb 06 j 14:42 | 19°♏46'28 | 13°44'56    |                  |                    |           |             |
| min. Earth dist. | 477 Feb 09 j 12:53 | 19°♏41'54 | 32.17229 AU | conjunction      | 483 Aug 26 j 15:00 | 3°♏45'56  | 15°04'25    |
| direct           | 477 Apr 28 j 06:31 | 18°♏26'21 |             | minimum elong    | 483 Aug 26 j 14:40 | 3°♏45'54  | 15°04'26    |
| evening set      | 477 Aug 05 j 01:21 | 20°♏32'04 |             | retrograde       | 483 Dec 07 j 17:12 | 6°♏13'07  |             |
| max. Earth dist. | 477 Aug 09 j 14:59 | 20°♏41'37 | 34.00277 AU | opposition       | 484 Feb 22 j 11:01 | 4°♏53'24  | 16°11'01    |
|                  |                    |           |             | min. Earth dist. | 484 Feb 25 j 03:13 | 4°♏49'03  | 30.70945 AU |
| conjunction      | 477 Aug 12 j 21:15 | 20°♏48'27 | 13°08'17    | direct           | 484 May 12 j 16:01 | 3°♏30'17  |             |
| minimum elong    | 477 Aug 12 j 20:52 | 20°♏48'25 | 13°08'17    | max. Earth dist. | 484 Aug 25 j 07:19 | 5°♏56'27  | 32.54047 AU |
| morning rise     | 477 Aug 20 j 15:32 | 21°♏04'43 |             |                  |                    |           |             |
| retrograde       | 477 Nov 23 j 18:11 | 23°♏07'17 |             | conjunction      | 484 Aug 28 j 04:45 | 6°♏02'56  | 15°20'15    |
| opposition       | 478 Feb 08 j 21:46 | 21°♏49'52 | 14°08'28    | minimum elong    | 484 Aug 28 j 04:24 | 6°♏02'54  | 15°20'15    |
| min. Earth dist. | 478 Feb 11 j 20:26 | 21°♏45'14 | 31.94555 AU | retrograde       | 484 Dec 09 j 07:41 | 8°♏31'28  |             |
| direct           | 478 Apr 30 j 12:24 | 20°♏29'16 |             | opposition       | 485 Feb 24 j 00:32 | 7°♏11'24  | 16°27'36    |
| evening set      | 478 Aug 08 j 04:31 | 22°♏37'55 |             | min. Earth dist. | 485 Feb 26 j 16:14 | 7°♏07'03  | 30.52536 AU |
| max. Earth dist. | 478 Aug 12 j 01:18 | 22°♏46'05 | 33.77536 AU | direct           | 485 May 15 j 05:18 | 5°♏47'55  |             |
|                  |                    |           |             | max. Earth dist. | 485 Aug 27 j 22:42 | 8°♏15'31  | 32.35700 AU |
| conjunction      | 478 Aug 15 j 06:16 | 22°♏52'53 | 13°29'48    |                  |                    |           |             |
| minimum elong    | 478 Aug 15 j 05:52 | 22°♏52'51 | 13°29'47    | conjunction      | 485 Aug 30 j 19:17 | 8°♏21'58  | 15°34'54    |
| morning rise     | 478 Aug 22 j 06:36 | 23°♏07'43 |             | minimum elong    | 485 Aug 30 j 18:58 | 8°♏21'56  | 15°34'54    |
| retrograde       | 478 Nov 26 j 04:46 | 25°♏13'05 |             | retrograde       | 485 Dec 12 j 00:29 | 10°♏51'48 |             |
| opposition       | 479 Feb 11 j 05:42 | 23°♏55'15 | 14°31'16    | opposition       | 486 Feb 26 j 14:38 | 9°♏31'23  | 16°42'52    |
| min. Earth dist. | 479 Feb 14 j 02:38 | 23°♏50'42 | 31.72387 AU | min. Earth dist. | 486 Mar 01 j 04:27 | 9°♏27'09  | 30.34740 AU |
| direct           | 479 May 02 j 20:06 | 22°♏34'09 |             | direct           | 486 May 17 j 19:27 | 8°♏07'32  |             |
| evening set      | 479 Aug 11 j 10:05 | 24°♏45'58 |             | max. Earth dist. | 486 Aug 30 j 15:34 | 10°♏36'35 | 32.17974 AU |
| max. Earth dist. | 479 Aug 14 j 11:17 | 24°♏52'28 | 33.55332 AU |                  |                    |           |             |
| conjunction      | 479 Aug 17 j 15:57 | 24°♏59'18 | 13°50'33    | conjunction      | 486 Sep 02 j 10:42 | 10°♏42'57 | 15°48'17    |
| minimum elong    | 479 Aug 17 j 15:34 | 24°♏59'16 | 13°50'33    | minimum elong    | 486 Sep 02 j 10:23 | 10°♏42'55 | 15°48'17    |
| morning rise     | 479 Aug 23 j 20:34 | 25°♏12'31 |             | retrograde       | 486 Dec 14 j 16:37 | 13°♏14'02 |             |
| retrograde       | 479 Nov 28 j 14:29 | 27°♏20'54 |             | opposition       | 487 Mar 01 j 05:55 | 11°♏53'16 | 16°56'47    |
| opposition       | 480 Feb 13 j 14:40 | 26°♏02'39 | 14°53'13    | min. Earth dist. | 487 Mar 03 j 19:27 | 11°♏49'02 | 30.17566 AU |
| min. Earth dist. | 480 Feb 16 j 11:39 | 25°♏58'04 | 31.50805 AU | direct           | 487 May 20 j 09:23 | 10°♏29'05 |             |
| direct           | 480 May 04 j 01:37 | 24°♏41'06 |             | max. Earth dist. | 487 Sep 02 j 09:21 | 12°♏59'31 | 32.00925 AU |
| evening set      | 480 Aug 13 j 19:18 | 26°♏56'19 |             |                  |                    |           |             |
| max. Earth dist. | 480 Aug 16 j 00:04 | 27°♏01'03 | 33.33763 AU | conjunction      | 487 Sep 05 j 02:33 | 13°♏05'46 | 16°00'20    |
|                  |                    |           |             | minimum elong    | 487 Sep 05 j 02:17 | 13°♏05'44 | 16°00'20    |
| conjunction      | 480 Aug 19 j 02:32 | 27°♏07'46 | 14°10'28    | retrograde       | 487 Dec 17 j 10:50 | 15°♏38'02 |             |
| minimum elong    | 480 Aug 19 j 02:08 | 27°♏07'44 | 14°10'27    | opposition       | 488 Mar 02 j 21:53 | 14°♏16'55 | 17°09'13    |
| morning rise     | 480 Aug 24 j 08:36 | 27°♏19'06 |             | min. Earth dist. | 488 Mar 05 j 08:59 | 14°♏12'50 | 30.01063 AU |
| retrograde       | 480 Nov 30 j 00:26 | 29°♏30'46 |             | direct           | 488 May 22 j 01:58 | 12°♏52'23 |             |
| opposition       | 481 Feb 15 j 00:20 | 28°♏12'07 | 15°14'15    | max. Earth dist. | 488 Sep 04 j 03:12 | 15°♏24'07 | 31.84588 AU |
| min. Earth dist. | 481 Feb 17 j 19:27 | 28°♏07'38 | 31.29864 AU |                  |                    |           |             |
| direct           | 481 May 06 j 11:05 | 26°♏50'09 |             | conjunction      | 488 Sep 06 j 19:09 | 15°♏30'17 | 16°10'58    |
| evening set      | 481 Aug 17 j 09:23 | 29°♏09'12 |             | minimum elong    | 488 Sep 06 j 18:53 | 15°♏30'16 | 16°10'58    |
| max. Earth dist. | 481 Aug 18 j 11:28 | 29°♏11'35 | 33.12858 AU | retrograde       | 488 Dec 19 j 03:15 | 18°♏03'41 |             |
|                  |                    |           |             | opposition       | 489 Mar 05 j 14:32 | 16°♏42'15 | 17°20'06    |
| conjunction      | 481 Aug 21 j 13:49 | 29°♏18'20 | 14°29'28    | min. Earth dist. | 489 Mar 08 j 01:06 | 16°♏38'11 | 29.85293 AU |
| minimum elong    | 481 Aug 21 j 13:27 | 29°♏18'18 | 14°29'28    | direct           | 489 May 24 j 16:32 | 15°♏17'23 |             |
| morning rise     | 481 Aug 25 j 17:20 | 29°♏27'22 |             | max. Earth dist. | 489 Sep 06 j 23:12 | 17°♏50'28 | 31.69047 AU |

|                  |                    |                    |             |                  |                    |                    |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|--------------------|-------------|
| conjunction      | 489 Sep 09 j 12:20 | 17° <u>♏</u> 56'25 | 16°20'06    | conjunction      | 497 Sep 29 j 21:08 | 8° <u>♏</u> 12'56  | 16°30'41    |
| minimum elong    | 489 Sep 09 j 12:07 | 17° <u>♏</u> 56'23 | 16°20'07    | minimum elong    | 497 Sep 29 j 21:13 | 8° <u>♏</u> 12'56  | 16°30'41    |
| retrograde       | 489 Dec 21 j 20:34 | 20° <u>♏</u> 30'52 |             | retrograde       | 498 Jan 11 j 10:47 | 10° <u>♏</u> 53'28 |             |
| opposition       | 490 Mar 08 j 07:59 | 19° <u>♏</u> 09'07 | 17°29'21    | opposition       | 498 Mar 29 j 01:39 | 9° <u>♏</u> 30'16  | 17°34'55    |
| min. Earth dist. | 490 Mar 10 j 15:56 | 19° <u>♏</u> 05'12 | 29.70314 AU | min. Earth dist. | 498 Mar 30 j 14:28 | 9° <u>♏</u> 27'40  | 28.86630 AU |
| direct           | 490 May 27 j 10:27 | 17° <u>♏</u> 43'56 |             | direct           | 498 Jun 16 j 20:26 | 8° <u>♏</u> 04'02  |             |
| max. Earth dist. | 490 Sep 09 j 18:05 | 20° <u>♏</u> 18'10 | 31.54363 AU | max. Earth dist. | 498 Oct 01 j 05:19 | 10° <u>♏</u> 45'50 | 30.74856 AU |
| conjunction      | 490 Sep 12 j 05:56 | 20° <u>♏</u> 24'01 | 16°27'40    | conjunction      | 498 Oct 02 j 17:34 | 10° <u>♏</u> 49'30 | 16°23'36    |
| minimum elong    | 490 Sep 12 j 05:44 | 20° <u>♏</u> 24'00 | 16°27'40    | minimum elong    | 498 Oct 02 j 17:40 | 10° <u>♏</u> 49'30 | 16°23'36    |
| retrograde       | 490 Dec 24 j 15:07 | 22° <u>♏</u> 59'29 |             | retrograde       | 499 Jan 14 j 09:24 | 13° <u>♏</u> 30'21 |             |
| opposition       | 491 Mar 11 j 02:09 | 21° <u>♏</u> 37'25 | 17°36'50    | opposition       | 499 Mar 31 j 23:54 | 12° <u>♏</u> 07'06 | 17°26'30    |
| min. Earth dist. | 491 Mar 13 j 08:34 | 21° <u>♏</u> 33'37 | 29.56229 AU | min. Earth dist. | 499 Apr 02 j 09:02 | 12° <u>♏</u> 04'45 | 28.80782 AU |
| direct           | 491 May 30 j 02:00 | 20° <u>♏</u> 11'57 |             | direct           | 499 Jun 19 j 20:19 | 10° <u>♏</u> 40'53 |             |
| max. Earth dist. | 491 Sep 12 j 15:57 | 22° <u>♏</u> 47'30 | 31.40644 AU | max. Earth dist. | 499 Oct 04 j 04:42 | 13° <u>♏</u> 23'06 | 30.69659 AU |
| conjunction      | 491 Sep 15 j 00:07 | 22° <u>♏</u> 53'02 | 16°33'33    | conjunction      | 499 Oct 05 j 14:11 | 13° <u>♏</u> 26'30 | 16°14'37    |
| minimum elong    | 491 Sep 14 j 23:59 | 22° <u>♏</u> 53'01 | 16°33'33    | minimum elong    | 499 Oct 05 j 14:21 | 13° <u>♏</u> 26'31 | 16°14'37    |
| retrograde       | 491 Dec 27 j 08:42 | 25° <u>♏</u> 29'26 |             | retrograde       | 500 Jan 17 j 06:19 | 16° <u>♏</u> 07'35 |             |
| opposition       | 492 Mar 12 j 21:03 | 24° <u>♏</u> 07'06 | 17°42'31    | opposition       | 500 Apr 02 j 22:27 | 14° <u>♏</u> 44'15 | 17°16'03    |
| min. Earth dist. | 492 Mar 15 j 00:47 | 24° <u>♏</u> 03'28 | 29.43113 AU | min. Earth dist. | 500 Apr 04 j 05:46 | 14° <u>♏</u> 42'02 | 28.75934 AU |
| direct           | 492 May 31 j 20:17 | 22° <u>♏</u> 41'24 |             | direct           | 500 Jun 21 j 18:09 | 13° <u>♏</u> 18'03 |             |
| max. Earth dist. | 492 Sep 14 j 12:03 | 25° <u>♏</u> 17'59 | 31.27971 AU | max. Earth dist. | 500 Oct 06 j 04:41 | 16° <u>♏</u> 00'38 | 30.65503 AU |
| conjunction      | 492 Sep 16 j 18:31 | 25° <u>♏</u> 23'22 | 16°37'42    | conjunction      | 500 Oct 07 j 10:44 | 16° <u>♏</u> 03'41 | 16°03'46    |
| minimum elong    | 492 Sep 16 j 18:22 | 25° <u>♏</u> 23'22 | 16°37'41    | minimum elong    | 500 Oct 07 j 10:54 | 16° <u>♏</u> 03'42 | 16°03'46    |
| retrograde       | 492 Dec 29 j 04:11 | 28° <u>♏</u> 00'40 |             | retrograde       | 501 Jan 19 j 02:59 | 18° <u>♏</u> 44'52 |             |
| opposition       | 493 Mar 15 j 16:28 | 26° <u>♏</u> 38'06 | 17°46'16    | opposition       | 501 Apr 05 j 21:01 | 17° <u>♏</u> 21'29 | 17°03'34    |
| min. Earth dist. | 493 Mar 17 j 17:38 | 26° <u>♏</u> 34'39 | 29.31051 AU | min. Earth dist. | 501 Apr 07 j 00:44 | 17° <u>♏</u> 19'32 | 28.72079 AU |
| direct           | 493 Jun 03 j 14:20 | 25° <u>♏</u> 12'12 |             | direct           | 501 Jun 24 j 18:02 | 15° <u>♏</u> 55'18 |             |
| max. Earth dist. | 493 Sep 17 j 11:10 | 27° <u>♏</u> 50'00 | 31.16395 AU | max. Earth dist. | 501 Oct 09 j 03:31 | 18° <u>♏</u> 38'02 | 30.62381 AU |
| conjunction      | 493 Sep 19 j 13:39 | 27° <u>♏</u> 55'01 | 16°40'02    | conjunction      | 501 Oct 10 j 07:12 | 18° <u>♏</u> 40'50 | 15°51'02    |
| minimum elong    | 493 Sep 19 j 13:34 | 27° <u>♏</u> 55'01 | 16°40'02    | minimum elong    | 501 Oct 10 j 07:26 | 18° <u>♏</u> 40'52 | 15°51'01    |
|                  | 493 Nov 18 j 15:44 | 0° <u>♏</u>        |             | retrograde       | 502 Jan 22 j 00:31 | 21° <u>♏</u> 22'00 |             |
| retrograde       | 493 Dec 31 j 22:46 | 0° <u>♏</u> 33'07  |             | opposition       | 502 Apr 08 j 19:37 | 19° <u>♏</u> 58'34 | 16°49'04    |
|                  | 494 Feb 15 j 00:39 | 30° <u>♏</u>       |             | min. Earth dist. | 502 Apr 09 j 20:54 | 19° <u>♏</u> 56'47 | 28.69267 AU |
| opposition       | 494 Mar 18 j 12:27 | 29° <u>♏</u> 10'22 | 17°48'03    | direct           | 502 Jun 27 j 16:01 | 18° <u>♏</u> 32'26 |             |
| min. Earth dist. | 494 Mar 20 j 11:27 | 29° <u>♏</u> 07'04 | 29.20054 AU | max. Earth dist. | 502 Oct 12 j 04:02 | 21° <u>♏</u> 15'21 | 30.60358 AU |
| direct           | 494 Jun 06 j 09:30 | 27° <u>♏</u> 44'20 |             |                  |                    |                    |             |
|                  | 494 Sep 10 j 16:20 | 0° <u>♏</u>        |             | conjunction      | 502 Oct 13 j 03:35 | 21° <u>♏</u> 17'44 | 15°36'26    |
| max. Earth dist. | 494 Sep 20 j 08:32 | 0° <u>♏</u> 23'03  | 31.05941 AU | minimum elong    | 502 Oct 13 j 03:50 | 21° <u>♏</u> 17'46 | 15°36'27    |
| conjunction      | 494 Sep 22 j 09:00 | 0° <u>♏</u> 27'54  | 16°40'32    | retrograde       | 503 Jan 24 j 19:50 | 23° <u>♏</u> 58'45 |             |
| minimum elong    | 494 Sep 22 j 08:56 | 0° <u>♏</u> 27'53  | 16°40'31    | opposition       | 503 Apr 11 j 18:18 | 22° <u>♏</u> 35'18 | 16°32'35    |
| retrograde       | 495 Jan 03 j 20:13 | 3° <u>♏</u> 06'45  |             | min. Earth dist. | 503 Apr 12 j 16:13 | 22° <u>♏</u> 33'46 | 28.67535 AU |
| opposition       | 495 Mar 21 j 09:01 | 1° <u>♏</u> 43'51  | 17°47'50    | direct           | 503 Jun 30 j 15:54 | 21° <u>♏</u> 09'15 |             |
| min. Earth dist. | 495 Mar 23 j 04:43 | 1° <u>♏</u> 40'46  | 29.10148 AU | conjunction      | 503 Oct 15 j 23:24 | 23° <u>♏</u> 54'10 | 15°20'02    |
| direct           | 495 Jun 09 j 04:37 | 0° <u>♏</u> 17'44  |             | minimum elong    | 503 Oct 15 j 23:41 | 23° <u>♏</u> 54'12 | 15°20'01    |
| max. Earth dist. | 495 Sep 23 j 08:04 | 2° <u>♏</u> 57'27  | 30.96582 AU | max. Earth dist. | 503 Oct 15 j 02:26 | 23° <u>♏</u> 52'03 | 30.59475 AU |
| conjunction      | 495 Sep 25 j 04:43 | 3° <u>♏</u> 01'56  | 16°39'08    | retrograde       | 504 Jan 27 j 15:43 | 26° <u>♏</u> 34'58 |             |
| minimum elong    | 495 Sep 25 j 04:44 | 3° <u>♏</u> 01'56  | 16°39'08    | opposition       | 504 Apr 13 j 16:50 | 25° <u>♏</u> 11'31 | 16°14'07    |
| retrograde       | 496 Jan 06 j 16:12 | 5° <u>♏</u> 41'28  |             | min. Earth dist. | 504 Apr 14 j 11:21 | 25° <u>♏</u> 10'13 | 28.66968 AU |
| opposition       | 496 Mar 23 j 06:14 | 4° <u>♏</u> 18'26  | 17°45'34    | direct           | 504 Jul 02 j 13:54 | 23° <u>♏</u> 45'32 |             |
| min. Earth dist. | 496 Mar 25 j 00:08 | 4° <u>♏</u> 15'29  | 29.01290 AU | conjunction      | 504 Oct 17 j 19:13 | 26° <u>♏</u> 30'01 | 15°01'49    |
| direct           | 496 Jun 11 j 01:47 | 2° <u>♏</u> 52'16  |             | minimum elong    | 504 Oct 17 j 19:31 | 26° <u>♏</u> 30'03 | 15°01'49    |
| max. Earth dist. | 496 Sep 25 j 06:23 | 5° <u>♏</u> 32'45  | 30.88306 AU | max. Earth dist. | 504 Oct 17 j 02:56 | 26° <u>♏</u> 28'22 | 30.59801 AU |
| conjunction      | 496 Sep 27 j 00:43 | 5° <u>♏</u> 37'01  | 16°35'51    | retrograde       | 505 Jan 29 j 09:55 | 29° <u>♏</u> 10'29 |             |
| minimum elong    | 496 Sep 27 j 00:44 | 5° <u>♏</u> 37'01  | 16°35'52    | opposition       | 505 Apr 16 j 15:07 | 27° <u>♏</u> 47'04 | 15°53'44    |
| retrograde       | 497 Jan 08 j 14:08 | 8° <u>♏</u> 17'05  |             | min. Earth dist. | 505 Apr 17 j 06:34 | 27° <u>♏</u> 45'59 | 28.67597 AU |
| opposition       | 497 Mar 26 j 03:35 | 6° <u>♏</u> 53'58  | 17°41'16    | direct           | 505 Jul 05 j 12:33 | 26° <u>♏</u> 21'14 |             |
| min. Earth dist. | 497 Mar 27 j 17:56 | 6° <u>♏</u> 51'16  | 28.93462 AU | evening set      | 505 Oct 17 j 11:51 | 28° <u>♏</u> 57'36 |             |
| direct           | 497 Jun 13 j 23:48 | 5° <u>♏</u> 27'45  |             | conjunction      | 505 Oct 20 j 14:35 | 29° <u>♏</u> 05'09 | 14°41'51    |
| max. Earth dist. | 497 Sep 28 j 05:59 | 8° <u>♏</u> 08'59  | 30.81065 AU | minimum elong    | 505 Oct 20 j 14:55 | 29° <u>♏</u> 05'11 | 14°41'50    |
|                  |                    |                    |             | max. Earth dist. | 505 Oct 20 j 00:52 | 29° <u>♏</u> 03'46 | 30.61376 AU |

|                  |                    |                    |             |                  |                    |                    |             |
|------------------|--------------------|--------------------|-------------|------------------|--------------------|--------------------|-------------|
| morning rise     | 505 Oct 23 j 17:56 | 29° <u>♄</u> 12'46 |             | min. Earth dist. | 512 May 04 j 11:12 | 15° <u>♄</u> 32'01 | 29.04671 AU |
|                  | 505 Nov 12 j 15:44 | 0° <u>♄</u>        |             |                  | 512 May 24 j 11:27 | 15° <u>♄</u>       |             |
| retrograde       | 506 Feb 01 j 06:20 | 1° <u>♄</u> 45'14  |             | direct           | 512 Jul 23 j 18:46 | 14° <u>♄</u> 07'38 |             |
| opposition       | 506 Apr 19 j 13:15 | 0° <u>♄</u> 21'54  | 15°31'29    |                  | 512 Sep 18 j 17:50 | 15° <u>♄</u>       |             |
| min. Earth dist. | 506 Apr 20 j 00:27 | 0° <u>♄</u> 21'07  | 28.69469 AU | evening set      | 512 Oct 28 j 01:12 | 16° <u>♄</u> 22'35 |             |
|                  | 506 May 02 j 17:50 | 30° <u>♄</u>       |             |                  |                    |                    |             |
| direct           | 506 Jul 08 j 09:57 | 28° <u>♄</u> 56'16 |             | conjunction      | 512 Nov 06 j 18:24 | 16° <u>♄</u> 45'27 | 11°39'58    |
|                  | 506 Sep 09 j 01:41 | 0° <u>♄</u>        |             | minimum elong    | 512 Nov 06 j 18:48 | 16° <u>♄</u> 45'30 | 11°39'58    |
| evening set      | 506 Oct 18 j 19:39 | 1° <u>♄</u> 28'28  |             | max. Earth dist. | 512 Nov 07 j 03:59 | 16° <u>♄</u> 46'24 | 31.04866 AU |
|                  |                    |                    |             | morning rise     | 512 Nov 16 j 11:47 | 17° <u>♄</u> 08'20 |             |
| conjunction      | 506 Oct 23 j 09:39 | 1° <u>♄</u> 39'33  | 14°20'12    | retrograde       | 513 Feb 18 j 10:56 | 19° <u>♄</u> 20'45 |             |
| minimum elong    | 506 Oct 23 j 10:00 | 1° <u>♄</u> 39'35  | 14°20'13    | opposition       | 513 May 07 j 14:38 | 17° <u>♄</u> 58'47 | 12°11'32    |
| max. Earth dist. | 506 Oct 23 j 00:35 | 1° <u>♄</u> 38'38  | 30.64204 AU | min. Earth dist. | 513 May 07 j 04:04 | 17° <u>♄</u> 59'30 | 29.14039 AU |
| morning rise     | 506 Oct 28 j 00:06 | 1° <u>♄</u> 50'41  |             | direct           | 513 Jul 26 j 14:22 | 16° <u>♄</u> 35'17 |             |
| retrograde       | 507 Feb 03 j 23:28 | 4° <u>♄</u> 19'10  |             | evening set      | 513 Oct 30 j 02:16 | 18° <u>♄</u> 47'48 |             |
| opposition       | 507 Apr 22 j 11:18 | 2° <u>♄</u> 55'57  | 15°07'27    |                  |                    |                    |             |
| min. Earth dist. | 507 Apr 22 j 19:48 | 2° <u>♄</u> 55'22  | 28.72561 AU | conjunction      | 513 Nov 09 j 10:04 | 19° <u>♄</u> 11'57 | 11°09'09    |
| direct           | 507 Jul 11 j 08:12 | 1° <u>♄</u> 30'34  |             | minimum elong    | 513 Nov 09 j 10:27 | 19° <u>♄</u> 11'59 | 11°09'08    |
| evening set      | 507 Oct 20 j 10:56 | 3° <u>♄</u> 59'20  |             | max. Earth dist. | 513 Nov 09 j 23:07 | 19° <u>♄</u> 13'13 | 31.15070 AU |
|                  |                    |                    |             | morning rise     | 513 Nov 19 j 17:47 | 19° <u>♄</u> 36'06 |             |
| conjunction      | 507 Oct 26 j 04:15 | 4° <u>♄</u> 13'08  | 13°56'56    | retrograde       | 514 Feb 21 j 02:19 | 21° <u>♄</u> 46'16 |             |
| minimum elong    | 507 Oct 26 j 04:37 | 4° <u>♄</u> 13'10  | 13°56'56    | opposition       | 514 May 10 j 09:24 | 20° <u>♄</u> 24'32 | 11°37'58    |
| max. Earth dist. | 507 Oct 25 j 21:52 | 4° <u>♄</u> 12'29  | 30.68268 AU | min. Earth dist. | 514 May 09 j 19:52 | 20° <u>♄</u> 25'27 | 29.24293 AU |
| morning rise     | 507 Oct 31 j 22:02 | 4° <u>♄</u> 26'58  |             | direct           | 514 Jul 29 j 11:58 | 19° <u>♄</u> 01'21 |             |
| retrograde       | 508 Feb 06 j 19:10 | 6° <u>♄</u> 52'12  |             | evening set      | 514 Nov 01 j 03:36 | 21° <u>♄</u> 11'30 |             |
| opposition       | 508 Apr 24 j 08:47 | 5° <u>♄</u> 29'09  | 14°41'43    |                  |                    |                    |             |
| min. Earth dist. | 508 Apr 24 j 12:53 | 5° <u>♄</u> 28'52  | 28.76850 AU | conjunction      | 514 Nov 12 j 00:44 | 21° <u>♄</u> 36'47 | 10°37'25    |
| direct           | 508 Jul 13 j 05:48 | 4° <u>♄</u> 04'02  |             | minimum elong    | 514 Nov 12 j 01:08 | 21° <u>♄</u> 36'50 | 10°37'26    |
| evening set      | 508 Oct 21 j 05:40 | 6° <u>♄</u> 29'44  |             | max. Earth dist. | 514 Nov 12 j 15:55 | 21° <u>♄</u> 38'16 | 31.26158 AU |
|                  |                    |                    |             | morning rise     | 514 Nov 22 j 22:01 | 22° <u>♄</u> 02'05 |             |
| conjunction      | 508 Oct 27 j 22:30 | 6° <u>♄</u> 45'49  | 13°32'10    | retrograde       | 515 Feb 23 j 16:51 | 24° <u>♄</u> 10'06 |             |
| minimum elong    | 508 Oct 27 j 22:53 | 6° <u>♄</u> 45'51  | 13°32'11    | min. Earth dist. | 515 May 12 j 10:48 | 22° <u>♄</u> 49'42 | 29.35465 AU |
| max. Earth dist. | 508 Oct 27 j 20:16 | 6° <u>♄</u> 45'35  | 30.73496 AU | opposition       | 515 May 13 j 03:32 | 22° <u>♄</u> 48'35 | 11°03'29    |
| morning rise     | 508 Nov 03 j 15:38 | 7° <u>♄</u> 01'56  |             | direct           | 515 Aug 01 j 06:03 | 21° <u>♄</u> 25'44 |             |
| retrograde       | 509 Feb 08 j 12:34 | 9° <u>♄</u> 24'17  |             | evening set      | 515 Nov 03 j 05:14 | 23° <u>♄</u> 33'34 |             |
| opposition       | 509 Apr 27 j 06:07 | 8° <u>♄</u> 01'26  | 14°14'24    |                  |                    |                    |             |
| min. Earth dist. | 509 Apr 27 j 08:05 | 8° <u>♄</u> 01'18  | 28.82263 AU | conjunction      | 515 Nov 14 j 14:55 | 23° <u>♄</u> 59'53 | 10°04'52    |
| direct           | 509 Jul 16 j 01:58 | 6° <u>♄</u> 36'37  |             | minimum elong    | 515 Nov 14 j 15:17 | 23° <u>♄</u> 59'55 | 10°04'52    |
| evening set      | 509 Oct 23 j 02:45 | 8° <u>♄</u> 59'26  |             | max. Earth dist. | 515 Nov 15 j 10:05 | 24° <u>♄</u> 01'44 | 31.38160 AU |
|                  |                    |                    |             | morning rise     | 515 Nov 26 j 00:25 | 24° <u>♄</u> 26'11 |             |
| conjunction      | 509 Oct 30 j 16:13 | 9° <u>♄</u> 17'30  | 13°05'59    | retrograde       | 516 Feb 26 j 04:42 | 26° <u>♄</u> 32'07 |             |
| minimum elong    | 509 Oct 30 j 16:37 | 9° <u>♄</u> 17'33  | 13°05'58    | opposition       | 516 May 14 j 20:50 | 25° <u>♄</u> 10'49 | 10°28'11    |
| max. Earth dist. | 509 Oct 30 j 16:50 | 9° <u>♄</u> 17'34  | 30.79835 AU | min. Earth dist. | 516 May 14 j 01:37 | 25° <u>♄</u> 12'07 | 29.47564 AU |
| morning rise     | 509 Nov 07 j 05:59 | 9° <u>♄</u> 35'37  |             | direct           | 516 Aug 03 j 01:29 | 23° <u>♄</u> 48'18 |             |
| retrograde       | 510 Feb 11 j 07:27 | 11° <u>♄</u> 55'17 |             | evening set      | 516 Nov 04 j 07:08 | 25° <u>♄</u> 53'55 |             |
| opposition       | 510 Apr 30 j 02:53 | 10° <u>♄</u> 32'39 | 13°45'36    |                  |                    |                    |             |
| min. Earth dist. | 510 Apr 30 j 00:39 | 10° <u>♄</u> 32'48 | 28.88738 AU | conjunction      | 516 Nov 16 j 04:07 | 26° <u>♄</u> 21'08 | 9°31'35     |
| direct           | 510 Jul 19 j 00:45 | 9° <u>♄</u> 08'09  |             | minimum elong    | 516 Nov 16 j 04:29 | 26° <u>♄</u> 21'10 | 9°31'35     |
| evening set      | 510 Oct 25 j 01:12 | 11° <u>♄</u> 28'15 |             | max. Earth dist. | 516 Nov 17 j 01:14 | 26° <u>♄</u> 23'10 | 31.51103 AU |
|                  |                    |                    |             | morning rise     | 516 Nov 28 j 01:12 | 26° <u>♄</u> 48'21 |             |
| conjunction      | 510 Nov 02 j 09:32 | 11° <u>♄</u> 48'06 | 12°38'29    | retrograde       | 517 Feb 27 j 18:44 | 28° <u>♄</u> 52'16 |             |
| minimum elong    | 510 Nov 02 j 09:56 | 11° <u>♄</u> 48'08 | 12°38'29    | opposition       | 517 May 17 j 13:24 | 27° <u>♄</u> 31'13 | 9°52'08     |
| max. Earth dist. | 510 Nov 02 j 13:33 | 11° <u>♄</u> 48'30 | 30.87206 AU | min. Earth dist. | 517 May 16 j 14:15 | 27° <u>♄</u> 32'46 | 29.60641 AU |
| morning rise     | 510 Nov 10 j 18:04 | 12° <u>♄</u> 07'59 |             | direct           | 517 Aug 05 j 18:19 | 26° <u>♄</u> 09'03 |             |
| retrograde       | 511 Feb 14 j 01:07 | 14° <u>♄</u> 25'08 |             | evening set      | 517 Nov 06 j 09:05 | 28° <u>♄</u> 12'32 |             |
| opposition       | 511 May 02 j 23:28 | 13° <u>♄</u> 02'42 | 13°15'27    |                  |                    |                    |             |
| min. Earth dist. | 511 May 02 j 19:01 | 13° <u>♄</u> 03'01 | 28.96230 AU | conjunction      | 517 Nov 18 j 16:43 | 28° <u>♄</u> 40'33 | 8°57'40     |
| direct           | 511 Jul 21 j 21:06 | 11° <u>♄</u> 38'32 |             | minimum elong    | 517 Nov 18 j 17:03 | 28° <u>♄</u> 40'35 | 8°57'39     |
| evening set      | 511 Oct 27 j 00:48 | 13° <u>♄</u> 56'01 |             | max. Earth dist. | 517 Nov 19 j 17:53 | 28° <u>♄</u> 42'57 | 31.65012 AU |
|                  |                    |                    |             | morning rise     | 517 Dec 01 j 00:11 | 29° <u>♄</u> 08'33 |             |
| conjunction      | 511 Nov 05 j 02:13 | 14° <u>♄</u> 17'27 | 12°09'47    |                  | 517 Dec 25 j 06:53 | 0° <u>♄</u>        |             |
| minimum elong    | 511 Nov 05 j 02:37 | 14° <u>♄</u> 17'30 | 12°09'46    | retrograde       | 518 Mar 02 j 04:34 | 1° <u>♄</u> 10'34  |             |
| max. Earth dist. | 511 Nov 05 j 09:20 | 14° <u>♄</u> 18'10 | 30.95575 AU |                  | 518 May 13 j 19:00 | 30° <u>♄</u>       |             |
| morning rise     | 511 Nov 14 j 03:44 | 14° <u>♄</u> 38'55 |             | min. Earth dist. | 518 May 19 j 04:04 | 29° <u>♄</u> 51'28 | 29.74704 AU |
|                  | 511 Nov 23 j 05:33 | 15° <u>♄</u>       |             | opposition       | 518 May 20 j 05:22 | 29° <u>♄</u> 49'47 | 9°15'28     |
| retrograde       | 512 Feb 16 j 17:58 | 16° <u>♄</u> 53'40 |             | direct           | 518 Aug 08 j 11:07 | 28° <u>♄</u> 27'59 |             |
| opposition       | 512 May 04 j 19:22 | 15° <u>♄</u> 31'28 | 12°44'03    |                  | 518 Oct 25 j 21:29 | 0° <u>♄</u>        |             |

|                  |                    |           |             |                  |                    |           |             |
|------------------|--------------------|-----------|-------------|------------------|--------------------|-----------|-------------|
| evening set      | 518 Nov 08 j 11:21 | 0°♂29'25  |             | min. Earth dist. | 525 Jun 03 j 04:57 | 15°♂13'01 | 30.97204 AU |
|                  |                    |           |             | opposition       | 525 Jun 05 j 00:17 | 15°♂10'15 | 4°49'49     |
| conjunction      | 518 Nov 21 j 04:30 | 0°♂58'08  | 8°23'12     | direct           | 525 Aug 24 j 10:34 | 13°♂51'24 |             |
| minimum elong    | 518 Nov 21 j 04:50 | 0°♂58'10  | 8°23'12     | evening set      | 525 Nov 21 j 04:51 | 15°♂40'50 |             |
| max. Earth dist. | 518 Nov 22 j 07:49 | 1°♂00'43  | 31.79909 AU |                  |                    |           |             |
| morning rise     | 518 Dec 03 j 21:42 | 1°♂26'50  |             | conjunction      | 525 Dec 05 j 19:40 | 16°♂12'04 | 4°14'23     |
| retrograde       | 519 Mar 04 j 16:00 | 3°♂27'01  |             | minimum elong    | 525 Dec 05 j 19:51 | 16°♂12'04 | 4°14'22     |
| opposition       | 519 May 22 j 20:29 | 2°♂06'32  | 8°38'17     | max. Earth dist. | 525 Dec 07 j 15:38 | 16°♂16'00 | 33.06698 AU |
| min. Earth dist. | 519 May 21 j 15:03 | 2°♂08'29  | 29.89760 AU | morning rise     | 525 Dec 20 j 10:54 | 16°♂43'19 |             |
| direct           | 519 Aug 11 j 02:27 | 0°♂45'08  |             | retrograde       | 526 Mar 19 j 08:17 | 18°♂32'51 |             |
| evening set      | 519 Nov 10 j 13:30 | 2°♂44'37  |             | min. Earth dist. | 526 Jun 05 j 12:07 | 17°♂17'36 | 31.17274 AU |
|                  |                    |           |             | opposition       | 526 Jun 07 j 10:23 | 17°♂14'40 | 4°11'43     |
| conjunction      | 519 Nov 23 j 15:34 | 3°♂13'56  | 7°48'16     | direct           | 526 Aug 26 j 21:26 | 15°♂56'13 |             |
| minimum elong    | 519 Nov 23 j 15:53 | 3°♂13'57  | 7°48'16     | evening set      | 526 Nov 23 j 07:22 | 17°♂44'12 |             |
| max. Earth dist. | 519 Nov 24 j 22:31 | 3°♂16'50  | 31.95751 AU |                  |                    |           |             |
| morning rise     | 519 Dec 06 j 17:36 | 3°♂43'15  |             | conjunction      | 526 Dec 08 j 02:04 | 18°♂15'30 | 3°38'45     |
| retrograde       | 520 Mar 06 j 02:12 | 5°♂41'42  |             | minimum elong    | 526 Dec 08 j 02:13 | 18°♂15'31 | 3°38'46     |
| min. Earth dist. | 520 May 23 j 03:35 | 4°♂23'35  | 30.05757 AU | max. Earth dist. | 526 Dec 10 j 00:51 | 18°♂19'40 | 33.27166 AU |
| opposition       | 520 May 24 j 11:00 | 4°♂21'31  | 8°00'40     | morning rise     | 526 Dec 22 j 20:58 | 18°♂46'50 |             |
| direct           | 520 Aug 12 j 15:28 | 3°♂00'32  |             | retrograde       | 527 Mar 21 j 11:58 | 20°♂35'07 |             |
| evening set      | 520 Nov 11 j 15:55 | 4°♂58'09  |             | min. Earth dist. | 527 Jun 07 j 20:42 | 19°♂20'12 | 31.37834 AU |
|                  |                    |           |             | opposition       | 527 Jun 09 j 19:48 | 19°♂17'14 | 3°33'47     |
| conjunction      | 520 Nov 25 j 01:58 | 5°♂27'58  | 7°13'00     | direct           | 527 Aug 29 j 08:09 | 17°♂59'10 |             |
| minimum elong    | 520 Nov 25 j 02:16 | 5°♂28'00  | 7°13'00     | evening set      | 527 Nov 25 j 09:46 | 19°♂45'46 |             |
| max. Earth dist. | 520 Nov 26 j 11:19 | 5°♂31'05  | 32.12488 AU |                  |                    |           |             |
| morning rise     | 520 Dec 08 j 12:00 | 5°♂57'49  |             | conjunction      | 527 Dec 10 j 07:32 | 20°♂17'05 | 3°03'18     |
| retrograde       | 521 Mar 08 j 12:49 | 7°♂54'36  |             | minimum elong    | 527 Dec 10 j 07:39 | 20°♂17'06 | 3°03'18     |
| min. Earth dist. | 521 May 25 j 13:33 | 6°♂37'02  | 30.22616 AU | max. Earth dist. | 527 Dec 12 j 07:20 | 20°♂21'18 | 33.48108 AU |
| opposition       | 521 May 27 j 00:29 | 6°♂34'45  | 7°22'44     | morning rise     | 527 Dec 25 j 05:43 | 20°♂48'26 |             |
| direct           | 521 Aug 15 j 06:32 | 5°♂14'12  |             | retrograde       | 528 Mar 22 j 16:41 | 22°♂35'31 |             |
| evening set      | 521 Nov 13 j 18:26 | 7°♂10'02  |             | min. Earth dist. | 528 Jun 09 j 02:11 | 21°♂21'04 | 31.58892 AU |
|                  |                    |           |             | opposition       | 528 Jun 11 j 04:15 | 21°♂17'56 | 2°56'07     |
| conjunction      | 521 Nov 27 j 11:40 | 7°♂40'17  | 6°37'27     | direct           | 528 Aug 30 j 17:18 | 20°♂00'14 |             |
| minimum elong    | 521 Nov 27 j 11:56 | 7°♂40'19  | 6°37'27     | evening set      | 528 Nov 26 j 12:03 | 21°♂45'32 |             |
| max. Earth dist. | 521 Nov 28 j 23:32 | 7°♂43'36  | 32.30024 AU |                  |                    |           |             |
| morning rise     | 521 Dec 11 j 05:02 | 8°♂10'34  |             | conjunction      | 528 Dec 11 j 12:19 | 22°♂16'49 | 2°28'05     |
| retrograde       | 522 Mar 10 j 23:43 | 10°♂05'46 |             | minimum elong    | 528 Dec 11 j 12:25 | 22°♂16'49 | 2°28'05     |
| min. Earth dist. | 522 May 28 j 00:38 | 8°♂48'39  | 30.40278 AU | max. Earth dist. | 528 Dec 13 j 14:40 | 22°♂21'13 | 33.69528 AU |
| opposition       | 522 May 29 j 13:38 | 8°♂46'15  | 6°44'36     | morning rise     | 528 Dec 26 j 13:05 | 22°♂48'08 |             |
| direct           | 522 Aug 17 j 19:24 | 7°♂26'09  |             | retrograde       | 529 Mar 24 j 20:40 | 24°♂34'05 |             |
| evening set      | 522 Nov 15 j 20:51 | 9°♂20'15  |             | min. Earth dist. | 529 Jun 11 j 08:46 | 23°♂19'59 | 31.80485 AU |
|                  |                    |           |             | opposition       | 529 Jun 13 j 12:00 | 23°♂16'47 | 2°18'45     |
| conjunction      | 522 Nov 29 j 20:39 | 9°♂50'52  | 6°01'45     | direct           | 529 Sep 02 j 00:02 | 21°♂59'28 |             |
| minimum elong    | 522 Nov 29 j 20:54 | 9°♂50'54  | 6°01'45     | evening set      | 529 Nov 28 j 14:11 | 23°♂43'32 |             |
| max. Earth dist. | 522 Dec 01 j 11:20 | 9°♂54'25  | 32.48301 AU |                  |                    |           |             |
| morning rise     | 522 Dec 13 j 20:25 | 10°♂21'30 |             | conjunction      | 529 Dec 13 j 16:27 | 24°♂14'43 | 1°53'09     |
| retrograde       | 523 Mar 13 j 08:53 | 12°♂15'12 |             | minimum elong    | 529 Dec 13 j 16:31 | 24°♂14'44 | 1°53'08     |
| min. Earth dist. | 523 May 30 j 10:29 | 10°♂58'34 | 30.58641 AU | max. Earth dist. | 529 Dec 15 j 20:39 | 24°♂19'15 | 33.91488 AU |
| opposition       | 523 Jun 01 j 01:57 | 10°♂56'01 | 6°06'21     | morning rise     | 529 Dec 28 j 19:09 | 24°♂45'57 |             |
| direct           | 523 Aug 20 j 09:31 | 9°♂36'20  |             | retrograde       | 530 Mar 27 j 00:30 | 26°♂30'50 |             |
| evening set      | 523 Nov 17 j 23:35 | 11°♂28'50 |             | min. Earth dist. | 530 Jun 13 j 13:03 | 25°♂17'13 | 32.02639 AU |
|                  |                    |           |             | opposition       | 530 Jun 15 j 19:02 | 25°♂13'52 | 1°41'44     |
| conjunction      | 523 Dec 02 j 04:59 | 11°♂59'42 | 5°25'57     | direct           | 530 Sep 04 j 08:19 | 23°♂56'56 |             |
| minimum elong    | 523 Dec 02 j 05:12 | 11°♂59'44 | 5°25'56     | evening set      | 530 Nov 30 j 16:11 | 25°♂39'51 |             |
| max. Earth dist. | 523 Dec 03 j 21:11 | 12°♂03'22 | 32.67214 AU |                  |                    |           |             |
| morning rise     | 523 Dec 16 j 10:41 | 12°♂30'37 |             | conjunction      | 530 Dec 15 j 19:43 | 26°♂10'54 | 1°18'33     |
| retrograde       | 524 Mar 14 j 17:55 | 14°♂22'52 |             | minimum elong    | 530 Dec 15 j 19:46 | 26°♂10'54 | 1°18'33     |
| min. Earth dist. | 524 May 31 j 19:32 | 13°♂06'43 | 30.77649 AU | max. Earth dist. | 530 Dec 18 j 01:39 | 26°♂15'33 | 34.13989 AU |
| opposition       | 524 Jun 02 j 13:26 | 13°♂04'02 | 5°28'03     | morning rise     | 530 Dec 30 j 24:00 | 26°♂42'01 |             |
| direct           | 524 Aug 21 j 20:45 | 11°♂44'46 |             | retrograde       | 531 Mar 29 j 05:43 | 28°♂25'55 |             |
| evening set      | 524 Nov 19 j 02:10 | 13°♂35'42 |             | min. Earth dist. | 531 Jun 15 j 17:34 | 27°♂12'42 | 32.25377 AU |
|                  |                    |           |             | opposition       | 531 Jun 18 j 01:27 | 27°♂09'15 | 1°05'07     |
| conjunction      | 524 Dec 03 j 12:48 | 14°♂06'47 | 4°50'08     | direct           | 531 Sep 06 j 13:54 | 25°♂52'44 |             |
| minimum elong    | 524 Dec 03 j 13:00 | 14°♂06'48 | 4°50'08     | evening set      | 531 Dec 02 j 18:02 | 27°♂34'35 |             |
| max. Earth dist. | 524 Dec 05 j 07:56 | 14°♂10'41 | 32.86705 AU |                  |                    |           |             |
| morning rise     | 524 Dec 17 j 23:26 | 14°♂37'54 |             | conjunction      | 531 Dec 17 j 22:36 | 28°♂05'28 | 0°44'19     |
| retrograde       | 525 Mar 17 j 00:25 | 16°♂28'45 |             | minimum elong    | 531 Dec 17 j 22:38 | 28°♂05'28 | 0°44'19     |

|                  |                    |                                     |             |                  |                    |                           |             |
|------------------|--------------------|-------------------------------------|-------------|------------------|--------------------|---------------------------|-------------|
| max. Earth dist. | 531 Dec 20 j 07:06 | 28° $\overline{8}$ '10'17           | 34.37043 AU | minimum elong    | 537 Dec 28 j 03:00 | 9° $\overline{3}$ '02'15  | 2°31'19     |
| morning rise     | 532 Jan 02 j 03:40 | 28° $\overline{8}$ '36'23           |             | max. Earth dist. | 537 Dec 30 j 19:12 | 9° $\overline{3}$ '07'29  | 35.83244 AU |
|                  | 532 Feb 23 j 02:49 | 0° $\overline{3}$                   |             | morning rise     | 538 Jan 12 j 03:53 | 9° $\overline{3}$ '31'26  |             |
| retrograde       | 532 Mar 30 j 08:34 | 0° $\overline{3}$ '19'22            |             | retrograde       | 538 Apr 10 j 12:50 | 11° $\overline{3}$ '10'01 |             |
|                  | 532 May 06 j 15:42 | 30° $\overline{8}$ ' $\overline{8}$ |             | min. Earth dist. | 538 Jun 28 j 09:34 | 9° $\overline{3}$ '59'43  | 33.95894 AU |
| min. Earth dist. | 532 Jun 16 j 21:26 | 29° $\overline{8}$ '06'35           | 32.48647 AU | opposition       | 538 Jul 01 j 03:16 | 9° $\overline{3}$ '55'50  | -2°56'42    |
| opposition       | 532 Jun 19 j 06:53 | 29° $\overline{8}$ '03'04           | 0°28'57     | direct           | 538 Sep 19 j 17:52 | 8° $\overline{3}$ '42'11  |             |
| direct           | 532 Sep 07 j 20:49 | 27° $\overline{8}$ '46'58           |             | evening set      | 538 Dec 15 j 04:33 | 10° $\overline{3}$ '18'08 |             |
| evening set      | 532 Dec 03 j 19:56 | 29° $\overline{8}$ '27'49           |             |                  |                    |                           |             |
|                  |                    |                                     |             | conjunction      | 538 Dec 30 j 02:03 | 10° $\overline{3}$ '46'49 | -3°02'03    |
| conjunction      | 532 Dec 19 j 00:41 | 29° $\overline{8}$ '58'28           | 0°10'31     | minimum elong    | 538 Dec 30 j 01:57 | 10° $\overline{3}$ '46'49 | 3°02'02     |
| minimum elong    | 532 Dec 19 j 00:42 | 29° $\overline{8}$ '58'28           | 0°10'32     | max. Earth dist. | 539 Jan 01 j 19:32 | 10° $\overline{3}$ '52'07 | 36.08254 AU |
| behind sun begin | 532 Dec 18 j 19:41 | 29° $\overline{8}$ '58'04           |             | morning rise     | 539 Jan 14 j 00:29 | 11° $\overline{3}$ '15'36 |             |
| behind sun end   | 532 Dec 19 j 05:42 | 29° $\overline{8}$ '58'53           |             | retrograde       | 539 Apr 12 j 10:57 | 12° $\overline{3}$ '53'35 |             |
|                  | 532 Dec 19 j 18:49 | 0° $\overline{3}$                   |             | min. Earth dist. | 539 Jun 30 j 10:16 | 11° $\overline{3}$ '43'35 | 34.21022 AU |
| max. Earth dist. | 532 Dec 21 j 10:04 | 0° $\overline{3}$ '03'20            | 34.60586 AU | opposition       | 539 Jul 03 j 04:34 | 11° $\overline{3}$ '39'41 | -3°28'51    |
| morning rise     | 533 Jan 03 j 06:21 | 0° $\overline{3}$ '29'12            |             | direct           | 539 Sep 21 j 20:28 | 10° $\overline{3}$ '26'23 |             |
| retrograde       | 533 Apr 01 j 11:41 | 2° $\overline{3}$ '11'19            |             | evening set      | 539 Dec 17 j 05:42 | 12° $\overline{3}$ '01'40 |             |
| desc. node       | 533 Apr 12 j 18:27 | 2° $\overline{3}$ '09'26            |             |                  |                    |                           |             |
| min. Earth dist. | 533 Jun 18 j 23:50 | 0° $\overline{3}$ '59'01            | 32.72415 AU | conjunction      | 540 Jan 01 j 00:25 | 12° $\overline{3}$ '29'55 | -3°32'11    |
| opposition       | 533 Jun 21 j 11:48 | 0° $\overline{3}$ '55'22            | -0°06'44    | minimum elong    | 540 Jan 01 j 00:18 | 12° $\overline{3}$ '29'55 | 3°32'12     |
|                  | 533 Aug 02 j 20:36 | 30° $\overline{8}$ ' $\overline{8}$ |             | max. Earth dist. | 540 Jan 03 j 17:47 | 12° $\overline{3}$ '35'10 | 36.33313 AU |
| direct           | 533 Sep 10 j 01:04 | 29° $\overline{8}$ '39'42           |             | morning rise     | 540 Jan 15 j 20:24 | 12° $\overline{3}$ '58'16 |             |
|                  | 533 Oct 17 j 03:03 | 0° $\overline{3}$                   |             | retrograde       | 540 Apr 13 j 10:50 | 14° $\overline{3}$ '35'41 |             |
| evening set      | 533 Dec 05 j 21:27 | 1° $\overline{3}$ '19'36            |             | min. Earth dist. | 540 Jul 01 j 09:23 | 13° $\overline{3}$ '26'02 | 34.46238 AU |
|                  |                    |                                     |             | opposition       | 540 Jul 04 j 05:06 | 13° $\overline{3}$ '22'04 | -4°00'21    |
| conjunction      | 533 Dec 21 j 02:13 | 1° $\overline{3}$ '50'01            | -0°22'55    | direct           | 540 Sep 22 j 21:03 | 12° $\overline{3}$ '09'05 |             |
| minimum elong    | 533 Dec 21 j 02:12 | 1° $\overline{3}$ '50'01            | 0°22'55     | evening set      | 540 Dec 18 j 06:27 | 13° $\overline{3}$ '43'44 |             |
| max. Earth dist. | 533 Dec 23 j 14:21 | 1° $\overline{3}$ '55'05            | 34.84563 AU |                  |                    |                           |             |
| morning rise     | 534 Jan 05 j 07:39 | 2° $\overline{3}$ '20'30            |             | conjunction      | 541 Jan 01 j 22:17 | 14° $\overline{3}$ '11'33 | -4°01'44    |
| retrograde       | 534 Apr 03 j 11:10 | 4° $\overline{3}$ '01'49            |             | minimum elong    | 541 Jan 01 j 22:09 | 14° $\overline{3}$ '11'32 | 4°01'44     |
| min. Earth dist. | 534 Jun 21 j 03:31 | 2° $\overline{3}$ '49'55            | 32.96591 AU | max. Earth dist. | 541 Jan 04 j 17:39 | 14° $\overline{3}$ '16'54 | 36.58453 AU |
| opposition       | 534 Jun 23 j 16:12 | 2° $\overline{3}$ '46'14            | -0°41'53    | morning rise     | 541 Jan 16 j 15:10 | 14° $\overline{3}$ '39'27 |             |
| direct           | 534 Sep 12 j 08:09 | 1° $\overline{3}$ '31'00            |             | retrograde       | 541 Apr 15 j 07:23 | 16° $\overline{3}$ '16'19 |             |
| evening set      | 534 Dec 07 j 23:07 | 3° $\overline{3}$ '10'01            |             | min. Earth dist. | 541 Jul 03 j 09:28 | 15° $\overline{3}$ '06'55 | 34.71559 AU |
|                  |                    |                                     |             | opposition       | 541 Jul 06 j 05:12 | 15° $\overline{3}$ '02'58 | -4°31'11    |
| conjunction      | 534 Dec 23 j 03:11 | 3° $\overline{3}$ '40'09            | -0°55'47    | direct           | 541 Sep 24 j 23:26 | 13° $\overline{3}$ '50'18 |             |
| minimum elong    | 534 Dec 23 j 03:09 | 3° $\overline{3}$ '40'09            | 0°55'47     | evening set      | 541 Dec 20 j 07:00 | 15° $\overline{3}$ '24'21 |             |
| max. Earth dist. | 534 Dec 25 j 15:46 | 3° $\overline{3}$ '45'13            | 35.08902 AU |                  |                    |                           |             |
| morning rise     | 535 Jan 07 j 08:12 | 4° $\overline{3}$ '10'21            |             | conjunction      | 542 Jan 03 j 19:22 | 15° $\overline{3}$ '51'42 | -4°30'40    |
| retrograde       | 535 Apr 05 j 12:31 | 5° $\overline{3}$ '50'55            |             | minimum elong    | 542 Jan 03 j 19:13 | 15° $\overline{3}$ '51'41 | 4°30'41     |
| min. Earth dist. | 535 Jun 23 j 04:41 | 4° $\overline{3}$ '39'31            | 33.21113 AU | max. Earth dist. | 542 Jan 06 j 14:50 | 15° $\overline{3}$ '57'02 | 36.83717 AU |
| opposition       | 535 Jun 25 j 19:46 | 4° $\overline{3}$ '35'42            | -1°16'29    | morning rise     | 542 Jan 18 j 08:59 | 16° $\overline{3}$ '19'08 |             |
| direct           | 535 Sep 14 j 12:27 | 3° $\overline{3}$ '20'54            |             | retrograde       | 542 Apr 17 j 04:19 | 17° $\overline{3}$ '55'31 |             |
| evening set      | 535 Dec 10 j 00:35 | 4° $\overline{3}$ '59'05            |             | min. Earth dist. | 542 Jul 05 j 06:45 | 16° $\overline{3}$ '46'29 | 34.97043 AU |
|                  |                    |                                     |             | opposition       | 542 Jul 08 j 04:40 | 16° $\overline{3}$ '42'26 | -5°01'20    |
| conjunction      | 535 Dec 25 j 03:39 | 5° $\overline{3}$ '28'54            | -1°28'10    | direct           | 542 Sep 26 j 23:32 | 15° $\overline{3}$ '30'05 |             |
| minimum elong    | 535 Dec 25 j 03:35 | 5° $\overline{3}$ '28'54            | 1°28'11     | evening set      | 542 Dec 22 j 07:26 | 17° $\overline{3}$ '03'35 |             |
| max. Earth dist. | 535 Dec 27 j 18:14 | 5° $\overline{3}$ '34'05            | 35.33512 AU |                  |                    |                           |             |
| morning rise     | 536 Jan 09 j 07:39 | 5° $\overline{3}$ '58'48            |             | conjunction      | 543 Jan 05 j 16:06 | 17° $\overline{3}$ '30'27 | -4°58'59    |
| retrograde       | 536 Apr 06 j 11:46 | 7° $\overline{3}$ '38'40            |             | minimum elong    | 543 Jan 05 j 15:57 | 17° $\overline{3}$ '30'26 | 4°58'59     |
| min. Earth dist. | 536 Jun 24 j 07:39 | 6° $\overline{3}$ '27'36            | 33.45889 AU | max. Earth dist. | 543 Jan 08 j 13:19 | 17° $\overline{3}$ '35'53 | 37.09141 AU |
| opposition       | 536 Jun 26 j 22:54 | 6° $\overline{3}$ '23'48            | -1°50'30    | morning rise     | 543 Jan 20 j 02:03 | 17° $\overline{3}$ '57'24 |             |
| direct           | 536 Sep 15 j 15:43 | 5° $\overline{3}$ '09'24            |             | retrograde       | 543 Apr 18 j 22:55 | 19° $\overline{3}$ '33'21 |             |
| evening set      | 536 Dec 11 j 02:02 | 6° $\overline{3}$ '46'49            |             | min. Earth dist. | 543 Jul 07 j 05:36 | 18° $\overline{3}$ '24'35 | 35.22718 AU |
|                  |                    |                                     |             | opposition       | 543 Jul 10 j 03:35 | 18° $\overline{3}$ '20'32 | -5°30'48    |
| conjunction      | 536 Dec 26 j 03:39 | 7° $\overline{3}$ '16'16            | -2°00'01    | direct           | 543 Sep 28 j 23:42 | 17° $\overline{3}$ '08'31 |             |
| minimum elong    | 536 Dec 26 j 03:35 | 7° $\overline{3}$ '16'16            | 2°00'01     | evening set      | 543 Dec 24 j 07:39 | 18° $\overline{3}$ '41'32 |             |
| max. Earth dist. | 536 Dec 28 j 18:57 | 7° $\overline{3}$ '21'29            | 35.58321 AU |                  |                    |                           |             |
| morning rise     | 537 Jan 10 j 06:10 | 7° $\overline{3}$ '45'49            |             | conjunction      | 544 Jan 07 j 12:23 | 19° $\overline{3}$ '07'53 | -5°26'40    |
| retrograde       | 537 Apr 08 j 11:21 | 9° $\overline{3}$ '25'02            |             | minimum elong    | 544 Jan 07 j 12:13 | 19° $\overline{3}$ '07'52 | 5°26'40     |
| min. Earth dist. | 537 Jun 26 j 08:15 | 8° $\overline{3}$ '14'23            | 33.70829 AU | max. Earth dist. | 544 Jan 10 j 10:20 | 19° $\overline{3}$ '13'21 | 37.34754 AU |
| opposition       | 537 Jun 29 j 01:14 | 8° $\overline{3}$ '10'31            | -2°23'55    | morning rise     | 544 Jan 21 j 18:16 | 19° $\overline{3}$ '34'20 |             |
| direct           | 537 Sep 17 j 18:24 | 6° $\overline{3}$ '56'30            |             | retrograde       | 544 Apr 19 j 18:36 | 21° $\overline{3}$ '09'53 |             |
| evening set      | 537 Dec 13 j 03:30 | 8° $\overline{3}$ '33'10            |             | min. Earth dist. | 544 Jul 08 j 02:16 | 20° $\overline{3}$ '01'30 | 35.48563 AU |
|                  |                    |                                     |             | opposition       | 544 Jul 11 j 01:50 | 19° $\overline{3}$ '57'23 | -5°59'34    |
| conjunction      | 537 Dec 28 j 03:06 | 9° $\overline{3}$ '02'15            | -2°31'19    | direct           | 544 Sep 29 j 22:27 | 18° $\overline{3}$ '45'42 |             |



|                  |                    |                                      |  |                  |                    |                                   |             |
|------------------|--------------------|--------------------------------------|--|------------------|--------------------|-----------------------------------|-------------|
| evening set      | 544 Dec 25 j 07:48 | 20° $\overline{3}$ 18'16             |  | max. Earth dist. | 551 Jan 21 j 00:13 | 0° $\approx$ 05'16                | 39.15337 AU |
|                  |                    |                                      |  | morning rise     | 551 Jan 30 j 16:18 | 0° $\approx$ 22'23                |             |
| conjunction      | 545 Jan 08 j 08:04 | 20° $\overline{3}$ 44'07 -5°53'42    |  | retrograde       | 551 May 01 j 06:17 | 1° $\approx$ 56'14                |             |
| minimum elong    | 545 Jan 08 j 07:54 | 20° $\overline{3}$ 44'06 5°53'42     |  | min. Earth dist. | 551 Jul 19 j 22:44 | 0° $\approx$ 49'58                | 37.30295 AU |
| max. Earth dist. | 545 Jan 11 j 06:44 | 20° $\overline{3}$ 49'35 37.60510 AU |  | opposition       | 551 Jul 23 j 00:57 | 0° $\approx$ 45'50                | -9°01'31    |
| morning rise     | 545 Jan 22 j 09:45 | 21° $\overline{3}$ 10'03             |  |                  | 551 Aug 29 j 11:01 | 30° $\overline{R}$ $\overline{3}$ |             |
| retrograde       | 545 Apr 21 j 15:58 | 22° $\overline{3}$ 45'16             |  | direct           | 551 Oct 11 j 21:41 | 29° $\overline{3}$ 36'31          |             |
| min. Earth dist. | 545 Jul 09 j 23:21 | 21° $\overline{3}$ 37'12 35.74566 AU |  |                  | 551 Nov 22 j 20:06 | 0° $\approx$                      |             |
| opposition       | 545 Jul 12 j 23:43 | 21° $\overline{3}$ 33'04 -6°27'38    |  | evening set      | 552 Jan 07 j 05:22 | 1° $\approx$ 07'01                |             |
| direct           | 545 Oct 01 j 18:11 | 20° $\overline{3}$ 21'44             |  |                  |                    |                                   |             |
| evening set      | 545 Dec 27 j 07:41 | 21° $\overline{3}$ 53'54             |  | conjunction      | 552 Jan 19 j 15:41 | 1° $\approx$ 28'56                | -8°45'08    |
|                  |                    |                                      |  | minimum elong    | 552 Jan 19 j 15:28 | 1° $\approx$ 28'55                | 8°45'08     |
| conjunction      | 546 Jan 10 j 03:30 | 22° $\overline{3}$ 19'13 -6°20'05    |  | max. Earth dist. | 552 Jan 22 j 16:43 | 1° $\approx$ 34'20                | 39.40614 AU |
| minimum elong    | 546 Jan 10 j 03:19 | 22° $\overline{3}$ 19'12 6°20'06     |  | morning rise     | 552 Feb 01 j 03:19 | 1° $\approx$ 50'56                |             |
| max. Earth dist. | 546 Jan 13 j 03:43 | 22° $\overline{3}$ 24'46 37.86398 AU |  | retrograde       | 552 May 02 j 01:02 | 3° $\approx$ 24'37                |             |
| morning rise     | 546 Jan 24 j 00:25 | 22° $\overline{3}$ 44'38             |  | min. Earth dist. | 552 Jul 20 j 17:15 | 2° $\approx$ 18'35                | 37.55686 AU |
| retrograde       | 546 Apr 23 j 11:23 | 24° $\overline{3}$ 19'33             |  | opposition       | 552 Jul 23 j 19:39 | 2° $\approx$ 14'28                | -9°24'50    |
| min. Earth dist. | 546 Jul 11 j 20:18 | 23° $\overline{3}$ 11'48 36.00662 AU |  | direct           | 552 Oct 12 j 14:56 | 1° $\approx$ 05'25                |             |
| opposition       | 546 Jul 14 j 21:05 | 23° $\overline{3}$ 07'39 -6°55'00    |  | evening set      | 553 Jan 08 j 04:20 | 2° $\approx$ 35'43                |             |
| direct           | 546 Oct 03 j 16:19 | 21° $\overline{3}$ 56'41             |  |                  |                    |                                   |             |
| evening set      | 546 Dec 29 j 07:32 | 23° $\overline{3}$ 28'30             |  | conjunction      | 553 Jan 20 j 08:21 | 2° $\approx$ 57'02                | -9°07'09    |
|                  |                    |                                      |  | minimum elong    | 553 Jan 20 j 08:09 | 2° $\approx$ 57'01                | 9°07'09     |
| conjunction      | 547 Jan 11 j 22:19 | 23° $\overline{3}$ 53'17 -6°45'50    |  | max. Earth dist. | 553 Jan 23 j 10:32 | 3° $\approx$ 02'28                | 39.65695 AU |
| minimum elong    | 547 Jan 11 j 22:08 | 23° $\overline{3}$ 53'16 6°45'50     |  | morning rise     | 553 Feb 01 j 13:22 | 3° $\approx$ 18'25                |             |
| max. Earth dist. | 547 Jan 14 j 22:14 | 23° $\overline{3}$ 58'46 38.12342 AU |  | retrograde       | 553 May 03 j 17:40 | 4° $\approx$ 51'58                |             |
| morning rise     | 547 Jan 25 j 14:30 | 24° $\overline{3}$ 18'09             |  | min. Earth dist. | 553 Jul 22 j 11:53 | 3° $\approx$ 46'07                | 37.80893 AU |
| retrograde       | 547 Apr 25 j 08:24 | 25° $\overline{3}$ 52'47             |  | opposition       | 553 Jul 25 j 13:48 | 3° $\approx$ 42'02                | -9°47'28    |
| min. Earth dist. | 547 Jul 13 j 15:55 | 24° $\overline{3}$ 45'25 36.26803 AU |  | direct           | 553 Oct 14 j 09:36 | 2° $\approx$ 33'15                |             |
| opposition       | 547 Jul 16 j 18:00 | 24° $\overline{3}$ 41'13 -7°21'40    |  | evening set      | 554 Jan 10 j 03:22 | 4° $\approx$ 03'22                |             |
| direct           | 547 Oct 05 j 12:08 | 23° $\overline{3}$ 30'37             |  |                  |                    |                                   |             |
| evening set      | 547 Dec 31 j 07:16 | 25° $\overline{3}$ 02'07             |  | conjunction      | 554 Jan 22 j 00:33 | 4° $\approx$ 24'04                | -9°28'32    |
|                  |                    |                                      |  | minimum elong    | 554 Jan 22 j 00:20 | 4° $\approx$ 24'03                | 9°28'32     |
| conjunction      | 548 Jan 13 j 17:00 | 25° $\overline{3}$ 26'21 -7°10'57    |  | max. Earth dist. | 554 Jan 25 j 01:55 | 4° $\approx$ 29'25                | 39.90632 AU |
| minimum elong    | 548 Jan 13 j 16:48 | 25° $\overline{3}$ 26'20 7°10'57     |  | morning rise     | 554 Feb 02 j 22:55 | 4° $\approx$ 44'50                |             |
| max. Earth dist. | 548 Jan 16 j 18:26 | 25° $\overline{3}$ 31'55 38.38277 AU |  | retrograde       | 554 May 05 j 11:16 | 6° $\approx$ 18'15                |             |
| morning rise     | 548 Jan 27 j 03:54 | 25° $\overline{3}$ 50'41             |  | min. Earth dist. | 554 Jul 24 j 04:25 | 5° $\approx$ 12'40                | 38.06000 AU |
| retrograde       | 548 Apr 26 j 02:31 | 27° $\overline{3}$ 25'04             |  | opposition       | 554 Jul 27 j 07:32 | 5° $\approx$ 08'33                | -10°09'27   |
| min. Earth dist. | 548 Jul 14 j 13:00 | 26° $\overline{3}$ 17'57 36.52899 AU |  | direct           | 554 Oct 16 j 02:46 | 4° $\approx$ 00'00                |             |
| opposition       | 548 Jul 17 j 14:20 | 26° $\overline{3}$ 13'49 -7°47'38    |  | evening set      | 555 Jan 12 j 02:02 | 5° $\approx$ 29'59                |             |
| direct           | 548 Oct 06 j 09:23 | 25° $\overline{3}$ 03'34             |  |                  |                    |                                   |             |
| evening set      | 549 Jan 01 j 07:01 | 26° $\overline{3}$ 34'48             |  | conjunction      | 555 Jan 23 j 16:24 | 5° $\approx$ 50'03                | -9°49'19    |
|                  |                    |                                      |  | minimum elong    | 555 Jan 23 j 16:12 | 5° $\approx$ 50'02                | 9°49'19     |
| conjunction      | 549 Jan 14 j 11:14 | 26° $\overline{3}$ 58'28 -7°35'25    |  | max. Earth dist. | 555 Jan 26 j 19:03 | 5° $\approx$ 55'28                | 40.15478 AU |
| minimum elong    | 549 Jan 14 j 11:02 | 26° $\overline{3}$ 58'27 7°35'25     |  | morning rise     | 555 Feb 04 j 07:51 | 6° $\approx$ 10'12                |             |
| max. Earth dist. | 549 Jan 17 j 12:10 | 27° $\overline{3}$ 03'57 38.64134 AU |  | retrograde       | 555 May 07 j 01:04 | 7° $\approx$ 43'31                |             |
| morning rise     | 549 Jan 27 j 16:40 | 27° $\overline{3}$ 22'13             |  | min. Earth dist. | 555 Jul 25 j 22:36 | 6° $\approx$ 38'07                | 38.31035 AU |
| retrograde       | 549 Apr 27 j 19:32 | 28° $\overline{3}$ 56'25             |  | opposition       | 555 Jul 29 j 00:56 | 6° $\approx$ 34'03                | -10°30'46   |
| min. Earth dist. | 549 Jul 16 j 07:40 | 27° $\overline{3}$ 49'39 36.78884 AU |  | direct           | 555 Oct 17 j 21:28 | 5° $\approx$ 25'46                |             |
| opposition       | 549 Jul 19 j 10:17 | 27° $\overline{3}$ 45'28 -8°12'56    |  | evening set      | 556 Jan 14 j 00:47 | 6° $\approx$ 55'37                |             |
| direct           | 549 Oct 08 j 06:26 | 26° $\overline{3}$ 35'32             |  |                  |                    |                                   |             |
| evening set      | 550 Jan 03 j 06:31 | 28° $\overline{3}$ 06'31             |  | conjunction      | 556 Jan 25 j 07:59 | 7° $\approx$ 15'03                | -10°09'28   |
|                  |                    |                                      |  | minimum elong    | 556 Jan 25 j 07:46 | 7° $\approx$ 15'02                | 10°09'27    |
| conjunction      | 550 Jan 16 j 04:59 | 28° $\overline{3}$ 29'36 -7°59'17    |  | max. Earth dist. | 556 Jan 28 j 10:29 | 7° $\approx$ 20'26                | 40.40275 AU |
| minimum elong    | 550 Jan 16 j 04:46 | 28° $\overline{3}$ 29'35 7°59'16     |  | morning rise     | 556 Feb 05 j 16:08 | 7° $\approx$ 34'34                |             |
| max. Earth dist. | 550 Jan 19 j 06:32 | 28° $\overline{3}$ 35'07 38.89830 AU |  | retrograde       | 556 May 07 j 14:01 | 9° $\approx$ 07'49                |             |
| morning rise     | 550 Jan 29 j 04:47 | 28° $\overline{3}$ 52'48             |  | min. Earth dist. | 556 Jul 26 j 14:06 | 8° $\approx$ 02'43                | 38.56017 AU |
|                  | 550 Mar 14 j 19:54 | 0° $\approx$                         |  | opposition       | 556 Jul 29 j 17:36 | 7° $\approx$ 58'35                | -10°51'25   |
| retrograde       | 550 Apr 29 j 12:46 | 0° $\approx$ 26'49                   |  | direct           | 556 Oct 18 j 16:40 | 6° $\approx$ 50'34                |             |
|                  | 550 Jun 15 j 22:28 | 30° $\overline{R}$ $\overline{3}$    |  | evening set      | 557 Jan 14 j 23:19 | 8° $\approx$ 20'20                |             |
| min. Earth dist. | 550 Jul 18 j 04:04 | 29° $\overline{3}$ 20'17 37.04700 AU |  |                  |                    |                                   |             |
| opposition       | 550 Jul 21 j 05:59 | 29° $\overline{3}$ 16'09 -8°37'34    |  | conjunction      | 557 Jan 25 j 23:06 | 8° $\approx$ 39'08                | -10°29'00   |
| direct           | 550 Oct 10 j 02:43 | 28° $\overline{3}$ 06'33             |  | minimum elong    | 557 Jan 25 j 22:53 | 8° $\approx$ 39'07                | 10°29'00    |
| evening set      | 551 Jan 05 j 05:58 | 29° $\overline{3}$ 37'16             |  | max. Earth dist. | 557 Jan 29 j 01:54 | 8° $\approx$ 44'30                | 40.65014 AU |
|                  |                    |                                      |  | morning rise     | 557 Feb 05 j 23:58 | 8° $\approx$ 58'00                |             |
| conjunction      | 551 Jan 17 j 22:36 | 29° $\overline{3}$ 59'47 -8°22'31    |  | retrograde       | 557 May 09 j 06:01 | 10° $\approx$ 31'15               |             |
| minimum elong    | 551 Jan 17 j 22:24 | 29° $\overline{3}$ 59'46 8°22'30     |  | min. Earth dist. | 557 Jul 28 j 06:51 | 9° $\approx$ 26'20                | 38.80955 AU |
|                  | 551 Jan 18 j 01:33 | 0° $\approx$                         |  | opposition       | 557 Jul 31 j 10:13 | 9° $\approx$ 22'15                | -11°11'25   |

|                  |                    |                     |             |                  |                    |                     |             |
|------------------|--------------------|---------------------|-------------|------------------|--------------------|---------------------|-------------|
| direct           | 557 Oct 20 j 08:47 | 8° $\approx$ 14'30  |             | minimum elong    | 564 Feb 05 j 01:11 | 18° $\approx$ 05'46 | 12°29'27    |
| evening set      | 558 Jan 16 j 21:35 | 9° $\approx$ 44'12  |             | max. Earth dist. | 564 Feb 08 j 03:00 | 18° $\approx$ 10'51 | 42.33676 AU |
|                  |                    |                     |             | morning rise     | 564 Feb 13 j 15:30 | 18° $\approx$ 19'55 |             |
| conjunction      | 558 Jan 27 j 13:53 | 10° $\approx$ 02'22 | -10°47'56   | retrograde       | 564 May 18 j 10:23 | 19° $\approx$ 53'37 |             |
| minimum elong    | 558 Jan 27 j 13:41 | 10° $\approx$ 02'21 | 10°47'55    | min. Earth dist. | 564 Aug 06 j 18:21 | 18° $\approx$ 50'10 | 40.50230 AU |
| max. Earth dist. | 558 Jan 30 j 17:33 | 10° $\approx$ 07'45 | 40.89702 AU | opposition       | 564 Aug 09 j 20:15 | 18° $\approx$ 46'16 | -13°14'16   |
| morning rise     | 558 Feb 07 j 06:59 | 10° $\approx$ 20'35 |             | direct           | 564 Oct 29 j 17:47 | 17° $\approx$ 40'17 |             |
| retrograde       | 558 May 10 j 20:42 | 11° $\approx$ 53'49 |             | evening set      | 565 Jan 28 j 10:18 | 19° $\approx$ 10'19 |             |
| min. Earth dist. | 558 Jul 29 j 22:56 | 10° $\approx$ 49'09 | 39.05802 AU |                  |                    |                     |             |
| opposition       | 558 Aug 02 j 02:23 | 10° $\approx$ 45'05 | -11°30'47   | conjunction      | 565 Feb 05 j 14:24 | 19° $\approx$ 23'42 | -12°44'30   |
| direct           | 558 Oct 22 j 01:03 | 9° $\approx$ 37'36  |             | minimum elong    | 565 Feb 05 j 14:12 | 19° $\approx$ 23'41 | 12°44'30    |
| evening set      | 559 Jan 18 j 20:02 | 11° $\approx$ 07'17 |             | max. Earth dist. | 565 Feb 08 j 16:37 | 19° $\approx$ 28'46 | 42.56575 AU |
|                  |                    |                     |             | morning rise     | 565 Feb 13 j 18:56 | 19° $\approx$ 37'07 |             |
| conjunction      | 559 Jan 29 j 04:23 | 11° $\approx$ 24'47 | -11°06'16   | retrograde       | 565 May 19 j 22:53 | 21° $\approx$ 10'57 |             |
| minimum elong    | 559 Jan 29 j 04:10 | 11° $\approx$ 24'46 | 11°06'16    | min. Earth dist. | 565 Aug 08 j 09:16 | 20° $\approx$ 07'38 | 40.73172 AU |
| max. Earth dist. | 559 Feb 01 j 07:19 | 11° $\approx$ 30'05 | 41.14283 AU | opposition       | 565 Aug 11 j 10:06 | 20° $\approx$ 03'48 | -13°29'33   |
| morning rise     | 559 Feb 08 j 13:43 | 11° $\approx$ 42'22 |             | direct           | 565 Oct 31 j 08:16 | 18° $\approx$ 58'01 |             |
| retrograde       | 559 May 12 j 13:52 | 13° $\approx$ 15'37 |             | evening set      | 566 Jan 30 j 08:42 | 20° $\approx$ 28'10 |             |
| min. Earth dist. | 559 Jul 31 j 14:07 | 12° $\approx$ 11'13 | 39.30535 AU |                  |                    |                     |             |
| opposition       | 559 Aug 03 j 18:07 | 12° $\approx$ 07'07 | -11°49'30   | conjunction      | 566 Feb 07 j 02:52 | 20° $\approx$ 40'50 | -12°59'01   |
| direct           | 559 Oct 23 j 14:34 | 10° $\approx$ 59'55 |             | minimum elong    | 566 Feb 07 j 02:42 | 20° $\approx$ 40'49 | 12°59'01    |
| evening set      | 560 Jan 20 j 18:19 | 12° $\approx$ 29'36 |             | max. Earth dist. | 566 Feb 10 j 03:55 | 20° $\approx$ 45'48 | 42.79189 AU |
|                  |                    |                     |             | morning rise     | 566 Feb 14 j 21:31 | 20° $\approx$ 53'30 |             |
| conjunction      | 560 Jan 30 j 18:44 | 12° $\approx$ 46'27 | -11°24'01   | retrograde       | 566 May 21 j 11:42 | 22° $\approx$ 27'30 |             |
| minimum elong    | 560 Jan 30 j 18:32 | 12° $\approx$ 46'26 | 11°24'00    | min. Earth dist. | 566 Aug 09 j 22:04 | 21° $\approx$ 24'23 | 40.95865 AU |
| max. Earth dist. | 560 Feb 02 j 22:45 | 12° $\approx$ 51'48 | 41.38710 AU | opposition       | 566 Aug 12 j 23:36 | 21° $\approx$ 20'32 | -13°44'16   |
| morning rise     | 560 Feb 09 j 19:55 | 13° $\approx$ 03'21 |             | direct           | 566 Nov 01 j 21:06 | 20° $\approx$ 14'57 |             |
| retrograde       | 560 May 13 j 04:06 | 14° $\approx$ 36'40 |             | evening set      | 567 Feb 01 j 07:11 | 21° $\approx$ 45'17 |             |
| min. Earth dist. | 560 Aug 01 j 06:40 | 13° $\approx$ 32'26 | 39.55073 AU |                  |                    |                     |             |
| opposition       | 560 Aug 04 j 09:36 | 13° $\approx$ 28'25 | -12°07'37   | conjunction      | 567 Feb 08 j 15:15 | 21° $\approx$ 57'11 | -13°13'00   |
| direct           | 560 Oct 24 j 06:15 | 12° $\approx$ 21'29 |             | minimum elong    | 567 Feb 08 j 15:04 | 21° $\approx$ 57'11 | 13°13'00    |
| evening set      | 561 Jan 21 j 16:40 | 13° $\approx$ 51'12 |             | max. Earth dist. | 567 Feb 11 j 16:58 | 22° $\approx$ 02'11 | 43.01571 AU |
|                  |                    |                     |             | morning rise     | 567 Feb 15 j 23:42 | 22° $\approx$ 09'06 |             |
| conjunction      | 561 Jan 31 j 08:40 | 14° $\approx$ 07'23 | -11°41'11   | retrograde       | 567 May 22 j 22:26 | 23° $\approx$ 43'19 |             |
| minimum elong    | 561 Jan 31 j 08:28 | 14° $\approx$ 07'22 | 11°41'12    | min. Earth dist. | 567 Aug 11 j 12:23 | 22° $\approx$ 40'19 | 41.18353 AU |
| max. Earth dist. | 561 Feb 03 j 11:41 | 14° $\approx$ 12'38 | 41.62921 AU | opposition       | 567 Aug 14 j 12:42 | 22° $\approx$ 36'32 | -13°58'25   |
| morning rise     | 561 Feb 10 j 01:25 | 14° $\approx$ 23'36 |             | direct           | 567 Nov 03 j 11:31 | 21° $\approx$ 31'09 |             |
|                  | 561 Mar 05 j 01:49 | 15° $\approx$       |             | evening set      | 568 Feb 03 j 06:00 | 23° $\approx$ 01'43 |             |
| retrograde       | 561 May 14 j 18:07 | 15° $\approx$ 56'59 |             |                  |                    |                     |             |
|                  | 561 Jul 28 j 09:58 | 15° $\approx$       |             | conjunction      | 568 Feb 10 j 03:23 | 23° $\approx$ 12'51 | -13°26'28   |
| min. Earth dist. | 561 Aug 02 j 21:02 | 14° $\approx$ 53'02 | 39.79360 AU | minimum elong    | 568 Feb 10 j 03:14 | 23° $\approx$ 12'50 | 13°26'28    |
| opposition       | 561 Aug 06 j 00:42 | 14° $\approx$ 49'00 | -12°25'08   | max. Earth dist. | 568 Feb 13 j 04:44 | 23° $\approx$ 17'47 | 43.23783 AU |
| direct           | 561 Oct 25 j 21:14 | 13° $\approx$ 42'19 |             | morning rise     | 568 Feb 17 j 01:03 | 23° $\approx$ 23'59 |             |
|                  | 562 Jan 16 j 05:32 | 15° $\approx$       |             | retrograde       | 568 May 23 j 08:42 | 24° $\approx$ 58'27 |             |
| evening set      | 562 Jan 23 j 15:01 | 15° $\approx$ 12'06 |             | min. Earth dist. | 568 Aug 12 j 00:28 | 23° $\approx$ 55'40 | 41.40662 AU |
|                  |                    |                     |             | opposition       | 568 Aug 15 j 01:26 | 23° $\approx$ 51'52 | -14°12'01   |
| conjunction      | 562 Feb 01 j 22:29 | 15° $\approx$ 27'36 | -11°57'49   | direct           | 568 Nov 04 j 01:56 | 22° $\approx$ 46'42 |             |
| minimum elong    | 562 Feb 01 j 22:17 | 15° $\approx$ 27'35 | 11°57'48    | evening set      | 569 Feb 04 j 04:47 | 24° $\approx$ 17'32 |             |
| max. Earth dist. | 562 Feb 05 j 01:33 | 15° $\approx$ 32'49 | 41.86844 AU |                  |                    |                     |             |
| morning rise     | 562 Feb 11 j 06:43 | 15° $\approx$ 43'08 |             | conjunction      | 569 Feb 10 j 15:02 | 24° $\approx$ 27'51 | -13°39'24   |
| retrograde       | 562 May 16 j 06:27 | 17° $\approx$ 16'37 |             | minimum elong    | 569 Feb 10 j 14:51 | 24° $\approx$ 27'50 | 13°39'24    |
| min. Earth dist. | 562 Aug 04 j 13:19 | 16° $\approx$ 12'48 | 40.03343 AU | max. Earth dist. | 569 Feb 13 j 15:55 | 24° $\approx$ 32'44 | 43.45822 AU |
| opposition       | 562 Aug 07 j 15:40 | 16° $\approx$ 08'51 | -12°42'04   | morning rise     | 569 Feb 17 j 01:34 | 24° $\approx$ 38'12 |             |
| direct           | 562 Oct 27 j 13:41 | 15° $\approx$ 02'25 |             | retrograde       | 569 May 24 j 21:33 | 26° $\approx$ 12'58 |             |
| evening set      | 563 Jan 25 j 13:26 | 16° $\approx$ 32'16 |             | min. Earth dist. | 569 Aug 13 j 13:36 | 25° $\approx$ 10'21 | 41.62814 AU |
|                  |                    |                     |             | opposition       | 569 Aug 16 j 14:08 | 25° $\approx$ 06'35 | -14°25'05   |
| conjunction      | 563 Feb 03 j 12:07 | 16° $\approx$ 47'04 | -12°13'54   | direct           | 569 Nov 05 j 14:18 | 24° $\approx$ 01'39 |             |
| minimum elong    | 563 Feb 03 j 11:55 | 16° $\approx$ 47'03 | 12°13'54    | evening set      | 570 Feb 06 j 04:09 | 25° $\approx$ 32'48 |             |
| max. Earth dist. | 563 Feb 06 j 14:57 | 16° $\approx$ 52'15 | 42.10446 AU |                  |                    |                     |             |
| morning rise     | 563 Feb 12 j 11:19 | 17° $\approx$ 01'55 |             | conjunction      | 570 Feb 12 j 02:43 | 25° $\approx$ 42'17 | -13°51'49   |
| retrograde       | 563 May 17 j 18:51 | 18° $\approx$ 35'30 |             | minimum elong    | 570 Feb 12 j 02:34 | 25° $\approx$ 42'17 | 13°51'49    |
| min. Earth dist. | 563 Aug 06 j 03:53 | 17° $\approx$ 31'53 | 40.26962 AU | max. Earth dist. | 570 Feb 15 j 04:25 | 25° $\approx$ 47'12 | 43.67707 AU |
| opposition       | 563 Aug 09 j 06:08 | 17° $\approx$ 27'57 | -12°58'27   | morning rise     | 570 Feb 18 j 01:26 | 25° $\approx$ 51'48 |             |
| direct           | 563 Oct 29 j 05:43 | 16° $\approx$ 21'45 |             | retrograde       | 570 May 26 j 10:30 | 27° $\approx$ 26'54 |             |
| evening set      | 564 Jan 27 j 11:56 | 17° $\approx$ 51'41 |             | min. Earth dist. | 570 Aug 15 j 02:22 | 26° $\approx$ 24'29 | 41.84780 AU |
|                  |                    |                     |             | opposition       | 570 Aug 18 j 02:25 | 26° $\approx$ 20'45 | -14°37'36   |
| conjunction      | 564 Feb 05 j 01:22 | 18° $\approx$ 05'47 | -12°29'28   | direct           | 570 Nov 07 j 01:34 | 25° $\approx$ 16'03 |             |

|                  |                    |                                 |                  |                    |                                |
|------------------|--------------------|---------------------------------|------------------|--------------------|--------------------------------|
| evening set      | 571 Feb 08 j 03:59 | 26° $\approx$ 47'34             | retrograde       | 577 Jun 03 j 16:30 | 5° $\times$ 50'46              |
|                  |                    |                                 | min. Earth dist. | 577 Aug 23 j 15:16 | 4° $\times$ 49'22 43.29458 AU  |
| conjunction      | 571 Feb 13 j 14:02 | 26° $\approx$ 56'12 -14°03'44   | opposition       | 577 Aug 26 j 10:02 | 4° $\times$ 45'59 -15°51'38    |
| minimum elong    | 571 Feb 13 j 13:52 | 26° $\approx$ 56'11 14°03'44    | direct           | 577 Nov 15 j 07:53 | 3° $\times$ 42'39              |
| max. Earth dist. | 571 Feb 16 j 14:27 | 27° $\approx$ 01'00 43.89401 AU |                  |                    |                                |
| morning rise     | 571 Feb 19 j 00:11 | 27° $\approx$ 04'50             | conjunction      | 578 Feb 21 j 16:48 | 5° $\times$ 19'33 -15°14'20    |
| retrograde       | 571 May 28 j 01:04 | 28° $\approx$ 40'21             | minimum elong    | 578 Feb 21 j 16:41 | 5° $\times$ 19'33 15°14'21     |
| min. Earth dist. | 571 Aug 16 j 14:00 | 27° $\approx$ 38'09 42.06537 AU | max. Earth dist. | 578 Feb 24 j 12:51 | 5° $\times$ 23'56 45.31641 AU  |
| opposition       | 571 Aug 19 j 14:29 | 27° $\approx$ 34'25 -14°49'36   | retrograde       | 578 Jun 05 j 01:57 | 7° $\times$ 00'31              |
| direct           | 571 Nov 08 j 10:32 | 26° $\approx$ 29'57             | min. Earth dist. | 578 Aug 25 j 01:15 | 5° $\times$ 59'15 43.48503 AU  |
| evening set      | 572 Feb 10 j 04:38 | 28° $\approx$ 01'55             | opposition       | 578 Aug 27 j 20:21 | 5° $\times$ 55'51 -16°00'25    |
|                  |                    |                                 | direct           | 578 Nov 16 j 17:43 | 4° $\times$ 52'40              |
| conjunction      | 572 Feb 15 j 01:17 | 28° $\approx$ 09'38 -14°15'09   |                  |                    |                                |
| minimum elong    | 572 Feb 15 j 01:09 | 28° $\approx$ 09'37 14°15'10    | conjunction      | 579 Feb 23 j 02:36 | 6° $\times$ 29'08 -15°22'43    |
| max. Earth dist. | 572 Feb 18 j 02:15 | 28° $\approx$ 14'26 44.10850 AU | minimum elong    | 579 Feb 23 j 02:31 | 6° $\times$ 29'07 15°22'43     |
| morning rise     | 572 Feb 19 j 21:59 | 28° $\approx$ 17'19             | max. Earth dist. | 579 Feb 25 j 22:16 | 6° $\times$ 33'27 45.50382 AU  |
| retrograde       | 572 May 28 j 10:50 | 29° $\approx$ 53'18             | retrograde       | 579 Jun 06 j 09:13 | 8° $\times$ 09'38              |
| min. Earth dist. | 572 Aug 17 j 03:24 | 28° $\approx$ 51'15 42.28015 AU | min. Earth dist. | 579 Aug 26 j 12:56 | 7° $\times$ 08'26 43.67238 AU  |
| opposition       | 572 Aug 20 j 02:15 | 28° $\approx$ 47'36 -15°01'05   | opposition       | 579 Aug 29 j 06:36 | 7° $\times$ 05'07 -16°08'45    |
| direct           | 572 Nov 08 j 23:01 | 27° $\approx$ 43'22             | direct           | 579 Nov 18 j 06:22 | 6° $\times$ 02'05              |
| evening set      | 573 Feb 11 j 06:33 | 29° $\approx$ 15'53             |                  |                    |                                |
| conjunction      | 573 Feb 15 j 12:20 | 29° $\approx$ 22'35 -14°26'06   | conjunction      | 580 Feb 24 j 12:19 | 7° $\times$ 38'06 -15°30'40    |
| minimum elong    | 573 Feb 15 j 12:12 | 29° $\approx$ 22'34 14°26'06    | minimum elong    | 580 Feb 24 j 12:13 | 7° $\times$ 38'05 15°30'40     |
| morning rise     | 573 Feb 19 j 18:06 | 29° $\approx$ 29'17             | max. Earth dist. | 580 Feb 27 j 07:57 | 7° $\times$ 42'25 45.68847 AU  |
| max. Earth dist. | 573 Feb 18 j 12:17 | 29° $\approx$ 27'19 44.32011 AU | retrograde       | 580 Jun 06 j 16:35 | 9° $\times$ 18'11              |
|                  | 573 Mar 11 j 18:35 | 0° $\times$                     | min. Earth dist. | 580 Aug 26 j 22:48 | 8° $\times$ 17'07 43.85693 AU  |
| retrograde       | 573 May 29 j 19:40 | 1° $\times$ 05'49               | opposition       | 580 Aug 29 j 16:20 | 8° $\times$ 13'48 -16°16'39    |
| min. Earth dist. | 573 Aug 18 j 14:40 | 0° $\times$ 03'59 42.49162 AU   | direct           | 580 Nov 18 j 18:37 | 7° $\times$ 10'55              |
| opposition       | 573 Aug 21 j 13:49 | 0° $\times$ 00'20 -15°12'06     |                  |                    |                                |
|                  | 573 Aug 21 j 20:10 | 30° $\times$                    | conjunction      | 581 Feb 24 j 21:40 | 8° $\times$ 46'31 -15°38'11    |
| direct           | 573 Nov 10 j 12:19 | 28° $\approx$ 56'18             | minimum elong    | 581 Feb 24 j 21:36 | 8° $\times$ 46'31 15°38'11     |
|                  | 574 Jan 25 j 04:03 | 0° $\times$                     | max. Earth dist. | 581 Feb 27 j 16:01 | 8° $\times$ 50'44 45.87058 AU  |
| evening set      | 574 Feb 13 j 10:10 | 0° $\times$ 29'30               | retrograde       | 581 Jun 08 j 04:03 | 10° $\times$ 26'13             |
| conjunction      | 574 Feb 16 j 23:06 | 0° $\times$ 35'04 -14°36'36     | min. Earth dist. | 581 Aug 28 j 08:47 | 9° $\times$ 25'16 44.03914 AU  |
| minimum elong    | 574 Feb 16 j 22:58 | 0° $\times$ 35'04 14°36'37      | opposition       | 581 Aug 31 j 02:07 | 9° $\times$ 21'59 -16°24'06    |
| morning rise     | 574 Feb 20 j 11:59 | 0° $\times$ 40'38               | direct           | 581 Nov 20 j 02:49 | 8° $\times$ 19'16              |
| max. Earth dist. | 574 Feb 19 j 22:23 | 0° $\times$ 39'45 44.52800 AU   |                  |                    |                                |
| retrograde       | 574 May 31 j 06:12 | 2° $\times$ 17'52               | conjunction      | 582 Feb 26 j 06:54 | 9° $\times$ 54'28 -15°45'17    |
| min. Earth dist. | 574 Aug 20 j 03:38 | 1° $\times$ 16'09 42.69916 AU   | minimum elong    | 582 Feb 26 j 06:49 | 9° $\times$ 54'28 15°45'17     |
| opposition       | 574 Aug 23 j 01:20 | 1° $\times$ 12'35 -15°22'38     | max. Earth dist. | 582 Mar 01 j 01:50 | 9° $\times$ 58'42 46.05033 AU  |
| direct           | 574 Nov 12 j 00:47 | 0° $\times$ 08'46               | retrograde       | 582 Jun 09 j 13:40 | 11° $\times$ 33'47             |
| evening set      | 575 Feb 15 j 17:34 | 1° $\times$ 42'52               | min. Earth dist. | 582 Aug 29 j 19:33 | 10° $\times$ 32'56 44.21872 AU |
|                  |                    |                                 | opposition       | 582 Sep 01 j 11:39 | 10° $\times$ 29'43 -16°31'06   |
| conjunction      | 575 Feb 18 j 09:59 | 1° $\times$ 47'04 -14°46'40     | direct           | 582 Nov 21 j 12:12 | 9° $\times$ 27'10              |
| minimum elong    | 575 Feb 18 j 09:52 | 1° $\times$ 47'03 14°46'39      |                  |                    |                                |
| morning rise     | 575 Feb 21 j 02:16 | 1° $\times$ 51'15               | conjunction      | 583 Feb 27 j 16:02 | 11° $\times$ 02'00 -15°51'58   |
| max. Earth dist. | 575 Feb 21 j 08:59 | 1° $\times$ 51'42 44.73175 AU   | minimum elong    | 583 Feb 27 j 15:59 | 11° $\times$ 02'00 15°51'58    |
| retrograde       | 575 Jun 01 j 16:02 | 3° $\times$ 29'25               | max. Earth dist. | 583 Mar 02 j 09:35 | 11° $\times$ 06'08 46.22755 AU |
| min. Earth dist. | 575 Aug 21 j 15:27 | 2° $\times$ 27'49 42.90210 AU   | retrograde       | 583 Jun 10 j 23:26 | 12° $\times$ 40'56             |
| opposition       | 575 Aug 24 j 12:20 | 2° $\times$ 24'18 -15°32'44     | min. Earth dist. | 583 Aug 31 j 04:25 | 11° $\times$ 40'17 44.39557 AU |
| direct           | 575 Nov 13 j 13:14 | 1° $\times$ 20'40               | opposition       | 583 Sep 02 j 20:47 | 11° $\times$ 37'04 -16°37'41   |
| evening set      | 576 Feb 18 j 10:30 | 2° $\times$ 56'18               | direct           | 583 Nov 22 j 19:46 | 10° $\times$ 34'41             |
| conjunction      | 576 Feb 19 j 20:30 | 2° $\times$ 58'30 -14°56'19     |                  |                    |                                |
| minimum elong    | 576 Feb 19 j 20:23 | 2° $\times$ 58'30 14°56'19      | conjunction      | 584 Feb 29 j 01:01 | 12° $\times$ 09'11 -15°58'15   |
| morning rise     | 576 Feb 21 j 06:19 | 3° $\times$ 00'42               | minimum elong    | 584 Feb 29 j 00:56 | 12° $\times$ 09'11 15°58'15    |
| max. Earth dist. | 576 Feb 22 j 17:36 | 3° $\times$ 02'59 44.93089 AU   | max. Earth dist. | 584 Mar 02 j 18:20 | 12° $\times$ 13'17 46.40175 AU |
| retrograde       | 576 Jun 02 j 05:24 | 4° $\times$ 40'24               | retrograde       | 584 Jun 11 j 07:38 | 13° $\times$ 47'46             |
| min. Earth dist. | 576 Aug 22 j 02:55 | 3° $\times$ 38'56 43.10053 AU   | min. Earth dist. | 584 Aug 31 j 15:21 | 12° $\times$ 47'11 44.56920 AU |
| opposition       | 576 Aug 24 j 23:18 | 3° $\times$ 35'27 -15°42'24     | opposition       | 584 Sep 03 j 06:00 | 12° $\times$ 44'04 -16°43'52   |
| direct           | 576 Nov 13 j 21:59 | 2° $\times$ 31'59               | direct           | 584 Nov 23 j 05:06 | 11° $\times$ 41'53             |
| conjunction      | 577 Feb 20 j 06:44 | 4° $\times$ 09'21 -15°05'32     |                  |                    |                                |
| minimum elong    | 577 Feb 20 j 06:38 | 4° $\times$ 09'21 15°05'32      | conjunction      | 585 Mar 01 j 09:48 | 13° $\times$ 16'02 -16°04'08   |
| max. Earth dist. | 577 Feb 23 j 04:09 | 4° $\times$ 13'50 45.12558 AU   | minimum elong    | 585 Mar 01 j 09:46 | 13° $\times$ 16'02 16°04'09    |
|                  |                    |                                 | max. Earth dist. | 585 Mar 04 j 02:38 | 13° $\times$ 20'05 46.57260 AU |
|                  |                    |                                 | retrograde       | 585 Jun 12 j 14:32 | 14° $\times$ 54'17             |
|                  |                    |                                 | min. Earth dist. | 585 Sep 02 j 00:31 | 13° $\times$ 53'52 44.73897 AU |
|                  |                    |                                 | opposition       | 585 Sep 04 j 14:56 | 13° $\times$ 50'46 -16°49'39   |

|                  |                    |                               |             |                  |                    |   |             |
|------------------|--------------------|-------------------------------|-------------|------------------|--------------------|---|-------------|
| direct           | 585 Nov 24 j 16:08 | 12° $\mathbf{\text{H}}$ 48'45 |             | minimum elong    | 594 Mar 11 j 11:18 | 23° $\mathbf{\text{H}}$ 00'57               | 16°41'27    |
|                  |                    |                               |             | max. Earth dist. | 594 Mar 13 j 20:10 | 23° $\mathbf{\text{H}}$ 04'24               | 47.91539 AU |
| conjunction      | 586 Mar 02 j 18:33 | 14° $\mathbf{\text{H}}$ 22'35 | -16°09'40   | retrograde       | 594 Jun 22 j 18:15 | 24° $\mathbf{\text{H}}$ 36'14               |             |
| minimum elong    | 586 Mar 02 j 18:29 | 14° $\mathbf{\text{H}}$ 22'35 | 16°09'39    | min. Earth dist. | 594 Sep 12 j 10:12 | 23° $\mathbf{\text{H}}$ 36'30               | 46.07068 AU |
| max. Earth dist. | 586 Mar 05 j 09:36 | 14° $\mathbf{\text{H}}$ 26'31 | 46.73931 AU | opposition       | 594 Sep 14 j 15:45 | 23° $\mathbf{\text{H}}$ 33'53               | -17°25'37   |
| retrograde       | 586 Jun 14 j 00:53 | 16° $\mathbf{\text{H}}$ 00'31 |             | direct           | 594 Dec 04 j 15:04 | 22° $\mathbf{\text{H}}$ 32'59               |             |
| min. Earth dist. | 586 Sep 03 j 10:37 | 15° $\mathbf{\text{H}}$ 00'12 | 44.90443 AU |                  |                    |   |             |
| opposition       | 586 Sep 05 j 23:47 | 14° $\mathbf{\text{H}}$ 57'10 | -16°55'04   | conjunction      | 595 Mar 12 j 18:46 | 24° $\mathbf{\text{H}}$ 03'58               | -16°43'51   |
| direct           | 586 Nov 26 j 00:37 | 13° $\mathbf{\text{H}}$ 55'20 |             | minimum elong    | 595 Mar 12 j 18:46 | 24° $\mathbf{\text{H}}$ 03'58               | 16°43'51    |
|                  |                    |                               |             | max. Earth dist. | 595 Mar 15 j 02:52 | 24° $\mathbf{\text{H}}$ 07'21               | 48.04802 AU |
| conjunction      | 587 Mar 04 j 03:22 | 15° $\mathbf{\text{H}}$ 28'49 | -16°14'50   | retrograde       | 595 Jun 23 j 23:05 | 25° $\mathbf{\text{H}}$ 38'58               |             |
| minimum elong    | 587 Mar 04 j 03:20 | 15° $\mathbf{\text{H}}$ 28'49 | 16°14'51    | min. Earth dist. | 595 Sep 13 j 17:11 | 24° $\mathbf{\text{H}}$ 39'21               | 46.20218 AU |
| max. Earth dist. | 587 Mar 06 j 18:24 | 15° $\mathbf{\text{H}}$ 32'44 | 46.90138 AU | opposition       | 595 Sep 15 j 22:56 | 24° $\mathbf{\text{H}}$ 36'44               | -17°27'48   |
| retrograde       | 587 Jun 15 j 10:59 | 17° $\mathbf{\text{H}}$ 06'25 |             | direct           | 595 Dec 05 j 23:27 | 23° $\mathbf{\text{H}}$ 35'58               |             |
| min. Earth dist. | 587 Sep 04 j 20:57 | 16° $\mathbf{\text{H}}$ 06'11 | 45.06479 AU |                  |                    |   |             |
| opposition       | 587 Sep 07 j 08:28 | 16° $\mathbf{\text{H}}$ 03'14 | -17°00'08   | conjunction      | 596 Mar 13 j 01:59 | 25° $\mathbf{\text{H}}$ 06'41               | -16°45'54   |
| direct           | 587 Nov 27 j 08:24 | 15° $\mathbf{\text{H}}$ 01'33 |             | minimum elong    | 596 Mar 13 j 02:01 | 25° $\mathbf{\text{H}}$ 06'41               | 16°45'54    |
|                  |                    |                               |             | max. Earth dist. | 596 Mar 15 j 08:47 | 25° $\mathbf{\text{H}}$ 09'59               | 48.17761 AU |
| conjunction      | 588 Mar 04 j 11:53 | 16° $\mathbf{\text{H}}$ 34'43 | -16°19'40   | retrograde       | 596 Jun 24 j 05:00 | 26° $\mathbf{\text{H}}$ 41'25               |             |
| minimum elong    | 588 Mar 04 j 11:50 | 16° $\mathbf{\text{H}}$ 34'42 | 16°19'40    | min. Earth dist. | 596 Sep 14 j 01:42 | 25° $\mathbf{\text{H}}$ 41'53               | 46.33056 AU |
| max. Earth dist. | 588 Mar 07 j 00:45 | 16° $\mathbf{\text{H}}$ 38'28 | 47.05839 AU | opposition       | 596 Sep 16 j 06:05 | 25° $\mathbf{\text{H}}$ 39'20               | -17°29'39   |
| retrograde       | 588 Jun 15 j 21:36 | 18° $\mathbf{\text{H}}$ 11'58 |             | direct           | 596 Dec 06 j 08:23 | 24° $\mathbf{\text{H}}$ 38'42               |             |
| min. Earth dist. | 588 Sep 05 j 05:32 | 17° $\mathbf{\text{H}}$ 11'51 | 45.22008 AU |                  |                    |   |             |
| opposition       | 588 Sep 07 j 16:52 | 17° $\mathbf{\text{H}}$ 08'55 | -17°04'51   | conjunction      | 597 Mar 14 j 09:18 | 26° $\mathbf{\text{H}}$ 09'09               | -16°47'38   |
| direct           | 588 Nov 27 j 14:23 | 16° $\mathbf{\text{H}}$ 07'21 |             | minimum elong    | 597 Mar 14 j 09:18 | 26° $\mathbf{\text{H}}$ 09'09               | 16°47'38    |
|                  |                    |                               |             | max. Earth dist. | 597 Mar 16 j 16:15 | 26° $\mathbf{\text{H}}$ 12'28               | 48.30393 AU |
| conjunction      | 589 Mar 05 j 20:14 | 17° $\mathbf{\text{H}}$ 40'11 | -16°24'10   | retrograde       | 597 Jun 25 j 11:48 | 27° $\mathbf{\text{H}}$ 43'38               |             |
| minimum elong    | 589 Mar 05 j 20:12 | 17° $\mathbf{\text{H}}$ 40'11 | 16°24'11    | min. Earth dist. | 597 Sep 15 j 09:47 | 26° $\mathbf{\text{H}}$ 44'11               | 46.45518 AU |
| max. Earth dist. | 589 Mar 08 j 08:32 | 17° $\mathbf{\text{H}}$ 43'54 | 47.21042 AU | opposition       | 597 Sep 17 j 13:04 | 26° $\mathbf{\text{H}}$ 41'41               | -17°31'10   |
| retrograde       | 589 Jun 17 j 03:30 | 19° $\mathbf{\text{H}}$ 17'06 |             | direct           | 597 Dec 07 j 16:58 | 25° $\mathbf{\text{H}}$ 41'11               |             |
| min. Earth dist. | 589 Sep 06 j 16:00 | 18° $\mathbf{\text{H}}$ 16'59 | 45.37058 AU |                  |                    |   |             |
| opposition       | 589 Sep 09 j 01:15 | 18° $\mathbf{\text{H}}$ 14'10 | -17°09'13   | conjunction      | 598 Mar 15 j 16:23 | 27° $\mathbf{\text{H}}$ 11'24               | -16°49'02   |
| direct           | 589 Nov 29 j 00:09 | 17° $\mathbf{\text{H}}$ 12'43 |             | minimum elong    | 598 Mar 15 j 16:26 | 27° $\mathbf{\text{H}}$ 11'24               | 16°49'02    |
|                  |                    |                               |             | max. Earth dist. | 598 Mar 17 j 21:17 | 27° $\mathbf{\text{H}}$ 14'34               | 48.42626 AU |
| conjunction      | 590 Mar 07 j 04:22 | 18° $\mathbf{\text{H}}$ 45'13 | -16°28'20   | retrograde       | 598 Jun 26 j 21:48 | 28° $\mathbf{\text{H}}$ 45'38               |             |
| minimum elong    | 590 Mar 07 j 04:21 | 18° $\mathbf{\text{H}}$ 45'13 | 16°28'19    | min. Earth dist. | 598 Sep 16 j 17:11 | 27° $\mathbf{\text{H}}$ 46'16               | 46.57550 AU |
| max. Earth dist. | 590 Mar 09 j 15:55 | 18° $\mathbf{\text{H}}$ 48'53 | 47.35811 AU | opposition       | 598 Sep 18 j 19:58 | 27° $\mathbf{\text{H}}$ 43'48               | -17°32'22   |
| retrograde       | 590 Jun 18 j 08:00 | 20° $\mathbf{\text{H}}$ 21'46 |             | direct           | 598 Dec 08 j 21:39 | 26° $\mathbf{\text{H}}$ 43'25               |             |
| min. Earth dist. | 590 Sep 08 j 00:10 | 19° $\mathbf{\text{H}}$ 21'46 | 45.51687 AU |                  |                    |   |             |
| opposition       | 590 Sep 10 j 09:16 | 19° $\mathbf{\text{H}}$ 18'57 | -17°13'13   | conjunction      | 599 Mar 16 j 23:40 | 28° $\mathbf{\text{H}}$ 13'24               | -16°50'10   |
| direct           | 590 Nov 30 j 11:04 | 18° $\mathbf{\text{H}}$ 17'36 |             | minimum elong    | 599 Mar 16 j 23:42 | 28° $\mathbf{\text{H}}$ 13'24               | 16°50'09    |
|                  |                    |                               |             | max. Earth dist. | 599 Mar 19 j 03:54 | 28° $\mathbf{\text{H}}$ 16'31               | 48.54385 AU |
| conjunction      | 591 Mar 08 j 12:20 | 19° $\mathbf{\text{H}}$ 49'47 | -16°32'09   | retrograde       | 599 Jun 28 j 04:59 | 29° $\mathbf{\text{H}}$ 47'22               |             |
| minimum elong    | 591 Mar 08 j 12:18 | 19° $\mathbf{\text{H}}$ 49'47 | 16°32'09    | min. Earth dist. | 599 Sep 18 j 02:12 | 28° $\mathbf{\text{H}}$ 48'01               | 46.69077 AU |
| max. Earth dist. | 591 Mar 10 j 22:25 | 19° $\mathbf{\text{H}}$ 53'20 | 47.50186 AU | opposition       | 599 Sep 20 j 02:41 | 28° $\mathbf{\text{H}}$ 45'40               | -17°33'17   |
| retrograde       | 591 Jun 19 j 16:08 | 21° $\mathbf{\text{H}}$ 26'00 |             | direct           | 599 Dec 10 j 03:47 | 27° $\mathbf{\text{H}}$ 45'23               |             |
| min. Earth dist. | 591 Sep 09 j 09:07 | 20° $\mathbf{\text{H}}$ 26'03 | 45.65967 AU |                  |                    |   |             |
| opposition       | 591 Sep 11 j 17:04 | 20° $\mathbf{\text{H}}$ 23'18 | -17°16'52   | conjunction      | 600 Mar 17 j 06:49 | 29° $\mathbf{\text{H}}$ 15'08               | -16°51'00   |
| direct           | 591 Dec 01 j 19:48 | 19° $\mathbf{\text{H}}$ 22'03 |             | minimum elong    | 600 Mar 17 j 06:52 | 29° $\mathbf{\text{H}}$ 15'08               | 16°51'00    |
|                  |                    |                               |             | max. Earth dist. | 600 Mar 19 j 09:41 | 29° $\mathbf{\text{H}}$ 18'09               | 48.65645 AU |
| conjunction      | 592 Mar 08 j 20:14 | 20° $\mathbf{\text{H}}$ 53'54 | -16°35'36   |                  | 600 Apr 19 j 00:20 | 0° $\mathbf{\text{Y}}$                      |             |
| minimum elong    | 592 Mar 08 j 20:14 | 20° $\mathbf{\text{H}}$ 53'54 | 16°35'36    | retrograde       | 600 Jun 28 j 10:07 | 0° $\mathbf{\text{Y}}$ 48'50                |             |
| max. Earth dist. | 592 Mar 11 j 06:36 | 20° $\mathbf{\text{H}}$ 57'28 | 47.64244 AU |                  | 600 Sep 09 j 07:03 | 30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$ |             |
| retrograde       | 592 Jun 19 j 23:29 | 22° $\mathbf{\text{H}}$ 29'48 |             | min. Earth dist. | 600 Sep 18 j 09:10 | 29° $\mathbf{\text{H}}$ 49'33               | 46.80083 AU |
| min. Earth dist. | 592 Sep 09 j 17:41 | 21° $\mathbf{\text{H}}$ 29'54 | 45.79932 AU | opposition       | 600 Sep 20 j 09:19 | 29° $\mathbf{\text{H}}$ 47'14               | -17°33'54   |
| opposition       | 592 Sep 12 j 00:45 | 21° $\mathbf{\text{H}}$ 27'12 | -17°20'10   | direct           | 600 Dec 10 j 11:10 | 28° $\mathbf{\text{H}}$ 47'02               |             |
| direct           | 592 Dec 02 j 04:39 | 20° $\mathbf{\text{H}}$ 26'05 |             |                  | 601 Mar 06 j 21:42 | 0° $\mathbf{\text{Y}}$                      |             |
|                  |                    |                               |             |                  |                    |   |             |
| conjunction      | 593 Mar 10 j 03:43 | 21° $\mathbf{\text{H}}$ 57'37 | -16°38'42   | conjunction      | 601 Mar 18 j 13:34 | 0° $\mathbf{\text{Y}}$ 16'32                | -16°51'34   |
| minimum elong    | 593 Mar 10 j 03:42 | 21° $\mathbf{\text{H}}$ 57'36 | 16°38'42    | minimum elong    | 601 Mar 18 j 13:37 | 0° $\mathbf{\text{Y}}$ 16'32                | 16°51'33    |
| max. Earth dist. | 593 Mar 12 j 12:31 | 22° $\mathbf{\text{H}}$ 01'04 | 47.78023 AU | max. Earth dist. | 601 Mar 20 j 14:41 | 0° $\mathbf{\text{Y}}$ 19'27                | 48.76386 AU |
| retrograde       | 593 Jun 21 j 09:47 | 23° $\mathbf{\text{H}}$ 33'12 |             | retrograde       | 601 Jun 29 j 15:55 | 1° $\mathbf{\text{Y}}$ 49'59                |             |
| min. Earth dist. | 593 Sep 11 j 01:09 | 22° $\mathbf{\text{H}}$ 33'25 | 45.93633 AU | min. Earth dist. | 601 Sep 19 j 17:34 | 0° $\mathbf{\text{Y}}$ 50'42                | 46.90596 AU |
| opposition       | 593 Sep 13 j 08:20 | 22° $\mathbf{\text{H}}$ 30'43 | -17°23'04   | opposition       | 601 Sep 21 j 15:59 | 0° $\mathbf{\text{Y}}$ 48'28                | -17°34'15   |
| direct           | 593 Dec 03 j 09:13 | 21° $\mathbf{\text{H}}$ 29'42 |             |                  | 601 Nov 09 j 05:30 | 30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$ |             |
|                  |                    |                               |             | direct           | 601 Dec 11 j 18:58 | 29° $\mathbf{\text{H}}$ 48'21               |             |
| conjunction      | 594 Mar 11 j 11:16 | 23° $\mathbf{\text{H}}$ 00'57 | -16°41'27   |                  |                    |   |             |