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|------------------|-------------------|--------------------------------------|------------------|-------------------|--------------------------------------|
| opposition | 8100 Feb 21 17:02 | 4° \mathring{M} 41'31 -11°00'27 | conjunction | 8106 Aug 27 15:54 | 10° \mathring{M} 58'22 -9°08'04 |
| min. Earth dist. | 8100 Feb 22 00:26 | 4° \mathring{M} 41'10 47.02919 AU | minimum elong | 8106 Aug 27 16:05 | 10° \mathring{M} 58'23 9°08'07 |
| direct | 8100 May 14 11:10 | 3° \mathring{M} 42'30 | max. Earth dist. | 8106 Aug 27 01:45 | 10° \mathring{M} 57'33 48.24137 AU |
| evening set | 8100 Aug 09 20:05 | 4° \mathring{M} 53'47 | morning rise | 8106 Sep 09 08:01 | 11° \mathring{M} 15'51 |
| | | | retrograde | 8106 Dec 08 02:52 | 12° \mathring{M} 29'05 |
| conjunction | 8100 Aug 21 04:57 | 5° \mathring{M} 09'19 -10°27'30 | opposition | 8107 Mar 01 04:27 | 11° \mathring{M} 28'56 -9°24'18 |
| minimum elong | 8100 Aug 21 05:08 | 5° \mathring{M} 09'19 10°27'34 | min. Earth dist. | 8107 Mar 01 18:30 | 11° \mathring{M} 28'15 46.20318 AU |
| max. Earth dist. | 8100 Aug 20 19:31 | 5° \mathring{M} 08'46 48.94172 AU | direct | 8107 May 21 19:16 | 10° \mathring{M} 29'14 |
| morning rise | 8100 Sep 01 15:35 | 5° \mathring{M} 24'57 | evening set | 8107 Aug 16 03:10 | 11° \mathring{M} 39'47 |
| retrograde | 8100 Dec 01 14:31 | 6° \mathring{M} 38'59 | | | |
| opposition | 8101 Feb 22 21:55 | 5° \mathring{M} 39'18 -10°47'26 | conjunction | 8107 Aug 28 22:06 | 11° \mathring{M} 57'26 -8°54'00 |
| min. Earth dist. | 8101 Feb 23 06:51 | 5° \mathring{M} 38'53 46.92132 AU | minimum elong | 8107 Aug 28 22:17 | 11° \mathring{M} 57'27 8°54'04 |
| direct | 8101 May 15 14:55 | 4° \mathring{M} 40'10 | max. Earth dist. | 8107 Aug 28 06:35 | 11° \mathring{M} 56'33 48.11411 AU |
| evening set | 8101 Aug 10 20:29 | 5° \mathring{M} 51'17 | morning rise | 8107 Sep 10 18:50 | 12° \mathring{M} 15'13 |
| | | | retrograde | 8107 Dec 09 11:12 | 13° \mathring{M} 28'23 |
| conjunction | 8101 Aug 22 10:41 | 6° \mathring{M} 07'08 -10°14'50 | opposition | 8108 Mar 01 09:47 | 12° \mathring{M} 28'10 -9°09'34 |
| minimum elong | 8101 Aug 22 10:53 | 6° \mathring{M} 07'09 10°14'54 | min. Earth dist. | 8108 Mar 02 00:17 | 12° \mathring{M} 27'29 46.07268 AU |
| max. Earth dist. | 8101 Aug 22 01:04 | 6° \mathring{M} 06'35 48.83312 AU | direct | 8108 May 21 21:58 | 11° \mathring{M} 28'24 |
| morning rise | 8101 Sep 03 02:24 | 6° \mathring{M} 23'05 | evening set | 8108 Aug 16 05:02 | 12° \mathring{M} 38'56 |
| retrograde | 8101 Dec 02 21:15 | 7° \mathring{M} 36'56 | max. Earth dist. | 8108 Aug 28 11:25 | 12° \mathring{M} 55'54 47.98281 AU |
| opposition | 8102 Feb 24 02:52 | 6° \mathring{M} 37'10 -10°34'12 | | | |
| min. Earth dist. | 8102 Feb 24 12:56 | 6° \mathring{M} 36'41 46.80937 AU | conjunction | 8108 Aug 29 04:24 | 12° \mathring{M} 56'53 -8°39'42 |
| direct | 8102 May 16 19:00 | 5° \mathring{M} 37'55 | minimum elong | 8108 Aug 29 04:34 | 12° \mathring{M} 56'54 8°39'44 |
| evening set | 8102 Aug 11 21:09 | 6° \mathring{M} 48'53 | morning rise | 8108 Sep 11 05:36 | 13° \mathring{M} 14'58 |
| | | | retrograde | 8108 Dec 09 17:01 | 14° \mathring{M} 28'06 |
| conjunction | 8102 Aug 23 16:19 | 7° \mathring{M} 05'02 -10°01'58 | opposition | 8109 Mar 02 15:23 | 13° \mathring{M} 27'48 -8°54'36 |
| minimum elong | 8102 Aug 23 16:29 | 7° \mathring{M} 05'03 10°02'01 | min. Earth dist. | 8109 Mar 03 08:02 | 13° \mathring{M} 27'00 45.93788 AU |
| max. Earth dist. | 8102 Aug 23 05:22 | 7° \mathring{M} 04'24 48.72088 AU | direct | 8109 May 23 03:20 | 12° \mathring{M} 27'57 |
| morning rise | 8102 Sep 04 13:09 | 7° \mathring{M} 21'17 | evening set | 8109 Aug 17 07:13 | 13° \mathring{M} 38'27 |
| retrograde | 8102 Dec 04 03:03 | 8° \mathring{M} 34'58 | | | |
| opposition | 8103 Feb 25 07:49 | 7° \mathring{M} 35'06 -10°20'43 | conjunction | 8109 Aug 30 10:59 | 13° \mathring{M} 56'42 -8°25'11 |
| min. Earth dist. | 8103 Feb 25 18:05 | 7° \mathring{M} 34'37 46.69402 AU | minimum elong | 8109 Aug 30 11:10 | 13° \mathring{M} 56'43 8°25'14 |
| direct | 8103 May 17 22:34 | 6° \mathring{M} 35'45 | max. Earth dist. | 8109 Aug 29 17:26 | 13° \mathring{M} 55'41 47.84704 AU |
| evening set | 8103 Aug 12 21:59 | 7° \mathring{M} 46'36 | morning rise | 8109 Sep 12 16:24 | 14° \mathring{M} 15'04 |
| | | | retrograde | 8109 Dec 10 20:46 | 15° \mathring{M} 28'10 |
| conjunction | 8103 Aug 24 22:07 | 8° \mathring{M} 03'03 -9°48'51 | opposition | 8110 Mar 03 20:57 | 14° \mathring{M} 27'47 -8°39'25 |
| minimum elong | 8103 Aug 24 22:19 | 8° \mathring{M} 03'04 9°48'54 | min. Earth dist. | 8110 Mar 04 13:57 | 14° \mathring{M} 26'58 45.79827 AU |
| max. Earth dist. | 8103 Aug 24 09:51 | 8° \mathring{M} 02'21 48.60523 AU | direct | 8110 May 24 11:48 | 13° \mathring{M} 27'49 |
| morning rise | 8103 Sep 06 00:01 | 8° \mathring{M} 19'37 | evening set | 8110 Aug 18 09:43 | 14° \mathring{M} 38'19 |
| retrograde | 8103 Dec 05 07:02 | 9° \mathring{M} 33'08 | | | |
| opposition | 8104 Feb 26 12:49 | 8° \mathring{M} 33'11 -10°06'59 | conjunction | 8110 Aug 31 17:35 | 14° \mathring{M} 56'51 -8°10'27 |
| min. Earth dist. | 8104 Feb 27 00:50 | 8° \mathring{M} 32'37 46.57554 AU | minimum elong | 8110 Aug 31 17:45 | 14° \mathring{M} 56'51 8°10'29 |
| direct | 8104 May 18 04:58 | 7° \mathring{M} 33'45 | max. Earth dist. | 8110 Aug 30 21:31 | 14° \mathring{M} 55'40 47.70625 AU |
| evening set | 8104 Aug 12 22:59 | 8° \mathring{M} 44'29 | morning rise | 8110 Sep 14 03:24 | 15° \mathring{M} 15'30 |
| | | | retrograde | 8110 Dec 12 04:56 | 16° \mathring{M} 28'34 |
| conjunction | 8104 Aug 25 04:03 | 9° \mathring{M} 01'14 -9°35'30 | opposition | 8111 Mar 05 02:48 | 15° \mathring{M} 28'05 -8°23'59 |
| minimum elong | 8104 Aug 25 04:13 | 9° \mathring{M} 01'15 9°35'33 | min. Earth dist. | 8111 Mar 05 21:36 | 15° \mathring{M} 27'10 45.65362 AU |
| max. Earth dist. | 8104 Aug 24 15:47 | 9° \mathring{M} 00'32 48.48674 AU | direct | 8111 May 25 17:05 | 14° \mathring{M} 27'59 |
| morning rise | 8104 Sep 06 10:39 | 9° \mathring{M} 18'06 | evening set | 8111 Aug 19 12:22 | 15° \mathring{M} 38'27 |
| retrograde | 8104 Dec 05 11:07 | 10° \mathring{M} 31'31 | max. Earth dist. | 8111 Sep 01 03:54 | 15° \mathring{M} 56'04 47.56035 AU |
| opposition | 8105 Feb 26 17:54 | 9° \mathring{M} 31'29 -9°53'00 | | | |
| min. Earth dist. | 8105 Feb 27 05:45 | 9° \mathring{M} 30'55 46.45423 AU | conjunction | 8111 Sep 02 00:30 | 15° \mathring{M} 57'17 -7°55'29 |
| direct | 8105 May 19 12:00 | 8° \mathring{M} 31'57 | minimum elong | 8111 Sep 02 00:39 | 15° \mathring{M} 57'17 7°55'32 |
| evening set | 8105 Aug 14 00:04 | 9° \mathring{M} 42'36 | morning rise | 8111 Sep 15 14:16 | 16° \mathring{M} 16'13 |
| | | | retrograde | 8111 Dec 13 13:09 | 17° \mathring{M} 29'15 |
| conjunction | 8105 Aug 26 09:45 | 9° \mathring{M} 59'39 -9°21'54 | opposition | 8112 Mar 05 08:33 | 16° \mathring{M} 28'38 -8°08'20 |
| minimum elong | 8105 Aug 26 09:56 | 9° \mathring{M} 59'40 9°21'58 | min. Earth dist. | 8112 Mar 06 04:37 | 16° \mathring{M} 27'39 45.50399 AU |
| max. Earth dist. | 8105 Aug 25 19:40 | 9° \mathring{M} 58'51 48.36549 AU | direct | 8112 May 25 21:30 | 15° \mathring{M} 28'23 |
| morning rise | 8105 Sep 07 21:18 | 10° \mathring{M} 16'50 | evening set | 8112 Aug 19 15:17 | 16° \mathring{M} 38'51 |
| retrograde | 8105 Dec 06 19:12 | 11° \mathring{M} 30'09 | max. Earth dist. | 8112 Sep 01 09:03 | 16° \mathring{M} 56'38 47.40990 AU |
| opposition | 8106 Feb 27 23:13 | 10° \mathring{M} 30'03 -9°38'46 | | | |
| min. Earth dist. | 8106 Feb 28 12:20 | 10° \mathring{M} 29'25 46.33025 AU | conjunction | 8112 Sep 02 07:18 | 16° \mathring{M} 57'57 -7°40'18 |
| direct | 8106 May 20 15:32 | 9° \mathring{M} 30'26 | minimum elong | 8112 Sep 02 07:28 | 16° \mathring{M} 57'57 7°40'20 |
| evening set | 8106 Aug 15 01:25 | 10° \mathring{M} 41'00 | morning rise | 8112 Sep 16 01:09 | 17° \mathring{M} 17'09 |
| | | | retrograde | 8112 Dec 13 21:57 | 18° \mathring{M} 30'09 |

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| opposition | 8113 Mar 06 14:25 | 17° \mathring{M} 29'24 -7°52'26 | minimum elong | 8119 Sep 10 10:56 | 24° \mathring{M} 10'07 5°47'14 |
| min. Earth dist. | 8113 Mar 07 11:01 | 17° \mathring{M} 28'24 45.35014 AU | morning rise | 8119 Sep 25 05:18 | 24° \mathring{M} 31'12 |
| direct | 8113 May 27 00:52 | 16° \mathring{M} 29'00 | retrograde | 8119 Dec 22 00:18 | 25° \mathring{M} 44'28 |
| evening set | 8113 Aug 20 18:12 | 17° \mathring{M} 39'28 | opposition | 8120 Mar 13 11:09 | 24° \mathring{M} 42'43 -5°53'54 |
| | | | min. Earth dist. | 8120 Mar 14 13:26 | 24° \mathring{M} 41'25 44.18943 AU |
| conjunction | 8113 Sep 03 14:07 | 17° \mathring{M} 58'50 -7°24'53 | direct | 8120 Jun 02 21:55 | 23° \mathring{M} 41'11 |
| minimum elong | 8113 Sep 03 14:17 | 17° \mathring{M} 58'51 7°24'55 | evening set | 8120 Aug 26 23:04 | 24° \mathring{M} 52'15 |
| max. Earth dist. | 8113 Sep 02 14:30 | 17° \mathring{M} 57'27 47.25528 AU | | | |
| morning rise | 8113 Sep 17 11:53 | 18° \mathring{M} 18'19 | conjunction | 8120 Sep 10 18:52 | 25° \mathring{M} 13'28 -5°30'05 |
| retrograde | 8113 Dec 15 03:35 | 19° \mathring{M} 31'18 | minimum elong | 8120 Sep 10 18:59 | 25° \mathring{M} 13'28 5°30'06 |
| opposition | 8114 Mar 07 20:33 | 18° \mathring{M} 30'23 -7°36'17 | max. Earth dist. | 8120 Sep 09 12:27 | 25° \mathring{M} 11'38 46.09278 AU |
| min. Earth dist. | 8114 Mar 08 18:57 | 18° \mathring{M} 29'18 45.19250 AU | morning rise | 8120 Sep 25 16:32 | 25° \mathring{M} 34'48 |
| direct | 8114 May 28 08:01 | 17° \mathring{M} 29'49 | retrograde | 8120 Dec 22 08:16 | 26° \mathring{M} 48'13 |
| evening set | 8114 Aug 21 21:29 | 18° \mathring{M} 40'19 | opposition | 8121 Mar 14 18:18 | 25° \mathring{M} 46'19 -5°35'55 |
| | | | min. Earth dist. | 8121 Mar 15 22:27 | 25° \mathring{M} 44'56 44.01199 AU |
| conjunction | 8114 Sep 04 21:16 | 18° \mathring{M} 59'57 -7°09'14 | direct | 8121 Jun 04 05:04 | 24° \mathring{M} 44'39 |
| minimum elong | 8114 Sep 04 21:26 | 18° \mathring{M} 59'57 7°09'16 | evening set | 8121 Aug 28 04:20 | 25° \mathring{M} 55'52 |
| max. Earth dist. | 8114 Sep 03 21:32 | 18° \mathring{M} 58'33 47.09727 AU | max. Earth dist. | 8121 Sep 10 20:32 | 26° \mathring{M} 15'29 45.91415 AU |
| morning rise | 8114 Sep 18 22:42 | 19° \mathring{M} 19'42 | | | |
| retrograde | 8114 Dec 16 07:30 | 20° \mathring{M} 32'40 | conjunction | 8121 Sep 12 03:13 | 26° \mathring{M} 17'21 -5°12'42 |
| opposition | 8115 Mar 09 02:29 | 19° \mathring{M} 31'36 -7°19'53 | minimum elong | 8121 Sep 12 03:20 | 26° \mathring{M} 17'21 5°12'42 |
| min. Earth dist. | 8115 Mar 10 00:51 | 19° \mathring{M} 30'31 45.03169 AU | morning rise | 8121 Sep 27 03:36 | 26° \mathring{M} 38'56 |
| direct | 8115 May 29 16:38 | 18° \mathring{M} 30'51 | retrograde | 8121 Dec 23 16:47 | 27° \mathring{M} 52'30 |
| evening set | 8115 Aug 23 01:09 | 19° \mathring{M} 41'23 | opposition | 8122 Mar 16 01:39 | 26° \mathring{M} 50'28 -5°17'40 |
| max. Earth dist. | 8115 Sep 05 02:40 | 19° \mathring{M} 59'46 46.93624 AU | min. Earth dist. | 8122 Mar 17 06:45 | 26° \mathring{M} 49'01 43.83004 AU |
| | | | direct | 8122 Jun 05 12:00 | 25° \mathring{M} 48'37 |
| conjunction | 8115 Sep 06 04:26 | 20° \mathring{M} 01'18 -6°53'20 | evening set | 8122 Aug 29 10:16 | 27° \mathring{M} 00'02 |
| minimum elong | 8115 Sep 06 04:35 | 20° \mathring{M} 01'18 6°53'22 | max. Earth dist. | 8122 Sep 12 03:03 | 27° \mathring{M} 19'46 45.73093 AU |
| morning rise | 8115 Sep 20 09:41 | 20° \mathring{M} 21'19 | | | |
| retrograde | 8115 Dec 17 15:14 | 21° \mathring{M} 34'18 | conjunction | 8122 Sep 13 11:49 | 27° \mathring{M} 21'45 -4°55'04 |
| opposition | 8116 Mar 09 08:47 | 20° \mathring{M} 33'05 -7°03'13 | minimum elong | 8122 Sep 13 11:56 | 27° \mathring{M} 21'45 4°55'06 |
| min. Earth dist. | 8116 Mar 10 08:37 | 20° \mathring{M} 31'56 44.86820 AU | morning rise | 8122 Sep 28 15:07 | 27° \mathring{M} 43'35 |
| direct | 8116 May 29 22:37 | 19° \mathring{M} 32'11 | retrograde | 8122 Dec 25 04:03 | 28° \mathring{M} 57'18 |
| evening set | 8116 Aug 23 04:46 | 20° \mathring{M} 42'46 | opposition | 8123 Mar 17 09:00 | 27° \mathring{M} 55'07 -4°59'11 |
| max. Earth dist. | 8116 Sep 05 10:04 | 21° \mathring{M} 01'24 46.77257 AU | min. Earth dist. | 8123 Mar 18 15:08 | 27° \mathring{M} 53'37 43.64346 AU |
| | | | direct | 8123 Jun 06 16:34 | 26° \mathring{M} 53'04 |
| conjunction | 8116 Sep 06 11:45 | 21° \mathring{M} 02'56 -6°37'11 | evening set | 8123 Aug 30 16:27 | 28° \mathring{M} 04'41 |
| minimum elong | 8116 Sep 06 11:54 | 21° \mathring{M} 02'56 6°37'13 | max. Earth dist. | 8123 Sep 13 10:25 | 28° \mathring{M} 24'34 45.54284 AU |
| morning rise | 8116 Sep 20 20:20 | 21° \mathring{M} 23'14 | | | |
| retrograde | 8116 Dec 17 22:33 | 22° \mathring{M} 36'15 | conjunction | 8123 Sep 14 20:43 | 28° \mathring{M} 26'39 -4°37'13 |
| opposition | 8117 Mar 10 15:11 | 21° \mathring{M} 34'53 -6°46'17 | minimum elong | 8123 Sep 14 20:50 | 28° \mathring{M} 26'39 4°37'13 |
| min. Earth dist. | 8117 Mar 11 15:28 | 21° \mathring{M} 33'42 44.70217 AU | morning rise | 8123 Sep 30 02:34 | 28° \mathring{M} 48'44 |
| direct | 8117 May 31 05:09 | 20° \mathring{M} 33'49 | | 8123 Dec 11 07:18 | 0° \mathring{A} |
| evening set | 8117 Aug 24 08:53 | 21° \mathring{M} 44'28 | retrograde | 8123 Dec 26 13:25 | 0° \mathring{A} 02'37 |
| | | | | 8124 Jan 10 18:31 | 30° \mathring{R} \mathring{M} |
| conjunction | 8117 Sep 07 19:10 | 22° \mathring{M} 04'54 -6°20'47 | opposition | 8124 Mar 17 16:45 | 29° \mathring{M} 00'14 -4°40'26 |
| minimum elong | 8117 Sep 07 19:18 | 22° \mathring{M} 04'55 6°20'48 | min. Earth dist. | 8124 Mar 19 00:47 | 28° \mathring{M} 58'38 43.45216 AU |
| max. Earth dist. | 8117 Sep 06 16:15 | 22° \mathring{M} 03'18 46.60668 AU | direct | 8124 Jun 06 23:56 | 27° \mathring{M} 58'00 |
| morning rise | 8117 Sep 22 07:17 | 22° \mathring{M} 25'28 | evening set | 8124 Aug 30 22:47 | 29° \mathring{M} 09'49 |
| retrograde | 8117 Dec 19 09:16 | 23° \mathring{M} 38'33 | max. Earth dist. | 8124 Sep 13 18:44 | 29° \mathring{M} 29'53 45.35037 AU |
| opposition | 8118 Mar 11 21:39 | 22° \mathring{M} 37'03 -6°29'05 | | | |
| min. Earth dist. | 8118 Mar 12 22:12 | 22° \mathring{M} 35'50 44.53399 AU | conjunction | 8124 Sep 15 05:36 | 29° \mathring{M} 32'01 -4°19'07 |
| direct | 8118 Jun 01 08:15 | 21° \mathring{M} 35'49 | minimum elong | 8124 Sep 15 05:42 | 29° \mathring{M} 32'02 4°19'07 |
| evening set | 8118 Aug 25 13:11 | 22° \mathring{M} 46'35 | morning rise | 8124 Sep 30 13:54 | 29° \mathring{M} 54'20 |
| max. Earth dist. | 8118 Sep 07 22:54 | 23° \mathring{M} 05'37 46.43832 AU | | 8124 Oct 04 13:52 | 0° \mathring{A} |
| | | | retrograde | 8124 Dec 26 21:13 | 1° \mathring{A} 08'24 |
| conjunction | 8118 Sep 09 02:51 | 23° \mathring{M} 07'17 -6°04'08 | opposition | 8125 Mar 19 00:29 | 0° \mathring{A} 05'50 -4°21'26 |
| minimum elong | 8118 Sep 09 02:59 | 23° \mathring{M} 07'17 6°04'10 | min. Earth dist. | 8125 Mar 20 08:40 | 0° \mathring{A} 04'13 43.25674 AU |
| morning rise | 8118 Sep 23 18:16 | 23° \mathring{M} 28'06 | | 8125 Mar 23 20:59 | 30° \mathring{R} \mathring{M} |
| retrograde | 8118 Dec 20 18:35 | 24° \mathring{M} 41'16 | direct | 8125 Jun 08 09:18 | 29° \mathring{M} 03'23 |
| opposition | 8119 Mar 13 04:28 | 23° \mathring{M} 39'38 -6°11'37 | | 8125 Aug 21 03:53 | 0° \mathring{A} |
| min. Earth dist. | 8119 Mar 14 06:44 | 23° \mathring{M} 38'20 44.36321 AU | evening set | 8125 Sep 01 05:37 | 0° \mathring{A} 15'26 |
| direct | 8119 Jun 02 13:17 | 22° \mathring{M} 38'15 | max. Earth dist. | 8125 Sep 15 01:37 | 0° \mathring{A} 35'35 45.15392 AU |
| evening set | 8119 Aug 26 17:54 | 23° \mathring{M} 49'10 | | | |
| max. Earth dist. | 8119 Sep 09 06:34 | 24° \mathring{M} 08'25 46.26727 AU | conjunction | 8125 Sep 16 14:41 | 0° \mathring{A} 37'52 -4°00'46 |
| | | | minimum elong | 8125 Sep 16 14:47 | 0° \mathring{A} 37'52 4°00'46 |
| conjunction | 8119 Sep 10 10:48 | 24° \mathring{M} 10'07 -5°47'14 | morning rise | 8125 Oct 02 01:27 | 1° \mathring{A} 00'25 |

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| retrograde | 8125 Dec 28 06:05 | 2° <u>♁</u> 14'41 | conjunction | 8132 Sep 24 13:05 | 8° <u>♁</u> 34'31 -1°45'21 |
| opposition | 8126 Mar 20 08:29 | 1° <u>♁</u> 11'55 -4°02'10 | minimum elong | 8132 Sep 24 13:08 | 8° <u>♁</u> 34'31 1°45'19 |
| min. Earth dist. | 8126 Mar 21 18:34 | 1° <u>♁</u> 10'12 43.05778 AU | morning rise | 8132 Oct 10 11:43 | 8° <u>♁</u> 58'35 |
| direct | 8126 Jun 09 17:28 | 0° <u>♁</u> 09'14 | retrograde | 8133 Jan 05 07:16 | 10° <u>♁</u> 14'56 |
| evening set | 8126 Sep 02 12:37 | 1° <u>♁</u> 21'31 | opposition | 8133 Mar 27 22:28 | 9° <u>♁</u> 10'46 -1°39'43 |
| max. Earth dist. | 8126 Sep 16 10:58 | 1° <u>♁</u> 41'54 44.95412 AU | min. Earth dist. | 8133 Mar 29 13:55 | 9° <u>♁</u> 08'43 41.59547 AU |
| | | | direct | 8133 Jun 17 02:57 | 8° <u>♁</u> 06'30 |
| conjunction | 8126 Sep 18 00:06 | 1° <u>♁</u> 44'11 -3°42'11 | evening set | 8133 Sep 10 01:59 | 9° <u>♁</u> 21'15 |
| minimum elong | 8126 Sep 18 00:12 | 1° <u>♁</u> 44'11 3°42'10 | max. Earth dist. | 8133 Sep 24 04:07 | 9° <u>♁</u> 42'35 43.48677 AU |
| morning rise | 8126 Oct 03 12:54 | 2° <u>♁</u> 06'59 | | | |
| retrograde | 8126 Dec 29 13:50 | 3° <u>♁</u> 21'27 | conjunction | 8133 Sep 26 00:28 | 9° <u>♁</u> 45'24 -1°25'01 |
| opposition | 8127 Mar 21 16:38 | 2° <u>♁</u> 18'29 -3°42'38 | minimum elong | 8133 Sep 26 00:30 | 9° <u>♁</u> 45'25 1°25'00 |
| min. Earth dist. | 8127 Mar 23 03:05 | 2° <u>♁</u> 16'44 42.85569 AU | morning rise | 8133 Oct 11 23:58 | 10° <u>♁</u> 09'41 |
| direct | 8127 Jun 11 02:37 | 1° <u>♁</u> 15'35 | retrograde | 8134 Jan 06 19:51 | 11° <u>♁</u> 26'26 |
| evening set | 8127 Sep 03 20:12 | 2° <u>♁</u> 28'08 | opposition | 8134 Mar 29 08:27 | 10° <u>♁</u> 22'02 -1°18'17 |
| max. Earth dist. | 8127 Sep 17 18:50 | 2° <u>♁</u> 48'37 44.75148 AU | min. Earth dist. | 8134 Mar 31 01:25 | 10° <u>♁</u> 19'54 41.37535 AU |
| | | | direct | 8134 Jun 18 11:06 | 9° <u>♁</u> 17'30 |
| conjunction | 8127 Sep 19 09:36 | 2° <u>♁</u> 51'01 -3°23'20 | evening set | 8134 Sep 11 12:46 | 10° <u>♁</u> 32'42 |
| minimum elong | 8127 Sep 19 09:41 | 2° <u>♁</u> 51'01 3°23'20 | max. Earth dist. | 8134 Sep 25 14:39 | 10° <u>♁</u> 54'08 43.26501 AU |
| morning rise | 8127 Oct 05 00:33 | 3° <u>♁</u> 14'02 | | | |
| retrograde | 8127 Dec 31 02:17 | 4° <u>♁</u> 28'45 | conjunction | 8134 Sep 27 12:08 | 10° <u>♁</u> 57'03 -1°04'26 |
| opposition | 8128 Mar 22 00:53 | 3° <u>♁</u> 25'35 -3°22'49 | minimum elong | 8134 Sep 27 12:10 | 10° <u>♁</u> 57'03 1°04'24 |
| min. Earth dist. | 8128 Mar 23 12:03 | 3° <u>♁</u> 23'48 42.65112 AU | morning rise | 8134 Oct 13 12:31 | 11° <u>♁</u> 21'30 |
| direct | 8128 Jun 11 07:35 | 2° <u>♁</u> 22'26 | retrograde | 8135 Jan 08 10:29 | 12° <u>♁</u> 38'39 |
| evening set | 8128 Sep 04 04:02 | 3° <u>♁</u> 35'18 | opposition | 8135 Mar 30 18:40 | 11° <u>♁</u> 34'01 -0°56'36 |
| max. Earth dist. | 8128 Sep 18 03:56 | 3° <u>♁</u> 55'57 44.54636 AU | min. Earth dist. | 8135 Apr 01 12:03 | 11° <u>♁</u> 31'51 41.15117 AU |
| | | | direct | 8135 Jun 19 19:56 | 10° <u>♁</u> 29'12 |
| conjunction | 8128 Sep 19 19:24 | 3° <u>♁</u> 58'24 -3°04'14 | evening set | 8135 Sep 13 00:07 | 11° <u>♁</u> 44'53 |
| minimum elong | 8128 Sep 19 19:29 | 3° <u>♁</u> 58'25 3°04'14 | max. Earth dist. | 8135 Sep 27 00:22 | 12° <u>♁</u> 06'20 43.03891 AU |
| morning rise | 8128 Oct 05 12:08 | 4° <u>♁</u> 21'38 | | | |
| retrograde | 8128 Dec 31 14:38 | 5° <u>♁</u> 36'38 | conjunction | 8135 Sep 29 00:05 | 12° <u>♁</u> 09'25 -0°43'37 |
| opposition | 8129 Mar 23 09:35 | 4° <u>♁</u> 33'15 -3°02'45 | minimum elong | 8135 Sep 29 00:07 | 12° <u>♁</u> 09'25 0°43'36 |
| min. Earth dist. | 8129 Mar 24 22:03 | 4° <u>♁</u> 31'24 42.44435 AU | morning rise | 8135 Oct 15 01:06 | 12° <u>♁</u> 34'02 |
| direct | 8129 Jun 12 13:22 | 3° <u>♁</u> 29'53 | retrograde | 8136 Jan 09 23:29 | 13° <u>♁</u> 51'36 |
| evening set | 8129 Sep 05 12:07 | 4° <u>♁</u> 43'04 | opposition | 8136 Mar 31 05:14 | 12° <u>♁</u> 46'42 -0°34'40 |
| max. Earth dist. | 8129 Sep 19 13:29 | 5° <u>♁</u> 03'54 44.33932 AU | min. Earth dist. | 8136 Apr 02 00:49 | 12° <u>♁</u> 44'25 40.92290 AU |
| | | | direct | 8136 Jun 20 06:01 | 11° <u>♁</u> 41'36 |
| conjunction | 8129 Sep 21 05:18 | 5° <u>♁</u> 06'24 -2°44'54 | evening set | 8136 Sep 13 11:47 | 12° <u>♁</u> 57'44 |
| minimum elong | 8129 Sep 21 05:22 | 5° <u>♁</u> 06'24 2°44'53 | max. Earth dist. | 8136 Sep 27 12:25 | 13° <u>♁</u> 19'20 42.80898 AU |
| morning rise | 8129 Oct 06 23:45 | 5° <u>♁</u> 29'50 | | | |
| retrograde | 8130 Jan 02 00:41 | 6° <u>♁</u> 45'08 | conjunction | 8136 Sep 29 12:23 | 13° <u>♁</u> 22'27 -0°22'34 |
| opposition | 8130 Mar 24 18:23 | 5° <u>♁</u> 41'33 -2°42'23 | minimum elong | 8136 Sep 29 12:24 | 13° <u>♁</u> 22'27 0°22'31 |
| min. Earth dist. | 8130 Mar 26 06:34 | 5° <u>♁</u> 39'42 42.23568 AU | morning rise | 8136 Oct 15 13:42 | 13° <u>♁</u> 47'15 |
| direct | 8130 Jun 13 22:33 | 4° <u>♁</u> 37'57 | retrograde | 8137 Jan 10 09:05 | 15° <u>♁</u> 05'15 |
| evening set | 8130 Sep 06 20:57 | 5° <u>♁</u> 51'29 | opposition | 8137 Apr 01 16:00 | 14° <u>♁</u> 00'04 -0°12'27 |
| max. Earth dist. | 8130 Sep 20 22:00 | 6° <u>♁</u> 12'25 44.13018 AU | min. Earth dist. | 8137 Apr 03 11:44 | 13° <u>♁</u> 57'45 40.69106 AU |
| | | | direct | 8137 Jun 21 19:01 | 12° <u>♁</u> 54'38 |
| conjunction | 8130 Sep 22 15:37 | 6° <u>♁</u> 15'02 -2°25'18 | evening set | 8137 Sep 14 23:58 | 14° <u>♁</u> 11'17 |
| minimum elong | 8130 Sep 22 15:40 | 6° <u>♁</u> 15'02 2°25'17 | max. Earth dist. | 8137 Sep 28 22:40 | 14° <u>♁</u> 32'53 42.57571 AU |
| morning rise | 8130 Oct 08 11:42 | 6° <u>♁</u> 38'42 | | | |
| retrograde | 8131 Jan 03 10:08 | 7° <u>♁</u> 54'18 | conjunction | 8137 Oct 01 00:45 | 14° <u>♁</u> 36'09 -0°01'18 |
| opposition | 8131 Mar 26 03:28 | 6° <u>♁</u> 50'31 -2°21'46 | minimum elong | 8137 Oct 01 00:43 | 14° <u>♁</u> 36'09 0°01'16 |
| min. Earth dist. | 8131 Mar 27 17:22 | 6° <u>♁</u> 48'35 42.02496 AU | behind sun begin | 8137 Sep 30 18:13 | 14° <u>♁</u> 35'46 |
| direct | 8131 Jun 15 08:44 | 5° <u>♁</u> 46'43 | behind sun end | 8137 Oct 01 07:13 | 14° <u>♁</u> 36'33 |
| evening set | 8131 Sep 08 06:05 | 7° <u>♁</u> 00'38 | morning rise | 8137 Oct 17 02:27 | 15° <u>♁</u> 01'07 |
| max. Earth dist. | 8131 Sep 22 08:54 | 7° <u>♁</u> 21'47 43.91880 AU | asc. node | 8137 Oct 22 11:18 | 15° <u>♁</u> 09'12 |
| | | | retrograde | 8138 Jan 11 21:11 | 16° <u>♁</u> 19'35 |
| conjunction | 8131 Sep 24 02:21 | 7° <u>♁</u> 24'24 -2°05'27 | opposition | 8138 Apr 03 03:07 | 15° <u>♁</u> 14'06 0°10'00 |
| minimum elong | 8131 Sep 24 02:24 | 7° <u>♁</u> 24'24 2°05'26 | min. Earth dist. | 8138 Apr 05 00:16 | 15° <u>♁</u> 11'42 40.45630 AU |
| morning rise | 8131 Oct 09 23:39 | 7° <u>♁</u> 48'16 | direct | 8138 Jun 23 05:33 | 14° <u>♁</u> 08'21 |
| retrograde | 8132 Jan 04 18:37 | 9° <u>♁</u> 04'14 | evening set | 8138 Sep 16 12:43 | 15° <u>♁</u> 25'32 |
| opposition | 8132 Mar 26 12:49 | 8° <u>♁</u> 00'15 -2°00'52 | max. Earth dist. | 8138 Sep 30 11:16 | 15° <u>♁</u> 47'15 42.33955 AU |
| min. Earth dist. | 8132 Mar 28 03:00 | 7° <u>♁</u> 58'17 41.81172 AU | | | |
| direct | 8132 Jun 15 19:40 | 6° <u>♁</u> 56'14 | conjunction | 8138 Oct 02 13:41 | 15° <u>♁</u> 50'34 0°20'18 |
| evening set | 8132 Sep 08 15:46 | 8° <u>♁</u> 10'33 | minimum elong | 8138 Oct 02 13:40 | 15° <u>♁</u> 50'34 0°20'21 |
| max. Earth dist. | 8132 Sep 22 17:41 | 8° <u>♁</u> 31'45 43.70459 AU | morning rise | 8138 Oct 18 15:14 | 16° <u>♁</u> 15'40 |
| | | | retrograde | 8139 Jan 13 09:25 | 17° <u>♁</u> 34'39 |

| | | | | | | | |
|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| opposition | 8139 Apr 04 14:27 | 16° <u>0</u> 28'52 | 0°32'44 | minimum elong | 8145 Oct 11 17:31 | 24° <u>0</u> 56'15 | 2°57'14 |
| min. Earth dist. | 8139 Apr 06 12:32 | 16° <u>0</u> 26'24 | 40.21904 AU | morning rise | 8145 Oct 27 12:23 | 25° <u>0</u> 22'08 | |
| direct | 8139 Jun 24 15:51 | 15° <u>0</u> 22'47 | | retrograde | 8146 Jan 22 20:23 | 26° <u>0</u> 45'48 | |
| evening set | 8139 Sep 18 02:04 | 16° <u>0</u> 40'32 | | opposition | 8146 Apr 13 08:17 | 25° <u>0</u> 38'02 | 3°18'34 |
| max. Earth dist. | 8139 Oct 01 23:22 | 17° <u>0</u> 02'18 | 42.10132 AU | min. Earth dist. | 8146 Apr 15 11:31 | 25° <u>0</u> 35'12 | 38.52256 AU |
| | | | | direct | 8146 Jul 03 00:15 | 24° <u>0</u> 29'43 | |
| conjunction | 8139 Oct 04 02:48 | 17° <u>0</u> 05'42 | 0°42'03 | evening set | 8146 Sep 27 17:03 | 25° <u>0</u> 52'44 | |
| minimum elong | 8139 Oct 04 02:47 | 17° <u>0</u> 05'42 | 0°42'05 | max. Earth dist. | 8146 Oct 11 00:46 | 26° <u>0</u> 14'41 | 40.39627 AU |
| morning rise | 8139 Oct 20 04:14 | 17° <u>0</u> 30'57 | | | | | |
| retrograde | 8140 Jan 15 00:39 | 18° <u>0</u> 50'28 | | conjunction | 8146 Oct 13 09:50 | 26° <u>0</u> 18'38 | 3°20'23 |
| opposition | 8140 Apr 05 02:06 | 17° <u>0</u> 44'23 | 0°55'42 | minimum elong | 8146 Oct 13 09:44 | 26° <u>0</u> 18'38 | 3°20'27 |
| min. Earth dist. | 8140 Apr 07 00:19 | 17° <u>0</u> 41'54 | 39.98011 AU | morning rise | 8146 Oct 29 02:35 | 26° <u>0</u> 44'35 | |
| direct | 8140 Jun 25 01:22 | 16° <u>0</u> 37'58 | | retrograde | 8147 Jan 24 14:16 | 28° <u>0</u> 09'02 | |
| evening set | 8140 Sep 18 15:48 | 17° <u>0</u> 56'20 | | opposition | 8147 Apr 14 22:39 | 27° <u>0</u> 00'59 | 3°43'09 |
| max. Earth dist. | 8140 Oct 02 11:28 | 18° <u>0</u> 18'08 | 41.86138 AU | min. Earth dist. | 8147 Apr 17 02:00 | 26° <u>0</u> 58'07 | 38.27310 AU |
| | | | | direct | 8147 Jul 04 15:40 | 25° <u>0</u> 52'19 | |
| conjunction | 8140 Oct 04 16:07 | 18° <u>0</u> 21'38 | 1°04'02 | evening set | 8147 Sep 29 12:02 | 27° <u>0</u> 16'15 | |
| minimum elong | 8140 Oct 04 16:05 | 18° <u>0</u> 21'38 | 1°04'05 | max. Earth dist. | 8147 Oct 12 15:10 | 27° <u>0</u> 38'02 | 40.14456 AU |
| morning rise | 8140 Oct 20 17:02 | 18° <u>0</u> 47'01 | | | | | |
| retrograde | 8141 Jan 15 15:31 | 20° <u>0</u> 07'07 | | conjunction | 8147 Oct 15 02:28 | 27° <u>0</u> 42'11 | 3°43'47 |
| opposition | 8141 Apr 06 14:17 | 19° <u>0</u> 00'44 | 1°18'56 | minimum elong | 8147 Oct 15 02:21 | 27° <u>0</u> 42'11 | 3°43'52 |
| min. Earth dist. | 8141 Apr 08 13:53 | 18° <u>0</u> 58'10 | 39.73987 AU | morning rise | 8147 Oct 30 16:57 | 28° <u>0</u> 08'10 | |
| direct | 8141 Jun 26 13:04 | 17° <u>0</u> 53'59 | | retrograde | 8148 Jan 26 08:38 | 29° <u>0</u> 33'28 | |
| evening set | 8141 Sep 20 06:11 | 19° <u>0</u> 13'01 | | opposition | 8148 Apr 15 13:44 | 28° <u>0</u> 25'05 | 4°07'57 |
| max. Earth dist. | 8141 Oct 04 01:39 | 19° <u>0</u> 34'57 | 41.62043 AU | min. Earth dist. | 8148 Apr 17 18:57 | 28° <u>0</u> 22'06 | 38.02104 AU |
| | | | | direct | 8148 Jul 05 07:00 | 27° <u>0</u> 16'03 | |
| conjunction | 8141 Oct 06 05:59 | 19° <u>0</u> 38'27 | 1°26'15 | evening set | 8148 Sep 30 07:26 | 28° <u>0</u> 40'54 | |
| minimum elong | 8141 Oct 06 05:57 | 19° <u>0</u> 38'27 | 1°26'17 | max. Earth dist. | 8148 Oct 13 08:18 | 29° <u>0</u> 02'42 | 39.89035 AU |
| morning rise | 8141 Oct 22 06:09 | 20° <u>0</u> 03'57 | | | | | |
| retrograde | 8142 Jan 17 05:34 | 21° <u>0</u> 24'39 | | conjunction | 8148 Oct 15 19:29 | 29° <u>0</u> 06'53 | 4°07'22 |
| opposition | 8142 Apr 08 02:33 | 20° <u>0</u> 17'59 | 1°42'24 | minimum elong | 8148 Oct 15 19:21 | 29° <u>0</u> 06'52 | 4°07'25 |
| min. Earth dist. | 8142 Apr 10 01:45 | 20° <u>0</u> 15'26 | 39.49879 AU | morning rise | 8148 Oct 31 07:10 | 29° <u>0</u> 32'53 | |
| direct | 8142 Jun 28 02:52 | 19° <u>0</u> 10'56 | | | 8148 Nov 17 10:31 | 0° <u>0</u> 00'00 | |
| evening set | 8142 Sep 21 21:23 | 20° <u>0</u> 30'40 | | retrograde | 8149 Jan 27 00:32 | 0° <u>0</u> 59'04 | |
| max. Earth dist. | 8142 Oct 05 14:01 | 20° <u>0</u> 52'35 | 41.37858 AU | | 8149 Apr 10 00:54 | 30° <u>0</u> 00'00 | |
| | | | | opposition | 8149 Apr 17 05:10 | 29° <u>0</u> 50'19 | 4°32'55 |
| conjunction | 8142 Oct 07 20:12 | 20° <u>0</u> 56'14 | 1°48'40 | min. Earth dist. | 8149 Apr 19 10:29 | 29° <u>0</u> 47'19 | 37.76672 AU |
| minimum elong | 8142 Oct 07 20:08 | 20° <u>0</u> 56'13 | 1°48'43 | direct | 8149 Jul 07 00:06 | 28° <u>0</u> 40'53 | |
| morning rise | 8142 Oct 23 19:33 | 21° <u>0</u> 21'51 | | | 8149 Sep 28 01:56 | 0° <u>0</u> 00'00 | |
| retrograde | 8143 Jan 18 20:33 | 22° <u>0</u> 43'13 | | evening set | 8149 Oct 02 03:56 | 0° <u>0</u> 06'43 | |
| opposition | 8143 Apr 09 15:25 | 21° <u>0</u> 36'17 | 2°06'06 | max. Earth dist. | 8149 Oct 14 23:54 | 0° <u>0</u> 28'21 | 39.63411 AU |
| min. Earth dist. | 8143 Apr 11 15:59 | 21° <u>0</u> 33'38 | 39.25694 AU | | | | |
| direct | 8143 Jun 29 14:25 | 20° <u>0</u> 28'55 | | conjunction | 8149 Oct 17 12:57 | 0° <u>0</u> 32'42 | 4°31'05 |
| evening set | 8143 Sep 23 13:05 | 21° <u>0</u> 49'24 | | minimum elong | 8149 Oct 17 12:49 | 0° <u>0</u> 32'41 | 4°31'10 |
| max. Earth dist. | 8143 Oct 07 04:54 | 22° <u>0</u> 11'24 | 41.13569 AU | morning rise | 8149 Nov 01 21:52 | 0° <u>0</u> 58'42 | |
| | | | | retrograde | 8150 Jan 28 17:59 | 2° <u>0</u> 25'48 | |
| conjunction | 8143 Oct 09 10:55 | 22° <u>0</u> 15'04 | 2°11'18 | opposition | 8150 Apr 18 20:54 | 1° <u>0</u> 16'41 | 4°58'05 |
| minimum elong | 8143 Oct 09 10:52 | 22° <u>0</u> 15'04 | 2°11'22 | min. Earth dist. | 8150 Apr 21 03:24 | 1° <u>0</u> 13'36 | 37.51084 AU |
| morning rise | 8143 Oct 25 08:53 | 22° <u>0</u> 40'48 | | direct | 8150 Jul 08 14:20 | 0° <u>0</u> 06'50 | |
| retrograde | 8144 Jan 20 09:27 | 24° <u>0</u> 02'53 | | evening set | 8150 Oct 04 01:07 | 1° <u>0</u> 33'41 | |
| opposition | 8144 Apr 10 04:34 | 22° <u>0</u> 55'41 | 2°30'02 | max. Earth dist. | 8150 Oct 16 17:36 | 1° <u>0</u> 55'15 | 39.37630 AU |
| min. Earth dist. | 8144 Apr 12 05:29 | 22° <u>0</u> 53'00 | 39.01391 AU | | | | |
| direct | 8144 Jun 30 03:28 | 21° <u>0</u> 48'01 | | conjunction | 8150 Oct 19 07:06 | 1° <u>0</u> 59'39 | 4°54'58 |
| evening set | 8144 Sep 24 05:40 | 23° <u>0</u> 09'18 | | minimum elong | 8150 Oct 19 06:56 | 1° <u>0</u> 59'38 | 4°55'02 |
| max. Earth dist. | 8144 Oct 07 18:38 | 23° <u>0</u> 31'17 | 40.89149 AU | morning rise | 8150 Nov 03 12:35 | 2° <u>0</u> 25'38 | |
| | | | | retrograde | 8151 Jan 30 10:36 | 3° <u>0</u> 53'41 | |
| conjunction | 8144 Oct 10 01:58 | 23° <u>0</u> 35'04 | 2°34'08 | opposition | 8151 Apr 20 13:17 | 2° <u>0</u> 44'12 | 5°23'24 |
| minimum elong | 8144 Oct 10 01:53 | 23° <u>0</u> 35'03 | 2°34'12 | min. Earth dist. | 8151 Apr 22 20:38 | 2° <u>0</u> 41'02 | 37.25380 AU |
| morning rise | 8144 Oct 25 22:36 | 24° <u>0</u> 00'53 | | direct | 8151 Jul 10 05:11 | 1° <u>0</u> 33'56 | |
| retrograde | 8145 Jan 21 03:03 | 25° <u>0</u> 23'44 | | evening set | 8151 Oct 05 23:11 | 3° <u>0</u> 01'50 | |
| opposition | 8145 Apr 11 18:07 | 24° <u>0</u> 16'15 | 2°54'12 | max. Earth dist. | 8151 Oct 18 11:27 | 3° <u>0</u> 23'17 | 39.11772 AU |
| min. Earth dist. | 8145 Apr 13 19:38 | 24° <u>0</u> 13'32 | 38.76942 AU | | | | |
| direct | 8145 Jul 01 13:25 | 23° <u>0</u> 08'17 | | conjunction | 8151 Oct 21 01:30 | 3° <u>0</u> 27'45 | 5°18'58 |
| evening set | 8145 Sep 25 22:53 | 24° <u>0</u> 30'25 | | minimum elong | 8151 Oct 21 01:20 | 3° <u>0</u> 27'45 | 5°19'03 |
| max. Earth dist. | 8145 Oct 09 09:10 | 24° <u>0</u> 52'22 | 40.64514 AU | morning rise | 8151 Nov 05 03:25 | 3° <u>0</u> 53'41 | |
| | | | | retrograde | 8152 Feb 01 06:59 | 5° <u>0</u> 22'45 | |
| conjunction | 8145 Oct 11 17:36 | 24° <u>0</u> 56'15 | 2°57'10 | opposition | 8152 Apr 21 05:59 | 4° <u>0</u> 12'53 | 5°48'51 |

| | | | | | | | |
|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| min. Earth dist. | 8152 Apr 23 13:09 | 4°M09'43 | 36.99644 AU | morning rise | 8158 Nov 14 16:51 | 14°M47'41 | |
| direct | 8152 Jul 10 19:17 | 3°M02'10 | | | 8158 Nov 21 14:14 | 15°M | |
| evening set | 8152 Oct 06 22:05 | 4°M31'13 | | retrograde | 8159 Feb 12 15:24 | 16°M25'30 | |
| max. Earth dist. | 8152 Oct 19 05:21 | 4°M52'29 | 38.85888 AU | opposition | 8159 May 02 19:38 | 15°M13'04 | 8°49'07 |
| | | | | min. Earth dist. | 8159 May 05 05:58 | 15°M09'34 | 35.21012 AU |
| conjunction | 8152 Oct 21 20:29 | 4°M57'04 | 5°43'04 | | 8159 May 11 22:12 | 15°R M | |
| minimum elong | 8152 Oct 21 20:19 | 4°M57'03 | 5°43'09 | direct | 8159 Jul 22 01:24 | 13°M59'26 | |
| morning rise | 8152 Nov 05 18:24 | 5°M22'56 | | | 8159 Sep 28 15:44 | 15°M | |
| retrograde | 8153 Feb 02 03:22 | 6°M53'04 | | evening set | 8159 Oct 20 18:49 | 15°M38'12 | |
| opposition | 8153 Apr 22 23:23 | 5°M42'48 | 6°14'26 | max. Earth dist. | 8159 Oct 31 07:22 | 15°M57'36 | 37.06042 AU |
| min. Earth dist. | 8153 Apr 25 07:52 | 5°M39'32 | 36.73931 AU | | | | |
| direct | 8153 Jul 12 10:45 | 4°M31'39 | | conjunction | 8159 Nov 03 02:36 | 16°M02'48 | 8°32'56 |
| evening set | 8153 Oct 08 21:47 | 6°M01'53 | | minimum elong | 8159 Nov 03 02:19 | 16°M02'46 | 8°33'03 |
| max. Earth dist. | 8153 Oct 21 01:23 | 6°M23'03 | 38.60054 AU | morning rise | 8159 Nov 16 09:23 | 16°M27'21 | |
| | | | | retrograde | 8160 Feb 14 16:39 | 18°M06'40 | |
| conjunction | 8153 Oct 23 16:01 | 6°M27'39 | 6°07'15 | opposition | 8160 May 03 17:23 | 16°M53'50 | 9°14'54 |
| minimum elong | 8153 Oct 23 15:49 | 6°M27'38 | 6°07'21 | min. Earth dist. | 8160 May 06 05:20 | 16°M50'13 | 34.95493 AU |
| morning rise | 8153 Nov 07 09:31 | 6°M53'25 | | direct | 8160 Jul 22 21:59 | 15°M39'45 | |
| retrograde | 8154 Feb 04 00:24 | 8°M24'39 | | evening set | 8160 Oct 22 02:18 | 17°M20'10 | |
| opposition | 8154 Apr 24 17:14 | 7°M14'01 | 6°40'06 | max. Earth dist. | 8160 Nov 01 08:00 | 17°M39'13 | 36.80283 AU |
| min. Earth dist. | 8154 Apr 27 01:04 | 7°M10'46 | 36.48291 AU | | | | |
| direct | 8154 Jul 14 06:21 | 6°M02'27 | | conjunction | 8160 Nov 04 02:49 | 17°M44'26 | 8°57'06 |
| evening set | 8154 Oct 10 22:42 | 7°M33'56 | | minimum elong | 8160 Nov 04 02:33 | 17°M44'25 | 8°57'13 |
| max. Earth dist. | 8154 Oct 22 19:56 | 7°M54'50 | 38.34295 AU | morning rise | 8160 Nov 17 02:05 | 18°M08'39 | |
| | | | | retrograde | 8161 Feb 15 18:33 | 19°M49'30 | |
| conjunction | 8154 Oct 25 12:08 | 7°M59'35 | 6°31'30 | opposition | 8161 May 05 15:38 | 18°M36'17 | 9°40'36 |
| minimum elong | 8154 Oct 25 11:56 | 7°M59'34 | 6°31'35 | min. Earth dist. | 8161 May 08 03:15 | 18°M32'39 | 34.69960 AU |
| morning rise | 8154 Nov 09 01:01 | 8°M25'14 | | direct | 8161 Jul 24 21:47 | 17°M21'43 | |
| retrograde | 8155 Feb 05 22:35 | 9°M57'39 | | evening set | 8161 Oct 24 11:01 | 19°M03'51 | |
| opposition | 8155 Apr 26 11:38 | 8°M46'39 | 7°05'51 | max. Earth dist. | 8161 Nov 03 06:58 | 19°M22'20 | 36.54525 AU |
| min. Earth dist. | 8155 Apr 28 20:32 | 8°M43'19 | 36.22753 AU | | | | |
| direct | 8155 Jul 16 00:12 | 7°M34'40 | | conjunction | 8161 Nov 06 03:34 | 19°M27'45 | 9°21'10 |
| evening set | 8155 Oct 13 00:27 | 9°M07'28 | | minimum elong | 8161 Nov 06 03:16 | 19°M27'43 | 9°21'18 |
| max. Earth dist. | 8155 Oct 24 17:23 | 9°M28'14 | 38.08622 AU | morning rise | 8161 Nov 18 19:07 | 19°M51'35 | |
| | | | | retrograde | 8162 Feb 17 21:03 | 21°M34'03 | |
| conjunction | 8155 Oct 27 08:59 | 9°M32'59 | 6°55'48 | opposition | 8162 May 07 14:37 | 20°M20'24 | 10°06'12 |
| minimum elong | 8155 Oct 27 08:46 | 9°M32'58 | 6°55'54 | min. Earth dist. | 8162 May 10 03:23 | 20°M16'41 | 34.44466 AU |
| morning rise | 8155 Nov 10 16:34 | 9°M58'29 | | direct | 8162 Jul 26 19:35 | 19°M05'22 | |
| retrograde | 8156 Feb 07 18:24 | 11°M32'09 | | evening set | 8162 Oct 26 20:56 | 20°M49'17 | |
| opposition | 8156 Apr 27 06:44 | 10°M20'48 | 7°31'39 | max. Earth dist. | 8162 Nov 05 09:04 | 21°M07'19 | 36.28814 AU |
| min. Earth dist. | 8156 Apr 29 15:36 | 10°M17'27 | 35.97296 AU | | | | |
| direct | 8156 Jul 16 19:12 | 9°M08'26 | | conjunction | 8162 Nov 08 05:14 | 21°M12'45 | 9°45'05 |
| evening set | 8156 Oct 14 03:16 | 10°M42'37 | | minimum elong | 8162 Nov 08 04:56 | 21°M12'43 | 9°45'12 |
| max. Earth dist. | 8156 Oct 25 13:32 | 11°M03'04 | 37.83018 AU | morning rise | 8162 Nov 20 12:11 | 21°M36'09 | |
| | | | | retrograde | 8163 Feb 19 20:58 | 23°M20'17 | |
| conjunction | 8156 Oct 28 06:09 | 11°M07'57 | 7°20'06 | opposition | 8163 May 09 14:14 | 22°M06'13 | 10°31'39 |
| minimum elong | 8156 Oct 28 05:55 | 11°M07'56 | 7°20'11 | min. Earth dist. | 8163 May 12 03:04 | 22°M02'28 | 34.19060 AU |
| morning rise | 8156 Nov 11 08:19 | 11°M33'16 | | direct | 8163 Jul 28 19:12 | 20°M50'42 | |
| retrograde | 8157 Feb 08 16:25 | 13°M08'15 | | evening set | 8163 Oct 29 08:12 | 22°M36'29 | |
| opposition | 8157 Apr 29 02:22 | 11°M56'33 | 7°57'28 | max. Earth dist. | 8163 Nov 07 10:26 | 22°M53'54 | 36.03239 AU |
| min. Earth dist. | 8157 May 01 11:40 | 11°M53'09 | 35.71897 AU | | | | |
| direct | 8157 Jul 18 12:25 | 10°M43'47 | | conjunction | 8163 Nov 10 07:22 | 22°M59'27 | 10°08'48 |
| evening set | 8157 Oct 16 07:14 | 12°M19'25 | | minimum elong | 8163 Nov 10 07:02 | 22°M59'26 | 10°08'56 |
| max. Earth dist. | 8157 Oct 27 11:08 | 12°M39'36 | 37.57407 AU | morning rise | 8163 Nov 22 05:26 | 23°M22'22 | |
| | | | | retrograde | 8164 Feb 21 23:46 | 25°M08'16 | |
| conjunction | 8157 Oct 30 04:20 | 12°M44'33 | 7°44'24 | opposition | 8164 May 10 14:33 | 23°M53'46 | 10°56'52 |
| minimum elong | 8157 Oct 30 04:05 | 12°M44'32 | 7°44'31 | min. Earth dist. | 8164 May 13 03:16 | 23°M49'59 | 33.93843 AU |
| morning rise | 8157 Nov 13 00:25 | 13°M09'39 | | direct | 8164 Jul 29 17:13 | 22°M37'45 | |
| retrograde | 8158 Feb 10 14:34 | 14°M46'02 | | evening set | 8164 Oct 30 20:24 | 24°M25'28 | |
| opposition | 8158 Apr 30 22:42 | 13°M33'59 | 8°23'18 | max. Earth dist. | 8164 Nov 08 13:21 | 24°M42'19 | 35.77858 AU |
| min. Earth dist. | 8158 May 03 09:16 | 13°M30'29 | 35.46477 AU | | | | |
| direct | 8158 Jul 20 06:04 | 12°M20'47 | | conjunction | 8164 Nov 11 10:10 | 24°M47'54 | 10°32'17 |
| evening set | 8158 Oct 18 12:32 | 13°M57'57 | | minimum elong | 8164 Nov 11 09:51 | 24°M47'53 | 10°32'24 |
| max. Earth dist. | 8158 Oct 29 09:32 | 14°M17'48 | 37.31763 AU | morning rise | 8164 Nov 22 22:36 | 25°M10'16 | |
| | | | | retrograde | 8165 Feb 23 02:06 | 26°M58'01 | |
| conjunction | 8158 Nov 01 03:11 | 14°M22'50 | 8°08'41 | opposition | 8165 May 12 15:43 | 25°M43'05 | 11°21'50 |
| minimum elong | 8158 Nov 01 02:55 | 14°M22'49 | 8°08'48 | min. Earth dist. | 8165 May 15 05:05 | 25°M39'14 | 33.68865 AU |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|------------------------|-------------|
| direct | 8165 Jul 31 14:58 | 24° ℳ 26'34 | | conjunction | 8171 Nov 26 04:32 | 8° ♂ 21'32 | 13°05'20 |
| evening set | 8165 Nov 02 10:18 | 26° ℳ 16'19 | | minimum elong | 8171 Nov 26 04:10 | 8° ♂ 21'30 | 13°05'29 |
| max. Earth dist. | 8165 Nov 10 17:24 | 26° ℳ 32'32 | 35.52768 AU | morning rise | 8171 Dec 04 02:25 | 8° ♂ 38'01 | |
| | | | | retrograde | 8172 Mar 09 05:21 | 10° ♂ 41'14 | |
| conjunction | 8165 Nov 13 13:47 | 26° ℳ 38'09 | 10°55'28 | opposition | 8172 May 25 21:29 | 9° ♂ 23'32 | 14°04'20 |
| minimum elong | 8165 Nov 13 13:26 | 26° ℳ 38'07 | 10°55'36 | min. Earth dist. | 8172 May 28 09:46 | 9° ♂ 19'34 | 32.03929 AU |
| morning rise | 8165 Nov 24 16:02 | 26° ℳ 59'55 | | direct | 8172 Aug 13 14:35 | 8° ♂ 03'49 | |
| retrograde | 8166 Feb 25 07:04 | 28° ℳ 49'35 | | evening set | 8172 Nov 20 06:53 | 10° ♂ 10'40 | |
| opposition | 8166 May 14 17:22 | 27° ℳ 34'13 | 11°46'28 | max. Earth dist. | 8172 Nov 24 18:32 | 10° ♂ 20'05 | 33.87042 AU |
| min. Earth dist. | 8166 May 17 05:43 | 27° ℳ 30'25 | 33.44217 AU | | | | |
| direct | 8166 Aug 02 16:11 | 26° ℳ 17'13 | | conjunction | 8172 Nov 27 13:46 | 10° ♂ 26'00 | 13°24'58 |
| evening set | 8166 Nov 05 01:30 | 28° ℳ 09'06 | | minimum elong | 8172 Nov 27 13:25 | 10° ♂ 25'58 | 13°25'07 |
| max. Earth dist. | 8166 Nov 12 21:12 | 28° ℳ 24'34 | 35.28013 AU | morning rise | 8172 Dec 04 19:38 | 10° ♂ 41'15 | |
| | | | | retrograde | 8173 Mar 11 15:22 | 12° ♂ 47'04 | |
| conjunction | 8166 Nov 15 18:13 | 28° ℳ 30'16 | 11°18'18 | opposition | 8173 May 28 05:03 | 11° ♂ 28'57 | 14°25'08 |
| minimum elong | 8166 Nov 15 17:53 | 28° ℳ 30'15 | 11°18'25 | min. Earth dist. | 8173 May 30 16:23 | 11° ♂ 25'02 | 31.81709 AU |
| morning rise | 8166 Nov 26 09:43 | 28° ℳ 51'22 | | direct | 8173 Aug 15 21:07 | 10° ♂ 08'45 | |
| | 8167 Jan 04 01:46 | 0° ♂ | | evening set | 8173 Nov 23 10:32 | 12° ♂ 18'31 | |
| retrograde | 8167 Feb 27 13:24 | 0° ♂ 43'03 | | max. Earth dist. | 8173 Nov 27 04:40 | 12° ♂ 26'29 | 33.64715 AU |
| | 8167 Apr 24 14:40 | 30° ♂ | | | | | |
| opposition | 8167 May 16 20:05 | 29° ℳ 27'17 | 12°10'44 | conjunction | 8173 Nov 30 00:02 | 12° ♂ 32'27 | 13°43'53 |
| min. Earth dist. | 8167 May 19 09:08 | 29° ℳ 23'24 | 33.19937 AU | minimum elong | 8173 Nov 29 23:40 | 12° ♂ 32'25 | 13°44'02 |
| direct | 8167 Aug 04 17:19 | 28° ℳ 09'49 | | morning rise | 8173 Dec 06 12:30 | 12° ♂ 46'18 | |
| | 8167 Nov 05 18:25 | 0° ♂ | | retrograde | 8174 Mar 14 01:13 | 14° ♂ 54'53 | |
| evening set | 8167 Nov 07 18:08 | 0° ♂ 03'56 | | opposition | 8174 May 30 13:28 | 13° ♂ 36'20 | 14°45'08 |
| max. Earth dist. | 8167 Nov 15 03:42 | 0° ♂ 18'42 | 35.03648 AU | min. Earth dist. | 8174 Jun 02 01:33 | 13° ♂ 32'21 | 31.59868 AU |
| | | | | direct | 8174 Aug 18 02:36 | 12° ♂ 15'39 | |
| conjunction | 8167 Nov 17 23:20 | 0° ♂ 24'21 | 11°40'43 | evening set | 8174 Nov 26 16:57 | 14° ♂ 28'30 | |
| minimum elong | 8167 Nov 17 22:59 | 0° ♂ 24'20 | 11°40'51 | max. Earth dist. | 8174 Nov 29 16:54 | 14° ♂ 34'55 | 33.42821 AU |
| morning rise | 8167 Nov 28 03:11 | 0° ♂ 44'42 | | | | | |
| retrograde | 8168 Feb 29 20:16 | 2° ♂ 38'30 | | conjunction | 8174 Dec 02 11:03 | 14° ♂ 40'50 | 14°01'59 |
| opposition | 8168 May 17 23:28 | 1° ♂ 22'20 | 12°34'32 | minimum elong | 8174 Dec 02 10:44 | 14° ♂ 40'49 | 14°02'08 |
| min. Earth dist. | 8168 May 20 11:19 | 1° ♂ 18'31 | 32.96046 AU | morning rise | 8174 Dec 08 04:15 | 14° ♂ 53'07 | |
| direct | 8168 Aug 05 21:26 | 0° ♂ 04'26 | | retrograde | 8175 Mar 16 12:48 | 17° ♂ 04'36 | |
| evening set | 8168 Nov 09 12:22 | 2° ♂ 00'53 | | opposition | 8175 Jun 01 22:43 | 15° ♂ 45'39 | 15°04'16 |
| max. Earth dist. | 8168 Nov 16 08:50 | 2° ♂ 14'43 | 34.79668 AU | min. Earth dist. | 8175 Jun 04 09:17 | 15° ♂ 41'44 | 31.38479 AU |
| | | | | direct | 8175 Aug 20 12:15 | 14° ♂ 24'29 | |
| conjunction | 8168 Nov 19 05:15 | 2° ♂ 20'30 | 12°02'40 | evening set | 8175 Nov 30 02:12 | 16° ♂ 40'39 | |
| minimum elong | 8168 Nov 19 04:55 | 2° ♂ 20'28 | 12°02'49 | max. Earth dist. | 8175 Dec 02 04:14 | 16° ♂ 45'09 | 33.21413 AU |
| morning rise | 8168 Nov 28 21:02 | 2° ♂ 40'01 | | | | | |
| retrograde | 8169 Mar 03 04:15 | 4° ♂ 36'02 | | conjunction | 8175 Dec 04 22:37 | 16° ♂ 51'08 | 14°19'12 |
| opposition | 8169 May 20 03:37 | 3° ♂ 19'29 | 12°57'51 | minimum elong | 8175 Dec 04 22:16 | 16° ♂ 51'06 | 14°19'22 |
| min. Earth dist. | 8169 May 22 16:04 | 3° ♂ 15'36 | 32.72541 AU | morning rise | 8175 Dec 09 18:11 | 17° ♂ 01'34 | |
| direct | 8169 Aug 07 23:28 | 2° ♂ 01'08 | | retrograde | 8176 Mar 18 01:27 | 19° ♂ 16'14 | |
| evening set | 8169 Nov 12 08:14 | 4° ♂ 00'02 | | opposition | 8176 Jun 03 08:50 | 17° ♂ 56'51 | 15°22'25 |
| max. Earth dist. | 8169 Nov 18 16:55 | 4° ♂ 13'00 | 34.56040 AU | min. Earth dist. | 8176 Jun 05 19:36 | 17° ♂ 52'54 | 31.17623 AU |
| | | | | direct | 8176 Aug 21 21:14 | 16° ♂ 35'12 | |
| conjunction | 8169 Nov 21 12:12 | 4° ♂ 18'45 | 12°24'08 | evening set | 8176 Dec 02 16:32 | 18° ♂ 55'05 | |
| minimum elong | 8169 Nov 21 11:50 | 4° ♂ 18'43 | 12°24'17 | max. Earth dist. | 8176 Dec 03 18:53 | 18° ♂ 57'29 | 33.00591 AU |
| morning rise | 8169 Nov 30 14:50 | 4° ♂ 37'21 | | | | | |
| retrograde | 8170 Mar 05 12:09 | 6° ♂ 35'40 | | conjunction | 8176 Dec 06 11:06 | 19° ♂ 03'20 | 14°35'27 |
| opposition | 8170 May 22 08:44 | 5° ♂ 18'45 | 13°20'38 | minimum elong | 8176 Dec 06 10:48 | 19° ♂ 03'18 | 14°35'37 |
| min. Earth dist. | 8170 May 24 20:50 | 5° ♂ 14'51 | 32.49359 AU | morning rise | 8176 Dec 10 04:57 | 19° ♂ 11'31 | |
| direct | 8170 Aug 10 05:14 | 3° ♂ 59'57 | | retrograde | 8177 Mar 20 14:21 | 21° ♂ 29'43 | |
| evening set | 8170 Nov 15 05:59 | 6° ♂ 01'24 | | opposition | 8177 Jun 05 19:37 | 20° ♂ 09'56 | 15°39'30 |
| max. Earth dist. | 8170 Nov 20 23:51 | 6° ♂ 13'14 | 34.32730 AU | min. Earth dist. | 8177 Jun 08 04:49 | 20° ♂ 06'04 | 30.97375 AU |
| | | | | direct | 8177 Aug 24 09:08 | 18° ♂ 47'50 | |
| conjunction | 8170 Nov 23 19:53 | 6° ♂ 19'06 | 12°45'02 | evening set | 8177 Dec 06 16:20 | 21° ♂ 12'16 | |
| minimum elong | 8170 Nov 23 19:32 | 6° ♂ 19'04 | 12°45'10 | max. Earth dist. | 8177 Dec 06 08:06 | 21° ♂ 11'30 | 32.80437 AU |
| morning rise | 8170 Dec 02 08:43 | 6° ♂ 36'42 | | | | | |
| retrograde | 8171 Mar 07 22:13 | 8° ♂ 37'25 | | conjunction | 8177 Dec 09 00:16 | 21° ♂ 17'24 | 14°50'39 |
| opposition | 8171 May 24 14:34 | 7° ♂ 20'06 | 13°42'48 | minimum elong | 8177 Dec 08 23:56 | 21° ♂ 17'22 | 14°50'49 |
| min. Earth dist. | 8171 May 27 02:31 | 7° ♂ 16'12 | 32.26494 AU | morning rise | 8177 Dec 11 07:32 | 21° ♂ 22'28 | |
| direct | 8171 Aug 12 09:31 | 6° ♂ 00'51 | | retrograde | 8178 Mar 23 05:09 | 23° ♂ 45'05 | |
| evening set | 8171 Nov 18 05:27 | 8° ♂ 04'57 | | opposition | 8178 Jun 08 07:20 | 22° ♂ 24'55 | 15°55'25 |
| max. Earth dist. | 8171 Nov 23 09:04 | 8° ♂ 15'40 | 34.09718 AU | min. Earth dist. | 8178 Jun 10 15:53 | 22° ♂ 21'04 | 30.77835 AU |
| | | | | direct | 8178 Aug 26 19:24 | 21° ♂ 02'22 | |

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| max. Earth dist. | 8178 Dec 09 00:34 | 23° 2 27'39 | 32.61029 AU | max. Earth dist. | 8186 Dec 29 05:34 | 12° 3 44'15 | 31.35246 AU |
| conjunction | 8178 Dec 11 14:17 | 23° 2 33'22 | 15°04'43 | conjunction | 8186 Dec 31 07:23 | 12° 3 49'08 | 16°07'39 |
| minimum elong | 8178 Dec 11 14:01 | 23° 2 33'21 | 15°04'52 | minimum elong | 8186 Dec 31 07:19 | 12° 3 49'07 | 16°07'48 |
| retrograde | 8179 Mar 25 19:37 | 26° 2 02'19 | | retrograde | 8187 Apr 14 15:11 | 15° 3 26'38 | |
| opposition | 8179 Jun 10 19:54 | 24° 2 41'49 | 16°10'05 | opposition | 8187 Jun 30 04:00 | 14° 3 04'10 | 17°13'20 |
| min. Earth dist. | 8179 Jun 13 03:07 | 24° 2 38'02 | 30.59055 AU | min. Earth dist. | 8187 Jul 02 00:21 | 14° 3 01'03 | 29.37577 AU |
| direct | 8179 Aug 29 08:13 | 23° 2 18'53 | | direct | 8187 Sep 17 07:46 | 12° 3 38'58 | |
| max. Earth dist. | 8179 Dec 11 15:50 | 25° 2 45'35 | 32.42449 AU | max. Earth dist. | 8188 Jan 01 04:30 | 15° 3 15'59 | 31.23258 AU |
| conjunction | 8179 Dec 14 04:55 | 25° 2 51'17 | 15°17'32 | conjunction | 8188 Jan 03 03:10 | 15° 3 20'34 | 16°08'29 |
| minimum elong | 8179 Dec 14 04:38 | 25° 2 51'16 | 15°17'42 | minimum elong | 8188 Jan 03 03:08 | 15° 3 20'34 | 16°08'39 |
| retrograde | 8180 Mar 27 12:29 | 28° 2 21'29 | | retrograde | 8188 Apr 16 10:27 | 17° 3 58'47 | |
| opposition | 8180 Jun 12 09:12 | 27° 2 00'40 | 16°23'23 | opposition | 8188 Jul 01 22:56 | 16° 3 36'06 | 17°13'34 |
| min. Earth dist. | 8180 Jun 14 14:40 | 26° 2 57'00 | 30.41109 AU | min. Earth dist. | 8188 Jul 03 17:17 | 16° 3 33'07 | 29.26060 AU |
| direct | 8180 Aug 30 20:17 | 25° 2 37'24 | | direct | 8188 Sep 19 04:47 | 15° 3 10'41 | |
| max. Earth dist. | 8180 Dec 13 09:29 | 28° 2 05'39 | 32.24709 AU | max. Earth dist. | 8189 Jan 03 01:32 | 17° 3 48'31 | 31.12231 AU |
| conjunction | 8180 Dec 15 20:20 | 28° 2 11'11 | 15°29'04 | conjunction | 8189 Jan 04 23:03 | 17° 3 53'01 | 16°07'34 |
| minimum elong | 8180 Dec 15 20:06 | 28° 2 11'10 | 15°29'13 | minimum elong | 8189 Jan 04 23:03 | 17° 3 53'01 | 16°07'43 |
| | 8181 Feb 07 06:47 | 0° 3 | | retrograde | 8189 Apr 19 06:52 | 20° 3 31'51 | |
| retrograde | 8181 Mar 30 03:06 | 0° 3 42'37 | | opposition | 8189 Jul 04 18:16 | 19° 3 08'58 | 17°11'54 |
| | 8181 May 21 18:01 | 30° 8 2 | | min. Earth dist. | 8189 Jul 06 10:30 | 19° 3 06'08 | 29.15514 AU |
| opposition | 8181 Jun 14 23:25 | 29° 2 21'32 | 16°35'16 | direct | 8189 Sep 22 00:12 | 17° 3 43'19 | |
| min. Earth dist. | 8181 Jun 17 04:12 | 29° 2 17'54 | 30.23973 AU | max. Earth dist. | 8190 Jan 06 01:25 | 20° 3 22'08 | 31.02228 AU |
| direct | 8181 Sep 02 08:48 | 27° 2 57'57 | | | | | |
| | 8181 Dec 03 21:06 | 0° 3 | | conjunction | 8190 Jan 07 19:28 | 20° 3 26'18 | 16°04'52 |
| max. Earth dist. | 8181 Dec 16 02:58 | 0° 3 27'37 | 32.07809 AU | minimum elong | 8190 Jan 07 19:31 | 20° 3 26'19 | 16°05'02 |
| conjunction | 8181 Dec 18 12:31 | 0° 3 33'05 | 15°39'13 | retrograde | 8190 Apr 22 02:27 | 23° 3 05'39 | |
| minimum elong | 8181 Dec 18 12:17 | 0° 3 33'04 | 15°39'23 | opposition | 8190 Jul 07 14:06 | 21° 3 42'36 | 17°08'17 |
| retrograde | 8182 Apr 01 20:44 | 3° 3 05'42 | | min. Earth dist. | 8190 Jul 09 04:30 | 21° 3 39'53 | 29.05995 AU |
| opposition | 8182 Jun 17 14:11 | 1° 3 44'22 | 16°45'40 | direct | 8190 Sep 24 20:46 | 20° 3 16'48 | |
| min. Earth dist. | 8182 Jun 19 16:57 | 1° 3 40'51 | 30.07641 AU | max. Earth dist. | 8191 Jan 08 23:39 | 22° 3 56'17 | 30.93341 AU |
| direct | 8182 Sep 04 22:52 | 0° 3 20'29 | | conjunction | 8191 Jan 10 15:55 | 23° 3 00'18 | 16°00'20 |
| max. Earth dist. | 8182 Dec 18 21:30 | 2° 3 51'34 | 31.91699 AU | minimum elong | 8191 Jan 10 16:00 | 23° 3 00'18 | 16°00'28 |
| conjunction | 8182 Dec 21 05:32 | 2° 3 56'56 | 15°47'57 | retrograde | 8191 Apr 25 00:22 | 25° 3 40'04 | |
| minimum elong | 8182 Dec 21 05:21 | 2° 3 56'55 | 15°48'07 | opposition | 8191 Jul 10 10:17 | 24° 3 16'53 | 17°02'39 |
| retrograde | 8183 Apr 04 13:37 | 5° 3 30'40 | | min. Earth dist. | 8191 Jul 11 21:30 | 24° 3 14'23 | 28.97603 AU |
| opposition | 8183 Jun 20 06:04 | 4° 3 09'07 | 16°54'32 | direct | 8191 Sep 27 18:00 | 22° 3 50'57 | |
| min. Earth dist. | 8183 Jun 22 08:34 | 4° 3 05'36 | 29.92075 AU | max. Earth dist. | 8192 Jan 11 23:57 | 25° 3 31'14 | 30.85627 AU |
| direct | 8183 Sep 07 11:19 | 2° 3 44'57 | | conjunction | 8192 Jan 13 12:35 | 25° 3 34'54 | 15°53'55 |
| max. Earth dist. | 8183 Dec 21 16:55 | 5° 3 17'23 | 31.76387 AU | minimum elong | 8192 Jan 13 12:42 | 25° 3 34'54 | 15°54'05 |
| conjunction | 8183 Dec 23 23:00 | 5° 3 22'36 | 15°55'13 | retrograde | 8192 Apr 26 19:21 | 28° 3 15'01 | |
| minimum elong | 8183 Dec 23 22:50 | 5° 3 22'35 | 15°55'23 | opposition | 8192 Jul 12 06:57 | 26° 3 51'45 | 16°54'59 |
| retrograde | 8184 Apr 06 07:08 | 7° 3 57'25 | | min. Earth dist. | 8192 Jul 13 16:29 | 26° 3 49'22 | 28.90371 AU |
| opposition | 8184 Jun 21 22:33 | 6° 3 35'37 | 17°01'47 | direct | 8192 Sep 29 14:22 | 25° 3 25'45 | |
| min. Earth dist. | 8184 Jun 23 22:42 | 6° 3 32'16 | 29.77268 AU | max. Earth dist. | 8193 Jan 13 23:13 | 28° 3 06'36 | 30.79135 AU |
| direct | 8184 Sep 09 04:19 | 5° 3 11'11 | | conjunction | 8193 Jan 15 09:25 | 28° 3 10'01 | 15°45'38 |
| max. Earth dist. | 8184 Dec 23 12:04 | 7° 3 44'49 | 31.61852 AU | minimum elong | 8193 Jan 15 09:34 | 28° 3 10'02 | 15°45'46 |
| conjunction | 8184 Dec 25 17:16 | 7° 3 49'58 | 16°00'58 | | 8193 Mar 06 15:40 | 0° 3 | |
| minimum elong | 8184 Dec 25 17:08 | 7° 3 49'57 | 16°01'07 | retrograde | 8193 Apr 29 17:05 | 0° 3 50'24 | |
| retrograde | 8185 Apr 09 00:54 | 10° 3 25'46 | | | 8193 Jun 25 07:12 | 30° 8 2 | |
| opposition | 8185 Jun 24 15:43 | 9° 3 03'45 | 17°07'23 | opposition | 8193 Jul 15 03:31 | 29° 3 27'07 | 16°45'18 |
| min. Earth dist. | 8185 Jun 26 15:24 | 9° 3 00'24 | 29.63233 AU | min. Earth dist. | 8193 Jul 16 09:33 | 29° 3 24'59 | 28.84321 AU |
| direct | 8185 Sep 11 19:58 | 7° 3 39'02 | | direct | 8193 Oct 02 11:54 | 28° 3 01'05 | |
| max. Earth dist. | 8185 Dec 26 09:29 | 10° 3 13'56 | 31.48133 AU | | 8193 Dec 30 01:29 | 0° 3 | |
| conjunction | 8185 Dec 28 12:10 | 10° 3 18'52 | 16°05'08 | max. Earth dist. | 8194 Jan 16 23:26 | 0° 3 42'30 | 30.73831 AU |
| minimum elong | 8185 Dec 28 12:04 | 10° 3 18'52 | 16°05'18 | conjunction | 8194 Jan 18 06:32 | 0° 3 45'37 | 15°35'28 |
| retrograde | 8186 Apr 11 19:43 | 12° 3 55'33 | | minimum elong | 8194 Jan 18 06:43 | 0° 3 45'38 | 15°35'37 |
| opposition | 8186 Jun 27 09:33 | 11° 3 33'19 | 17°11'15 | retrograde | 8194 May 02 13:29 | 3° 3 26'11 | |
| min. Earth dist. | 8186 Jun 29 07:01 | 11° 3 30'08 | 29.49983 AU | opposition | 8194 Jul 18 00:40 | 2° 3 02'53 | 16°33'36 |
| direct | 8186 Sep 14 14:26 | 10° 3 08'21 | | min. Earth dist. | 8194 Jul 19 05:13 | 2° 3 00'51 | 28.79420 AU |
| | | | | direct | 8194 Oct 05 07:48 | 0° 3 36'53 | |

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| max. Earth dist. | 8195 Jan 19 23:13 | 3° \approx 18'42 | 30.69696 AU | min. Earth dist. | 8201 Aug 06 15:51 | 20° \approx 10'21 | 28.74681 AU |
| | | | | direct | 8201 Oct 24 16:19 | 18° \approx 45'50 | |
| conjunction | 8195 Jan 21 03:30 | 3° \approx 21'33 | 15°23'28 | evening set | 8202 Feb 01 14:23 | 21° \approx 10'20 | |
| minimum elong | 8195 Jan 21 03:43 | 3° \approx 21'34 | 15°23'36 | | | | |
| retrograde | 8195 May 05 10:09 | 6° \approx 02'12 | | conjunction | 8202 Feb 09 02:54 | 21° \approx 28'16 | 13°11'35 |
| opposition | 8195 Jul 20 21:50 | 4° \approx 38'56 | 16°19'55 | minimum elong | 8202 Feb 09 03:17 | 21° \approx 28'18 | 13°11'42 |
| min. Earth dist. | 8195 Jul 21 22:52 | 4° \approx 37'10 | 28.75626 AU | max. Earth dist. | 8202 Feb 08 16:58 | 21° \approx 27'16 | 30.70662 AU |
| direct | 8195 Oct 08 05:59 | 3° \approx 12'59 | | morning rise | 8202 Feb 16 15:40 | 21° \approx 46'14 | |
| max. Earth dist. | 8196 Jan 22 22:45 | 5° \approx 55'05 | 30.66665 AU | retrograde | 8202 May 24 01:40 | 24° \approx 06'42 | |
| | | | | opposition | 8202 Aug 09 01:09 | 22° \approx 44'01 | 13°53'10 |
| conjunction | 8196 Jan 24 00:35 | 5° \approx 57'41 | 15°09'39 | min. Earth dist. | 8202 Aug 09 08:48 | 22° \approx 43'29 | 28.78199 AU |
| minimum elong | 8196 Jan 24 00:50 | 5° \approx 57'42 | 15°09'48 | direct | 8202 Oct 27 15:12 | 21° \approx 18'54 | |
| retrograde | 8196 May 07 05:42 | 8° \approx 38'19 | | evening set | 8203 Feb 03 15:13 | 23° \approx 40'56 | |
| opposition | 8196 Jul 22 19:11 | 7° \approx 15'07 | 16°04'18 | | | | |
| min. Earth dist. | 8196 Jul 23 18:43 | 7° \approx 13'27 | 28.72909 AU | conjunction | 8203 Feb 11 21:50 | 24° \approx 00'35 | 12°46'35 |
| direct | 8196 Oct 10 02:27 | 5° \approx 49'14 | | minimum elong | 8203 Feb 11 22:13 | 24° \approx 00'37 | 12°46'41 |
| evening set | 8197 Jan 24 02:25 | 8° \approx 29'30 | | max. Earth dist. | 8203 Feb 11 16:01 | 24° \approx 00'00 | 30.75097 AU |
| | | | | morning rise | 8203 Feb 20 04:24 | 24° \approx 20'15 | |
| conjunction | 8197 Jan 25 21:36 | 8° \approx 33'50 | 14°54'04 | retrograde | 8203 May 26 18:05 | 26° \approx 38'21 | |
| minimum elong | 8197 Jan 25 21:52 | 8° \approx 33'52 | 14°54'12 | opposition | 8203 Aug 11 21:18 | 25° \approx 15'47 | 13°25'39 |
| max. Earth dist. | 8197 Jan 24 22:56 | 8° \approx 31'34 | 30.64723 AU | min. Earth dist. | 8203 Aug 12 02:54 | 25° \approx 15'24 | 28.82860 AU |
| morning rise | 8197 Jan 27 17:18 | 8° \approx 38'14 | | direct | 8203 Oct 30 12:58 | 23° \approx 50'52 | |
| retrograde | 8197 May 10 02:01 | 11° \approx 14'22 | | evening set | 8204 Feb 05 17:01 | 26° \approx 10'31 | |
| opposition | 8197 Jul 25 16:31 | 9° \approx 51'14 | 15°46'49 | | | | |
| min. Earth dist. | 8197 Jul 26 13:01 | 9° \approx 49'47 | 28.71216 AU | conjunction | 8204 Feb 14 16:11 | 26° \approx 31'43 | 12°20'14 |
| direct | 8197 Oct 13 00:50 | 8° \approx 25'26 | | minimum elong | 8204 Feb 14 16:35 | 26° \approx 31'46 | 12°20'20 |
| evening set | 8198 Jan 25 04:36 | 11° \approx 01'13 | | max. Earth dist. | 8204 Feb 14 12:42 | 26° \approx 31'23 | 30.80720 AU |
| | | | | morning rise | 8204 Feb 23 15:23 | 26° \approx 52'56 | |
| conjunction | 8198 Jan 28 18:28 | 11° \approx 09'50 | 14°36'47 | retrograde | 8204 May 28 12:43 | 29° \approx 08'44 | |
| minimum elong | 8198 Jan 28 18:46 | 11° \approx 09'52 | 14°36'55 | opposition | 8204 Aug 13 16:44 | 27° \approx 46'21 | 12°56'44 |
| max. Earth dist. | 8198 Jan 27 21:42 | 11° \approx 07'45 | 30.63816 AU | min. Earth dist. | 8204 Aug 13 18:17 | 27° \approx 46'15 | 28.88719 AU |
| morning rise | 8198 Feb 01 08:50 | 11° \approx 18'30 | | direct | 8204 Nov 01 10:21 | 26° \approx 21'39 | |
| retrograde | 8198 May 12 21:34 | 13° \approx 50'09 | | evening set | 8205 Feb 06 19:16 | 28° \approx 39'00 | |
| opposition | 8198 Jul 28 13:51 | 12° \approx 27'05 | 15°27'29 | | | | |
| min. Earth dist. | 8198 Jul 29 08:24 | 12° \approx 25'46 | 28.70550 AU | conjunction | 8205 Feb 16 10:08 | 29° \approx 01'39 | 11°52'36 |
| direct | 8198 Oct 15 21:21 | 11° \approx 01'24 | | minimum elong | 8205 Feb 16 10:31 | 29° \approx 01'41 | 11°52'42 |
| evening set | 8199 Jan 26 20:03 | 13° \approx 33'56 | | max. Earth dist. | 8205 Feb 16 10:24 | 29° \approx 01'40 | 30.87542 AU |
| | | | | morning rise | 8205 Feb 26 00:45 | 29° \approx 24'16 | |
| conjunction | 8199 Jan 31 15:12 | 13° \approx 45'28 | 14°17'50 | | 8205 Mar 13 17:16 | 0° \approx | |
| minimum elong | 8199 Jan 31 15:31 | 13° \approx 45'30 | 14°17'57 | retrograde | 8205 May 31 05:33 | 1° \approx 37'52 | |
| max. Earth dist. | 8199 Jan 30 22:01 | 13° \approx 43'44 | 30.63955 AU | opposition | 8205 Aug 16 11:59 | 0° \approx 15'41 | 12°26'29 |
| morning rise | 8199 Feb 05 10:43 | 13° \approx 57'03 | | min. Earth dist. | 8205 Aug 16 11:29 | 0° \approx 15'43 | 28.95772 AU |
| | 8199 Mar 04 19:15 | 15° \approx | | | 8205 Aug 26 00:07 | 30° \approx | |
| retrograde | 8199 May 15 16:12 | 16° \approx 25'27 | | direct | 8205 Nov 04 06:51 | 28° \approx 51'16 | |
| opposition | 8199 Jul 31 11:08 | 15° \approx 02'29 | 15°06'24 | | 8206 Jan 09 05:56 | 0° \approx | |
| min. Earth dist. | 8199 Aug 01 03:00 | 15° \approx 01'22 | 28.70891 AU | evening set | 8206 Feb 08 22:08 | 1° \approx 06'22 | |
| | 8199 Aug 01 22:19 | 15° \approx | | | | | |
| direct | 8199 Oct 18 20:51 | 13° \approx 36'55 | | conjunction | 8206 Feb 19 03:22 | 1° \approx 30'19 | 11°23'48 |
| | 8199 Dec 30 09:00 | 15° \approx | | minimum elong | 8206 Feb 19 03:46 | 1° \approx 30'21 | 11°23'53 |
| evening set | 8200 Jan 28 15:52 | 16° \approx 06'36 | | max. Earth dist. | 8206 Feb 19 06:16 | 1° \approx 30'36 | 30.95558 AU |
| | | | | morning rise | 8206 Mar 01 08:22 | 1° \approx 54'13 | |
| conjunction | 8200 Feb 03 11:22 | 16° \approx 20'33 | 13°57'17 | retrograde | 8206 Jun 02 22:38 | 4° \approx 05'41 | |
| minimum elong | 8200 Feb 03 11:44 | 16° \approx 20'35 | 13°57'24 | opposition | 8206 Aug 19 06:34 | 2° \approx 43'45 | 11°55'01 |
| max. Earth dist. | 8200 Feb 02 19:52 | 16° \approx 18'59 | 30.65128 AU | min. Earth dist. | 8206 Aug 19 02:13 | 2° \approx 44'03 | 29.03982 AU |
| morning rise | 8200 Feb 09 07:16 | 16° \approx 34'32 | | direct | 8206 Nov 07 04:00 | 1° \approx 19'38 | |
| retrograde | 8200 May 18 12:04 | 19° \approx 00'07 | | evening set | 8207 Feb 11 01:14 | 3° \approx 32'34 | |
| opposition | 8200 Aug 03 08:07 | 17° \approx 37'13 | 14°43'36 | | | | |
| min. Earth dist. | 8200 Aug 03 21:18 | 17° \approx 36'18 | 28.72267 AU | conjunction | 8207 Feb 21 20:05 | 3° \approx 57'41 | 10°53'56 |
| direct | 8200 Oct 21 18:23 | 16° \approx 11'47 | | minimum elong | 8207 Feb 21 20:28 | 3° \approx 57'44 | 10°54'01 |
| evening set | 8201 Jan 30 14:22 | 18° \approx 38'49 | | max. Earth dist. | 8207 Feb 22 02:03 | 3° \approx 58'16 | 31.04696 AU |
| | | | | morning rise | 8207 Mar 04 14:34 | 4° \approx 22'47 | |
| conjunction | 8201 Feb 06 07:27 | 18° \approx 54'52 | 13°35'11 | retrograde | 8207 Jun 05 13:08 | 6° \approx 32'10 | |
| minimum elong | 8201 Feb 06 07:48 | 18° \approx 54'54 | 13°35'17 | opposition | 8207 Aug 22 00:51 | 5° \approx 10'30 | 11°22'28 |
| max. Earth dist. | 8201 Feb 05 19:42 | 18° \approx 53'42 | 30.67354 AU | min. Earth dist. | 8207 Aug 21 18:30 | 5° \approx 10'56 | 29.13305 AU |
| morning rise | 8201 Feb 13 00:41 | 19° \approx 10'57 | | direct | 8207 Nov 09 22:08 | 3° \approx 46'44 | |
| retrograde | 8201 May 21 05:44 | 21° \approx 33'55 | | evening set | 8208 Feb 13 04:43 | 5° \approx 57'31 | |
| opposition | 8201 Aug 06 04:46 | 20° \approx 11'08 | 14°19'10 | | | | |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|-------------------------------|-------------|
| conjunction | 8208 Feb 24 12:07 | 6° \mathbf{H} 23'43 | 10°23'06 | direct | 8214 Nov 26 22:28 | 20° \mathbf{H} 12'37 | |
| minimum elong | 8208 Feb 24 12:30 | 6° \mathbf{H} 23'45 | 10°23'10 | evening set | 8215 Feb 26 10:25 | 22° \mathbf{H} 10'04 | |
| max. Earth dist. | 8208 Feb 24 21:07 | 6° \mathbf{H} 24'35 | 31.14908 AU | | | | |
| morning rise | 8208 Mar 06 19:00 | 6° \mathbf{H} 49'52 | | conjunction | 8215 Mar 12 10:09 | 22° \mathbf{H} 40'56 | 6°29'05 |
| retrograde | 8208 Jun 07 04:04 | 8° \mathbf{H} 57'15 | | minimum elong | 8215 Mar 12 10:25 | 22° \mathbf{H} 40'58 | 6°29'07 |
| opposition | 8208 Aug 23 18:27 | 7° \mathbf{H} 35'52 | 10°48'56 | max. Earth dist. | 8215 Mar 13 11:12 | 22° \mathbf{H} 43'16 | 32.10844 AU |
| min. Earth dist. | 8208 Aug 23 09:01 | 7° \mathbf{H} 36'31 | 29.23645 AU | morning rise | 8215 Mar 26 09:03 | 23° \mathbf{H} 11'45 | |
| direct | 8208 Nov 11 17:54 | 6° \mathbf{H} 12'26 | | retrograde | 8215 Jun 23 15:58 | 25° \mathbf{H} 06'48 | |
| evening set | 8209 Feb 14 08:34 | 8° \mathbf{H} 21'10 | | min. Earth dist. | 8215 Sep 09 02:30 | 23° \mathbf{H} 49'02 | 30.20332 AU |
| | | | | opposition | 8215 Sep 10 04:44 | 23° \mathbf{H} 47'19 | 6°36'23 |
| conjunction | 8209 Feb 26 03:36 | 8° \mathbf{H} 48'19 | 9°51'26 | direct | 8215 Nov 29 13:56 | 22° \mathbf{H} 26'16 | |
| minimum elong | 8209 Feb 26 03:58 | 8° \mathbf{H} 48'21 | 9°51'29 | evening set | 8216 Feb 28 14:33 | 24° \mathbf{H} 22'04 | |
| max. Earth dist. | 8209 Feb 26 14:44 | 8° \mathbf{H} 49'23 | 31.26087 AU | | | | |
| morning rise | 8209 Mar 09 22:11 | 9° \mathbf{H} 15'25 | | conjunction | 8216 Mar 13 20:29 | 24° \mathbf{H} 53'16 | 5°54'09 |
| retrograde | 8209 Jun 09 18:17 | 11° \mathbf{H} 20'52 | | minimum elong | 8216 Mar 13 20:44 | 24° \mathbf{H} 53'18 | 5°54'09 |
| opposition | 8209 Aug 26 11:30 | 9° \mathbf{H} 59'45 | 10°14'33 | max. Earth dist. | 8216 Mar 15 00:29 | 24° \mathbf{H} 55'51 | 32.27759 AU |
| min. Earth dist. | 8209 Aug 25 23:45 | 10° \mathbf{H} 00'33 | 29.34951 AU | morning rise | 8216 Mar 28 01:29 | 25° \mathbf{H} 24'24 | |
| direct | 8209 Nov 14 10:28 | 8° \mathbf{H} 36'40 | | retrograde | 8216 Jun 25 00:41 | 27° \mathbf{H} 17'57 | |
| evening set | 8210 Feb 16 12:41 | 10° \mathbf{H} 43'23 | | opposition | 8216 Sep 11 17:12 | 25° \mathbf{H} 58'45 | 5°58'56 |
| | | | | min. Earth dist. | 8216 Sep 10 13:20 | 26° \mathbf{H} 00'35 | 30.37447 AU |
| conjunction | 8210 Feb 28 18:35 | 11° \mathbf{H} 11'23 | 9°19'00 | direct | 8216 Dec 01 03:46 | 24° \mathbf{H} 38'06 | |
| minimum elong | 8210 Feb 28 18:58 | 11° \mathbf{H} 11'25 | 9°19'03 | evening set | 8217 Mar 01 18:47 | 26° \mathbf{H} 32'18 | |
| max. Earth dist. | 8210 Mar 01 08:56 | 11° \mathbf{H} 12'46 | 31.38190 AU | | | | |
| morning rise | 8210 Mar 12 23:44 | 11° \mathbf{H} 39'20 | | conjunction | 8217 Mar 16 06:09 | 27° \mathbf{H} 03'46 | 5°19'04 |
| retrograde | 8210 Jun 12 06:05 | 13° \mathbf{H} 42'55 | | minimum elong | 8217 Mar 16 06:22 | 27° \mathbf{H} 03'47 | 5°19'04 |
| opposition | 8210 Aug 29 04:07 | 12° \mathbf{H} 22'05 | 9°39'26 | max. Earth dist. | 8217 Mar 17 12:22 | 27° \mathbf{H} 06'31 | 32.45530 AU |
| min. Earth dist. | 8210 Aug 28 14:06 | 12° \mathbf{H} 23'02 | 29.47141 AU | morning rise | 8217 Mar 30 16:31 | 27° \mathbf{H} 35'09 | |
| direct | 8210 Nov 17 05:35 | 10° \mathbf{H} 59'21 | | retrograde | 8217 Jun 27 09:15 | 29° \mathbf{H} 27'16 | |
| evening set | 8211 Feb 18 16:54 | 13° \mathbf{H} 04'05 | | min. Earth dist. | 8217 Sep 12 21:52 | 28° \mathbf{H} 10'24 | 30.55421 AU |
| | | | | opposition | 8217 Sep 14 04:44 | 28° \mathbf{H} 08'24 | 5°21'23 |
| conjunction | 8211 Mar 03 08:38 | 13° \mathbf{H} 32'51 | 8°45'56 | direct | 8217 Dec 03 18:34 | 26° \mathbf{H} 48'08 | |
| minimum elong | 8211 Mar 03 08:58 | 13° \mathbf{H} 32'53 | 8°46'00 | evening set | 8218 Mar 03 23:00 | 28° \mathbf{H} 40'51 | |
| max. Earth dist. | 8211 Mar 04 00:23 | 13° \mathbf{H} 34'21 | 31.51141 AU | | | | |
| morning rise | 8211 Mar 15 23:49 | 14° \mathbf{H} 01'33 | | conjunction | 8218 Mar 18 15:03 | 29° \mathbf{H} 12'30 | 4°43'55 |
| retrograde | 8211 Jun 14 19:22 | 16° \mathbf{H} 03'19 | | minimum elong | 8218 Mar 18 15:15 | 29° \mathbf{H} 12'31 | 4°43'55 |
| opposition | 8211 Aug 31 20:04 | 14° \mathbf{H} 42'45 | 9°03'41 | max. Earth dist. | 8218 Mar 19 23:28 | 29° \mathbf{H} 15'26 | 32.64131 AU |
| min. Earth dist. | 8211 Aug 31 03:13 | 14° \mathbf{H} 43'53 | 29.60187 AU | morning rise | 8218 Apr 02 06:15 | 29° \mathbf{H} 44'05 | |
| direct | 8211 Nov 19 21:26 | 13° \mathbf{H} 20'21 | | | 8218 Apr 09 21:07 | 0° \mathbf{Y} | |
| evening set | 8212 Feb 20 21:13 | 15° \mathbf{H} 23'11 | | retrograde | 8218 Jun 29 17:05 | 1° \mathbf{Y} 34'52 | |
| | | | | min. Earth dist. | 8218 Sep 15 06:37 | 0° \mathbf{Y} 18'29 | 30.74248 AU |
| conjunction | 8212 Mar 04 22:16 | 15° \mathbf{H} 52'37 | 8°12'19 | opposition | 8218 Sep 16 15:47 | 0° \mathbf{Y} 16'20 | 4°43'49 |
| minimum elong | 8212 Mar 04 22:36 | 15° \mathbf{H} 52'39 | 8°12'22 | | 8218 Sep 27 06:17 | 30° \mathbf{R} \mathbf{H} | |
| max. Earth dist. | 8212 Mar 05 17:18 | 15° \mathbf{H} 54'25 | 31.64905 AU | direct | 8218 Dec 06 05:38 | 28° \mathbf{H} 56'30 | |
| morning rise | 8212 Mar 17 22:22 | 16° \mathbf{H} 21'58 | | | 8219 Feb 09 20:35 | 0° \mathbf{Y} | |
| retrograde | 8212 Jun 16 06:12 | 18° \mathbf{H} 21'58 | | evening set | 8219 Mar 06 02:54 | 0° \mathbf{Y} 47'47 | |
| opposition | 8212 Sep 02 11:16 | 17° \mathbf{H} 01'41 | 8°27'25 | | | | |
| min. Earth dist. | 8212 Sep 01 17:00 | 17° \mathbf{H} 02'54 | 29.74029 AU | conjunction | 8219 Mar 20 23:12 | 1° \mathbf{Y} 19'34 | 4°08'47 |
| direct | 8212 Nov 21 13:54 | 15° \mathbf{H} 39'37 | | minimum elong | 8219 Mar 20 23:22 | 1° \mathbf{Y} 19'34 | 4°08'47 |
| evening set | 8213 Feb 22 01:45 | 17° \mathbf{H} 40'36 | | max. Earth dist. | 8219 Mar 22 10:29 | 1° \mathbf{Y} 22'44 | 32.83534 AU |
| | | | | morning rise | 8219 Apr 04 18:23 | 1° \mathbf{Y} 51'16 | |
| conjunction | 8213 Mar 07 11:00 | 18° \mathbf{H} 10'36 | 7°38'15 | retrograde | 8219 Jul 01 22:13 | 3° \mathbf{Y} 40'47 | |
| minimum elong | 8213 Mar 07 11:19 | 18° \mathbf{H} 10'37 | 7°38'18 | min. Earth dist. | 8219 Sep 17 14:53 | 2° \mathbf{Y} 24'53 | 30.93843 AU |
| max. Earth dist. | 8213 Mar 08 07:10 | 18° \mathbf{H} 12'29 | 31.79444 AU | opposition | 8219 Sep 19 02:04 | 2° \mathbf{Y} 22'38 | 4°06'20 |
| morning rise | 8213 Mar 20 19:35 | 18° \mathbf{H} 40'31 | | direct | 8219 Dec 08 18:02 | 1° \mathbf{Y} 03'14 | |
| retrograde | 8213 Jun 18 18:51 | 20° \mathbf{H} 38'48 | | evening set | 8220 Mar 07 07:01 | 2° \mathbf{Y} 53'10 | |
| min. Earth dist. | 8213 Sep 04 04:17 | 19° \mathbf{H} 20'12 | 29.88659 AU | | | | |
| opposition | 8213 Sep 05 01:46 | 19° \mathbf{H} 18'47 | 7°50'43 | conjunction | 8220 Mar 22 06:38 | 3° \mathbf{Y} 25'01 | 3°33'44 |
| direct | 8213 Nov 24 06:22 | 17° \mathbf{H} 57'03 | | minimum elong | 8220 Mar 22 06:47 | 3° \mathbf{Y} 25'01 | 3°33'44 |
| evening set | 8214 Feb 24 06:02 | 19° \mathbf{H} 56'14 | | max. Earth dist. | 8220 Mar 23 19:07 | 3° \mathbf{Y} 28'16 | 33.03642 AU |
| | | | | morning rise | 8220 Apr 06 05:29 | 3° \mathbf{Y} 56'47 | |
| conjunction | 8214 Mar 09 23:01 | 20° \mathbf{H} 26'43 | 7°03'49 | retrograde | 8220 Jul 03 05:12 | 5° \mathbf{Y} 45'07 | |
| minimum elong | 8214 Mar 09 23:19 | 20° \mathbf{H} 26'45 | 7°03'50 | min. Earth dist. | 8220 Sep 18 21:43 | 4° \mathbf{Y} 29'44 | 31.14143 AU |
| max. Earth dist. | 8214 Mar 10 22:30 | 20° \mathbf{H} 28'55 | 31.94745 AU | opposition | 8220 Sep 20 11:29 | 4° \mathbf{Y} 27'19 | 3°29'00 |
| morning rise | 8214 Mar 23 15:01 | 20° \mathbf{H} 57'07 | | direct | 8220 Dec 10 02:25 | 3° \mathbf{Y} 08'22 | |
| retrograde | 8214 Jun 21 05:08 | 22° \mathbf{H} 53'46 | | evening set | 8221 Mar 09 10:55 | 4° \mathbf{Y} 57'01 | |
| opposition | 8214 Sep 07 15:43 | 21° \mathbf{H} 34'00 | 7°13'41 | | | | |
| min. Earth dist. | 8214 Sep 06 16:55 | 21° \mathbf{H} 35'30 | 30.04080 AU | conjunction | 8221 Mar 24 13:35 | 5° \mathbf{Y} 28'52 | 2°58'51 |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| minimum elong | 8221 Mar 24 13:42 | 5°♈28'53 | 2°58'50 | min. Earth dist. | 8227 Oct 03 11:54 | 18°♈17'55 | 32.69552 AU |
| max. Earth dist. | 8221 Mar 26 04:54 | 5°♈32'22 | 33.24384 AU | opposition | 8227 Oct 05 12:18 | 18°♈14'57 | -0°42'55 |
| morning rise | 8221 Apr 08 15:09 | 6°♈00'39 | | direct | 8227 Dec 25 12:55 | 16°♈58'47 | |
| retrograde | 8221 Jul 05 10:01 | 7°♈47'52 | | evening set | 8228 Mar 22 11:23 | 18°♈39'52 | |
| min. Earth dist. | 8221 Sep 21 05:49 | 6°♈32'54 | 31.35046 AU | | | | |
| opposition | 8221 Sep 22 20:29 | 6°♈30'26 | 2°51'54 | conjunction | 8228 Apr 06 18:56 | 19°♈10'27 | -0°56'40 |
| direct | 8221 Dec 12 11:52 | 5°♈11'56 | | minimum elong | 8228 Apr 06 18:54 | 19°♈10'27 | 0°56'43 |
| evening set | 8222 Mar 11 14:52 | 6°♈59'21 | | max. Earth dist. | 8228 Apr 08 20:17 | 19°♈14'35 | 34.81492 AU |
| | | | | morning rise | 8228 Apr 22 01:39 | 19°♈40'59 | |
| conjunction | 8222 Mar 26 19:38 | 7°♈31'09 | 2°24'10 | retrograde | 8228 Jul 18 08:48 | 21°♈21'36 | |
| minimum elong | 8222 Mar 26 19:44 | 7°♈31'10 | 2°24'09 | min. Earth dist. | 8228 Oct 04 15:16 | 20°♈09'26 | 32.93264 AU |
| max. Earth dist. | 8222 Mar 28 11:39 | 7°♈34'41 | 33.45668 AU | opposition | 8228 Oct 06 16:27 | 20°♈06'26 | -1°17'02 |
| morning rise | 8222 Apr 10 23:38 | 8°♈02'54 | | direct | 8228 Dec 26 19:28 | 18°♈50'37 | |
| retrograde | 8222 Jul 07 17:01 | 9°♈49'02 | | evening set | 8229 Mar 24 14:15 | 20°♈30'49 | |
| min. Earth dist. | 8222 Sep 23 11:18 | 8°♈34'35 | 31.56482 AU | | | | |
| opposition | 8222 Sep 25 04:45 | 8°♈31'59 | 2°15'05 | conjunction | 8229 Apr 08 20:24 | 21°♈01'04 | -1°28'34 |
| direct | 8222 Dec 14 20:49 | 7°♈13'54 | | minimum elong | 8229 Apr 08 20:21 | 21°♈01'04 | 1°28'37 |
| evening set | 8223 Mar 13 18:38 | 9°♈00'09 | | max. Earth dist. | 8229 Apr 10 22:09 | 21°♈05'13 | 35.05377 AU |
| | | | | morning rise | 8229 Apr 24 02:06 | 21°♈31'16 | |
| conjunction | 8223 Mar 29 01:13 | 9°♈31'52 | 1°49'46 | retrograde | 8229 Jul 20 10:04 | 23°♈11'09 | |
| minimum elong | 8223 Mar 29 01:18 | 9°♈31'52 | 1°49'45 | min. Earth dist. | 8229 Oct 06 16:20 | 21°♈59'25 | 33.17407 AU |
| max. Earth dist. | 8223 Mar 30 19:46 | 9°♈35'34 | 33.67417 AU | opposition | 8229 Oct 08 20:03 | 21°♈56'17 | -1°50'34 |
| morning rise | 8223 Apr 13 06:51 | 10°♈03'30 | | direct | 8229 Dec 28 22:30 | 20°♈40'50 | |
| retrograde | 8223 Jul 09 22:32 | 11°♈48'37 | | evening set | 8230 Mar 26 16:40 | 22°♈20'13 | |
| min. Earth dist. | 8223 Sep 25 18:25 | 10°♈34'32 | 31.78376 AU | | | | |
| opposition | 8223 Sep 27 12:26 | 10°♈31'55 | 1°38'37 | conjunction | 8230 Apr 10 21:18 | 22°♈50'06 | -1°59'57 |
| direct | 8223 Dec 17 05:13 | 9°♈14'15 | | minimum elong | 8230 Apr 10 21:13 | 22°♈50'05 | 2°00'00 |
| evening set | 8224 Mar 14 22:20 | 10°♈59'23 | | max. Earth dist. | 8230 Apr 13 01:35 | 22°♈54'25 | 35.29669 AU |
| | | | | morning rise | 8230 Apr 26 01:16 | 23°♈19'57 | |
| conjunction | 8224 Mar 30 06:05 | 11°♈30'57 | 1°15'41 | retrograde | 8230 Jul 22 09:50 | 24°♈59'09 | |
| minimum elong | 8224 Mar 30 06:08 | 11°♈30'57 | 1°15'39 | min. Earth dist. | 8230 Oct 08 18:58 | 23°♈47'45 | 33.41962 AU |
| max. Earth dist. | 8224 Apr 01 01:17 | 11°♈34'41 | 33.89574 AU | opposition | 8230 Oct 10 23:12 | 23°♈44'36 | -2°23'29 |
| morning rise | 8224 Apr 14 12:59 | 12°♈02'27 | | direct | 8230 Dec 31 01:21 | 22°♈29'33 | |
| retrograde | 8224 Jul 11 03:35 | 13°♈46'35 | | evening set | 8231 Mar 28 19:03 | 24°♈08'10 | |
| min. Earth dist. | 8224 Sep 26 23:03 | 12°♈32'58 | 32.00650 AU | | | | |
| opposition | 8224 Sep 28 19:20 | 12°♈30'13 | 1°02'32 | conjunction | 8231 Apr 12 21:36 | 24°♈37'39 | -2°30'46 |
| direct | 8224 Dec 18 13:45 | 11°♈12'57 | | minimum elong | 8231 Apr 12 21:31 | 24°♈37'39 | 2°30'50 |
| evening set | 8225 Mar 17 01:59 | 12°♈57'01 | | max. Earth dist. | 8231 Apr 15 02:28 | 24°♈41'59 | 35.54350 AU |
| | | | | morning rise | 8231 Apr 27 23:40 | 25°♈07'07 | |
| conjunction | 8225 Apr 01 10:20 | 13°♈28'24 | 0°41'58 | retrograde | 8231 Jul 24 10:49 | 26°♈45'42 | |
| minimum elong | 8225 Apr 01 10:21 | 13°♈28'24 | 0°41'56 | min. Earth dist. | 8231 Oct 10 18:51 | 25°♈34'45 | 33.66889 AU |
| max. Earth dist. | 8225 Apr 03 07:03 | 13°♈32'14 | 34.12057 AU | opposition | 8231 Oct 13 01:27 | 25°♈31'29 | -2°55'48 |
| morning rise | 8225 Apr 16 17:56 | 13°♈59'43 | | direct | 8232 Jan 02 04:31 | 24°♈16'49 | |
| retrograde | 8225 Jul 13 06:37 | 15°♈42'54 | | evening set | 8232 Mar 29 21:13 | 25°♈54'44 | |
| min. Earth dist. | 8225 Sep 29 04:36 | 14°♈29'38 | 32.23274 AU | | | | |
| opposition | 8225 Oct 01 01:41 | 14°♈26'51 | 0°26'54 | conjunction | 8232 Apr 13 21:21 | 26°♈23'49 | -3°01'01 |
| direct | 8225 Dec 20 21:50 | 13°♈09'58 | | minimum elong | 8232 Apr 13 21:15 | 26°♈23'49 | 3°01'05 |
| evening set | 8226 Mar 19 05:21 | 14°♈53'00 | | max. Earth dist. | 8232 Apr 16 03:56 | 26°♈28'16 | 35.79347 AU |
| | | | | morning rise | 8232 Apr 28 21:05 | 26°♈52'53 | |
| conjunction | 8226 Apr 03 13:58 | 15°♈24'09 | 0°08'41 | retrograde | 8232 Jul 25 11:27 | 28°♈30'53 | |
| minimum elong | 8226 Apr 03 13:59 | 15°♈24'09 | 0°08'39 | min. Earth dist. | 8232 Oct 11 20:11 | 27°♈20'17 | 33.92126 AU |
| behind sun begin | 8226 Apr 03 08:24 | 15°♈23'42 | | opposition | 8232 Oct 14 03:21 | 27°♈17'00 | -3°27'27 |
| behind sun end | 8226 Apr 03 19:33 | 15°♈24'36 | | direct | 8233 Jan 03 06:46 | 26°♈02'45 | |
| max. Earth dist. | 8226 Apr 05 12:06 | 15°♈28'04 | 34.34870 AU | evening set | 8233 Mar 31 23:11 | 27°♈40'01 | |
| morning rise | 8226 Apr 18 21:42 | 15°♈55'14 | | | | | |
| desc. node | 8226 Jul 08 12:59 | 17°♈36'50 | | conjunction | 8233 Apr 15 20:36 | 28°♈08'41 | -3°30'41 |
| retrograde | 8226 Jul 15 08:16 | 17°♈37'31 | | minimum elong | 8233 Apr 15 20:29 | 28°♈08'40 | 3°30'46 |
| min. Earth dist. | 8226 Oct 01 08:44 | 16°♈24'39 | 32.46227 AU | max. Earth dist. | 8233 Apr 18 04:11 | 28°♈13'10 | 36.04604 AU |
| opposition | 8226 Oct 03 07:20 | 16°♈21'46 | -0°08'16 | morning rise | 8233 Apr 30 17:29 | 28°♈37'18 | |
| direct | 8226 Dec 23 07:19 | 15°♈05'15 | | | 8233 Jun 25 04:48 | 0°♊ | |
| evening set | 8227 Mar 21 08:30 | 16°♈47'17 | | retrograde | 8233 Jul 27 09:44 | 0°♊14'47 | |
| | | | | | 8233 Aug 29 08:48 | 30°♋♈ | |
| conjunction | 8227 Apr 05 16:40 | 17°♈18'10 | -0°24'16 | min. Earth dist. | 8233 Oct 13 20:12 | 29°♈04'35 | 34.17580 AU |
| minimum elong | 8227 Apr 05 16:39 | 17°♈18'10 | 0°24'18 | opposition | 8233 Oct 16 04:34 | 29°♈01'15 | -3°58'27 |
| max. Earth dist. | 8227 Apr 07 15:43 | 17°♈22'08 | 34.57998 AU | direct | 8234 Jan 05 10:20 | 27°♈47'24 | |
| morning rise | 8227 Apr 21 00:17 | 17°♈48'59 | | evening set | 8234 Apr 03 01:10 | 29°♈24'04 | |
| retrograde | 8227 Jul 17 10:25 | 19°♈30'25 | | | | | |

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|------------------|-------------------|------------------------------------|------------------|-------------------|-------------------------------------|
| conjunction | 8234 Apr 17 19:17 | 29° Υ 52'16 -3°59'44 | retrograde | 8240 Aug 07 11:13 | 11° \mathcal{B} 47'41 |
| minimum elong | 8234 Apr 17 19:09 | 29° Υ 52'15 3°59'49 | min. Earth dist. | 8240 Oct 25 10:02 | 10° \mathcal{B} 39'43 35.97163 AU |
| max. Earth dist. | 8234 Apr 20 03:22 | 29° Υ 56'46 36.30031 AU | opposition | 8240 Oct 27 22:43 | 10° \mathcal{B} 36'15 -7°16'26 |
| | 8234 Apr 21 19:41 | 0° \mathcal{B} | direct | 8241 Jan 17 08:43 | 9° \mathcal{B} 24'49 |
| morning rise | 8234 May 02 13:14 | 0° \mathcal{B} 20'27 | evening set | 8241 Apr 15 08:57 | 10° \mathcal{B} 58'09 |
| retrograde | 8234 Jul 29 08:01 | 1° \mathcal{B} 57'26 | | | |
| min. Earth dist. | 8234 Oct 15 19:52 | 0° \mathcal{B} 47'38 34.43207 AU | conjunction | 8241 Apr 28 20:38 | 11° \mathcal{B} 22'43 -7°05'42 |
| opposition | 8234 Oct 18 05:25 | 0° \mathcal{B} 44'15 -4°28'46 | minimum elong | 8241 Apr 28 20:26 | 11° \mathcal{B} 22'43 7°05'50 |
| | 8234 Nov 20 19:52 | 30° $\mathcal{R}\Upsilon$ | max. Earth dist. | 8241 May 01 08:41 | 11° \mathcal{B} 27'19 38.08540 AU |
| direct | 8235 Jan 07 11:13 | 29° Υ 30'48 | morning rise | 8241 May 12 08:27 | 11° \mathcal{B} 47'19 |
| | 8235 Feb 22 08:56 | 0° \mathcal{B} | retrograde | 8241 Aug 09 04:56 | 13° \mathcal{B} 21'40 |
| evening set | 8235 Apr 05 02:44 | 1° \mathcal{B} 06'54 | min. Earth dist. | 8241 Oct 27 05:57 | 12° \mathcal{B} 14'01 36.22884 AU |
| | | | opposition | 8241 Oct 29 19:50 | 12° \mathcal{B} 10'30 -7°41'57 |
| conjunction | 8235 Apr 19 17:34 | 1° \mathcal{B} 34'38 -4°28'11 | direct | 8242 Jan 19 07:22 | 10° \mathcal{B} 59'23 |
| minimum elong | 8235 Apr 19 17:25 | 1° \mathcal{B} 34'37 4°28'16 | evening set | 8242 Apr 17 09:05 | 12° \mathcal{B} 32'21 |
| max. Earth dist. | 8235 Apr 22 03:17 | 1° \mathcal{B} 39'14 36.55572 AU | | | |
| morning rise | 8235 May 04 07:56 | 2° \mathcal{B} 02'21 | conjunction | 8242 Apr 30 15:30 | 12° \mathcal{B} 56'22 -7°29'43 |
| retrograde | 8235 Jul 31 03:31 | 3° \mathcal{B} 38'53 | minimum elong | 8242 Apr 30 15:18 | 12° \mathcal{B} 56'21 7°29'50 |
| min. Earth dist. | 8235 Oct 17 20:06 | 2° \mathcal{B} 29'25 34.68902 AU | max. Earth dist. | 8242 May 03 05:17 | 13° \mathcal{B} 01'03 38.34119 AU |
| opposition | 8235 Oct 20 05:41 | 2° \mathcal{B} 26'02 -4°58'25 | morning rise | 8242 May 13 21:46 | 13° \mathcal{B} 20'23 |
| direct | 8236 Jan 09 13:49 | 1° \mathcal{B} 12'58 | retrograde | 8242 Aug 10 20:57 | 14° \mathcal{B} 54'29 |
| evening set | 8236 Apr 06 04:27 | 2° \mathcal{B} 48'32 | min. Earth dist. | 8242 Oct 29 02:34 | 13° \mathcal{B} 47'05 36.48697 AU |
| | | | opposition | 8242 Oct 31 16:29 | 13° \mathcal{B} 43'35 -8°06'45 |
| conjunction | 8236 Apr 20 15:20 | 3° \mathcal{B} 15'47 -4°56'00 | direct | 8243 Jan 21 06:34 | 12° \mathcal{B} 32'47 |
| minimum elong | 8236 Apr 20 15:10 | 3° \mathcal{B} 15'46 4°56'05 | evening set | 8243 Apr 19 09:02 | 14° \mathcal{B} 05'25 |
| max. Earth dist. | 8236 Apr 23 00:32 | 3° \mathcal{B} 20'19 36.81138 AU | | | |
| morning rise | 8236 May 05 02:07 | 3° \mathcal{B} 43'01 | conjunction | 8243 May 02 09:42 | 14° \mathcal{B} 28'52 -7°53'05 |
| retrograde | 8236 Aug 01 01:40 | 5° \mathcal{B} 19'08 | minimum elong | 8243 May 02 09:29 | 14° \mathcal{B} 28'51 7°53'13 |
| min. Earth dist. | 8236 Oct 18 18:07 | 4° \mathcal{B} 10'03 34.94614 AU | max. Earth dist. | 8243 May 04 23:12 | 14° \mathcal{B} 33'30 38.59788 AU |
| opposition | 8236 Oct 21 05:13 | 4° \mathcal{B} 06'37 -5°27'24 | morning rise | 8243 May 15 10:29 | 14° \mathcal{B} 52'19 |
| direct | 8237 Jan 10 12:44 | 2° \mathcal{B} 53'54 | | 8243 May 19 19:08 | 15° \mathcal{B} |
| evening set | 8237 Apr 08 05:52 | 4° \mathcal{B} 28'58 | retrograde | 8243 Aug 12 15:36 | 16° \mathcal{B} 26'11 |
| | | | min. Earth dist. | 8243 Oct 30 20:51 | 15° \mathcal{B} 19'09 36.74596 AU |
| conjunction | 8237 Apr 22 12:47 | 4° \mathcal{B} 55'43 -5°23'12 | opposition | 8243 Nov 02 12:33 | 15° \mathcal{B} 15'34 -8°30'52 |
| minimum elong | 8237 Apr 22 12:37 | 4° \mathcal{B} 55'42 5°23'18 | | 8243 Nov 14 03:51 | 15° $\mathcal{R}\mathcal{B}$ |
| max. Earth dist. | 8237 Apr 24 23:22 | 5° \mathcal{B} 00'19 37.06680 AU | direct | 8244 Jan 23 02:21 | 14° \mathcal{B} 05'06 |
| morning rise | 8237 May 06 19:24 | 5° \mathcal{B} 22'27 | | 8244 Mar 28 20:42 | 15° \mathcal{B} |
| retrograde | 8237 Aug 02 22:20 | 6° \mathcal{B} 58'10 | evening set | 8244 Apr 20 08:47 | 15° \mathcal{B} 37'27 |
| min. Earth dist. | 8237 Oct 20 18:01 | 5° \mathcal{B} 49'20 35.20289 AU | | | |
| opposition | 8237 Oct 23 04:31 | 5° \mathcal{B} 45'57 -5°55'41 | conjunction | 8244 May 03 03:40 | 16° \mathcal{B} 00'18 -8°15'48 |
| direct | 8238 Jan 12 12:19 | 4° \mathcal{B} 33'35 | minimum elong | 8244 May 03 03:27 | 16° \mathcal{B} 00'17 8°15'54 |
| evening set | 8238 Apr 10 07:00 | 6° \mathcal{B} 08'10 | max. Earth dist. | 8244 May 05 18:38 | 16° \mathcal{B} 05'02 38.85512 AU |
| | | | morning rise | 8244 May 15 22:34 | 16° \mathcal{B} 23'11 |
| conjunction | 8238 Apr 24 09:29 | 6° \mathcal{B} 34'23 -5°49'47 | retrograde | 8244 Aug 13 09:54 | 17° \mathcal{B} 56'52 |
| minimum elong | 8238 Apr 24 09:18 | 6° \mathcal{B} 34'22 5°49'52 | min. Earth dist. | 8244 Oct 31 16:56 | 16° \mathcal{B} 50'04 37.00534 AU |
| max. Earth dist. | 8238 Apr 26 19:45 | 6° \mathcal{B} 38'56 37.32173 AU | opposition | 8244 Nov 03 08:10 | 16° \mathcal{B} 46'32 -8°54'16 |
| morning rise | 8238 May 08 11:49 | 7° \mathcal{B} 00'37 | direct | 8245 Jan 23 21:30 | 15° \mathcal{B} 36'23 |
| retrograde | 8238 Aug 04 20:12 | 8° \mathcal{B} 35'57 | evening set | 8245 Apr 22 08:25 | 17° \mathcal{B} 08'29 |
| min. Earth dist. | 8238 Oct 22 15:12 | 7° \mathcal{B} 27'27 35.45915 AU | | | |
| opposition | 8238 Oct 25 03:08 | 7° \mathcal{B} 24'00 -6°23'17 | conjunction | 8245 May 04 21:12 | 17° \mathcal{B} 30'45 -8°37'52 |
| direct | 8239 Jan 14 11:05 | 6° \mathcal{B} 11'58 | minimum elong | 8245 May 04 20:59 | 17° \mathcal{B} 30'44 8°38'00 |
| evening set | 8239 Apr 12 07:56 | 7° \mathcal{B} 46'06 | max. Earth dist. | 8245 May 07 12:07 | 17° \mathcal{B} 35'27 39.11256 AU |
| | | | morning rise | 8245 May 17 10:00 | 17° \mathcal{B} 53'02 |
| conjunction | 8239 Apr 26 05:46 | 8° \mathcal{B} 11'47 -6°15'44 | retrograde | 8245 Aug 15 05:17 | 19° \mathcal{B} 26'33 |
| minimum elong | 8239 Apr 26 05:35 | 8° \mathcal{B} 11'46 6°15'50 | min. Earth dist. | 8245 Nov 02 11:01 | 18° \mathcal{B} 20'05 37.26457 AU |
| max. Earth dist. | 8239 Apr 28 16:59 | 8° \mathcal{B} 16'22 37.57612 AU | opposition | 8245 Nov 05 03:23 | 18° \mathcal{B} 16'31 -9°17'00 |
| morning rise | 8239 May 10 03:34 | 8° \mathcal{B} 37'29 | direct | 8246 Jan 25 15:27 | 17° \mathcal{B} 06'41 |
| retrograde | 8239 Aug 06 17:54 | 10° \mathcal{B} 12'28 | evening set | 8246 Apr 24 07:45 | 18° \mathcal{B} 38'34 |
| min. Earth dist. | 8239 Oct 24 13:18 | 9° \mathcal{B} 04'12 35.71531 AU | | | |
| opposition | 8239 Oct 27 01:13 | 9° \mathcal{B} 00'46 -6°50'12 | conjunction | 8246 May 06 14:11 | 19° \mathcal{B} 00'14 -8°59'19 |
| direct | 8240 Jan 16 08:31 | 7° \mathcal{B} 49'02 | minimum elong | 8246 May 06 13:58 | 19° \mathcal{B} 00'13 8°59'26 |
| evening set | 8240 Apr 13 08:31 | 9° \mathcal{B} 22'45 | max. Earth dist. | 8246 May 09 05:37 | 19° \mathcal{B} 04'56 39.36946 AU |
| | | | morning rise | 8246 May 18 20:51 | 19° \mathcal{B} 21'56 |
| conjunction | 8240 Apr 27 01:33 | 9° \mathcal{B} 47'53 -6°41'02 | retrograde | 8246 Aug 16 23:37 | 20° \mathcal{B} 55'18 |
| minimum elong | 8240 Apr 27 01:21 | 9° \mathcal{B} 47'53 6°41'08 | min. Earth dist. | 8246 Nov 04 05:54 | 19° \mathcal{B} 49'06 37.52318 AU |
| max. Earth dist. | 8240 Apr 29 13:29 | 9° \mathcal{B} 52'30 37.83058 AU | opposition | 8246 Nov 06 22:21 | 19° \mathcal{B} 45'33 -9°39'02 |
| morning rise | 8240 May 10 18:22 | 10° \mathcal{B} 13'02 | direct | 8247 Jan 27 09:07 | 18° \mathcal{B} 36'03 |

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|------------------|-------------------|-----------------------|------------------|-------------------|-----------------------|
| evening set | 8247 Apr 26 07:02 | 20°♄07'43 | retrograde | 8253 Aug 26 10:17 | 0°♄50'10 |
| | | | | 8253 Nov 02 21:31 | 30°♄♄ |
| conjunction | 8247 May 08 07:06 | 20°♄28'47 -9°20'08 | min. Earth dist. | 8253 Nov 14 06:17 | 29°♄45'33 39.27599 AU |
| minimum elong | 8247 May 08 06:53 | 20°♄28'46 9°20'16 | opposition | 8253 Nov 16 23:08 | 29°♄42'04 -11°55'27 |
| max. Earth dist. | 8247 May 10 23:15 | 20°♄33'30 39.62538 AU | direct | 8254 Feb 06 14:57 | 28°♄34'26 |
| morning rise | 8247 May 20 07:09 | 20°♄49'53 | | 8254 May 04 18:30 | 0°♄ |
| retrograde | 8247 Aug 18 13:59 | 22°♄23'07 | evening set | 8254 May 07 21:27 | 0°♄05'12 |
| min. Earth dist. | 8247 Nov 06 00:24 | 21°♄17'11 37.78031 AU | | | |
| opposition | 8247 Nov 08 16:39 | 21°♄13'38 -10°00'25 | conjunction | 8254 May 17 18:45 | 0°♄21'52 -11°29'12 |
| direct | 8248 Jan 29 06:24 | 20°♄04'27 | minimum elong | 8254 May 17 18:33 | 0°♄21'52 11°29'20 |
| evening set | 8248 Apr 27 06:18 | 21°♄35'57 | max. Earth dist. | 8254 May 20 11:23 | 0°♄26'26 41.35679 AU |
| | | | morning rise | 8254 May 27 16:05 | 0°♄38'34 |
| conjunction | 8248 May 08 23:32 | 21°♄56'24 -9°40'20 | retrograde | 8254 Aug 27 21:14 | 2°♄11'23 |
| minimum elong | 8248 May 08 23:19 | 21°♄56'23 9°40'27 | min. Earth dist. | 8254 Nov 15 22:23 | 1°♄06'58 39.51964 AU |
| max. Earth dist. | 8248 May 11 14:45 | 22°♄01'02 39.87950 AU | opposition | 8254 Nov 18 14:51 | 1°♄03'31 -12°12'26 |
| morning rise | 8248 May 20 17:03 | 22°♄16'53 | | 8255 Jan 21 19:56 | 30°♄♄ |
| retrograde | 8248 Aug 19 05:38 | 23°♄50'01 | direct | 8255 Feb 08 09:49 | 29°♄56'08 |
| min. Earth dist. | 8248 Nov 06 17:48 | 22°♄44'22 38.03549 AU | | 8255 Feb 25 16:25 | 0°♄ |
| opposition | 8248 Nov 09 10:43 | 22°♄40'48 -10°21'09 | evening set | 8255 May 09 19:28 | 1°♄26'53 |
| direct | 8249 Jan 30 01:36 | 21°♄31'54 | | | |
| evening set | 8249 Apr 29 05:13 | 23°♄03'15 | conjunction | 8255 May 19 08:38 | 1°♄42'55 -11°45'18 |
| | | | minimum elong | 8255 May 19 08:25 | 1°♄42'54 11°45'26 |
| conjunction | 8249 May 10 15:43 | 23°♄23'05 -9°59'56 | max. Earth dist. | 8255 May 22 00:25 | 1°♄47'24 41.59808 AU |
| minimum elong | 8249 May 10 15:30 | 23°♄23'04 10°00'05 | morning rise | 8255 May 28 22:01 | 1°♄58'57 |
| max. Earth dist. | 8249 May 13 07:54 | 23°♄27'45 40.13131 AU | retrograde | 8255 Aug 29 11:12 | 3°♄31'48 |
| morning rise | 8249 May 22 02:15 | 23°♄42'57 | min. Earth dist. | 8255 Nov 17 12:22 | 2°♄27'41 39.76252 AU |
| retrograde | 8249 Aug 20 20:02 | 25°♄16'00 | opposition | 8255 Nov 20 06:00 | 2°♄24'11 -12°28'49 |
| min. Earth dist. | 8249 Nov 08 12:40 | 24°♄10'31 38.28810 AU | direct | 8256 Feb 10 01:21 | 1°♄17'05 |
| opposition | 8249 Nov 11 04:31 | 24°♄07'01 -10°41'16 | evening set | 8256 May 10 17:13 | 2°♄47'50 |
| direct | 8250 Jan 31 21:15 | 22°♄58'24 | | | |
| evening set | 8250 May 01 04:12 | 24°♄29'35 | conjunction | 8256 May 19 22:20 | 3°♄03'12 -12°00'49 |
| | | | minimum elong | 8256 May 19 22:09 | 3°♄03'12 12°00'58 |
| conjunction | 8250 May 12 07:32 | 24°♄48'48 -10°18'57 | max. Earth dist. | 8256 May 22 15:10 | 3°♄07'44 41.83845 AU |
| minimum elong | 8250 May 12 07:19 | 24°♄48'47 10°19'05 | morning rise | 8256 May 29 03:35 | 3°♄18'36 |
| max. Earth dist. | 8250 May 14 22:41 | 24°♄53'22 40.38056 AU | retrograde | 8256 Aug 30 01:25 | 4°♄51'31 |
| morning rise | 8250 May 23 11:01 | 25°♄08'02 | min. Earth dist. | 8256 Nov 18 04:25 | 3°♄47'35 40.00431 AU |
| retrograde | 8250 Aug 22 12:16 | 26°♄41'00 | opposition | 8256 Nov 20 21:07 | 3°♄44'09 -12°44'35 |
| min. Earth dist. | 8250 Nov 10 04:55 | 25°♄35'48 38.53809 AU | direct | 8257 Feb 10 16:38 | 2°♄37'20 |
| opposition | 8250 Nov 12 21:45 | 25°♄32'16 -11°00'44 | evening set | 8257 May 12 14:54 | 4°♄08'06 |
| direct | 8251 Feb 02 14:21 | 24°♄23'54 | | | |
| evening set | 8251 May 03 02:45 | 25°♄54'56 | conjunction | 8257 May 21 11:36 | 4°♄22'49 -12°15'46 |
| | | | minimum elong | 8257 May 21 11:24 | 4°♄22'48 12°15'55 |
| conjunction | 8251 May 13 22:53 | 26°♄13'31 -10°37'23 | max. Earth dist. | 8257 May 24 04:08 | 4°♄27'18 42.07766 AU |
| minimum elong | 8251 May 13 22:40 | 26°♄13'30 10°37'32 | morning rise | 8257 May 30 08:22 | 4°♄37'34 |
| max. Earth dist. | 8251 May 16 14:33 | 26°♄18'06 40.62719 AU | retrograde | 8257 Aug 31 15:58 | 6°♄10'34 |
| morning rise | 8251 May 24 19:13 | 26°♄32'08 | min. Earth dist. | 8257 Nov 19 18:12 | 5°♄06'56 40.24457 AU |
| retrograde | 8251 Aug 24 04:55 | 28°♄05'02 | opposition | 8257 Nov 22 11:47 | 5°♄03'28 -12°59'46 |
| min. Earth dist. | 8251 Nov 11 22:43 | 26°♄59'58 38.78571 AU | direct | 8258 Feb 12 06:03 | 3°♄56'55 |
| opposition | 8251 Nov 14 14:43 | 26°♄56'30 -11°19'36 | evening set | 8258 May 14 12:32 | 5°♄27'45 |
| direct | 8252 Feb 04 06:24 | 25°♄48'23 | | | |
| evening set | 8252 May 04 01:14 | 27°♄19'18 | conjunction | 8258 May 23 00:39 | 5°♄41'49 -12°30'11 |
| | | | minimum elong | 8258 May 23 00:28 | 5°♄41'48 12°30'21 |
| conjunction | 8252 May 14 13:57 | 27°♄37'15 -10°55'15 | max. Earth dist. | 8258 May 25 17:07 | 5°♄46'16 42.31508 AU |
| minimum elong | 8252 May 14 13:45 | 27°♄37'14 10°55'23 | morning rise | 8258 May 31 12:59 | 5°♄55'53 |
| max. Earth dist. | 8252 May 17 05:35 | 27°♄41'48 40.87174 AU | retrograde | 8258 Sep 02 07:42 | 7°♄29'01 |
| morning rise | 8252 May 25 02:42 | 27°♄55'14 | min. Earth dist. | 8258 Nov 21 09:09 | 6°♄25'34 40.48296 AU |
| retrograde | 8252 Aug 24 19:41 | 29°♄28'04 | opposition | 8258 Nov 24 02:17 | 6°♄22'09 -13°14'22 |
| min. Earth dist. | 8252 Nov 12 14:37 | 28°♄23'13 39.03139 AU | direct | 8259 Feb 13 17:42 | 5°♄15'54 |
| opposition | 8252 Nov 15 06:58 | 28°♄19'45 -11°37'50 | evening set | 8259 May 16 10:08 | 6°♄46'48 |
| direct | 8253 Feb 04 22:46 | 27°♄11'52 | | | |
| evening set | 8253 May 05 23:29 | 28°♄42'42 | conjunction | 8259 May 24 13:34 | 7°♄00'12 -12°44'03 |
| | | | minimum elong | 8259 May 24 13:22 | 7°♄00'11 12°44'12 |
| conjunction | 8253 May 16 04:29 | 29°♄00'01 -11°12'31 | max. Earth dist. | 8259 May 27 06:26 | 7°♄04'39 42.55034 AU |
| minimum elong | 8253 May 16 04:15 | 29°♄00'00 11°12'39 | morning rise | 8259 Jun 01 16:59 | 7°♄13'36 |
| max. Earth dist. | 8253 May 18 19:51 | 29°♄04'31 41.11471 AU | retrograde | 8259 Sep 03 19:30 | 8°♄46'51 |
| morning rise | 8253 May 26 09:44 | 29°♄17'21 | min. Earth dist. | 8259 Nov 22 23:51 | 7°♄43'37 40.71858 AU |
| | 8253 Jun 22 10:29 | 0°♄ | opposition | 8259 Nov 25 16:23 | 7°♄40'15 -13°28'25 |

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| direct | 8260 Feb 15 08:52 | 6°II34'15 | | retrograde | 8266 Sep 12 03:05 | 17°II33'03 | |
| evening set | 8260 May 17 07:52 | 8°II05'16 | | min. Earth dist. | 8266 Dec 01 21:52 | 16°II30'55 | 42.26881 AU |
| | | | | opposition | 8266 Dec 04 11:19 | 16°II27'46 | -14°52'30 |
| conjunction | 8260 May 25 02:08 | 8°II17'59 | -12°57'25 | direct | 8267 Feb 24 07:43 | 15°II23'14 | |
| minimum elong | 8260 May 25 01:58 | 8°II17'58 | 12°57'35 | evening set | 8267 May 29 18:45 | 16°II55'32 | |
| max. Earth dist. | 8260 May 27 17:43 | 8°II22'20 | 42.78254 AU | | | | |
| morning rise | 8260 Jun 01 20:35 | 8°II30'42 | | conjunction | 8267 Jun 03 11:24 | 17°II02'58 | -14°17'27 |
| retrograde | 8260 Sep 04 06:51 | 10°II04'06 | | minimum elong | 8267 Jun 03 11:16 | 17°II02'58 | 14°17'36 |
| min. Earth dist. | 8260 Nov 23 13:23 | 9°II01'07 | 40.95099 AU | max. Earth dist. | 8267 Jun 06 00:41 | 17°II07'01 | 44.30986 AU |
| opposition | 8260 Nov 26 06:10 | 8°II57'43 | -13°41'56 | morning rise | 8267 Jun 08 04:00 | 17°II10'24 | |
| direct | 8261 Feb 15 23:37 | 7°II51'59 | | retrograde | 8267 Sep 13 12:51 | 18°II45'22 | |
| evening set | 8261 May 19 05:33 | 9°II23'07 | | min. Earth dist. | 8267 Dec 03 08:44 | 17°II43'27 | 42.47913 AU |
| | | | | opposition | 8267 Dec 05 23:05 | 17°II40'16 | -15°02'30 |
| conjunction | 8261 May 26 14:40 | 9°II35'09 | -13°10'17 | direct | 8268 Feb 25 21:02 | 16°II35'56 | |
| minimum elong | 8261 May 26 14:29 | 9°II35'08 | 13°10'26 | evening set | 8268 May 30 18:21 | 18°II08'37 | |
| max. Earth dist. | 8261 May 29 06:48 | 9°II39'31 | 43.01124 AU | | | | |
| morning rise | 8261 Jun 02 23:46 | 9°II47'10 | | conjunction | 8268 Jun 03 21:56 | 18°II15'10 | -14°26'58 |
| retrograde | 8261 Sep 05 17:21 | 11°II20'44 | | minimum elong | 8268 Jun 03 21:48 | 18°II15'09 | 14°27'08 |
| min. Earth dist. | 8261 Nov 25 04:33 | 10°II17'52 | 41.17954 AU | max. Earth dist. | 8268 Jun 06 11:37 | 18°II19'13 | 44.51759 AU |
| opposition | 8261 Nov 27 19:54 | 10°II14'34 | -13°54'57 | morning rise | 8268 Jun 08 01:25 | 18°II21'42 | |
| direct | 8262 Feb 17 16:14 | 9°II09'04 | | retrograde | 8268 Sep 14 00:58 | 19°II57'06 | |
| evening set | 8262 May 21 03:21 | 10°II40'20 | | min. Earth dist. | 8268 Dec 03 21:27 | 18°II55'18 | 42.68729 AU |
| | | | | opposition | 8268 Dec 06 10:40 | 18°II52'11 | -15°12'01 |
| conjunction | 8262 May 28 02:46 | 10°II51'38 | -13°22'40 | direct | 8269 Feb 26 08:37 | 17°II48'03 | |
| minimum elong | 8262 May 28 02:36 | 10°II51'38 | 13°22'49 | evening set | 8269 Jun 01 19:23 | 19°II21'15 | |
| max. Earth dist. | 8262 May 30 17:34 | 10°II55'54 | 43.23605 AU | | | | |
| morning rise | 8262 Jun 04 02:12 | 11°II02'57 | | conjunction | 8269 Jun 05 08:21 | 19°II26'48 | -14°36'02 |
| retrograde | 8262 Sep 07 06:28 | 12°II36'41 | | minimum elong | 8269 Jun 05 08:15 | 19°II26'48 | 14°36'12 |
| min. Earth dist. | 8262 Nov 26 17:26 | 11°II34'02 | 41.40402 AU | morning rise | 8269 Jun 08 21:13 | 19°II32'21 | |
| opposition | 8262 Nov 29 09:11 | 11°II30'44 | -14°07'27 | max. Earth dist. | 8269 Jun 07 21:48 | 19°II30'49 | 44.72326 AU |
| direct | 8263 Feb 19 05:38 | 10°II25'26 | | retrograde | 8269 Sep 15 12:04 | 21°II08'17 | |
| evening set | 8263 May 23 01:11 | 11°II56'50 | | min. Earth dist. | 8269 Dec 05 08:30 | 20°II06'42 | 42.89302 AU |
| | | | | opposition | 8269 Dec 07 21:59 | 20°II03'35 | -15°21'04 |
| conjunction | 8263 May 29 14:42 | 12°II07'25 | -13°34'34 | direct | 8270 Feb 27 18:50 | 18°II59'40 | |
| minimum elong | 8263 May 29 14:33 | 12°II07'24 | 13°34'43 | evening set | 8270 Jun 03 22:14 | 20°II33'30 | |
| max. Earth dist. | 8263 Jun 01 05:13 | 12°II11'37 | 43.45678 AU | | | | |
| morning rise | 8263 Jun 05 04:16 | 12°II18'00 | | conjunction | 8270 Jun 06 18:21 | 20°II37'56 | -14°44'39 |
| retrograde | 8263 Sep 08 19:37 | 13°II51'55 | | minimum elong | 8270 Jun 06 18:13 | 20°II37'56 | 14°44'49 |
| min. Earth dist. | 8263 Nov 28 07:41 | 12°II49'21 | 41.62465 AU | morning rise | 8270 Jun 09 14:19 | 20°II42'22 | |
| opposition | 8263 Nov 30 22:07 | 12°II46'08 | -14°19'28 | max. Earth dist. | 8270 Jun 09 06:55 | 20°II41'53 | 44.92631 AU |
| direct | 8264 Feb 20 17:38 | 11°II41'02 | | retrograde | 8270 Sep 16 23:32 | 22°II19'00 | |
| evening set | 8264 May 23 23:15 | 13°II12'35 | | min. Earth dist. | 8270 Dec 06 20:10 | 21°II17'34 | 43.09602 AU |
| | | | | opposition | 8270 Dec 09 09:10 | 21°II14'30 | -15°29'39 |
| conjunction | 8264 May 30 02:24 | 13°II22'25 | -13°46'00 | direct | 8271 Mar 01 04:27 | 20°II10'48 | |
| minimum elong | 8264 May 30 02:14 | 13°II22'25 | 13°46'10 | evening set | 8271 Jun 06 06:06 | 21°II45'37 | |
| max. Earth dist. | 8264 Jun 01 16:53 | 13°II26'36 | 43.67400 AU | | | | |
| morning rise | 8264 Jun 05 05:28 | 13°II32'16 | | conjunction | 8271 Jun 08 04:29 | 21°II48'38 | -14°52'50 |
| retrograde | 8264 Sep 09 07:02 | 15°II06'22 | | minimum elong | 8271 Jun 08 04:23 | 21°II48'38 | 14°53'01 |
| min. Earth dist. | 8264 Nov 28 20:29 | 14°II03'58 | 41.84185 AU | morning rise | 8271 Jun 10 02:43 | 21°II51'38 | |
| opposition | 8264 Dec 01 10:45 | 14°II00'45 | -14°30'58 | max. Earth dist. | 8271 Jun 10 17:36 | 21°II52'36 | 45.12636 AU |
| direct | 8265 Feb 21 06:00 | 12°II55'50 | | retrograde | 8271 Sep 18 07:11 | 23°II29'16 | |
| evening set | 8265 May 25 21:16 | 14°II27'35 | | min. Earth dist. | 8271 Dec 08 08:09 | 22°II27'59 | 43.29552 AU |
| | | | | opposition | 8271 Dec 10 19:57 | 22°II24'58 | -15°37'48 |
| conjunction | 8265 May 31 13:30 | 14°II36'40 | -13°56'58 | direct | 8272 Mar 01 16:49 | 21°II21'29 | |
| minimum elong | 8265 May 31 13:21 | 14°II36'39 | 13°57'07 | | | | |
| max. Earth dist. | 8265 Jun 03 02:59 | 14°II40'45 | 43.88815 AU | conjunction | 8272 Jun 08 14:19 | 22°II58'54 | -15°00'37 |
| morning rise | 8265 Jun 06 05:47 | 14°II45'44 | | minimum elong | 8272 Jun 08 14:12 | 22°II58'53 | 15°00'47 |
| retrograde | 8265 Sep 10 18:38 | 16°II20'04 | | max. Earth dist. | 8272 Jun 11 01:42 | 23°II02'44 | 45.32274 AU |
| min. Earth dist. | 8265 Nov 30 08:42 | 15°II17'49 | 42.05646 AU | retrograde | 8272 Sep 18 16:49 | 24°II39'07 | |
| opposition | 8265 Dec 02 23:13 | 15°II14'37 | -14°41'59 | min. Earth dist. | 8272 Dec 08 18:37 | 23°II38'03 | 43.49110 AU |
| direct | 8266 Feb 22 17:26 | 14°II09'53 | | opposition | 8272 Dec 11 06:38 | 23°II35'02 | -15°45'31 |
| evening set | 8266 May 27 19:45 | 15°II41'53 | | direct | 8273 Mar 03 03:36 | 22°II31'45 | |
| | | | | | | | |
| conjunction | 8266 Jun 02 00:39 | 15°II50'10 | -14°07'27 | conjunction | 8273 Jun 09 23:57 | 24°II08'44 | -15°07'59 |
| minimum elong | 8266 Jun 02 00:29 | 15°II50'09 | 14°07'37 | minimum elong | 8273 Jun 09 23:52 | 24°II08'44 | 15°08'10 |
| max. Earth dist. | 8266 Jun 04 14:59 | 15°II54'18 | 44.10000 AU | max. Earth dist. | 8273 Jun 12 11:21 | 24°II12'33 | 45.51482 AU |
| morning rise | 8266 Jun 07 05:26 | 15°II58'25 | | retrograde | 8273 Sep 20 02:43 | 25°II48'34 | |

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|------------------|-------------------|--------------------------|-------------|------------------|-------------------|--------------------------|-------------|
| min. Earth dist. | 8273 Dec 10 07:12 | 24° Π 47'34 | 43.68211 AU | max. Earth dist. | 8281 Jun 21 05:35 | 3° \mathfrak{D} 12'49 | 46.90879 AU |
| opposition | 8273 Dec 12 17:20 | 24° Π 44'40 | -15°52'50 | retrograde | 8281 Sep 29 02:37 | 4° \mathfrak{D} 46'06 | |
| direct | 8274 Mar 04 15:46 | 23° Π 41'35 | | min. Earth dist. | 8281 Dec 19 15:22 | 3° \mathfrak{D} 46'01 | 45.06992 AU |
| | | | | opposition | 8281 Dec 21 21:20 | 3° \mathfrak{D} 43'22 | -16°37'13 |
| conjunction | 8274 Jun 11 09:36 | 25° Π 18'07 | -15°14'59 | direct | 8282 Mar 13 18:31 | 2° \mathfrak{D} 41'32 | |
| minimum elong | 8274 Jun 11 09:31 | 25° Π 18'07 | 15°15'08 | | | | |
| max. Earth dist. | 8274 Jun 13 19:56 | 25° Π 21'52 | 45.70234 AU | conjunction | 8282 Jun 20 06:14 | 4° \mathfrak{D} 14'53 | -15°57'16 |
| retrograde | 8274 Sep 21 13:30 | 26° Π 57'33 | | minimum elong | 8282 Jun 20 06:13 | 4° \mathfrak{D} 14'53 | 15°57'26 |
| min. Earth dist. | 8274 Dec 11 17:29 | 25° Π 56'43 | 43.86826 AU | max. Earth dist. | 8282 Jun 22 12:02 | 4° \mathfrak{D} 18'14 | 47.07008 AU |
| opposition | 8274 Dec 14 03:32 | 25° Π 53'49 | -15°59'45 | retrograde | 8282 Sep 30 11:15 | 5° \mathfrak{D} 51'16 | |
| direct | 8275 Mar 06 01:30 | 24° Π 50'54 | | min. Earth dist. | 8282 Dec 20 23:53 | 4° \mathfrak{D} 51'20 | 45.23041 AU |
| | | | | opposition | 8282 Dec 23 05:53 | 4° \mathfrak{D} 48'42 | -16°41'00 |
| conjunction | 8275 Jun 12 18:54 | 26° Π 27'01 | -15°21'36 | direct | 8283 Mar 15 01:15 | 3° \mathfrak{D} 47'02 | |
| minimum elong | 8275 Jun 12 18:50 | 26° Π 27'01 | 15°21'47 | | | | |
| max. Earth dist. | 8275 Jun 15 04:00 | 26° Π 30'40 | 45.88500 AU | conjunction | 8283 Jun 21 14:10 | 5° \mathfrak{D} 20'03 | -16°00'52 |
| retrograde | 8275 Sep 23 01:41 | 28° Π 06'02 | | minimum elong | 8283 Jun 21 14:08 | 5° \mathfrak{D} 20'03 | 16°01'02 |
| min. Earth dist. | 8275 Dec 13 04:45 | 27° Π 05'17 | 44.04977 AU | max. Earth dist. | 8283 Jun 23 20:15 | 5° \mathfrak{D} 23'24 | 47.22822 AU |
| opposition | 8275 Dec 15 13:40 | 27° Π 02'27 | -16°06'18 | retrograde | 8283 Oct 01 16:39 | 6° \mathfrak{D} 56'07 | |
| direct | 8276 Mar 06 08:18 | 25° Π 59'42 | | min. Earth dist. | 8283 Dec 22 10:09 | 5° \mathfrak{D} 56'15 | 45.38733 AU |
| | | | | opposition | 8283 Dec 24 14:24 | 5° \mathfrak{D} 53'42 | -16°44'25 |
| conjunction | 8276 Jun 13 04:03 | 27° Π 35'23 | -15°27'51 | direct | 8284 Mar 15 11:54 | 4° \mathfrak{D} 52'11 | |
| minimum elong | 8276 Jun 13 03:58 | 27° Π 35'23 | 15°28'00 | | | | |
| max. Earth dist. | 8276 Jun 15 13:16 | 27° Π 39'01 | 46.06329 AU | conjunction | 8284 Jun 21 21:54 | 6° \mathfrak{D} 24'52 | -16°04'07 |
| retrograde | 8276 Sep 23 09:06 | 29° Π 13'59 | | minimum elong | 8284 Jun 21 21:54 | 6° \mathfrak{D} 24'52 | 16°04'17 |
| min. Earth dist. | 8276 Dec 13 15:28 | 28° Π 13'18 | 44.22702 AU | max. Earth dist. | 8284 Jun 24 02:47 | 6° \mathfrak{D} 28'08 | 47.38267 AU |
| opposition | 8276 Dec 15 23:26 | 28° Π 10'32 | -16°12'27 | retrograde | 8284 Oct 01 23:43 | 8° \mathfrak{D} 00'38 | |
| direct | 8277 Mar 07 19:21 | 27° Π 07'55 | | min. Earth dist. | 8284 Dec 22 18:15 | 7° \mathfrak{D} 00'55 | 45.54019 AU |
| | | | | opposition | 8284 Dec 24 22:37 | 6° \mathfrak{D} 58'22 | -16°47'30 |
| conjunction | 8277 Jun 14 12:50 | 28° Π 43'11 | -15°33'43 | direct | 8285 Mar 16 22:08 | 5° \mathfrak{D} 57'00 | |
| minimum elong | 8277 Jun 14 12:46 | 28° Π 43'11 | 15°33'54 | | | | |
| max. Earth dist. | 8277 Jun 16 20:34 | 28° Π 46'42 | 46.23786 AU | conjunction | 8285 Jun 23 05:34 | 7° \mathfrak{D} 29'22 | -16°07'03 |
| | 8277 Aug 11 17:08 | 0° \mathfrak{D} | | minimum elong | 8285 Jun 23 05:32 | 7° \mathfrak{D} 29'22 | 16°07'13 |
| retrograde | 8277 Sep 24 15:36 | 0° \mathfrak{D} 21'22 | | max. Earth dist. | 8285 Jun 25 09:25 | 7° \mathfrak{D} 32'33 | 47.53272 AU |
| | 8277 Nov 08 18:25 | 30° \mathfrak{R} Π | | retrograde | 8285 Oct 03 10:30 | 9° \mathfrak{D} 04'49 | |
| min. Earth dist. | 8277 Dec 15 00:51 | 29° Π 20'50 | 44.40100 AU | min. Earth dist. | 8285 Dec 24 04:12 | 8° \mathfrak{D} 05'09 | 45.68849 AU |
| opposition | 8277 Dec 17 09:03 | 29° Π 18'03 | -16°18'12 | opposition | 8285 Dec 26 06:55 | 8° \mathfrak{D} 02'41 | -16°50'15 |
| direct | 8278 Mar 09 05:56 | 28° Π 15'35 | | direct | 8286 Mar 18 05:31 | 7° \mathfrak{D} 01'28 | |
| | | | | | | | |
| conjunction | 8278 Jun 15 21:27 | 29° Π 50'26 | -15°39'11 | conjunction | 8286 Jun 24 13:14 | 8° \mathfrak{D} 33'30 | -16°09'40 |
| minimum elong | 8278 Jun 15 21:23 | 29° Π 50'26 | 15°39'21 | minimum elong | 8286 Jun 24 13:15 | 8° \mathfrak{D} 33'30 | 16°09'50 |
| max. Earth dist. | 8278 Jun 18 05:42 | 29° Π 53'59 | 46.40936 AU | max. Earth dist. | 8286 Jun 26 16:43 | 8° \mathfrak{D} 36'39 | 47.67807 AU |
| | 8278 Jun 22 05:22 | 0° \mathfrak{D} | | retrograde | 8286 Oct 04 18:07 | 10° \mathfrak{D} 08'38 | |
| retrograde | 8278 Sep 25 22:39 | 1° \mathfrak{D} 28'15 | | min. Earth dist. | 8286 Dec 25 13:04 | 9° \mathfrak{D} 09'03 | 45.83164 AU |
| min. Earth dist. | 8278 Dec 16 11:39 | 0° \mathfrak{D} 27'46 | 44.57206 AU | opposition | 8286 Dec 27 14:56 | 9° \mathfrak{D} 06'38 | -16°52'42 |
| opposition | 8278 Dec 18 18:30 | 0° \mathfrak{D} 25'04 | -16°23'34 | direct | 8287 Mar 19 13:15 | 8° \mathfrak{D} 05'32 | |
| | 8279 Jan 09 12:00 | 30° \mathfrak{R} Π | | | | | |
| direct | 8279 Mar 10 18:14 | 29° Π 22'45 | | conjunction | 8287 Jun 25 20:40 | 9° \mathfrak{D} 37'14 | -16°11'59 |
| | 8279 May 07 11:48 | 0° \mathfrak{D} | | minimum elong | 8287 Jun 25 20:40 | 9° \mathfrak{D} 37'14 | 16°12'09 |
| | | | | max. Earth dist. | 8287 Jun 27 22:05 | 9° \mathfrak{D} 40'15 | 47.81834 AU |
| conjunction | 8279 Jun 17 05:58 | 0° \mathfrak{D} 57'12 | -15°44'17 | retrograde | 8287 Oct 06 01:43 | 11° \mathfrak{D} 12'02 | |
| minimum elong | 8279 Jun 17 05:54 | 0° \mathfrak{D} 57'11 | 15°44'27 | min. Earth dist. | 8287 Dec 26 21:29 | 10° \mathfrak{D} 12'31 | 45.96990 AU |
| max. Earth dist. | 8279 Jun 19 13:23 | 1° \mathfrak{D} 00'41 | 46.57832 AU | opposition | 8287 Dec 28 22:40 | 10° \mathfrak{D} 10'09 | -16°54'50 |
| retrograde | 8279 Sep 27 07:52 | 2° \mathfrak{D} 34'38 | | direct | 8288 Mar 19 19:36 | 9° \mathfrak{D} 09'10 | |
| min. Earth dist. | 8279 Dec 17 20:05 | 1° \mathfrak{D} 34'19 | 44.74054 AU | | | | |
| opposition | 8279 Dec 20 03:26 | 1° \mathfrak{D} 31'35 | -16°28'30 | conjunction | 8288 Jun 26 04:00 | 10° \mathfrak{D} 40'32 | -16°14'01 |
| direct | 8280 Mar 11 03:54 | 0° \mathfrak{D} 29'25 | | minimum elong | 8288 Jun 26 04:01 | 10° \mathfrak{D} 40'32 | 16°14'12 |
| | | | | max. Earth dist. | 8288 Jun 28 05:35 | 10° \mathfrak{D} 43'33 | 47.95389 AU |
| conjunction | 8280 Jun 17 14:12 | 2° \mathfrak{D} 03'30 | -15°48'59 | retrograde | 8288 Oct 06 06:10 | 12° \mathfrak{D} 15'00 | |
| minimum elong | 8280 Jun 17 14:10 | 2° \mathfrak{D} 03'29 | 15°49'09 | min. Earth dist. | 8288 Dec 27 06:55 | 11° \mathfrak{D} 15'30 | 46.10363 AU |
| max. Earth dist. | 8280 Jun 19 21:02 | 2° \mathfrak{D} 06'55 | 46.74475 AU | opposition | 8288 Dec 29 06:26 | 11° \mathfrak{D} 13'13 | -16°56'39 |
| retrograde | 8280 Sep 27 18:23 | 3° \mathfrak{D} 40'34 | | direct | 8289 Mar 21 05:25 | 10° \mathfrak{D} 12'20 | |
| min. Earth dist. | 8280 Dec 18 06:06 | 2° \mathfrak{D} 40'21 | 44.90660 AU | | | | |
| opposition | 8280 Dec 20 12:30 | 2° \mathfrak{D} 37'41 | -16°33'03 | conjunction | 8289 Jun 27 10:57 | 11° \mathfrak{D} 43'23 | -16°15'44 |
| direct | 8281 Mar 12 11:13 | 1° \mathfrak{D} 35'41 | | minimum elong | 8289 Jun 27 10:58 | 11° \mathfrak{D} 43'23 | 16°15'53 |
| | | | | max. Earth dist. | 8289 Jun 29 11:13 | 11° \mathfrak{D} 46'19 | 48.08543 AU |
| conjunction | 8281 Jun 18 22:18 | 3° \mathfrak{D} 09'23 | -15°53'19 | retrograde | 8289 Oct 07 12:17 | 13° \mathfrak{D} 17'33 | |
| minimum elong | 8281 Jun 18 22:15 | 3° \mathfrak{D} 09'23 | 15°53'29 | min. Earth dist. | 8289 Dec 28 14:02 | 12° \mathfrak{D} 18'10 | 46.23362 AU |

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| opposition | 8289 Dec 30 13:56 | 12°☾15'52 -16°58'09 | conjunction | 8298 Jul 06 21:40 | 20°☾56'11 -16°17'10 |
| direct | 8290 Mar 22 13:52 | 11°☾15'05 | minimum elong | 8298 Jul 06 21:44 | 20°☾56'11 16°17'20 |
| | | | max. Earth dist. | 8298 Jul 08 15:58 | 20°☾58'41 49.12453 AU |
| conjunction | 8290 Jun 28 17:53 | 12°☾45'50 -16°17'07 | retrograde | 8298 Oct 17 02:50 | 22°☾28'11 |
| minimum elong | 8290 Jun 28 17:54 | 12°☾45'50 16°17'18 | min. Earth dist. | 8299 Jan 07 11:49 | 21°☾29'30 47.25625 AU |
| max. Earth dist. | 8290 Jun 30 17:35 | 12°☾48'43 48.21343 AU | opposition | 8299 Jan 09 03:33 | 21°☾27'37 -16°57'21 |
| retrograde | 8290 Oct 08 20:38 | 14°☾19'42 | direct | 8299 Apr 01 00:01 | 20°☾27'58 |
| min. Earth dist. | 8290 Dec 29 22:56 | 13°☾20'21 46.36042 AU | | | |
| opposition | 8290 Dec 31 21:16 | 13°☾18'07 -16°59'19 | conjunction | 8299 Jul 08 03:52 | 21°☾56'35 -16°15'56 |
| direct | 8291 Mar 23 21:45 | 12°☾17'27 | minimum elong | 8299 Jul 08 03:58 | 21°☾56'35 16°16'07 |
| | | | max. Earth dist. | 8299 Jul 09 20:11 | 21°☾58'58 49.21892 AU |
| conjunction | 8291 Jun 30 00:47 | 13°☾47'54 -16°18'12 | retrograde | 8299 Oct 18 06:58 | 23°☾28'21 |
| minimum elong | 8291 Jun 30 00:49 | 13°☾47'54 16°18'22 | min. Earth dist. | 8300 Jan 08 18:16 | 22°☾29'44 47.34772 AU |
| max. Earth dist. | 8291 Jul 02 00:33 | 13°☾50'47 48.33858 AU | opposition | 8300 Jan 10 09:49 | 22°☾27'52 -16°55'52 |
| retrograde | 8291 Oct 10 04:20 | 15°☾21'30 | direct | 8300 Apr 02 06:43 | 21°☾28'17 |
| min. Earth dist. | 8291 Dec 31 06:10 | 14°☾22'15 46.48424 AU | | | |
| opposition | 8292 Jan 02 04:24 | 14°☾20'02 -17°00'10 | conjunction | 8300 Jul 09 09:48 | 22°☾56'40 -16°14'28 |
| direct | 8292 Mar 24 03:55 | 13°☾19'29 | minimum elong | 8300 Jul 09 09:52 | 22°☾56'40 16°14'37 |
| | | | max. Earth dist. | 8300 Jul 11 01:10 | 22°☾58'59 49.30804 AU |
| conjunction | 8292 Jun 30 07:17 | 14°☾49'41 -16°18'57 | retrograde | 8300 Oct 19 12:48 | 24°☾28'13 |
| minimum elong | 8292 Jun 30 07:19 | 14°☾49'41 16°19'08 | min. Earth dist. | 8301 Jan 10 02:34 | 23°☾29'33 47.43425 AU |
| max. Earth dist. | 8292 Jul 02 05:32 | 14°☾52'27 48.46088 AU | opposition | 8301 Jan 11 16:06 | 23°☾27'47 -16°54'08 |
| retrograde | 8292 Oct 10 12:41 | 16°☾23'01 | direct | 8301 Apr 03 15:27 | 22°☾28'16 |
| min. Earth dist. | 8292 Dec 31 13:31 | 15°☾23'52 46.60536 AU | | | |
| opposition | 8293 Jan 02 11:29 | 15°☾21'40 -17°00'40 | conjunction | 8301 Jul 10 15:46 | 23°☾56'24 -16°12'44 |
| direct | 8293 Mar 25 07:40 | 14°☾21'16 | minimum elong | 8301 Jul 10 15:52 | 23°☾56'24 16°12'55 |
| | | | max. Earth dist. | 8301 Jul 12 06:49 | 23°☾58'41 49.39271 AU |
| conjunction | 8293 Jul 01 13:54 | 15°☾51'12 -16°19'23 | retrograde | 8301 Oct 20 19:13 | 25°☾27'43 |
| minimum elong | 8293 Jul 01 13:57 | 15°☾51'12 16°19'33 | min. Earth dist. | 8302 Jan 11 08:46 | 24°☾29'06 47.51651 AU |
| max. Earth dist. | 8293 Jul 03 12:36 | 15°☾54'00 48.58048 AU | opposition | 8302 Jan 12 22:03 | 24°☾27'21 -16°52'07 |
| retrograde | 8293 Oct 11 17:22 | 17°☾24'18 | direct | 8302 Apr 04 22:36 | 23°☾27'53 |
| min. Earth dist. | 8294 Jan 01 21:50 | 16°☾25'13 46.72357 AU | | | |
| opposition | 8294 Jan 03 18:28 | 16°☾23'05 -17°00'51 | conjunction | 8302 Jul 11 21:26 | 24°☾55'47 -16°10'45 |
| direct | 8294 Mar 26 15:31 | 15°☾22'49 | minimum elong | 8302 Jul 11 21:31 | 24°☾55'48 16°10'54 |
| | | | max. Earth dist. | 8302 Jul 13 10:41 | 24°☾57'58 49.47343 AU |
| conjunction | 8294 Jul 02 20:18 | 16°☾52'31 -16°19'31 | retrograde | 8302 Oct 22 04:08 | 26°☾26'53 |
| minimum elong | 8294 Jul 02 20:20 | 16°☾52'31 16°19'41 | min. Earth dist. | 8303 Jan 12 15:29 | 25°☾28'17 47.59520 AU |
| max. Earth dist. | 8294 Jul 04 17:47 | 16°☾55'14 48.69723 AU | opposition | 8303 Jan 14 03:59 | 25°☾26'34 -16°49'50 |
| retrograde | 8294 Oct 12 22:07 | 18°☾25'23 | direct | 8303 Apr 06 01:09 | 24°☾27'10 |
| min. Earth dist. | 8295 Jan 03 04:21 | 17°☾26'28 46.83864 AU | | | |
| opposition | 8295 Jan 05 01:14 | 17°☾24'19 -17°00'43 | conjunction | 8303 Jul 13 03:13 | 25°☾54'52 -16°08'29 |
| direct | 8295 Mar 28 00:14 | 16°☾24'11 | minimum elong | 8303 Jul 13 03:19 | 25°☾54'52 16°08'39 |
| | | | max. Earth dist. | 8303 Jul 14 16:46 | 25°☾57'03 49.55073 AU |
| conjunction | 8295 Jul 04 02:42 | 17°☾53'40 -16°19'20 | retrograde | 8303 Oct 23 09:06 | 27°☾25'44 |
| minimum elong | 8295 Jul 04 02:46 | 17°☾53'40 16°19'30 | min. Earth dist. | 8304 Jan 13 22:29 | 26°☾27'09 47.67049 AU |
| max. Earth dist. | 8295 Jul 05 23:30 | 17°☾56'20 48.81050 AU | opposition | 8304 Jan 15 09:41 | 26°☾25'29 -16°47'17 |
| retrograde | 8295 Oct 14 06:43 | 19°☾26'19 | direct | 8304 Apr 06 07:02 | 25°☾26'09 |
| min. Earth dist. | 8296 Jan 04 12:47 | 18°☾27'27 46.95005 AU | | | |
| opposition | 8296 Jan 06 07:55 | 18°☾25'24 -17°00'17 | conjunction | 8304 Jul 13 08:47 | 26°☾53'39 -16°05'57 |
| direct | 8296 Mar 28 07:45 | 17°☾25'24 | minimum elong | 8304 Jul 13 08:53 | 26°☾53'39 16°06'06 |
| | | | max. Earth dist. | 8304 Jul 14 20:59 | 26°☾55'46 49.62502 AU |
| conjunction | 8296 Jul 04 09:08 | 18°☾54'40 -16°18'53 | retrograde | 8304 Oct 23 12:00 | 28°☾24'19 |
| minimum elong | 8296 Jul 04 09:11 | 18°☾54'40 16°19'03 | min. Earth dist. | 8305 Jan 14 03:51 | 27°☾25'49 47.74283 AU |
| max. Earth dist. | 8296 Jul 06 05:31 | 18°☾57'19 48.91997 AU | opposition | 8305 Jan 15 15:22 | 27°☾24'09 -16°44'26 |
| retrograde | 8296 Oct 14 14:37 | 20°☾27'07 | direct | 8305 Apr 07 13:11 | 26°☾24'52 |
| min. Earth dist. | 8297 Jan 04 19:52 | 19°☾28'21 47.05714 AU | | | |
| opposition | 8297 Jan 06 14:31 | 19°☾26'20 -16°59'34 | conjunction | 8305 Jul 14 14:09 | 27°☾52'12 -16°03'09 |
| direct | 8297 Mar 29 13:27 | 18°☾26'28 | minimum elong | 8305 Jul 14 14:15 | 27°☾52'12 16°03'19 |
| | | | max. Earth dist. | 8305 Jul 16 01:49 | 27°☾54'16 49.69626 AU |
| conjunction | 8297 Jul 05 15:15 | 19°☾55'31 -16°18'09 | retrograde | 8305 Oct 24 16:55 | 29°☾22'42 |
| minimum elong | 8297 Jul 05 15:20 | 19°☾55'31 16°18'19 | min. Earth dist. | 8306 Jan 15 11:16 | 28°☾24'11 47.81211 AU |
| max. Earth dist. | 8297 Jul 07 09:46 | 19°☾58'02 49.02482 AU | opposition | 8306 Jan 16 21:09 | 28°☾22'36 -16°41'19 |
| retrograde | 8297 Oct 15 23:03 | 21°☾27'45 | direct | 8306 Apr 08 20:49 | 27°☾23'24 |
| min. Earth dist. | 8298 Jan 06 03:37 | 20°☾29'03 47.15943 AU | | | |
| opposition | 8298 Jan 07 21:10 | 20°☾27'05 -16°58'35 | conjunction | 8306 Jul 15 19:43 | 28°☾50'34 -16°00'04 |
| direct | 8298 Mar 30 17:19 | 19°☾27'21 | minimum elong | 8306 Jul 15 19:50 | 28°☾50'34 16°00'13 |
| | | | max. Earth dist. | 8306 Jul 17 07:09 | 28°☾52'37 49.76453 AU |

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| | 8306 Sep 10 16:55 | 0°♏ | | minimum elong | 8314 Jul 23 14:05 | 6°♏33'22 | 15°27'04 |
| retrograde | 8306 Oct 25 23:12 | 0°♏20'54 | | max. Earth dist. | 8314 Jul 24 16:21 | 6°♏34'52 | 50.15275 AU |
| | 8306 Dec 11 03:47 | 30°♏ | | retrograde | 8314 Nov 02 19:13 | 8°♏02'37 | |
| min. Earth dist. | 8307 Jan 16 16:44 | 29°♏22'29 | 47.87810 AU | opposition | 8315 Jan 25 20:26 | 7°♏03'07 | -16°02'10 |
| opposition | 8307 Jan 18 02:32 | 29°♏20'54 | -16°37'55 | min. Earth dist. | 8315 Jan 24 18:55 | 7°♏04'18 | 48.24260 AU |
| direct | 8307 Apr 10 02:52 | 28°♏21'47 | | direct | 8315 Apr 17 16:12 | 6°♏04'28 | |
| | | | | | | | |
| conjunction | 8307 Jul 17 01:04 | 29°♏48'48 | -15°56'44 | conjunction | 8315 Jul 24 18:56 | 7°♏30'28 | -15°21'45 |
| minimum elong | 8307 Jul 17 01:11 | 29°♏48'48 | 15°56'54 | minimum elong | 8315 Jul 24 19:05 | 7°♏30'29 | 15°21'53 |
| max. Earth dist. | 8307 Jul 18 10:46 | 29°♏50'45 | 49.82933 AU | max. Earth dist. | 8315 Jul 25 20:37 | 7°♏31'57 | 50.18144 AU |
| | 8307 Jul 25 02:49 | 0°♏ | | retrograde | 8315 Nov 03 21:55 | 8°♏59'38 | |
| retrograde | 8307 Oct 27 07:16 | 1°♏19'00 | | min. Earth dist. | 8316 Jan 26 01:31 | 8°♏01'16 | 48.26895 AU |
| min. Earth dist. | 8308 Jan 17 23:25 | 0°♏20'36 | 47.94051 AU | opposition | 8316 Jan 27 01:24 | 8°♏00'09 | -15°56'38 |
| opposition | 8308 Jan 19 08:04 | 0°♏19'05 | -16°34'16 | direct | 8316 Apr 18 00:08 | 7°♏01'33 | |
| | 8308 Feb 05 14:30 | 30°♏ | | | | | |
| direct | 8308 Apr 10 05:58 | 29°♏20'04 | | conjunction | 8316 Jul 24 23:47 | 8°♏27'26 | -15°16'19 |
| | 8308 Jun 11 14:16 | 0°♏ | | minimum elong | 8316 Jul 24 23:56 | 8°♏27'27 | 15°16'28 |
| | | | | max. Earth dist. | 8316 Jul 26 01:20 | 8°♏28'54 | 50.20721 AU |
| conjunction | 8308 Jul 17 06:26 | 0°♏46'57 | -15°53'09 | retrograde | 8316 Nov 04 03:13 | 9°♏56'29 | |
| minimum elong | 8308 Jul 17 06:34 | 0°♏46'57 | 15°53'18 | min. Earth dist. | 8317 Jan 26 06:08 | 8°♏58'11 | 48.29233 AU |
| max. Earth dist. | 8308 Jul 18 16:15 | 0°♏48'54 | 49.89022 AU | opposition | 8317 Jan 27 06:10 | 8°♏57'04 | -15°50'51 |
| retrograde | 8308 Oct 27 11:48 | 2°♏17'00 | | direct | 8317 Apr 19 06:39 | 7°♏58'29 | |
| min. Earth dist. | 8309 Jan 18 06:16 | 1°♏18'39 | 47.99855 AU | | | | |
| opposition | 8309 Jan 19 13:31 | 1°♏17'11 | -16°30'22 | conjunction | 8317 Jul 26 04:34 | 9°♏24'17 | -15°10'39 |
| direct | 8309 Apr 11 10:40 | 0°♏18'16 | | minimum elong | 8317 Jul 26 04:44 | 9°♏24'18 | 15°10'47 |
| | | | | max. Earth dist. | 8317 Jul 27 04:31 | 9°♏25'39 | 50.23010 AU |
| conjunction | 8309 Jul 18 11:49 | 1°♏45'01 | -15°49'19 | retrograde | 8317 Nov 05 11:01 | 10°♏53'15 | |
| minimum elong | 8309 Jul 18 11:55 | 1°♏45'01 | 15°49'29 | min. Earth dist. | 8318 Jan 27 11:56 | 9°♏54'56 | 48.31296 AU |
| max. Earth dist. | 8309 Jul 19 19:43 | 1°♏46'52 | 49.94665 AU | opposition | 8318 Jan 28 10:56 | 9°♏53'52 | -15°44'48 |
| retrograde | 8309 Oct 28 16:05 | 3°♏14'57 | | direct | 8318 Apr 20 09:20 | 8°♏55'21 | |
| min. Earth dist. | 8310 Jan 19 11:56 | 2°♏16'39 | 48.05186 AU | | | | |
| opposition | 8310 Jan 20 18:50 | 2°♏15'13 | -16°26'13 | conjunction | 8318 Jul 27 09:31 | 10°♏21'04 | -15°04'43 |
| direct | 8310 Apr 12 15:27 | 1°♏16'22 | | minimum elong | 8318 Jul 27 09:40 | 10°♏21'04 | 15°04'52 |
| | | | | max. Earth dist. | 8318 Jul 28 09:41 | 10°♏22'26 | 50.25015 AU |
| conjunction | 8310 Jul 19 17:12 | 2°♏43'00 | -15°45'17 | retrograde | 8318 Nov 06 16:17 | 11°♏49'57 | |
| minimum elong | 8310 Jul 19 17:21 | 2°♏43'01 | 15°45'26 | opposition | 8319 Jan 29 15:40 | 10°♏50'37 | -15°38'30 |
| max. Earth dist. | 8310 Jul 21 00:03 | 2°♏44'47 | 49.99789 AU | min. Earth dist. | 8319 Jan 28 17:40 | 10°♏51'38 | 48.33044 AU |
| retrograde | 8310 Oct 29 21:05 | 4°♏12'49 | | direct | 8319 Apr 21 12:37 | 9°♏52'08 | |
| min. Earth dist. | 8311 Jan 20 19:39 | 3°♏14'29 | 48.09976 AU | evening set | 8319 Jul 27 18:03 | 11°♏16'38 | |
| opposition | 8311 Jan 22 00:16 | 3°♏13'09 | -16°21'52 | | | | |
| direct | 8311 Apr 13 22:31 | 2°♏14'22 | | conjunction | 8319 Jul 28 14:19 | 11°♏17'48 | -14°58'33 |
| | | | | minimum elong | 8319 Jul 28 14:30 | 11°♏17'48 | 14°58'41 |
| conjunction | 8311 Jul 20 22:39 | 3°♏40'52 | -15°41'01 | morning rise | 8319 Jul 29 11:00 | 11°♏18'58 | |
| minimum elong | 8311 Jul 20 22:46 | 3°♏40'52 | 15°41'09 | max. Earth dist. | 8319 Jul 29 12:57 | 11°♏19'05 | 50.26705 AU |
| max. Earth dist. | 8311 Jul 22 04:37 | 3°♏42'35 | 50.04380 AU | retrograde | 8319 Nov 07 20:24 | 12°♏46'36 | |
| retrograde | 8311 Oct 31 02:23 | 5°♏10'33 | | opposition | 8320 Jan 30 20:14 | 11°♏47'20 | -15°31'57 |
| min. Earth dist. | 8312 Jan 22 01:09 | 4°♏12'15 | 48.14219 AU | min. Earth dist. | 8320 Jan 29 22:22 | 11°♏48'20 | 48.34456 AU |
| opposition | 8312 Jan 23 05:21 | 4°♏10'56 | -16°17'17 | direct | 8320 Apr 21 15:25 | 10°♏48'54 | |
| direct | 8312 Apr 14 05:18 | 3°♏12'11 | | evening set | 8320 Jul 26 17:49 | 12°♏11'42 | |
| | | | | | | | |
| conjunction | 8312 Jul 21 03:48 | 4°♏38'33 | -15°36'33 | conjunction | 8320 Jul 28 19:11 | 12°♏14'31 | -14°52'10 |
| minimum elong | 8312 Jul 21 03:56 | 4°♏38'34 | 15°36'42 | minimum elong | 8320 Jul 28 19:20 | 12°♏14'31 | 14°52'18 |
| max. Earth dist. | 8312 Jul 22 07:39 | 4°♏40'09 | 50.08448 AU | morning rise | 8320 Jul 30 20:56 | 12°♏17'20 | |
| retrograde | 8312 Oct 31 11:11 | 6°♏08'06 | | max. Earth dist. | 8320 Jul 29 17:00 | 12°♏15'45 | 50.28022 AU |
| min. Earth dist. | 8313 Jan 22 07:42 | 5°♏09'47 | 48.17979 AU | retrograde | 8320 Nov 07 23:57 | 13°♏43'15 | |
| opposition | 8313 Jan 23 10:34 | 5°♏08'32 | -16°12'29 | min. Earth dist. | 8321 Jan 30 05:14 | 12°♏44'57 | 48.35470 AU |
| direct | 8313 Apr 15 07:22 | 4°♏09'50 | | opposition | 8321 Jan 31 01:02 | 12°♏44'02 | -15°25'10 |
| | | | | direct | 8321 Apr 22 20:53 | 11°♏45'39 | |
| conjunction | 8313 Jul 22 08:54 | 5°♏36'04 | -15°31'51 | evening set | 8321 Jul 27 04:53 | 13°♏07'23 | |
| minimum elong | 8313 Jul 22 09:02 | 5°♏36'04 | 15°31'59 | | | | |
| max. Earth dist. | 8313 Jul 23 12:51 | 5°♏37'40 | 50.12057 AU | conjunction | 8321 Jul 30 00:05 | 13°♏11'12 | -14°45'33 |
| retrograde | 8313 Nov 01 16:38 | 7°♏05'27 | | minimum elong | 8321 Jul 30 00:16 | 13°♏11'13 | 14°45'40 |
| opposition | 8314 Jan 24 15:40 | 6°♏05'55 | -16°07'27 | max. Earth dist. | 8321 Jul 30 21:19 | 13°♏12'25 | 50.28917 AU |
| min. Earth dist. | 8314 Jan 23 14:05 | 6°♏07'07 | 48.21299 AU | morning rise | 8321 Aug 01 19:45 | 13°♏15'04 | |
| direct | 8314 Apr 16 11:31 | 5°♏07'15 | | retrograde | 8321 Nov 09 03:52 | 14°♏39'55 | |
| | | | | min. Earth dist. | 8322 Jan 31 10:12 | 13°♏41'38 | 48.36010 AU |
| conjunction | 8314 Jul 23 13:57 | 6°♏33'21 | -15°26'55 | opposition | 8322 Feb 01 05:40 | 13°♏40'44 | -15°18'11 |

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| direct | 8322 Apr 24 04:06 | 12° Ω 42'22 | conjunction | 8328 Aug 05 10:03 | 19° Ω 45'47 -13°53'26 |
| evening set | 8322 Jul 27 19:29 | 14° Ω 03'15 | minimum elong | 8328 Aug 05 10:14 | 19° Ω 45'48 13°53'32 |
| | | | max. Earth dist. | 8328 Aug 05 23:35 | 19° Ω 46'33 50.21572 AU |
| conjunction | 8322 Jul 31 05:03 | 14° Ω 07'53 -14°38'43 | morning rise | 8328 Aug 11 09:49 | 19° Ω 53'55 |
| minimum elong | 8322 Jul 31 05:12 | 14° Ω 07'54 14°38'51 | retrograde | 8328 Nov 15 16:56 | 21° Ω 14'08 |
| max. Earth dist. | 8322 Jul 31 23:56 | 14° Ω 08'57 50.29305 AU | opposition | 8329 Feb 07 13:25 | 20° Ω 14'59 -14°23'15 |
| morning rise | 8322 Aug 03 15:07 | 14° Ω 12'33 | min. Earth dist. | 8329 Feb 07 01:37 | 20° Ω 15'32 48.26368 AU |
| | 8322 Sep 10 01:37 | 15° Ω | direct | 8329 Apr 30 10:09 | 19° Ω 16'37 |
| retrograde | 8322 Nov 10 12:02 | 15° Ω 36'31 | evening set | 8329 Jul 31 07:21 | 20° Ω 33'19 |
| | 8323 Jan 12 12:43 | 15° Ω | | | |
| opposition | 8323 Feb 02 10:18 | 14° Ω 37'23 -15°10'58 | conjunction | 8329 Aug 06 14:40 | 20° Ω 41'53 -13°45'05 |
| min. Earth dist. | 8323 Feb 01 16:32 | 14° Ω 38'12 48.36031 AU | minimum elong | 8329 Aug 06 14:50 | 20° Ω 41'53 13°45'13 |
| direct | 8323 Apr 25 07:29 | 13° Ω 39'02 | max. Earth dist. | 8329 Aug 07 02:48 | 20° Ω 42'34 50.19026 AU |
| evening set | 8323 Jul 28 12:08 | 14° Ω 59'10 | morning rise | 8329 Aug 12 22:48 | 20° Ω 50'28 |
| | 8323 Jul 29 02:50 | 15° Ω | retrograde | 8329 Nov 16 21:21 | 22° Ω 10'12 |
| | | | opposition | 8330 Feb 08 17:51 | 21° Ω 11'05 -14°14'28 |
| conjunction | 8323 Aug 01 10:08 | 15° Ω 04'30 -14°31'42 | min. Earth dist. | 8330 Feb 08 06:10 | 21° Ω 11'37 48.23547 AU |
| minimum elong | 8323 Aug 01 10:19 | 15° Ω 04'30 14°31'50 | direct | 8330 May 01 12:36 | 20° Ω 12'43 |
| max. Earth dist. | 8323 Aug 02 04:43 | 15° Ω 05'33 50.29156 AU | evening set | 8330 Aug 01 04:01 | 21° Ω 29'00 |
| morning rise | 8323 Aug 05 08:41 | 15° Ω 09'52 | | | |
| retrograde | 8323 Nov 11 18:06 | 16° Ω 33'04 | conjunction | 8330 Aug 07 19:29 | 21° Ω 38'01 -13°36'31 |
| opposition | 8324 Feb 03 14:58 | 15° Ω 33'56 -15°03'34 | minimum elong | 8330 Aug 07 19:41 | 21° Ω 38'02 13°36'38 |
| min. Earth dist. | 8324 Feb 02 22:42 | 15° Ω 34'41 48.35498 AU | max. Earth dist. | 8330 Aug 08 06:51 | 21° Ω 38'40 50.16168 AU |
| | 8324 Mar 07 02:13 | 15° Ω | morning rise | 8330 Aug 14 11:51 | 21° Ω 47'04 |
| direct | 8324 Apr 25 11:00 | 14° Ω 35'36 | retrograde | 8330 Nov 18 00:40 | 23° Ω 06'22 |
| | 8324 Jun 12 19:55 | 15° Ω | opposition | 8331 Feb 09 22:15 | 22° Ω 07'16 -14°05'27 |
| evening set | 8324 Jul 28 05:43 | 15° Ω 55'02 | min. Earth dist. | 8331 Feb 09 12:23 | 22° Ω 07'43 48.20409 AU |
| | | | direct | 8331 May 02 17:34 | 21° Ω 08'55 |
| | | | evening set | 8331 Aug 02 01:04 | 22° Ω 24'48 |
| conjunction | 8324 Aug 01 14:52 | 16° Ω 00'59 -14°24'28 | | | |
| minimum elong | 8324 Aug 01 15:02 | 16° Ω 01'00 14°24'36 | conjunction | 8331 Aug 09 00:20 | 22° Ω 34'15 -13°27'43 |
| max. Earth dist. | 8324 Aug 02 07:31 | 16° Ω 01'56 50.28485 AU | minimum elong | 8331 Aug 09 00:31 | 22° Ω 34'16 13°27'50 |
| morning rise | 8324 Aug 06 00:35 | 16° Ω 06'59 | max. Earth dist. | 8331 Aug 09 11:19 | 22° Ω 34'52 50.12996 AU |
| retrograde | 8324 Nov 11 22:34 | 17° Ω 29'29 | morning rise | 8331 Aug 16 00:26 | 22° Ω 43'45 |
| opposition | 8325 Feb 03 19:34 | 16° Ω 30'21 -14°55'58 | retrograde | 8331 Nov 19 04:30 | 24° Ω 02'38 |
| min. Earth dist. | 8325 Feb 03 03:40 | 16° Ω 31'05 48.34466 AU | opposition | 8332 Feb 11 02:37 | 23° Ω 03'34 -13°56'12 |
| direct | 8325 Apr 26 14:13 | 15° Ω 32'00 | min. Earth dist. | 8332 Feb 10 16:44 | 23° Ω 04'01 48.16924 AU |
| evening set | 8325 Jul 29 00:12 | 16° Ω 50'48 | direct | 8332 May 03 00:01 | 22° Ω 05'15 |
| | | | evening set | 8332 Aug 01 22:11 | 23° Ω 20'45 |
| conjunction | 8325 Aug 02 19:42 | 16° Ω 57'21 -14°17'03 | | | |
| minimum elong | 8325 Aug 02 19:53 | 16° Ω 57'21 14°17'11 | conjunction | 8332 Aug 09 04:57 | 23° Ω 30'37 -13°18'42 |
| max. Earth dist. | 8325 Aug 03 11:18 | 16° Ω 58'14 50.27327 AU | minimum elong | 8332 Aug 09 05:09 | 23° Ω 30'38 13°18'49 |
| morning rise | 8325 Aug 07 15:51 | 17° Ω 03'55 | max. Earth dist. | 8332 Aug 09 14:03 | 23° Ω 31'08 50.09448 AU |
| retrograde | 8325 Nov 13 00:47 | 18° Ω 25'47 | morning rise | 8332 Aug 16 12:47 | 23° Ω 40'33 |
| min. Earth dist. | 8326 Feb 04 10:14 | 17° Ω 27'17 48.32984 AU | retrograde | 8332 Nov 19 12:40 | 24° Ω 59'04 |
| opposition | 8326 Feb 05 00:08 | 17° Ω 26'38 -14°48'08 | opposition | 8333 Feb 11 07:10 | 24° Ω 00'01 -13°46'44 |
| direct | 8326 Apr 27 21:04 | 16° Ω 28'16 | min. Earth dist. | 8333 Feb 10 22:51 | 24° Ω 00'24 48.13043 AU |
| evening set | 8326 Jul 29 19:26 | 17° Ω 46'29 | direct | 8333 May 04 03:15 | 23° Ω 01'43 |
| | | | evening set | 8333 Aug 02 19:47 | 24° Ω 16'51 |
| conjunction | 8326 Aug 04 00:34 | 17° Ω 53'34 -14°09'24 | | | |
| minimum elong | 8326 Aug 04 00:45 | 17° Ω 53'35 14°09'31 | conjunction | 8333 Aug 10 10:00 | 24° Ω 27'09 -13°09'28 |
| max. Earth dist. | 8326 Aug 04 15:47 | 17° Ω 54'26 50.25765 AU | minimum elong | 8333 Aug 10 10:11 | 24° Ω 27'09 13°09'34 |
| morning rise | 8326 Aug 09 06:21 | 18° Ω 00'42 | max. Earth dist. | 8333 Aug 10 18:55 | 24° Ω 27'39 50.05463 AU |
| retrograde | 8326 Nov 14 04:28 | 19° Ω 21'58 | morning rise | 8333 Aug 18 01:08 | 24° Ω 37'30 |
| opposition | 8327 Feb 06 04:32 | 18° Ω 22'48 -14°40'04 | retrograde | 8333 Nov 20 19:52 | 25° Ω 55'38 |
| min. Earth dist. | 8327 Feb 05 14:41 | 18° Ω 23'27 48.31109 AU | opposition | 8334 Feb 12 11:36 | 24° Ω 56'36 -13°37'03 |
| direct | 8327 Apr 29 03:34 | 17° Ω 24'26 | min. Earth dist. | 8334 Feb 12 04:41 | 24° Ω 56'55 48.08680 AU |
| evening set | 8327 Jul 30 15:00 | 18° Ω 42'07 | direct | 8334 May 05 05:20 | 23° Ω 58'18 |
| | | | evening set | 8334 Aug 03 17:47 | 25° Ω 13'06 |
| conjunction | 8327 Aug 05 05:14 | 18° Ω 49'42 -14°01'32 | | | |
| minimum elong | 8327 Aug 05 05:25 | 18° Ω 49'43 14°01'39 | conjunction | 8334 Aug 11 15:00 | 25° Ω 23'48 -13°00'01 |
| max. Earth dist. | 8327 Aug 05 18:36 | 18° Ω 50'28 50.23828 AU | minimum elong | 8334 Aug 11 15:12 | 25° Ω 23'48 13°00'08 |
| morning rise | 8327 Aug 10 20:15 | 18° Ω 57'21 | max. Earth dist. | 8334 Aug 11 21:49 | 25° Ω 24'11 50.00978 AU |
| retrograde | 8327 Nov 15 11:48 | 20° Ω 18'04 | morning rise | 8334 Aug 19 13:20 | 25° Ω 34'32 |
| opposition | 8328 Feb 07 08:57 | 19° Ω 18'55 -14°31'47 | retrograde | 8334 Nov 22 02:31 | 26° Ω 52'18 |
| min. Earth dist. | 8328 Feb 06 20:24 | 19° Ω 19'30 48.28897 AU | opposition | 8335 Feb 13 16:04 | 25° Ω 53'17 -13°27'09 |
| direct | 8328 Apr 29 06:27 | 18° Ω 20'32 | min. Earth dist. | 8335 Feb 13 09:49 | 25° Ω 53'35 48.03789 AU |
| evening set | 8328 Jul 30 11:02 | 19° Ω 37'43 | | | |

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| direct | 8335 May 06 07:01 | 24° Ω 54'58 | conjunction | 8341 Aug 18 02:10 | 2° η 00'21 -11°48'15 |
| evening set | 8335 Aug 04 15:50 | 26° Ω 09'25 | minimum elong | 8341 Aug 18 02:23 | 2° η 00'21 11°48'20 |
| | | | max. Earth dist. | 8341 Aug 18 01:55 | 2° η 00'20 49.56140 AU |
| conjunction | 8335 Aug 12 20:03 | 26° Ω 20'31 -12°50'24 | morning rise | 8341 Aug 27 21:57 | 2° η 13'41 |
| minimum elong | 8335 Aug 12 20:14 | 26° Ω 20'31 12°50'29 | retrograde | 8341 Nov 28 07:29 | 3° η 29'08 |
| max. Earth dist. | 8335 Aug 13 01:23 | 26° Ω 20'49 49.95929 AU | opposition | 8342 Feb 19 23:32 | 2° η 29'46 -12°11'57 |
| morning rise | 8335 Aug 21 01:25 | 26° Ω 31'39 | min. Earth dist. | 8342 Feb 20 00:10 | 2° η 29'45 47.56581 AU |
| retrograde | 8335 Nov 23 04:05 | 27° Ω 49'03 | direct | 8342 May 12 19:00 | 1° η 31'03 |
| opposition | 8336 Feb 14 20:39 | 26° Ω 50'01 -13°17'04 | evening set | 8342 Aug 09 06:52 | 2° η 43'25 |
| min. Earth dist. | 8336 Feb 14 16:39 | 26° Ω 50'12 47.98334 AU | | | |
| direct | 8336 May 06 14:01 | 25° Ω 51'40 | conjunction | 8342 Aug 19 07:14 | 2° η 57'00 -11°37'06 |
| evening set | 8336 Aug 04 14:11 | 27° Ω 05'47 | minimum elong | 8342 Aug 19 07:25 | 2° η 57'01 11°37'12 |
| | | | max. Earth dist. | 8342 Aug 19 05:09 | 2° η 56'53 49.48342 AU |
| conjunction | 8336 Aug 13 01:09 | 27° Ω 17'14 -12°40'34 | morning rise | 8342 Aug 29 09:08 | 3° η 10'41 |
| minimum elong | 8336 Aug 13 01:21 | 27° Ω 17'15 12°40'41 | retrograde | 8342 Nov 29 14:03 | 4° η 25'54 |
| max. Earth dist. | 8336 Aug 13 05:48 | 27° Ω 17'30 49.90351 AU | opposition | 8343 Feb 21 04:11 | 3° η 26'30 -12°00'17 |
| morning rise | 8336 Aug 21 13:11 | 27° Ω 28'46 | min. Earth dist. | 8343 Feb 21 06:14 | 3° η 26'24 47.48502 AU |
| retrograde | 8336 Nov 23 06:24 | 28° Ω 45'49 | direct | 8343 May 13 23:33 | 2° η 27'44 |
| opposition | 8337 Feb 15 01:07 | 27° Ω 46'43 -13°06'47 | evening set | 8343 Aug 10 06:07 | 3° η 39'51 |
| min. Earth dist. | 8337 Feb 14 21:26 | 27° Ω 46'53 47.92359 AU | | | |
| direct | 8337 May 07 21:34 | 26° Ω 48'19 | conjunction | 8343 Aug 20 12:26 | 3° η 53'48 -11°25'43 |
| evening set | 8337 Aug 05 12:32 | 28° Ω 02'06 | minimum elong | 8343 Aug 20 12:38 | 3° η 53'48 11°25'48 |
| | | | max. Earth dist. | 8343 Aug 20 10:31 | 3° η 53'41 49.40242 AU |
| conjunction | 8337 Aug 14 06:02 | 28° Ω 13'56 -12°30'33 | morning rise | 8343 Aug 30 20:04 | 4° η 07'50 |
| minimum elong | 8337 Aug 14 06:13 | 28° Ω 13'56 12°30'38 | retrograde | 8343 Nov 30 20:43 | 5° η 22'48 |
| max. Earth dist. | 8337 Aug 14 08:28 | 28° Ω 14'04 49.84273 AU | opposition | 8344 Feb 22 08:47 | 4° η 23'22 -11°48'21 |
| morning rise | 8337 Aug 23 00:50 | 28° Ω 25'50 | min. Earth dist. | 8344 Feb 22 11:40 | 4° η 23'14 47.40094 AU |
| retrograde | 8337 Nov 24 13:43 | 29° Ω 42'32 | direct | 8344 May 14 03:08 | 3° η 24'34 |
| opposition | 8338 Feb 16 05:41 | 28° Ω 43'23 -12°56'16 | evening set | 8344 Aug 10 05:44 | 4° η 36'30 |
| min. Earth dist. | 8338 Feb 16 03:39 | 28° Ω 43'29 47.85923 AU | | | |
| direct | 8338 May 09 01:37 | 27° Ω 44'55 | conjunction | 8344 Aug 20 17:37 | 4° η 50'46 -11°14'07 |
| evening set | 8338 Aug 06 11:08 | 28° Ω 58'23 | minimum elong | 8344 Aug 20 17:48 | 4° η 50'47 11°14'11 |
| | | | max. Earth dist. | 8344 Aug 20 14:04 | 4° η 50'34 49.31815 AU |
| conjunction | 8338 Aug 15 11:11 | 29° Ω 10'34 -12°20'18 | morning rise | 8344 Aug 31 07:02 | 5° η 05'08 |
| minimum elong | 8338 Aug 15 11:23 | 29° Ω 10'35 12°20'25 | retrograde | 8344 Dec 01 04:39 | 6° η 19'54 |
| max. Earth dist. | 8338 Aug 15 13:29 | 29° Ω 10'42 49.77757 AU | opposition | 8345 Feb 22 13:24 | 5° η 20'27 -11°36'12 |
| morning rise | 8338 Aug 24 12:24 | 29° Ω 22'51 | min. Earth dist. | 8345 Feb 22 16:45 | 5° η 20'17 47.31337 AU |
| | 8338 Sep 22 23:57 | 0° η | direct | 8345 May 15 04:30 | 4° η 21'36 |
| retrograde | 8338 Nov 25 19:13 | 0° η 39'13 | evening set | 8345 Aug 11 05:25 | 5° η 33'22 |
| | 8339 Jan 30 03:47 | 30° κ Ω | | | |
| opposition | 8339 Feb 17 10:02 | 29° Ω 40'00 -12°45'33 | conjunction | 8345 Aug 21 22:58 | 5° η 47'58 -11°02'17 |
| min. Earth dist. | 8339 Feb 17 09:00 | 29° Ω 40'03 47.79073 AU | minimum elong | 8345 Aug 21 23:10 | 5° η 47'59 11°02'22 |
| direct | 8339 May 10 06:08 | 28° Ω 41'28 | max. Earth dist. | 8345 Aug 21 18:17 | 5° η 47'42 49.22978 AU |
| evening set | 8339 Aug 07 09:58 | 29° Ω 54'37 | morning rise | 8345 Sep 01 18:05 | 6° η 02'40 |
| | 8339 Aug 11 09:33 | 0° η | retrograde | 8345 Dec 02 08:34 | 7° η 17'14 |
| | | | opposition | 8346 Feb 23 18:16 | 6° η 17'45 -11°23'49 |
| conjunction | 8339 Aug 16 16:10 | 0° η 07'10 -12°09'51 | min. Earth dist. | 8346 Feb 23 23:45 | 6° η 17'30 47.22133 AU |
| minimum elong | 8339 Aug 16 16:22 | 0° η 07'11 12°09'56 | direct | 8346 May 16 09:58 | 5° η 18'52 |
| max. Earth dist. | 8339 Aug 16 16:58 | 0° η 07'13 49.70871 AU | evening set | 8346 Aug 12 05:34 | 6° η 30'28 |
| morning rise | 8339 Aug 25 23:42 | 0° η 19'49 | | | |
| retrograde | 8339 Nov 27 01:08 | 1° η 35'50 | conjunction | 8346 Aug 23 04:36 | 6° η 45'23 -10°50'15 |
| opposition | 8340 Feb 18 14:30 | 0° η 36'35 -12°34'36 | minimum elong | 8346 Aug 23 04:48 | 6° η 45'24 10°50'18 |
| min. Earth dist. | 8340 Feb 18 13:43 | 0° η 36'37 47.71882 AU | max. Earth dist. | 8346 Aug 22 23:10 | 6° η 45'05 49.13675 AU |
| | 8340 Mar 24 19:05 | 30° κ Ω | morning rise | 8346 Sep 03 05:05 | 7° η 00'25 |
| direct | 8340 May 10 07:49 | 29° Ω 37'59 | retrograde | 8346 Dec 03 11:35 | 8° η 14'48 |
| | 8340 Jun 25 04:51 | 0° η | opposition | 8347 Feb 24 22:55 | 7° η 15'16 -11°11'14 |
| evening set | 8340 Aug 07 08:36 | 0° η 50'50 | min. Earth dist. | 8347 Feb 25 04:48 | 7° η 15'00 47.12427 AU |
| | | | direct | 8347 May 17 17:09 | 6° η 16'20 |
| conjunction | 8340 Aug 16 21:03 | 1° η 03'45 -11°59'10 | evening set | 8347 Aug 13 05:53 | 7° η 27'46 |
| minimum elong | 8340 Aug 16 21:14 | 1° η 03'46 11°59'16 | | | |
| max. Earth dist. | 8340 Aug 16 21:00 | 1° η 03'45 49.63647 AU | conjunction | 8347 Aug 24 10:10 | 7° η 43'01 -10°38'00 |
| morning rise | 8340 Aug 26 10:52 | 1° η 16'44 | minimum elong | 8347 Aug 24 10:21 | 7° η 43'02 10°38'05 |
| retrograde | 8340 Nov 27 04:48 | 2° η 32'28 | max. Earth dist. | 8347 Aug 24 02:13 | 7° η 42'34 49.03849 AU |
| opposition | 8341 Feb 18 19:08 | 1° η 33'09 -12°23'24 | morning rise | 8347 Sep 04 16:11 | 7° η 58'22 |
| min. Earth dist. | 8341 Feb 18 20:02 | 1° η 33'07 47.64375 AU | retrograde | 8347 Dec 04 19:10 | 9° η 12'34 |
| direct | 8341 May 11 12:27 | 0° η 34'29 | opposition | 8348 Feb 26 03:54 | 8° η 12'59 -10°58'26 |
| evening set | 8341 Aug 08 07:40 | 1° η 47'05 | min. Earth dist. | 8348 Feb 26 11:40 | 8° η 12'37 47.02203 AU |

| | | | | | |
|------------------|-------------------|--------------------------------------|------------------|-------------------|--------------------------------------|
| direct | 8348 May 17 21:24 | 7° \mathring{M} 13'59 | retrograde | 8354 Dec 11 15:53 | 16° \mathring{M} 01'25 |
| evening set | 8348 Aug 13 06:04 | 8° \mathring{M} 25'14 | opposition | 8355 Mar 04 15:10 | 15° \mathring{M} 01'15 -9°22'18 |
| | | | min. Earth dist. | 8355 Mar 05 04:38 | 15° \mathring{M} 00'36 46.19466 AU |
| conjunction | 8348 Aug 24 15:45 | 8° \mathring{M} 40'48 -10°25'33 | direct | 8355 May 25 03:53 | 14° \mathring{M} 01'33 |
| minimum elong | 8348 Aug 24 15:56 | 8° \mathring{M} 40'49 10°25'37 | evening set | 8355 Aug 19 13:23 | 15° \mathring{M} 12'04 |
| max. Earth dist. | 8348 Aug 24 07:29 | 8° \mathring{M} 40'20 48.93506 AU | | | |
| morning rise | 8348 Sep 05 02:54 | 8° \mathring{M} 56'29 | conjunction | 8355 Sep 01 08:47 | 15° \mathring{M} 29'45 -8°52'06 |
| retrograde | 8348 Dec 05 01:19 | 10° \mathring{M} 10'31 | minimum elong | 8355 Sep 01 08:57 | 15° \mathring{M} 29'46 8°52'09 |
| opposition | 8349 Feb 26 08:52 | 9° \mathring{M} 10'51 -10°45'24 | max. Earth dist. | 8355 Aug 31 17:13 | 15° \mathring{M} 28'51 48.10577 AU |
| min. Earth dist. | 8349 Feb 26 17:38 | 9° \mathring{M} 10'26 46.91468 AU | morning rise | 8355 Sep 14 05:57 | 15° \mathring{M} 47'34 |
| direct | 8349 May 19 02:17 | 8° \mathring{M} 11'45 | retrograde | 8355 Dec 12 21:54 | 17° \mathring{M} 00'43 |
| evening set | 8349 Aug 14 06:41 | 9° \mathring{M} 22'51 | opposition | 8356 Mar 04 20:40 | 16° \mathring{M} 00'28 -9°07'35 |
| | | | min. Earth dist. | 8356 Mar 05 11:49 | 15° \mathring{M} 59'45 46.06456 AU |
| conjunction | 8349 Aug 25 21:23 | 9° \mathring{M} 38'44 -10°12'53 | direct | 8356 May 25 08:19 | 15° \mathring{M} 00'41 |
| minimum elong | 8349 Aug 25 21:34 | 9° \mathring{M} 38'45 10°12'58 | evening set | 8356 Aug 19 15:06 | 16° \mathring{M} 11'10 |
| max. Earth dist. | 8349 Aug 25 11:21 | 9° \mathring{M} 38'10 48.82694 AU | | | |
| morning rise | 8349 Sep 06 13:47 | 9° \mathring{M} 54'44 | conjunction | 8356 Sep 01 14:57 | 16° \mathring{M} 29'09 -8°37'47 |
| retrograde | 8349 Dec 06 08:38 | 11° \mathring{M} 08'35 | minimum elong | 8356 Sep 01 15:08 | 16° \mathring{M} 29'09 8°37'51 |
| opposition | 8350 Feb 27 13:40 | 10° \mathring{M} 08'50 -10°32'10 | max. Earth dist. | 8356 Aug 31 23:07 | 16° \mathring{M} 28'13 47.97551 AU |
| min. Earth dist. | 8350 Feb 27 23:10 | 10° \mathring{M} 08'23 46.80299 AU | morning rise | 8356 Sep 14 16:29 | 16° \mathring{M} 47'15 |
| direct | 8350 May 20 04:19 | 9° \mathring{M} 09'38 | retrograde | 8356 Dec 13 01:10 | 18° \mathring{M} 00'20 |
| evening set | 8350 Aug 15 07:22 | 10° \mathring{M} 20'36 | opposition | 8357 Mar 06 02:08 | 17° \mathring{M} 00'01 -8°52'36 |
| | | | min. Earth dist. | 8357 Mar 06 17:21 | 16° \mathring{M} 59'17 45.93111 AU |
| conjunction | 8350 Aug 27 03:09 | 10° \mathring{M} 36'48 -10°00'01 | direct | 8357 May 26 16:21 | 16° \mathring{M} 00'09 |
| minimum elong | 8350 Aug 27 03:21 | 10° \mathring{M} 36'49 10°00'04 | evening set | 8357 Aug 20 17:22 | 17° \mathring{M} 10'36 |
| max. Earth dist. | 8350 Aug 26 15:55 | 10° \mathring{M} 36'10 48.71452 AU | | | |
| morning rise | 8350 Sep 08 00:38 | 10° \mathring{M} 53'06 | conjunction | 8357 Sep 02 21:24 | 17° \mathring{M} 28'53 -8°23'15 |
| retrograde | 8350 Dec 07 13:17 | 12° \mathring{M} 06'47 | minimum elong | 8357 Sep 02 21:34 | 17° \mathring{M} 28'53 8°23'18 |
| opposition | 8351 Feb 28 18:43 | 11° \mathring{M} 06'57 -10°18'41 | max. Earth dist. | 8357 Sep 02 03:20 | 17° \mathring{M} 27'49 47.84142 AU |
| min. Earth dist. | 8351 Mar 01 06:01 | 11° \mathring{M} 06'25 46.68732 AU | morning rise | 8357 Sep 16 03:23 | 17° \mathring{M} 47'16 |
| direct | 8351 May 21 09:35 | 10° \mathring{M} 07'39 | retrograde | 8357 Dec 14 07:40 | 19° \mathring{M} 00'20 |
| evening set | 8351 Aug 16 08:09 | 11° \mathring{M} 18'30 | opposition | 8358 Mar 07 07:44 | 17° \mathring{M} 59'55 -8°37'23 |
| | | | min. Earth dist. | 8358 Mar 08 00:55 | 17° \mathring{M} 59'06 45.79359 AU |
| conjunction | 8351 Aug 28 08:53 | 11° \mathring{M} 35'00 -9°46'54 | direct | 8358 May 27 22:34 | 16° \mathring{M} 59'57 |
| minimum elong | 8351 Aug 28 09:04 | 11° \mathring{M} 35'01 9°46'58 | evening set | 8358 Aug 21 19:48 | 18° \mathring{M} 10'24 |
| max. Earth dist. | 8351 Aug 27 21:20 | 11° \mathring{M} 34'20 48.59855 AU | max. Earth dist. | 8358 Sep 03 09:47 | 18° \mathring{M} 27'53 47.70280 AU |
| morning rise | 8351 Sep 09 11:11 | 11° \mathring{M} 51'36 | | | |
| retrograde | 8351 Dec 08 16:10 | 13° \mathring{M} 05'09 | conjunction | 8358 Sep 04 04:12 | 18° \mathring{M} 28'57 -8°08'30 |
| opposition | 8352 Feb 29 23:39 | 12° \mathring{M} 05'13 -10°04'58 | minimum elong | 8358 Sep 04 04:23 | 18° \mathring{M} 28'58 8°08'33 |
| min. Earth dist. | 8352 Mar 01 10:47 | 12° \mathring{M} 04'42 46.56830 AU | morning rise | 8358 Sep 17 14:15 | 18° \mathring{M} 47'38 |
| direct | 8352 May 21 16:39 | 11° \mathring{M} 05'49 | retrograde | 8358 Dec 15 14:18 | 20° \mathring{M} 00'40 |
| evening set | 8352 Aug 16 09:12 | 12° \mathring{M} 16'33 | opposition | 8359 Mar 08 13:31 | 19° \mathring{M} 00'10 -8°21'57 |
| | | | min. Earth dist. | 8359 Mar 09 07:42 | 18° \mathring{M} 59'17 45.65113 AU |
| conjunction | 8352 Aug 28 14:38 | 12° \mathring{M} 33'21 -9°33'34 | direct | 8359 May 29 04:48 | 18° \mathring{M} 00'04 |
| minimum elong | 8352 Aug 28 14:49 | 12° \mathring{M} 33'22 9°33'37 | evening set | 8359 Aug 22 22:34 | 19° \mathring{M} 10'30 |
| max. Earth dist. | 8352 Aug 28 01:16 | 12° \mathring{M} 32'35 48.47942 AU | | | |
| morning rise | 8352 Sep 09 21:56 | 12° \mathring{M} 50'16 | conjunction | 8359 Sep 05 10:53 | 19° \mathring{M} 29'20 -7°53'31 |
| retrograde | 8352 Dec 08 22:40 | 14° \mathring{M} 03'41 | minimum elong | 8359 Sep 05 11:03 | 19° \mathring{M} 29'21 7°53'33 |
| opposition | 8353 Mar 02 04:48 | 13° \mathring{M} 03'40 -9°51'00 | max. Earth dist. | 8359 Sep 04 14:22 | 19° \mathring{M} 28'08 47.55916 AU |
| min. Earth dist. | 8353 Mar 02 17:25 | 13° \mathring{M} 03'04 46.44646 AU | morning rise | 8359 Sep 19 01:06 | 19° \mathring{M} 48'18 |
| direct | 8353 May 22 22:07 | 12° \mathring{M} 04'10 | retrograde | 8359 Dec 16 23:52 | 21° \mathring{M} 01'18 |
| evening set | 8353 Aug 17 10:16 | 13° \mathring{M} 14'48 | opposition | 8360 Mar 08 19:25 | 20° \mathring{M} 00'41 -8°06'16 |
| | | | min. Earth dist. | 8360 Mar 09 14:35 | 19° \mathring{M} 59'45 45.50361 AU |
| conjunction | 8353 Aug 29 20:36 | 13° \mathring{M} 31'54 -9°19'59 | direct | 8360 May 29 07:55 | 19° \mathring{M} 00'27 |
| minimum elong | 8353 Aug 29 20:46 | 13° \mathring{M} 31'55 9°20'02 | evening set | 8360 Aug 23 01:28 | 20° \mathring{M} 10'53 |
| max. Earth dist. | 8353 Aug 29 07:23 | 13° \mathring{M} 31'08 48.35754 AU | | | |
| morning rise | 8353 Sep 11 08:31 | 13° \mathring{M} 49'07 | conjunction | 8360 Sep 05 17:50 | 20° \mathring{M} 30'00 -7°38'19 |
| retrograde | 8353 Dec 10 05:58 | 15° \mathring{M} 02'26 | minimum elong | 8360 Sep 05 18:00 | 20° \mathring{M} 30'00 7°38'22 |
| opposition | 8354 Mar 03 10:01 | 14° \mathring{M} 02'20 -9°36'47 | max. Earth dist. | 8360 Sep 04 19:53 | 20° \mathring{M} 28'42 47.41032 AU |
| min. Earth dist. | 8354 Mar 03 23:10 | 14° \mathring{M} 01'42 46.32184 AU | morning rise | 8360 Sep 19 12:01 | 20° \mathring{M} 49'14 |
| direct | 8354 May 24 02:51 | 13° \mathring{M} 02'44 | retrograde | 8360 Dec 17 07:34 | 22° \mathring{M} 02'12 |
| evening set | 8354 Aug 18 11:48 | 14° \mathring{M} 13'18 | opposition | 8361 Mar 10 01:29 | 21° \mathring{M} 01'26 -7°50'22 |
| max. Earth dist. | 8354 Aug 30 11:53 | 14° \mathring{M} 29'50 48.23306 AU | min. Earth dist. | 8361 Mar 10 22:37 | 21° \mathring{M} 00'25 45.35107 AU |
| | | | direct | 8361 May 30 13:03 | 20° \mathring{M} 01'03 |
| conjunction | 8354 Aug 31 02:37 | 14° \mathring{M} 30'41 -9°06'09 | evening set | 8361 Aug 24 04:34 | 21° \mathring{M} 11'30 |
| minimum elong | 8354 Aug 31 02:48 | 14° \mathring{M} 30'42 9°06'12 | max. Earth dist. | 8361 Sep 06 02:13 | 21° \mathring{M} 29'33 47.25681 AU |
| morning rise | 8354 Sep 12 19:15 | 14° \mathring{M} 48'12 | | | |























































































































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|------------------|-------------------|---------------------|-------------|------------------|-------------------|-------------------------|-------------|
| conjunction | 8361 Sep 07 00:53 | 21° <u>10</u> 30'53 | -7°22'54 | evening set | 8368 Aug 30 09:32 | 28° <u>10</u> 24'30 | |
| minimum elong | 8361 Sep 07 01:02 | 21° <u>10</u> 30'53 | 7°22'55 | max. Earth dist. | 8368 Sep 13 00:20 | 28° <u>10</u> 43'58 | 46.08675 AU |
| morning rise | 8361 Sep 20 22:52 | 21° <u>10</u> 50'23 | | | | | |
| retrograde | 8361 Dec 18 13:01 | 23° <u>10</u> 03'20 | | conjunction | 8368 Sep 14 05:38 | 28° <u>10</u> 45'44 | -5°28'12 |
| opposition | 8362 Mar 11 07:30 | 22° <u>10</u> 02'26 | -7°34'13 | minimum elong | 8368 Sep 14 05:46 | 28° <u>10</u> 45'45 | 5°28'13 |
| min. Earth dist. | 8362 Mar 12 04:47 | 22° <u>10</u> 01'24 | 45.19400 AU | morning rise | 8368 Sep 29 03:17 | 29° <u>10</u> 07'05 | |
| direct | 8362 May 31 20:09 | 21° <u>10</u> 01'53 | | | 8368 Nov 12 03:43 | 0° <u>00</u> | |
| evening set | 8362 Aug 25 08:04 | 22° <u>10</u> 12'21 | | retrograde | 8368 Dec 25 17:34 | 0° <u>00</u> 20'32 | |
| max. Earth dist. | 8362 Sep 07 07:10 | 22° <u>10</u> 30'32 | 47.09888 AU | | 8369 Feb 07 23:33 | 30° <u>00</u> <u>00</u> | |
| | | | | opposition | 8369 Mar 18 05:35 | 29° <u>10</u> 18'39 | -5°33'57 |
| conjunction | 8362 Sep 08 07:59 | 22° <u>10</u> 32'00 | -7°07'15 | min. Earth dist. | 8369 Mar 19 09:13 | 29° <u>10</u> 17'17 | 44.00560 AU |
| minimum elong | 8362 Sep 08 08:08 | 22° <u>10</u> 32'00 | 7°07'17 | direct | 8369 Jun 07 17:39 | 28° <u>10</u> 17'00 | |
| morning rise | 8362 Sep 22 09:52 | 22° <u>10</u> 51'47 | | evening set | 8369 Aug 31 15:02 | 29° <u>10</u> 28'14 | |
| retrograde | 8362 Dec 19 19:30 | 24° <u>10</u> 04'44 | | max. Earth dist. | 8369 Sep 14 06:40 | 29° <u>10</u> 47'50 | 45.90796 AU |
| opposition | 8363 Mar 12 13:39 | 23° <u>10</u> 03'40 | -7°17'49 | | | | |
| min. Earth dist. | 8363 Mar 13 12:53 | 23° <u>10</u> 02'32 | 45.03299 AU | conjunction | 8369 Sep 15 13:54 | 29° <u>10</u> 49'43 | -5°10'50 |
| direct | 8363 Jun 02 02:57 | 22° <u>10</u> 02'57 | | minimum elong | 8369 Sep 15 14:02 | 29° <u>10</u> 49'44 | 5°10'50 |
| evening set | 8363 Aug 26 11:35 | 23° <u>10</u> 13'27 | | | 8369 Sep 22 16:12 | 0° <u>00</u> | |
| | | | | morning rise | 8369 Sep 30 14:36 | 0° <u>00</u> 11'20 | |
| conjunction | 8363 Sep 09 15:18 | 23° <u>10</u> 33'22 | -6°51'21 | retrograde | 8369 Dec 27 04:54 | 1° <u>00</u> 24'57 | |
| minimum elong | 8363 Sep 09 15:27 | 23° <u>10</u> 33'23 | 6°51'22 | opposition | 8370 Mar 19 12:51 | 0° <u>00</u> 22'56 | -5°15'44 |
| max. Earth dist. | 8363 Sep 08 14:27 | 23° <u>10</u> 31'54 | 46.93727 AU | min. Earth dist. | 8370 Mar 20 17:40 | 0° <u>00</u> 21'30 | 43.82383 AU |
| morning rise | 8363 Sep 23 20:37 | 23° <u>10</u> 53'25 | | | 8370 Apr 08 05:35 | 30° <u>00</u> <u>00</u> | |
| retrograde | 8363 Dec 21 01:46 | 25° <u>10</u> 06'23 | | direct | 8370 Jun 08 22:00 | 29° <u>10</u> 21'08 | |
| opposition | 8364 Mar 12 19:57 | 24° <u>10</u> 05'11 | -7°01'10 | | 8370 Aug 08 03:49 | 0° <u>00</u> | |
| min. Earth dist. | 8364 Mar 13 19:36 | 24° <u>10</u> 04'01 | 44.86851 AU | evening set | 8370 Sep 01 20:54 | 0° <u>00</u> 32'34 | |
| direct | 8364 Jun 02 10:17 | 23° <u>10</u> 04'18 | | | | | |
| evening set | 8364 Aug 26 15:21 | 24° <u>10</u> 14'51 | | conjunction | 8370 Sep 16 22:36 | 0° <u>00</u> 54'18 | -4°53'13 |
| | | | | minimum elong | 8370 Sep 16 22:42 | 0° <u>00</u> 54'18 | 4°53'13 |
| conjunction | 8364 Sep 09 22:26 | 24° <u>10</u> 35'02 | -6°35'13 | max. Earth dist. | 8370 Sep 15 14:08 | 0° <u>00</u> 52'20 | 45.72487 AU |
| minimum elong | 8364 Sep 09 22:35 | 24° <u>10</u> 35'02 | 6°35'15 | morning rise | 8370 Oct 02 01:55 | 1° <u>00</u> 16'09 | |
| max. Earth dist. | 8364 Sep 08 19:58 | 24° <u>10</u> 33'27 | 46.77254 AU | retrograde | 8370 Dec 28 15:37 | 2° <u>00</u> 29'56 | |
| morning rise | 8364 Sep 24 07:25 | 24° <u>10</u> 55'20 | | opposition | 8371 Mar 20 20:20 | 1° <u>00</u> 27'46 | -4°57'15 |
| retrograde | 8364 Dec 21 12:16 | 26° <u>10</u> 08'22 | | min. Earth dist. | 8371 Mar 22 02:58 | 1° <u>00</u> 26'15 | 43.63752 AU |
| opposition | 8365 Mar 14 02:22 | 25° <u>10</u> 07'00 | -6°44'15 | direct | 8371 Jun 10 03:27 | 0° <u>00</u> 25'47 | |
| min. Earth dist. | 8365 Mar 15 02:36 | 25° <u>10</u> 05'49 | 44.70121 AU | evening set | 8371 Sep 03 03:06 | 1° <u>00</u> 37'26 | |
| direct | 8365 Jun 03 13:25 | 24° <u>10</u> 05'57 | | max. Earth dist. | 8371 Sep 16 21:58 | 1° <u>00</u> 57'23 | 45.53724 AU |
| evening set | 8365 Aug 27 19:29 | 25° <u>10</u> 16'35 | | | | | |
| max. Earth dist. | 8365 Sep 10 02:51 | 25° <u>10</u> 35'25 | 46.60492 AU | conjunction | 8371 Sep 18 07:26 | 1° <u>00</u> 59'25 | -4°35'22 |
| | | | | minimum elong | 8371 Sep 18 07:33 | 1° <u>00</u> 59'25 | 4°35'22 |
| conjunction | 8365 Sep 11 06:02 | 25° <u>10</u> 37'02 | -6°18'51 | morning rise | 8371 Oct 03 13:21 | 2° <u>00</u> 21'31 | |
| minimum elong | 8365 Sep 11 06:11 | 25° <u>10</u> 37'03 | 6°18'52 | retrograde | 8371 Dec 30 01:59 | 3° <u>00</u> 35'28 | |
| morning rise | 8365 Sep 25 18:21 | 25° <u>10</u> 57'37 | | opposition | 8372 Mar 21 03:59 | 2° <u>00</u> 33'08 | -4°38'31 |
| retrograde | 8365 Dec 22 20:57 | 27° <u>10</u> 10'42 | | min. Earth dist. | 8372 Mar 22 10:53 | 2° <u>00</u> 31'35 | 43.44654 AU |
| opposition | 8366 Mar 15 08:55 | 26° <u>10</u> 09'12 | -6°27'05 | direct | 8372 Jun 10 10:24 | 1° <u>00</u> 30'57 | |
| min. Earth dist. | 8366 Mar 16 10:38 | 26° <u>10</u> 07'56 | 44.53121 AU | evening set | 8372 Sep 03 09:33 | 2° <u>00</u> 42'49 | |
| direct | 8366 Jun 04 18:14 | 25° <u>10</u> 07'59 | | max. Earth dist. | 8372 Sep 17 04:34 | 3° <u>00</u> 02'51 | 45.34478 AU |
| evening set | 8366 Aug 28 23:54 | 26° <u>10</u> 18'44 | | | | | |
| max. Earth dist. | 8366 Sep 11 10:10 | 26° <u>10</u> 37'48 | 46.43487 AU | conjunction | 8372 Sep 18 16:18 | 3° <u>00</u> 05'02 | -4°17'17 |
| | | | | minimum elong | 8372 Sep 18 16:24 | 3° <u>00</u> 05'02 | 4°17'16 |
| conjunction | 8366 Sep 12 13:47 | 26° <u>10</u> 39'27 | -6°02'13 | morning rise | 8372 Oct 04 00:47 | 3° <u>00</u> 27'22 | |
| minimum elong | 8366 Sep 12 13:55 | 26° <u>10</u> 39'27 | 6°02'14 | retrograde | 8372 Dec 30 09:50 | 4° <u>00</u> 41'30 | |
| morning rise | 8366 Sep 27 05:19 | 27° <u>10</u> 00'17 | | opposition | 8373 Mar 22 11:58 | 3° <u>00</u> 38'58 | -4°19'31 |
| retrograde | 8366 Dec 24 03:03 | 28° <u>10</u> 13'27 | | min. Earth dist. | 8373 Mar 23 21:05 | 3° <u>00</u> 37'19 | 43.25094 AU |
| opposition | 8367 Mar 16 15:35 | 27° <u>10</u> 11'49 | -6°09'38 | direct | 8373 Jun 11 19:07 | 2° <u>00</u> 36'34 | |
| min. Earth dist. | 8367 Mar 17 17:07 | 27° <u>10</u> 10'34 | 44.35876 AU | evening set | 8373 Sep 04 16:21 | 3° <u>00</u> 48'39 | |
| direct | 8367 Jun 06 02:27 | 26° <u>10</u> 10'28 | | max. Earth dist. | 8373 Sep 18 13:36 | 4° <u>00</u> 08'53 | 45.14786 AU |
| evening set | 8367 Aug 30 04:35 | 27° <u>10</u> 21'21 | | | | | |
| | | | | conjunction | 8373 Sep 20 01:39 | 4° <u>00</u> 11'06 | -3°58'57 |
| conjunction | 8367 Sep 13 21:29 | 27° <u>10</u> 42'20 | -5°45'20 | minimum elong | 8373 Sep 20 01:45 | 4° <u>00</u> 11'06 | 3°58'57 |
| minimum elong | 8367 Sep 13 21:37 | 27° <u>10</u> 42'20 | 5°45'21 | morning rise | 8373 Oct 05 12:19 | 4° <u>00</u> 33'41 | |
| max. Earth dist. | 8367 Sep 12 16:02 | 27° <u>10</u> 40'34 | 46.26219 AU | retrograde | 8373 Dec 31 15:39 | 5° <u>00</u> 47'59 | |
| morning rise | 8367 Sep 28 16:17 | 28° <u>10</u> 03'25 | | opposition | 8374 Mar 23 19:52 | 4° <u>00</u> 45'15 | -4°00'16 |
| retrograde | 8367 Dec 25 10:09 | 29° <u>10</u> 16'43 | | min. Earth dist. | 8374 Mar 25 05:26 | 4° <u>00</u> 43'33 | 43.05110 AU |
| opposition | 8368 Mar 16 22:34 | 28° <u>10</u> 14'57 | -5°51'56 | direct | 8374 Jun 13 05:51 | 3° <u>00</u> 42'37 | |
| min. Earth dist. | 8368 Mar 18 01:44 | 28° <u>10</u> 13'37 | 44.18372 AU | evening set | 8374 Sep 05 23:39 | 4° <u>00</u> 54'55 | |
| direct | 8368 Jun 06 10:04 | 27° <u>10</u> 13'27 | | max. Earth dist. | 8374 Sep 19 20:51 | 5° <u>00</u> 15'15 | 44.94702 AU |

| | | | | | | |
|------------------|-------------------|--------------------------------|------------------|-------------------|--------------------|-------------|
| conjunction | 8374 Sep 21 11:00 | 5° <u>♁</u> 17'36 -3°40'23 | evening set | 8381 Sep 13 12:36 | 12° <u>♁</u> 53'29 | |
| minimum elong | 8374 Sep 21 11:05 | 5° <u>♁</u> 17'37 3°40'22 | max. Earth dist. | 8381 Sep 27 15:13 | 13° <u>♁</u> 14'51 | 43.47074 AU |
| morning rise | 8374 Oct 06 23:59 | 5° <u>♁</u> 40'24 | | | | |
| retrograde | 8375 Jan 02 02:35 | 6° <u>♁</u> 54'56 | conjunction | 8381 Sep 29 10:58 | 13° <u>♁</u> 17'38 | -1°23'22 |
| opposition | 8375 Mar 25 04:03 | 5° <u>♁</u> 51'58 -3°40'45 | minimum elong | 8381 Sep 29 11:01 | 13° <u>♁</u> 17'38 | 1°23'20 |
| min. Earth dist. | 8375 Mar 26 14:47 | 5° <u>♁</u> 50'13 42.84778 AU | morning rise | 8381 Oct 15 10:31 | 13° <u>♁</u> 41'54 | |
| direct | 8375 Jun 14 12:04 | 4° <u>♁</u> 49'05 | retrograde | 8382 Jan 10 07:51 | 14° <u>♁</u> 58'36 | |
| evening set | 8375 Sep 07 07:01 | 6° <u>♁</u> 01'38 | opposition | 8382 Apr 01 19:40 | 13° <u>♁</u> 54'06 | -1°16'35 |
| max. Earth dist. | 8375 Sep 21 05:49 | 6° <u>♁</u> 22'09 44.74273 AU | min. Earth dist. | 8382 Apr 03 11:25 | 13° <u>♁</u> 52'02 | 41.35987 AU |
| | | | direct | 8382 Jun 21 21:50 | 12° <u>♁</u> 49'31 | |
| conjunction | 8375 Sep 22 20:30 | 6° <u>♁</u> 24'32 -3°21'33 | evening set | 8382 Sep 14 23:25 | 14° <u>♁</u> 04'40 | |
| minimum elong | 8375 Sep 22 20:35 | 6° <u>♁</u> 24'33 3°21'33 | max. Earth dist. | 8382 Sep 29 01:03 | 14° <u>♁</u> 26'05 | 43.25026 AU |
| morning rise | 8375 Oct 08 11:22 | 6° <u>♁</u> 47'34 | | | | |
| retrograde | 8376 Jan 03 13:04 | 8° <u>♁</u> 02'19 | conjunction | 8382 Sep 30 22:36 | 14° <u>♁</u> 29'01 | -1°02'48 |
| opposition | 8376 Mar 25 12:32 | 6° <u>♁</u> 59'07 -3°20'58 | minimum elong | 8382 Sep 30 22:38 | 14° <u>♁</u> 29'01 | 1°02'46 |
| min. Earth dist. | 8376 Mar 27 00:27 | 6° <u>♁</u> 57'18 42.64137 AU | morning rise | 8382 Oct 16 22:54 | 14° <u>♁</u> 53'27 | |
| direct | 8376 Jun 14 18:44 | 5° <u>♁</u> 55'59 | retrograde | 8383 Jan 11 20:37 | 16° <u>♁</u> 10'36 | |
| evening set | 8376 Sep 07 14:52 | 7° <u>♁</u> 08'49 | opposition | 8383 Apr 03 06:01 | 15° <u>♁</u> 05'53 | -0°54'55 |
| max. Earth dist. | 8376 Sep 21 14:53 | 7° <u>♁</u> 29'29 44.53584 AU | min. Earth dist. | 8383 Apr 04 23:52 | 15° <u>♁</u> 03'42 | 41.13736 AU |
| | | | direct | 8383 Jun 23 06:55 | 14° <u>♁</u> 01'02 | |
| conjunction | 8376 Sep 23 06:15 | 7° <u>♁</u> 31'56 -3°02'29 | evening set | 8383 Sep 16 10:29 | 15° <u>♁</u> 16'40 | |
| minimum elong | 8376 Sep 23 06:19 | 7° <u>♁</u> 31'56 3°02'28 | max. Earth dist. | 8383 Sep 30 12:33 | 15° <u>♁</u> 38'15 | 43.02610 AU |
| morning rise | 8376 Oct 08 23:01 | 7° <u>♁</u> 55'10 | | | | |
| retrograde | 8377 Jan 04 00:11 | 9° <u>♁</u> 10'10 | conjunction | 8383 Oct 02 10:27 | 15° <u>♁</u> 41'12 | -0°42'00 |
| opposition | 8377 Mar 26 21:00 | 8° <u>♁</u> 06'45 -3°00'55 | minimum elong | 8383 Oct 02 10:28 | 15° <u>♁</u> 41'12 | 0°41'58 |
| min. Earth dist. | 8377 Mar 28 08:54 | 8° <u>♁</u> 04'55 42.43267 AU | morning rise | 8383 Oct 18 11:15 | 16° <u>♁</u> 05'50 | |
| direct | 8377 Jun 16 02:29 | 7° <u>♁</u> 03'21 | retrograde | 8384 Jan 13 07:03 | 17° <u>♁</u> 23'25 | |
| evening set | 8377 Sep 08 23:10 | 8° <u>♁</u> 16'29 | opposition | 8384 Apr 03 16:33 | 16° <u>♁</u> 18'28 | -0°32'59 |
| max. Earth dist. | 8377 Sep 22 23:12 | 8° <u>♁</u> 37'16 44.32662 AU | min. Earth dist. | 8384 Apr 05 10:35 | 16° <u>♁</u> 16'16 | 40.91101 AU |
| | | | direct | 8384 Jun 23 19:39 | 15° <u>♁</u> 13'21 | |
| conjunction | 8377 Sep 24 16:14 | 8° <u>♁</u> 39'50 -2°43'10 | evening set | 8384 Sep 16 22:21 | 16° <u>♁</u> 29'30 | |
| minimum elong | 8377 Sep 24 16:18 | 8° <u>♁</u> 39'50 2°43'09 | max. Earth dist. | 8384 Sep 30 22:17 | 16° <u>♁</u> 51'04 | 42.79802 AU |
| morning rise | 8377 Oct 10 10:46 | 9° <u>♁</u> 03'16 | | | | |
| retrograde | 8378 Jan 05 10:42 | 10° <u>♁</u> 18'33 | conjunction | 8384 Oct 02 22:38 | 16° <u>♁</u> 54'12 | -0°20'59 |
| opposition | 8378 Mar 28 05:56 | 9° <u>♁</u> 14'53 -2°40'36 | minimum elong | 8384 Oct 02 22:39 | 16° <u>♁</u> 54'12 | 0°20'56 |
| min. Earth dist. | 8378 Mar 29 19:26 | 9° <u>♁</u> 12'58 42.22193 AU | morning rise | 8384 Oct 19 00:00 | 17° <u>♁</u> 19'01 | |
| direct | 8378 Jun 17 11:38 | 8° <u>♁</u> 11'14 | retrograde | 8385 Jan 13 19:13 | 18° <u>♁</u> 37'04 | |
| evening set | 8378 Sep 10 07:48 | 9° <u>♁</u> 24'43 | opposition | 8385 Apr 05 03:22 | 17° <u>♁</u> 31'51 | -0°10'48 |
| max. Earth dist. | 8378 Sep 24 09:50 | 9° <u>♁</u> 45'42 44.11552 AU | min. Earth dist. | 8385 Apr 06 23:09 | 17° <u>♁</u> 29'33 | 40.68096 AU |
| | | | direct | 8385 Jun 25 05:57 | 16° <u>♁</u> 26'27 | |
| conjunction | 8378 Sep 26 02:33 | 9° <u>♁</u> 48'16 -2°23'35 | evening set | 8385 Sep 18 10:35 | 17° <u>♁</u> 43'07 | |
| minimum elong | 8378 Sep 26 02:37 | 9° <u>♁</u> 48'16 2°23'33 | asc. node | 8385 Sep 28 23:55 | 17° <u>♁</u> 59'26 | |
| morning rise | 8378 Oct 11 22:27 | 10° <u>♁</u> 11'55 | max. Earth dist. | 8385 Oct 02 10:34 | 18° <u>♁</u> 04'49 | 42.56619 AU |
| retrograde | 8379 Jan 06 18:49 | 11° <u>♁</u> 27'30 | | | | |
| opposition | 8379 Mar 29 14:54 | 10° <u>♁</u> 23'37 -2°20'00 | conjunction | 8385 Oct 04 11:19 | 18° <u>♁</u> 08'00 | 0°00'20 |
| min. Earth dist. | 8379 Mar 31 04:12 | 10° <u>♁</u> 21'42 42.00939 AU | minimum elong | 8385 Oct 04 11:19 | 18° <u>♁</u> 08'00 | 0°00'24 |
| direct | 8379 Jun 18 22:40 | 9° <u>♁</u> 19'44 | behind sun begin | 8385 Oct 04 04:51 | 18° <u>♁</u> 07'36 | |
| evening set | 8379 Sep 11 16:59 | 10° <u>♁</u> 33'34 | behind sun end | 8385 Oct 04 17:48 | 18° <u>♁</u> 08'24 | |
| max. Earth dist. | 8379 Sep 25 18:31 | 10° <u>♁</u> 54'38 43.90270 AU | morning rise | 8385 Oct 20 12:44 | 18° <u>♁</u> 32'58 | |
| | | | retrograde | 8386 Jan 15 06:48 | 19° <u>♁</u> 51'31 | |
| conjunction | 8379 Sep 27 12:59 | 10° <u>♁</u> 57'19 -2°03'46 | opposition | 8386 Apr 06 14:32 | 18° <u>♁</u> 46'02 | 0°11'39 |
| minimum elong | 8379 Sep 27 13:02 | 10° <u>♁</u> 57'19 2°03'45 | min. Earth dist. | 8386 Apr 08 11:12 | 18° <u>♁</u> 43'40 | 40.44735 AU |
| morning rise | 8379 Oct 13 10:24 | 11° <u>♁</u> 21'11 | direct | 8386 Jun 26 16:47 | 17° <u>♁</u> 40'20 | |
| retrograde | 8380 Jan 08 06:06 | 12° <u>♁</u> 37'06 | evening set | 8386 Sep 19 23:27 | 18° <u>♁</u> 57'33 | |
| opposition | 8380 Mar 30 00:18 | 11° <u>♁</u> 33'01 -1°59'07 | max. Earth dist. | 8386 Oct 03 21:54 | 19° <u>♁</u> 19'17 | 42.33114 AU |
| min. Earth dist. | 8380 Mar 31 14:41 | 11° <u>♁</u> 31'02 41.79524 AU | | | | |
| direct | 8380 Jun 19 06:26 | 10° <u>♁</u> 28'54 | conjunction | 8386 Oct 06 00:07 | 19° <u>♁</u> 22'34 | 0°21'51 |
| evening set | 8380 Sep 12 02:23 | 11° <u>♁</u> 43'08 | minimum elong | 8386 Oct 06 00:07 | 19° <u>♁</u> 22'34 | 0°21'54 |
| max. Earth dist. | 8380 Sep 26 05:04 | 12° <u>♁</u> 04'23 43.68791 AU | morning rise | 8386 Oct 22 01:38 | 19° <u>♁</u> 47'42 | |
| | | | retrograde | 8387 Jan 16 21:54 | 21° <u>♁</u> 06'46 | |
| conjunction | 8380 Sep 27 23:46 | 12° <u>♁</u> 07'05 -1°43'41 | opposition | 8387 Apr 08 01:50 | 20° <u>♁</u> 01'00 | 0°34'21 |
| minimum elong | 8380 Sep 27 23:49 | 12° <u>♁</u> 07'05 1°43'39 | min. Earth dist. | 8387 Apr 09 23:07 | 19° <u>♁</u> 58'35 | 40.21094 AU |
| morning rise | 8380 Oct 13 22:14 | 12° <u>♁</u> 31'09 | direct | 8387 Jun 28 01:35 | 18° <u>♁</u> 54'59 | |
| retrograde | 8381 Jan 08 17:25 | 13° <u>♁</u> 47'28 | evening set | 8387 Sep 21 12:46 | 20° <u>♁</u> 12'47 | |
| opposition | 8381 Mar 31 09:58 | 12° <u>♁</u> 43'10 -1°37'59 | max. Earth dist. | 8387 Oct 05 09:46 | 20° <u>♁</u> 34'33 | 42.09332 AU |
| min. Earth dist. | 8381 Apr 02 01:19 | 12° <u>♁</u> 41'07 41.57888 AU | | | | |
| direct | 8381 Jun 20 14:48 | 11° <u>♁</u> 38'49 | conjunction | 8387 Oct 07 13:18 | 20° <u>♁</u> 37'57 | 0°43'35 |

| | | | | | | | |
|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| minimum elong | 8387 Oct 07 13:17 | 20° <u>♁</u> 37'57 | 0°43'39 | direct | 8394 Jul 06 13:29 | 28° <u>♁</u> 02'59 | |
| morning rise | 8387 Oct 23 14:30 | 21° <u>♁</u> 03'13 | | evening set | 8394 Oct 01 03:52 | 29° <u>♁</u> 26'01 | |
| retrograde | 8388 Jan 18 13:18 | 22° <u>♁</u> 22'50 | | max. Earth dist. | 8394 Oct 14 10:56 | 29° <u>♁</u> 47'55 | 40.38920 AU |
| opposition | 8388 Apr 08 13:40 | 21° <u>♁</u> 16'47 | 0°57'18 | | | | |
| min. Earth dist. | 8388 Apr 10 12:29 | 21° <u>♁</u> 14'16 | 39.97223 AU | conjunction | 8394 Oct 16 20:17 | 29° <u>♁</u> 51'54 | 3°21'44 |
| direct | 8388 Jun 28 11:55 | 20° <u>♁</u> 10'26 | | minimum elong | 8394 Oct 16 20:11 | 29° <u>♁</u> 51'54 | 3°21'49 |
| evening set | 8388 Sep 22 02:30 | 21° <u>♁</u> 28'51 | | | 8394 Oct 21 17:02 | 0° <u>♁</u> | |
| max. Earth dist. | 8388 Oct 05 23:13 | 21° <u>♁</u> 50'45 | 41.85354 AU | morning rise | 8394 Nov 01 12:52 | 0° <u>♁</u> 17'50 | |
| | | | | retrograde | 8395 Jan 28 02:50 | 1° <u>♁</u> 42'21 | |
| conjunction | 8388 Oct 08 02:44 | 21° <u>♁</u> 54'10 | 1°05'33 | opposition | 8395 Apr 18 10:24 | 0° <u>♁</u> 34'16 | 3°44'33 |
| minimum elong | 8388 Oct 08 02:42 | 21° <u>♁</u> 54'10 | 1°05'36 | min. Earth dist. | 8395 Apr 20 14:07 | 0° <u>♁</u> 31'23 | 38.26694 AU |
| morning rise | 8388 Oct 24 03:28 | 22° <u>♁</u> 19'33 | | | 8395 May 15 06:25 | 30° <u>♁</u> | |
| retrograde | 8389 Jan 19 04:14 | 23° <u>♁</u> 39'45 | | direct | 8395 Jul 08 03:10 | 29° <u>♁</u> 25'37 | |
| opposition | 8389 Apr 10 01:41 | 22° <u>♁</u> 33'24 | 1°20'30 | | 8395 Aug 30 00:50 | 0° <u>♁</u> | |
| min. Earth dist. | 8389 Apr 12 00:10 | 22° <u>♁</u> 30'54 | 39.73182 AU | evening set | 8395 Oct 02 22:41 | 0° <u>♁</u> 49'33 | |
| direct | 8389 Jun 30 00:43 | 21° <u>♁</u> 26'42 | | max. Earth dist. | 8395 Oct 16 03:35 | 1° <u>♁</u> 11'28 | 40.13916 AU |
| evening set | 8389 Sep 23 17:08 | 22° <u>♁</u> 45'48 | | | | | |
| max. Earth dist. | 8389 Oct 07 11:14 | 23° <u>♁</u> 07'40 | 41.61214 AU | conjunction | 8395 Oct 18 12:59 | 1° <u>♁</u> 15'29 | 3°45'05 |
| | | | | minimum elong | 8395 Oct 18 12:52 | 1° <u>♁</u> 15'29 | 3°45'12 |
| conjunction | 8389 Oct 09 16:36 | 23° <u>♁</u> 11'14 | 1°27'44 | morning rise | 8395 Nov 03 03:05 | 1° <u>♁</u> 41'27 | |
| minimum elong | 8389 Oct 09 16:33 | 23° <u>♁</u> 11'14 | 1°27'48 | retrograde | 8396 Jan 29 18:49 | 3° <u>♁</u> 06'49 | |
| morning rise | 8389 Oct 25 16:43 | 23° <u>♁</u> 36'45 | | opposition | 8396 Apr 19 01:24 | 1° <u>♁</u> 58'25 | 4°09'18 |
| retrograde | 8390 Jan 20 17:36 | 24° <u>♁</u> 57'33 | | min. Earth dist. | 8396 Apr 21 05:14 | 1° <u>♁</u> 55'31 | 38.01645 AU |
| opposition | 8390 Apr 11 14:04 | 23° <u>♁</u> 50'54 | 1°43'57 | direct | 8396 Jul 08 19:30 | 0° <u>♁</u> 49'24 | |
| min. Earth dist. | 8390 Apr 13 14:07 | 23° <u>♁</u> 48'18 | 39.49024 AU | evening set | 8396 Oct 03 18:23 | 2° <u>♁</u> 14'16 | |
| direct | 8390 Jul 01 12:46 | 22° <u>♁</u> 43'54 | | max. Earth dist. | 8396 Oct 16 18:26 | 2° <u>♁</u> 36'02 | 39.88641 AU |
| evening set | 8390 Sep 25 08:13 | 24° <u>♁</u> 03'41 | | | | | |
| max. Earth dist. | 8390 Oct 09 01:53 | 24° <u>♁</u> 25'39 | 41.36964 AU | conjunction | 8396 Oct 19 05:59 | 2° <u>♁</u> 40'14 | 4°08'37 |
| | | | | minimum elong | 8396 Oct 19 05:51 | 2° <u>♁</u> 40'13 | 4°08'43 |
| conjunction | 8390 Oct 11 06:58 | 24° <u>♁</u> 29'14 | 1°50'08 | morning rise | 8396 Nov 03 17:37 | 3° <u>♁</u> 06'14 | |
| minimum elong | 8390 Oct 11 06:54 | 24° <u>♁</u> 29'14 | 1°50'11 | retrograde | 8397 Jan 30 11:49 | 4° <u>♁</u> 32'28 | |
| morning rise | 8390 Oct 27 05:56 | 24° <u>♁</u> 54'52 | | opposition | 8397 Apr 20 16:56 | 3° <u>♁</u> 23'43 | 4°34'14 |
| retrograde | 8391 Jan 22 05:11 | 26° <u>♁</u> 16'19 | | min. Earth dist. | 8397 Apr 22 22:15 | 3° <u>♁</u> 20'43 | 37.76338 AU |
| opposition | 8391 Apr 13 02:56 | 25° <u>♁</u> 09'23 | 2°07'38 | direct | 8397 Jul 10 10:05 | 2° <u>♁</u> 14'18 | |
| min. Earth dist. | 8391 Apr 15 02:58 | 25° <u>♁</u> 06'46 | 39.24774 AU | evening set | 8397 Oct 05 14:53 | 3° <u>♁</u> 40'09 | |
| direct | 8391 Jul 03 03:02 | 24° <u>♁</u> 02'03 | | max. Earth dist. | 8397 Oct 18 11:39 | 4° <u>♁</u> 01'51 | 39.63093 AU |
| evening set | 8391 Sep 26 23:56 | 25° <u>♁</u> 22'34 | | | | | |
| max. Earth dist. | 8391 Oct 10 15:00 | 25° <u>♁</u> 44'31 | 41.12639 AU | conjunction | 8397 Oct 20 23:46 | 4° <u>♁</u> 06'07 | 4°32'19 |
| | | | | minimum elong | 8397 Oct 20 23:38 | 4° <u>♁</u> 06'06 | 4°32'25 |
| conjunction | 8391 Oct 12 21:23 | 25° <u>♁</u> 48'13 | 2°12'44 | morning rise | 8397 Nov 05 08:17 | 4° <u>♁</u> 32'07 | |
| minimum elong | 8391 Oct 12 21:19 | 25° <u>♁</u> 48'13 | 2°12'49 | retrograde | 8398 Feb 01 03:42 | 5° <u>♁</u> 59'16 | |
| morning rise | 8391 Oct 28 19:19 | 26° <u>♁</u> 13'57 | | opposition | 8398 Apr 22 08:51 | 4° <u>♁</u> 50'09 | 4°59'21 |
| retrograde | 8392 Jan 23 21:11 | 27° <u>♁</u> 36'06 | | min. Earth dist. | 8398 Apr 24 15:11 | 4° <u>♁</u> 47'04 | 37.50788 AU |
| opposition | 8392 Apr 13 16:09 | 26° <u>♁</u> 28'53 | 2°31'32 | direct | 8398 Jul 12 01:25 | 3° <u>♁</u> 40'20 | |
| min. Earth dist. | 8392 Apr 15 16:40 | 26° <u>♁</u> 26'14 | 39.00462 AU | evening set | 8398 Oct 07 12:17 | 5° <u>♁</u> 07'11 | |
| direct | 8392 Jul 03 13:14 | 25° <u>♁</u> 21'14 | | max. Earth dist. | 8398 Oct 20 04:35 | 5° <u>♁</u> 28'45 | 39.37339 AU |
| evening set | 8392 Sep 27 16:25 | 26° <u>♁</u> 42'32 | | | | | |
| max. Earth dist. | 8392 Oct 11 05:40 | 27° <u>♁</u> 04'32 | 40.88218 AU | conjunction | 8398 Oct 22 17:51 | 5° <u>♁</u> 33'09 | 4°56'09 |
| | | | | minimum elong | 8398 Oct 22 17:42 | 5° <u>♁</u> 33'08 | 4°56'15 |
| conjunction | 8392 Oct 13 12:34 | 27° <u>♁</u> 08'17 | 2°35'33 | morning rise | 8398 Nov 06 23:10 | 5° <u>♁</u> 59'07 | |
| minimum elong | 8392 Oct 13 12:29 | 27° <u>♁</u> 08'17 | 2°35'37 | retrograde | 8399 Feb 02 23:13 | 7° <u>♁</u> 27'14 | |
| morning rise | 8392 Oct 29 08:54 | 27° <u>♁</u> 34'06 | | opposition | 8399 Apr 24 01:12 | 6° <u>♁</u> 17'45 | 5°24'38 |
| retrograde | 8393 Jan 24 13:03 | 28° <u>♁</u> 57'01 | | min. Earth dist. | 8399 Apr 26 07:46 | 6° <u>♁</u> 14'38 | 37.25072 AU |
| opposition | 8393 Apr 15 05:47 | 27° <u>♁</u> 49'31 | 2°55'40 | direct | 8399 Jul 13 15:15 | 5° <u>♁</u> 07'29 | |
| min. Earth dist. | 8393 Apr 17 07:31 | 27° <u>♁</u> 46'46 | 38.76046 AU | evening set | 8399 Oct 09 10:16 | 6° <u>♁</u> 35'25 | |
| direct | 8393 Jul 05 00:04 | 26° <u>♁</u> 41'32 | | max. Earth dist. | 8399 Oct 21 21:51 | 6° <u>♁</u> 56'49 | 39.11416 AU |
| evening set | 8393 Sep 29 09:43 | 28° <u>♁</u> 03'40 | | | | | |
| max. Earth dist. | 8393 Oct 12 20:50 | 28° <u>♁</u> 25'41 | 40.63675 AU | conjunction | 8399 Oct 24 12:19 | 7° <u>♁</u> 01'20 | 5°20'07 |
| | | | | minimum elong | 8399 Oct 24 12:08 | 7° <u>♁</u> 01'19 | 5°20'13 |
| conjunction | 8393 Oct 15 04:12 | 28° <u>♁</u> 29'30 | 2°58'33 | morning rise | 8399 Nov 08 13:57 | 7° <u>♁</u> 27'15 | |
| minimum elong | 8393 Oct 15 04:07 | 28° <u>♁</u> 29'30 | 2°58'38 | retrograde | 8400 Feb 04 18:49 | 8° <u>♁</u> 56'23 | |
| morning rise | 8393 Oct 30 22:50 | 28° <u>♁</u> 55'23 | | opposition | 8400 Apr 24 18:13 | 7° <u>♁</u> 46'30 | 5°50'04 |
| | 8393 Dec 18 04:26 | 0° <u>♁</u> | | min. Earth dist. | 8400 Apr 27 02:17 | 7° <u>♁</u> 43'17 | 36.99237 AU |
| retrograde | 8394 Jan 26 07:36 | 0° <u>♁</u> 19'05 | | direct | 8400 Jul 14 06:51 | 6° <u>♁</u> 35'49 | |
| | 8394 Mar 06 19:52 | 30° <u>♁</u> | | evening set | 8400 Oct 10 09:15 | 8° <u>♁</u> 04'52 | |
| opposition | 8394 Apr 16 19:47 | 29° <u>♁</u> 11'18 | 3°20'00 | max. Earth dist. | 8400 Oct 22 17:12 | 8° <u>♁</u> 26'11 | 38.85412 AU |
| min. Earth dist. | 8394 Apr 18 21:35 | 29° <u>♁</u> 08'32 | 38.51482 AU | | | | |

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|------------------|-------------------|------------------------------|-------------|------------------|-------------------|------------------------------|-------------|
| conjunction | 8400 Oct 25 07:27 | 8° \mathcal{M} 30'43 | 5°44'11 | morning rise | 8406 Nov 18 03:34 | 18° \mathcal{M} 21'33 | |
| minimum elong | 8400 Oct 25 07:16 | 8° \mathcal{M} 30'42 | 5°44'18 | retrograde | 8407 Feb 16 03:48 | 19° \mathcal{M} 59'29 | |
| morning rise | 8400 Nov 09 05:03 | 8° \mathcal{M} 56'34 | | opposition | 8407 May 06 07:57 | 18° \mathcal{M} 47'01 | 8°50'07 |
| retrograde | 8401 Feb 05 15:42 | 10° \mathcal{M} 26'45 | | min. Earth dist. | 8407 May 08 18:55 | 18° \mathcal{M} 43'28 | 35.19551 AU |
| opposition | 8401 Apr 26 11:26 | 9° \mathcal{M} 16'29 | 6°15'37 | direct | 8407 Jul 25 12:44 | 17° \mathcal{M} 33'23 | |
| min. Earth dist. | 8401 Apr 28 19:08 | 9° \mathcal{M} 13'16 | 36.73362 AU | evening set | 8407 Oct 24 06:02 | 19° \mathcal{M} 12'13 | |
| direct | 8401 Jul 16 01:15 | 8° \mathcal{M} 05'22 | | max. Earth dist. | 8407 Nov 03 19:55 | 19° \mathcal{M} 31'43 | 37.04599 AU |
| evening set | 8401 Oct 12 09:16 | 9° \mathcal{M} 35'36 | | | | | |
| max. Earth dist. | 8401 Oct 24 11:04 | 9° \mathcal{M} 56'40 | 38.59379 AU | conjunction | 8407 Nov 06 13:33 | 19° \mathcal{M} 36'48 | 8°33'50 |
| | | | | minimum elong | 8407 Nov 06 13:17 | 19° \mathcal{M} 36'47 | 8°33'58 |
| conjunction | 8401 Oct 27 03:04 | 10° \mathcal{M} 01'22 | 6°08'21 | morning rise | 8407 Nov 19 19:57 | 20° \mathcal{M} 01'21 | |
| minimum elong | 8401 Oct 27 02:52 | 10° \mathcal{M} 01'21 | 6°08'28 | retrograde | 8408 Feb 18 05:58 | 21° \mathcal{M} 40'47 | |
| morning rise | 8401 Nov 10 20:25 | 10° \mathcal{M} 27'07 | | opposition | 8408 May 07 05:36 | 20° \mathcal{M} 27'57 | 9°15'50 |
| retrograde | 8402 Feb 07 13:14 | 11° \mathcal{M} 58'25 | | min. Earth dist. | 8408 May 09 16:13 | 20° \mathcal{M} 24'24 | 34.94076 AU |
| opposition | 8402 Apr 28 05:25 | 10° \mathcal{M} 47'46 | 6°41'16 | direct | 8408 Jul 26 11:36 | 19° \mathcal{M} 13'53 | |
| min. Earth dist. | 8402 Apr 30 14:24 | 10° \mathcal{M} 44'27 | 36.47507 AU | evening set | 8408 Oct 25 13:38 | 20° \mathcal{M} 54'22 | |
| direct | 8402 Jul 17 18:31 | 9° \mathcal{M} 36'12 | | max. Earth dist. | 8408 Nov 04 18:12 | 21° \mathcal{M} 13'21 | 36.78885 AU |
| evening set | 8402 Oct 14 10:00 | 11° \mathcal{M} 07'42 | | | | | |
| max. Earth dist. | 8402 Oct 26 07:53 | 11° \mathcal{M} 28'39 | 38.33379 AU | conjunction | 8408 Nov 07 13:43 | 21° \mathcal{M} 18'38 | 8°57'57 |
| | | | | minimum elong | 8408 Nov 07 13:26 | 21° \mathcal{M} 18'37 | 8°58'05 |
| conjunction | 8402 Oct 28 23:15 | 11° \mathcal{M} 33'21 | 6°32'35 | morning rise | 8408 Nov 20 12:52 | 21° \mathcal{M} 42'51 | |
| minimum elong | 8402 Oct 28 23:03 | 11° \mathcal{M} 33'20 | 6°32'42 | retrograde | 8409 Feb 19 07:22 | 23° \mathcal{M} 23'51 | |
| morning rise | 8402 Nov 12 11:40 | 11° \mathcal{M} 58'59 | | opposition | 8409 May 09 03:53 | 22° \mathcal{M} 10'36 | 9°41'29 |
| retrograde | 8403 Feb 09 07:57 | 13° \mathcal{M} 31'28 | | min. Earth dist. | 8409 May 11 15:54 | 22° \mathcal{M} 06'57 | 34.68591 AU |
| opposition | 8403 Apr 29 23:55 | 12° \mathcal{M} 20'26 | 7°06'59 | direct | 8409 Jul 28 08:28 | 20° \mathcal{M} 56'04 | |
| min. Earth dist. | 8403 May 02 08:34 | 12° \mathcal{M} 17'07 | 36.21719 AU | evening set | 8409 Oct 27 22:22 | 22° \mathcal{M} 38'17 | |
| direct | 8403 Jul 19 13:30 | 11° \mathcal{M} 08'27 | | max. Earth dist. | 8409 Nov 06 19:29 | 22° \mathcal{M} 56'51 | 36.53155 AU |
| evening set | 8403 Oct 16 11:54 | 12° \mathcal{M} 41'16 | | | | | |
| max. Earth dist. | 8403 Oct 28 03:28 | 13° \mathcal{M} 01'57 | 38.07477 AU | conjunction | 8409 Nov 09 14:45 | 23° \mathcal{M} 02'10 | 9°21'57 |
| | | | | minimum elong | 8409 Nov 09 14:27 | 23° \mathcal{M} 02'09 | 9°22'05 |
| conjunction | 8403 Oct 30 19:55 | 13° \mathcal{M} 06'46 | 6°56'51 | morning rise | 8409 Nov 22 05:50 | 23° \mathcal{M} 26'00 | |
| minimum elong | 8403 Oct 30 19:41 | 13° \mathcal{M} 06'45 | 6°56'58 | retrograde | 8410 Feb 21 07:17 | 25° \mathcal{M} 08'36 | |
| morning rise | 8403 Nov 14 03:20 | 13° \mathcal{M} 32'15 | | opposition | 8410 May 11 02:58 | 23° \mathcal{M} 54'57 | 10°07'01 |
| | 8404 Jan 21 09:52 | 15° \mathcal{M} | | min. Earth dist. | 8410 May 13 15:06 | 23° \mathcal{M} 51'16 | 34.43110 AU |
| retrograde | 8404 Feb 11 05:14 | 15° \mathcal{M} 05'59 | | direct | 8410 Jul 30 08:14 | 22° \mathcal{M} 39'57 | |
| | 8404 Mar 03 04:17 | 15° $\mathcal{R}\mathcal{M}$ | | evening set | 8410 Oct 30 08:20 | 24° \mathcal{M} 23'56 | |
| opposition | 8404 Apr 30 18:57 | 13° \mathcal{M} 54'36 | 7°32'45 | max. Earth dist. | 8410 Nov 08 19:44 | 24° \mathcal{M} 41'56 | 36.27462 AU |
| min. Earth dist. | 8404 May 03 03:54 | 13° \mathcal{M} 51'14 | 35.96058 AU | | | | |
| direct | 8404 Jul 20 06:12 | 12° \mathcal{M} 42'12 | | conjunction | 8410 Nov 11 16:08 | 24° \mathcal{M} 47'24 | 9°45'49 |
| evening set | 8404 Oct 17 14:38 | 14° \mathcal{M} 16'24 | | minimum elong | 8410 Nov 11 15:50 | 24° \mathcal{M} 47'22 | 9°45'58 |
| max. Earth dist. | 8404 Oct 29 00:49 | 14° \mathcal{M} 36'52 | 37.81676 AU | morning rise | 8410 Nov 23 22:55 | 25° \mathcal{M} 10'47 | |
| | | | | retrograde | 8411 Feb 23 09:49 | 26° \mathcal{M} 55'04 | |
| conjunction | 8404 Oct 31 17:20 | 14° \mathcal{M} 41'44 | 7°21'08 | opposition | 8411 May 13 02:36 | 25° \mathcal{M} 40'59 | 10°32'24 |
| minimum elong | 8404 Oct 31 17:06 | 14° \mathcal{M} 41'43 | 7°21'15 | min. Earth dist. | 8411 May 15 14:58 | 25° \mathcal{M} 37'15 | 34.17708 AU |
| | 8404 Nov 10 20:23 | 15° \mathcal{M} | | direct | 8411 Aug 01 06:06 | 24° \mathcal{M} 25'28 | |
| morning rise | 8404 Nov 14 19:06 | 15° \mathcal{M} 07'02 | | evening set | 8411 Nov 01 19:26 | 26° \mathcal{M} 11'19 | |
| retrograde | 8405 Feb 12 02:25 | 16° \mathcal{M} 42'07 | | max. Earth dist. | 8411 Nov 10 21:55 | 26° \mathcal{M} 28'47 | 36.01853 AU |
| opposition | 8405 May 02 14:43 | 15° \mathcal{M} 30'22 | 7°58'33 | | | | |
| min. Earth dist. | 8405 May 05 00:28 | 15° \mathcal{M} 26'56 | 35.70495 AU | conjunction | 8411 Nov 13 18:25 | 26° \mathcal{M} 34'18 | 10°09'29 |
| | 8405 May 24 14:10 | 15° $\mathcal{R}\mathcal{M}$ | | minimum elong | 8411 Nov 13 18:06 | 26° \mathcal{M} 34'16 | 10°09'38 |
| direct | 8405 Jul 21 22:53 | 14° \mathcal{M} 17'34 | | morning rise | 8411 Nov 25 16:07 | 26° \mathcal{M} 57'11 | |
| | 8405 Sep 16 22:44 | 15° \mathcal{M} | | retrograde | 8412 Feb 25 10:58 | 28° \mathcal{M} 43'14 | |
| evening set | 8405 Oct 19 18:43 | 15° \mathcal{M} 53'14 | | opposition | 8412 May 14 03:01 | 27° \mathcal{M} 28'42 | 10°57'35 |
| max. Earth dist. | 8405 Oct 30 22:36 | 16° \mathcal{M} 13'26 | 37.55966 AU | min. Earth dist. | 8412 May 16 16:10 | 27° \mathcal{M} 24'54 | 33.92438 AU |
| | | | | direct | 8412 Aug 02 03:53 | 26° \mathcal{M} 12'41 | |
| conjunction | 8405 Nov 02 15:24 | 16° \mathcal{M} 18'21 | 7°45'24 | evening set | 8412 Nov 03 07:57 | 28° \mathcal{M} 00'28 | |
| minimum elong | 8405 Nov 02 15:09 | 16° \mathcal{M} 18'20 | 7°45'32 | max. Earth dist. | 8412 Nov 12 00:55 | 28° \mathcal{M} 17'19 | 35.76423 AU |
| morning rise | 8405 Nov 16 11:13 | 16° \mathcal{M} 43'27 | | | | | |
| retrograde | 8406 Feb 14 02:37 | 18° \mathcal{M} 19'55 | | conjunction | 8412 Nov 14 21:18 | 28° \mathcal{M} 22'53 | 10°32'55 |
| opposition | 8406 May 04 10:50 | 17° \mathcal{M} 07'49 | 8°24'20 | minimum elong | 8412 Nov 14 20:59 | 28° \mathcal{M} 22'51 | 10°33'05 |
| min. Earth dist. | 8406 May 06 20:19 | 17° \mathcal{M} 04'23 | 35.45013 AU | morning rise | 8412 Nov 26 09:28 | 28° \mathcal{M} 45'14 | |
| direct | 8406 Jul 23 16:55 | 15° \mathcal{M} 54'36 | | | 8413 Jan 09 18:25 | 0° \mathcal{X} | |
| evening set | 8406 Oct 21 23:52 | 17° \mathcal{M} 31'50 | | retrograde | 8413 Feb 26 14:29 | 0° \mathcal{X} 33'05 | |
| max. Earth dist. | 8406 Nov 01 20:06 | 17° \mathcal{M} 51'38 | 37.30283 AU | | 8413 Apr 16 13:50 | 30° $\mathcal{R}\mathcal{M}$ | |
| | | | | opposition | 8413 May 16 04:01 | 29° \mathcal{M} 18'07 | 11°22'30 |
| conjunction | 8406 Nov 04 14:10 | 17° \mathcal{M} 56'42 | 8°09'39 | min. Earth dist. | 8413 May 18 16:28 | 29° \mathcal{M} 14'20 | 33.67383 AU |
| minimum elong | 8406 Nov 04 13:55 | 17° \mathcal{M} 56'41 | 8°09'47 | direct | 8413 Aug 04 04:28 | 28° \mathcal{M} 01'35 | |

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|------------------|-------------------|-------------------------|-------------|------------------|-------------------|-------------------------|-------------|
| evening set | 8413 Nov 05 21:44 | 29° 11 51'22 | | minimum elong | 8419 Nov 29 14:52 | 11° 17 55'09 | 13°05'43 |
| | 8413 Nov 10 07:53 | 0° 17 | | morning rise | 8419 Dec 07 12:57 | 12° 17 11'39 | |
| max. Earth dist. | 8413 Nov 14 03:49 | 0° 17 07'31 | 35.51218 AU | retrograde | 8420 Mar 12 16:38 | 14° 17 14'55 | |
| | | | | opposition | 8420 May 29 09:36 | 12° 17 57'08 | 14°04'32 |
| conjunction | 8413 Nov 17 00:57 | 0° 17 13'11 | 10°56'03 | min. Earth dist. | 8420 May 31 20:22 | 12° 17 53'16 | 32.02466 AU |
| minimum elong | 8413 Nov 17 00:37 | 0° 17 13'09 | 10°56'12 | direct | 8420 Aug 17 02:06 | 11° 17 37'21 | |
| morning rise | 8413 Nov 28 02:58 | 0° 17 34'56 | | evening set | 8420 Nov 23 17:49 | 13° 17 44'13 | |
| retrograde | 8414 Feb 28 19:04 | 2° 17 24'42 | | max. Earth dist. | 8420 Nov 28 05:59 | 13° 17 53'41 | 33.85673 AU |
| opposition | 8414 May 18 05:51 | 1° 17 09'16 | 11°47'06 | | | | |
| min. Earth dist. | 8414 May 20 19:11 | 1° 17 05'24 | 33.42610 AU | conjunction | 8420 Dec 01 00:42 | 13° 17 59'32 | 13°25'04 |
| | 8414 Jul 14 03:08 | 30° 17 | | minimum elong | 8420 Dec 01 00:21 | 13° 17 59'31 | 13°25'16 |
| direct | 8414 Aug 06 04:09 | 29° 17 52'13 | | morning rise | 8420 Dec 08 06:31 | 14° 17 14'47 | |
| | 8414 Aug 29 04:44 | 0° 17 | | retrograde | 8421 Mar 15 02:00 | 16° 17 20'41 | |
| evening set | 8414 Nov 08 12:59 | 1° 17 44'07 | | opposition | 8421 May 31 17:21 | 15° 17 02'31 | 14°25'12 |
| max. Earth dist. | 8414 Nov 16 09:28 | 1° 17 59'38 | 35.26341 AU | min. Earth dist. | 8421 Jun 03 04:57 | 14° 17 58'35 | 31.80452 AU |
| | | | | direct | 8421 Aug 19 06:25 | 13° 17 42'17 | |
| conjunction | 8414 Nov 19 05:22 | 2° 17 05'15 | 11°18'51 | evening set | 8421 Nov 26 21:34 | 15° 17 52'05 | |
| minimum elong | 8414 Nov 19 05:02 | 2° 17 05'14 | 11°19'01 | max. Earth dist. | 8421 Nov 30 17:11 | 16° 17 00'11 | 33.63566 AU |
| morning rise | 8414 Nov 29 20:27 | 2° 17 26'20 | | | | | |
| retrograde | 8415 Mar 03 00:34 | 4° 17 18'05 | | conjunction | 8421 Dec 03 10:58 | 16° 17 06'01 | 13°43'51 |
| opposition | 8415 May 20 08:27 | 3° 17 02'12 | 12°11'19 | minimum elong | 8421 Dec 03 10:37 | 16° 17 05'59 | 13°44'02 |
| min. Earth dist. | 8415 May 22 20:29 | 2° 17 58'24 | 33.18201 AU | morning rise | 8421 Dec 09 23:21 | 16° 17 19'53 | |
| direct | 8415 Aug 08 07:01 | 1° 17 44'40 | | retrograde | 8422 Mar 17 13:14 | 18° 17 28'33 | |
| evening set | 8415 Nov 11 05:27 | 3° 17 38'46 | | opposition | 8422 Jun 03 01:45 | 17° 17 10'00 | 14°45'05 |
| max. Earth dist. | 8415 Nov 18 13:42 | 3° 17 53'26 | 35.01854 AU | min. Earth dist. | 8422 Jun 05 12:03 | 17° 17 06'08 | 31.58813 AU |
| | | | | direct | 8422 Aug 21 15:16 | 15° 17 49'19 | |
| conjunction | 8415 Nov 21 10:18 | 3° 17 59'10 | 11°41'14 | evening set | 8422 Nov 30 03:42 | 18° 17 02'13 | |
| minimum elong | 8415 Nov 21 09:57 | 3° 17 59'08 | 11°41'23 | max. Earth dist. | 8422 Dec 03 03:38 | 18° 17 08'38 | 33.41854 AU |
| morning rise | 8415 Dec 01 14:01 | 4° 17 19'30 | | | | | |
| retrograde | 8416 Mar 04 07:58 | 6° 17 13'20 | | conjunction | 8422 Dec 05 22:00 | 18° 17 14'34 | 14°01'50 |
| opposition | 8416 May 21 11:54 | 4° 17 57'02 | 12°35'05 | minimum elong | 8422 Dec 05 21:40 | 18° 17 14'33 | 14°02'02 |
| min. Earth dist. | 8416 May 24 00:18 | 4° 17 53'11 | 32.94217 AU | morning rise | 8422 Dec 11 15:25 | 18° 17 26'52 | |
| direct | 8416 Aug 09 08:54 | 3° 17 39'01 | | retrograde | 8423 Mar 20 01:42 | 20° 17 38'29 | |
| evening set | 8416 Nov 12 23:39 | 5° 17 35'26 | | opposition | 8423 Jun 05 11:09 | 19° 17 19'32 | 15°04'04 |
| max. Earth dist. | 8416 Nov 19 21:14 | 5° 17 49'22 | 34.77799 AU | min. Earth dist. | 8423 Jun 07 21:57 | 19° 17 15'36 | 31.37601 AU |
| | | | | direct | 8423 Aug 23 23:13 | 17° 17 58'24 | |
| conjunction | 8416 Nov 22 16:22 | 5° 17 55'02 | 12°03'09 | evening set | 8423 Dec 03 13:03 | 20° 17 14'38 | |
| minimum elong | 8416 Nov 22 16:02 | 5° 17 55'00 | 12°03'19 | max. Earth dist. | 8423 Dec 05 17:10 | 20° 17 19'20 | 33.20608 AU |
| morning rise | 8416 Dec 02 07:45 | 6° 17 14'32 | | | | | |
| retrograde | 8417 Mar 06 14:58 | 8° 17 10'34 | | conjunction | 8423 Dec 08 09:46 | 20° 17 25'10 | 14°18'57 |
| opposition | 8417 May 23 16:00 | 6° 17 53'52 | 12°58'21 | minimum elong | 8423 Dec 08 09:26 | 20° 17 25'08 | 14°19'07 |
| min. Earth dist. | 8417 May 26 03:45 | 6° 17 50'01 | 32.70666 AU | morning rise | 8423 Dec 13 05:37 | 20° 17 35'37 | |
| direct | 8417 Aug 11 13:47 | 5° 17 35'24 | | retrograde | 8424 Mar 21 13:58 | 22° 17 50'24 | |
| evening set | 8417 Nov 15 19:35 | 7° 17 34'16 | | opposition | 8424 Jun 06 21:18 | 21° 17 31'04 | 15°22'06 |
| max. Earth dist. | 8417 Nov 22 03:29 | 7° 17 47'10 | 34.54188 AU | min. Earth dist. | 8424 Jun 09 06:47 | 21° 17 27'13 | 31.16862 AU |
| | | | | direct | 8424 Aug 25 10:07 | 20° 17 09'29 | |
| conjunction | 8417 Nov 24 23:08 | 7° 17 52'56 | 12°24'32 | evening set | 8424 Dec 06 03:07 | 22° 17 29'25 | |
| minimum elong | 8417 Nov 24 22:46 | 7° 17 52'54 | 12°24'42 | max. Earth dist. | 8424 Dec 07 05:25 | 22° 17 31'49 | 32.99882 AU |
| morning rise | 8417 Dec 04 01:36 | 8° 17 11'32 | | | | | |
| retrograde | 8418 Mar 08 23:54 | 10° 17 09'52 | | conjunction | 8424 Dec 09 22:20 | 22° 17 37'43 | 14°35'05 |
| opposition | 8418 May 25 21:00 | 8° 17 52'48 | 13°21'03 | minimum elong | 8424 Dec 09 22:01 | 22° 17 37'42 | 14°35'17 |
| min. Earth dist. | 8418 May 28 08:27 | 8° 17 48'57 | 32.47554 AU | morning rise | 8424 Dec 13 16:51 | 22° 17 45'58 | |
| direct | 8418 Aug 13 17:02 | 7° 17 33'53 | | retrograde | 8425 Mar 24 04:28 | 25° 17 04'17 | |
| evening set | 8418 Nov 18 16:59 | 9° 17 35'18 | | opposition | 8425 Jun 09 08:08 | 23° 17 44'33 | 15°39'04 |
| max. Earth dist. | 8418 Nov 24 11:58 | 9° 17 47'13 | 34.30976 AU | min. Earth dist. | 8425 Jun 11 17:26 | 23° 17 40'41 | 30.96685 AU |
| | | | | direct | 8425 Aug 27 19:43 | 22° 17 22'32 | |
| conjunction | 8418 Nov 27 06:45 | 9° 17 52'59 | 12°45'21 | evening set | 8425 Dec 10 02:31 | 24° 17 46'58 | |
| minimum elong | 8418 Nov 27 06:24 | 9° 17 52'57 | 12°45'32 | max. Earth dist. | 8425 Dec 09 20:55 | 24° 17 46'27 | 32.79755 AU |
| morning rise | 8418 Dec 05 19:18 | 10° 17 10'34 | | | | | |
| retrograde | 8419 Mar 11 06:38 | 12° 17 11'19 | | conjunction | 8425 Dec 12 11:46 | 24° 17 52'13 | 14°50'12 |
| opposition | 8419 May 28 02:59 | 10° 17 53'53 | 13°43'07 | minimum elong | 8425 Dec 12 11:28 | 24° 17 52'12 | 14°50'23 |
| min. Earth dist. | 8419 May 30 14:37 | 10° 17 50'00 | 32.24823 AU | morning rise | 8425 Dec 14 20:21 | 24° 17 57'25 | |
| direct | 8419 Aug 15 21:12 | 9° 17 34'33 | | retrograde | 8426 Mar 26 18:35 | 27° 17 20'04 | |
| evening set | 8419 Nov 21 16:28 | 11° 17 38'37 | | opposition | 8426 Jun 11 19:59 | 25° 17 59'58 | 15°54'54 |
| max. Earth dist. | 8419 Nov 26 20:38 | 11° 17 49'23 | 34.08152 AU | min. Earth dist. | 8426 Jun 14 04:16 | 25° 17 56'08 | 30.77130 AU |
| | | | | direct | 8426 Aug 30 08:15 | 24° 17 37'31 | |
| conjunction | 8419 Nov 29 15:14 | 11° 17 55'11 | 13°05'33 | max. Earth dist. | 8426 Dec 12 11:14 | 27° 17 02'50 | 32.60323 AU |

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|------------------|-------------------|---|-------------|------------------|-------------------|--|-------------|
| conjunction | 8426 Dec 15 01:35 | 27°  08'36 | 15°04'10 | conjunction | 8435 Jan 03 19:09 | 16°  25'20 | 16°06'18 |
| minimum elong | 8426 Dec 15 01:18 | 27°  08'35 | 15°04'22 | minimum elong | 8435 Jan 03 19:07 | 16°  25'19 | 16°06'29 |
| retrograde | 8427 Mar 29 10:02 | 29°  37'43 | | retrograde | 8435 Apr 18 03:56 | 19°  02'53 | |
| opposition | 8427 Jun 14 08:33 | 28°  17'15 | 16°09'29 | opposition | 8435 Jul 03 17:03 | 17°  34'02'5 | 17°11'50 |
| min. Earth dist. | 8427 Jun 16 15:19 | 28°  13'30 | 30.58306 AU | min. Earth dist. | 8435 Jul 05 12:46 | 17°  37'20 | 29.37107 AU |
| direct | 8427 Sep 01 20:02 | 26°  54'23 | | direct | 8435 Sep 20 22:04 | 16°  31'5'14 | |
| max. Earth dist. | 8427 Dec 15 04:04 | 29°  21'14 | 32.41662 AU | max. Earth dist. | 8436 Jan 04 15:33 | 18°  35'2'11 | 31.22844 AU |
| | | | | | | | |
| conjunction | 8427 Dec 17 16:24 | 29°  26'52 | 15°16'56 | conjunction | 8436 Jan 06 14:56 | 18°  35'6'51 | 16°07'01 |
| minimum elong | 8427 Dec 17 16:08 | 29°  26'51 | 15°17'07 | minimum elong | 8436 Jan 06 14:53 | 18°  35'6'51 | 16°07'12 |
| | 8428 Jan 01 13:18 | 0°  35'7'12 | | retrograde | 8436 Apr 20 00:29 | 21°  35'0'7 | |
| retrograde | 8428 Mar 30 23:48 | 1°  35'7'12 | | opposition | 8436 Jul 05 11:54 | 20°  31'2'26 | 17°11'57 |
| opposition | 8428 Jun 15 21:56 | 0°  36'2'5 | 16°22'44 | min. Earth dist. | 8436 Jul 07 05:52 | 20°  30'9'29 | 29.25633 AU |
| min. Earth dist. | 8428 Jun 18 03:56 | 0°  32'4'2 | 30.40270 AU | direct | 8436 Sep 22 16:44 | 18°  34'7'0'2 | |
| | 8428 Jul 08 18:31 | 30°  8'2'1 | | max. Earth dist. | 8437 Jan 06 14:55 | 21°  32'5'0'1 | 31.11819 AU |
| direct | 8428 Sep 03 08:02 | 29°  13'1'0 | | | | | |
| | 8428 Oct 27 22:17 | 0°  35'7'0 | | conjunction | 8437 Jan 08 11:16 | 21°  32'9'24 | 16°06'00 |
| max. Earth dist. | 8428 Dec 16 20:56 | 1°  34'1'28 | 32.23855 AU | minimum elong | 8437 Jan 08 11:18 | 21°  32'9'24 | 16°06'11 |
| | | | | retrograde | 8437 Apr 22 20:07 | 24°  30'8'17 | |
| conjunction | 8428 Dec 19 07:52 | 1°  34'7'0'1 | 15°28'23 | opposition | 8437 Jul 08 07:28 | 22°  34'5'2'5 | 17°10'11 |
| minimum elong | 8428 Dec 19 07:38 | 1°  34'7'0'0 | 15°28'35 | min. Earth dist. | 8437 Jul 09 23:58 | 22°  34'2'3'3 | 29.15049 AU |
| retrograde | 8429 Apr 02 17:12 | 4°  31'8'33 | | direct | 8437 Sep 25 13:11 | 21°  31'9'49 | |
| opposition | 8429 Jun 18 12:04 | 2°  35'7'28 | 16°34'32 | max. Earth dist. | 8438 Jan 09 12:38 | 23°  35'8'3'3 | 31.01763 AU |
| min. Earth dist. | 8429 Jun 20 15:50 | 2°  35'3'5'3 | 30.23080 AU | | | | |
| direct | 8429 Sep 05 21:09 | 1°  33'3'5'3 | | conjunction | 8438 Jan 11 07:36 | 24°  30'2'4'9 | 16°03'13 |
| max. Earth dist. | 8429 Dec 19 14:47 | 4°  30'3'3'6 | 32.06907 AU | minimum elong | 8438 Jan 11 07:37 | 24°  30'2'4'9 | 16°03'24 |
| | | | | retrograde | 8438 Apr 25 17:35 | 26°  34'2'1'3 | |
| conjunction | 8429 Dec 22 00:08 | 4°  30'9'0'3 | 15°38'28 | opposition | 8438 Jul 11 03:17 | 25°  31'9'1'1 | 17°06'29 |
| minimum elong | 8429 Dec 21 23:54 | 4°  30'9'0'2 | 15°38'39 | min. Earth dist. | 8438 Jul 12 17:02 | 25°  31'6'3'0 | 29.05445 AU |
| retrograde | 8430 Apr 05 08:43 | 6°  34'1'4'5 | | direct | 8438 Sep 28 10:02 | 23°  35'3'2'4 | |
| opposition | 8430 Jun 21 03:07 | 5°  32'0'2'4 | 16°44'50 | max. Earth dist. | 8439 Jan 12 12:37 | 26°  33'2'5'8 | 30.92741 AU |
| min. Earth dist. | 8430 Jun 23 06:28 | 5°  31'6'5'0 | 30.06736 AU | | | | |
| direct | 8430 Sep 08 08:47 | 3°  35'6'3'1 | | conjunction | 8439 Jan 14 04:19 | 26°  36'5'5'5 | 15°58'37 |
| max. Earth dist. | 8430 Dec 22 09:52 | 6°  32'7'4'0 | 31.90837 AU | minimum elong | 8439 Jan 14 04:25 | 26°  36'5'5'6 | 15°58'47 |
| | | | | retrograde | 8439 Apr 28 12:33 | 29°  31'6'4'5 | |
| conjunction | 8430 Dec 24 17:02 | 6°  32'3'2'5'7 | 15°47'06 | opposition | 8439 Jul 13 23:34 | 27°  33'5'3'5 | 17°00'49 |
| minimum elong | 8430 Dec 24 16:52 | 6°  32'3'2'5'6 | 15°47'18 | min. Earth dist. | 8439 Jul 15 11:56 | 27°  31'5'1'0'0 | 28.96886 AU |
| retrograde | 8431 Apr 08 01:39 | 9°  30'6'4'6 | | direct | 8439 Oct 01 06:05 | 26°  32'7'3'9 | |
| opposition | 8431 Jun 23 18:48 | 7°  34'5'1'1 | 16°53'35 | max. Earth dist. | 8440 Jan 15 11:38 | 29°  30'7'5'2 | 30.84850 AU |
| min. Earth dist. | 8431 Jun 25 19:46 | 7°  34'1'4'6 | 29.91227 AU | | | | |
| direct | 8431 Sep 11 01:08 | 6°  32'1'0'1 | | conjunction | 8440 Jan 17 01:01 | 29°  31'1'3'6 | 15°52'10 |
| max. Earth dist. | 8431 Dec 25 04:19 | 8°  35'3'2'6 | 31.75598 AU | minimum elong | 8440 Jan 17 01:07 | 29°  31'1'3'7 | 15°52'20 |
| | | | | | 8440 Feb 06 12:47 | 0°  35'7'1 | |
| conjunction | 8431 Dec 27 10:35 | 8°  35'8'4'0 | 15°54'15 | retrograde | 8440 Apr 30 10:03 | 1°  35'5'1'4'6 | |
| minimum elong | 8431 Dec 27 10:24 | 8°  35'8'3'9 | 15°54'26 | opposition | 8440 Jul 15 20:02 | 0°  35'2'8'3'0 | 16°53'08 |
| retrograde | 8432 Apr 09 19:17 | 11°  33'3'3'3 | | min. Earth dist. | 8440 Jul 17 04:56 | 0°  35'2'6'0'9 | 28.89453 AU |
| opposition | 8432 Jun 25 11:22 | 10°  31'1'4'3 | 17°00'42 | | 8440 Aug 01 20:55 | 30°  8'2'3 | |
| min. Earth dist. | 8432 Jun 27 11:54 | 10°  30'8'2'0 | 29.76518 AU | direct | 8440 Oct 03 03:40 | 29°  30'2'2'8 | |
| direct | 8432 Sep 12 15:29 | 8°  34'7'1'7 | | | 8440 Dec 01 11:43 | 0°  35'7'1 | |
| max. Earth dist. | 8432 Dec 27 01:12 | 11°  32'1'0'3 | 31.61176 AU | max. Earth dist. | 8441 Jan 17 11:43 | 1°  34'3'2'0 | 30.78131 AU |
| | | | | | | | |
| conjunction | 8432 Dec 29 04:57 | 11°  32'6'0'4 | 15°59'52 | conjunction | 8441 Jan 18 22:01 | 1°  34'6'4'6 | 15°43'51 |
| minimum elong | 8432 Dec 29 04:50 | 11°  32'6'0'3 | 16°00'03 | minimum elong | 8441 Jan 18 22:11 | 1°  34'6'4'7 | 15°44'00 |
| retrograde | 8433 Apr 12 13:40 | 14°  30'1'5'5 | | retrograde | 8441 May 03 06:06 | 4°  32'7'1'1 | |
| opposition | 8433 Jun 28 04:31 | 12°  39'5'3 | 17°06'09 | opposition | 8441 Jul 18 16:52 | 3°  33'0'3'5'1 | 16°43'25 |
| min. Earth dist. | 8433 Jun 30 02:56 | 12°  36'3'3'8 | 29.62582 AU | min. Earth dist. | 8441 Jul 20 00:09 | 3°  33'0'1'3'8 | 28.83197 AU |
| direct | 8433 Sep 15 08:54 | 11°  31'5'1'1 | | direct | 8441 Oct 05 23:00 | 1°  33'7'4'7 | |
| max. Earth dist. | 8433 Dec 29 20:41 | 13°  35'0'0'1 | 31.47559 AU | max. Earth dist. | 8442 Jan 20 11:45 | 4°  31'9'1'1 | 30.72655 AU |
| | | | | | | | |
| conjunction | 8433 Dec 31 23:49 | 13°  35'5'0'1 | 16°03'54 | conjunction | 8442 Jan 21 19:02 | 4°  32'2'1'9 | 15°33'39 |
| minimum elong | 8433 Dec 31 23:42 | 13°  35'5'0'0 | 16°04'04 | minimum elong | 8442 Jan 21 19:12 | 4°  32'2'2'0 | 15°33'49 |
| retrograde | 8434 Apr 15 09:02 | 16°  31'4'6 | | retrograde | 8442 May 06 02:23 | 7°  32'0'2'5'5 | |
| opposition | 8434 Jun 30 22:29 | 15°  30'9'3'0 | 17°09'53 | opposition | 8442 Jul 21 13:50 | 5°  33'9'3'5 | 16°31'40 |
| min. Earth dist. | 8434 Jul 02 19:58 | 15°  30'6'1'9 | 29.49444 AU | min. Earth dist. | 8442 Jul 22 17:24 | 5°  33'7'3'7 | 28.78142 AU |
| direct | 8434 Sep 18 01:59 | 13°  34'4'3'4 | | direct | 8442 Oct 08 21:07 | 4°  33'1'3'2 | |
| max. Earth dist. | 8435 Jan 01 19:01 | 16°  32'0'3'7 | 31.34771 AU | max. Earth dist. | 8443 Jan 23 11:17 | 6°  35'5'5'1'9 | 30.68394 AU |

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|------------------|-------------------|---------------------|-------------|------------------|-------------------|---------------------|-------------|
| conjunction | 8443 Jan 24 15:55 | 6° \approx 58'12 | 15°21'36 | evening set | 8450 Feb 04 00:41 | 24° \approx 47'06 | |
| minimum elong | 8443 Jan 24 16:09 | 6° \approx 58'13 | 15°21'45 | | | | |
| retrograde | 8443 May 08 22:10 | 9° \approx 38'54 | | conjunction | 8450 Feb 11 15:19 | 25° \approx 05'14 | 13°09'08 |
| opposition | 8443 Jul 24 11:01 | 8° \approx 15'35 | 16°17'55 | minimum elong | 8450 Feb 11 15:41 | 25° \approx 05'16 | 13°09'15 |
| min. Earth dist. | 8443 Jul 25 12:49 | 8° \approx 13'45 | 28.74272 AU | max. Earth dist. | 8450 Feb 11 06:34 | 25° \approx 04'22 | 30.69774 AU |
| direct | 8443 Oct 11 17:08 | 6° \approx 49'35 | | morning rise | 8450 Feb 19 05:59 | 25° \approx 23'23 | |
| max. Earth dist. | 8444 Jan 26 11:47 | 9° \approx 31'46 | 30.65330 AU | retrograde | 8450 May 26 13:13 | 27° \approx 43'44 | |
| | | | | opposition | 8450 Aug 11 14:01 | 26° \approx 21'01 | 13°50'31 |
| conjunction | 8444 Jan 27 12:58 | 9° \approx 34'17 | 15°07'43 | min. Earth dist. | 8450 Aug 11 22:23 | 26° \approx 20'26 | 28.77295 AU |
| minimum elong | 8444 Jan 27 13:13 | 9° \approx 34'19 | 15°07'53 | direct | 8450 Oct 30 03:16 | 24° \approx 55'54 | |
| retrograde | 8444 May 10 18:37 | 12° \approx 14'59 | | evening set | 8451 Feb 06 01:51 | 27° \approx 17'46 | |
| opposition | 8444 Jul 26 08:07 | 10° \approx 51'44 | 16°02'14 | | | | |
| min. Earth dist. | 8444 Jul 27 06:48 | 10° \approx 50'08 | 28.71530 AU | conjunction | 8451 Feb 14 10:09 | 27° \approx 37'35 | 12°44'04 |
| direct | 8444 Oct 13 14:49 | 9° \approx 25'49 | | minimum elong | 8451 Feb 14 10:32 | 27° \approx 37'37 | 12°44'10 |
| evening set | 8445 Jan 27 07:51 | 12° \approx 05'25 | | max. Earth dist. | 8451 Feb 14 03:33 | 27° \approx 36'56 | 30.74236 AU |
| max. Earth dist. | 8445 Jan 28 10:47 | 12° \approx 08'07 | 30.63394 AU | morning rise | 8451 Feb 22 18:34 | 27° \approx 57'25 | |
| | | | | | 8451 Apr 29 19:14 | 0° \approx | |
| conjunction | 8445 Jan 29 09:56 | 12° \approx 10'27 | 14°52'04 | retrograde | 8451 May 29 08:27 | 0° \approx 15'23 | |
| minimum elong | 8445 Jan 29 10:13 | 12° \approx 10'28 | 14°52'12 | | 8451 Jun 28 13:41 | 30° \approx | |
| morning rise | 8445 Jan 31 12:35 | 12° \approx 15'32 | | opposition | 8451 Aug 14 09:55 | 28° \approx 52'48 | 13°22'58 |
| retrograde | 8445 May 13 14:23 | 14° \approx 51'02 | | min. Earth dist. | 8451 Aug 14 14:30 | 28° \approx 52'29 | 28.81945 AU |
| opposition | 8445 Jul 29 05:27 | 13° \approx 27'52 | 15°44'38 | direct | 8451 Nov 02 01:42 | 27° \approx 27'50 | |
| min. Earth dist. | 8445 Jul 30 02:05 | 13° \approx 26'24 | 28.69890 AU | evening set | 8452 Feb 08 03:43 | 29° \approx 47'19 | |
| direct | 8445 Oct 16 11:22 | 12° \approx 02'03 | | | 8452 Feb 13 12:37 | 0° \approx | |
| evening set | 8446 Jan 28 13:07 | 14° \approx 37'28 | | | | | |
| max. Earth dist. | 8446 Jan 31 11:19 | 14° \approx 44'31 | 30.62560 AU | conjunction | 8452 Feb 17 04:41 | 0° \approx 08'41 | 12°17'40 |
| | | | | minimum elong | 8452 Feb 17 05:04 | 0° \approx 08'44 | 12°17'47 |
| conjunction | 8446 Feb 01 06:44 | 14° \approx 46'28 | 14°34'41 | max. Earth dist. | 8452 Feb 17 01:42 | 0° \approx 08'24 | 30.79805 AU |
| minimum elong | 8446 Feb 01 07:03 | 14° \approx 46'30 | 14°34'50 | morning rise | 8452 Feb 26 05:31 | 0° \approx 30'03 | |
| morning rise | 8446 Feb 05 00:49 | 14° \approx 55'31 | | retrograde | 8452 May 31 01:20 | 2° \approx 45'42 | |
| | 8446 Feb 06 21:33 | 15° \approx | | opposition | 8452 Aug 16 05:27 | 1° \approx 23'16 | 12°54'00 |
| retrograde | 8446 May 16 09:18 | 17° \approx 26'51 | | min. Earth dist. | 8452 Aug 16 08:11 | 1° \approx 23'04 | 28.87733 AU |
| opposition | 8446 Aug 01 02:47 | 16° \approx 03'46 | 15°25'13 | | 8452 Oct 25 10:40 | 30° \approx | |
| min. Earth dist. | 8446 Aug 01 20:49 | 16° \approx 02'29 | 28.69297 AU | direct | 8452 Nov 03 22:51 | 29° \approx 58'30 | |
| | 8446 Sep 12 13:23 | 15° \approx | | | 8452 Nov 13 08:09 | 0° \approx | |
| direct | 8446 Oct 19 10:44 | 14° \approx 38'04 | | evening set | 8453 Feb 09 06:20 | 2° \approx 15'40 | |
| | 8446 Nov 24 12:22 | 15° \approx | | | | | |
| evening set | 8447 Jan 30 05:13 | 17° \approx 10'21 | | conjunction | 8453 Feb 18 22:33 | 2° \approx 38'27 | 11°50'01 |
| max. Earth dist. | 8447 Feb 03 09:32 | 17° \approx 20'23 | 30.62792 AU | minimum elong | 8453 Feb 18 22:57 | 2° \approx 38'29 | 11°50'06 |
| | | | | max. Earth dist. | 8453 Feb 18 22:18 | 2° \approx 38'25 | 30.86551 AU |
| conjunction | 8447 Feb 04 03:18 | 17° \approx 22'10 | 14°15'38 | morning rise | 8453 Feb 28 14:39 | 3° \approx 01'12 | |
| minimum elong | 8447 Feb 04 03:38 | 17° \approx 22'12 | 14°15'46 | retrograde | 8453 Jun 02 18:16 | 5° \approx 14'38 | |
| morning rise | 8447 Feb 09 01:49 | 17° \approx 34'03 | | opposition | 8453 Aug 19 00:33 | 3° \approx 52'22 | 12°23'44 |
| retrograde | 8447 May 19 05:49 | 20° \approx 02'14 | | min. Earth dist. | 8453 Aug 18 23:15 | 3° \approx 52'27 | 28.94699 AU |
| opposition | 8447 Aug 03 23:51 | 18° \approx 39'14 | 15°04'01 | direct | 8453 Nov 06 20:39 | 2° \approx 27'51 | |
| min. Earth dist. | 8447 Aug 04 15:10 | 18° \approx 38'09 | 28.69757 AU | evening set | 8454 Feb 11 09:04 | 4° \approx 42'46 | |
| direct | 8447 Oct 22 07:47 | 17° \approx 13'39 | | | | | |
| evening set | 8448 Feb 01 01:41 | 19° \approx 43'08 | | conjunction | 8454 Feb 21 15:45 | 5° \approx 06'49 | 11°21'12 |
| | | | | minimum elong | 8454 Feb 21 16:09 | 5° \approx 06'52 | 11°21'18 |
| conjunction | 8448 Feb 06 23:45 | 19° \approx 57'20 | 13°54'59 | max. Earth dist. | 8454 Feb 21 18:43 | 5° \approx 07'07 | 30.94480 AU |
| minimum elong | 8448 Feb 07 00:06 | 19° \approx 57'22 | 13°55'07 | morning rise | 8454 Mar 03 22:10 | 5° \approx 30'52 | |
| max. Earth dist. | 8448 Feb 06 09:39 | 19° \approx 55'55 | 30.64077 AU | retrograde | 8454 Jun 05 09:31 | 7° \approx 42'09 | |
| morning rise | 8448 Feb 12 22:03 | 20° \approx 11'34 | | opposition | 8454 Aug 21 19:17 | 6° \approx 20'06 | 11°52'14 |
| retrograde | 8448 May 21 00:06 | 22° \approx 36'58 | | min. Earth dist. | 8454 Aug 21 15:43 | 6° \approx 20'20 | 29.02865 AU |
| opposition | 8448 Aug 05 20:53 | 21° \approx 14'04 | 14°41'07 | direct | 8454 Nov 09 15:24 | 4° \approx 55'53 | |
| min. Earth dist. | 8448 Aug 06 10:13 | 21° \approx 13'08 | 28.71229 AU | evening set | 8455 Feb 13 12:24 | 7° \approx 08'36 | |
| direct | 8448 Oct 24 06:17 | 19° \approx 48'38 | | | | | |
| evening set | 8449 Feb 02 00:28 | 22° \approx 15'29 | | conjunction | 8455 Feb 24 08:28 | 7° \approx 33'50 | 10°51'18 |
| | | | | minimum elong | 8455 Feb 24 08:51 | 7° \approx 33'52 | 10°51'23 |
| conjunction | 8449 Feb 08 19:40 | 22° \approx 31'45 | 13°32'47 | max. Earth dist. | 8455 Feb 24 14:42 | 7° \approx 34'26 | 31.03606 AU |
| minimum elong | 8449 Feb 08 20:02 | 22° \approx 31'47 | 13°32'54 | morning rise | 8455 Mar 07 04:06 | 7° \approx 59'02 | |
| max. Earth dist. | 8449 Feb 08 07:09 | 22° \approx 30'30 | 30.66401 AU | retrograde | 8455 Jun 08 01:00 | 10° \approx 08'14 | |
| morning rise | 8449 Feb 15 15:10 | 22° \approx 48'03 | | opposition | 8455 Aug 24 13:12 | 8° \approx 46'27 | 11°19'39 |
| retrograde | 8449 May 23 20:20 | 25° \approx 10'52 | | min. Earth dist. | 8455 Aug 24 06:16 | 8° \approx 46'56 | 29.12186 AU |
| opposition | 8449 Aug 08 17:31 | 23° \approx 48'03 | 14°16'36 | direct | 8455 Nov 12 11:23 | 7° \approx 22'34 | |
| min. Earth dist. | 8449 Aug 09 03:35 | 23° \approx 47'21 | 28.73737 AU | evening set | 8456 Feb 15 15:58 | 9° \approx 33'11 | |
| direct | 8449 Oct 27 05:32 | 22° \approx 22'46 | | | | | |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|-------------------------------|-------------|
| conjunction | 8456 Feb 27 00:31 | 9° ✕ 59'28 | 10°20'26 | direct | 8462 Nov 29 09:59 | 23° ✕ 48'16 | |
| minimum elong | 8456 Feb 27 00:54 | 9° ✕ 59'30 | 10°20'31 | evening set | 8463 Feb 28 22:06 | 25° ✕ 45'45 | |
| max. Earth dist. | 8456 Feb 27 09:11 | 10° ✕ 00'18 | 31.13848 AU | | | | |
| morning rise | 8456 Mar 09 08:42 | 10° ✕ 25'43 | | conjunction | 8463 Mar 14 22:38 | 26° ✕ 16'42 | 6°26'08 |
| retrograde | 8456 Jun 09 15:37 | 12° ✕ 32'56 | | minimum elong | 8463 Mar 14 22:54 | 26° ✕ 16'44 | 6°26'09 |
| opposition | 8456 Aug 26 06:47 | 11° ✕ 11'26 | 10°46'05 | max. Earth dist. | 8463 Mar 16 00:17 | 26° ✕ 19'05 | 32.11062 AU |
| min. Earth dist. | 8456 Aug 25 21:17 | 11° ✕ 12'05 | 29.22612 AU | morning rise | 8463 Mar 28 22:14 | 26° ✕ 47'35 | |
| direct | 8456 Nov 14 04:30 | 9° ✕ 47'54 | | retrograde | 8463 Jun 26 05:24 | 28° ✕ 42'40 | |
| evening set | 8457 Feb 16 19:47 | 11° ✕ 56'28 | | opposition | 8463 Sep 12 16:54 | 27° ✕ 23'16 | 6°33'15 |
| | | | | min. Earth dist. | 8463 Sep 11 15:34 | 27° ✕ 24'56 | 30.20567 AU |
| conjunction | 8457 Feb 28 16:01 | 12° ✕ 23'43 | 9°48'43 | direct | 8463 Dec 02 01:03 | 26° ✕ 02'21 | |
| minimum elong | 8457 Feb 28 16:23 | 12° ✕ 23'45 | 9°48'46 | evening set | 8464 Mar 02 02:33 | 27° ✕ 58'10 | |
| max. Earth dist. | 8457 Mar 01 04:12 | 12° ✕ 24'53 | 31.25145 AU | | | | |
| morning rise | 8457 Mar 12 11:32 | 12° ✕ 50'54 | | conjunction | 8464 Mar 16 09:11 | 28° ✕ 29'27 | 5°51'12 |
| retrograde | 8457 Jun 12 04:18 | 14° ✕ 56'12 | | minimum elong | 8464 Mar 16 09:26 | 28° ✕ 29'28 | 5°51'13 |
| opposition | 8457 Aug 28 23:48 | 13° ✕ 35'01 | 10°11'39 | max. Earth dist. | 8464 Mar 17 12:49 | 28° ✕ 31'59 | 32.28025 AU |
| min. Earth dist. | 8457 Aug 28 11:48 | 13° ✕ 35'50 | 29.34046 AU | morning rise | 8464 Mar 30 14:49 | 29° ✕ 00'39 | |
| direct | 8457 Nov 16 23:36 | 12° ✕ 11'51 | | | 8464 Apr 29 15:41 | 0° ∇ | |
| evening set | 8458 Feb 18 23:55 | 14° ✕ 18'25 | | retrograde | 8464 Jun 27 15:21 | 0° ∇ 54'12 | |
| | | | | | 8464 Aug 29 02:03 | 30° ℞ ✕ | |
| conjunction | 8458 Mar 03 06:45 | 14° ✕ 46'31 | 9°16'14 | min. Earth dist. | 8464 Sep 13 01:09 | 29° ✕ 36'57 | 30.37667 AU |
| minimum elong | 8458 Mar 03 07:07 | 14° ✕ 46'33 | 9°16'18 | opposition | 8464 Sep 14 05:17 | 29° ✕ 35'06 | 5°55'48 |
| max. Earth dist. | 8458 Mar 03 20:35 | 14° ✕ 47'51 | 31.37409 AU | direct | 8464 Dec 03 17:06 | 28° ✕ 14'32 | |
| morning rise | 8458 Mar 15 13:06 | 15° ✕ 14'33 | | | 8465 Feb 28 03:43 | 0° ∇ | |
| retrograde | 8458 Jun 14 18:41 | 17° ✕ 18'01 | | evening set | 8465 Mar 04 06:53 | 0° ∇ 08'47 | |
| opposition | 8458 Aug 31 16:14 | 15° ✕ 57'07 | 9°36'28 | | | | |
| min. Earth dist. | 8458 Aug 31 01:17 | 15° ✕ 58'08 | 29.46442 AU | conjunction | 8465 Mar 18 18:48 | 0° ∇ 40'18 | 5°16'08 |
| direct | 8458 Nov 19 15:37 | 14° ✕ 34'20 | | minimum elong | 8465 Mar 18 19:00 | 0° ∇ 40'19 | 5°16'07 |
| evening set | 8459 Feb 21 04:03 | 16° ✕ 38'59 | | max. Earth dist. | 8465 Mar 20 00:36 | 0° ∇ 43'01 | 32.45737 AU |
| | | | | morning rise | 8465 Apr 02 05:50 | 1° ∇ 11'45 | |
| conjunction | 8459 Mar 05 20:57 | 17° ✕ 07'50 | 8°43'07 | retrograde | 8465 Jun 29 22:49 | 3° ∇ 03'53 | |
| minimum elong | 8459 Mar 05 21:18 | 17° ✕ 07'52 | 8°43'09 | min. Earth dist. | 8465 Sep 15 10:44 | 1° ∇ 47'03 | 30.55580 AU |
| max. Earth dist. | 8459 Mar 06 14:14 | 17° ✕ 09'29 | 31.50577 AU | opposition | 8465 Sep 16 17:05 | 1° ∇ 45'05 | 5°18'16 |
| morning rise | 8459 Mar 18 12:59 | 17° ✕ 36'37 | | direct | 8465 Dec 06 05:20 | 0° ∇ 24'53 | |
| retrograde | 8459 Jun 17 06:31 | 19° ✕ 38'17 | | evening set | 8466 Mar 06 11:06 | 2° ∇ 17'36 | |
| opposition | 8459 Sep 03 08:10 | 18° ✕ 17'43 | 9°00'40 | | | | |
| min. Earth dist. | 8459 Sep 02 15:39 | 18° ✕ 18'49 | 29.59703 AU | conjunction | 8466 Mar 21 03:50 | 2° ∇ 49'18 | 4°41'01 |
| direct | 8459 Nov 22 08:24 | 16° ✕ 55'19 | | minimum elong | 8466 Mar 21 04:02 | 2° ∇ 49'19 | 4°41'01 |
| evening set | 8460 Feb 23 08:36 | 18° ✕ 58'05 | | max. Earth dist. | 8466 Mar 22 12:32 | 2° ∇ 52'16 | 32.64255 AU |
| | | | | morning rise | 8466 Apr 04 19:26 | 3° ∇ 20'56 | |
| conjunction | 8460 Mar 07 10:24 | 19° ✕ 27'35 | 8°09'27 | retrograde | 8466 Jul 02 04:23 | 5° ∇ 11'42 | |
| minimum elong | 8460 Mar 07 10:44 | 19° ✕ 27'37 | 8°09'30 | min. Earth dist. | 8466 Sep 17 19:26 | 3° ∇ 55'20 | 30.74302 AU |
| max. Earth dist. | 8460 Mar 08 04:52 | 19° ✕ 29'20 | 31.64569 AU | opposition | 8466 Sep 19 04:02 | 3° ∇ 53'13 | 4°40'44 |
| morning rise | 8460 Mar 20 11:35 | 19° ✕ 57'02 | | direct | 8466 Dec 08 18:45 | 2° ∇ 33'26 | |
| retrograde | 8460 Jun 18 20:20 | 21° ✕ 56'58 | | evening set | 8467 Mar 08 15:18 | 4° ∇ 24'42 | |
| opposition | 8460 Sep 04 23:14 | 20° ✕ 36'42 | 8°24'21 | | | | |
| min. Earth dist. | 8460 Sep 04 03:34 | 20° ✕ 38'00 | 29.73784 AU | conjunction | 8467 Mar 23 11:57 | 4° ∇ 56'31 | 4°05'54 |
| direct | 8460 Nov 24 01:31 | 19° ✕ 14'40 | | minimum elong | 8467 Mar 23 12:07 | 4° ∇ 56'32 | 4°05'53 |
| evening set | 8461 Feb 24 13:06 | 21° ✕ 15'38 | | max. Earth dist. | 8467 Mar 24 22:04 | 4° ∇ 59'36 | 32.83554 AU |
| | | | | morning rise | 8467 Apr 07 07:47 | 5° ∇ 28'16 | |
| conjunction | 8461 Mar 09 23:20 | 21° ✕ 45'42 | 7°35'21 | retrograde | 8467 Jul 04 11:55 | 7° ∇ 17'46 | |
| minimum elong | 8461 Mar 09 23:39 | 21° ✕ 45'44 | 7°35'23 | min. Earth dist. | 8467 Sep 20 02:49 | 6° ∇ 01'54 | 30.93821 AU |
| max. Earth dist. | 8461 Mar 10 20:59 | 21° ✕ 47'44 | 31.79334 AU | opposition | 8467 Sep 21 14:16 | 5° ∇ 59'37 | 4°03'17 |
| morning rise | 8461 Mar 23 08:37 | 22° ✕ 15'43 | | direct | 8467 Dec 11 04:19 | 4° ∇ 40'14 | |
| retrograde | 8461 Jun 21 07:38 | 24° ✕ 13'59 | | evening set | 8468 Mar 09 19:20 | 6° ∇ 30'08 | |
| opposition | 8461 Sep 07 13:59 | 22° ✕ 54'00 | 7°47'36 | | | | |
| min. Earth dist. | 8461 Sep 06 17:06 | 22° ✕ 55'23 | 29.88633 AU | conjunction | 8468 Mar 24 19:34 | 7° ∇ 02'01 | 3°30'53 |
| direct | 8461 Nov 26 17:52 | 21° ✕ 32'22 | | minimum elong | 8468 Mar 24 19:43 | 7° ∇ 02'02 | 3°30'53 |
| evening set | 8462 Feb 26 17:37 | 23° ✕ 31'33 | | max. Earth dist. | 8468 Mar 26 08:44 | 7° ∇ 05'21 | 33.03593 AU |
| | | | | morning rise | 8468 Apr 08 18:39 | 7° ∇ 33'50 | |
| conjunction | 8462 Mar 12 11:17 | 24° ✕ 02'06 | 7°00'53 | retrograde | 8468 Jul 05 16:51 | 9° ∇ 22'07 | |
| minimum elong | 8462 Mar 12 11:34 | 24° ✕ 02'08 | 7°00'55 | min. Earth dist. | 8468 Sep 21 11:11 | 8° ∇ 06'40 | 31.14056 AU |
| max. Earth dist. | 8462 Mar 13 10:18 | 24° ✕ 04'15 | 31.94842 AU | opposition | 8468 Sep 22 23:50 | 8° ∇ 04'20 | 3°25'59 |
| morning rise | 8462 Mar 26 04:08 | 24° ✕ 32'35 | | direct | 8468 Dec 12 15:19 | 6° ∇ 45'22 | |
| retrograde | 8462 Jun 23 19:25 | 26° ✕ 29'14 | | evening set | 8469 Mar 11 23:28 | 8° ∇ 33'59 | |
| min. Earth dist. | 8462 Sep 09 03:44 | 25° ✕ 11'09 | 30.04226 AU | | | | |
| opposition | 8462 Sep 10 03:49 | 25° ✕ 09'33 | 7°10'33 | conjunction | 8469 Mar 27 02:21 | 9° ∇ 05'51 | 2°56'01 |

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|------------------|-------------------|----------------------|-------------|------------------|-------------------|---------------------------|-------------|
| minimum elong | 8469 Mar 27 02:28 | 9° Υ 05'52 | 2°55'59 | min. Earth dist. | 8475 Oct 06 01:14 | 21° Υ 54'27 | 32.69645 AU |
| max. Earth dist. | 8469 Mar 28 16:26 | 9° Υ 09'14 | 33.24299 AU | opposition | 8475 Oct 08 00:31 | 21° Υ 51'33 | -0°45'40 |
| morning rise | 8469 Apr 11 04:26 | 9° Υ 37'40 | | direct | 8475 Dec 28 01:54 | 20° Υ 35'23 | |
| retrograde | 8469 Jul 08 00:02 | 11° Υ 24'49 | | evening set | 8476 Mar 25 00:37 | 22° Υ 16'30 | |
| min. Earth dist. | 8469 Sep 23 17:07 | 10° Υ 09'54 | 31.34951 AU | | | | |
| opposition | 8469 Sep 25 08:46 | 10° Υ 07'23 | 2°48'55 | conjunction | 8476 Apr 09 08:05 | 22° Υ 47'05 | -0°59'13 |
| direct | 8469 Dec 15 00:24 | 8° Υ 48'51 | | minimum elong | 8476 Apr 09 08:03 | 22° Υ 47'05 | 0°59'17 |
| evening set | 8470 Mar 14 03:15 | 10° Υ 36'14 | | max. Earth dist. | 8476 Apr 11 07:48 | 22° Υ 51'05 | 34.81526 AU |
| | | | | morning rise | 8476 Apr 24 15:00 | 23° Υ 17'37 | |
| conjunction | 8470 Mar 29 08:29 | 11° Υ 08'04 | 2°21'23 | retrograde | 8476 Jul 20 22:43 | 24° Υ 58'15 | |
| minimum elong | 8470 Mar 29 08:35 | 11° Υ 08'04 | 2°21'21 | min. Earth dist. | 8476 Oct 07 03:15 | 23° Υ 46'07 | 32.93224 AU |
| max. Earth dist. | 8470 Mar 31 01:26 | 11° Υ 11'40 | 33.45587 AU | opposition | 8476 Oct 09 04:45 | 23° Υ 43'06 | -1°19'43 |
| morning rise | 8470 Apr 13 12:43 | 11° Υ 39'49 | | direct | 8476 Dec 29 05:51 | 22° Υ 27'17 | |
| retrograde | 8470 Jul 10 05:28 | 13° Υ 25'54 | | evening set | 8477 Mar 27 03:25 | 24° Υ 07'32 | |
| min. Earth dist. | 8470 Sep 26 00:45 | 12° Υ 11'22 | 31.56412 AU | | | | |
| opposition | 8470 Sep 27 17:08 | 12° Υ 08'49 | 2°12'08 | conjunction | 8477 Apr 11 09:45 | 24° Υ 37'46 | -1°31'05 |
| direct | 8470 Dec 17 08:50 | 10° Υ 50'43 | | minimum elong | 8477 Apr 11 09:41 | 24° Υ 37'46 | 1°31'10 |
| evening set | 8471 Mar 16 07:10 | 12° Υ 36'55 | | max. Earth dist. | 8477 Apr 13 11:51 | 24° Υ 41'57 | 35.05232 AU |
| | | | | morning rise | 8477 Apr 26 15:19 | 25° Υ 07'59 | |
| conjunction | 8471 Mar 31 14:02 | 13° Υ 08'39 | 1°47'00 | retrograde | 8477 Jul 22 22:35 | 26° Υ 47'53 | |
| minimum elong | 8471 Mar 31 14:06 | 13° Υ 08'39 | 1°46'58 | min. Earth dist. | 8477 Oct 09 06:38 | 25° Υ 36'03 | 33.17156 AU |
| max. Earth dist. | 8471 Apr 02 07:49 | 13° Υ 12'18 | 33.67381 AU | opposition | 8477 Oct 11 08:31 | 25° Υ 33'01 | -1°53'12 |
| morning rise | 8471 Apr 15 20:01 | 13° Υ 40'19 | | direct | 8477 Dec 31 10:04 | 24° Υ 17'34 | |
| retrograde | 8471 Jul 12 11:04 | 15° Υ 25'22 | | evening set | 8478 Mar 29 05:58 | 25° Υ 56'59 | |
| min. Earth dist. | 8471 Sep 28 05:42 | 14° Υ 11'19 | 31.78350 AU | | | | |
| opposition | 8471 Sep 30 00:32 | 14° Υ 08'38 | 1°35'42 | conjunction | 8478 Apr 13 10:32 | 26° Υ 26'52 | -2°02'25 |
| direct | 8471 Dec 19 17:55 | 12° Υ 50'56 | | minimum elong | 8478 Apr 13 10:28 | 26° Υ 26'51 | 2°02'29 |
| evening set | 8472 Mar 17 11:02 | 14° Υ 36'03 | | max. Earth dist. | 8478 Apr 15 13:14 | 26° Υ 31'03 | 35.29297 AU |
| | | | | morning rise | 8478 Apr 28 14:35 | 26° Υ 56'43 | |
| conjunction | 8472 Apr 01 19:00 | 15° Υ 07'37 | 1°12'57 | retrograde | 8478 Jul 25 00:12 | 28° Υ 35'56 | |
| minimum elong | 8472 Apr 01 19:03 | 15° Υ 07'38 | 1°12'55 | min. Earth dist. | 8478 Oct 11 07:03 | 27° Υ 24'32 | 33.41470 AU |
| max. Earth dist. | 8472 Apr 03 14:32 | 15° Υ 11'23 | 33.89585 AU | opposition | 8478 Oct 13 11:28 | 27° Υ 21'22 | -2°26'05 |
| morning rise | 8472 Apr 17 02:07 | 15° Υ 39'08 | | direct | 8479 Jan 02 13:58 | 26° Υ 06'17 | |
| retrograde | 8472 Jul 13 15:43 | 17° Υ 23'13 | | evening set | 8479 Mar 31 08:24 | 27° Υ 44'57 | |
| min. Earth dist. | 8472 Sep 29 11:59 | 16° Υ 09'33 | 32.00701 AU | | | | |
| opposition | 8472 Oct 01 07:36 | 16° Υ 06'50 | 0°59'39 | conjunction | 8479 Apr 15 10:56 | 28° Υ 14'27 | -2°33'12 |
| direct | 8472 Dec 21 02:36 | 14° Υ 49'33 | | minimum elong | 8479 Apr 15 10:50 | 28° Υ 14'26 | 2°33'17 |
| evening set | 8473 Mar 19 14:37 | 16° Υ 33'35 | | max. Earth dist. | 8479 Apr 17 15:36 | 28° Υ 18'46 | 35.53726 AU |
| | | | | morning rise | 8479 Apr 30 12:56 | 28° Υ 43'55 | |
| conjunction | 8473 Apr 03 23:15 | 17° Υ 04'58 | 0°39'16 | | 8479 Jun 17 10:52 | 0° \mathcal{B} | |
| minimum elong | 8473 Apr 03 23:16 | 17° Υ 04'59 | 0°39'13 | retrograde | 8479 Jul 27 01:30 | 0° \mathcal{B} 22'30 | |
| max. Earth dist. | 8473 Apr 05 20:04 | 17° Υ 08'49 | 34.12149 AU | | 8479 Sep 05 19:37 | 30° $\mathcal{R}\Upsilon$ | |
| morning rise | 8473 Apr 19 06:56 | 17° Υ 36'18 | | min. Earth dist. | 8479 Oct 13 08:40 | 29° Υ 11'27 | 33.66172 AU |
| retrograde | 8473 Jul 15 18:50 | 19° Υ 19'27 | | opposition | 8479 Oct 15 13:48 | 29° Υ 08'16 | -2°58'20 |
| min. Earth dist. | 8473 Oct 01 16:46 | 18° Υ 06'11 | 32.23383 AU | direct | 8480 Jan 04 16:26 | 27° Υ 53'34 | |
| opposition | 8473 Oct 03 13:57 | 18° Υ 03'23 | 0°24'04 | evening set | 8480 Apr 01 10:37 | 29° Υ 31'32 | |
| direct | 8473 Dec 23 12:19 | 16° Υ 46'30 | | | | | |
| evening set | 8474 Mar 21 18:16 | 18° Υ 29'32 | | conjunction | 8480 Apr 16 10:45 | 0° \mathcal{B} 00'37 | -3°03'24 |
| | | | | minimum elong | 8480 Apr 16 10:38 | 0° \mathcal{B} 00'37 | 3°03'29 |
| conjunction | 8474 Apr 06 02:53 | 19° Υ 00'41 | 0°06'03 | | 8480 Apr 16 03:05 | 0° \mathcal{B} | |
| minimum elong | 8474 Apr 06 02:53 | 19° Υ 00'41 | 0°06'00 | max. Earth dist. | 8480 Apr 18 16:31 | 0° \mathcal{B} 05'00 | 35.78522 AU |
| behind sun begin | 8474 Apr 05 20:47 | 19° Υ 00'11 | | morning rise | 8480 May 01 10:17 | 0° \mathcal{B} 29'41 | |
| behind sun end | 8474 Apr 06 08:58 | 19° Υ 01'10 | | retrograde | 8480 Jul 28 00:10 | 2° \mathcal{B} 07'41 | |
| max. Earth dist. | 8474 Apr 08 00:27 | 19° Υ 04'34 | 34.35001 AU | min. Earth dist. | 8480 Oct 14 08:45 | 0° \mathcal{B} 57'03 | 33.91214 AU |
| morning rise | 8474 Apr 21 10:51 | 19° Υ 31'47 | | opposition | 8480 Oct 16 15:34 | 0° \mathcal{B} 53'48 | -3°29'57 |
| desc. node | 8474 Jun 11 17:03 | 20° Υ 54'27 | | | 8480 Nov 27 16:12 | 30° $\mathcal{R}\Upsilon$ | |
| retrograde | 8474 Jul 17 21:28 | 21° Υ 14'03 | | direct | 8481 Jan 05 20:12 | 29° Υ 39'30 | |
| min. Earth dist. | 8474 Oct 03 20:54 | 20° Υ 01'11 | 32.46380 AU | | 8481 Feb 12 21:40 | 0° \mathcal{B} | |
| opposition | 8474 Oct 05 19:33 | 19° Υ 58'18 | -0°11'03 | evening set | 8481 Apr 03 12:36 | 1° \mathcal{B} 16'49 | |
| direct | 8474 Dec 25 18:19 | 18° Υ 41'47 | | | | | |
| evening set | 8475 Mar 23 21:27 | 20° Υ 23'50 | | conjunction | 8481 Apr 18 09:47 | 1° \mathcal{B} 45'28 | -3°33'01 |
| | | | | minimum elong | 8481 Apr 18 09:39 | 1° \mathcal{B} 45'28 | 3°33'07 |
| conjunction | 8475 Apr 08 05:55 | 20° Υ 54'43 | -0°26'52 | max. Earth dist. | 8481 Apr 20 16:29 | 1° \mathcal{B} 49'54 | 36.03616 AU |
| minimum elong | 8475 Apr 08 05:54 | 20° Υ 54'43 | 0°26'56 | morning rise | 8481 May 03 06:41 | 2° \mathcal{B} 14'06 | |
| max. Earth dist. | 8475 Apr 10 05:27 | 20° Υ 58'45 | 34.58133 AU | retrograde | 8481 Jul 29 22:32 | 3° \mathcal{B} 51'35 | |
| morning rise | 8475 Apr 23 13:26 | 21° Υ 25'34 | | min. Earth dist. | 8481 Oct 16 08:44 | 2° \mathcal{B} 41'22 | 34.16561 AU |
| retrograde | 8475 Jul 19 20:54 | 23° Υ 06'59 | | opposition | 8481 Oct 18 16:54 | 2° \mathcal{B} 38'02 | -4°00'54 |

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| direct | 8482 Jan 07 22:20 | 1°824'08 | | | 8488 Jun 28 02:31 | 15°8 | |
| evening set | 8482 Apr 05 14:23 | 3°800'52 | | retrograde | 8488 Aug 09 23:45 | 15°824'41 | |
| | | | | | 8488 Sep 23 06:36 | 15°8 | |
| conjunction | 8482 Apr 20 08:33 | 3°829'04 | -4°02'01 | min. Earth dist. | 8488 Oct 27 22:03 | 14°816'43 | 35.96543 AU |
| minimum elong | 8482 Apr 20 08:25 | 3°829'03 | 4°02'07 | opposition | 8488 Oct 30 10:48 | 14°813'15 | -7°18'25 |
| max. Earth dist. | 8482 Apr 22 17:05 | 3°833'36 | 36.28964 AU | direct | 8489 Jan 19 21:23 | 13°801'48 | |
| morning rise | 8482 May 05 02:11 | 3°857'15 | | evening set | 8489 Apr 17 22:21 | 14°835'10 | |
| retrograde | 8482 Jul 31 18:15 | 5°834'14 | | | | | |
| min. Earth dist. | 8482 Oct 18 08:55 | 4°824'22 | 34.42122 AU | conjunction | 8489 May 01 09:53 | 14°859'44 | -7°07'33 |
| opposition | 8482 Oct 20 17:30 | 4°821'02 | -4°31'10 | minimum elong | 8489 May 01 09:41 | 14°859'43 | 7°07'42 |
| direct | 8483 Jan 10 01:45 | 3°807'32 | | | 8489 May 01 13:20 | 15°8 | |
| evening set | 8483 Apr 07 16:08 | 4°843'41 | | max. Earth dist. | 8489 May 03 22:29 | 15°804'22 | 38.07896 AU |
| | | | | morning rise | 8489 May 14 21:11 | 15°824'18 | |
| conjunction | 8483 Apr 22 06:40 | 5°811'25 | -4°30'24 | retrograde | 8489 Aug 11 16:14 | 16°858'40 | |
| minimum elong | 8483 Apr 22 06:31 | 5°811'25 | 4°30'32 | min. Earth dist. | 8489 Oct 29 19:15 | 15°850'55 | 36.22218 AU |
| max. Earth dist. | 8483 Apr 24 15:07 | 5°815'56 | 36.54480 AU | opposition | 8489 Nov 01 07:55 | 15°847'28 | -7°43'52 |
| morning rise | 8483 May 06 21:02 | 5°839'08 | | | 8489 Dec 09 09:29 | 15°8 | |
| retrograde | 8483 Aug 02 16:50 | 7°815'41 | | direct | 8490 Jan 21 21:28 | 14°836'18 | |
| min. Earth dist. | 8483 Oct 20 07:16 | 6°806'14 | 34.67836 AU | | 8490 Mar 04 21:11 | 15°8 | |
| opposition | 8483 Oct 22 17:37 | 6°802'49 | -5°00'45 | evening set | 8490 Apr 19 22:39 | 16°809'18 | |
| direct | 8484 Jan 12 01:35 | 4°849'42 | | | | | |
| evening set | 8484 Apr 08 17:36 | 6°825'20 | | conjunction | 8490 May 03 04:36 | 16°833'17 | -7°31'31 |
| | | | | minimum elong | 8490 May 03 04:24 | 16°833'16 | 7°31'39 |
| conjunction | 8484 Apr 23 04:25 | 6°852'35 | -4°58'10 | max. Earth dist. | 8490 May 05 16:56 | 16°837'53 | 38.33411 AU |
| minimum elong | 8484 Apr 23 04:16 | 6°852'34 | 4°58'17 | morning rise | 8490 May 16 10:38 | 16°857'17 | |
| max. Earth dist. | 8484 Apr 25 14:36 | 6°857'11 | 36.80090 AU | retrograde | 8490 Aug 13 10:19 | 18°831'22 | |
| morning rise | 8484 May 07 14:51 | 7°819'49 | | min. Earth dist. | 8490 Oct 31 13:54 | 17°823'58 | 36.47966 AU |
| retrograde | 8484 Aug 03 13:17 | 8°855'57 | | opposition | 8490 Nov 03 04:19 | 17°820'26 | -8°08'37 |
| min. Earth dist. | 8484 Oct 21 07:23 | 7°846'47 | 34.93620 AU | direct | 8491 Jan 23 18:12 | 16°809'33 | |
| opposition | 8484 Oct 23 17:21 | 7°843'25 | -5°29'40 | evening set | 8491 Apr 21 22:36 | 17°842'13 | |
| direct | 8485 Jan 13 01:48 | 6°830'40 | | | | | |
| evening set | 8485 Apr 10 19:04 | 8°805'48 | | conjunction | 8491 May 04 23:01 | 18°805'38 | -7°54'50 |
| | | | | minimum elong | 8491 May 04 22:48 | 18°805'37 | 7°54'59 |
| conjunction | 8485 Apr 25 01:41 | 8°832'32 | -5°25'19 | max. Earth dist. | 8491 May 07 13:01 | 18°810'19 | 38.59001 AU |
| minimum elong | 8485 Apr 25 01:31 | 8°832'31 | 5°25'26 | morning rise | 8491 May 17 23:21 | 18°829'03 | |
| max. Earth dist. | 8485 Apr 27 11:30 | 8°837'05 | 37.05739 AU | retrograde | 8491 Aug 15 04:00 | 20°802'54 | |
| morning rise | 8485 May 09 08:06 | 8°859'15 | | min. Earth dist. | 8491 Nov 02 10:20 | 18°855'44 | 36.73795 AU |
| retrograde | 8485 Aug 05 12:05 | 10°835'01 | | opposition | 8491 Nov 05 00:29 | 18°852'14 | -8°32'41 |
| min. Earth dist. | 8485 Oct 23 04:59 | 9°826'13 | 35.19419 AU | direct | 8492 Jan 25 14:43 | 17°841'40 | |
| opposition | 8485 Oct 25 16:28 | 9°822'47 | -5°57'53 | evening set | 8492 Apr 22 22:23 | 19°814'02 | |
| direct | 8486 Jan 14 23:56 | 8°810'23 | | | | | |
| evening set | 8486 Apr 12 20:12 | 9°845'03 | | conjunction | 8492 May 05 16:50 | 19°836'52 | -8°17'29 |
| | | | | minimum elong | 8492 May 05 16:37 | 19°836'51 | 8°17'38 |
| conjunction | 8486 Apr 26 22:27 | 10°811'15 | -5°51'49 | max. Earth dist. | 8492 May 08 06:47 | 19°841'31 | 38.84675 AU |
| minimum elong | 8486 Apr 26 22:16 | 10°811'15 | 5°51'56 | morning rise | 8492 May 18 11:16 | 19°859'42 | |
| max. Earth dist. | 8486 Apr 29 09:18 | 10°815'51 | 37.31356 AU | retrograde | 8492 Aug 15 23:07 | 21°833'21 | |
| morning rise | 8486 May 11 00:32 | 10°837'28 | | min. Earth dist. | 8492 Nov 03 04:23 | 20°826'31 | 36.99691 AU |
| retrograde | 8486 Aug 07 10:05 | 12°812'51 | | opposition | 8492 Nov 05 20:03 | 20°822'57 | -8°56'02 |
| min. Earth dist. | 8486 Oct 25 03:55 | 11°804'19 | 35.45183 AU | direct | 8493 Jan 26 09:14 | 19°812'42 | |
| opposition | 8486 Oct 27 15:13 | 11°800'54 | -6°25'25 | evening set | 8493 Apr 24 21:58 | 20°844'49 | |
| direct | 8487 Jan 16 21:13 | 9°848'50 | | | | | |
| evening set | 8487 Apr 14 21:13 | 11°823'03 | | conjunction | 8493 May 07 10:18 | 21°807'04 | -8°39'30 |
| | | | | minimum elong | 8493 May 07 10:05 | 21°807'03 | 8°39'39 |
| conjunction | 8487 Apr 28 18:52 | 11°848'44 | -6°17'42 | max. Earth dist. | 8493 May 10 01:07 | 21°811'44 | 39.10396 AU |
| minimum elong | 8487 Apr 28 18:41 | 11°848'43 | 6°17'50 | morning rise | 8493 May 19 22:46 | 21°829'19 | |
| max. Earth dist. | 8487 May 01 06:01 | 11°853'19 | 37.56919 AU | retrograde | 8493 Aug 17 17:23 | 23°802'48 | |
| morning rise | 8487 May 12 16:14 | 12°814'24 | | min. Earth dist. | 8493 Nov 04 23:35 | 21°856'14 | 37.25637 AU |
| retrograde | 8487 Aug 09 04:36 | 13°849'25 | | opposition | 8493 Nov 07 15:23 | 21°852'41 | -9°18'41 |
| min. Earth dist. | 8487 Oct 27 01:09 | 12°841'10 | 35.70874 AU | direct | 8494 Jan 28 03:38 | 20°842'46 | |
| opposition | 8487 Oct 29 13:08 | 12°837'44 | -6°52'15 | evening set | 8494 Apr 26 21:17 | 22°814'40 | |
| direct | 8488 Jan 18 22:18 | 11°825'59 | | | | | |
| evening set | 8488 Apr 15 22:03 | 12°859'46 | | conjunction | 8494 May 09 03:26 | 22°836'19 | -9°00'53 |
| | | | | minimum elong | 8494 May 09 03:14 | 22°836'18 | 9°01'02 |
| conjunction | 8488 Apr 29 14:38 | 13°824'53 | -6°42'57 | max. Earth dist. | 8494 May 11 19:07 | 22°841'01 | 39.36138 AU |
| minimum elong | 8488 Apr 29 14:26 | 13°824'53 | 6°43'04 | morning rise | 8494 May 21 09:31 | 22°857'58 | |
| max. Earth dist. | 8488 May 02 01:45 | 13°829'26 | 37.82413 AU | retrograde | 8494 Aug 19 09:08 | 24°831'19 | |
| morning rise | 8488 May 13 07:15 | 13°850'01 | | min. Earth dist. | 8494 Nov 06 17:59 | 23°825'04 | 37.51551 AU |

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| opposition | 8494 Nov 09 10:09 | 23° 8 21'30 -9°40'39 | evening set | 8501 May 09 13:16 | 2° II 19'49 |
| direct | 8495 Jan 30 00:32 | 22° 8 11'55 | | | |
| evening set | 8495 Apr 28 20:38 | 23° 8 43'38 | conjunction | 8501 May 19 17:57 | 2° II 37'07 -11°13'30 |
| | | | minimum elong | 8501 May 19 17:44 | 2° II 37'06 11°13'41 |
| conjunction | 8495 May 10 20:08 | 24° 8 04'41 -9°21'37 | max. Earth dist. | 8501 May 22 09:46 | 2° II 41'39 41.11559 AU |
| minimum elong | 8495 May 10 19:55 | 24° 8 04'40 9°21'46 | morning rise | 8501 May 29 22:37 | 2° II 54'26 |
| max. Earth dist. | 8495 May 13 11:20 | 24° 8 09'20 39.61813 AU | retrograde | 8501 Aug 29 21:31 | 4° II 27'21 |
| morning rise | 8495 May 22 19:53 | 24° 8 25'44 | min. Earth dist. | 8501 Nov 17 19:37 | 3° II 22'46 39.27650 AU |
| retrograde | 8495 Aug 21 01:51 | 25° 8 58'58 | opposition | 8501 Nov 20 11:19 | 3° II 19'21 -11°56'28 |
| min. Earth dist. | 8495 Nov 08 11:32 | 24° 8 53'02 37.77389 AU | direct | 8502 Feb 10 05:01 | 2° II 11'47 |
| opposition | 8495 Nov 11 04:29 | 24° 8 49'27 -10°01'57 | evening set | 8502 May 11 11:27 | 3° II 42'42 |
| direct | 8496 Jan 31 19:24 | 23° 8 40'12 | | | |
| evening set | 8496 Apr 29 19:44 | 25° 8 11'46 | conjunction | 8502 May 21 08:11 | 3° II 59'22 -11°30'08 |
| | | | minimum elong | 8502 May 21 07:58 | 3° II 59'21 11°30'19 |
| conjunction | 8496 May 11 12:41 | 25° 8 32'12 -9°41'44 | max. Earth dist. | 8502 May 23 23:07 | 4° II 03'49 41.35665 AU |
| minimum elong | 8496 May 11 12:29 | 25° 8 32'11 9°41'54 | morning rise | 8502 May 31 05:08 | 4° II 16'02 |
| max. Earth dist. | 8496 May 14 05:03 | 25° 8 36'55 39.87374 AU | retrograde | 8502 Aug 31 11:21 | 5° II 48'56 |
| morning rise | 8496 May 23 05:38 | 25° 8 52'39 | min. Earth dist. | 8502 Nov 19 10:20 | 4° II 44'37 39.51888 AU |
| retrograde | 8496 Aug 21 16:36 | 27° 8 25'48 | opposition | 8502 Nov 22 03:02 | 4° II 41'09 -12°13'24 |
| min. Earth dist. | 8496 Nov 09 06:35 | 26° 8 20'07 38.03070 AU | direct | 8503 Feb 11 21:27 | 3° II 33'49 |
| opposition | 8496 Nov 11 22:39 | 26° 8 16'35 -10°22'36 | evening set | 8503 May 13 09:24 | 5° II 04'43 |
| direct | 8497 Feb 01 15:12 | 25° 8 07'40 | | | |
| evening set | 8497 May 01 18:44 | 26° 8 39'06 | conjunction | 8503 May 22 22:15 | 5° II 20'42 -11°46'12 |
| | | | minimum elong | 8503 May 22 22:02 | 5° II 20'42 11°46'21 |
| conjunction | 8497 May 13 04:41 | 26° 8 58'54 -10°01'15 | max. Earth dist. | 8503 May 25 14:15 | 5° II 25'12 41.59628 AU |
| minimum elong | 8497 May 13 04:27 | 26° 8 58'53 10°01'24 | morning rise | 8503 Jun 01 11:10 | 5° II 36'43 |
| max. Earth dist. | 8497 May 15 20:05 | 27° 8 03'31 40.12750 AU | retrograde | 8503 Sep 01 23:56 | 7° II 09'40 |
| morning rise | 8497 May 24 14:48 | 27° 8 18'44 | min. Earth dist. | 8503 Nov 21 02:37 | 6° II 05'30 39.75995 AU |
| retrograde | 8497 Aug 23 09:22 | 28° 8 51'50 | opposition | 8503 Nov 23 18:25 | 6° II 02'05 -12°29'45 |
| min. Earth dist. | 8497 Nov 10 23:14 | 27° 8 46'28 38.28539 AU | direct | 8504 Feb 13 14:41 | 4° II 55'00 |
| opposition | 8497 Nov 13 16:20 | 27° 8 42'54 -10°42'36 | evening set | 8504 May 14 07:22 | 6° II 25'52 |
| direct | 8498 Feb 03 08:36 | 26° 8 34'17 | | | |
| evening set | 8498 May 03 17:37 | 28° 8 05'35 | conjunction | 8504 May 23 11:56 | 6° II 41'13 -12°01'41 |
| | | | minimum elong | 8504 May 23 11:44 | 6° II 41'12 12°01'52 |
| conjunction | 8498 May 14 20:35 | 28° 8 24'47 -10°20'11 | max. Earth dist. | 8504 May 26 03:28 | 6° II 45'39 41.83489 AU |
| minimum elong | 8498 May 14 20:22 | 28° 8 24'46 10°20'21 | morning rise | 8504 Jun 01 16:36 | 6° II 56'35 |
| max. Earth dist. | 8498 May 17 12:38 | 28° 8 29'25 40.37873 AU | retrograde | 8504 Sep 02 14:49 | 8° II 29'33 |
| morning rise | 8498 May 25 23:40 | 28° 8 44'00 | min. Earth dist. | 8504 Nov 21 16:32 | 7° II 25'39 39.99990 AU |
| | 8498 Jul 19 11:51 | 0° II | opposition | 8504 Nov 24 09:26 | 7° II 22'13 -12°45'28 |
| retrograde | 8498 Aug 25 03:00 | 0° II 17'03 | direct | 8505 Feb 14 05:00 | 6° II 15'23 |
| | 8498 Oct 01 15:58 | 30° RS | evening set | 8505 May 16 04:57 | 7° II 46'15 |
| min. Earth dist. | 8498 Nov 12 17:39 | 29° 8 11'51 38.53739 AU | | | |
| opposition | 8498 Nov 15 09:38 | 29° 8 08'22 -11°01'59 | conjunction | 8505 May 25 01:11 | 8° II 00'56 -12°16'36 |
| direct | 8499 Feb 05 00:30 | 28° 8 00'03 | minimum elong | 8505 May 25 00:59 | 8° II 00'55 12°16'46 |
| evening set | 8499 May 05 16:27 | 29° 8 31'14 | max. Earth dist. | 8505 May 27 17:06 | 8° II 05'22 42.07226 AU |
| | | | morning rise | 8505 Jun 02 21:35 | 8° II 15'39 |
| conjunction | 8499 May 16 12:09 | 29° 8 49'48 -10°38'32 | retrograde | 8505 Sep 04 07:19 | 9° II 48'41 |
| minimum elong | 8499 May 16 11:56 | 29° 8 49'47 10°38'41 | min. Earth dist. | 8505 Nov 23 07:45 | 8° II 44'59 40.23862 AU |
| max. Earth dist. | 8499 May 19 03:36 | 29° 8 54'22 40.62719 AU | opposition | 8505 Nov 26 00:16 | 8° II 41'35 -13°00'37 |
| | 8499 May 22 10:06 | 0° II | direct | 8506 Feb 15 16:45 | 7° II 35'00 |
| morning rise | 8499 May 27 07:54 | 0° II 08'24 | evening set | 8506 May 18 02:41 | 9° II 05'54 |
| retrograde | 8499 Aug 26 19:02 | 1° II 41'23 | | | |
| min. Earth dist. | 8499 Nov 14 10:11 | 0° II 36'26 38.78632 AU | conjunction | 8506 May 26 14:24 | 9° II 19'56 -12°30'58 |
| opposition | 8499 Nov 17 02:31 | 0° II 32'58 -11°20'45 | minimum elong | 8506 May 26 14:12 | 9° II 19'55 12°31'09 |
| | 8499 Dec 13 13:05 | 30° RS | max. Earth dist. | 8506 May 29 06:43 | 9° II 24'22 42.30830 AU |
| direct | 8500 Feb 06 16:38 | 29° 8 24'54 | morning rise | 8506 Jun 04 02:06 | 9° II 33'58 |
| | 8500 Mar 31 17:18 | 0° II | retrograde | 8506 Sep 05 19:10 | 11° II 07'06 |
| evening set | 8500 May 07 14:57 | 0° II 55'59 | min. Earth dist. | 8506 Nov 24 22:06 | 10° II 03'37 40.47555 AU |
| | | | opposition | 8506 Nov 27 14:29 | 10° II 00'14 -13°15'10 |
| conjunction | 8500 May 18 03:08 | 1° II 13'56 -10°56'18 | direct | 8507 Feb 17 08:04 | 8° II 53'55 |
| minimum elong | 8500 May 18 02:55 | 1° II 13'55 10°56'29 | evening set | 8507 May 20 00:20 | 10° II 24'53 |
| max. Earth dist. | 8500 May 20 18:09 | 1° II 18'25 40.87260 AU | | | |
| morning rise | 8500 May 28 15:35 | 1° II 31'53 | conjunction | 8507 May 28 03:10 | 10° II 38'14 -12°44'47 |
| retrograde | 8500 Aug 28 10:06 | 3° II 04'50 | minimum elong | 8507 May 28 03:00 | 10° II 38'14 12°44'58 |
| min. Earth dist. | 8500 Nov 16 03:01 | 2° II 00'05 39.03255 AU | max. Earth dist. | 8507 May 30 18:32 | 10° II 42'35 42.54236 AU |
| opposition | 8500 Nov 18 19:10 | 1° II 56'38 -11°38'55 | morning rise | 8507 Jun 05 06:10 | 10° II 51'36 |
| direct | 8501 Feb 08 09:44 | 0° II 48'49 | retrograde | 8507 Sep 07 07:29 | 12° II 24'50 |

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| min. Earth dist. | 8507 Nov 26 11:54 | 11°II21'36 | 40.71038 AU | max. Earth dist. | 8514 Jun 08 02:51 | 19°II31'37 | 44.08873 AU |
| opposition | 8507 Nov 29 04:37 | 11°II18'12 | -13°29'10 | morning rise | 8514 Jun 10 18:44 | 19°II35'51 | |
| direct | 8508 Feb 18 22:21 | 10°II12'09 | | retrograde | 8514 Sep 15 15:17 | 21°II10'29 | |
| evening set | 8508 May 20 21:49 | 11°II43'12 | | min. Earth dist. | 8514 Dec 05 09:58 | 20°II08'22 | 42.25650 AU |
| | | | | opposition | 8514 Dec 07 23:36 | 20°II05'12 | -14°52'50 |
| conjunction | 8508 May 28 15:45 | 11°II55'53 | -12°58'05 | direct | 8515 Feb 27 22:00 | 19°II00'37 | |
| minimum elong | 8508 May 28 15:34 | 11°II55'52 | 12°58'17 | evening set | 8515 Jun 02 08:55 | 20°II33'00 | |
| max. Earth dist. | 8508 May 31 08:02 | 12°II00'17 | 42.77400 AU | | | | |
| morning rise | 8508 Jun 05 09:40 | 12°II08'34 | | conjunction | 8515 Jun 07 01:13 | 20°II40'25 | -14°17'44 |
| retrograde | 8508 Sep 07 17:45 | 13°II41'57 | | minimum elong | 8515 Jun 07 01:05 | 20°II40'24 | 14°17'56 |
| min. Earth dist. | 8508 Nov 27 03:04 | 12°II38'51 | 40.94239 AU | max. Earth dist. | 8515 Jun 09 14:21 | 20°II44'27 | 44.29636 AU |
| opposition | 8508 Nov 29 18:35 | 12°II35'32 | -13°42'37 | morning rise | 8515 Jun 11 17:27 | 20°II47'49 | |
| direct | 8509 Feb 19 14:53 | 11°II29'43 | | retrograde | 8515 Sep 17 02:43 | 22°II22'49 | |
| evening set | 8509 May 22 19:37 | 13°II00'54 | | min. Earth dist. | 8515 Dec 06 23:04 | 21°II20'48 | 42.46463 AU |
| | | | | opposition | 8515 Dec 09 11:32 | 21°II17'43 | -15°02'49 |
| conjunction | 8509 May 30 04:08 | 13°II12'52 | -13°10'53 | direct | 8516 Feb 29 10:49 | 20°II13'19 | |
| minimum elong | 8509 May 30 03:58 | 13°II12'52 | 13°11'04 | evening set | 8516 Jun 03 08:35 | 21°II46'06 | |
| max. Earth dist. | 8509 Jun 01 19:09 | 13°II17'10 | 43.00266 AU | | | | |
| morning rise | 8509 Jun 06 12:44 | 13°II24'52 | | conjunction | 8516 Jun 07 11:41 | 21°II52'36 | -14°27'14 |
| retrograde | 8509 Sep 09 06:15 | 14°II58'24 | | minimum elong | 8516 Jun 07 11:33 | 21°II52'36 | 14°27'26 |
| min. Earth dist. | 8509 Nov 28 15:58 | 13°II55'33 | 41.17109 AU | max. Earth dist. | 8516 Jun 10 00:28 | 21°II56'36 | 44.50207 AU |
| opposition | 8509 Dec 01 08:04 | 13°II52'13 | -13°55'33 | morning rise | 8516 Jun 11 14:40 | 21°II59'07 | |
| direct | 8510 Feb 21 04:40 | 12°II46'39 | | retrograde | 8516 Sep 17 13:45 | 23°II34'33 | |
| evening set | 8510 May 24 17:17 | 14°II17'57 | | min. Earth dist. | 8516 Dec 07 09:54 | 22°II32'45 | 42.67075 AU |
| | | | | opposition | 8516 Dec 09 23:05 | 22°II29'38 | -15°12'18 |
| conjunction | 8510 May 31 16:19 | 14°II29'13 | -13°23'12 | direct | 8517 Mar 01 21:46 | 21°II25'27 | |
| minimum elong | 8510 May 31 16:08 | 14°II29'12 | 13°23'23 | evening set | 8517 Jun 05 09:29 | 22°II58'44 | |
| max. Earth dist. | 8510 Jun 03 07:16 | 14°II33'29 | 43.22763 AU | | | | |
| morning rise | 8510 Jun 07 15:23 | 14°II40'31 | | conjunction | 8517 Jun 08 21:58 | 23°II04'15 | -14°36'17 |
| retrograde | 8510 Sep 10 19:38 | 16°II14'14 | | minimum elong | 8517 Jun 08 21:51 | 23°II04'15 | 14°36'29 |
| min. Earth dist. | 8510 Nov 30 06:53 | 15°II11'29 | 41.39589 AU | max. Earth dist. | 8517 Jun 11 10:15 | 23°II08'11 | 44.70581 AU |
| opposition | 8510 Dec 02 21:30 | 15°II08'14 | -14°07'59 | morning rise | 8517 Jun 12 10:22 | 23°II09'46 | |
| direct | 8511 Feb 22 17:54 | 14°II02'54 | | retrograde | 8517 Sep 19 02:14 | 24°II45'45 | |
| evening set | 8511 May 26 15:18 | 15°II34'20 | | min. Earth dist. | 8517 Dec 08 21:45 | 23°II44'06 | 42.87499 AU |
| | | | | opposition | 8517 Dec 11 10:26 | 23°II41'01 | -15°21'19 |
| conjunction | 8511 Jun 02 04:21 | 15°II44'54 | -13°35'02 | direct | 8518 Mar 03 06:37 | 22°II37'03 | |
| minimum elong | 8511 Jun 02 04:12 | 15°II44'53 | 13°35'13 | evening set | 8518 Jun 07 12:34 | 24°II11'00 | |
| max. Earth dist. | 8511 Jun 04 18:44 | 15°II49'06 | 43.44863 AU | | | | |
| morning rise | 8511 Jun 08 17:22 | 15°II55'28 | | conjunction | 8518 Jun 10 08:10 | 24°II15'24 | -14°44'51 |
| retrograde | 8511 Sep 12 08:15 | 17°II29'22 | | minimum elong | 8518 Jun 10 08:03 | 24°II15'24 | 14°45'03 |
| min. Earth dist. | 8511 Dec 01 19:59 | 16°II26'48 | 41.61639 AU | morning rise | 8518 Jun 13 03:37 | 24°II19'47 | |
| opposition | 8511 Dec 04 10:24 | 16°II23'34 | -14°19'55 | max. Earth dist. | 8518 Jun 12 21:05 | 24°II19'22 | 44.90763 AU |
| direct | 8512 Feb 24 06:08 | 15°II18'25 | | retrograde | 8518 Sep 20 10:55 | 25°II56'27 | |
| evening set | 8512 May 27 13:17 | 16°II50'03 | | min. Earth dist. | 8518 Dec 10 09:25 | 24°II54'58 | 43.07687 AU |
| | | | | opposition | 8518 Dec 12 21:30 | 24°II51'56 | -15°29'51 |
| conjunction | 8512 Jun 02 15:58 | 16°II59'52 | -13°46'24 | direct | 8519 Mar 04 17:50 | 23°II48'11 | |
| minimum elong | 8512 Jun 02 15:47 | 16°II59'51 | 13°46'36 | evening set | 8519 Jun 09 20:15 | 25°II23'07 | |
| max. Earth dist. | 8512 Jun 05 05:12 | 17°II03'58 | 43.66544 AU | | | | |
| morning rise | 8512 Jun 08 18:41 | 17°II09'41 | | conjunction | 8519 Jun 11 18:00 | 25°II26'06 | -14°53'00 |
| retrograde | 8512 Sep 12 21:12 | 18°II43'47 | | minimum elong | 8519 Jun 11 17:53 | 25°II26'05 | 14°53'12 |
| min. Earth dist. | 8512 Dec 02 09:08 | 17°II41'22 | 41.83302 AU | morning rise | 8519 Jun 13 15:35 | 25°II29'03 | |
| opposition | 8512 Dec 04 23:14 | 17°II38'11 | -14°31'23 | max. Earth dist. | 8519 Jun 14 05:38 | 25°II29'58 | 45.10699 AU |
| direct | 8513 Feb 24 17:23 | 16°II33'13 | | retrograde | 8519 Sep 21 20:48 | 27°II06'44 | |
| evening set | 8513 May 29 11:25 | 18°II05'02 | | min. Earth dist. | 8519 Dec 11 19:47 | 26°II05'28 | 43.27617 AU |
| | | | | opposition | 8519 Dec 14 08:18 | 26°II02'25 | -15°37'56 |
| conjunction | 8513 Jun 04 03:19 | 18°II14'06 | -13°57'19 | direct | 8520 Mar 05 04:05 | 24°II58'53 | |
| minimum elong | 8513 Jun 04 03:11 | 18°II14'05 | 13°57'31 | | | | |
| max. Earth dist. | 8513 Jun 06 17:09 | 18°II18'13 | 43.87863 AU | conjunction | 8520 Jun 12 03:48 | 26°II36'22 | -15°00'42 |
| morning rise | 8513 Jun 09 19:10 | 18°II23'08 | | minimum elong | 8520 Jun 12 03:42 | 26°II36'21 | 15°00'53 |
| retrograde | 8513 Sep 14 05:32 | 19°II57'30 | | max. Earth dist. | 8520 Jun 14 15:54 | 26°II40'15 | 45.30353 AU |
| min. Earth dist. | 8513 Dec 03 22:41 | 18°II55'11 | 42.04611 AU | retrograde | 8520 Sep 22 04:47 | 28°II16'36 | |
| opposition | 8513 Dec 06 11:41 | 18°II52'03 | -14°42'21 | min. Earth dist. | 8520 Dec 12 08:07 | 27°II15'28 | 43.47233 AU |
| direct | 8514 Feb 26 08:29 | 17°II47'16 | | opposition | 8520 Dec 14 19:04 | 27°II12'30 | -15°45'35 |
| evening set | 8514 May 31 09:57 | 19°II19'20 | | direct | 8521 Mar 06 17:51 | 26°II09'11 | |
| | | | | | | | |
| conjunction | 8514 Jun 05 14:22 | 19°II27'36 | -14°07'46 | conjunction | 8521 Jun 13 13:23 | 27°II46'13 | -15°07'59 |
| minimum elong | 8514 Jun 05 14:13 | 19°II27'35 | 14°07'57 | minimum elong | 8521 Jun 13 13:17 | 27°II46'13 | 15°08'12 |

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| max. Earth dist. | 8521 Jun 16 00:28 | 27° Π 50'02 | 45.49677 AU | conjunction | 8529 Jun 22 11:49 | 6° \mathfrak{D} 46'59 | -15°52'45 |
| retrograde | 8521 Sep 23 15:43 | 29° Π 26'04 | | minimum elong | 8529 Jun 22 11:46 | 6° \mathfrak{D} 46'59 | 15°52'56 |
| min. Earth dist. | 8521 Dec 13 18:23 | 28° Π 25'07 | 43.66472 AU | max. Earth dist. | 8529 Jun 24 17:39 | 6° \mathfrak{D} 50'20 | 46.89578 AU |
| opposition | 8521 Dec 16 05:28 | 28° Π 22'09 | -15°52'48 | retrograde | 8529 Oct 02 16:23 | 8° \mathfrak{D} 23'39 | |
| direct | 8522 Mar 08 04:39 | 27° Π 19'02 | | min. Earth dist. | 8529 Dec 23 03:36 | 7° \mathfrak{D} 23'32 | 45.05666 AU |
| | | | | opposition | 8529 Dec 25 09:42 | 7° \mathfrak{D} 20'53 | -16°36'37 |
| conjunction | 8522 Jun 14 22:52 | 28° Π 55'39 | -15°14'53 | direct | 8530 Mar 17 06:37 | 6° \mathfrak{D} 18'58 | |
| minimum elong | 8522 Jun 14 22:48 | 28° Π 55'39 | 15°15'04 | | | | |
| max. Earth dist. | 8522 Jun 17 09:07 | 28° Π 59'23 | 45.68586 AU | conjunction | 8530 Jun 23 19:55 | 7° \mathfrak{D} 52'20 | -15°56'39 |
| | 8522 Jul 30 11:37 | 0° \mathfrak{D} | | minimum elong | 8530 Jun 23 19:54 | 7° \mathfrak{D} 52'19 | 15°56'51 |
| retrograde | 8522 Sep 25 04:30 | 0° \mathfrak{D} 35'07 | | max. Earth dist. | 8530 Jun 26 02:17 | 7° \mathfrak{D} 55'42 | 47.05666 AU |
| | 8522 Nov 22 20:33 | 30° \mathfrak{R} Π | | retrograde | 8530 Oct 03 21:26 | 9° \mathfrak{D} 28'39 | |
| min. Earth dist. | 8522 Dec 15 05:58 | 29° Π 34'15 | 43.85280 AU | min. Earth dist. | 8530 Dec 24 13:31 | 8° \mathfrak{D} 28'37 | 45.21675 AU |
| opposition | 8522 Dec 17 15:41 | 29° Π 31'23 | -15°59'38 | opposition | 8530 Dec 26 18:14 | 8° \mathfrak{D} 26'03 | -16°40'20 |
| direct | 8523 Mar 09 12:23 | 28° Π 28'27 | | direct | 8531 Mar 18 17:05 | 7° \mathfrak{D} 24'18 | |
| | 8523 Jun 13 07:34 | 0° \mathfrak{D} | | | | | |
| conjunction | 8523 Jun 16 08:22 | 0° \mathfrak{D} 04'38 | -15°21'25 | conjunction | 8531 Jun 25 03:46 | 8° \mathfrak{D} 57'19 | -16°00'11 |
| minimum elong | 8523 Jun 16 08:17 | 0° \mathfrak{D} 04'38 | 15°21'37 | minimum elong | 8531 Jun 25 03:45 | 8° \mathfrak{D} 57'19 | 16°00'23 |
| max. Earth dist. | 8523 Jun 18 18:21 | 0° \mathfrak{D} 08'20 | 45.87051 AU | max. Earth dist. | 8531 Jun 27 08:51 | 9° \mathfrak{D} 00'36 | 47.21477 AU |
| retrograde | 8523 Sep 26 12:55 | 1° \mathfrak{D} 43'41 | | retrograde | 8531 Oct 05 04:30 | 10° \mathfrak{D} 33'20 | |
| min. Earth dist. | 8523 Dec 16 16:54 | 0° \mathfrak{D} 42'56 | 44.03604 AU | min. Earth dist. | 8531 Dec 25 21:34 | 9° \mathfrak{D} 33'29 | 45.37383 AU |
| opposition | 8523 Dec 19 01:45 | 0° \mathfrak{D} 40'07 | -16°06'04 | opposition | 8531 Dec 28 02:41 | 9° \mathfrak{D} 30'53 | -16°43'42 |
| | 8524 Jan 24 09:45 | 30° \mathfrak{R} Π | | direct | 8532 Mar 19 02:37 | 8° \mathfrak{D} 29'19 | |
| direct | 8524 Mar 09 22:53 | 29° Π 37'21 | | conjunction | 8532 Jun 25 11:22 | 10° \mathfrak{D} 02'01 | -16°03'22 |
| | 8524 Apr 23 05:19 | 0° \mathfrak{D} | | minimum elong | 8532 Jun 25 11:21 | 10° \mathfrak{D} 02'01 | 16°03'35 |
| conjunction | 8524 Jun 16 17:21 | 1° \mathfrak{D} 13'06 | -15°27'34 | max. Earth dist. | 8532 Jun 27 16:11 | 10° \mathfrak{D} 05'16 | 47.36954 AU |
| minimum elong | 8524 Jun 16 17:17 | 1° \mathfrak{D} 13'06 | 15°27'46 | retrograde | 8532 Oct 05 14:32 | 11° \mathfrak{D} 37'44 | |
| max. Earth dist. | 8524 Jun 19 01:31 | 1° \mathfrak{D} 16'40 | 46.05044 AU | min. Earth dist. | 8532 Dec 26 07:41 | 10° \mathfrak{D} 37'58 | 45.52739 AU |
| retrograde | 8524 Sep 26 21:11 | 2° \mathfrak{D} 51'43 | | opposition | 8532 Dec 28 11:11 | 10° \mathfrak{D} 35'27 | -16°46'42 |
| min. Earth dist. | 8524 Dec 17 03:04 | 1° \mathfrak{D} 51'06 | 44.21474 AU | direct | 8533 Mar 20 11:04 | 9° \mathfrak{D} 34'04 | |
| opposition | 8524 Dec 19 11:41 | 1° \mathfrak{D} 48'18 | -16°12'08 | conjunction | 8533 Jun 26 19:08 | 11° \mathfrak{D} 06'27 | -16°06'14 |
| direct | 8525 Mar 11 07:57 | 0° \mathfrak{D} 45'40 | | minimum elong | 8533 Jun 26 19:08 | 11° \mathfrak{D} 06'27 | 16°06'25 |
| conjunction | 8525 Jun 18 02:21 | 2° \mathfrak{D} 21'00 | -15°33'21 | max. Earth dist. | 8533 Jun 28 23:33 | 11° \mathfrak{D} 09'40 | 47.52064 AU |
| minimum elong | 8525 Jun 18 02:16 | 2° \mathfrak{D} 21'00 | 15°33'34 | retrograde | 8533 Oct 06 22:37 | 12° \mathfrak{D} 41'53 | |
| max. Earth dist. | 8525 Jun 20 10:51 | 2° \mathfrak{D} 24'35 | 46.22598 AU | min. Earth dist. | 8533 Dec 27 16:10 | 11° \mathfrak{D} 42'15 | 45.67673 AU |
| retrograde | 8525 Sep 28 03:33 | 3° \mathfrak{D} 59'12 | | opposition | 8533 Dec 29 19:14 | 11° \mathfrak{D} 39'46 | -16°49'22 |
| min. Earth dist. | 8525 Dec 18 14:23 | 2° \mathfrak{D} 58'37 | 44.38925 AU | direct | 8534 Mar 21 18:37 | 10° \mathfrak{D} 38'32 | |
| opposition | 8525 Dec 20 21:19 | 2° \mathfrak{D} 55'53 | -16°17'49 | conjunction | 8534 Jun 28 02:41 | 12° \mathfrak{D} 10'38 | -16°08'46 |
| direct | 8526 Mar 12 19:50 | 1° \mathfrak{D} 53'24 | | minimum elong | 8534 Jun 28 02:40 | 12° \mathfrak{D} 10'38 | 16°08'59 |
| conjunction | 8526 Jun 19 11:02 | 3° \mathfrak{D} 28'18 | -15°38'46 | max. Earth dist. | 8534 Jun 30 05:13 | 12° \mathfrak{D} 13'44 | 47.66720 AU |
| minimum elong | 8526 Jun 19 11:00 | 3° \mathfrak{D} 28'18 | 15°38'59 | retrograde | 8534 Oct 08 08:06 | 13° \mathfrak{D} 45'46 | |
| max. Earth dist. | 8526 Jun 21 18:22 | 3° \mathfrak{D} 31'48 | 46.39781 AU | min. Earth dist. | 8534 Dec 29 01:17 | 12° \mathfrak{D} 46'15 | 45.82135 AU |
| retrograde | 8526 Sep 29 11:20 | 5° \mathfrak{D} 06'06 | | opposition | 8534 Dec 31 03:21 | 12° \mathfrak{D} 43'49 | -16°51'43 |
| min. Earth dist. | 8526 Dec 19 23:11 | 4° \mathfrak{D} 05'39 | 44.56024 AU | direct | 8535 Mar 22 23:46 | 11° \mathfrak{D} 42'45 | |
| opposition | 8526 Dec 22 06:37 | 4° \mathfrak{D} 02'55 | -16°23'06 | conjunction | 8535 Jun 29 10:13 | 13° \mathfrak{D} 14'33 | -16°11'00 |
| direct | 8527 Mar 14 06:37 | 3° \mathfrak{D} 00'33 | | minimum elong | 8535 Jun 29 10:14 | 13° \mathfrak{D} 14'33 | 16°11'12 |
| conjunction | 8527 Jun 20 19:26 | 4° \mathfrak{D} 35'02 | -15°43'49 | max. Earth dist. | 8535 Jul 01 12:46 | 13° \mathfrak{D} 17'38 | 47.80874 AU |
| minimum elong | 8527 Jun 20 19:22 | 4° \mathfrak{D} 35'02 | 15°44'00 | retrograde | 8535 Oct 09 13:33 | 14° \mathfrak{D} 49'24 | |
| max. Earth dist. | 8527 Jun 23 02:20 | 4° \mathfrak{D} 38'29 | 46.56635 AU | min. Earth dist. | 8535 Dec 30 10:57 | 13° \mathfrak{D} 49'55 | 45.96061 AU |
| retrograde | 8527 Sep 30 21:24 | 6° \mathfrak{D} 12'27 | | opposition | 8536 Jan 01 11:20 | 13° \mathfrak{D} 47'35 | -16°53'46 |
| min. Earth dist. | 8527 Dec 21 09:38 | 5° \mathfrak{D} 12'03 | 44.72832 AU | direct | 8536 Mar 23 08:35 | 12° \mathfrak{D} 46'38 | |
| opposition | 8527 Dec 23 15:52 | 5° \mathfrak{D} 09'23 | -16°28'00 | conjunction | 8536 Jun 29 17:34 | 14° \mathfrak{D} 18'08 | -16°12'57 |
| direct | 8528 Mar 14 16:10 | 4° \mathfrak{D} 07'10 | | minimum elong | 8536 Jun 29 17:34 | 14° \mathfrak{D} 18'08 | 16°13'09 |
| conjunction | 8528 Jun 21 03:49 | 5° \mathfrak{D} 41'15 | -15°48'28 | max. Earth dist. | 8536 Jul 01 18:12 | 14° \mathfrak{D} 21'06 | 47.94514 AU |
| minimum elong | 8528 Jun 21 03:48 | 5° \mathfrak{D} 41'14 | 15°48'40 | retrograde | 8536 Oct 09 19:28 | 15° \mathfrak{D} 52'41 | |
| max. Earth dist. | 8528 Jun 23 10:56 | 5° \mathfrak{D} 44'41 | 46.73234 AU | min. Earth dist. | 8536 Dec 30 18:42 | 14° \mathfrak{D} 53'19 | 46.09476 AU |
| retrograde | 8528 Oct 01 06:38 | 7° \mathfrak{D} 18'16 | | opposition | 8537 Jan 01 19:04 | 14° \mathfrak{D} 50'59 | -16°55'31 |
| min. Earth dist. | 8528 Dec 21 18:45 | 6° \mathfrak{D} 18'01 | 44.89372 AU | direct | 8537 Mar 24 16:49 | 13° \mathfrak{D} 50'10 | |
| opposition | 8528 Dec 24 00:51 | 6° \mathfrak{D} 15'21 | -16°32'30 | conjunction | 8537 Jul 01 00:41 | 15° \mathfrak{D} 21'21 | -16°14'37 |
| direct | 8529 Mar 15 23:53 | 5° \mathfrak{D} 13'17 | | minimum elong | 8537 Jul 01 00:43 | 15° \mathfrak{D} 21'21 | 16°14'48 |
| | | | | max. Earth dist. | 8537 Jul 03 00:40 | 15° \mathfrak{D} 24'15 | 48.07650 AU |

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| retrograde | 8537 Oct 11 02:42 | 16°☾55'36 | direct | 8546 Apr 03 07:26 | 23°☾05'51 |
| min. Earth dist. | 8538 Jan 01 04:18 | 15°☾56'14 46.22414 AU | | | |
| opposition | 8538 Jan 03 02:44 | 15°☾54'00 -16°56'59 | conjunction | 8546 Jul 10 11:18 | 24°☾34'40 -16°15'49 |
| direct | 8538 Mar 26 03:11 | 14°☾53'17 | minimum elong | 8546 Jul 10 11:23 | 24°☾34'40 16°15'59 |
| | | | max. Earth dist. | 8546 Jul 12 04:35 | 24°☾37'07 49.10245 AU |
| conjunction | 8538 Jul 02 07:48 | 16°☾24'09 -16°15'58 | retrograde | 8546 Oct 20 15:54 | 26°☾06'37 |
| minimum elong | 8538 Jul 02 07:49 | 16°☾24'09 16°16'10 | min. Earth dist. | 8547 Jan 10 23:35 | 25°☾07'55 47.23417 AU |
| max. Earth dist. | 8538 Jul 04 07:17 | 16°☾27'02 48.20353 AU | opposition | 8547 Jan 12 16:09 | 25°☾06'00 -16°55'55 |
| retrograde | 8538 Oct 12 11:15 | 17°☾58'06 | direct | 8547 Apr 04 12:33 | 24°☾06'16 |
| min. Earth dist. | 8539 Jan 02 11:42 | 16°☾58'50 46.34936 AU | | | |
| opposition | 8539 Jan 04 09:54 | 16°☾56'37 -16°58'07 | conjunction | 8547 Jul 11 17:30 | 25°☾34'52 -16°14'31 |
| direct | 8539 Mar 27 10:24 | 15°☾55'59 | minimum elong | 8547 Jul 11 17:34 | 25°☾34'52 16°14'43 |
| | | | max. Earth dist. | 8547 Jul 13 10:00 | 25°☾37'15 49.19733 AU |
| conjunction | 8539 Jul 03 14:33 | 17°☾26'34 -16°17'01 | retrograde | 8547 Oct 21 20:05 | 27°☾06'36 |
| minimum elong | 8539 Jul 03 14:36 | 17°☾26'34 16°17'13 | min. Earth dist. | 8548 Jan 12 08:13 | 26°☾07'53 47.32626 AU |
| max. Earth dist. | 8539 Jul 05 12:36 | 17°☾29'20 48.32678 AU | opposition | 8548 Jan 13 22:37 | 26°☾06'04 -16°54'22 |
| retrograde | 8539 Oct 13 21:01 | 19°☾00'13 | direct | 8548 Apr 04 21:44 | 25°☾06'25 |
| min. Earth dist. | 8540 Jan 03 19:39 | 18°☾01'00 46.47123 AU | | | |
| opposition | 8540 Jan 05 17:12 | 17°☾58'49 -16°58'56 | conjunction | 8548 Jul 11 23:31 | 26°☾34'48 -16°12'59 |
| direct | 8540 Mar 27 14:20 | 16°☾58'18 | minimum elong | 8548 Jul 11 23:37 | 26°☾34'48 16°13'10 |
| | | | max. Earth dist. | 8548 Jul 13 15:10 | 26°☾37'08 49.28710 AU |
| conjunction | 8540 Jul 03 21:13 | 18°☾28'35 -16°17'46 | retrograde | 8548 Oct 22 01:54 | 28°☾06'19 |
| minimum elong | 8540 Jul 03 21:15 | 18°☾28'35 16°17'57 | min. Earth dist. | 8549 Jan 12 14:43 | 27°☾07'39 47.41306 AU |
| max. Earth dist. | 8540 Jul 05 19:42 | 18°☾31'23 48.44690 AU | opposition | 8549 Jan 14 04:50 | 27°☾05'51 -16°52'34 |
| retrograde | 8540 Oct 14 01:34 | 20°☾01'58 | direct | 8549 Apr 06 05:37 | 26°☾06'16 |
| min. Earth dist. | 8541 Jan 04 03:50 | 19°☾02'48 46.58995 AU | | | |
| opposition | 8541 Jan 06 00:21 | 19°☾00'40 -16°59'26 | conjunction | 8549 Jul 13 05:26 | 27°☾34'26 -16°11'12 |
| direct | 8541 Mar 28 22:12 | 18°☾00'16 | minimum elong | 8549 Jul 13 05:30 | 27°☾34'26 16°11'24 |
| | | | max. Earth dist. | 8549 Jul 14 19:13 | 27°☾36'39 49.37172 AU |
| conjunction | 8541 Jul 05 03:48 | 19°☾30'16 -16°18'11 | retrograde | 8549 Oct 23 10:50 | 29°☾05'43 |
| minimum elong | 8541 Jul 05 03:51 | 19°☾30'16 16°18'23 | min. Earth dist. | 8550 Jan 13 22:10 | 28°☾07'03 47.49512 AU |
| max. Earth dist. | 8541 Jul 07 00:53 | 19°☾32'58 48.56417 AU | opposition | 8550 Jan 15 10:51 | 28°☾05'19 -16°50'31 |
| retrograde | 8541 Oct 15 05:30 | 21°☾03'22 | direct | 8550 Apr 07 09:36 | 27°☾05'48 |
| min. Earth dist. | 8542 Jan 05 10:23 | 20°☾04'19 46.70587 AU | | | |
| opposition | 8542 Jan 07 07:09 | 20°☾02'11 -16°59'37 | conjunction | 8550 Jul 14 11:21 | 28°☾33'44 -16°09'11 |
| direct | 8542 Mar 30 05:44 | 19°☾01'53 | minimum elong | 8550 Jul 14 11:27 | 28°☾33'45 16°09'22 |
| | | | max. Earth dist. | 8550 Jul 16 01:12 | 28°☾35'57 49.45190 AU |
| conjunction | 8542 Jul 06 10:17 | 20°☾31'38 -16°18'18 | | 8550 Oct 03 06:10 | 0°♂ |
| minimum elong | 8542 Jul 06 10:19 | 20°☾31'38 16°18'29 | retrograde | 8550 Oct 24 15:53 | 0°♂04'49 |
| max. Earth dist. | 8542 Jul 08 07:10 | 20°☾34'19 48.67854 AU | | 8550 Nov 15 03:05 | 30°♂ |
| retrograde | 8542 Oct 16 11:35 | 22°☾04'30 | min. Earth dist. | 8551 Jan 15 05:09 | 29°☾06'09 47.57287 AU |
| min. Earth dist. | 8543 Jan 06 18:52 | 21°☾05'28 46.81881 AU | opposition | 8551 Jan 16 16:46 | 29°☾04'29 -16°48'12 |
| opposition | 8543 Jan 08 14:04 | 21°☾03'25 -16°59'28 | direct | 8551 Apr 08 15:50 | 28°☾05'01 |
| direct | 8543 Mar 31 14:17 | 20°☾03'14 | | | |
| | | | conjunction | 8551 Jul 15 16:51 | 29°☾32'45 -16°06'53 |
| conjunction | 8543 Jul 07 16:37 | 21°☾32'44 -16°18'06 | minimum elong | 8551 Jul 15 16:56 | 29°☾32'45 16°07'04 |
| minimum elong | 8543 Jul 07 16:41 | 21°☾32'44 16°18'18 | max. Earth dist. | 8551 Jul 17 05:05 | 29°☾34'52 49.52826 AU |
| max. Earth dist. | 8543 Jul 09 13:08 | 21°☾35'23 48.79001 AU | | 8551 Aug 04 10:32 | 0°♂ |
| retrograde | 8543 Oct 17 18:10 | 23°☾05'22 | retrograde | 8551 Oct 25 19:51 | 1°♂03'36 |
| min. Earth dist. | 8544 Jan 08 01:25 | 22°☾06'27 46.92853 AU | min. Earth dist. | 8552 Jan 16 10:56 | 0°♂05'01 47.64716 AU |
| opposition | 8544 Jan 09 20:42 | 22°☾04'24 -16°59'01 | opposition | 8552 Jan 17 22:34 | 0°♂03'20 -16°45'37 |
| direct | 8544 Mar 31 22:00 | 21°☾04'20 | | 8552 Jan 20 21:35 | 30°♂ |
| | | | direct | 8552 Apr 08 20:50 | 29°☾03'57 |
| conjunction | 8544 Jul 07 22:49 | 22°☾33'35 -16°17'37 | | 8552 Jun 22 22:26 | 0°♂ |
| minimum elong | 8544 Jul 07 22:52 | 22°☾33'35 16°17'48 | | | |
| max. Earth dist. | 8544 Jul 09 17:50 | 22°☾36'09 48.89813 AU | conjunction | 8552 Jul 15 22:26 | 0°♂31'29 -16°04'20 |
| retrograde | 8544 Oct 18 03:49 | 24°☾05'59 | minimum elong | 8552 Jul 15 22:33 | 0°♂31'30 16°04'31 |
| min. Earth dist. | 8545 Jan 08 09:09 | 23°☾07'09 47.03482 AU | max. Earth dist. | 8552 Jul 17 10:31 | 0°♂33'36 49.60131 AU |
| opposition | 8545 Jan 10 03:23 | 23°☾05'09 -16°58'15 | retrograde | 8552 Oct 25 23:56 | 2°♂02'10 |
| direct | 8545 Apr 02 02:13 | 22°☾05'12 | min. Earth dist. | 8553 Jan 16 18:19 | 1°♂03'34 47.71836 AU |
| | | | opposition | 8553 Jan 18 04:20 | 1°♂01'58 -16°42'45 |
| conjunction | 8545 Jul 09 05:06 | 23°☾34'14 -16°16'51 | direct | 8553 Apr 10 04:19 | 0°♂02'39 |
| minimum elong | 8545 Jul 09 05:10 | 23°☾34'14 16°17'03 | | | |
| max. Earth dist. | 8545 Jul 11 00:24 | 23°☾36'48 49.00251 AU | conjunction | 8553 Jul 17 03:57 | 1°♂30'01 -16°01'29 |
| retrograde | 8545 Oct 19 10:04 | 25°☾06'25 | minimum elong | 8553 Jul 17 04:03 | 1°♂30'01 16°01'40 |
| min. Earth dist. | 8546 Jan 09 17:05 | 24°☾07'37 47.13685 AU | max. Earth dist. | 8553 Jul 18 15:30 | 1°♂32'05 49.67159 AU |
| opposition | 8546 Jan 11 09:54 | 24°☾05'41 -16°57'13 | retrograde | 8553 Oct 27 05:17 | 3°♂00'32 |

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|------------------|-------------------|----------------------|------------------|-------------------|-----------------------|
| min. Earth dist. | 8554 Jan 17 23:31 | 2°02'02" 47.78664 AU | conjunction | 8562 Jul 26 03:32 | 10°02'12" -15°24'41" |
| opposition | 8554 Jan 19 09:51 | 2°00'25" -16°39'36" | minimum elong | 8562 Jul 26 03:40 | 10°02'12" 15°24'50" |
| direct | 8554 Apr 11 11:18 | 1°01'11" | max. Earth dist. | 8562 Jul 27 06:01 | 10°01'33" 50.13745 AU |
| | | | retrograde | 8562 Nov 05 07:23 | 11°04'12" |
| conjunction | 8554 Jul 18 09:17 | 2°02'28" -15°58'23" | min. Earth dist. | 8563 Jan 27 09:01 | 10°04'30" 48.22701 AU |
| minimum elong | 8554 Jul 18 09:25 | 2°02'28" 15°58'34" | opposition | 8563 Jan 28 09:22 | 10°04'15" -15°59'50" |
| max. Earth dist. | 8554 Jul 19 19:27 | 2°03'02" 49.73895 AU | direct | 8563 Apr 20 06:50 | 9°04'13" |
| retrograde | 8554 Oct 28 13:39 | 3°05'58" | | | |
| min. Earth dist. | 8555 Jan 19 06:10 | 3°00'16" 47.85210 AU | conjunction | 8563 Jul 27 08:35 | 11°09'16" -15°19'27" |
| opposition | 8555 Jan 20 15:19 | 2°05'43" -16°36'10" | minimum elong | 8563 Jul 27 08:45 | 11°09'16" 15°19'37" |
| direct | 8555 Apr 12 15:14 | 1°05'35" | max. Earth dist. | 8563 Jul 28 10:22 | 11°01'04" 50.16619 AU |
| | | | retrograde | 8563 Nov 06 10:27 | 12°03'25" |
| conjunction | 8555 Jul 19 14:44 | 3°02'38" -15°55'00" | opposition | 8564 Jan 29 14:15 | 11°03'58" -15°54'15" |
| minimum elong | 8555 Jul 19 14:51 | 3°02'39" 15°55'10" | min. Earth dist. | 8564 Jan 28 13:43 | 11°04'06" 48.25298 AU |
| max. Earth dist. | 8555 Jul 21 01:17 | 3°02'38" 49.80348 AU | direct | 8564 Apr 20 13:39 | 10°04'20" |
| retrograde | 8555 Oct 29 19:54 | 4°05'51" | | | |
| opposition | 8556 Jan 21 20:48 | 3°05'56" -16°32'28" | conjunction | 8564 Jul 27 13:22 | 12°06'15" -15°14'00" |
| min. Earth dist. | 8556 Jan 20 12:27 | 3°05'27" 47.91445 AU | minimum elong | 8564 Jul 27 13:31 | 12°06'15" 15°14'09" |
| direct | 8556 Apr 12 18:27 | 2°05'57" | max. Earth dist. | 8564 Jul 28 13:39 | 12°07'38" 50.19126 AU |
| | | | retrograde | 8564 Nov 06 17:12 | 13°03'51" |
| conjunction | 8556 Jul 19 19:53 | 4°02'49" -15°51'22" | opposition | 8565 Jan 29 19:13 | 12°03'51" -15°48'26" |
| minimum elong | 8556 Jul 19 20:01 | 4°02'45" 15°51'33" | min. Earth dist. | 8565 Jan 28 20:07 | 12°03'56" 48.27560 AU |
| max. Earth dist. | 8556 Jul 21 04:47 | 4°02'44" 49.86488 AU | direct | 8565 Apr 21 18:53 | 11°03'15" |
| retrograde | 8556 Oct 30 02:08 | 5°05'54" | | | |
| min. Earth dist. | 8557 Jan 20 18:00 | 4°05'35" 47.97344 AU | conjunction | 8565 Jul 28 18:26 | 13°03'03" -15°08'18" |
| opposition | 8557 Jan 22 02:12 | 4°05'05" -16°28'30" | minimum elong | 8565 Jul 28 18:36 | 13°03'04" 15°08'27" |
| direct | 8557 Apr 13 21:06 | 3°05'08" | max. Earth dist. | 8565 Jul 29 19:00 | 13°04'27" 50.21315 AU |
| | | | retrograde | 8565 Nov 07 23:12 | 14°03'59" |
| conjunction | 8557 Jul 21 01:16 | 5°02'25" -15°47'28" | opposition | 8566 Jan 30 23:53 | 13°03'23" -15°42'22" |
| minimum elong | 8557 Jul 21 01:24 | 5°02'25" 15°47'38" | min. Earth dist. | 8566 Jan 30 01:29 | 13°03'37" 48.29497 AU |
| max. Earth dist. | 8557 Jul 22 09:42 | 5°02'45" 49.92250 AU | direct | 8566 Apr 22 23:00 | 12°03'40" |
| retrograde | 8557 Oct 31 04:54 | 6°05'25" | | | |
| min. Earth dist. | 8558 Jan 22 01:23 | 5°05'36" 48.02834 AU | conjunction | 8566 Jul 29 23:16 | 13°05'43" -15°02'21" |
| opposition | 8558 Jan 23 07:30 | 5°05'31" -16°24'17" | minimum elong | 8566 Jul 29 23:25 | 13°05'44" 15°02'30" |
| direct | 8558 Apr 15 04:37 | 4°05'42" | max. Earth dist. | 8566 Jul 30 22:05 | 14°01'01" 50.23202 AU |
| | | | | 8566 Sep 16 09:36 | 15°02' |
| conjunction | 8558 Jul 22 06:41 | 6°02'10" -15°43'21" | retrograde | 8566 Nov 09 05:44 | 15°02'33" |
| minimum elong | 8558 Jul 22 06:49 | 6°02'10" 15°43'32" | | 8567 Jan 03 01:58 | 15°02'33" |
| max. Earth dist. | 8558 Jul 23 14:13 | 6°02'25" 49.97584 AU | min. Earth dist. | 8567 Jan 31 06:22 | 14°03'13" 48.31138 AU |
| retrograde | 8558 Nov 01 09:12 | 7°05'50" | opposition | 8567 Feb 01 04:38 | 14°02'29" -15°36'02" |
| min. Earth dist. | 8559 Jan 23 06:56 | 6°05'23" 48.07848 AU | direct | 8567 Apr 24 00:39 | 13°03'30" |
| opposition | 8559 Jan 24 12:44 | 6°05'11" -16°19'50" | evening set | 8567 Jul 29 17:58 | 14°05'42" |
| direct | 8559 Apr 16 12:30 | 5°05'22" | | | |
| | | | conjunction | 8567 Jul 31 04:01 | 14°05'18" -14°56'10" |
| conjunction | 8559 Jul 23 11:51 | 7°01'19" -15°39'00" | minimum elong | 8567 Jul 31 04:11 | 14°05'19" 14°56'20" |
| minimum elong | 8559 Jul 23 11:59 | 7°01'19" 15°39'10" | morning rise | 8567 Aug 01 14:27 | 14°05'16" |
| max. Earth dist. | 8559 Jul 24 17:22 | 7°02'04" 50.02406 AU | max. Earth dist. | 8567 Aug 01 02:35 | 14°05'35" 50.24775 AU |
| retrograde | 8559 Nov 02 18:20 | 8°04'48" | | 8567 Aug 02 21:01 | 15°02' |
| opposition | 8560 Jan 25 18:07 | 7°04'49" -16°15'09" | retrograde | 8567 Nov 10 08:50 | 16°02'50" |
| min. Earth dist. | 8560 Jan 24 13:58 | 7°05'30" 48.12339 AU | opposition | 8568 Feb 02 09:30 | 15°02'54" -15°29'28" |
| direct | 8560 Apr 16 16:34 | 6°05'02" | min. Earth dist. | 8568 Feb 01 12:56 | 15°02'42" 48.32452 AU |
| | | | | 8568 Feb 26 06:43 | 15°02'42" |
| conjunction | 8560 Jul 23 17:15 | 8°01'16" -15°34'26" | direct | 8568 Apr 24 06:01 | 14°02'27" |
| minimum elong | 8560 Jul 23 17:23 | 8°01'16" 15°34'37" | | 8568 Jun 19 17:26 | 15°02' |
| max. Earth dist. | 8560 Jul 24 22:29 | 8°01'18" 50.06699 AU | evening set | 8568 Jul 29 00:24 | 15°02'49" |
| retrograde | 8560 Nov 03 00:13 | 9°04'46" | | | |
| opposition | 8561 Jan 25 23:18 | 8°04'46" -16°10'16" | conjunction | 8568 Jul 31 08:54 | 15°02'51" -14°49'44" |
| min. Earth dist. | 8561 Jan 24 20:26 | 8°04'48" 48.16281 AU | minimum elong | 8568 Jul 31 09:04 | 15°02'51" 14°49'53" |
| direct | 8561 Apr 17 21:31 | 7°04'48" | max. Earth dist. | 8568 Aug 01 06:52 | 15°05'40" 50.26031 AU |
| | | | morning rise | 8568 Aug 02 17:48 | 15°05'40" |
| conjunction | 8561 Jul 24 22:25 | 9°01'14" -15°29'40" | retrograde | 8568 Nov 10 11:50 | 17°02'13" |
| minimum elong | 8561 Jul 24 22:34 | 9°01'14" 15°29'50" | opposition | 8569 Feb 02 14:05 | 16°02'21" -15°22'39" |
| max. Earth dist. | 8561 Jul 26 01:34 | 9°01'16" 50.10469 AU | min. Earth dist. | 8569 Feb 01 17:28 | 16°02'31" 48.33419 AU |
| retrograde | 8561 Nov 04 05:06 | 10°04'44" | direct | 8569 Apr 25 12:47 | 15°02'35" |
| min. Earth dist. | 8562 Jan 26 02:05 | 9°04'45" 48.19721 AU | evening set | 8569 Jul 29 13:03 | 16°02'45" |
| opposition | 8562 Jan 27 04:23 | 9°04'43" -16°05'10" | | | |
| direct | 8562 Apr 19 00:21 | 8°04'45" | conjunction | 8569 Aug 01 13:42 | 16°02'49" -14°43'05" |

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| minimum elong | 8569 Aug 01 13:52 | 16°Ω49'25 | 14°43'14 | evening set | 8576 Aug 01 22:14 | 23°Ω16'59 | |
| max. Earth dist. | 8569 Aug 02 09:51 | 16°Ω50'34 | 50.26903 AU | | | | |
| morning rise | 8569 Aug 04 14:50 | 16°Ω53'35 | | conjunction | 8576 Aug 07 23:51 | 23°Ω25'13 | -13°50'43 |
| retrograde | 8569 Nov 11 19:37 | 18°Ω18'06 | | minimum elong | 8576 Aug 08 00:03 | 23°Ω25'14 | 13°50'51 |
| opposition | 8570 Feb 03 18:49 | 17°Ω18'53 | -15°15'36 | max. Earth dist. | 8576 Aug 08 11:57 | 23°Ω25'54 | 50.19234 AU |
| min. Earth dist. | 8570 Feb 02 23:57 | 17°Ω19'46 | 48.33977 AU | morning rise | 8576 Aug 14 02:18 | 23°Ω33'30 | |
| direct | 8570 Apr 26 16:50 | 16°Ω20'30 | | retrograde | 8576 Nov 18 08:26 | 24°Ω53'37 | |
| evening set | 8570 Jul 30 04:31 | 17°Ω41'08 | | opposition | 8577 Feb 10 02:44 | 23°Ω54'30 | -14°20'26 |
| | | | | min. Earth dist. | 8577 Feb 09 15:03 | 23°Ω55'03 | 48.23874 AU |
| conjunction | 8570 Aug 02 18:43 | 17°Ω46'02 | -14°36'12 | direct | 8577 May 02 21:00 | 22°Ω56'09 | |
| minimum elong | 8570 Aug 02 18:54 | 17°Ω46'02 | 14°36'20 | evening set | 8577 Aug 02 18:43 | 24°Ω12'46 | |
| max. Earth dist. | 8570 Aug 03 14:43 | 17°Ω47'10 | 50.27330 AU | | | | |
| morning rise | 8570 Aug 06 09:25 | 17°Ω50'57 | | conjunction | 8577 Aug 09 04:38 | 24°Ω21'29 | -13°42'23 |
| retrograde | 8570 Nov 13 01:44 | 19°Ω14'41 | | minimum elong | 8577 Aug 09 04:49 | 24°Ω21'29 | 13°42'30 |
| opposition | 8571 Feb 04 23:23 | 18°Ω15'32 | -15°08'21 | max. Earth dist. | 8577 Aug 09 16:19 | 24°Ω22'08 | 50.16445 AU |
| min. Earth dist. | 8571 Feb 04 05:39 | 18°Ω16'21 | 48.34044 AU | morning rise | 8577 Aug 15 15:24 | 24°Ω30'13 | |
| direct | 8571 Apr 27 20:45 | 17°Ω17'11 | | retrograde | 8577 Nov 19 12:01 | 25°Ω49'52 | |
| evening set | 8571 Jul 30 21:36 | 18°Ω37'07 | | opposition | 8578 Feb 11 07:14 | 24°Ω50'44 | -14°11'40 |
| | | | | min. Earth dist. | 8578 Feb 10 21:12 | 24°Ω51'12 | 48.20813 AU |
| conjunction | 8571 Aug 03 23:37 | 18°Ω42'41 | -14°29'07 | direct | 8578 May 04 00:55 | 23°Ω52'22 | |
| minimum elong | 8571 Aug 03 23:47 | 18°Ω42'42 | 14°29'16 | evening set | 8578 Aug 03 15:36 | 25°Ω08'33 | |
| max. Earth dist. | 8571 Aug 04 17:26 | 18°Ω43'42 | 50.27253 AU | | | | |
| morning rise | 8571 Aug 08 02:11 | 18°Ω48'17 | | conjunction | 8578 Aug 10 09:23 | 25°Ω17'42 | -13°33'48 |
| retrograde | 8571 Nov 14 07:43 | 20°Ω11'17 | | minimum elong | 8578 Aug 10 09:35 | 25°Ω17'43 | 13°33'56 |
| min. Earth dist. | 8572 Feb 05 11:10 | 19°Ω12'58 | 48.33590 AU | max. Earth dist. | 8578 Aug 10 20:33 | 25°Ω18'20 | 50.13365 AU |
| opposition | 8572 Feb 06 04:05 | 19°Ω12'11 | -15°00'53 | morning rise | 8578 Aug 17 04:00 | 25°Ω26'53 | |
| direct | 8572 Apr 27 22:44 | 18°Ω13'52 | | retrograde | 8578 Nov 20 13:08 | 26°Ω46'04 | |
| evening set | 8572 Jul 30 15:40 | 19°Ω33'10 | | opposition | 8579 Feb 12 11:31 | 25°Ω46'57 | -14°02'39 |
| | | | | min. Earth dist. | 8579 Feb 12 01:12 | 25°Ω47'26 | 48.17459 AU |
| conjunction | 8572 Aug 04 04:33 | 19°Ω39'21 | -14°21'51 | direct | 8579 May 05 08:22 | 24°Ω48'34 | |
| minimum elong | 8572 Aug 04 04:44 | 19°Ω39'21 | 14°21'59 | evening set | 8579 Aug 04 12:37 | 26°Ω04'21 | |
| max. Earth dist. | 8572 Aug 04 21:22 | 19°Ω40'18 | 50.26623 AU | | | | |
| morning rise | 8572 Aug 08 18:04 | 19°Ω45'33 | | conjunction | 8579 Aug 11 14:03 | 26°Ω13'55 | -13°25'00 |
| retrograde | 8572 Nov 14 10:14 | 21°Ω07'54 | | minimum elong | 8579 Aug 11 14:14 | 26°Ω13'55 | 13°25'07 |
| opposition | 8573 Feb 06 08:51 | 20°Ω08'49 | -14°53'13 | max. Earth dist. | 8579 Aug 11 23:35 | 26°Ω14'27 | 50.09994 AU |
| min. Earth dist. | 8573 Feb 05 18:03 | 20°Ω09'30 | 48.32571 AU | morning rise | 8579 Aug 18 16:30 | 26°Ω23'33 | |
| direct | 8573 Apr 29 04:42 | 19°Ω10'31 | | retrograde | 8579 Nov 21 19:07 | 27°Ω42'18 | |
| evening set | 8573 Jul 31 10:43 | 20°Ω29'12 | | opposition | 8580 Feb 13 16:02 | 26°Ω43'11 | -13°53'23 |
| | | | | min. Earth dist. | 8580 Feb 13 07:08 | 26°Ω43'36 | 48.13821 AU |
| conjunction | 8573 Aug 05 09:34 | 20°Ω35'57 | -14°14'23 | direct | 8580 May 05 13:46 | 25°Ω44'48 | |
| minimum elong | 8573 Aug 05 09:44 | 20°Ω35'57 | 14°14'31 | evening set | 8580 Aug 04 09:50 | 27°Ω00'11 | |
| max. Earth dist. | 8573 Aug 06 01:15 | 20°Ω36'50 | 50.25460 AU | | | | |
| morning rise | 8573 Aug 10 09:02 | 20°Ω42'43 | | conjunction | 8580 Aug 11 18:50 | 27°Ω10'10 | -13°15'57 |
| retrograde | 8573 Nov 15 12:54 | 22°Ω04'28 | | minimum elong | 8580 Aug 11 19:01 | 27°Ω10'11 | 13°16'05 |
| opposition | 8574 Feb 07 13:14 | 21°Ω05'22 | -14°45'22 | max. Earth dist. | 8580 Aug 12 04:41 | 27°Ω10'44 | 50.06327 AU |
| min. Earth dist. | 8574 Feb 06 22:44 | 21°Ω06'03 | 48.31029 AU | morning rise | 8580 Aug 19 04:43 | 27°Ω20'14 | |
| direct | 8574 Apr 30 11:12 | 20°Ω07'04 | | retrograde | 8580 Nov 22 01:33 | 28°Ω38'35 | |
| evening set | 8574 Aug 01 06:09 | 21°Ω25'12 | | opposition | 8581 Feb 13 20:29 | 27°Ω39'28 | -13°43'53 |
| | | | | min. Earth dist. | 8581 Feb 13 12:16 | 27°Ω39'51 | 48.09850 AU |
| conjunction | 8574 Aug 06 14:23 | 21°Ω32'28 | -14°06'42 | direct | 8581 May 06 17:51 | 26°Ω41'06 | |
| minimum elong | 8574 Aug 06 14:35 | 21°Ω32'28 | 14°06'51 | evening set | 8581 Aug 05 07:32 | 27°Ω56'06 | |
| max. Earth dist. | 8574 Aug 07 04:10 | 21°Ω33'15 | 50.23791 AU | | | | |
| morning rise | 8574 Aug 11 23:22 | 21°Ω39'46 | | conjunction | 8581 Aug 12 23:39 | 28°Ω06'30 | -13°06'41 |
| retrograde | 8574 Nov 16 19:19 | 23°Ω00'57 | | minimum elong | 8581 Aug 12 23:51 | 28°Ω06'31 | 13°06'48 |
| opposition | 8575 Feb 08 17:51 | 22°Ω01'51 | -14°37'17 | max. Earth dist. | 8581 Aug 13 07:39 | 28°Ω06'57 | 50.02315 AU |
| min. Earth dist. | 8575 Feb 08 05:09 | 22°Ω02'26 | 48.29026 AU | morning rise | 8581 Aug 20 16:52 | 28°Ω16'58 | |
| direct | 8575 May 01 16:14 | 21°Ω03'32 | | retrograde | 8581 Nov 23 08:52 | 29°Ω34'57 | |
| evening set | 8575 Aug 02 01:55 | 22°Ω21'08 | | opposition | 8582 Feb 15 00:47 | 28°Ω35'50 | -13°34'10 |
| | | | | min. Earth dist. | 8582 Feb 14 17:17 | 28°Ω36'11 | 48.05514 AU |
| conjunction | 8575 Aug 07 19:08 | 22°Ω28'53 | -13°58'49 | direct | 8582 May 07 19:15 | 27°Ω37'28 | |
| minimum elong | 8575 Aug 07 19:18 | 22°Ω28'54 | 13°58'57 | evening set | 8582 Aug 06 05:20 | 28°Ω52'07 | |
| max. Earth dist. | 8575 Aug 08 08:58 | 22°Ω29'40 | 50.21694 AU | | | | |
| morning rise | 8575 Aug 13 13:01 | 22°Ω36'42 | | conjunction | 8582 Aug 14 04:37 | 29°Ω02'55 | -12°57'12 |
| retrograde | 8575 Nov 18 01:22 | 23°Ω57'20 | | minimum elong | 8582 Aug 14 04:48 | 29°Ω02'56 | 12°57'20 |
| opposition | 8576 Feb 09 22:22 | 22°Ω58'13 | -14°28'59 | max. Earth dist. | 8582 Aug 14 11:47 | 29°Ω03'20 | 49.97885 AU |
| min. Earth dist. | 8576 Feb 09 10:19 | 22°Ω58'47 | 48.26616 AU | morning rise | 8582 Aug 22 04:58 | 29°Ω13'47 | |
| direct | 8576 May 01 20:28 | 21°Ω59'53 | | | 8582 Sep 28 20:03 | 0°Ω | |

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|------------------|-------------------|-------------------------------------|------------------|-------------------|--------------------------------------|
| retrograde | 8582 Nov 24 12:31 | 0° \mathring{M} 31'24 | direct | 8589 May 14 03:32 | 4° \mathring{M} 12'51 |
| | 8583 Jan 21 07:48 | 30° $\mathring{R}\delta$ | evening set | 8589 Aug 10 19:45 | 5° \mathring{M} 25'24 |
| opposition | 8583 Feb 16 05:22 | 29° δ 32'18 -13°24'13 | | | |
| min. Earth dist. | 8583 Feb 15 23:50 | 29° δ 32'33 48.00724 AU | conjunction | 8589 Aug 20 15:45 | 5° \mathring{M} 38'44 -11°45'07 |
| direct | 8583 May 08 23:27 | 28° δ 33'54 | minimum elong | 8589 Aug 20 15:57 | 5° \mathring{M} 38'45 11°45'13 |
| evening set | 8583 Aug 07 03:26 | 29° δ 48'14 | max. Earth dist. | 8589 Aug 20 14:19 | 5° \mathring{M} 38'39 49.53526 AU |
| | | | morning rise | 8589 Aug 30 13:16 | 5° \mathring{M} 52'10 |
| conjunction | 8583 Aug 15 09:31 | 29° δ 59'25 -12°47'31 | retrograde | 8589 Nov 30 21:36 | 7° \mathring{M} 07'34 |
| minimum elong | 8583 Aug 15 09:43 | 29° δ 59'26 12°47'37 | opposition | 8590 Feb 22 12:52 | 6° \mathring{M} 08'11 -12°08'42 |
| | 8583 Aug 15 19:43 | 0° \mathring{M} | min. Earth dist. | 8590 Feb 22 14:29 | 6° \mathring{M} 08'06 47.53910 AU |
| max. Earth dist. | 8583 Aug 15 15:45 | 29° δ 59'46 49.92988 AU | direct | 8590 May 15 09:09 | 5° \mathring{M} 09'27 |
| morning rise | 8583 Aug 23 16:40 | 0° \mathring{M} 10'40 | evening set | 8590 Aug 11 18:57 | 6° \mathring{M} 21'45 |
| retrograde | 8583 Nov 25 14:56 | 1° \mathring{M} 27'56 | | | |
| opposition | 8584 Feb 17 09:52 | 0° \mathring{M} 28'49 -13°14'04 | conjunction | 8590 Aug 21 20:57 | 6° \mathring{M} 35'26 -11°33'56 |
| min. Earth dist. | 8584 Feb 17 04:35 | 0° \mathring{M} 29'04 47.95429 AU | minimum elong | 8590 Aug 21 21:08 | 6° \mathring{M} 35'27 11°34'01 |
| | 8584 Mar 15 08:54 | 30° $\mathring{R}\delta$ | max. Earth dist. | 8590 Aug 21 19:48 | 6° \mathring{M} 35'22 49.45681 AU |
| direct | 8584 May 09 05:13 | 29° δ 30'24 | morning rise | 8590 Sep 01 00:13 | 6° \mathring{M} 49'13 |
| | 8584 Jul 01 19:33 | 0° \mathring{M} | retrograde | 8590 Dec 02 04:05 | 8° \mathring{M} 04'22 |
| evening set | 8584 Aug 07 01:46 | 0° \mathring{M} 44'24 | opposition | 8591 Feb 23 17:28 | 7° \mathring{M} 04'57 -11°56'59 |
| | | | min. Earth dist. | 8591 Feb 23 19:28 | 7° \mathring{M} 04'52 47.45780 AU |
| conjunction | 8584 Aug 15 14:32 | 0° \mathring{M} 55'58 -12°37'38 | direct | 8591 May 16 13:17 | 6° \mathring{M} 06'11 |
| minimum elong | 8584 Aug 15 14:43 | 0° \mathring{M} 55'59 12°37'45 | evening set | 8591 Aug 12 18:16 | 7° \mathring{M} 18'16 |
| max. Earth dist. | 8584 Aug 15 18:32 | 0° \mathring{M} 56'12 49.87559 AU | | | |
| morning rise | 8584 Aug 24 04:33 | 1° \mathring{M} 07'36 | conjunction | 8591 Aug 23 01:53 | 7° \mathring{M} 32'17 -11°22'32 |
| retrograde | 8584 Nov 25 20:44 | 2° \mathring{M} 24'32 | minimum elong | 8591 Aug 23 02:05 | 7° \mathring{M} 32'18 11°22'38 |
| opposition | 8585 Feb 17 14:26 | 1° \mathring{M} 25'23 -13°03'43 | max. Earth dist. | 8591 Aug 22 23:08 | 7° \mathring{M} 32'08 49.37559 AU |
| min. Earth dist. | 8585 Feb 17 11:16 | 1° \mathring{M} 25'32 47.89607 AU | morning rise | 8591 Sep 02 11:03 | 7° \mathring{M} 46'25 |
| direct | 8585 May 10 10:26 | 0° \mathring{M} 26'55 | retrograde | 8591 Dec 03 12:23 | 9° \mathring{M} 01'20 |
| evening set | 8585 Aug 08 00:19 | 1° \mathring{M} 40'36 | opposition | 8592 Feb 24 22:08 | 8° \mathring{M} 01'54 -11°45'02 |
| | | | min. Earth dist. | 8592 Feb 25 00:36 | 8° \mathring{M} 01'47 47.37378 AU |
| conjunction | 8585 Aug 16 19:43 | 1° \mathring{M} 52'31 -12°27'33 | direct | 8592 May 16 14:36 | 7° \mathring{M} 03'06 |
| minimum elong | 8585 Aug 16 19:55 | 1° \mathring{M} 52'32 12°27'40 | evening set | 8592 Aug 12 17:48 | 8° \mathring{M} 14'59 |
| max. Earth dist. | 8585 Aug 16 23:21 | 1° \mathring{M} 52'44 49.81610 AU | | | |
| morning rise | 8585 Aug 25 16:13 | 2° \mathring{M} 04'32 | conjunction | 8592 Aug 23 07:11 | 8° \mathring{M} 29'21 -11°10'53 |
| retrograde | 8585 Nov 27 01:55 | 3° \mathring{M} 21'07 | minimum elong | 8592 Aug 23 07:22 | 8° \mathring{M} 29'22 11°10'58 |
| opposition | 8586 Feb 18 18:55 | 2° \mathring{M} 21'56 -12°53'10 | max. Earth dist. | 8592 Aug 23 03:51 | 8° \mathring{M} 29'10 49.29138 AU |
| min. Earth dist. | 8586 Feb 18 16:36 | 2° \mathring{M} 22'02 47.83263 AU | morning rise | 8592 Sep 02 22:03 | 8° \mathring{M} 43'49 |
| direct | 8586 May 11 15:55 | 1° \mathring{M} 23'25 | retrograde | 8592 Dec 03 16:44 | 9° \mathring{M} 58'32 |
| evening set | 8586 Aug 08 22:59 | 2° \mathring{M} 36'46 | opposition | 8593 Feb 25 02:50 | 8° \mathring{M} 59'05 -11°32'50 |
| | | | min. Earth dist. | 8593 Feb 25 06:53 | 8° \mathring{M} 58'53 47.28657 AU |
| conjunction | 8586 Aug 18 00:37 | 2° \mathring{M} 49'04 -12°17'16 | direct | 8593 May 17 18:38 | 8° \mathring{M} 00'15 |
| minimum elong | 8586 Aug 18 00:48 | 2° \mathring{M} 49'05 12°17'22 | evening set | 8593 Aug 13 17:39 | 9° \mathring{M} 11'58 |
| max. Earth dist. | 8586 Aug 18 02:12 | 2° \mathring{M} 49'09 49.75173 AU | | | |
| morning rise | 8586 Aug 27 03:34 | 3° \mathring{M} 01'27 | conjunction | 8593 Aug 24 12:34 | 9° \mathring{M} 26'40 -10°59'01 |
| retrograde | 8586 Nov 28 09:14 | 4° \mathring{M} 17'42 | minimum elong | 8593 Aug 24 12:46 | 9° \mathring{M} 26'40 10°59'06 |
| opposition | 8587 Feb 19 23:21 | 3° \mathring{M} 18'27 -12°42'23 | max. Earth dist. | 8593 Aug 24 08:37 | 9° \mathring{M} 26'26 49.20395 AU |
| min. Earth dist. | 8587 Feb 19 21:48 | 3° \mathring{M} 18'32 47.76470 AU | morning rise | 8593 Sep 04 08:57 | 9° \mathring{M} 41'27 |
| direct | 8587 May 12 17:23 | 2° \mathring{M} 19'53 | retrograde | 8593 Dec 04 19:41 | 10° \mathring{M} 55'59 |
| evening set | 8587 Aug 09 21:42 | 3° \mathring{M} 32'57 | opposition | 8594 Feb 26 07:30 | 9° \mathring{M} 56'31 -11°20'24 |
| | | | min. Earth dist. | 8594 Feb 26 11:42 | 9° \mathring{M} 56'19 47.19575 AU |
| conjunction | 8587 Aug 19 05:41 | 3° \mathring{M} 45'36 -12°06'47 | direct | 8594 May 19 00:34 | 8° \mathring{M} 57'39 |
| minimum elong | 8587 Aug 19 05:53 | 3° \mathring{M} 45'37 12°06'53 | evening set | 8594 Aug 14 17:39 | 10° \mathring{M} 09'13 |
| max. Earth dist. | 8587 Aug 19 06:37 | 3° \mathring{M} 45'39 49.68304 AU | | | |
| morning rise | 8587 Aug 28 14:58 | 3° \mathring{M} 58'20 | conjunction | 8594 Aug 25 17:55 | 10° \mathring{M} 24'14 -10°46'55 |
| retrograde | 8587 Nov 29 14:07 | 5° \mathring{M} 14'17 | minimum elong | 8594 Aug 25 18:07 | 10° \mathring{M} 24'15 10°46'59 |
| opposition | 8588 Feb 21 03:55 | 4° \mathring{M} 14'59 -12°31'24 | max. Earth dist. | 8594 Aug 25 11:56 | 10° \mathring{M} 23'54 49.11238 AU |
| min. Earth dist. | 8588 Feb 21 04:07 | 4° \mathring{M} 14'58 47.69278 AU | morning rise | 8594 Sep 05 19:53 | 10° \mathring{M} 39'21 |
| direct | 8588 May 12 21:02 | 3° \mathring{M} 16'21 | retrograde | 8594 Dec 06 01:37 | 11° \mathring{M} 53'44 |
| evening set | 8588 Aug 09 20:37 | 4° \mathring{M} 29'08 | opposition | 8595 Feb 27 12:23 | 10° \mathring{M} 54'13 -11°07'45 |
| | | | min. Earth dist. | 8595 Feb 27 18:37 | 10° \mathring{M} 53'56 47.10057 AU |
| conjunction | 8588 Aug 19 10:41 | 4° \mathring{M} 42'09 -11°56'04 | direct | 8595 May 20 06:06 | 9° \mathring{M} 55'19 |
| minimum elong | 8588 Aug 19 10:52 | 4° \mathring{M} 42'09 11°56'09 | evening set | 8595 Aug 15 17:53 | 11° \mathring{M} 06'44 |
| max. Earth dist. | 8588 Aug 19 11:00 | 4° \mathring{M} 42'10 49.61082 AU | | | |
| morning rise | 8588 Aug 29 02:00 | 4° \mathring{M} 55'13 | conjunction | 8595 Aug 26 23:36 | 11° \mathring{M} 22'05 -10°34'37 |
| retrograde | 8588 Nov 29 16:18 | 6° \mathring{M} 10'53 | minimum elong | 8595 Aug 26 23:48 | 11° \mathring{M} 22'05 10°34'42 |
| opposition | 8589 Feb 21 08:22 | 5° \mathring{M} 11'33 -12°20'10 | max. Earth dist. | 8595 Aug 26 17:16 | 11° \mathring{M} 21'43 49.01614 AU |
| min. Earth dist. | 8589 Feb 21 08:24 | 5° \mathring{M} 11'32 47.61746 AU | morning rise | 8595 Sep 07 06:47 | 11° \mathring{M} 37'31 |

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|------------------|-------------------|--------------------------|-------------|
| retrograde | 8595 Dec 07 07:21 | 12° \mathring{M} 51'44 | |
| opposition | 8596 Feb 28 17:18 | 11° \mathring{M} 52'11 | -10°54'53 |
| min. Earth dist. | 8596 Feb 29 00:22 | 11° \mathring{M} 51'51 | 47.00031 AU |
| direct | 8596 May 20 11:55 | 10° \mathring{M} 53'13 | |
| evening set | 8596 Aug 15 18:26 | 12° \mathring{M} 04'28 | |
| | | | |
| conjunction | 8596 Aug 27 05:13 | 12° \mathring{M} 20'08 | -10°22'06 |
| minimum elong | 8596 Aug 27 05:25 | 12° \mathring{M} 20'09 | 10°22'10 |
| max. Earth dist. | 8596 Aug 26 20:38 | 12° \mathring{M} 19'38 | 48.91471 AU |
| morning rise | 8596 Sep 07 17:45 | 12° \mathring{M} 35'54 | |
| retrograde | 8596 Dec 07 16:44 | 13° \mathring{M} 49'56 | |
| opposition | 8597 Feb 28 22:19 | 12° \mathring{M} 50'19 | -10°41'48 |
| min. Earth dist. | 8597 Mar 01 06:31 | 12° \mathring{M} 49'56 | 46.89474 AU |
| direct | 8597 May 21 13:25 | 11° \mathring{M} 51'16 | |
| evening set | 8597 Aug 16 19:05 | 13° \mathring{M} 02'23 | |
| | | | |
| conjunction | 8597 Aug 28 11:06 | 13° \mathring{M} 18'21 | -10°09'24 |
| minimum elong | 8597 Aug 28 11:16 | 13° \mathring{M} 18'22 | 10°09'28 |
| max. Earth dist. | 8597 Aug 28 01:20 | 13° \mathring{M} 17'47 | 48.80778 AU |
| morning rise | 8597 Sep 09 04:44 | 13° \mathring{M} 34'25 | |
| retrograde | 8597 Dec 09 00:04 | 14° \mathring{M} 48'17 | |
| opposition | 8598 Mar 02 03:19 | 13° \mathring{M} 48'35 | -10°28'31 |
| min. Earth dist. | 8598 Mar 02 13:34 | 13° \mathring{M} 48'06 | 46.78383 AU |
| direct | 8598 May 22 16:32 | 12° \mathring{M} 49'26 | |
| evening set | 8598 Aug 17 19:56 | 14° \mathring{M} 00'24 | |
| | | | |
| conjunction | 8598 Aug 29 16:55 | 14° \mathring{M} 16'41 | -9°56'29 |
| minimum elong | 8598 Aug 29 17:07 | 14° \mathring{M} 16'41 | 9°56'32 |
| max. Earth dist. | 8598 Aug 29 06:11 | 14° \mathring{M} 16'03 | 48.69594 AU |
| morning rise | 8598 Sep 10 15:29 | 14° \mathring{M} 33'03 | |
| retrograde | 8598 Dec 10 03:17 | 15° \mathring{M} 46'44 | |
| opposition | 8599 Mar 03 08:20 | 14° \mathring{M} 46'57 | -10°15'00 |
| min. Earth dist. | 8599 Mar 03 18:40 | 14° \mathring{M} 46'27 | 46.66823 AU |
| direct | 8599 May 23 22:37 | 13° \mathring{M} 47'41 | |
| evening set | 8599 Aug 18 20:46 | 14° \mathring{M} 58'31 | |
| | | | |
| conjunction | 8599 Aug 30 22:33 | 15° \mathring{M} 15'05 | -9°43'20 |
| minimum elong | 8599 Aug 30 22:43 | 15° \mathring{M} 15'05 | 9°43'24 |
| max. Earth dist. | 8599 Aug 30 09:53 | 15° \mathring{M} 14'21 | 48.57957 AU |
| morning rise | 8599 Sep 12 02:10 | 15° \mathring{M} 31'46 | |
| retrograde | 8599 Dec 11 07:10 | 16° \mathring{M} 45'18 | |
| opposition | 8600 Mar 04 13:35 | 15° \mathring{M} 45'23 | -10°01'15 |
| min. Earth dist. | 8600 Mar 05 01:47 | 15° \mathring{M} 44'48 | 46.54852 AU |
| direct | 8600 May 25 06:01 | 14° \mathring{M} 46'00 | |
| evening set | 8600 Aug 19 21:50 | 15° \mathring{M} 56'42 | |
| | | | |
| conjunction | 8600 Sep 01 04:33 | 16° \mathring{M} 13'34 | -9°29'59 |
| minimum elong | 8600 Sep 01 04:45 | 16° \mathring{M} 13'35 | 9°30'03 |
| max. Earth dist. | 8600 Aug 31 15:59 | 16° \mathring{M} 12'51 | 48.45934 AU |
| morning rise | 8600 Sep 13 12:50 | 16° \mathring{M} 30'33 | |
| retrograde | 8600 Dec 12 12:18 | 17° \mathring{M} 43'57 | |
| opposition | 8601 Mar 05 18:37 | 16° \mathring{M} 43'56 | -9°47'16 |
| min. Earth dist. | 8601 Mar 06 07:18 | 16° \mathring{M} 43'20 | 46.42515 AU |
| direct | 8601 May 26 12:50 | 15° \mathring{M} 44'25 | |
| evening set | 8601 Aug 20 23:14 | 16° \mathring{M} 55'00 | |
| | | | |
| conjunction | 8601 Sep 02 10:28 | 17° \mathring{M} 12'10 | -9°16'23 |
| minimum elong | 8601 Sep 02 10:39 | 17° \mathring{M} 12'11 | 9°16'26 |
| max. Earth dist. | 8601 Sep 01 20:01 | 17° \mathring{M} 11'20 | 48.33578 AU |
| morning rise | 8601 Sep 14 23:33 | 17° \mathring{M} 29'27 | |
| retrograde | 8601 Dec 13 21:02 | 18° \mathring{M} 42'43 | |