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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| retrograde | 4100 Mar 05 08:02 | 3°♂58'53 | | max. Earth dist. | 4106 Dec 08 05:44 | 16°♂44'09 | 31.33969 AU |
| opposition | 4100 May 22 05:47 | 2°♂36'54 | 1°37'28 | | | | |
| min. Earth dist. | 4100 May 23 01:24 | 2°♂35'34 | 29.32034 AU | conjunction | 4106 Dec 09 01:53 | 16°♂46'02 | 1°29'24 |
| direct | 4100 Aug 11 08:03 | 1°♂12'07 | | minimum elong | 4106 Dec 09 01:53 | 16°♂46'02 | 1°29'24 |
| evening set | 4100 Nov 09 20:43 | 3°♂07'52 | | morning rise | 4106 Dec 24 12:25 | 17°♂20'25 | |
| | | | | retrograde | 4107 Mar 21 06:48 | 19°♂12'43 | |
| conjunction | 4100 Nov 25 12:38 | 3°♂42'37 | 1°31'18 | opposition | 4107 Jun 07 13:17 | 17°♂50'55 | 1°35'06 |
| minimum elong | 4100 Nov 25 12:37 | 3°♂42'37 | 1°31'19 | min. Earth dist. | 4107 Jun 08 08:02 | 17°♂49'39 | 29.33995 AU |
| max. Earth dist. | 4100 Nov 24 15:16 | 3°♂40'37 | 31.32165 AU | direct | 4107 Aug 27 15:01 | 16°♂26'30 | |
| morning rise | 4100 Dec 11 01:30 | 4°♂17'07 | | evening set | 4107 Nov 25 22:59 | 18°♂22'09 | |
| retrograde | 4101 Mar 07 19:30 | 6°♂09'06 | | | | | |
| opposition | 4101 May 24 16:54 | 4°♂47'09 | 1°37'33 | conjunction | 4107 Dec 11 11:58 | 18°♂56'45 | 1°28'38 |
| min. Earth dist. | 4101 May 25 12:12 | 4°♂45'50 | 29.32505 AU | minimum elong | 4107 Dec 11 11:58 | 18°♂56'45 | 1°28'38 |
| direct | 4101 Aug 13 19:07 | 3°♂22'26 | | max. Earth dist. | 4107 Dec 10 15:33 | 18°♂54'50 | 31.33808 AU |
| evening set | 4101 Nov 12 07:20 | 5°♂18'11 | | morning rise | 4107 Dec 26 22:11 | 19°♂31'08 | |
| | | | | retrograde | 4108 Mar 22 17:43 | 21°♂23'28 | |
| conjunction | 4101 Nov 27 22:58 | 5°♂52'54 | 1°31'19 | opposition | 4108 Jun 09 01:00 | 20°♂01'38 | 1°34'13 |
| minimum elong | 4101 Nov 27 22:58 | 5°♂52'54 | 1°31'19 | min. Earth dist. | 4108 Jun 09 20:19 | 20°♂00'19 | 29.33778 AU |
| max. Earth dist. | 4101 Nov 27 02:56 | 5°♂51'02 | 31.32652 AU | direct | 4108 Aug 29 01:58 | 18°♂37'13 | |
| morning rise | 4101 Dec 13 11:18 | 6°♂27'23 | | evening set | 4108 Nov 27 09:07 | 20°♂32'48 | |
| retrograde | 4102 Mar 10 04:15 | 8°♂19'25 | | | | | |
| opposition | 4102 May 27 03:59 | 6°♂57'31 | 1°37'29 | conjunction | 4108 Dec 12 21:51 | 21°♂07'22 | 1°27'44 |
| min. Earth dist. | 4102 May 27 23:31 | 6°♂56'11 | 29.32985 AU | minimum elong | 4108 Dec 12 21:51 | 21°♂07'22 | 1°27'45 |
| direct | 4102 Aug 16 07:29 | 5°♂32'52 | | max. Earth dist. | 4108 Dec 12 02:28 | 21°♂05'33 | 31.33541 AU |
| evening set | 4102 Nov 14 18:09 | 7°♂28'37 | | morning rise | 4108 Dec 28 07:43 | 21°♂41'44 | |
| | | | | retrograde | 4109 Mar 25 04:31 | 23°♂34'05 | |
| conjunction | 4102 Nov 30 09:10 | 8°♂03'20 | 1°31'12 | opposition | 4109 Jun 11 12:37 | 22°♂12'12 | 1°33'12 |
| minimum elong | 4102 Nov 30 09:10 | 8°♂03'20 | 1°31'12 | min. Earth dist. | 4109 Jun 12 07:20 | 22°♂10'56 | 29.33457 AU |
| max. Earth dist. | 4102 Nov 29 12:13 | 8°♂01'22 | 31.33126 AU | direct | 4109 Aug 31 15:52 | 20°♂47'47 | |
| morning rise | 4102 Dec 15 21:17 | 8°♂37'47 | | evening set | 4109 Nov 29 19:23 | 22°♂43'18 | |
| retrograde | 4103 Mar 12 15:07 | 10°♂29'52 | | max. Earth dist. | 4109 Dec 14 11:41 | 23°♂15'59 | 31.33200 AU |
| opposition | 4103 May 29 15:16 | 9°♂08'01 | 1°37'17 | | | | |
| min. Earth dist. | 4103 May 30 10:05 | 9°♂06'44 | 29.33435 AU | conjunction | 4109 Dec 15 07:37 | 23°♂17'51 | 1°26'43 |
| direct | 4103 Aug 18 18:33 | 7°♂43'26 | | minimum elong | 4109 Dec 15 07:37 | 23°♂17'51 | 1°26'43 |
| evening set | 4103 Nov 17 04:42 | 9°♂39'11 | | morning rise | 4109 Dec 30 17:19 | 23°♂52'12 | |
| | | | | retrograde | 4110 Mar 27 15:57 | 25°♂44'35 | |
| conjunction | 4103 Dec 02 19:25 | 10°♂13'53 | 1°30'56 | opposition | 4110 Jun 14 00:06 | 24°♂22'38 | 1°32'03 |
| minimum elong | 4103 Dec 02 19:25 | 10°♂13'53 | 1°30'56 | min. Earth dist. | 4110 Jun 14 18:23 | 24°♂21'24 | 29.33115 AU |
| max. Earth dist. | 4103 Dec 01 23:36 | 10°♂12'02 | 31.33526 AU | direct | 4110 Sep 03 03:08 | 22°♂58'12 | |
| morning rise | 4103 Dec 18 06:56 | 10°♂48'19 | | evening set | 4110 Dec 02 05:25 | 24°♂53'40 | |
| retrograde | 4104 Mar 14 00:24 | 12°♂40'28 | | | | | |
| opposition | 4104 May 31 02:47 | 11°♂18'39 | 1°36'57 | conjunction | 4110 Dec 17 17:27 | 25°♂28'12 | 1°25'35 |
| min. Earth dist. | 4104 May 31 22:29 | 11°♂17'18 | 29.33785 AU | minimum elong | 4110 Dec 17 17:27 | 25°♂28'12 | 1°25'36 |
| direct | 4104 Aug 20 05:35 | 9°♂54'08 | | max. Earth dist. | 4110 Dec 16 23:07 | 25°♂26'29 | 31.32863 AU |
| evening set | 4104 Nov 18 15:24 | 11°♂49'53 | | morning rise | 4111 Jan 02 02:42 | 26°♂02'31 | |
| max. Earth dist. | 4104 Dec 03 09:06 | 12°♂22'37 | 31.33823 AU | retrograde | 4111 Mar 30 00:43 | 27°♂54'56 | |
| | | | | opposition | 4111 Jun 16 11:52 | 26°♂32'57 | 1°30'46 |
| conjunction | 4104 Dec 04 05:33 | 12°♂24'32 | 1°30'33 | min. Earth dist. | 4111 Jun 17 05:54 | 26°♂31'43 | 29.32795 AU |
| minimum elong | 4104 Dec 04 05:33 | 12°♂24'32 | 1°30'34 | direct | 4111 Sep 05 15:59 | 25°♂08'31 | |
| morning rise | 4104 Dec 19 16:51 | 12°♂58'58 | | evening set | 4111 Dec 04 15:26 | 27°♂03'55 | |
| retrograde | 4105 Mar 16 10:44 | 14°♂51'10 | | max. Earth dist. | 4111 Dec 19 08:17 | 27°♂36'41 | 31.32586 AU |
| opposition | 4105 Jun 02 14:10 | 13°♂29'23 | 1°36'28 | | | | |
| min. Earth dist. | 4105 Jun 03 08:49 | 13°♂28'06 | 29.34013 AU | conjunction | 4111 Dec 20 02:55 | 27°♂38'25 | 1°24'20 |
| direct | 4105 Aug 22 17:02 | 12°♂04'55 | | minimum elong | 4111 Dec 20 02:55 | 27°♂38'25 | 1°24'20 |
| evening set | 4105 Nov 21 01:55 | 14°♂00'38 | | morning rise | 4112 Jan 04 12:04 | 28°♂12'44 | |
| | | | | | 4112 Mar 13 22:23 | 0°♂ | |
| conjunction | 4105 Dec 06 15:45 | 14°♂35'16 | 1°30'02 | retrograde | 4112 Mar 31 11:45 | 0°♂05'12 | |
| minimum elong | 4105 Dec 06 15:46 | 14°♂35'16 | 1°30'02 | | 4112 Apr 18 03:56 | 30°♂ | |
| max. Earth dist. | 4105 Dec 05 19:39 | 14°♂33'24 | 31.33971 AU | opposition | 4112 Jun 17 23:34 | 28°♂43'11 | 1°29'22 |
| morning rise | 4105 Dec 22 02:37 | 15°♂09'41 | | min. Earth dist. | 4112 Jun 18 16:10 | 28°♂42'03 | 29.32563 AU |
| retrograde | 4106 Mar 18 20:22 | 17°♂01'56 | | direct | 4112 Sep 07 04:15 | 27°♂18'46 | |
| opposition | 4106 Jun 05 01:48 | 15°♂40'09 | 1°35'51 | evening set | 4112 Dec 06 01:17 | 29°♂14'07 | |
| min. Earth dist. | 4106 Jun 05 21:27 | 15°♂38'49 | 29.34086 AU | | | | |
| direct | 4106 Aug 25 03:30 | 14°♂15'43 | | conjunction | 4112 Dec 21 12:36 | 29°♂48'37 | 1°22'57 |
| evening set | 4106 Nov 23 12:29 | 16°♂11'24 | | minimum elong | 4112 Dec 21 12:36 | 29°♂48'37 | 1°22'58 |

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| max. Earth dist. | 4112 Dec 20 19:37 | 29° 3 47'02 | 31.32397 AU | min. Earth dist. | 4119 Jul 05 00:52 | 13° 3 55'34 | 29.31047 AU |
| | 4112 Dec 26 14:06 | 0° 3 | | direct | 4119 Sep 23 09:59 | 12° 3 32'24 | |
| morning rise | 4113 Jan 05 21:21 | 0° 3 22'55 | | evening set | 4119 Dec 21 22:00 | 14° 3 27'28 | |
| retrograde | 4113 Apr 02 21:18 | 2° 3 15'27 | | | | | |
| opposition | 4113 Jun 20 11:18 | 0° 3 53'25 | 1°27'50 | conjunction | 4120 Jan 06 07:25 | 15° 3 01'54 | 1°10'05 |
| min. Earth dist. | 4113 Jun 21 04:11 | 0° 3 52'16 | 29.32414 AU | minimum elong | 4120 Jan 06 07:25 | 15° 3 01'54 | 1°10'06 |
| | 4113 Jul 25 22:56 | 30° 3 2 | | max. Earth dist. | 4120 Jan 05 17:53 | 15° 3 00'38 | 31.30693 AU |
| direct | 4113 Sep 09 15:53 | 29° 3 29'03 | | morning rise | 4120 Jan 21 14:51 | 15° 3 36'11 | |
| | 4113 Oct 23 18:56 | 0° 3 | | retrograde | 4120 Apr 17 23:22 | 17° 3 29'19 | |
| evening set | 4113 Dec 08 11:09 | 1° 3 24'21 | | opposition | 4120 Jul 05 23:36 | 16° 3 07'09 | 1°13'41 |
| | | | | min. Earth dist. | 4120 Jul 06 13:13 | 16° 3 06'14 | 29.30417 AU |
| conjunction | 4113 Dec 23 22:05 | 1° 3 58'50 | 1°21'27 | direct | 4120 Sep 24 22:58 | 14° 3 43'05 | |
| minimum elong | 4113 Dec 23 22:06 | 1° 3 58'50 | 1°21'28 | evening set | 4120 Dec 23 07:48 | 16° 3 38'04 | |
| max. Earth dist. | 4113 Dec 23 05:11 | 1° 3 57'15 | 31.32291 AU | | | | |
| morning rise | 4114 Jan 08 06:45 | 2° 3 33'09 | | conjunction | 4121 Jan 07 16:52 | 17° 3 12'30 | 1°07'50 |
| retrograde | 4114 Apr 05 07:06 | 4° 3 25'44 | | minimum elong | 4121 Jan 07 16:52 | 17° 3 12'30 | 1°07'51 |
| opposition | 4114 Jun 22 23:00 | 3° 3 03'42 | 1°26'10 | max. Earth dist. | 4121 Jan 07 02:47 | 17° 3 11'11 | 31.30016 AU |
| min. Earth dist. | 4114 Jun 23 14:13 | 3° 3 02'40 | 29.32318 AU | morning rise | 4121 Jan 23 00:22 | 17° 3 46'48 | |
| direct | 4114 Sep 12 03:20 | 1° 3 39'23 | | retrograde | 4121 Apr 20 11:15 | 19° 3 39'59 | |
| evening set | 4114 Dec 10 20:58 | 3° 3 34'40 | | opposition | 4121 Jul 08 11:40 | 18° 3 17'45 | 1°11'13 |
| | | | | min. Earth dist. | 4121 Jul 09 00:08 | 18° 3 16'55 | 29.29688 AU |
| conjunction | 4114 Dec 26 07:38 | 4° 3 09'09 | 1°19'50 | direct | 4121 Sep 27 11:18 | 16° 3 53'41 | |
| minimum elong | 4114 Dec 26 07:38 | 4° 3 09'09 | 1°19'51 | evening set | 4121 Dec 25 17:20 | 18° 3 48'36 | |
| max. Earth dist. | 4114 Dec 25 15:34 | 4° 3 07'38 | 31.32201 AU | | | | |
| morning rise | 4115 Jan 10 15:59 | 4° 3 43'27 | | conjunction | 4122 Jan 10 02:21 | 19° 3 23'02 | 1°05'29 |
| retrograde | 4115 Apr 07 16:33 | 6° 3 36'07 | | minimum elong | 4122 Jan 10 02:21 | 19° 3 23'02 | 1°05'29 |
| opposition | 4115 Jun 25 10:57 | 5° 3 14'05 | 1°24'23 | max. Earth dist. | 4122 Jan 09 13:39 | 19° 3 21'50 | 31.29246 AU |
| min. Earth dist. | 4115 Jun 26 02:39 | 5° 3 13'02 | 29.32227 AU | morning rise | 4122 Jan 25 09:38 | 19° 3 57'20 | |
| direct | 4115 Sep 14 13:23 | 3° 3 49'50 | | retrograde | 4122 Apr 22 21:10 | 21° 3 50'36 | |
| evening set | 4115 Dec 13 06:49 | 5° 3 45'04 | | opposition | 4122 Jul 11 00:00 | 20° 3 28'17 | 1°08'40 |
| | | | | min. Earth dist. | 4122 Jul 11 12:49 | 20° 3 27'25 | 29.28894 AU |
| conjunction | 4115 Dec 28 17:12 | 6° 3 19'33 | 1°18'06 | direct | 4122 Sep 29 23:32 | 19° 3 04'13 | |
| minimum elong | 4115 Dec 28 17:12 | 6° 3 19'33 | 1°18'06 | evening set | 4122 Dec 28 02:51 | 20° 3 59'03 | |
| max. Earth dist. | 4115 Dec 28 01:47 | 6° 3 18'06 | 31.32104 AU | | | | |
| morning rise | 4116 Jan 13 01:22 | 6° 3 53'50 | | conjunction | 4123 Jan 12 11:33 | 21° 3 33'28 | 1°03'02 |
| retrograde | 4116 Apr 09 03:04 | 8° 3 46'37 | | minimum elong | 4123 Jan 12 11:33 | 21° 3 33'28 | 1°03'02 |
| opposition | 4116 Jun 26 22:55 | 7° 3 24'35 | 1°22'28 | max. Earth dist. | 4123 Jan 11 23:14 | 21° 3 32'19 | 31.28459 AU |
| min. Earth dist. | 4116 Jun 27 13:16 | 7° 3 23'36 | 29.32092 AU | morning rise | 4123 Jan 27 18:51 | 22° 3 07'47 | |
| direct | 4116 Sep 16 00:27 | 6° 3 00'23 | | retrograde | 4123 Apr 25 07:03 | 24° 3 01'07 | |
| evening set | 4116 Dec 14 16:35 | 7° 3 55'35 | | opposition | 4123 Jul 13 12:13 | 22° 3 38'44 | 1°06'00 |
| max. Earth dist. | 4116 Dec 29 11:12 | 8° 3 28'36 | 31.31931 AU | min. Earth dist. | 4123 Jul 13 23:06 | 22° 3 38'00 | 29.28116 AU |
| | | | | direct | 4123 Oct 02 11:33 | 21° 3 14'40 | |
| conjunction | 4116 Dec 30 02:37 | 8° 3 30'02 | 1°16'16 | evening set | 4123 Dec 30 12:18 | 23° 3 09'27 | |
| minimum elong | 4116 Dec 30 02:38 | 8° 3 30'02 | 1°16'16 | | | | |
| morning rise | 4117 Jan 14 10:40 | 9° 3 04'21 | | conjunction | 4124 Jan 14 20:50 | 23° 3 43'52 | 1°00'30 |
| retrograde | 4117 Apr 11 14:27 | 10° 3 57'13 | | minimum elong | 4124 Jan 14 20:51 | 23° 3 43'52 | 1°00'30 |
| opposition | 4117 Jun 29 11:02 | 9° 3 35'10 | 1°20'26 | max. Earth dist. | 4124 Jan 14 09:32 | 23° 3 42'48 | 31.27711 AU |
| min. Earth dist. | 4117 Jun 30 01:42 | 9° 3 34'10 | 29.31877 AU | morning rise | 4124 Jan 30 04:00 | 24° 3 18'10 | |
| direct | 4117 Sep 18 10:49 | 8° 3 11'01 | | retrograde | 4124 Apr 26 16:41 | 26° 3 11'37 | |
| evening set | 4117 Dec 17 02:25 | 10° 3 06'10 | | opposition | 4124 Jul 15 00:37 | 24° 3 49'10 | 1°03'15 |
| | | | | min. Earth dist. | 4124 Jul 15 11:29 | 24° 3 48'26 | 29.27421 AU |
| conjunction | 4118 Jan 01 12:19 | 10° 3 40'37 | 1°14'18 | direct | 4124 Oct 03 21:51 | 23° 3 25'08 | |
| minimum elong | 4118 Jan 01 12:19 | 10° 3 40'37 | 1°14'18 | evening set | 4124 Dec 31 21:35 | 25° 3 19'51 | |
| max. Earth dist. | 4117 Dec 31 22:03 | 10° 3 39'17 | 31.31658 AU | | | | |
| morning rise | 4118 Jan 16 20:04 | 11° 3 14'55 | | conjunction | 4125 Jan 16 06:02 | 25° 3 54'16 | 0°57'53 |
| retrograde | 4118 Apr 14 01:18 | 13° 3 07'53 | | minimum elong | 4125 Jan 16 06:02 | 25° 3 54'16 | 0°57'53 |
| opposition | 4118 Jul 01 23:01 | 11° 3 45'48 | 1°18'18 | max. Earth dist. | 4125 Jan 15 19:59 | 25° 3 53'19 | 31.27073 AU |
| min. Earth dist. | 4118 Jul 02 13:06 | 11° 3 44'51 | 29.31527 AU | morning rise | 4125 Jan 31 13:08 | 26° 3 28'35 | |
| direct | 4118 Sep 20 23:24 | 10° 3 21'42 | | retrograde | 4125 Apr 29 03:04 | 28° 3 22'08 | |
| evening set | 4118 Dec 19 12:23 | 12° 3 16'49 | | opposition | 4125 Jul 17 12:52 | 26° 3 59'40 | 1°00'25 |
| | | | | min. Earth dist. | 4125 Jul 17 21:51 | 26° 3 59'03 | 29.26819 AU |
| conjunction | 4119 Jan 03 21:51 | 12° 3 51'15 | 1°12'15 | direct | 4125 Oct 06 08:51 | 25° 3 35'40 | |
| minimum elong | 4119 Jan 03 21:52 | 12° 3 51'15 | 1°12'16 | evening set | 4126 Jan 03 07:03 | 27° 3 30'20 | |
| max. Earth dist. | 4119 Jan 03 06:54 | 12° 3 49'51 | 31.31245 AU | | | | |
| morning rise | 4119 Jan 19 05:36 | 13° 3 25'33 | | conjunction | 4126 Jan 18 15:15 | 28° 3 04'45 | 0°55'11 |
| retrograde | 4119 Apr 16 13:32 | 15° 3 18'36 | | minimum elong | 4126 Jan 18 15:15 | 28° 3 04'45 | 0°55'11 |
| opposition | 4119 Jul 04 11:15 | 13° 3 56'29 | 1°16'03 | max. Earth dist. | 4126 Jan 18 05:31 | 28° 3 03'50 | 31.26522 AU |

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| morning rise | 4126 Feb 02 22:23 | 28°33'05" | | opposition | 4132 Aug 02 04:58 | 12°17'25" | 0°38'12" |
| | 4126 Mar 17 22:51 | 0°00'00" | | min. Earth dist. | 4132 Aug 02 09:02 | 12°17'09" | 29.22847 AU |
| retrograde | 4126 May 01 14:33 | 0°32'46" | | direct | 4132 Oct 21 16:34 | 10°53'48" | |
| | 4126 Jun 17 04:00 | 30°00'00" | | evening set | 4133 Jan 18 01:35 | 12°48'12" | |
| opposition | 4126 Jul 20 01:10 | 29°10'16" | 0°57'28" | | | | |
| min. Earth dist. | 4126 Jul 20 09:54 | 29°09'41" | 29.26314 AU | conjunction | 4133 Feb 02 09:07 | 13°22'39" | 0°34'10" |
| direct | 4126 Oct 08 18:47 | 27°34'20" | | minimum elong | 4133 Feb 02 09:07 | 13°22'39" | 0°34'11" |
| evening set | 4127 Jan 05 16:25 | 29°34'05" | | max. Earth dist. | 4133 Feb 02 04:18 | 13°22'12" | 31.22365 AU |
| | 4127 Jan 14 05:03 | 0°00'00" | | morning rise | 4133 Feb 17 16:19 | 13°57'05" | |
| | | | | | 4133 Mar 21 02:38 | 15°00'00" | |
| conjunction | 4127 Jan 21 00:36 | 0°15'24" | 0°52'24" | retrograde | 4133 May 16 23:45 | 15°51'40" | |
| minimum elong | 4127 Jan 21 00:36 | 0°15'24" | 0°52'24" | | 4133 Jul 16 02:04 | 15°00'00" | |
| max. Earth dist. | 4127 Jan 20 16:43 | 0°14'39" | 31.26054 AU | opposition | 4133 Aug 04 17:51 | 14°28'54" | 0°34'46" |
| morning rise | 4127 Feb 05 07:34 | 0°49'44" | | min. Earth dist. | 4133 Aug 04 22:22 | 14°28'35" | 29.21883 AU |
| retrograde | 4127 May 04 01:51 | 2°43'34" | | direct | 4133 Oct 24 04:06 | 13°05'17" | |
| opposition | 4127 Jul 22 13:39 | 1°21'03" | 0°54'27" | evening set | 4134 Jan 20 11:06 | 14°59'35" | |
| min. Earth dist. | 4127 Jul 22 21:13 | 1°20'32" | 29.25855 AU | | 4134 Jan 20 15:36 | 15°00'00" | |
| | 4127 Sep 28 01:49 | 30°00'00" | | | | | |
| direct | 4127 Oct 11 06:14 | 29°05'11" | | conjunction | 4134 Feb 04 18:39 | 15°34'02" | 0°30'56" |
| | 4127 Oct 24 08:37 | 0°00'00" | | minimum elong | 4134 Feb 04 18:39 | 15°34'02" | 0°30'56" |
| evening set | 4128 Jan 08 01:49 | 1°51'48" | | max. Earth dist. | 4134 Feb 04 14:49 | 15°33'41" | 31.21352 AU |
| | | | | morning rise | 4134 Feb 20 01:52 | 16°08'29" | |
| conjunction | 4128 Jan 23 09:43 | 2°26'14" | 0°49'31" | retrograde | 4134 May 19 10:15 | 18°03'09" | |
| minimum elong | 4128 Jan 23 09:43 | 2°26'14" | 0°49'32" | opposition | 4134 Aug 07 06:30 | 16°40'17" | 0°31'17" |
| max. Earth dist. | 4128 Jan 23 01:41 | 2°25'28" | 31.25615 AU | min. Earth dist. | 4134 Aug 07 09:30 | 16°40'05" | 29.20816 AU |
| morning rise | 4128 Feb 07 16:51 | 3°00'35" | | direct | 4134 Oct 26 16:34 | 15°16'39" | |
| retrograde | 4128 May 05 14:34 | 4°54'34" | | evening set | 4135 Jan 22 20:41 | 17°10'52" | |
| opposition | 4128 Jul 24 02:13 | 3°32'02" | 0°51'21" | | | | |
| min. Earth dist. | 4128 Jul 24 08:54 | 3°31'34" | 29.25418 AU | conjunction | 4135 Feb 07 04:04 | 17°45'19" | 0°27'39" |
| direct | 4128 Oct 12 15:35 | 2°08'14" | | minimum elong | 4135 Feb 07 04:04 | 17°45'19" | 0°27'39" |
| evening set | 4129 Jan 09 11:14 | 4°02'50" | | max. Earth dist. | 4135 Feb 07 00:21 | 17°44'59" | 31.20267 AU |
| | | | | morning rise | 4135 Feb 22 11:29 | 18°19'47" | |
| conjunction | 4129 Jan 24 19:10 | 4°37'15" | 0°46'35" | retrograde | 4135 May 21 21:23 | 20°14'34" | |
| minimum elong | 4129 Jan 24 19:11 | 4°37'15" | 0°46'36" | opposition | 4135 Aug 09 19:27 | 18°51'35" | 0°27'46" |
| max. Earth dist. | 4129 Jan 24 12:52 | 4°36'39" | 31.25160 AU | min. Earth dist. | 4135 Aug 09 22:14 | 18°51'23" | 29.19735 AU |
| morning rise | 4129 Feb 09 02:09 | 5°11'37" | | direct | 4135 Oct 29 02:51 | 17°27'56" | |
| retrograde | 4129 May 08 01:30 | 7°05'44" | | evening set | 4136 Jan 25 05:57 | 19°22'04" | |
| opposition | 4129 Jul 26 14:43 | 5°43'11" | 0°48'10" | | | | |
| min. Earth dist. | 4129 Jul 26 21:14 | 5°42'45" | 29.24931 AU | conjunction | 4136 Feb 09 13:28 | 19°56'31" | 0°24'20" |
| direct | 4129 Oct 15 03:58 | 4°19'28" | | minimum elong | 4136 Feb 09 13:29 | 19°56'31" | 0°24'20" |
| evening set | 4130 Jan 11 20:52 | 6°14'01" | | max. Earth dist. | 4136 Feb 09 11:45 | 19°56'21" | 31.19198 AU |
| | | | | morning rise | 4136 Feb 24 20:51 | 20°30'59" | |
| conjunction | 4130 Jan 27 04:33 | 6°48'27" | 0°43'34" | retrograde | 4136 May 23 07:45 | 22°25'53" | |
| minimum elong | 4130 Jan 27 04:33 | 6°48'27" | 0°43'34" | opposition | 4136 Aug 11 08:16 | 21°02'48" | 0°24'12" |
| max. Earth dist. | 4130 Jan 26 21:54 | 6°47'49" | 31.24646 AU | min. Earth dist. | 4136 Aug 11 09:45 | 21°02'42" | 29.18686 AU |
| morning rise | 4130 Feb 11 11:41 | 7°22'50" | | direct | 4136 Oct 30 14:32 | 19°39'09" | |
| retrograde | 4130 May 10 15:04 | 9°17'04" | | evening set | 4137 Jan 26 15:32 | 21°33'13" | |
| opposition | 4130 Jul 29 03:21 | 7°54'30" | 0°44'55" | | | | |
| min. Earth dist. | 4130 Jul 29 08:36 | 7°54'09" | 29.24367 AU | conjunction | 4137 Feb 10 22:52 | 22°07'41" | 0°20'59" |
| direct | 4130 Oct 17 16:11 | 6°30'49" | | minimum elong | 4137 Feb 10 22:52 | 22°07'41" | 0°21'00" |
| evening set | 4131 Jan 14 06:21 | 8°25'21" | | max. Earth dist. | 4137 Feb 10 21:05 | 22°07'31" | 31.18193 AU |
| | | | | morning rise | 4137 Feb 26 06:31 | 22°42'10" | |
| conjunction | 4131 Jan 29 14:03 | 8°59'47" | 0°40'30" | retrograde | 4137 May 25 20:28 | 24°37'10" | |
| minimum elong | 4131 Jan 29 14:03 | 8°59'47" | 0°40'30" | opposition | 4137 Aug 13 20:57 | 23°14'01" | 0°20'35" |
| max. Earth dist. | 4131 Jan 29 08:39 | 8°59'17" | 31.24015 AU | min. Earth dist. | 4137 Aug 13 21:19 | 23°13'59" | 29.17733 AU |
| morning rise | 4131 Feb 13 21:03 | 9°34'11" | | direct | 4137 Nov 01 23:55 | 21°50'23" | |
| retrograde | 4131 May 13 02:08 | 11°28'34" | | evening set | 4138 Jan 29 00:57 | 23°44'24" | |
| opposition | 4131 Jul 31 16:15 | 10°05'56" | 0°41'35" | | | | |
| min. Earth dist. | 4131 Jul 31 21:55 | 10°05'33" | 29.23674 AU | conjunction | 4138 Feb 13 08:27 | 24°18'53" | 0°17'36" |
| direct | 4131 Oct 20 04:05 | 8°42'18" | | minimum elong | 4138 Feb 13 08:27 | 24°18'53" | 0°17'36" |
| evening set | 4132 Jan 16 16:01 | 10°36'47" | | max. Earth dist. | 4138 Feb 13 08:37 | 24°18'54" | 31.17280 AU |
| | | | | morning rise | 4138 Feb 28 16:02 | 24°53'23" | |
| conjunction | 4132 Jan 31 23:35 | 11°11'13" | 0°37'21" | retrograde | 4138 May 28 07:41 | 26°48'32" | |
| minimum elong | 4132 Jan 31 23:35 | 11°11'13" | 0°37'22" | opposition | 4138 Aug 16 09:50 | 25°25'19" | 0°16'57" |
| max. Earth dist. | 4132 Jan 31 18:22 | 11°10'43" | 31.23265 AU | min. Earth dist. | 4138 Aug 16 09:33 | 25°25'20" | 29.16861 AU |
| morning rise | 4132 Feb 16 06:42 | 11°45'38" | | direct | 4138 Nov 04 12:02 | 24°01'44" | |
| retrograde | 4132 May 14 13:08 | 13°40'06" | | evening set | 4139 Jan 31 10:24 | 25°55'43" | |

| | | | | | | | |
|------------------|-------------------|---------------------|-------------|------------------|-------------------|--------------------|-------------|
| conjunction | 4139 Feb 15 17:46 | 26° \approx 30'12 | 0°14'11 | behind sun end | 4144 Feb 27 00:50 | 7° \times 30'35 | |
| minimum elong | 4139 Feb 15 17:46 | 26° \approx 30'12 | 0°14'12 | max. Earth dist. | 4144 Feb 26 22:26 | 7° \times 30'20 | 31.12413 AU |
| behind sun begin | 4139 Feb 15 14:33 | 26° \approx 29'54 | | morning rise | 4144 Mar 13 03:10 | 8° \times 04'41 | |
| behind sun end | 4139 Feb 15 21:00 | 26° \approx 30'29 | | retrograde | 4144 Jun 10 09:27 | 10° \times 00'47 | |
| max. Earth dist. | 4139 Feb 15 18:09 | 26° \approx 30'14 | 31.16461 AU | opposition | 4144 Aug 29 16:09 | 8° \times 37'21 | -0°05'18 |
| morning rise | 4139 Mar 03 01:38 | 27° \approx 04'44 | | min. Earth dist. | 4144 Aug 29 11:29 | 8° \times 37'40 | 29.11896 AU |
| retrograde | 4139 May 30 21:42 | 29° \approx 00'01 | | direct | 4144 Nov 17 08:42 | 7° \times 14'07 | |
| opposition | 4139 Aug 18 22:44 | 27° \approx 36'46 | 0°13'17 | evening set | 4145 Feb 12 20:51 | 9° \times 07'58 | |
| min. Earth dist. | 4139 Aug 18 20:43 | 27° \approx 36'54 | 29.16076 AU | | | | |
| direct | 4139 Nov 06 23:20 | 26° \approx 13'14 | | conjunction | 4145 Feb 28 04:41 | 9° \times 42'32 | -0°06'45 |
| evening set | 4140 Feb 02 19:55 | 28° \approx 07'12 | | minimum elong | 4145 Feb 28 04:40 | 9° \times 42'32 | 0°06'44 |
| | | | | behind sun begin | 4145 Feb 27 22:41 | 9° \times 42'00 | |
| conjunction | 4140 Feb 18 03:24 | 28° \approx 41'42 | 0°10'45 | behind sun end | 4145 Feb 28 10:39 | 9° \times 43'05 | |
| minimum elong | 4140 Feb 18 03:24 | 28° \approx 41'42 | 0°10'45 | max. Earth dist. | 4145 Feb 28 10:04 | 9° \times 43'01 | 31.11332 AU |
| behind sun begin | 4140 Feb 17 22:26 | 28° \approx 41'15 | | morning rise | 4145 Mar 15 13:24 | 10° \times 17'14 | |
| behind sun end | 4140 Feb 18 08:21 | 28° \approx 42'09 | | retrograde | 4145 Jun 12 20:05 | 12° \times 13'29 | |
| max. Earth dist. | 4140 Feb 18 05:20 | 28° \approx 41'52 | 31.15696 AU | opposition | 4145 Sep 01 05:10 | 10° \times 49'58 | -0°09'01 |
| morning rise | 4140 Mar 04 11:19 | 29° \approx 16'16 | | min. Earth dist. | 4145 Aug 31 23:44 | 10° \times 50'20 | 29.10738 AU |
| | 4140 Mar 25 08:52 | 0° \times | | direct | 4145 Nov 19 20:21 | 9° \times 26'44 | |
| retrograde | 4140 Jun 01 09:25 | 1° \times 11'43 | | evening set | 4146 Feb 15 06:56 | 11° \times 20'32 | |
| | 4140 Aug 13 08:26 | 30° \times | | | | | |
| opposition | 4140 Aug 20 11:43 | 29° \approx 48'26 | 0°09'35 | conjunction | 4146 Mar 02 14:41 | 11° \times 55'07 | -0°10'12 |
| min. Earth dist. | 4140 Aug 20 09:49 | 29° \approx 48'33 | 29.15331 AU | minimum elong | 4146 Mar 02 14:41 | 11° \times 55'07 | 0°10'13 |
| direct | 4140 Nov 08 10:26 | 28° \approx 24'59 | | behind sun begin | 4146 Mar 02 09:32 | 11° \times 54'39 | |
| | 4141 Jan 26 12:14 | 0° \times | | behind sun end | 4146 Mar 02 19:49 | 11° \times 55'35 | |
| evening set | 4141 Feb 04 05:30 | 0° \times 18'55 | | max. Earth dist. | 4146 Mar 02 19:30 | 11° \times 55'34 | 31.10118 AU |
| | | | | morning rise | 4146 Mar 17 23:47 | 12° \times 29'51 | |
| conjunction | 4141 Feb 19 13:00 | 0° \times 53'26 | 0°07'18 | retrograde | 4146 Jun 15 09:21 | 14° \times 26'12 | |
| minimum elong | 4141 Feb 19 13:00 | 0° \times 53'26 | 0°07'18 | opposition | 4146 Sep 03 18:22 | 13° \times 02'36 | -0°12'44 |
| behind sun begin | 4141 Feb 19 07:07 | 0° \times 52'54 | | min. Earth dist. | 4146 Sep 03 12:19 | 13° \times 03'00 | 29.09476 AU |
| behind sun end | 4141 Feb 19 18:53 | 0° \times 53'58 | | direct | 4146 Nov 22 06:06 | 11° \times 39'21 | |
| max. Earth dist. | 4141 Feb 19 15:34 | 0° \times 53'39 | 31.14965 AU | evening set | 4147 Feb 17 16:41 | 13° \times 33'05 | |
| morning rise | 4141 Mar 06 21:08 | 1° \times 28'01 | | | | | |
| retrograde | 4141 Jun 03 21:46 | 3° \times 23'38 | | conjunction | 4147 Mar 05 00:41 | 14° \times 07'41 | -0°13'39 |
| opposition | 4141 Aug 23 00:38 | 2° \times 00'20 | 0°05'53 | minimum elong | 4147 Mar 05 00:41 | 14° \times 07'41 | 0°13'39 |
| min. Earth dist. | 4141 Aug 22 20:56 | 2° \times 00'35 | 29.14585 AU | behind sun begin | 4147 Mar 04 21:06 | 14° \times 07'21 | |
| direct | 4141 Nov 10 22:43 | 0° \times 36'56 | | behind sun end | 4147 Mar 05 04:16 | 14° \times 08'00 | |
| evening set | 4142 Feb 06 15:13 | 2° \times 30'52 | | max. Earth dist. | 4147 Mar 05 07:11 | 14° \times 08'17 | 31.08812 AU |
| | | | | morning rise | 4147 Mar 20 09:52 | 14° \times 42'25 | |
| conjunction | 4142 Feb 21 22:41 | 3° \times 05'24 | 0°03'50 | retrograde | 4147 Jun 17 20:35 | 16° \times 38'54 | |
| minimum elong | 4142 Feb 21 22:42 | 3° \times 05'24 | 0°03'50 | opposition | 4147 Sep 06 07:35 | 15° \times 15'10 | -0°16'25 |
| behind sun begin | 4142 Feb 21 16:22 | 3° \times 04'50 | | min. Earth dist. | 4147 Sep 06 01:08 | 15° \times 15'37 | 29.08149 AU |
| behind sun end | 4142 Feb 22 05:02 | 3° \times 05'59 | | direct | 4147 Nov 24 18:36 | 13° \times 51'54 | |
| max. Earth dist. | 4142 Feb 22 01:47 | 3° \times 05'39 | 31.14191 AU | evening set | 4148 Feb 20 02:40 | 15° \times 45'34 | |
| morning rise | 4142 Mar 09 07:00 | 3° \times 40'01 | | | | | |
| retrograde | 4142 Jun 06 09:50 | 5° \times 35'48 | | conjunction | 4148 Mar 06 10:41 | 16° \times 20'10 | -0°17'05 |
| opposition | 4142 Aug 25 13:45 | 4° \times 12'28 | 0°02'09 | minimum elong | 4148 Mar 06 10:40 | 16° \times 20'10 | 0°17'05 |
| min. Earth dist. | 4142 Aug 25 10:24 | 4° \times 12'41 | 29.13789 AU | max. Earth dist. | 4148 Mar 06 17:14 | 16° \times 20'47 | 31.07494 AU |
| direct | 4142 Nov 13 10:02 | 2° \times 49'09 | | morning rise | 4148 Mar 21 20:13 | 16° \times 54'56 | |
| evening set | 4143 Feb 09 01:00 | 4° \times 43'03 | | retrograde | 4148 Jun 19 10:38 | 18° \times 51'31 | |
| | | | | opposition | 4148 Sep 07 20:31 | 17° \times 27'41 | -0°20'04 |
| conjunction | 4143 Feb 24 08:38 | 5° \times 17'37 | 0°00'18 | min. Earth dist. | 4148 Sep 07 12:34 | 17° \times 28'13 | 29.06854 AU |
| minimum elong | 4143 Feb 24 08:38 | 5° \times 17'37 | 0°00'18 | direct | 4148 Nov 26 05:36 | 16° \times 04'22 | |
| behind sun begin | 4143 Feb 24 02:17 | 5° \times 17'02 | | evening set | 4149 Feb 21 12:33 | 17° \times 57'59 | |
| behind sun end | 4143 Feb 24 14:59 | 5° \times 18'11 | | | | | |
| max. Earth dist. | 4143 Feb 24 12:51 | 5° \times 17'58 | 31.13361 AU | conjunction | 4149 Mar 08 20:45 | 18° \times 32'37 | -0°20'29 |
| morning rise | 4143 Mar 11 17:00 | 5° \times 52'15 | | minimum elong | 4149 Mar 08 20:45 | 18° \times 32'37 | 0°20'29 |
| desc. node | 4143 Mar 25 23:49 | 6° \times 22'50 | | max. Earth dist. | 4149 Mar 09 04:44 | 18° \times 33'22 | 31.06217 AU |
| retrograde | 4143 Jun 08 21:40 | 7° \times 48'12 | | morning rise | 4149 Mar 24 06:27 | 19° \times 07'24 | |
| opposition | 4143 Aug 28 02:53 | 6° \times 24'49 | -0°01'34 | retrograde | 4149 Jun 21 22:08 | 21° \times 04'06 | |
| min. Earth dist. | 4143 Aug 27 22:01 | 6° \times 25'09 | 29.12902 AU | opposition | 4149 Sep 10 09:37 | 19° \times 40'09 | -0°23'42 |
| direct | 4143 Nov 15 22:27 | 5° \times 01'33 | | min. Earth dist. | 4149 Sep 10 01:40 | 19° \times 40'41 | 29.05625 AU |
| evening set | 4144 Feb 11 10:55 | 6° \times 55'27 | | direct | 4149 Nov 28 16:25 | 18° \times 16'50 | |
| | | | | evening set | 4150 Feb 23 22:29 | 20° \times 10'24 | |
| conjunction | 4144 Feb 26 18:28 | 7° \times 30'00 | -0°03'17 | | | | |
| minimum elong | 4144 Feb 26 18:28 | 7° \times 30'00 | 0°03'17 | conjunction | 4150 Mar 11 06:48 | 20° \times 45'02 | -0°23'52 |
| behind sun begin | 4144 Feb 26 12:06 | 7° \times 29'26 | | minimum elong | 4150 Mar 11 06:47 | 20° \times 45'02 | 0°23'53 |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|------------------------|-------------|
| max. Earth dist. | 4150 Mar 11 15:39 | 20° ✕ 45'52 | 31.05043 AU | min. Earth dist. | 4156 Sep 25 15:53 | 5° ° 11'13 | 28.99152 AU |
| morning rise | 4150 Mar 26 16:43 | 21° ✕ 19'51 | | direct | 4156 Dec 14 01:41 | 3° ° 47'11 | |
| retrograde | 4150 Jun 24 11:25 | 23° ✕ 16'40 | | evening set | 4157 Mar 10 22:25 | 5° ° 40'38 | |
| opposition | 4150 Sep 12 22:33 | 21° ✕ 52'38 | -0°27'18 | | | | |
| min. Earth dist. | 4150 Sep 12 12:35 | 21° ✕ 53'19 | 29.04506 AU | conjunction | 4157 Mar 26 07:58 | 6° ° 15'25 | -0°46'21 |
| direct | 4150 Dec 01 05:24 | 20° ✕ 29'19 | | minimum elong | 4157 Mar 26 07:58 | 6° ° 15'25 | 0°46'21 |
| evening set | 4151 Feb 26 08:30 | 22° ✕ 22'51 | | max. Earth dist. | 4157 Mar 26 21:21 | 6° ° 16'41 | 30.98628 AU |
| | | | | morning rise | 4157 Apr 10 19:55 | 6° ° 50'27 | |
| conjunction | 4151 Mar 13 16:54 | 22° ✕ 57'31 | -0°27'13 | retrograde | 4157 Jul 10 03:45 | 8° ° 48'12 | |
| minimum elong | 4151 Mar 13 16:54 | 22° ✕ 57'31 | 0°27'13 | opposition | 4157 Sep 28 18:21 | 7° ° 23'49 | -0°51'10 |
| max. Earth dist. | 4151 Mar 14 02:26 | 22° ✕ 58'25 | 31.03975 AU | min. Earth dist. | 4157 Sep 28 04:04 | 7° ° 24'48 | 28.98131 AU |
| morning rise | 4151 Mar 29 03:08 | 23° ✕ 32'21 | | direct | 4157 Dec 16 12:17 | 6° ° 00'41 | |
| retrograde | 4151 Jun 27 00:42 | 25° ✕ 29'18 | | evening set | 4158 Mar 13 09:02 | 7° ° 54'07 | |
| opposition | 4151 Sep 15 11:43 | 24° ✕ 05'11 | -0°30'52 | | | | |
| min. Earth dist. | 4151 Sep 15 01:45 | 24° ✕ 05'52 | 29.03504 AU | conjunction | 4158 Mar 28 18:50 | 8° ° 28'56 | -0°49'20 |
| direct | 4151 Dec 03 17:01 | 22° ✕ 41'54 | | minimum elong | 4158 Mar 28 18:50 | 8° ° 28'56 | 0°49'21 |
| evening set | 4152 Feb 28 18:25 | 24° ✕ 35'24 | | max. Earth dist. | 4158 Mar 29 09:02 | 8° ° 30'17 | 30.97538 AU |
| | | | | morning rise | 4158 Apr 13 07:02 | 9° ° 03'59 | |
| conjunction | 4152 Mar 15 03:07 | 25° ✕ 10'05 | -0°30'32 | retrograde | 4158 Jul 12 15:48 | 11° ° 01'52 | |
| minimum elong | 4152 Mar 15 03:07 | 25° ✕ 10'05 | 0°30'32 | opposition | 4158 Oct 01 07:38 | 9° ° 37'23 | -0°54'20 |
| max. Earth dist. | 4152 Mar 15 14:11 | 25° ✕ 11'07 | 31.03027 AU | min. Earth dist. | 4158 Sep 30 17:52 | 9° ° 38'20 | 28.96996 AU |
| morning rise | 4152 Mar 30 13:33 | 25° ✕ 44'57 | | direct | 4158 Dec 18 23:12 | 8° ° 14'15 | |
| retrograde | 4152 Jun 28 12:44 | 27° ✕ 42'01 | | evening set | 4159 Mar 15 19:44 | 10° ° 07'39 | |
| opposition | 4152 Sep 17 00:42 | 26° ✕ 17'51 | -0°34'23 | | | | |
| min. Earth dist. | 4152 Sep 16 12:57 | 26° ✕ 18'40 | 29.02592 AU | conjunction | 4159 Mar 31 05:49 | 10° ° 42'29 | -0°52'15 |
| direct | 4152 Dec 05 05:43 | 24° ✕ 54'36 | | minimum elong | 4159 Mar 31 05:48 | 10° ° 42'29 | 0°52'15 |
| evening set | 4153 Mar 02 04:40 | 26° ✕ 48'05 | | max. Earth dist. | 4159 Mar 31 20:25 | 10° ° 43'52 | 30.96377 AU |
| | | | | morning rise | 4159 Apr 15 18:21 | 11° ° 17'34 | |
| conjunction | 4153 Mar 17 13:23 | 27° ✕ 22'47 | -0°33'48 | retrograde | 4159 Jul 15 06:06 | 13° ° 15'31 | |
| minimum elong | 4153 Mar 17 13:23 | 27° ✕ 22'47 | 0°33'47 | opposition | 4159 Oct 03 20:41 | 11° ° 50'58 | -0°57'24 |
| max. Earth dist. | 4153 Mar 18 00:25 | 27° ✕ 23'50 | 31.02147 AU | min. Earth dist. | 4159 Oct 03 05:29 | 11° ° 52'00 | 28.95811 AU |
| morning rise | 4153 Apr 02 00:13 | 27° ✕ 57'42 | | direct | 4159 Dec 21 12:16 | 10° ° 27'47 | |
| retrograde | 4153 Jul 01 00:51 | 29° ✕ 54'54 | | evening set | 4160 Mar 17 06:26 | 12° ° 21'09 | |
| opposition | 4153 Sep 19 13:43 | 28° ✕ 30'41 | -0°37'52 | | | | |
| min. Earth dist. | 4153 Sep 19 01:58 | 28° ✕ 31'30 | 29.01748 AU | conjunction | 4160 Apr 01 16:42 | 12° ° 56'01 | -0°55'05 |
| direct | 4153 Dec 07 15:56 | 27° ✕ 07'28 | | minimum elong | 4160 Apr 01 16:42 | 12° ° 56'00 | 0°55'06 |
| evening set | 4154 Mar 04 14:51 | 29° ✕ 00'56 | | max. Earth dist. | 4160 Apr 02 07:33 | 12° ° 57'25 | 30.95176 AU |
| | | | | morning rise | 4160 Apr 17 05:40 | 13° ° 31'07 | |
| conjunction | 4154 Mar 19 23:54 | 29° ✕ 35'40 | -0°37'01 | retrograde | 4160 Jul 16 19:51 | 15° ° 29'10 | |
| minimum elong | 4154 Mar 19 23:54 | 29° ✕ 35'40 | 0°37'02 | opposition | 4160 Oct 05 09:50 | 14° ° 04'30 | -1°00'23 |
| max. Earth dist. | 4154 Mar 20 12:45 | 29° ✕ 36'53 | 31.01315 AU | min. Earth dist. | 4160 Oct 04 19:05 | 14° ° 05'31 | 28.94629 AU |
| | 4154 Mar 30 17:05 | 0° ° | | direct | 4160 Dec 23 00:07 | 12° ° 41'19 | |
| morning rise | 4154 Apr 04 10:51 | 0° ° 10'36 | | evening set | 4161 Mar 19 17:07 | 14° ° 34'39 | |
| retrograde | 4154 Jul 03 12:09 | 2° ° 07'57 | | | | | |
| opposition | 4154 Sep 22 02:51 | 0° ° 43'43 | -0°41'17 | conjunction | 4161 Apr 04 03:46 | 15° ° 09'31 | -0°57'50 |
| min. Earth dist. | 4154 Sep 21 14:06 | 0° ° 44'35 | 29.00918 AU | minimum elong | 4161 Apr 04 03:46 | 15° ° 09'31 | 0°57'50 |
| | 4154 Oct 20 03:09 | 30° ° 48' | | max. Earth dist. | 4161 Apr 04 19:55 | 15° ° 11'03 | 30.94018 AU |
| direct | 4154 Dec 10 04:01 | 29° ✕ 20'32 | | morning rise | 4161 Apr 19 16:55 | 15° ° 44'40 | |
| | 4155 Jan 27 21:44 | 0° ° | | retrograde | 4161 Jul 19 08:14 | 17° ° 42'48 | |
| evening set | 4155 Mar 07 01:13 | 1° ° 14'00 | | opposition | 4161 Oct 07 22:37 | 16° ° 18'03 | -1°03'17 |
| | | | | min. Earth dist. | 4161 Oct 07 06:15 | 16° ° 19'11 | 28.93511 AU |
| conjunction | 4155 Mar 22 10:17 | 1° ° 48'44 | -0°40'12 | direct | 4161 Dec 25 13:06 | 14° ° 54'50 | |
| minimum elong | 4155 Mar 22 10:17 | 1° ° 48'44 | 0°40'11 | evening set | 4162 Mar 22 03:59 | 16° ° 48'09 | |
| max. Earth dist. | 4155 Mar 22 22:44 | 1° ° 49'55 | 31.00482 AU | | | | |
| morning rise | 4155 Apr 06 21:41 | 2° ° 23'42 | | conjunction | 4162 Apr 06 14:43 | 17° ° 23'03 | -1°00'30 |
| retrograde | 4155 Jul 06 02:03 | 4° ° 21'12 | | minimum elong | 4162 Apr 06 14:43 | 17° ° 23'03 | 1°00'30 |
| opposition | 4155 Sep 24 16:05 | 2° ° 56'55 | -0°44'39 | max. Earth dist. | 4162 Apr 07 06:45 | 17° ° 24'34 | 30.92948 AU |
| min. Earth dist. | 4155 Sep 24 02:50 | 2° ° 57'50 | 29.00076 AU | morning rise | 4162 Apr 22 04:22 | 17° ° 58'14 | |
| direct | 4155 Dec 12 13:56 | 1° ° 33'47 | | retrograde | 4162 Jul 21 21:07 | 19° ° 56'27 | |
| evening set | 4156 Mar 08 11:42 | 3° ° 27'14 | | opposition | 4162 Oct 10 11:41 | 18° ° 31'38 | -1°06'05 |
| | | | | min. Earth dist. | 4162 Oct 09 19:17 | 18° ° 32'46 | 28.92516 AU |
| conjunction | 4156 Mar 23 21:07 | 4° ° 02'00 | -0°43'18 | direct | 4162 Dec 27 23:55 | 17° ° 08'26 | |
| minimum elong | 4156 Mar 23 21:07 | 4° ° 02'00 | 0°43'19 | evening set | 4163 Mar 24 14:37 | 19° ° 01'43 | |
| max. Earth dist. | 4156 Mar 24 10:57 | 4° ° 03'19 | 30.99597 AU | | | | |
| morning rise | 4156 Apr 08 08:40 | 4° ° 37'00 | | conjunction | 4163 Apr 09 01:49 | 19° ° 36'39 | -1°03'05 |
| retrograde | 4156 Jul 07 13:25 | 6° ° 34'38 | | minimum elong | 4163 Apr 09 01:49 | 19° ° 36'39 | 1°03'04 |
| opposition | 4156 Sep 26 05:11 | 5° ° 10'19 | -0°47'57 | max. Earth dist. | 4163 Apr 09 19:45 | 19° ° 38'21 | 30.92012 AU |

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|------------------|-------------------|----------------------------------|------------------|-------------------|--------------------------------|
| morning rise | 4163 Apr 24 15:39 | 20° Υ 11'52 | direct | 4170 Jan 12 05:58 | 2° δ 48'01 |
| retrograde | 4163 Jul 24 09:10 | 22° Υ 10'11 | evening set | 4170 Apr 08 21:35 | 4° δ 41'26 |
| min. Earth dist. | 4163 Oct 12 07:03 | 20° Υ 46'32 28.91646 AU | | | |
| opposition | 4163 Oct 13 00:35 | 20° Υ 45'19 -1°08'48 | conjunction | 4170 Apr 24 11:03 | 5° δ 16'33 -1°18'18 |
| direct | 4163 Dec 30 12:36 | 19° Υ 22'07 | minimum elong | 4170 Apr 24 11:03 | 5° δ 16'33 1°18'19 |
| evening set | 4164 Mar 26 01:37 | 21° Υ 15'25 | max. Earth dist. | 4170 Apr 25 07:32 | 5° δ 18'29 30.87593 AU |
| | | | morning rise | 4170 May 10 03:32 | 5° δ 51'59 |
| conjunction | 4164 Apr 10 12:58 | 21° Υ 50'22 -1°05'34 | retrograde | 4170 Aug 09 06:25 | 7° δ 50'56 |
| minimum elong | 4164 Apr 10 12:58 | 21° Υ 50'22 1°05'34 | opposition | 4170 Oct 28 18:56 | 6° δ 25'55 -1°24'41 |
| max. Earth dist. | 4164 Apr 11 06:33 | 21° Υ 52'02 30.91211 AU | min. Earth dist. | 4170 Oct 27 23:00 | 6° δ 27'17 28.87284 AU |
| morning rise | 4164 Apr 26 03:20 | 22° Υ 25'37 | direct | 4171 Jan 14 19:03 | 5° δ 02'47 |
| retrograde | 4164 Jul 25 22:50 | 24° Υ 24'02 | evening set | 4171 Apr 11 09:18 | 6° δ 56'11 |
| opposition | 4164 Oct 14 13:23 | 22° Υ 59'08 -1°11'24 | | | |
| min. Earth dist. | 4164 Oct 13 19:19 | 23° Υ 00'23 28.90917 AU | conjunction | 4171 Apr 26 23:01 | 7° δ 31'19 -1°20'02 |
| direct | 4164 Dec 31 22:44 | 21° Υ 35'57 | minimum elong | 4171 Apr 26 23:01 | 7° δ 31'19 1°20'02 |
| evening set | 4165 Mar 28 12:34 | 23° Υ 29'16 | max. Earth dist. | 4171 Apr 27 18:39 | 7° δ 33'11 30.86804 AU |
| | | | morning rise | 4171 May 12 16:06 | 8° δ 06'47 |
| conjunction | 4165 Apr 13 00:21 | 24° Υ 04'15 -1°07'57 | retrograde | 4171 Aug 11 20:44 | 10° δ 05'46 |
| minimum elong | 4165 Apr 13 00:21 | 24° Υ 04'15 1°07'57 | opposition | 4171 Oct 31 07:55 | 8° δ 40'40 -1°26'28 |
| max. Earth dist. | 4165 Apr 13 19:30 | 24° Υ 06'04 30.90527 AU | min. Earth dist. | 4171 Oct 30 12:45 | 8° δ 42'00 28.86464 AU |
| morning rise | 4165 Apr 28 14:57 | 24° Υ 39'32 | direct | 4172 Jan 17 06:54 | 7° δ 17'30 |
| retrograde | 4165 Jul 28 09:38 | 26° Υ 38'03 | evening set | 4172 Apr 12 21:01 | 9° δ 10'52 |
| min. Earth dist. | 4165 Oct 16 07:53 | 25° Υ 14'25 28.90284 AU | | | |
| opposition | 4165 Oct 17 02:17 | 25° Υ 13'08 -1°13'54 | conjunction | 4172 Apr 28 11:18 | 9° δ 46'02 -1°21'39 |
| direct | 4166 Jan 03 10:13 | 23° Υ 50'00 | minimum elong | 4172 Apr 28 11:18 | 9° δ 46'02 1°21'39 |
| evening set | 4166 Mar 30 23:36 | 25° Υ 43'19 | max. Earth dist. | 4172 Apr 29 08:08 | 9° δ 48'01 30.85954 AU |
| | | | morning rise | 4172 May 14 04:38 | 10° δ 21'32 |
| conjunction | 4166 Apr 15 11:36 | 26° Υ 18'19 -1°10'14 | retrograde | 4172 Aug 13 09:47 | 12° δ 20'30 |
| minimum elong | 4166 Apr 15 11:36 | 26° Υ 18'19 1°10'15 | opposition | 4172 Nov 01 20:31 | 10° δ 55'21 -1°28'07 |
| max. Earth dist. | 4166 Apr 16 06:37 | 26° Υ 20'07 30.89944 AU | min. Earth dist. | 4172 Nov 01 00:50 | 10° δ 56'42 28.85600 AU |
| morning rise | 4166 May 01 02:40 | 26° Υ 53'38 | direct | 4173 Jan 18 20:42 | 9° δ 32'07 |
| retrograde | 4166 Jul 30 23:49 | 28° Υ 52'16 | evening set | 4173 Apr 15 08:53 | 11° δ 25'28 |
| opposition | 4166 Oct 19 15:12 | 27° Υ 27'21 -1°16'18 | | | |
| min. Earth dist. | 4166 Oct 18 19:43 | 27° Υ 28'42 28.89737 AU | conjunction | 4173 Apr 30 23:23 | 12° δ 00'39 -1°23'08 |
| direct | 4167 Jan 05 20:04 | 26° Υ 04'14 | minimum elong | 4173 Apr 30 23:23 | 12° δ 00'39 1°23'08 |
| evening set | 4167 Apr 02 10:53 | 27° Υ 57'34 | max. Earth dist. | 4173 May 01 19:24 | 12° δ 02'33 30.85100 AU |
| | | | morning rise | 4173 May 16 17:19 | 12° δ 36'11 |
| conjunction | 4167 Apr 17 23:14 | 28° Υ 32'37 -1°12'25 | retrograde | 4173 Aug 15 23:07 | 14° δ 35'10 |
| minimum elong | 4167 Apr 17 23:14 | 28° Υ 32'37 1°12'25 | opposition | 4173 Nov 04 09:15 | 13° δ 09'56 -1°29'39 |
| max. Earth dist. | 4167 Apr 18 19:10 | 28° Υ 34'30 30.89406 AU | min. Earth dist. | 4173 Nov 03 13:31 | 13° δ 11'18 28.84777 AU |
| morning rise | 4167 May 03 14:38 | 29° Υ 07'57 | direct | 4174 Jan 21 07:45 | 11° δ 46'40 |
| | 4167 May 28 17:59 | 0° δ | evening set | 4174 Apr 17 20:31 | 13° δ 39'58 |
| retrograde | 4167 Aug 02 12:10 | 1° δ 06'42 | | | |
| | 4167 Oct 11 01:56 | 30° κ Υ | conjunction | 4174 May 03 11:32 | 14° δ 15'12 -1°24'30 |
| min. Earth dist. | 4167 Oct 21 09:19 | 29° Υ 43'04 28.89213 AU | minimum elong | 4174 May 03 11:31 | 14° δ 15'12 1°24'30 |
| opposition | 4167 Oct 22 04:10 | 29° Υ 41'46 -1°18'34 | max. Earth dist. | 4174 May 04 08:53 | 14° δ 17'13 30.84301 AU |
| direct | 4168 Jan 08 06:12 | 28° Υ 18'41 | morning rise | 4174 May 19 05:43 | 14° δ 50'45 |
| | 4168 Mar 29 10:20 | 0° δ | | 4174 May 23 10:50 | 15° δ |
| evening set | 4168 Apr 03 22:17 | 0° δ 12'03 | retrograde | 4174 Aug 18 10:18 | 16° δ 49'45 |
| | | | opposition | 4174 Nov 06 21:56 | 15° δ 24'27 -1°31'02 |
| conjunction | 4168 Apr 19 11:01 | 0° δ 47'06 -1°14'30 | min. Earth dist. | 4174 Nov 06 02:02 | 15° δ 25'51 28.84027 AU |
| minimum elong | 4168 Apr 19 11:01 | 0° δ 47'06 1°14'31 | | 4174 Nov 21 18:30 | 15° κ δ |
| max. Earth dist. | 4168 Apr 20 07:10 | 0° δ 49'01 30.88879 AU | direct | 4175 Jan 23 20:11 | 14° δ 01'09 |
| morning rise | 4168 May 05 02:48 | 1° δ 22'29 | | 4175 Mar 24 17:23 | 15° δ |
| retrograde | 4168 Aug 04 02:56 | 3° δ 21'19 | evening set | 4175 Apr 20 08:26 | 15° δ 54'27 |
| opposition | 4168 Oct 23 17:02 | 1° δ 56'22 -1°20'44 | | | |
| min. Earth dist. | 4168 Oct 22 21:07 | 1° δ 57'45 28.88662 AU | conjunction | 4175 May 05 23:46 | 16° δ 29'42 -1°25'44 |
| direct | 4169 Jan 09 18:53 | 0° δ 33'17 | minimum elong | 4175 May 05 23:46 | 16° δ 29'42 1°25'43 |
| evening set | 4169 Apr 06 09:57 | 2° δ 26'41 | max. Earth dist. | 4175 May 06 20:43 | 16° δ 31'41 30.83614 AU |
| | | | morning rise | 4175 May 21 18:30 | 17° δ 05'17 |
| conjunction | 4169 Apr 21 22:55 | 3° δ 01'47 -1°16'28 | retrograde | 4175 Aug 21 00:29 | 19° δ 04'19 |
| minimum elong | 4169 Apr 21 22:55 | 3° δ 01'47 1°16'27 | opposition | 4175 Nov 09 10:25 | 17° δ 38'58 -1°32'17 |
| max. Earth dist. | 4169 Apr 22 18:47 | 3° δ 03'39 30.88277 AU | min. Earth dist. | 4175 Nov 08 13:39 | 17° δ 40'25 28.83408 AU |
| morning rise | 4169 May 07 15:08 | 3° δ 37'11 | direct | 4176 Jan 26 06:43 | 16° δ 15'38 |
| retrograde | 4169 Aug 06 16:42 | 5° δ 36'05 | evening set | 4176 Apr 21 20:22 | 18° δ 08'57 |
| min. Earth dist. | 4169 Oct 25 11:06 | 4° δ 12'25 28.88025 AU | | | |
| opposition | 4169 Oct 26 06:01 | 4° δ 11'07 -1°22'46 | conjunction | 4176 May 07 12:10 | 18° δ 44'14 -1°26'50 |

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| minimum elong | 4176 May 07 12:10 | 18° 8 44'14 | 1°26'51 | morning rise | 4182 Jun 06 14:19 | 2° II 50'26 | |
| max. Earth dist. | 4176 May 08 09:57 | 18° 8 46'18 | 30.83046 AU | retrograde | 4182 Sep 06 00:36 | 4° II 49'39 | |
| morning rise | 4176 May 23 07:17 | 19° 8 19'51 | | min. Earth dist. | 4182 Nov 24 05:32 | 3° II 25'49 | 28.81360 AU |
| retrograde | 4176 Aug 22 12:04 | 21° 8 18'54 | | opposition | 4182 Nov 25 01:41 | 3° II 24'24 | -1°36'59 |
| opposition | 4176 Nov 10 23:00 | 19° 8 53'33 | -1°33'23 | direct | 4183 Feb 10 16:16 | 2° II 01'04 | |
| min. Earth dist. | 4176 Nov 10 02:45 | 19° 8 54'58 | 28.82908 AU | evening set | 4183 May 08 10:50 | 3° II 54'42 | |
| direct | 4177 Jan 27 17:23 | 18° 8 30'12 | | | | | |
| evening set | 4177 Apr 24 08:19 | 20° 8 23'33 | | conjunction | 4183 May 24 05:49 | 4° II 30'12 | -1°30'45 |
| | | | | minimum elong | 4183 May 24 05:49 | 4° II 30'12 | 1°30'45 |
| conjunction | 4177 May 10 00:33 | 20° 8 58'51 | -1°27'48 | max. Earth dist. | 4183 May 25 03:39 | 4° II 32'16 | 30.81061 AU |
| minimum elong | 4177 May 10 00:33 | 20° 8 58'51 | 1°27'48 | morning rise | 4183 Jun 09 03:57 | 5° II 06'03 | |
| max. Earth dist. | 4177 May 10 22:35 | 21° 8 00'56 | 30.82617 AU | retrograde | 4183 Sep 08 13:13 | 7° II 05'13 | |
| morning rise | 4177 May 25 20:05 | 21° 8 34'30 | | opposition | 4183 Nov 27 13:57 | 5° II 39'58 | -1°37'04 |
| retrograde | 4177 Aug 25 01:57 | 23° 8 33'35 | | min. Earth dist. | 4183 Nov 26 18:21 | 5° II 41'20 | 28.80939 AU |
| opposition | 4177 Nov 13 11:24 | 22° 8 08'14 | -1°34'21 | direct | 4184 Feb 13 05:28 | 4° II 16'35 | |
| min. Earth dist. | 4177 Nov 12 13:57 | 22° 8 09'44 | 28.82540 AU | evening set | 4184 May 09 23:39 | 6° II 10'13 | |
| direct | 4178 Jan 30 05:21 | 20° 8 44'53 | | | | | |
| evening set | 4178 Apr 26 20:26 | 22° 8 38'17 | | conjunction | 4184 May 25 19:03 | 6° II 45'45 | -1°30'45 |
| | | | | minimum elong | 4184 May 25 19:03 | 6° II 45'45 | 1°30'46 |
| conjunction | 4178 May 12 13:02 | 23° 8 13'37 | -1°28'38 | max. Earth dist. | 4184 May 26 15:37 | 6° II 47'42 | 30.80615 AU |
| minimum elong | 4178 May 12 13:02 | 23° 8 13'37 | 1°28'39 | morning rise | 4184 Jun 10 17:46 | 7° II 21'37 | |
| max. Earth dist. | 4178 May 13 11:03 | 23° 8 15'42 | 30.82301 AU | retrograde | 4184 Sep 10 04:02 | 9° II 20'45 | |
| morning rise | 4178 May 28 09:04 | 23° 8 49'17 | | min. Earth dist. | 4184 Nov 28 06:26 | 7° II 56'49 | 28.80467 AU |
| retrograde | 4178 Aug 27 15:07 | 25° 8 48'25 | | opposition | 4184 Nov 29 02:11 | 7° II 55'26 | -1°37'00 |
| opposition | 4178 Nov 15 23:59 | 24° 8 23'05 | -1°35'11 | direct | 4185 Feb 14 17:04 | 6° II 32'00 | |
| min. Earth dist. | 4178 Nov 15 03:23 | 24° 8 24'31 | 28.82283 AU | evening set | 4185 May 12 12:21 | 8° II 25'37 | |
| direct | 4179 Feb 01 15:31 | 22° 8 59'45 | | | | | |
| evening set | 4179 Apr 29 08:31 | 24° 8 53'12 | | conjunction | 4185 May 28 08:13 | 9° II 01'11 | -1°30'38 |
| | | | | minimum elong | 4185 May 28 08:13 | 9° II 01'11 | 1°30'37 |
| conjunction | 4179 May 15 01:42 | 25° 8 28'34 | -1°29'20 | max. Earth dist. | 4185 May 29 05:09 | 9° II 03'10 | 30.80125 AU |
| minimum elong | 4179 May 15 01:42 | 25° 8 28'34 | 1°29'20 | morning rise | 4185 Jun 13 07:17 | 9° II 37'05 | |
| max. Earth dist. | 4179 May 16 00:28 | 25° 8 30'43 | 30.82089 AU | retrograde | 4185 Sep 12 14:39 | 11° II 36'09 | |
| morning rise | 4179 May 30 22:05 | 26° 8 04'16 | | opposition | 4185 Dec 01 14:22 | 10° II 10'48 | -1°36'47 |
| retrograde | 4179 Aug 30 05:25 | 28° 8 03'26 | | min. Earth dist. | 4185 Nov 30 19:35 | 10° II 12'07 | 28.79985 AU |
| opposition | 4179 Nov 18 12:23 | 26° 8 38'08 | -1°35'51 | direct | 4186 Feb 17 04:42 | 8° II 47'17 | |
| min. Earth dist. | 4179 Nov 17 14:49 | 26° 8 39'39 | 28.82089 AU | evening set | 4186 May 15 01:04 | 10° II 40'54 | |
| direct | 4180 Feb 04 03:59 | 25° 8 14'49 | | | | | |
| evening set | 4180 Apr 30 21:02 | 27° 8 08'20 | | conjunction | 4186 May 30 21:28 | 11° II 16'30 | -1°30'22 |
| | | | | minimum elong | 4186 May 30 21:28 | 11° II 16'30 | 1°30'23 |
| conjunction | 4180 May 16 14:29 | 27° 8 43'44 | -1°29'54 | max. Earth dist. | 4186 May 31 18:06 | 11° II 18'27 | 30.79679 AU |
| minimum elong | 4180 May 16 14:29 | 27° 8 43'44 | 1°29'54 | morning rise | 4186 Jun 15 20:59 | 11° II 52'24 | |
| max. Earth dist. | 4180 May 17 12:19 | 27° 8 45'48 | 30.81905 AU | retrograde | 4186 Sep 15 03:30 | 13° II 51'24 | |
| morning rise | 4180 Jun 01 11:27 | 28° 8 19'29 | | min. Earth dist. | 4186 Dec 03 06:47 | 12° II 27'24 | 28.79573 AU |
| | 4180 Jul 28 21:43 | 0° II | | opposition | 4186 Dec 04 02:19 | 12° II 26'01 | -1°36'26 |
| retrograde | 4180 Aug 31 20:23 | 0° II 18'41 | | direct | 4187 Feb 19 16:37 | 11° II 02'26 | |
| | 4180 Oct 05 07:31 | 30° R 8 | | evening set | 4187 May 17 13:52 | 12° II 56'03 | |
| min. Earth dist. | 4180 Nov 19 04:13 | 28° 8 54'50 | 28.81911 AU | | | | |
| opposition | 4180 Nov 20 00:45 | 28° 8 53'24 | -1°36'22 | conjunction | 4187 Jun 02 10:40 | 13° II 31'40 | -1°29'58 |
| direct | 4181 Feb 05 15:23 | 27° 8 30'06 | | minimum elong | 4187 Jun 02 10:40 | 13° II 31'40 | 1°29'57 |
| evening set | 4181 May 03 09:30 | 29° 8 23'40 | | max. Earth dist. | 4187 Jun 03 07:05 | 13° II 33'36 | 30.79306 AU |
| | | | | morning rise | 4187 Jun 18 10:42 | 14° II 07'36 | |
| conjunction | 4181 May 19 03:34 | 29° 8 59'07 | -1°30'19 | retrograde | 4187 Sep 17 15:35 | 16° II 06'32 | |
| minimum elong | 4181 May 19 03:34 | 29° 8 59'07 | 1°30'19 | opposition | 4187 Dec 06 14:22 | 14° II 41'07 | -1°35'56 |
| | 4181 May 19 12:58 | 0° II | | min. Earth dist. | 4187 Dec 05 19:55 | 14° II 42'25 | 28.79262 AU |
| max. Earth dist. | 4181 May 20 02:15 | 0° II 01'15 | 30.81706 AU | direct | 4188 Feb 22 02:28 | 13° II 17'28 | |
| morning rise | 4181 Jun 04 00:47 | 0° II 34'53 | | evening set | 4188 May 19 02:39 | 15° II 11'06 | |
| retrograde | 4181 Sep 03 10:32 | 2° II 34'06 | | | | | |
| opposition | 4181 Nov 22 13:09 | 1° II 08'51 | -1°36'45 | conjunction | 4188 Jun 04 00:03 | 15° II 46'44 | -1°29'25 |
| min. Earth dist. | 4181 Nov 21 16:26 | 1° II 10'18 | 28.81675 AU | minimum elong | 4188 Jun 04 00:03 | 15° II 46'44 | 1°29'26 |
| | 4182 Jan 09 18:17 | 30° R 8 | | max. Earth dist. | 4188 Jun 04 20:54 | 15° II 48'42 | 30.79062 AU |
| direct | 4182 Feb 08 05:08 | 29° 8 45'33 | | morning rise | 4188 Jun 20 00:24 | 16° II 22'41 | |
| | 4182 Mar 09 01:42 | 0° II | | retrograde | 4188 Sep 19 04:33 | 18° II 21'33 | |
| evening set | 4182 May 05 22:08 | 1° II 39'09 | | min. Earth dist. | 4188 Dec 07 06:41 | 16° II 57'30 | 28.79082 AU |
| | | | | opposition | 4188 Dec 08 02:03 | 16° II 56'08 | -1°35'17 |
| conjunction | 4182 May 21 16:30 | 2° II 14'38 | -1°30'36 | direct | 4189 Feb 23 15:10 | 15° II 32'25 | |
| minimum elong | 4182 May 21 16:30 | 2° II 14'38 | 1°30'37 | evening set | 4189 May 21 15:35 | 17° II 26'05 | |
| max. Earth dist. | 4182 May 22 13:46 | 2° II 16'38 | 30.81433 AU | | | | |

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| conjunction | 4189 Jun 06 13:18 | 18°II01'45 | -1°28'45 | retrograde | 4195 Oct 06 03:28 | 4°☾07'26 | |
| minimum elong | 4189 Jun 06 13:18 | 18°II01'45 | 1°28'44 | opposition | 4195 Dec 24 12:17 | 2°☾42'18 | -1°26'42 |
| max. Earth dist. | 4189 Jun 07 09:17 | 18°II03'37 | 30.78958 AU | min. Earth dist. | 4195 Dec 23 19:37 | 2°☾43'28 | 28.80564 AU |
| morning rise | 4189 Jun 22 14:13 | 18°II37'43 | | direct | 4196 Mar 11 02:56 | 1°☾18'27 | |
| retrograde | 4189 Sep 21 17:58 | 20°II36'31 | | evening set | 4196 Jun 06 12:06 | 3°☾12'27 | |
| opposition | 4189 Dec 10 14:00 | 19°II11'06 | -1°34'29 | | | | |
| min. Earth dist. | 4189 Dec 09 19:25 | 19°II12'24 | 28.79063 AU | conjunction | 4196 Jun 22 13:11 | 3°☾48'19 | -1°20'16 |
| direct | 4190 Feb 26 02:18 | 17°II47'20 | | minimum elong | 4196 Jun 22 13:11 | 3°☾48'19 | 1°20'17 |
| evening set | 4190 May 24 04:15 | 19°II41'02 | | max. Earth dist. | 4196 Jun 23 06:25 | 3°☾49'56 | 30.80554 AU |
| | | | | morning rise | 4196 Jul 08 16:52 | 4°☾24'27 | |
| conjunction | 4190 Jun 09 02:39 | 20°II16'44 | -1°27'56 | retrograde | 4196 Oct 07 15:28 | 6°☾22'45 | |
| minimum elong | 4190 Jun 09 02:39 | 20°II16'44 | 1°27'57 | opposition | 4196 Dec 25 23:53 | 4°☾57'38 | -1°24'55 |
| max. Earth dist. | 4190 Jun 09 23:41 | 20°II18'43 | 30.79017 AU | min. Earth dist. | 4196 Dec 25 08:56 | 4°☾58'42 | 28.80686 AU |
| morning rise | 4190 Jun 25 03:51 | 20°II52'43 | | direct | 4197 Mar 13 12:54 | 3°☾33'44 | |
| retrograde | 4190 Sep 24 07:09 | 22°II51'27 | | evening set | 4197 Jun 09 01:30 | 5°☾27'45 | |
| min. Earth dist. | 4190 Dec 12 06:45 | 21°II27'25 | 28.79184 AU | | | | |
| opposition | 4190 Dec 13 01:47 | 21°II26'04 | -1°33'32 | conjunction | 4197 Jun 25 03:09 | 6°☾03'39 | -1°18'33 |
| direct | 4191 Feb 28 15:30 | 20°II02'18 | | minimum elong | 4197 Jun 25 03:09 | 6°☾03'39 | 1°18'33 |
| evening set | 4191 May 26 17:22 | 21°II56'02 | | max. Earth dist. | 4197 Jun 25 20:05 | 6°☾05'15 | 30.80669 AU |
| | | | | morning rise | 4197 Jul 11 07:08 | 6°☾39'48 | |
| conjunction | 4191 Jun 11 16:05 | 22°II31'46 | -1°26'59 | retrograde | 4197 Oct 10 03:48 | 8°☾37'59 | |
| minimum elong | 4191 Jun 11 16:06 | 22°II31'46 | 1°26'59 | opposition | 4197 Dec 28 11:17 | 7°☾12'53 | -1°23'01 |
| max. Earth dist. | 4191 Jun 12 11:55 | 22°II33'37 | 30.79213 AU | min. Earth dist. | 4197 Dec 27 19:54 | 7°☾13'59 | 28.80784 AU |
| morning rise | 4191 Jun 27 17:54 | 23°II07'47 | | direct | 4198 Mar 16 01:47 | 5°☾48'55 | |
| retrograde | 4191 Sep 26 21:33 | 25°II06'27 | | evening set | 4198 Jun 11 14:55 | 7°☾42'58 | |
| opposition | 4191 Dec 15 13:29 | 23°II41'07 | -1°32'27 | | | | |
| min. Earth dist. | 4191 Dec 14 19:00 | 23°II42'25 | 28.79439 AU | conjunction | 4198 Jun 27 16:53 | 8°☾18'53 | -1°16'43 |
| direct | 4192 Mar 02 02:12 | 22°II17'19 | | minimum elong | 4198 Jun 27 16:53 | 8°☾18'53 | 1°16'44 |
| evening set | 4192 May 28 06:28 | 24°II11'07 | | max. Earth dist. | 4198 Jun 28 08:31 | 8°☾20'21 | 30.80775 AU |
| | | | | morning rise | 4198 Jul 13 21:22 | 8°☾55'02 | |
| conjunction | 4192 Jun 13 05:49 | 24°II46'53 | -1°25'54 | retrograde | 4198 Oct 12 16:03 | 10°☾53'07 | |
| minimum elong | 4192 Jun 13 05:49 | 24°II46'53 | 1°25'55 | opposition | 4198 Dec 30 22:45 | 9°☾28'01 | -1°21'00 |
| max. Earth dist. | 4192 Jun 14 02:23 | 24°II48'49 | 30.79506 AU | min. Earth dist. | 4198 Dec 30 08:41 | 9°☾29'01 | 28.80910 AU |
| morning rise | 4192 Jun 29 07:52 | 25°II22'56 | | direct | 4199 Mar 18 12:46 | 8°☾03'59 | |
| retrograde | 4192 Sep 28 11:01 | 27°II21'33 | | evening set | 4199 Jun 14 04:22 | 9°☾58'03 | |
| min. Earth dist. | 4192 Dec 16 07:15 | 25°II57'32 | 28.79754 AU | | | | |
| opposition | 4192 Dec 17 01:13 | 25°II56'16 | -1°31'13 | conjunction | 4199 Jun 30 06:57 | 10°☾33'59 | -1°14'46 |
| direct | 4193 Mar 04 15:29 | 24°II32'29 | | minimum elong | 4199 Jun 30 06:57 | 10°☾33'59 | 1°14'46 |
| evening set | 4193 May 30 19:41 | 26°II26'20 | | max. Earth dist. | 4199 Jun 30 23:03 | 10°☾35'30 | 30.80933 AU |
| | | | | morning rise | 4199 Jul 16 11:37 | 11°☾10'09 | |
| conjunction | 4193 Jun 15 19:22 | 27°II02'08 | -1°24'41 | retrograde | 4199 Oct 15 04:23 | 13°☾08'06 | |
| minimum elong | 4193 Jun 15 19:22 | 27°II02'08 | 1°24'41 | opposition | 4200 Jan 02 09:52 | 11°☾43'02 | -1°18'51 |
| max. Earth dist. | 4193 Jun 16 14:32 | 27°II03'56 | 30.79844 AU | min. Earth dist. | 4200 Jan 01 19:44 | 11°☾44'02 | 28.81098 AU |
| morning rise | 4193 Jul 01 21:55 | 27°II38'12 | | direct | 4200 Mar 21 01:39 | 10°☾18'55 | |
| retrograde | 4193 Oct 01 01:52 | 29°II36'46 | | evening set | 4200 Jun 16 17:58 | 12°☾13'02 | |
| opposition | 4193 Dec 19 12:56 | 28°II11'32 | -1°29'51 | | | | |
| min. Earth dist. | 4193 Dec 18 19:01 | 28°II12'48 | 28.80088 AU | conjunction | 4200 Jul 02 20:48 | 12°☾48'59 | -1°12'43 |
| direct | 4194 Mar 07 03:15 | 26°II47'45 | | minimum elong | 4200 Jul 02 20:48 | 12°☾48'59 | 1°12'43 |
| evening set | 4194 Jun 02 09:04 | 28°II41'40 | | max. Earth dist. | 4200 Jul 03 11:24 | 12°☾50'21 | 30.81177 AU |
| | | | | morning rise | 4200 Jul 19 01:57 | 13°☾25'10 | |
| conjunction | 4194 Jun 18 09:16 | 29°II17'30 | -1°23'20 | retrograde | 4200 Oct 17 18:03 | 15°☾23'00 | |
| minimum elong | 4194 Jun 18 09:17 | 29°II17'30 | 1°23'21 | opposition | 4201 Jan 04 21:07 | 13°☾57'56 | -1°16'35 |
| max. Earth dist. | 4194 Jun 19 04:27 | 29°II19'18 | 30.80151 AU | min. Earth dist. | 4201 Jan 04 07:39 | 13°☾58'53 | 28.81407 AU |
| morning rise | 4194 Jul 04 12:08 | 29°II53'35 | | direct | 4201 Mar 23 12:27 | 12°☾33'47 | |
| | 4194 Jul 07 10:37 | 0°☾ | | evening set | 4201 Jun 19 07:15 | 14°☾27'56 | |
| retrograde | 4194 Oct 03 13:40 | 1°☾52'05 | | | | | |
| min. Earth dist. | 4194 Dec 21 08:10 | 0°☾28'04 | 28.80365 AU | conjunction | 4201 Jul 05 10:38 | 15°☾03'54 | -1°10'32 |
| opposition | 4194 Dec 22 00:40 | 0°☾26'55 | -1°28'20 | minimum elong | 4201 Jul 05 10:38 | 15°☾03'54 | 1°10'32 |
| | 4195 Jan 07 04:49 | 30°☾II | | max. Earth dist. | 4201 Jul 06 02:01 | 15°☾05'21 | 30.81548 AU |
| direct | 4195 Mar 09 14:54 | 29°II03'07 | | morning rise | 4201 Jul 21 15:55 | 15°☾40'05 | |
| | 4195 May 07 16:38 | 0°☾ | | retrograde | 4201 Oct 20 07:05 | 17°☾37'48 | |
| evening set | 4195 Jun 04 22:32 | 0°☾57'04 | | opposition | 4202 Jan 07 08:19 | 16°☾12'47 | -1°14'13 |
| | | | | min. Earth dist. | 4202 Jan 06 19:13 | 16°☾13'42 | 28.81843 AU |
| conjunction | 4195 Jun 20 23:14 | 1°☾32'55 | -1°21'52 | direct | 4202 Mar 26 02:21 | 14°☾48'36 | |
| minimum elong | 4195 Jun 20 23:14 | 1°☾32'55 | 1°21'52 | evening set | 4202 Jun 21 20:48 | 16°☾42'46 | |
| max. Earth dist. | 4195 Jun 21 17:18 | 1°☾34'37 | 30.80401 AU | | | | |
| morning rise | 4195 Jul 07 02:32 | 2°☾09'01 | | conjunction | 4202 Jul 08 00:28 | 17°☾18'47 | -1°08'16 |

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| minimum elong | 4202 Jul 08 00:29 | 17°☾18'47 | 1°08'17 | opposition | 4209 Jan 22 13:37 | 1°♄57'27 | -0°54'34 |
| max. Earth dist. | 4202 Jul 08 14:27 | 17°☾20'05 | 30.82074 AU | min. Earth dist. | 4209 Jan 22 05:00 | 1°♄58'03 | 28.87156 AU |
| morning rise | 4202 Jul 24 06:13 | 17°☾54'58 | | direct | 4209 Apr 10 11:46 | 0°♄33'08 | |
| retrograde | 4202 Oct 22 21:02 | 19°☾52'34 | | evening set | 4209 Jul 07 21:21 | 2°♄27'40 | |
| opposition | 4203 Jan 09 19:21 | 18°☾27'36 | -1°11'43 | | | | |
| min. Earth dist. | 4203 Jan 09 06:08 | 18°☾28'32 | 28.82446 AU | conjunction | 4209 Jul 24 03:23 | 3°♄03'46 | -0°49'35 |
| direct | 4203 Mar 28 14:24 | 17°☾03'23 | | minimum elong | 4209 Jul 24 03:23 | 3°♄03'46 | 0°49'35 |
| evening set | 4203 Jun 24 10:21 | 18°☾57'37 | | max. Earth dist. | 4209 Jul 24 11:31 | 3°♄04'32 | 30.87433 AU |
| | | | | morning rise | 4209 Aug 09 10:41 | 3°♄40'00 | |
| conjunction | 4203 Jul 10 14:31 | 19°☾33'39 | -1°05'53 | retrograde | 4209 Nov 07 11:47 | 5°♄36'44 | |
| minimum elong | 4203 Jul 10 14:31 | 19°☾33'39 | 1°05'53 | opposition | 4210 Jan 25 00:37 | 4°♄12'15 | -0°51'24 |
| max. Earth dist. | 4203 Jul 11 04:47 | 19°☾34'59 | 30.82745 AU | min. Earth dist. | 4210 Jan 24 17:09 | 4°♄12'46 | 28.87748 AU |
| morning rise | 4203 Jul 26 20:26 | 20°☾09'51 | | direct | 4210 Apr 12 23:02 | 2°♄47'52 | |
| retrograde | 4203 Oct 25 09:05 | 22°☾07'20 | | evening set | 4210 Jul 10 11:11 | 4°♄42'26 | |
| opposition | 4204 Jan 12 06:30 | 20°☾42'27 | -1°09'07 | | | | |
| min. Earth dist. | 4204 Jan 11 18:26 | 20°☾43'18 | 28.83177 AU | conjunction | 4210 Jul 26 17:40 | 5°♄18'32 | -0°46'35 |
| direct | 4204 Mar 30 02:12 | 19°☾18'14 | | minimum elong | 4210 Jul 26 17:40 | 5°♄18'32 | 0°46'36 |
| evening set | 4204 Jun 25 23:59 | 21°☾12'32 | | max. Earth dist. | 4210 Jul 27 01:59 | 5°♄19'18 | 30.87999 AU |
| | | | | morning rise | 4210 Aug 12 00:58 | 5°♄54'45 | |
| conjunction | 4204 Jul 12 04:29 | 21°☾48'34 | -1°03'23 | retrograde | 4210 Nov 09 23:22 | 7°♄51'18 | |
| minimum elong | 4204 Jul 12 04:29 | 21°☾48'34 | 1°03'24 | opposition | 4211 Jan 27 11:21 | 6°♄26'51 | -0°48'10 |
| max. Earth dist. | 4204 Jul 12 17:47 | 21°☾49'49 | 30.83547 AU | min. Earth dist. | 4211 Jan 27 04:52 | 6°♄27'19 | 28.88291 AU |
| morning rise | 4204 Jul 28 10:43 | 22°☾24'47 | | direct | 4211 Apr 15 12:41 | 5°♄02'24 | |
| retrograde | 4204 Oct 26 23:30 | 24°☾22'09 | | evening set | 4211 Jul 13 01:09 | 6°♄56'59 | |
| opposition | 4205 Jan 13 17:26 | 22°☾57'21 | -1°06'24 | | | | |
| min. Earth dist. | 4205 Jan 13 05:04 | 22°☾58'14 | 28.84015 AU | conjunction | 4211 Jul 29 07:46 | 7°♄33'06 | -0°43'31 |
| direct | 4205 Apr 01 14:18 | 21°☾33'09 | | minimum elong | 4211 Jul 29 07:46 | 7°♄33'06 | 0°43'31 |
| evening set | 4205 Jun 28 13:45 | 23°☾27'31 | | max. Earth dist. | 4211 Jul 29 14:06 | 7°♄33'41 | 30.88551 AU |
| | | | | morning rise | 4211 Aug 14 15:21 | 8°♄09'18 | |
| conjunction | 4205 Jul 14 18:33 | 24°☾03'35 | -1°00'48 | retrograde | 4211 Nov 12 12:36 | 10°♄05'42 | |
| minimum elong | 4205 Jul 14 18:33 | 24°☾03'35 | 1°00'48 | opposition | 4212 Jan 29 22:05 | 8°♄41'15 | -0°44'51 |
| max. Earth dist. | 4205 Jul 15 07:19 | 24°☾04'46 | 30.84411 AU | min. Earth dist. | 4212 Jan 29 15:51 | 8°♄41'42 | 28.88851 AU |
| morning rise | 4205 Jul 31 01:00 | 24°☾39'48 | | direct | 4212 Apr 17 00:56 | 7°♄16'43 | |
| retrograde | 4205 Oct 29 11:36 | 26°☾37'04 | | evening set | 4212 Jul 14 14:53 | 9°♄11'20 | |
| opposition | 4206 Jan 16 04:33 | 25°☾12'22 | -1°03'35 | | | | |
| min. Earth dist. | 4206 Jan 15 17:56 | 25°☾13'07 | 28.84895 AU | conjunction | 4212 Jul 30 21:48 | 9°♄47'27 | -0°40'24 |
| direct | 4206 Apr 04 00:19 | 23°☾48'10 | | minimum elong | 4212 Jul 30 21:48 | 9°♄47'27 | 0°40'24 |
| evening set | 4206 Jul 01 03:28 | 25°☾42'35 | | max. Earth dist. | 4212 Jul 31 04:14 | 9°♄48'03 | 30.89121 AU |
| | | | | morning rise | 4212 Aug 16 05:18 | 10°♄23'38 | |
| conjunction | 4206 Jul 17 08:43 | 26°☾18'40 | -0°58'07 | retrograde | 4212 Nov 14 00:04 | 12°♄19'53 | |
| minimum elong | 4206 Jul 17 08:43 | 26°☾18'40 | 0°58'08 | opposition | 4213 Jan 31 08:46 | 10°♄55'28 | -0°41'29 |
| max. Earth dist. | 4206 Jul 17 20:52 | 26°☾19'48 | 30.85292 AU | min. Earth dist. | 4213 Jan 31 03:53 | 10°♄55'49 | 28.89451 AU |
| morning rise | 4206 Aug 02 15:22 | 26°☾54'53 | | direct | 4213 Apr 19 13:20 | 9°♄30'53 | |
| retrograde | 4206 Oct 31 23:37 | 28°☾52'03 | | evening set | 4213 Jul 17 04:38 | 11°♄25'31 | |
| opposition | 4207 Jan 18 15:34 | 27°☾27'26 | -1°00'40 | | | | |
| min. Earth dist. | 4207 Jan 18 04:51 | 27°☾28'11 | 28.85739 AU | conjunction | 4213 Aug 02 11:42 | 12°♄01'38 | -0°37'13 |
| direct | 4207 Apr 06 13:09 | 26°☾03'13 | | minimum elong | 4213 Aug 02 11:42 | 12°♄01'38 | 0°37'13 |
| evening set | 4207 Jul 03 17:33 | 27°☾57'41 | | max. Earth dist. | 4213 Aug 02 16:54 | 12°♄02'07 | 30.89776 AU |
| | | | | morning rise | 4213 Aug 18 19:23 | 12°♄37'49 | |
| conjunction | 4207 Jul 19 23:00 | 28°☾33'46 | -0°55'21 | retrograde | 4213 Nov 16 13:54 | 14°♄33'54 | |
| minimum elong | 4207 Jul 19 23:00 | 28°☾33'47 | 0°55'21 | opposition | 4214 Feb 02 19:18 | 13°♄09'31 | -0°38'03 |
| max. Earth dist. | 4207 Jul 20 09:22 | 28°☾34'45 | 30.86095 AU | min. Earth dist. | 4214 Feb 02 14:04 | 13°♄09'54 | 28.90154 AU |
| morning rise | 4207 Aug 05 05:56 | 29°☾10'00 | | direct | 4214 Apr 22 02:10 | 11°♄44'54 | |
| | 4207 Aug 29 16:39 | 0°♄ | | evening set | 4214 Jul 19 18:21 | 13°♄39'34 | |
| retrograde | 4207 Nov 03 11:27 | 1°♄07'02 | | | | | |
| | 4208 Jan 10 17:06 | 30°♄ | | conjunction | 4214 Aug 05 01:37 | 14°♄15'41 | -0°33'59 |
| opposition | 4208 Jan 21 02:36 | 29°☾42'29 | -0°57'39 | minimum elong | 4214 Aug 05 01:38 | 14°♄15'41 | 0°33'59 |
| min. Earth dist. | 4208 Jan 20 17:39 | 29°☾43'07 | 28.86501 AU | max. Earth dist. | 4214 Aug 05 06:30 | 14°♄16'08 | 30.90531 AU |
| direct | 4208 Apr 07 23:21 | 28°☾18'13 | | morning rise | 4214 Aug 21 09:20 | 14°♄51'52 | |
| | 4208 Jun 29 09:30 | 0°♄ | | | 4214 Aug 25 03:50 | 15°♄ | |
| evening set | 4208 Jul 05 07:28 | 0°♄12'45 | | retrograde | 4214 Nov 19 01:06 | 16°♄47'48 | |
| | | | | opposition | 4215 Feb 05 05:59 | 15°♄23'29 | -0°34'33 |
| conjunction | 4208 Jul 21 13:23 | 0°♄48'51 | -0°52'30 | min. Earth dist. | 4215 Feb 05 02:16 | 15°♄23'45 | 28.90973 AU |
| minimum elong | 4208 Jul 21 13:23 | 0°♄48'51 | 0°52'31 | | 4215 Feb 19 05:33 | 15°♄ | |
| max. Earth dist. | 4208 Jul 21 23:32 | 0°♄49'47 | 30.86811 AU | direct | 4215 Apr 24 13:01 | 13°♄58'50 | |
| morning rise | 4208 Aug 06 20:21 | 1°♄25'04 | | | 4215 Jun 25 18:36 | 15°♄ | |
| retrograde | 4208 Nov 04 23:23 | 3°♄21'57 | | evening set | 4215 Jul 22 08:07 | 15°♄53'33 | |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| conjunction | 4215 Aug 07 15:36 | 16°Ω29'41 | -0°30'41 | behind sun end | 4221 Aug 21 08:27 | 29°Ω54'55 | |
| minimum elong | 4215 Aug 07 15:36 | 16°Ω29'41 | 0°30'42 | max. Earth dist. | 4221 Aug 21 02:07 | 29°Ω54'21 | 30.97605 AU |
| max. Earth dist. | 4215 Aug 07 19:58 | 16°Ω30'05 | 30.91422 AU | | 4221 Aug 23 15:01 | 0°Π | |
| morning rise | 4215 Aug 23 23:19 | 17°Ω05'50 | | morning rise | 4221 Sep 06 10:32 | 0°Π30'31 | |
| retrograde | 4215 Nov 21 12:51 | 19°Ω01'38 | | retrograde | 4221 Dec 04 10:40 | 2°Π25'37 | |
| opposition | 4216 Feb 07 16:23 | 17°Ω37'25 | -0°31'01 | opposition | 4222 Feb 20 07:36 | 1°Π01'55 | -0°09'01 |
| min. Earth dist. | 4216 Feb 07 12:14 | 17°Ω37'43 | 28.91918 AU | min. Earth dist. | 4222 Feb 20 09:32 | 1°Π01'47 | 28.98016 AU |
| direct | 4216 Apr 26 01:39 | 16°Ω12'45 | | | 4222 Apr 02 06:34 | 30°℞Ω | |
| evening set | 4216 Jul 23 21:59 | 18°Ω07'33 | | direct | 4222 May 09 22:28 | 29°Ω37'12 | |
| | | | | | 4222 Jun 16 04:39 | 0°Π | |
| conjunction | 4216 Aug 09 05:30 | 18°Ω43'40 | -0°27'21 | evening set | 4222 Aug 07 09:11 | 1°Π32'22 | |
| minimum elong | 4216 Aug 09 05:30 | 18°Ω43'40 | 0°27'22 | | | | |
| max. Earth dist. | 4216 Aug 09 08:41 | 18°Ω43'57 | 30.92429 AU | conjunction | 4222 Aug 23 17:03 | 2°Π08'26 | -0°06'44 |
| morning rise | 4216 Aug 25 13:16 | 19°Ω19'49 | | minimum elong | 4222 Aug 23 17:04 | 2°Π08'26 | 0°06'44 |
| retrograde | 4216 Nov 23 00:30 | 21°Ω15'30 | | behind sun begin | 4222 Aug 23 10:55 | 2°Π07'54 | |
| opposition | 4217 Feb 09 03:02 | 19°Ω51'23 | -0°27'26 | behind sun end | 4222 Aug 23 23:12 | 2°Π08'59 | |
| min. Earth dist. | 4217 Feb 09 00:12 | 19°Ω51'35 | 28.92982 AU | max. Earth dist. | 4222 Aug 23 14:08 | 2°Π08'12 | 30.98406 AU |
| direct | 4217 Apr 28 11:12 | 18°Ω26'44 | | morning rise | 4222 Sep 09 00:22 | 2°Π44'29 | |
| evening set | 4217 Jul 26 11:33 | 20°Ω21'36 | | retrograde | 4222 Dec 07 00:10 | 4°Π39'26 | |
| | | | | opposition | 4223 Feb 22 17:57 | 3°Π15'45 | -0°05'17 |
| conjunction | 4217 Aug 11 19:20 | 20°Ω57'43 | -0°23'59 | min. Earth dist. | 4223 Feb 22 19:56 | 3°Π15'37 | 28.98775 AU |
| minimum elong | 4217 Aug 11 19:20 | 20°Ω57'43 | 0°23'59 | direct | 4223 May 12 12:23 | 1°Π50'58 | |
| max. Earth dist. | 4217 Aug 11 22:38 | 20°Ω58'01 | 30.93536 AU | evening set | 4223 Aug 09 23:01 | 3°Π46'09 | |
| morning rise | 4217 Aug 28 03:00 | 21°Ω33'52 | | | | | |
| retrograde | 4217 Nov 25 11:53 | 23°Ω29'27 | | conjunction | 4223 Aug 26 06:54 | 4°Π22'14 | -0°03'15 |
| opposition | 4218 Feb 11 13:31 | 22°Ω05'26 | -0°23'48 | minimum elong | 4223 Aug 26 06:53 | 4°Π22'14 | 0°03'15 |
| min. Earth dist. | 4218 Feb 11 10:56 | 22°Ω05'37 | 28.94098 AU | behind sun begin | 4223 Aug 26 00:19 | 4°Π21'39 | |
| direct | 4218 Apr 30 22:41 | 20°Ω40'48 | | behind sun end | 4223 Aug 26 13:27 | 4°Π22'48 | |
| evening set | 4218 Jul 29 01:34 | 22°Ω35'45 | | max. Earth dist. | 4223 Aug 26 03:20 | 4°Π21'57 | 30.99132 AU |
| | | | | morning rise | 4223 Sep 11 13:56 | 4°Π58'14 | |
| conjunction | 4218 Aug 14 09:16 | 23°Ω11'52 | -0°20'34 | retrograde | 4223 Dec 09 10:36 | 6°Π53'01 | |
| minimum elong | 4218 Aug 14 09:16 | 23°Ω11'52 | 0°20'35 | opposition | 4224 Feb 25 04:21 | 5°Π29'22 | -0°01'33 |
| max. Earth dist. | 4218 Aug 14 10:38 | 23°Ω11'59 | 30.94660 AU | min. Earth dist. | 4224 Feb 25 08:11 | 5°Π29'06 | 28.99493 AU |
| morning rise | 4218 Aug 30 17:02 | 23°Ω48'00 | | direct | 4224 May 14 00:19 | 4°Π04'32 | |
| retrograde | 4218 Nov 27 23:36 | 25°Ω43'29 | | asc. node | 4224 Jul 26 01:49 | 5°Π25'27 | |
| opposition | 4219 Feb 13 23:59 | 24°Ω19'35 | -0°20'08 | evening set | 4224 Aug 11 12:41 | 5°Π59'44 | |
| min. Earth dist. | 4219 Feb 13 22:36 | 24°Ω19'41 | 28.95215 AU | | | | |
| direct | 4219 May 03 09:17 | 22°Ω54'57 | | conjunction | 4224 Aug 27 20:31 | 6°Π35'46 | 0°00'19 |
| evening set | 4219 Jul 31 15:30 | 24°Ω49'58 | | minimum elong | 4224 Aug 27 20:32 | 6°Π35'46 | 0°00'20 |
| | | | | behind sun begin | 4224 Aug 27 13:57 | 6°Π35'11 | |
| conjunction | 4219 Aug 16 23:25 | 25°Ω26'05 | -0°17'08 | behind sun end | 4224 Aug 28 03:06 | 6°Π36'21 | |
| minimum elong | 4219 Aug 16 23:25 | 25°Ω26'05 | 0°17'09 | max. Earth dist. | 4224 Aug 27 16:12 | 6°Π35'25 | 30.99857 AU |
| max. Earth dist. | 4219 Aug 17 00:49 | 25°Ω26'13 | 30.95740 AU | morning rise | 4224 Sep 13 03:25 | 7°Π11'45 | |
| morning rise | 4219 Sep 02 06:56 | 26°Ω02'12 | | retrograde | 4224 Dec 10 22:21 | 9°Π06'22 | |
| retrograde | 4219 Nov 30 10:34 | 27°Ω57'34 | | opposition | 4225 Feb 26 14:35 | 7°Π42'44 | 0°02'11 |
| opposition | 4220 Feb 16 10:35 | 26°Ω33'45 | -0°16'27 | min. Earth dist. | 4225 Feb 26 18:09 | 7°Π42'29 | 29.00223 AU |
| min. Earth dist. | 4220 Feb 16 10:20 | 26°Ω33'46 | 28.96247 AU | direct | 4225 May 16 13:27 | 6°Π17'50 | |
| direct | 4220 May 04 22:14 | 25°Ω09'07 | | evening set | 4225 Aug 14 02:11 | 8°Π13'02 | |
| evening set | 4220 Aug 02 05:28 | 27°Ω04'12 | | | | | |
| | | | | conjunction | 4225 Aug 30 09:52 | 8°Π49'04 | 0°03'52 |
| conjunction | 4220 Aug 18 13:14 | 27°Ω40'18 | -0°13'41 | minimum elong | 4225 Aug 30 09:52 | 8°Π49'04 | 0°03'52 |
| minimum elong | 4220 Aug 18 13:14 | 27°Ω40'18 | 0°13'41 | behind sun begin | 4225 Aug 30 03:21 | 8°Π48'29 | |
| behind sun begin | 4220 Aug 18 09:51 | 27°Ω40'00 | | behind sun end | 4225 Aug 30 16:24 | 8°Π49'39 | |
| behind sun end | 4220 Aug 18 16:38 | 27°Ω40'36 | | max. Earth dist. | 4225 Aug 30 04:26 | 8°Π48'36 | 31.00605 AU |
| max. Earth dist. | 4220 Aug 18 12:22 | 27°Ω40'14 | 30.96726 AU | morning rise | 4225 Sep 15 16:37 | 9°Π25'01 | |
| morning rise | 4220 Sep 03 20:48 | 28°Ω16'24 | | retrograde | 4225 Dec 13 09:44 | 11°Π19'28 | |
| | 4220 Nov 05 16:44 | 0°Π | | opposition | 4226 Mar 01 00:55 | 9°Π55'52 | 0°05'55 |
| retrograde | 4220 Dec 01 23:25 | 0°Π11'39 | | min. Earth dist. | 4226 Mar 01 05:48 | 9°Π55'31 | 29.01014 AU |
| | 4220 Dec 28 12:43 | 30°℞Ω | | direct | 4226 May 19 00:05 | 8°Π30'54 | |
| opposition | 4221 Feb 17 21:06 | 28°Ω47'54 | -0°12'44 | evening set | 4226 Aug 16 15:39 | 10°Π26'07 | |
| min. Earth dist. | 4221 Feb 17 21:18 | 28°Ω47'53 | 28.97184 AU | | | | |
| direct | 4221 May 07 09:47 | 27°Ω23'13 | | conjunction | 4226 Sep 01 23:22 | 11°Π02'08 | 0°07'20 |
| evening set | 4221 Aug 04 19:19 | 29°Ω18'21 | | minimum elong | 4226 Sep 01 23:23 | 11°Π02'08 | 0°07'20 |
| | | | | behind sun begin | 4226 Sep 01 17:22 | 11°Π01'35 | |
| conjunction | 4221 Aug 21 03:15 | 29°Ω54'27 | -0°10'13 | behind sun end | 4226 Sep 02 05:24 | 11°Π02'40 | |
| minimum elong | 4221 Aug 21 03:15 | 29°Ω54'27 | 0°10'13 | max. Earth dist. | 4226 Sep 01 18:01 | 11°Π01'39 | 31.01439 AU |
| behind sun begin | 4221 Aug 20 22:02 | 29°Ω53'59 | | morning rise | 4226 Sep 18 05:48 | 11°Π38'03 | |

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| retrograde | 4226 Dec 15 19:37 | 13° <u>17</u> 32'20 | | direct | 4233 Jun 03 09:50 | 24° <u>17</u> 00'14 | |
| opposition | 4227 Mar 03 11:01 | 12° <u>17</u> 08'47 | 0°09'37 | evening set | 4233 Sep 01 13:36 | 25° <u>17</u> 55'49 | |
| min. Earth dist. | 4227 Mar 03 15:56 | 12° <u>17</u> 08'26 | 29.01894 AU | | | | |
| direct | 4227 May 21 12:20 | 10° <u>17</u> 43'46 | | conjunction | 4233 Sep 17 19:51 | 26° <u>17</u> 31'39 | 0°31'02 |
| evening set | 4227 Aug 19 05:15 | 12° <u>17</u> 39'00 | | minimum elong | 4233 Sep 17 19:51 | 26° <u>17</u> 31'39 | 0°31'01 |
| | | | | max. Earth dist. | 4233 Sep 17 09:01 | 26° <u>17</u> 30'40 | 31.09419 AU |
| conjunction | 4227 Sep 04 12:40 | 13° <u>17</u> 14'59 | 0°10'47 | morning rise | 4233 Oct 04 00:07 | 27° <u>17</u> 07'21 | |
| minimum elong | 4227 Sep 04 12:40 | 13° <u>17</u> 14'59 | 0°10'46 | retrograde | 4233 Dec 31 01:28 | 29° <u>17</u> 00'56 | |
| behind sun begin | 4227 Sep 04 07:41 | 13° <u>17</u> 14'33 | | opposition | 4234 Mar 18 10:50 | 27° <u>17</u> 37'56 | 0°34'52 |
| behind sun end | 4227 Sep 04 17:39 | 13° <u>17</u> 15'26 | | min. Earth dist. | 4234 Mar 18 20:19 | 27° <u>17</u> 37'16 | 29.09927 AU |
| max. Earth dist. | 4227 Sep 04 05:47 | 13° <u>17</u> 14'22 | 31.02380 AU | direct | 4234 Jun 05 23:09 | 26° <u>17</u> 12'59 | |
| morning rise | 4227 Sep 20 18:58 | 13° <u>17</u> 50'53 | | evening set | 4234 Sep 04 03:05 | 28° <u>17</u> 08'36 | |
| retrograde | 4227 Dec 18 06:00 | 15° <u>17</u> 45'03 | | | | | |
| opposition | 4228 Mar 04 21:17 | 14° <u>17</u> 21'32 | 0°13'19 | conjunction | 4234 Sep 20 09:00 | 28° <u>17</u> 44'25 | 0°34'16 |
| min. Earth dist. | 4228 Mar 05 02:48 | 14° <u>17</u> 21'09 | 29.02911 AU | minimum elong | 4234 Sep 20 09:00 | 28° <u>17</u> 44'25 | 0°34'16 |
| direct | 4228 May 22 22:50 | 12° <u>17</u> 56'30 | | max. Earth dist. | 4234 Sep 19 20:44 | 28° <u>17</u> 43'17 | 31.10379 AU |
| evening set | 4228 Aug 20 18:28 | 14° <u>17</u> 51'46 | | morning rise | 4234 Oct 06 12:52 | 29° <u>17</u> 20'04 | |
| | | | | | 4234 Oct 25 21:17 | 0° <u>17</u> | |
| conjunction | 4228 Sep 06 01:54 | 15° <u>17</u> 27'44 | 0°14'14 | retrograde | 4235 Jan 02 13:01 | 1° <u>17</u> 13'33 | |
| minimum elong | 4228 Sep 06 01:53 | 15° <u>17</u> 27'44 | 0°14'14 | | 4235 Mar 15 06:55 | 30° <u>17</u> | |
| behind sun begin | 4228 Sep 05 22:57 | 15° <u>17</u> 27'29 | | opposition | 4235 Mar 20 21:06 | 29° <u>17</u> 50'36 | 0°38'18 |
| behind sun end | 4228 Sep 06 04:50 | 15° <u>17</u> 28'00 | | min. Earth dist. | 4235 Mar 21 08:09 | 29° <u>17</u> 49'49 | 29.10848 AU |
| max. Earth dist. | 4228 Sep 05 19:41 | 15° <u>17</u> 27'11 | 31.03458 AU | direct | 4235 Jun 08 10:11 | 28° <u>17</u> 25'38 | |
| morning rise | 4228 Sep 22 07:44 | 16° <u>17</u> 03'36 | | | 4235 Aug 27 15:11 | 0° <u>17</u> | |
| retrograde | 4228 Dec 19 15:29 | 17° <u>17</u> 57'39 | | evening set | 4235 Sep 06 16:21 | 0° <u>17</u> 21'16 | |
| opposition | 4229 Mar 07 07:34 | 16° <u>17</u> 34'13 | 0°17'00 | | | | |
| min. Earth dist. | 4229 Mar 07 13:42 | 16° <u>17</u> 33'47 | 29.04046 AU | conjunction | 4235 Sep 22 22:04 | 0° <u>17</u> 57'04 | 0°37'27 |
| direct | 4229 May 25 10:34 | 15° <u>17</u> 09'11 | | minimum elong | 4235 Sep 22 22:04 | 0° <u>17</u> 57'04 | 0°37'27 |
| evening set | 4229 Aug 23 07:55 | 17° <u>17</u> 04'31 | | max. Earth dist. | 4235 Sep 22 09:34 | 0° <u>17</u> 55'55 | 31.11255 AU |
| | | | | morning rise | 4235 Oct 09 01:28 | 1° <u>17</u> 32'41 | |
| conjunction | 4229 Sep 08 15:01 | 17° <u>17</u> 40'27 | 0°17'39 | retrograde | 4236 Jan 04 22:41 | 3° <u>17</u> 26'02 | |
| minimum elong | 4229 Sep 08 15:01 | 17° <u>17</u> 40'27 | 0°17'38 | opposition | 4236 Mar 22 07:24 | 2° <u>17</u> 03'08 | 0°41'40 |
| max. Earth dist. | 4229 Sep 08 07:08 | 17° <u>17</u> 39'44 | 31.04656 AU | min. Earth dist. | 4236 Mar 22 18:46 | 2° <u>17</u> 02'20 | 29.11680 AU |
| morning rise | 4229 Sep 24 20:45 | 18° <u>17</u> 16'17 | | direct | 4236 Jun 09 22:58 | 0° <u>17</u> 38'08 | |
| retrograde | 4229 Dec 22 03:40 | 20° <u>17</u> 10'14 | | evening set | 4236 Sep 08 05:29 | 2° <u>17</u> 33'48 | |
| opposition | 4230 Mar 09 17:37 | 18° <u>17</u> 46'53 | 0°20'39 | | | | |
| min. Earth dist. | 4230 Mar 09 23:48 | 18° <u>17</u> 46'27 | 29.05289 AU | conjunction | 4236 Sep 24 10:43 | 3° <u>17</u> 09'33 | 0°40'35 |
| direct | 4230 May 27 21:00 | 17° <u>17</u> 21'53 | | minimum elong | 4236 Sep 24 10:43 | 3° <u>17</u> 09'33 | 0°40'35 |
| evening set | 4230 Aug 25 21:17 | 19° <u>17</u> 17'17 | | max. Earth dist. | 4236 Sep 23 20:34 | 3° <u>17</u> 08'15 | 31.12060 AU |
| | | | | morning rise | 4236 Oct 10 13:49 | 3° <u>17</u> 45'08 | |
| conjunction | 4230 Sep 11 04:21 | 19° <u>17</u> 53'12 | 0°21'03 | retrograde | 4237 Jan 06 08:37 | 5° <u>17</u> 38'23 | |
| minimum elong | 4230 Sep 11 04:21 | 19° <u>17</u> 53'12 | 0°21'03 | opposition | 4237 Mar 24 17:40 | 4° <u>17</u> 15'31 | 0°44'59 |
| max. Earth dist. | 4230 Sep 10 20:40 | 19° <u>17</u> 52'30 | 31.05913 AU | min. Earth dist. | 4237 Mar 25 05:48 | 4° <u>17</u> 14'40 | 29.12482 AU |
| morning rise | 4230 Sep 27 09:37 | 20° <u>17</u> 29'00 | | direct | 4237 Jun 12 09:42 | 2° <u>17</u> 50'29 | |
| retrograde | 4230 Dec 24 14:02 | 22° <u>17</u> 22'52 | | evening set | 4237 Sep 10 18:26 | 4° <u>17</u> 46'08 | |
| opposition | 4231 Mar 12 03:56 | 20° <u>17</u> 59'37 | 0°24'16 | | | | |
| min. Earth dist. | 4231 Mar 12 11:40 | 20° <u>17</u> 59'04 | 29.06548 AU | conjunction | 4237 Sep 26 23:31 | 5° <u>17</u> 21'52 | 0°43'39 |
| direct | 4231 May 30 09:10 | 19° <u>17</u> 34'38 | | minimum elong | 4237 Sep 26 23:31 | 5° <u>17</u> 21'52 | 0°43'38 |
| evening set | 4231 Aug 28 10:50 | 21° <u>17</u> 30'06 | | max. Earth dist. | 4237 Sep 26 09:53 | 5° <u>17</u> 20'37 | 31.12851 AU |
| | | | | morning rise | 4237 Oct 13 02:03 | 5° <u>17</u> 57'25 | |
| conjunction | 4231 Sep 13 17:32 | 22° <u>17</u> 06'00 | 0°24'25 | retrograde | 4238 Jan 08 17:15 | 7° <u>17</u> 50'32 | |
| minimum elong | 4231 Sep 13 17:32 | 22° <u>17</u> 06'00 | 0°24'25 | opposition | 4238 Mar 27 03:48 | 6° <u>17</u> 27'42 | 0°48'13 |
| max. Earth dist. | 4231 Sep 13 08:12 | 22° <u>17</u> 05'09 | 31.07162 AU | min. Earth dist. | 4238 Mar 27 16:48 | 6° <u>17</u> 26'47 | 29.13277 AU |
| morning rise | 4231 Sep 29 22:34 | 22° <u>17</u> 41'46 | | direct | 4238 Jun 14 21:12 | 5° <u>17</u> 02'38 | |
| retrograde | 4231 Dec 27 02:53 | 24° <u>17</u> 35'32 | | evening set | 4238 Sep 13 07:30 | 6° <u>17</u> 58'19 | |
| opposition | 4232 Mar 13 14:07 | 23° <u>17</u> 12'23 | 0°27'50 | | | | |
| min. Earth dist. | 4232 Mar 13 21:46 | 23° <u>17</u> 11'51 | 29.07770 AU | conjunction | 4238 Sep 29 12:04 | 7° <u>17</u> 34'00 | 0°46'38 |
| direct | 4232 May 31 22:18 | 21° <u>17</u> 47'26 | | minimum elong | 4238 Sep 29 12:04 | 7° <u>17</u> 34'00 | 0°46'39 |
| evening set | 4232 Aug 30 00:18 | 23° <u>17</u> 42'58 | | max. Earth dist. | 4238 Sep 28 20:48 | 7° <u>17</u> 32'36 | 31.13667 AU |
| | | | | morning rise | 4238 Oct 15 14:19 | 8° <u>17</u> 09'31 | |
| conjunction | 4232 Sep 15 06:48 | 24° <u>17</u> 18'50 | 0°27'45 | retrograde | 4239 Jan 11 04:30 | 10° <u>17</u> 02'32 | |
| minimum elong | 4232 Sep 15 06:47 | 24° <u>17</u> 18'50 | 0°27'45 | opposition | 4239 Mar 29 13:59 | 8° <u>17</u> 39'43 | 0°51'23 |
| max. Earth dist. | 4232 Sep 14 20:57 | 24° <u>17</u> 17'56 | 31.08334 AU | min. Earth dist. | 4239 Mar 30 02:45 | 8° <u>17</u> 38'50 | 29.14132 AU |
| morning rise | 4232 Oct 01 11:21 | 24° <u>17</u> 54'34 | | direct | 4239 Jun 17 07:29 | 7° <u>17</u> 14'37 | |
| retrograde | 4232 Dec 28 13:31 | 26° <u>17</u> 48'15 | | evening set | 4239 Sep 15 20:16 | 9° <u>17</u> 01'19 | |
| opposition | 4233 Mar 16 00:33 | 25° <u>17</u> 25'11 | 0°31'23 | max. Earth dist. | 4239 Oct 01 09:56 | 9° <u>17</u> 44'38 | 31.14550 AU |
| min. Earth dist. | 4233 Mar 16 10:04 | 25° <u>17</u> 24'31 | 29.08906 AU | | | | |

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|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| conjunction | 4239 Oct 02 00:35 | 9° <u>♂</u> 45'59 | 0°49'34 | evening set | 4246 Oct 01 12:54 | 24° <u>♂</u> 33'42 | |
| minimum elong | 4239 Oct 02 00:35 | 9° <u>♂</u> 45'59 | 0°49'34 | | | | |
| morning rise | 4239 Oct 18 02:11 | 10° <u>♂</u> 21'26 | | conjunction | 4246 Oct 17 14:15 | 25° <u>♂</u> 09'07 | 1°07'47 |
| retrograde | 4240 Jan 13 13:24 | 12° <u>♂</u> 14'22 | | minimum elong | 4246 Oct 17 14:14 | 25° <u>♂</u> 09'07 | 1°07'47 |
| opposition | 4240 Mar 31 00:18 | 10° <u>♂</u> 51'36 | 0°54'28 | max. Earth dist. | 4246 Oct 16 20:04 | 25° <u>♂</u> 07'26 | 31.22089 AU |
| min. Earth dist. | 4240 Mar 31 14:09 | 10° <u>♂</u> 50'38 | 29.15071 AU | morning rise | 4246 Nov 02 12:23 | 25° <u>♂</u> 44'17 | |
| direct | 4240 Jun 18 19:47 | 9° <u>♂</u> 26'31 | | retrograde | 4247 Jan 28 16:06 | 27° <u>♂</u> 36'46 | |
| evening set | 4240 Sep 17 09:05 | 11° <u>♂</u> 22'14 | | opposition | 4247 Apr 16 00:57 | 26° <u>♂</u> 14'29 | 1°13'36 |
| | | | | min. Earth dist. | 4247 Apr 16 18:20 | 26° <u>♂</u> 13'16 | 29.22537 AU |
| conjunction | 4240 Oct 03 12:53 | 11° <u>♂</u> 57'51 | 0°52'25 | direct | 4247 Jul 05 08:05 | 24° <u>♂</u> 49'33 | |
| minimum elong | 4240 Oct 03 12:53 | 11° <u>♂</u> 57'51 | 0°52'26 | evening set | 4247 Oct 04 01:27 | 26° <u>♂</u> 45'28 | |
| max. Earth dist. | 4240 Oct 02 21:09 | 11° <u>♂</u> 56'23 | 31.15554 AU | max. Earth dist. | 4247 Oct 19 06:13 | 27° <u>♂</u> 19'00 | 31.22836 AU |
| morning rise | 4240 Oct 19 14:10 | 12° <u>♂</u> 33'16 | | | | | |
| retrograde | 4241 Jan 15 01:09 | 14° <u>♂</u> 26'07 | | conjunction | 4247 Oct 20 02:07 | 27° <u>♂</u> 20'51 | 1°10'01 |
| opposition | 4241 Apr 02 10:28 | 13° <u>♂</u> 03'24 | 0°57'29 | minimum elong | 4247 Oct 20 02:07 | 27° <u>♂</u> 20'51 | 1°10'00 |
| min. Earth dist. | 4241 Apr 02 23:36 | 13° <u>♂</u> 02'29 | 29.16136 AU | morning rise | 4247 Nov 04 23:53 | 27° <u>♂</u> 55'59 | |
| direct | 4241 Jun 21 08:21 | 11° <u>♂</u> 38'19 | | retrograde | 4248 Jan 31 02:54 | 29° <u>♂</u> 48'24 | |
| evening set | 4241 Sep 19 21:41 | 13° <u>♂</u> 34'05 | | opposition | 4248 Apr 17 11:28 | 28° <u>♂</u> 26'07 | 1°15'55 |
| max. Earth dist. | 4241 Oct 05 09:38 | 14° <u>♂</u> 08'14 | 31.16666 AU | min. Earth dist. | 4248 Apr 18 04:44 | 28° <u>♂</u> 24'55 | 29.23228 AU |
| | | | | direct | 4248 Jul 06 19:01 | 27° <u>♂</u> 01'10 | |
| conjunction | 4241 Oct 06 01:11 | 14° <u>♂</u> 09'40 | 0°55'12 | evening set | 4248 Oct 05 13:46 | 28° <u>♂</u> 57'05 | |
| minimum elong | 4241 Oct 06 01:11 | 14° <u>♂</u> 09'40 | 0°55'11 | | | | |
| morning rise | 4241 Oct 22 01:55 | 14° <u>♂</u> 45'03 | | conjunction | 4248 Oct 21 14:07 | 29° <u>♂</u> 32'25 | 1°12'08 |
| retrograde | 4242 Jan 17 11:18 | 16° <u>♂</u> 37'51 | | minimum elong | 4248 Oct 21 14:07 | 29° <u>♂</u> 32'25 | 1°12'09 |
| opposition | 4242 Apr 04 20:49 | 15° <u>♂</u> 15'12 | 1°00'24 | max. Earth dist. | 4248 Oct 20 18:35 | 29° <u>♂</u> 30'36 | 31.23462 AU |
| min. Earth dist. | 4242 Apr 05 11:19 | 15° <u>♂</u> 14'12 | 29.17296 AU | | 4248 Nov 03 00:39 | 0° <u>♂</u> | |
| direct | 4242 Jun 23 19:15 | 13° <u>♂</u> 50'09 | | morning rise | 4248 Nov 06 11:12 | 0° <u>♂</u> 07'30 | |
| evening set | 4242 Sep 22 10:25 | 15° <u>♂</u> 45'58 | | retrograde | 4249 Feb 01 11:09 | 1° <u>♂</u> 59'51 | |
| | | | | opposition | 4249 Apr 19 22:02 | 0° <u>♂</u> 37'35 | 1°18'08 |
| conjunction | 4242 Oct 08 13:29 | 16° <u>♂</u> 21'31 | 0°57'53 | min. Earth dist. | 4249 Apr 20 16:42 | 0° <u>♂</u> 36'18 | 29.23811 AU |
| minimum elong | 4242 Oct 08 13:29 | 16° <u>♂</u> 21'31 | 0°57'54 | | 4249 May 13 07:12 | 30° <u>♂</u> | |
| max. Earth dist. | 4242 Oct 07 21:28 | 16° <u>♂</u> 20'02 | 31.17857 AU | direct | 4249 Jul 09 06:55 | 29° <u>♂</u> 12'37 | |
| morning rise | 4242 Oct 24 13:46 | 16° <u>♂</u> 56'51 | | | 4249 Sep 02 16:06 | 0° <u>♂</u> | |
| retrograde | 4243 Jan 19 23:09 | 18° <u>♂</u> 49'35 | | evening set | 4249 Oct 08 02:00 | 1° <u>♂</u> 08'30 | |
| opposition | 4243 Apr 07 06:59 | 17° <u>♂</u> 27'03 | 1°03'14 | max. Earth dist. | 4249 Oct 23 05:01 | 1° <u>♂</u> 41'53 | 31.24010 AU |
| min. Earth dist. | 4243 Apr 07 21:06 | 17° <u>♂</u> 26'04 | 29.18493 AU | | | | |
| direct | 4243 Jun 26 08:39 | 16° <u>♂</u> 02'02 | | conjunction | 4249 Oct 24 01:48 | 1° <u>♂</u> 43'48 | 1°14'09 |
| evening set | 4243 Sep 24 23:11 | 17° <u>♂</u> 57'54 | | minimum elong | 4249 Oct 24 01:47 | 1° <u>♂</u> 43'48 | 1°14'09 |
| max. Earth dist. | 4243 Oct 10 08:53 | 18° <u>♂</u> 31'51 | 31.19043 AU | morning rise | 4249 Nov 08 22:32 | 2° <u>♂</u> 18'51 | |
| | | | | retrograde | 4250 Feb 03 22:01 | 4° <u>♂</u> 11'07 | |
| conjunction | 4243 Oct 11 01:45 | 18° <u>♂</u> 33'25 | 1°00'30 | opposition | 4250 Apr 22 08:28 | 2° <u>♂</u> 48'51 | 1°20'14 |
| minimum elong | 4243 Oct 11 01:45 | 18° <u>♂</u> 33'25 | 1°00'30 | min. Earth dist. | 4250 Apr 23 02:35 | 2° <u>♂</u> 47'36 | 29.24328 AU |
| morning rise | 4243 Oct 27 01:32 | 19° <u>♂</u> 08'43 | | direct | 4250 Jul 11 19:13 | 1° <u>♂</u> 23'50 | |
| retrograde | 4244 Jan 22 11:08 | 21° <u>♂</u> 01'24 | | evening set | 4250 Oct 10 14:07 | 3° <u>♂</u> 19'44 | |
| opposition | 4244 Apr 08 17:29 | 19° <u>♂</u> 38'56 | 1°05'58 | | | | |
| min. Earth dist. | 4244 Apr 09 08:47 | 19° <u>♂</u> 37'52 | 29.19673 AU | conjunction | 4250 Oct 26 13:29 | 3° <u>♂</u> 54'59 | 1°16'04 |
| direct | 4244 Jun 27 20:13 | 18° <u>♂</u> 13'58 | | minimum elong | 4250 Oct 26 13:29 | 3° <u>♂</u> 54'59 | 1°16'05 |
| evening set | 4244 Sep 26 11:38 | 20° <u>♂</u> 09'52 | | max. Earth dist. | 4250 Oct 25 16:51 | 3° <u>♂</u> 53'05 | 31.24502 AU |
| | | | | morning rise | 4250 Nov 11 09:35 | 4° <u>♂</u> 30'00 | |
| conjunction | 4244 Oct 12 13:51 | 20° <u>♂</u> 45'21 | 1°03'01 | retrograde | 4251 Feb 06 07:30 | 6° <u>♂</u> 22'12 | |
| minimum elong | 4244 Oct 12 13:51 | 20° <u>♂</u> 45'21 | 1°03'02 | opposition | 4251 Apr 24 19:02 | 4° <u>♂</u> 59'56 | 1°22'13 |
| max. Earth dist. | 4244 Oct 11 21:01 | 20° <u>♂</u> 43'47 | 31.20180 AU | min. Earth dist. | 4251 Apr 25 14:26 | 4° <u>♂</u> 58'36 | 29.24830 AU |
| morning rise | 4244 Oct 28 13:04 | 21° <u>♂</u> 20'36 | | direct | 4251 Jul 14 06:10 | 3° <u>♂</u> 34'54 | |
| retrograde | 4245 Jan 23 20:40 | 23° <u>♂</u> 13'14 | | evening set | 4251 Oct 13 02:07 | 5° <u>♂</u> 30'47 | |
| opposition | 4245 Apr 11 03:56 | 21° <u>♂</u> 50'50 | 1°08'37 | max. Earth dist. | 4251 Oct 28 04:14 | 6° <u>♂</u> 04'05 | 31.25021 AU |
| min. Earth dist. | 4245 Apr 11 19:32 | 21° <u>♂</u> 49'45 | 29.20755 AU | | | | |
| direct | 4245 Jun 30 09:18 | 20° <u>♂</u> 25'54 | | conjunction | 4251 Oct 29 00:57 | 6° <u>♂</u> 06'00 | 1°17'52 |
| evening set | 4245 Sep 29 00:20 | 22° <u>♂</u> 21'49 | | minimum elong | 4251 Oct 29 00:57 | 6° <u>♂</u> 06'00 | 1°17'52 |
| max. Earth dist. | 4245 Oct 14 07:27 | 22° <u>♂</u> 55'33 | 31.21200 AU | morning rise | 4251 Nov 13 20:34 | 6° <u>♂</u> 40'58 | |
| | | | | retrograde | 4252 Feb 08 18:30 | 8° <u>♂</u> 33'07 | |
| conjunction | 4245 Oct 15 01:58 | 22° <u>♂</u> 57'16 | 1°05'27 | opposition | 4252 Apr 26 05:35 | 7° <u>♂</u> 10'52 | 1°24'05 |
| minimum elong | 4245 Oct 15 01:58 | 22° <u>♂</u> 57'16 | 1°05'26 | min. Earth dist. | 4252 Apr 27 00:07 | 7° <u>♂</u> 09'35 | 29.25376 AU |
| morning rise | 4245 Oct 31 00:47 | 23° <u>♂</u> 32'29 | | direct | 4252 Jul 15 19:53 | 5° <u>♂</u> 45'49 | |
| retrograde | 4246 Jan 26 07:14 | 25° <u>♂</u> 25'02 | | evening set | 4252 Oct 14 13:51 | 7° <u>♂</u> 41'42 | |
| opposition | 4246 Apr 13 14:20 | 24° <u>♂</u> 02'42 | 1°11'09 | | | | |
| min. Earth dist. | 4246 Apr 14 06:41 | 24° <u>♂</u> 01'34 | 29.21723 AU | conjunction | 4252 Oct 30 12:09 | 8° <u>♂</u> 16'53 | 1°19'33 |
| direct | 4246 Jul 02 20:05 | 22° <u>♂</u> 37'46 | | minimum elong | 4252 Oct 30 12:09 | 8° <u>♂</u> 16'53 | 1°19'34 |

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|------------------|-------------------|-----------------------------------|-------------|------------------|-------------------|-----------------------------------|-------------|
| max. Earth dist. | 4252 Oct 29 15:07 | 8° \mathcal{M} .14'56 | 31.25600 AU | retrograde | 4259 Feb 23 16:32 | 23° \mathcal{M} .49'45 | |
| morning rise | 4252 Nov 15 07:15 | 8° \mathcal{M} .51'48 | | opposition | 4259 May 12 08:38 | 22° \mathcal{M} .27'52 | 1°33'35 |
| retrograde | 4253 Feb 10 05:54 | 10° \mathcal{M} .43'56 | | min. Earth dist. | 4259 May 13 04:15 | 22° \mathcal{M} .26'31 | 29.30187 AU |
| opposition | 4253 Apr 28 16:13 | 9° \mathcal{M} .21'42 | 1°25'49 | direct | 4259 Aug 01 03:58 | 21° \mathcal{M} .03'06 | |
| min. Earth dist. | 4253 Apr 29 11:18 | 9° \mathcal{M} .20'22 | 29.26016 AU | evening set | 4259 Oct 30 23:14 | 22° \mathcal{M} .59'05 | |
| direct | 4253 Jul 18 07:32 | 7° \mathcal{M} .56'41 | | | | | |
| evening set | 4253 Oct 17 01:34 | 9° \mathcal{M} .52'34 | | conjunction | 4259 Nov 15 18:05 | 23° \mathcal{M} .34'03 | 1°28'01 |
| | | | | minimum elong | 4259 Nov 15 18:05 | 23° \mathcal{M} .34'03 | 1°28'01 |
| conjunction | 4253 Nov 01 23:29 | 10° \mathcal{M} .27'43 | 1°21'08 | max. Earth dist. | 4259 Nov 14 20:13 | 23° \mathcal{M} .32'01 | 31.30287 AU |
| minimum elong | 4253 Nov 01 23:29 | 10° \mathcal{M} .27'43 | 1°21'07 | morning rise | 4259 Dec 01 09:35 | 24° \mathcal{M} .08'45 | |
| max. Earth dist. | 4253 Nov 01 03:07 | 10° \mathcal{M} .25'50 | 31.26288 AU | retrograde | 4260 Feb 26 02:14 | 26° \mathcal{M} .00'51 | |
| morning rise | 4253 Nov 17 18:01 | 11° \mathcal{M} .02'36 | | opposition | 4260 May 13 19:43 | 24° \mathcal{M} .38'58 | 1°34'24 |
| retrograde | 4254 Feb 12 15:02 | 12° \mathcal{M} .54'42 | | min. Earth dist. | 4260 May 14 16:36 | 24° \mathcal{M} .37'32 | 29.30549 AU |
| opposition | 4254 May 01 02:41 | 11° \mathcal{M} .32'32 | 1°27'26 | direct | 4260 Aug 02 14:11 | 23° \mathcal{M} .14'13 | |
| min. Earth dist. | 4254 May 01 21:30 | 11° \mathcal{M} .31'14 | 29.26738 AU | evening set | 4260 Nov 01 10:27 | 25° \mathcal{M} .10'10 | |
| direct | 4254 Jul 20 20:27 | 10° \mathcal{M} .07'33 | | max. Earth dist. | 4260 Nov 16 06:50 | 25° \mathcal{M} .43'02 | 31.30586 AU |
| evening set | 4254 Oct 19 13:25 | 12° \mathcal{M} .03'29 | | | | | |
| | | | | conjunction | 4260 Nov 17 04:50 | 25° \mathcal{M} .45'05 | 1°28'44 |
| conjunction | 4254 Nov 04 10:42 | 12° \mathcal{M} .38'35 | 1°22'35 | minimum elong | 4260 Nov 17 04:50 | 25° \mathcal{M} .45'05 | 1°28'45 |
| minimum elong | 4254 Nov 04 10:41 | 12° \mathcal{M} .38'35 | 1°22'36 | morning rise | 4260 Dec 02 19:56 | 26° \mathcal{M} .19'45 | |
| max. Earth dist. | 4254 Nov 03 13:21 | 12° \mathcal{M} .36'37 | 31.27050 AU | retrograde | 4261 Feb 27 13:02 | 28° \mathcal{M} .11'50 | |
| morning rise | 4254 Nov 20 04:49 | 13° \mathcal{M} .13'27 | | opposition | 4261 May 16 06:40 | 26° \mathcal{M} .49'56 | 1°35'06 |
| | 4255 Jan 28 02:08 | 15° \mathcal{M} . | | min. Earth dist. | 4261 May 17 02:57 | 26° \mathcal{M} .48'32 | 29.30776 AU |
| retrograde | 4255 Feb 15 01:48 | 15° \mathcal{M} .05'32 | | direct | 4261 Aug 05 04:16 | 25° \mathcal{M} .25'10 | |
| | 4255 Mar 05 03:25 | 15° \mathcal{R} \mathcal{M} . | | evening set | 4261 Nov 03 21:45 | 27° \mathcal{M} .21'05 | |
| opposition | 4255 May 03 13:21 | 13° \mathcal{M} .43'26 | 1°28'56 | | | | |
| min. Earth dist. | 4255 May 04 08:13 | 13° \mathcal{M} .42'08 | 29.27533 AU | conjunction | 4261 Nov 19 15:37 | 27° \mathcal{M} .55'59 | 1°29'19 |
| direct | 4255 Jul 23 07:09 | 12° \mathcal{M} .18'31 | | minimum elong | 4261 Nov 19 15:36 | 27° \mathcal{M} .55'59 | 1°29'19 |
| evening set | 4255 Oct 22 00:55 | 14° \mathcal{M} .14'28 | | max. Earth dist. | 4261 Nov 18 16:59 | 27° \mathcal{M} .53'52 | 31.30755 AU |
| | | | | morning rise | 4261 Dec 05 06:16 | 28° \mathcal{M} .30'36 | |
| conjunction | 4255 Nov 06 21:50 | 14° \mathcal{M} .49'33 | 1°23'55 | | 4262 Jan 24 08:30 | 0° \mathcal{A} . | |
| minimum elong | 4255 Nov 06 21:50 | 14° \mathcal{M} .49'33 | 1°23'55 | retrograde | 4262 Mar 02 00:21 | 0° \mathcal{A} .22'39 | |
| max. Earth dist. | 4255 Nov 06 01:36 | 14° \mathcal{M} .47'41 | 31.27847 AU | | 4262 Apr 08 12:44 | 30° \mathcal{R} \mathcal{M} . | |
| | 4255 Nov 11 14:15 | 15° \mathcal{M} . | | opposition | 4262 May 18 17:34 | 29° \mathcal{M} .00'43 | 1°35'40 |
| morning rise | 4255 Nov 22 15:17 | 15° \mathcal{M} .24'22 | | min. Earth dist. | 4262 May 19 14:34 | 28° \mathcal{M} .59'17 | 29.30909 AU |
| retrograde | 4256 Feb 17 10:49 | 17° \mathcal{M} .16'28 | | direct | 4262 Aug 07 15:56 | 27° \mathcal{M} .35'56 | |
| opposition | 4256 May 05 00:09 | 15° \mathcal{M} .54'27 | 1°30'17 | evening set | 4262 Nov 06 08:49 | 29° \mathcal{M} .31'49 | |
| min. Earth dist. | 4256 May 05 19:38 | 15° \mathcal{M} .53'06 | 29.28320 AU | | 4262 Nov 19 02:43 | 0° \mathcal{A} . | |
| | 4256 Jun 09 18:07 | 15° \mathcal{R} \mathcal{M} . | | max. Earth dist. | 4262 Nov 21 04:25 | 0° \mathcal{A} .04'38 | 31.30856 AU |
| direct | 4256 Jul 24 18:58 | 14° \mathcal{M} .29'35 | | | | | |
| | 4256 Sep 06 16:37 | 15° \mathcal{M} . | | conjunction | 4262 Nov 22 02:18 | 0° \mathcal{A} .06'40 | 1°29'47 |
| evening set | 4256 Oct 23 12:38 | 16° \mathcal{M} .25'34 | | minimum elong | 4262 Nov 22 02:18 | 0° \mathcal{A} .06'40 | 1°29'48 |
| max. Earth dist. | 4256 Nov 07 11:25 | 16° \mathcal{M} .58'37 | 31.28617 AU | morning rise | 4262 Dec 07 16:25 | 0° \mathcal{A} .41'16 | |
| | | | | retrograde | 4263 Mar 04 09:14 | 2° \mathcal{A} .33'17 | |
| conjunction | 4256 Nov 08 08:53 | 17° \mathcal{M} .00'37 | 1°25'07 | opposition | 4263 May 21 04:39 | 1° \mathcal{A} .11'19 | 1°36'06 |
| minimum elong | 4256 Nov 08 08:53 | 17° \mathcal{M} .00'37 | 1°25'09 | min. Earth dist. | 4263 May 22 01:21 | 1° \mathcal{A} .09'54 | 29.30983 AU |
| morning rise | 4256 Nov 24 02:00 | 17° \mathcal{M} .35'25 | | | 4263 Jul 11 17:21 | 30° \mathcal{R} \mathcal{M} . | |
| retrograde | 4257 Feb 18 21:45 | 19° \mathcal{M} .27'31 | | direct | 4263 Aug 10 05:14 | 29° \mathcal{M} .46'30 | |
| opposition | 4257 May 07 10:48 | 18° \mathcal{M} .05'33 | 1°31'31 | | 4263 Sep 08 05:45 | 0° \mathcal{A} . | |
| min. Earth dist. | 4257 May 08 05:50 | 18° \mathcal{M} .04'14 | 29.29063 AU | evening set | 4263 Nov 08 19:43 | 1° \mathcal{A} .42'19 | |
| direct | 4257 Jul 27 05:30 | 16° \mathcal{M} .40'44 | | | | | |
| evening set | 4257 Oct 26 00:08 | 18° \mathcal{M} .36'44 | | conjunction | 4263 Nov 24 12:35 | 2° \mathcal{A} .17'08 | 1°30'07 |
| | | | | minimum elong | 4263 Nov 24 12:35 | 2° \mathcal{A} .17'08 | 1°30'07 |
| conjunction | 4257 Nov 10 20:04 | 19° \mathcal{M} .11'45 | 1°26'13 | max. Earth dist. | 4263 Nov 23 14:00 | 2° \mathcal{A} .15'02 | 31.30930 AU |
| minimum elong | 4257 Nov 10 20:04 | 19° \mathcal{M} .11'45 | 1°26'13 | morning rise | 4263 Dec 10 02:23 | 2° \mathcal{A} .51'42 | |
| max. Earth dist. | 4257 Nov 09 23:12 | 19° \mathcal{M} .09'49 | 31.29301 AU | retrograde | 4264 Mar 05 20:08 | 4° \mathcal{A} .43'42 | |
| morning rise | 4257 Nov 26 12:32 | 19° \mathcal{M} .46'31 | | opposition | 4264 May 22 15:42 | 3° \mathcal{A} .21'42 | 1°36'23 |
| retrograde | 4258 Feb 21 05:50 | 21° \mathcal{M} .38'38 | | min. Earth dist. | 4264 May 23 12:03 | 3° \mathcal{A} .20'18 | 29.31083 AU |
| opposition | 4258 May 09 21:47 | 20° \mathcal{M} .16'42 | 1°32'37 | direct | 4264 Aug 11 17:05 | 1° \mathcal{A} .56'52 | |
| min. Earth dist. | 4258 May 10 18:04 | 20° \mathcal{M} .15'19 | 29.29691 AU | evening set | 4264 Nov 10 06:27 | 3° \mathcal{A} .52'38 | |
| direct | 4258 Jul 29 16:48 | 18° \mathcal{M} .51'56 | | | | | |
| evening set | 4258 Oct 28 11:47 | 20° \mathcal{M} .47'56 | | conjunction | 4264 Nov 25 23:01 | 4° \mathcal{A} .27'26 | 1°30'19 |
| max. Earth dist. | 4258 Nov 12 09:08 | 21° \mathcal{M} .20'53 | 31.29867 AU | minimum elong | 4264 Nov 25 23:01 | 4° \mathcal{A} .27'26 | 1°30'20 |
| | | | | max. Earth dist. | 4264 Nov 25 01:55 | 4° \mathcal{A} .25'28 | 31.31053 AU |
| conjunction | 4258 Nov 13 07:04 | 21° \mathcal{M} .22'55 | 1°27'11 | morning rise | 4264 Dec 11 12:13 | 5° \mathcal{A} .01'57 | |
| minimum elong | 4258 Nov 13 07:03 | 21° \mathcal{M} .22'55 | 1°27'11 | retrograde | 4265 Mar 08 04:54 | 6° \mathcal{A} .53'56 | |
| morning rise | 4258 Nov 28 23:09 | 21° \mathcal{M} .57'39 | | opposition | 4265 May 25 02:43 | 5° \mathcal{A} .31'55 | 1°36'32 |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| min. Earth dist. | 4265 May 25 23:14 | 5°♏30'31 | 29.31245 AU | morning rise | 4271 Dec 27 08:35 | 20°♏14'06 | |
| direct | 4265 Aug 14 05:59 | 4°♏07'06 | | retrograde | 4272 Mar 23 04:19 | 22°♏06'24 | |
| evening set | 4265 Nov 12 17:17 | 6°♏02'49 | | opposition | 4272 Jun 09 10:02 | 20°♏44'33 | 1°33'44 |
| max. Earth dist. | 4265 Nov 27 11:31 | 6°♏35'33 | 31.31270 AU | min. Earth dist. | 4272 Jun 10 04:42 | 20°♏43'17 | 29.33246 AU |
| | | | | direct | 4272 Aug 29 12:39 | 19°♏20'06 | |
| conjunction | 4265 Nov 28 09:14 | 6°♏37'35 | 1°30'24 | evening set | 4272 Nov 27 19:03 | 21°♏15'45 | |
| minimum elong | 4265 Nov 28 09:14 | 6°♏37'35 | 1°30'24 | max. Earth dist. | 4272 Dec 12 11:53 | 21°♏48'28 | 31.33145 AU |
| morning rise | 4265 Dec 13 22:12 | 7°♏12'05 | | | | | |
| retrograde | 4266 Mar 10 15:21 | 9°♏04'04 | | conjunction | 4272 Dec 13 08:03 | 21°♏50'21 | 1°27'20 |
| opposition | 4266 May 27 13:46 | 7°♏42'04 | 1°36'33 | minimum elong | 4272 Dec 13 08:03 | 21°♏50'21 | 1°27'21 |
| min. Earth dist. | 4266 May 28 09:02 | 7°♏40'45 | 29.31513 AU | morning rise | 4272 Dec 28 18:26 | 22°♏24'44 | |
| direct | 4266 Aug 16 17:08 | 6°♏17'16 | | retrograde | 4273 Mar 25 16:10 | 24°♏17'05 | |
| evening set | 4266 Nov 15 03:51 | 8°♏12'58 | | opposition | 4273 Jun 11 21:30 | 22°♏55'13 | 1°32'48 |
| | | | | min. Earth dist. | 4273 Jun 12 15:58 | 22°♏53'58 | 29.33189 AU |
| conjunction | 4266 Nov 30 19:30 | 8°♏47'43 | 1°30'21 | direct | 4273 Sep 01 00:28 | 21°♏30'48 | |
| minimum elong | 4266 Nov 30 19:30 | 8°♏47'43 | 1°30'22 | evening set | 4273 Nov 30 05:24 | 23°♏26'24 | |
| max. Earth dist. | 4266 Nov 29 23:05 | 8°♏45'48 | 31.31579 AU | | | | |
| morning rise | 4266 Dec 16 07:53 | 9°♏22'11 | | conjunction | 4273 Dec 15 18:13 | 24°♏01'00 | 1°26'23 |
| retrograde | 4267 Mar 12 23:20 | 11°♏14'12 | | minimum elong | 4273 Dec 15 18:13 | 24°♏01'00 | 1°26'23 |
| opposition | 4267 May 30 01:01 | 9°♏52'13 | 1°36'26 | max. Earth dist. | 4273 Dec 14 23:13 | 23°♏59'14 | 31.33016 AU |
| min. Earth dist. | 4267 May 30 20:51 | 9°♏50'52 | 29.31861 AU | morning rise | 4273 Dec 31 04:07 | 24°♏35'22 | |
| direct | 4267 Aug 19 04:07 | 8°♏27'29 | | retrograde | 4274 Mar 28 01:50 | 26°♏27'45 | |
| evening set | 4267 Nov 17 14:31 | 10°♏23'10 | | opposition | 4274 Jun 14 09:13 | 25°♏05'52 | 1°31'44 |
| max. Earth dist. | 4267 Dec 02 08:58 | 10°♏55'57 | 31.31969 AU | min. Earth dist. | 4274 Jun 15 04:07 | 25°♏04'35 | 29.32987 AU |
| | | | | direct | 4274 Sep 03 13:52 | 23°♏41'28 | |
| conjunction | 4267 Dec 03 05:36 | 10°♏57'53 | 1°30'10 | evening set | 4274 Dec 02 15:41 | 25°♏37'01 | |
| minimum elong | 4267 Dec 03 05:36 | 10°♏57'53 | 1°30'10 | max. Earth dist. | 4274 Dec 17 08:18 | 26°♏09'45 | 31.32771 AU |
| morning rise | 4267 Dec 18 17:43 | 11°♏32'21 | | | | | |
| retrograde | 4268 Mar 14 09:58 | 13°♏24'24 | | conjunction | 4274 Dec 18 03:58 | 26°♏11'35 | 1°25'19 |
| opposition | 4268 May 31 12:10 | 12°♏02'28 | 1°36'10 | minimum elong | 4274 Dec 18 03:58 | 26°♏11'35 | 1°25'20 |
| min. Earth dist. | 4268 Jun 01 06:42 | 12°♏01'12 | 29.32262 AU | morning rise | 4275 Jan 02 13:45 | 26°♏45'57 | |
| direct | 4268 Aug 20 14:45 | 10°♏37'47 | | retrograde | 4275 Mar 30 12:27 | 28°♏38'21 | |
| evening set | 4268 Nov 19 00:57 | 12°♏33'28 | | opposition | 4275 Jun 16 20:51 | 27°♏16'26 | 1°30'32 |
| | | | | min. Earth dist. | 4275 Jun 17 14:36 | 27°♏15'14 | 29.32700 AU |
| conjunction | 4268 Dec 04 15:41 | 13°♏08'10 | 1°29'51 | direct | 4275 Sep 06 01:35 | 25°♏52'01 | |
| minimum elong | 4268 Dec 04 15:41 | 13°♏08'10 | 1°29'52 | evening set | 4275 Dec 05 01:45 | 27°♏47'31 | |
| max. Earth dist. | 4268 Dec 03 19:38 | 13°♏06'17 | 31.32366 AU | | | | |
| morning rise | 4268 Dec 20 03:22 | 13°♏42'37 | | conjunction | 4275 Dec 20 13:49 | 28°♏22'04 | 1°24'08 |
| retrograde | 4269 Mar 16 19:54 | 15°♏34'44 | | minimum elong | 4275 Dec 20 13:49 | 28°♏22'04 | 1°24'08 |
| opposition | 4269 Jun 02 23:33 | 14°♏12'49 | 1°35'46 | max. Earth dist. | 4275 Dec 19 19:22 | 28°♏20'21 | 31.32456 AU |
| min. Earth dist. | 4269 Jun 03 18:56 | 14°♏11'30 | 29.32649 AU | morning rise | 4276 Jan 04 23:11 | 28°♏56'25 | |
| direct | 4269 Aug 23 00:28 | 12°♏48'13 | | | 4276 Feb 06 02:34 | 0°♏ | |
| evening set | 4269 Nov 21 11:32 | 14°♏43'54 | | retrograde | 4276 Mar 31 20:18 | 0°♏48'52 | |
| max. Earth dist. | 4269 Dec 06 06:07 | 15°♏16'43 | 31.32727 AU | | 4276 May 28 11:01 | 30°♏♏ | |
| | | | | opposition | 4276 Jun 18 08:36 | 29°♏26'54 | 1°29'12 |
| conjunction | 4269 Dec 07 01:50 | 15°♏18'34 | 1°29'25 | min. Earth dist. | 4276 Jun 19 02:51 | 29°♏25'39 | 29.32379 AU |
| minimum elong | 4269 Dec 07 01:50 | 15°♏18'34 | 1°29'24 | direct | 4276 Sep 07 13:12 | 28°♏02'29 | |
| morning rise | 4269 Dec 22 13:09 | 15°♏53'00 | | evening set | 4276 Dec 06 11:41 | 29°♏57'54 | |
| retrograde | 4270 Mar 19 06:43 | 17°♏45'10 | | | 4276 Dec 07 10:43 | 0°♏ | |
| opposition | 4270 Jun 05 10:49 | 16°♏23'18 | 1°35'13 | | | | |
| min. Earth dist. | 4270 Jun 06 05:21 | 16°♏22'02 | 29.32960 AU | conjunction | 4276 Dec 21 23:21 | 0°♏32'26 | 1°22'50 |
| direct | 4270 Aug 25 13:19 | 14°♏58'45 | | minimum elong | 4276 Dec 21 23:21 | 0°♏32'26 | 1°22'51 |
| evening set | 4270 Nov 23 22:10 | 16°♏54'26 | | max. Earth dist. | 4276 Dec 21 05:01 | 0°♏30'43 | 31.32151 AU |
| | | | | morning rise | 4277 Jan 06 08:36 | 1°♏06'46 | |
| conjunction | 4270 Dec 09 11:59 | 17°♏29'05 | 1°28'51 | retrograde | 4277 Apr 03 06:32 | 2°♏59'15 | |
| minimum elong | 4270 Dec 09 11:59 | 17°♏29'05 | 1°28'51 | opposition | 4277 Jun 20 20:13 | 1°♏37'15 | 1°27'45 |
| max. Earth dist. | 4270 Dec 08 15:51 | 17°♏27'12 | 31.32989 AU | min. Earth dist. | 4277 Jun 21 12:50 | 1°♏36'07 | 29.32088 AU |
| morning rise | 4270 Dec 24 22:58 | 18°♏03'30 | | direct | 4277 Sep 10 00:22 | 0°♏12'50 | |
| retrograde | 4271 Mar 21 18:44 | 19°♏55'45 | | evening set | 4277 Dec 08 21:37 | 2°♏08'12 | |
| opposition | 4271 Jun 07 22:25 | 18°♏33'53 | 1°34'33 | | | | |
| min. Earth dist. | 4271 Jun 08 17:21 | 18°♏32'36 | 29.33175 AU | conjunction | 4277 Dec 24 08:58 | 2°♏42'43 | 1°21'25 |
| direct | 4271 Aug 27 23:55 | 17°♏09'24 | | minimum elong | 4277 Dec 24 08:58 | 2°♏42'43 | 1°21'24 |
| evening set | 4271 Nov 26 08:30 | 19°♏05'04 | | max. Earth dist. | 4277 Dec 23 15:27 | 2°♏41'05 | 31.31887 AU |
| | | | | morning rise | 4278 Jan 08 17:53 | 3°♏17'03 | |
| conjunction | 4271 Dec 11 22:02 | 19°♏39'42 | 1°28'09 | retrograde | 4278 Apr 05 16:03 | 5°♏09'36 | |
| minimum elong | 4271 Dec 11 22:02 | 19°♏39'42 | 1°28'09 | opposition | 4278 Jun 23 08:01 | 3°♏47'33 | 1°26'10 |
| max. Earth dist. | 4271 Dec 11 02:49 | 19°♏37'54 | 31.33139 AU | min. Earth dist. | 4278 Jun 24 00:54 | 3°♏46'24 | 29.31871 AU |

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|------------------|-------------------|-------------|-------------|------------------|-------------------|-------------|-------------|
| direct | 4278 Sep 12 10:21 | 2°32'31.0 | | retrograde | 4285 Apr 20 20:25 | 20°32'40.0 | |
| evening set | 4278 Dec 11 07:30 | 4°31'18.29 | | opposition | 4285 Jul 08 20:26 | 19°30'15.2 | 1°11'45 |
| | | | | min. Earth dist. | 4285 Jul 09 09:55 | 19°30'05.7 | 29.30509 AU |
| conjunction | 4278 Dec 26 18:34 | 4°35'25.9 | 1°19'53 | direct | 4285 Sep 27 20:04 | 17°33'75.1 | |
| minimum elong | 4278 Dec 26 18:34 | 4°35'25.9 | 1°19'53 | evening set | 4285 Dec 26 04:14 | 19°33'25.3 | |
| max. Earth dist. | 4278 Dec 26 02:08 | 4°35'12.7 | 31.31725 AU | | | | |
| morning rise | 4279 Jan 11 03:14 | 5°32'7.18 | | conjunction | 4286 Jan 10 13:26 | 20°30'72.0 | 1°06'01 |
| retrograde | 4279 Apr 08 02:22 | 7°31'9.55 | | minimum elong | 4286 Jan 10 13:26 | 20°30'72.0 | 1°06'00 |
| opposition | 4279 Jun 25 19:50 | 5°35'75.3 | 1°24'28 | max. Earth dist. | 4286 Jan 10 00:02 | 20°30'06.05 | 31.30164 AU |
| min. Earth dist. | 4279 Jun 26 11:10 | 5°35'56.50 | 29.31738 AU | morning rise | 4286 Jan 25 20:58 | 20°34'13.9 | |
| direct | 4279 Sep 14 22:30 | 4°33'33.3 | | retrograde | 4286 Apr 23 07:23 | 22°33'45.3 | |
| evening set | 4279 Dec 13 17:15 | 6°32'8.49 | | opposition | 4286 Jul 11 08:39 | 21°31'24.3 | 1°09'16 |
| max. Earth dist. | 4279 Dec 28 11:38 | 7°30'14.7 | 31.31630 AU | min. Earth dist. | 4286 Jul 11 20:46 | 21°31'15.4 | 29.29875 AU |
| | | | | direct | 4286 Sep 30 08:14 | 19°34'48.43 | |
| conjunction | 4279 Dec 29 03:57 | 7°30'31.9 | 1°18'14 | evening set | 4286 Dec 28 14:02 | 21°34'43.41 | |
| minimum elong | 4279 Dec 29 03:57 | 7°30'31.9 | 1°18'13 | | | | |
| morning rise | 4280 Jan 13 12:30 | 7°33'7.37 | | conjunction | 4287 Jan 12 23:01 | 22°31'18.07 | 1°03'38 |
| retrograde | 4280 Apr 09 14:17 | 9°33'02.0 | | minimum elong | 4287 Jan 12 23:02 | 22°31'18.07 | 1°03'39 |
| opposition | 4280 Jun 27 07:46 | 8°30'8.17 | 1°22'38 | max. Earth dist. | 4287 Jan 12 10:01 | 22°31'16.54 | 31.29462 AU |
| min. Earth dist. | 4280 Jun 27 22:54 | 8°30'7.15 | 29.31672 AU | morning rise | 4287 Jan 28 06:27 | 22°35'22.6 | |
| direct | 4280 Sep 16 07:44 | 6°34'44.01 | | retrograde | 4287 Apr 25 17:18 | 24°34'45.46 | |
| evening set | 4280 Dec 15 03:01 | 8°33'39.15 | | opposition | 4287 Jul 13 21:09 | 23°32'23.31 | 1°06'40 |
| | | | | min. Earth dist. | 4287 Jul 14 09:47 | 23°32'22.40 | 29.29117 AU |
| conjunction | 4280 Dec 30 13:34 | 9°31'13.44 | 1°16'27 | direct | 4287 Oct 02 18:50 | 21°35'59.31 | |
| minimum elong | 4280 Dec 30 13:35 | 9°31'13.44 | 1°16'29 | evening set | 4287 Dec 30 23:32 | 23°35'42.3 | |
| max. Earth dist. | 4280 Dec 29 22:45 | 9°31'22.1 | 31.31578 AU | | | | |
| morning rise | 4281 Jan 14 21:49 | 9°34'8.03 | | conjunction | 4288 Jan 15 08:26 | 24°32'28.49 | 1°01'09 |
| retrograde | 4281 Apr 12 00:13 | 11°34'05.1 | | minimum elong | 4288 Jan 15 08:26 | 24°32'28.49 | 1°01'09 |
| opposition | 4281 Jun 29 19:35 | 10°31'18.48 | 1°20'41 | max. Earth dist. | 4288 Jan 14 20:30 | 24°32'27.42 | 31.28665 AU |
| min. Earth dist. | 4281 Jun 30 10:06 | 10°31'17.49 | 29.31603 AU | morning rise | 4288 Jan 30 15:45 | 25°30'30.8 | |
| direct | 4281 Sep 18 19:58 | 8°35'43.6 | | retrograde | 4288 Apr 27 03:18 | 26°35'56.33 | |
| evening set | 4281 Dec 17 12:58 | 10°34'49.49 | | opposition | 4288 Jul 15 09:27 | 25°33'34.13 | 1°03'59 |
| | | | | min. Earth dist. | 4288 Jul 15 20:43 | 25°33'33.27 | 29.28274 AU |
| conjunction | 4282 Jan 01 23:05 | 11°32'41.7 | 1°14'35 | direct | 4288 Oct 04 07:08 | 24°31'10.12 | |
| minimum elong | 4282 Jan 01 23:05 | 11°32'41.7 | 1°14'35 | evening set | 4289 Jan 01 09:11 | 26°30'05.00 | |
| max. Earth dist. | 4282 Jan 01 07:44 | 11°32'22.51 | 31.31502 AU | | | | |
| morning rise | 4282 Jan 17 07:17 | 11°35'58.36 | | conjunction | 4289 Jan 16 17:47 | 26°33'39.26 | 0°58'36 |
| retrograde | 4282 Apr 14 13:08 | 13°35'12.9 | | minimum elong | 4289 Jan 16 17:47 | 26°33'39.26 | 0°58'37 |
| opposition | 4282 Jul 02 07:39 | 12°32'29.26 | 1°18'37 | max. Earth dist. | 4289 Jan 16 05:48 | 26°33'38.18 | 31.27811 AU |
| min. Earth dist. | 4282 Jul 02 21:31 | 12°32'28.30 | 29.31502 AU | morning rise | 4289 Feb 01 01:09 | 27°31'13.45 | |
| direct | 4282 Sep 21 07:25 | 11°30'51.8 | | retrograde | 4289 Apr 29 14:56 | 29°30'07.15 | |
| evening set | 4282 Dec 19 22:40 | 13°30'00.29 | | opposition | 4289 Jul 17 21:42 | 27°34'44.50 | 1°01'12 |
| | | | | min. Earth dist. | 4289 Jul 18 08:41 | 27°34'44.06 | 29.27431 AU |
| conjunction | 4283 Jan 04 08:40 | 13°33'34.57 | 1°12'35 | direct | 4289 Oct 06 16:25 | 26°32'20.49 | |
| minimum elong | 4283 Jan 04 08:40 | 13°33'34.57 | 1°12'36 | evening set | 4290 Jan 03 18:39 | 28°31'15.33 | |
| max. Earth dist. | 4283 Jan 03 18:54 | 13°33'33.39 | 31.31356 AU | | | | |
| morning rise | 4283 Jan 19 16:31 | 14°30'09.15 | | conjunction | 4290 Jan 19 03:13 | 28°34'49.58 | 0°55'58 |
| retrograde | 4283 Apr 16 23:35 | 16°30'21.5 | | minimum elong | 4290 Jan 19 03:13 | 28°34'49.58 | 0°55'57 |
| opposition | 4283 Jul 04 19:56 | 14°34'01.1 | 1°16'27 | max. Earth dist. | 4290 Jan 18 17:03 | 28°34'49.01 | 31.26988 AU |
| min. Earth dist. | 4283 Jul 05 09:59 | 14°33'39.14 | 29.31301 AU | morning rise | 4290 Feb 03 10:21 | 29°32'24.18 | |
| direct | 4283 Sep 23 20:22 | 13°31'16.06 | | | 4290 Feb 20 08:11 | 0°00'00.00 | |
| evening set | 4283 Dec 22 08:37 | 15°31'11.15 | | retrograde | 4290 May 02 00:59 | 1°00'17.53 | |
| | | | | | 4290 Jul 17 14:17 | 30°00'00.00 | |
| conjunction | 4284 Jan 06 18:12 | 15°34'45.42 | 1°10'30 | opposition | 4290 Jul 20 10:08 | 29°35'55.25 | 0°58'21 |
| minimum elong | 4284 Jan 06 18:12 | 15°34'45.42 | 1°10'30 | min. Earth dist. | 4290 Jul 20 20:00 | 29°35'44.45 | 29.26632 AU |
| max. Earth dist. | 4284 Jan 06 03:55 | 15°34'44.22 | 31.31106 AU | direct | 4290 Oct 09 04:46 | 28°33'31.25 | |
| morning rise | 4284 Jan 22 02:03 | 16°32'20.01 | | | 4290 Dec 24 23:16 | 0°00'00.00 | |
| retrograde | 4284 Apr 18 11:09 | 18°31'13.06 | | evening set | 4291 Jan 06 04:08 | 0°00'26.06 | |
| opposition | 4284 Jul 06 08:03 | 16°35'10.00 | 1°14'09 | | | | |
| min. Earth dist. | 4284 Jul 06 20:54 | 16°35'00.08 | 29.30985 AU | conjunction | 4291 Jan 21 12:22 | 1°00'00.31 | 0°53'14 |
| direct | 4284 Sep 25 07:47 | 15°32'26.57 | | minimum elong | 4291 Jan 21 12:22 | 1°00'00.31 | 0°53'15 |
| evening set | 4284 Dec 23 18:22 | 17°32'22.04 | | max. Earth dist. | 4291 Jan 21 02:08 | 0°00'59.33 | 31.26239 AU |
| | | | | morning rise | 4291 Feb 05 19:37 | 1°00'34.51 | |
| conjunction | 4285 Jan 08 03:52 | 17°35'56.31 | 1°08'18 | retrograde | 4291 May 04 14:09 | 3°00'28.33 | |
| minimum elong | 4285 Jan 08 03:52 | 17°35'56.31 | 1°08'19 | opposition | 4291 Jul 22 22:34 | 2°00'06.02 | 0°55'24 |
| max. Earth dist. | 4285 Jan 07 14:32 | 17°35'55.16 | 31.30710 AU | min. Earth dist. | 4291 Jul 23 07:12 | 2°00'05.27 | 29.25934 AU |
| morning rise | 4285 Jan 23 11:28 | 18°30'30.49 | | direct | 4291 Oct 11 15:42 | 0°00'42.04 | |

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| evening set | 4292 Jan 08 13:28 | 2°36'43 | | max. Earth dist. | 4298 Feb 05 01:11 | 16°17'50 | 31.21670 AU |
| | | | | morning rise | 4298 Feb 20 13:31 | 16°52'45 | |
| conjunction | 4292 Jan 23 21:44 | 3°11'09 0°50'27 | | retrograde | 4298 May 19 20:09 | 18°47'24 | |
| minimum elong | 4292 Jan 23 21:44 | 3°11'09 0°50'27 | | opposition | 4298 Aug 07 15:06 | 17°24'39 | 0°32'42 |
| max. Earth dist. | 4292 Jan 23 13:32 | 3°10'22 31.25583 AU | | min. Earth dist. | 4298 Aug 07 19:13 | 17°24'22 | 29.21208 AU |
| morning rise | 4292 Feb 08 04:48 | 3°45'29 | | direct | 4298 Oct 26 23:00 | 16°01'03 | |
| retrograde | 4292 May 06 01:04 | 5°39'19 | | evening set | 4299 Jan 23 08:08 | 17°55'25 | |
| opposition | 4292 Jul 24 10:57 | 4°16'46 0°52'22 | | | | | |
| min. Earth dist. | 4292 Jul 24 19:16 | 4°16'12 29.25310 AU | | conjunction | 4299 Feb 07 15:47 | 18°29'52 | 0°29'00 |
| direct | 4292 Oct 13 03:48 | 2°52'52 | | minimum elong | 4299 Feb 07 15:47 | 18°29'52 | 0°29'01 |
| evening set | 4293 Jan 09 22:56 | 4°47'29 | | max. Earth dist. | 4299 Feb 07 12:19 | 18°29'33 | 31.20686 AU |
| | | | | morning rise | 4299 Feb 22 23:02 | 19°04'20 | |
| conjunction | 4293 Jan 25 06:58 | 5°21'55 0°47'34 | | retrograde | 4299 May 22 06:40 | 20°59'06 | |
| minimum elong | 4293 Jan 25 06:58 | 5°21'55 0°47'35 | | opposition | 4299 Aug 10 04:01 | 19°36'15 | 0°29'14 |
| max. Earth dist. | 4293 Jan 24 22:49 | 5°21'09 31.25003 AU | | min. Earth dist. | 4299 Aug 10 07:22 | 19°36'01 | 29.20151 AU |
| morning rise | 4293 Feb 09 14:12 | 5°56'16 | | direct | 4299 Oct 29 11:52 | 18°12'39 | |
| retrograde | 4293 May 08 13:14 | 7°50'14 | | evening set | 4300 Jan 25 17:49 | 20°06'56 | |
| opposition | 4293 Jul 26 23:23 | 6°27'40 0°49'15 | | | | | |
| min. Earth dist. | 4293 Jul 27 05:59 | 6°27'13 29.24745 AU | | conjunction | 4300 Feb 10 01:17 | 20°41'23 | 0°25'44 |
| direct | 4293 Oct 15 14:49 | 5°03'49 | | minimum elong | 4300 Feb 10 01:17 | 20°41'23 | 0°25'44 |
| evening set | 4294 Jan 12 08:18 | 6°58'25 | | max. Earth dist. | 4300 Feb 09 21:23 | 20°41'02 | 31.19587 AU |
| | | | | morning rise | 4300 Feb 25 08:49 | 21°15'52 | |
| conjunction | 4294 Jan 27 16:17 | 7°32'51 0°44'37 | | retrograde | 4300 May 24 19:53 | 23°10'44 | |
| minimum elong | 4294 Jan 27 16:18 | 7°32'51 0°44'37 | | opposition | 4300 Aug 12 16:43 | 21°47'46 | 0°25'43 |
| max. Earth dist. | 4294 Jan 27 09:31 | 7°32'13 31.24440 AU | | min. Earth dist. | 4300 Aug 12 19:15 | 21°47'36 | 29.19017 AU |
| morning rise | 4294 Feb 11 23:24 | 8°07'14 | | direct | 4300 Oct 31 22:18 | 20°24'08 | |
| retrograde | 4294 May 10 23:25 | 10°01'20 | | evening set | 4301 Jan 28 03:16 | 22°18'20 | |
| opposition | 4294 Jul 29 12:03 | 8°38'45 0°46'04 | | | | | |
| min. Earth dist. | 4294 Jul 29 18:51 | 8°38'17 29.24181 AU | | conjunction | 4301 Feb 12 10:53 | 22°52'49 | 0°22'26 |
| direct | 4294 Oct 18 03:11 | 7°14'59 | | minimum elong | 4301 Feb 12 10:53 | 22°52'49 | 0°22'26 |
| evening set | 4295 Jan 14 17:48 | 9°09'33 | | max. Earth dist. | 4301 Feb 12 08:45 | 22°52'37 | 31.18425 AU |
| | | | | morning rise | 4301 Feb 27 18:21 | 23°27'18 | |
| conjunction | 4295 Jan 30 01:39 | 9°44'00 0°41'37 | | retrograde | 4301 May 27 06:37 | 25°22'15 | |
| minimum elong | 4295 Jan 30 01:39 | 9°44'00 0°41'37 | | opposition | 4301 Aug 15 05:36 | 23°59'10 | 0°22'10 |
| max. Earth dist. | 4295 Jan 29 19:25 | 9°43'25 31.23878 AU | | min. Earth dist. | 4301 Aug 15 07:53 | 23°59'01 | 29.17845 AU |
| morning rise | 4295 Feb 14 08:49 | 10°18'23 | | direct | 4301 Nov 03 10:11 | 22°35'31 | |
| retrograde | 4295 May 13 11:40 | 12°12'38 | | evening set | 4302 Jan 30 12:45 | 24°29'38 | |
| opposition | 4295 Aug 01 00:41 | 10°50'01 0°42'49 | | | | | |
| min. Earth dist. | 4295 Aug 01 05:44 | 10°49'41 29.23588 AU | | conjunction | 4302 Feb 14 20:11 | 25°04'07 | 0°19'06 |
| direct | 4295 Oct 20 15:22 | 9°26'19 | | minimum elong | 4302 Feb 14 20:11 | 25°04'07 | 0°19'05 |
| evening set | 4296 Jan 17 03:18 | 11°20'51 | | max. Earth dist. | 4302 Feb 14 18:19 | 25°03'56 | 31.17277 AU |
| | | | | morning rise | 4302 Mar 02 03:53 | 25°38'37 | |
| conjunction | 4296 Feb 01 11:02 | 11°55'18 0°38'32 | | retrograde | 4302 May 29 19:14 | 27°33'40 | |
| minimum elong | 4296 Feb 01 11:02 | 11°55'18 0°38'32 | | opposition | 4302 Aug 17 18:24 | 26°10'29 | 0°18'35 |
| max. Earth dist. | 4296 Feb 01 05:18 | 11°54'46 31.23248 AU | | min. Earth dist. | 4302 Aug 17 18:47 | 26°10'27 | 29.16729 AU |
| morning rise | 4296 Feb 16 18:15 | 12°29'43 | | direct | 4302 Nov 05 21:42 | 24°46'49 | |
| retrograde | 4296 May 14 21:54 | 14°24'07 | | evening set | 4303 Feb 01 22:12 | 26°40'52 | |
| opposition | 4296 Aug 02 13:30 | 13°01'28 0°39'30 | | | | | |
| min. Earth dist. | 4296 Aug 02 18:59 | 13°01'06 29.22918 AU | | conjunction | 4303 Feb 17 05:42 | 27°15'21 | 0°15'44 |
| direct | 4296 Oct 22 01:49 | 11°37'49 | | minimum elong | 4303 Feb 17 05:42 | 27°15'21 | 0°15'45 |
| evening set | 4297 Jan 18 12:54 | 13°32'18 | | behind sun begin | 4303 Feb 17 04:04 | 27°15'12 | |
| | | | | behind sun end | 4303 Feb 17 07:20 | 27°15'30 | |
| conjunction | 4297 Feb 02 20:38 | 14°06'46 0°35'24 | | max. Earth dist. | 4303 Feb 17 05:18 | 27°15'19 | 31.16198 AU |
| minimum elong | 4297 Feb 02 20:38 | 14°06'46 0°35'25 | | morning rise | 4303 Mar 04 13:25 | 27°49'52 | |
| max. Earth dist. | 4297 Feb 02 16:00 | 14°06'19 31.22526 AU | | retrograde | 4303 Jun 01 06:31 | 29°45'02 | |
| morning rise | 4297 Feb 18 03:48 | 14°41'12 | | opposition | 4303 Aug 20 07:20 | 28°21'46 | 0°14'58 |
| | 4297 Feb 26 20:05 | 15° | | min. Earth dist. | 4303 Aug 20 07:34 | 28°21'45 | 29.15711 AU |
| retrograde | 4297 May 17 08:00 | 16°35'43 | | direct | 4303 Nov 08 10:11 | 26°58'07 | |
| opposition | 4297 Aug 05 02:08 | 15°13'01 0°36'07 | | evening set | 4304 Feb 04 07:37 | 28°52'06 | |
| min. Earth dist. | 4297 Aug 05 06:21 | 15°12'44 29.22125 AU | | | | | |
| | 4297 Aug 13 03:31 | 15° | | conjunction | 4304 Feb 19 15:09 | 29°26'36 | 0°12'21 |
| direct | 4297 Oct 24 13:50 | 13°49'25 | | minimum elong | 4304 Feb 19 15:09 | 29°26'36 | 0°12'21 |
| | 4297 Dec 30 21:53 | 15° | | behind sun begin | 4304 Feb 19 10:51 | 29°26'13 | |
| evening set | 4298 Jan 20 22:40 | 15°43'51 | | behind sun end | 4304 Feb 19 19:27 | 29°26'59 | |
| | | | | max. Earth dist. | 4304 Feb 19 15:44 | 29°26'39 | 31.15244 AU |
| conjunction | 4298 Feb 05 06:11 | 16°18'19 0°32'13 | | morning rise | 4304 Mar 05 23:02 | 0°01'08 | |
| minimum elong | 4298 Feb 05 06:11 | 16°18'19 0°32'13 | | | 4304 Mar 05 10:39 | 0° | |

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|------------------|-------------------|----------------------------------|------------------|-------------------|----------------------------------|--|
| retrograde | 4304 Jun 02 19:06 | 1° H 56'26 | evening set | 4310 Feb 16 17:45 | 12° H 03'09 | |
| opposition | 4304 Aug 21 20:05 | 0° H 33'06 0°11'20 | | | | |
| min. Earth dist. | 4304 Aug 21 18:10 | 0° H 33'13 29.14803 AU | conjunction | 4310 Mar 04 01:35 | 12° H 37'44 -0°08'22 | |
| | 4304 Sep 11 17:17 | 30° R ≈ | minimum elong | 4310 Mar 04 01:34 | 12° H 37'44 0°08'22 | |
| direct | 4304 Nov 09 22:35 | 29° R ≈09'29 | behind sun begin | 4310 Mar 03 19:55 | 12° H 37'13 | |
| | 4305 Jan 04 23:06 | 0° H | behind sun end | 4310 Mar 04 07:14 | 12° H 38'15 | |
| evening set | 4305 Feb 05 17:11 | 1° H 03'26 | max. Earth dist. | 4310 Mar 04 07:24 | 12° H 38'16 31.10520 AU | |
| | | | morning rise | 4310 Mar 19 10:21 | 13° H 12'26 | |
| conjunction | 4305 Feb 21 00:40 | 1° H 37'56 0°08'57 | retrograde | 4310 Jun 16 17:58 | 15° H 08'42 | |
| minimum elong | 4305 Feb 21 00:40 | 1° H 37'56 0°08'58 | opposition | 4310 Sep 05 02:13 | 13° H 45'09 -0°10'44 | |
| behind sun begin | 4305 Feb 20 19:09 | 1° H 37'27 | min. Earth dist. | 4310 Sep 04 20:43 | 13° H 45'31 29.10045 AU | |
| behind sun end | 4305 Feb 21 06:10 | 1° H 38'26 | direct | 4310 Nov 23 15:03 | 12° H 21'53 | |
| max. Earth dist. | 4305 Feb 21 01:57 | 1° H 38'03 31.14381 AU | evening set | 4311 Feb 19 03:50 | 14° H 15'43 | |
| morning rise | 4305 Mar 08 08:43 | 2° H 12'31 | | | | |
| retrograde | 4305 Jun 05 05:46 | 4° H 07'57 | conjunction | 4311 Mar 06 11:40 | 14° H 50'19 -0°11'47 | |
| opposition | 4305 Aug 24 08:56 | 2° H 44'34 0°07'41 | minimum elong | 4311 Mar 06 11:39 | 14° H 50'19 0°11'46 | |
| min. Earth dist. | 4305 Aug 24 07:04 | 2° H 44'41 29.13992 AU | behind sun begin | 4311 Mar 06 07:06 | 14° H 49'54 | |
| direct | 4305 Nov 12 09:02 | 1° H 21'00 | behind sun end | 4311 Mar 06 16:13 | 14° H 50'43 | |
| evening set | 4306 Feb 08 02:43 | 3° H 14'56 | max. Earth dist. | 4311 Mar 06 17:18 | 14° H 50'50 31.09536 AU | |
| | | | morning rise | 4311 Mar 21 20:46 | 15° H 25'02 | |
| conjunction | 4306 Feb 23 10:20 | 3° H 49'27 0°05'33 | retrograde | 4311 Jun 19 07:59 | 17° H 21'27 | |
| minimum elong | 4306 Feb 23 10:20 | 3° H 49'27 0°05'32 | opposition | 4311 Sep 07 15:20 | 15° H 57'50 -0°14'24 | |
| behind sun begin | 4306 Feb 23 04:10 | 3° H 48'53 | min. Earth dist. | 4311 Sep 07 08:31 | 15° H 58'17 29.09000 AU | |
| behind sun end | 4306 Feb 23 16:30 | 3° H 50'00 | direct | 4311 Nov 26 02:26 | 14° H 34'34 | |
| max. Earth dist. | 4306 Feb 23 13:18 | 3° H 49'41 31.13614 AU | evening set | 4312 Feb 21 13:48 | 16° H 28'22 | |
| morning rise | 4306 Mar 10 18:26 | 4° H 24'02 | | | | |
| retrograde | 4306 Jun 07 16:34 | 6° H 19'38 | conjunction | 4312 Mar 07 21:49 | 17° H 02'59 -0°15'12 | |
| opposition | 4306 Aug 26 21:52 | 4° H 56'13 0°04'00 | minimum elong | 4312 Mar 07 21:49 | 17° H 02'59 0°15'12 | |
| min. Earth dist. | 4306 Aug 26 18:15 | 4° H 56'28 29.13244 AU | behind sun begin | 4312 Mar 07 19:29 | 17° H 02'46 | |
| direct | 4306 Nov 14 21:05 | 3° H 32'44 | behind sun end | 4312 Mar 08 00:08 | 17° H 03'11 | |
| evening set | 4307 Feb 10 12:19 | 5° H 26'37 | max. Earth dist. | 4312 Mar 08 04:15 | 17° H 03'34 31.08420 AU | |
| | | | morning rise | 4312 Mar 23 07:07 | 17° H 37'44 | |
| conjunction | 4307 Feb 25 19:49 | 6° H 01'10 0°02'06 | retrograde | 4312 Jun 20 20:38 | 19° H 34'16 | |
| minimum elong | 4307 Feb 25 19:49 | 6° H 01'10 0°02'06 | opposition | 4312 Sep 09 04:36 | 18° H 10'33 -0°18'02 | |
| behind sun begin | 4307 Feb 25 13:26 | 6° H 00'35 | min. Earth dist. | 4312 Sep 08 22:12 | 18° H 10'59 29.07831 AU | |
| behind sun end | 4307 Feb 26 02:13 | 6° H 01'44 | direct | 4312 Nov 27 15:17 | 16° H 47'18 | |
| max. Earth dist. | 4307 Feb 25 22:48 | 6° H 01'23 31.12887 AU | evening set | 4313 Feb 22 23:48 | 18° H 41'02 | |
| morning rise | 4307 Mar 13 04:14 | 6° H 35'47 | | | | |
| retrograde | 4307 Jun 10 05:18 | 8° H 31'33 | conjunction | 4313 Mar 10 07:56 | 19° H 15'40 -0°18'35 | |
| opposition | 4307 Aug 29 10:56 | 7° H 08'06 0°00'19 | minimum elong | 4313 Mar 10 07:56 | 19° H 15'40 0°18'35 | |
| min. Earth dist. | 4307 Aug 29 07:00 | 7° H 08'22 29.12531 AU | max. Earth dist. | 4313 Mar 10 15:01 | 19° H 16'19 31.07220 AU | |
| desc. node | 4307 Sep 30 15:34 | 6° H 18'59 | morning rise | 4313 Mar 25 17:26 | 19° H 50'26 | |
| direct | 4307 Nov 17 06:12 | 5° H 44'41 | retrograde | 4313 Jun 23 10:05 | 21° H 47'04 | |
| evening set | 4308 Feb 12 22:00 | 7° H 38'34 | opposition | 4313 Sep 11 17:35 | 20° H 23'15 -0°21'39 | |
| | | | min. Earth dist. | 4313 Sep 11 09:28 | 20° H 23'48 29.06603 AU | |
| conjunction | 4308 Feb 28 05:45 | 8° H 13'07 -0°01'28 | direct | 4313 Nov 30 04:11 | 18° H 59'59 | |
| minimum elong | 4308 Feb 28 05:45 | 8° H 13'07 0°01'28 | evening set | 4314 Feb 25 09:51 | 20° H 53'40 | |
| behind sun begin | 4308 Feb 27 23:21 | 8° H 12'32 | | | | |
| behind sun end | 4308 Feb 28 12:08 | 8° H 13'41 | conjunction | 4314 Mar 12 18:01 | 21° H 28'18 -0°21'57 | |
| max. Earth dist. | 4308 Feb 28 10:29 | 8° H 13'31 31.12163 AU | minimum elong | 4314 Mar 12 18:01 | 21° H 28'18 0°21'57 | |
| morning rise | 4308 Mar 14 14:10 | 8° H 47'46 | max. Earth dist. | 4314 Mar 13 01:32 | 21° H 29'00 31.05984 AU | |
| retrograde | 4308 Jun 11 16:23 | 10° H 43'42 | morning rise | 4314 Mar 28 03:50 | 22° H 03'06 | |
| opposition | 4308 Aug 30 23:49 | 9° H 20'14 -0°03'22 | retrograde | 4314 Jun 25 21:09 | 23° H 59'51 | |
| min. Earth dist. | 4308 Aug 30 19:04 | 9° H 20'33 29.11783 AU | opposition | 4314 Sep 14 06:51 | 22° H 35'55 -0°25'14 | |
| direct | 4308 Nov 18 18:15 | 7° H 56'53 | min. Earth dist. | 4314 Sep 13 22:54 | 22° H 36'28 29.05393 AU | |
| evening set | 4309 Feb 14 07:57 | 9° H 50'45 | direct | 4314 Dec 02 15:21 | 21° H 12'39 | |
| | | | evening set | 4315 Feb 27 19:43 | 23° H 06'15 | |
| conjunction | 4309 Mar 01 15:34 | 10° H 25'19 -0°04'56 | | | | |
| minimum elong | 4309 Mar 01 15:34 | 10° H 25'19 0°04'55 | conjunction | 4315 Mar 15 04:09 | 23° H 40'55 -0°25'17 | |
| behind sun begin | 4309 Mar 01 09:20 | 10° H 24'45 | minimum elong | 4315 Mar 15 04:09 | 23° H 40'55 0°25'16 | |
| behind sun end | 4309 Mar 01 21:49 | 10° H 25'53 | max. Earth dist. | 4315 Mar 15 13:23 | 23° H 41'47 31.04804 AU | |
| max. Earth dist. | 4309 Mar 01 19:53 | 10° H 25'41 31.11390 AU | morning rise | 4315 Mar 30 14:05 | 24° H 15'45 | |
| morning rise | 4309 Mar 17 00:20 | 10° H 59'59 | retrograde | 4315 Jun 28 08:33 | 26° H 12'35 | |
| retrograde | 4309 Jun 14 06:22 | 12° H 56'05 | opposition | 4315 Sep 16 19:54 | 24° H 48'34 -0°28'47 | |
| opposition | 4309 Sep 02 12:55 | 11° H 32'35 -0°07'03 | min. Earth dist. | 4315 Sep 16 10:13 | 24° H 49'14 29.04251 AU | |
| min. Earth dist. | 4309 Sep 02 07:25 | 11° H 32'58 29.10975 AU | direct | 4315 Dec 05 04:34 | 23° H 25'18 | |
| direct | 4309 Nov 21 03:55 | 10° H 09'17 | evening set | 4316 Mar 01 05:53 | 25° H 18'51 | |

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|------------------|-------------------|-------------------------------|-------------|------------------|-------------------|-------------------------------|-------------|
| conjunction | 4316 Mar 16 14:19 | 25° $\mathbf{\text{X}}$ 53'32 | -0°28'35 | retrograde | 4322 Jul 14 02:22 | 11° $\mathbf{\text{Y}}$ 44'43 | |
| minimum elong | 4316 Mar 16 14:19 | 25° $\mathbf{\text{X}}$ 53'32 | 0°28'35 | opposition | 4322 Oct 02 15:41 | 10° $\mathbf{\text{Y}}$ 20'21 | -0°52'14 |
| max. Earth dist. | 4316 Mar 16 23:30 | 25° $\mathbf{\text{X}}$ 54'24 | 31.03707 AU | min. Earth dist. | 4322 Oct 02 00:55 | 10° $\mathbf{\text{Y}}$ 21'22 | 28.98289 AU |
| morning rise | 4316 Apr 01 00:39 | 26° $\mathbf{\text{X}}$ 28'23 | | direct | 4322 Dec 20 09:56 | 8° $\mathbf{\text{Y}}$ 57'16 | |
| retrograde | 4316 Jun 29 21:22 | 28° $\mathbf{\text{X}}$ 25'21 | | evening set | 4323 Mar 17 06:31 | 10° $\mathbf{\text{Y}}$ 50'44 | |
| opposition | 4316 Sep 18 08:52 | 27° $\mathbf{\text{X}}$ 01'16 | -0°32'18 | | | | |
| min. Earth dist. | 4316 Sep 17 22:48 | 27° $\mathbf{\text{X}}$ 01'57 | 29.03221 AU | conjunction | 4323 Apr 01 16:17 | 11° $\mathbf{\text{Y}}$ 25'33 | -0°50'18 |
| direct | 4316 Dec 06 14:38 | 25° $\mathbf{\text{X}}$ 37'59 | | minimum elong | 4323 Apr 01 16:16 | 11° $\mathbf{\text{Y}}$ 25'33 | 0°50'17 |
| evening set | 4317 Mar 03 15:55 | 27° $\mathbf{\text{X}}$ 31'31 | | max. Earth dist. | 4323 Apr 02 06:23 | 11° $\mathbf{\text{Y}}$ 26'53 | 30.97779 AU |
| | | | | morning rise | 4323 Apr 17 04:34 | 12° $\mathbf{\text{Y}}$ 00'37 | |
| conjunction | 4317 Mar 19 00:40 | 28° $\mathbf{\text{X}}$ 06'13 | -0°31'50 | retrograde | 4323 Jul 16 15:19 | 13° $\mathbf{\text{Y}}$ 58'31 | |
| minimum elong | 4317 Mar 19 00:40 | 28° $\mathbf{\text{X}}$ 06'13 | 0°31'49 | opposition | 4323 Oct 05 05:01 | 12° $\mathbf{\text{Y}}$ 34'05 | -0°55'19 |
| max. Earth dist. | 4317 Mar 19 11:47 | 28° $\mathbf{\text{X}}$ 07'16 | 31.02724 AU | min. Earth dist. | 4323 Oct 04 15:00 | 12° $\mathbf{\text{Y}}$ 35'03 | 28.97313 AU |
| morning rise | 4317 Apr 03 11:05 | 28° $\mathbf{\text{X}}$ 41'06 | | direct | 4323 Dec 22 21:22 | 11° $\mathbf{\text{Y}}$ 11'00 | |
| | 4317 May 14 12:11 | 0° $\mathbf{\text{Y}}$ | | evening set | 4324 Mar 18 17:19 | 13° $\mathbf{\text{Y}}$ 04'27 | |
| retrograde | 4317 Jul 02 07:51 | 0° $\mathbf{\text{Y}}$ 38'12 | | | | | |
| | 4317 Aug 22 05:37 | 30° $\mathbf{\text{X}}$ | | conjunction | 4324 Apr 03 03:29 | 13° $\mathbf{\text{Y}}$ 39'17 | -0°53'09 |
| opposition | 4317 Sep 20 21:55 | 29° $\mathbf{\text{X}}$ 14'02 | -0°35'46 | minimum elong | 4324 Apr 03 03:28 | 13° $\mathbf{\text{Y}}$ 39'17 | 0°53'09 |
| min. Earth dist. | 4317 Sep 20 10:41 | 29° $\mathbf{\text{X}}$ 14'49 | 29.02287 AU | max. Earth dist. | 4324 Apr 03 18:35 | 13° $\mathbf{\text{Y}}$ 40'43 | 30.96739 AU |
| direct | 4317 Dec 09 02:58 | 27° $\mathbf{\text{X}}$ 50'48 | | morning rise | 4324 Apr 18 15:58 | 14° $\mathbf{\text{Y}}$ 14'23 | |
| evening set | 4318 Mar 06 02:02 | 29° $\mathbf{\text{X}}$ 44'18 | | retrograde | 4324 Jul 18 04:25 | 16° $\mathbf{\text{Y}}$ 12'22 | |
| | 4318 Mar 13 02:10 | 0° $\mathbf{\text{Y}}$ | | opposition | 4324 Oct 06 18:00 | 14° $\mathbf{\text{Y}}$ 47'52 | -0°58'19 |
| | | | | min. Earth dist. | 4324 Oct 06 02:56 | 14° $\mathbf{\text{Y}}$ 48'54 | 28.96208 AU |
| conjunction | 4318 Mar 21 10:48 | 0° $\mathbf{\text{Y}}$ 19'00 | -0°35'03 | direct | 4324 Dec 24 11:03 | 13° $\mathbf{\text{Y}}$ 24'46 | |
| minimum elong | 4318 Mar 21 10:48 | 0° $\mathbf{\text{Y}}$ 19'00 | 0°35'03 | evening set | 4325 Mar 21 04:17 | 15° $\mathbf{\text{Y}}$ 18'11 | |
| max. Earth dist. | 4318 Mar 21 21:50 | 0° $\mathbf{\text{Y}}$ 20'03 | 31.01846 AU | | | | |
| morning rise | 4318 Apr 05 21:39 | 0° $\mathbf{\text{Y}}$ 53'55 | | conjunction | 4325 Apr 05 14:32 | 15° $\mathbf{\text{Y}}$ 53'03 | -0°55'55 |
| retrograde | 4318 Jul 04 20:59 | 2° $\mathbf{\text{Y}}$ 51'09 | | minimum elong | 4325 Apr 05 14:31 | 15° $\mathbf{\text{Y}}$ 53'03 | 0°55'54 |
| opposition | 4318 Sep 23 11:05 | 1° $\mathbf{\text{Y}}$ 26'57 | -0°39'10 | max. Earth dist. | 4325 Apr 06 04:59 | 15° $\mathbf{\text{Y}}$ 54'25 | 30.95586 AU |
| min. Earth dist. | 4318 Sep 22 22:48 | 1° $\mathbf{\text{Y}}$ 27'47 | 29.01459 AU | morning rise | 4325 Apr 21 03:31 | 16° $\mathbf{\text{Y}}$ 28'10 | |
| direct | 4318 Dec 11 12:26 | 0° $\mathbf{\text{Y}}$ 03'44 | | retrograde | 4325 Jul 20 17:47 | 18° $\mathbf{\text{Y}}$ 26'15 | |
| evening set | 4319 Mar 08 12:14 | 1° $\mathbf{\text{Y}}$ 57'13 | | opposition | 4325 Oct 09 07:14 | 17° $\mathbf{\text{Y}}$ 01'39 | -1°01'14 |
| | | | | min. Earth dist. | 4325 Oct 08 16:24 | 17° $\mathbf{\text{Y}}$ 02'40 | 28.95029 AU |
| conjunction | 4319 Mar 23 21:18 | 2° $\mathbf{\text{Y}}$ 31'57 | -0°38'13 | direct | 4325 Dec 26 22:03 | 15° $\mathbf{\text{Y}}$ 38'31 | |
| minimum elong | 4319 Mar 23 21:18 | 2° $\mathbf{\text{Y}}$ 31'57 | 0°38'13 | evening set | 4326 Mar 23 14:55 | 17° $\mathbf{\text{Y}}$ 31'53 | |
| max. Earth dist. | 4319 Mar 24 10:06 | 2° $\mathbf{\text{Y}}$ 33'10 | 31.01044 AU | | | | |
| morning rise | 4319 Apr 08 08:19 | 3° $\mathbf{\text{Y}}$ 06'53 | | conjunction | 4326 Apr 08 01:36 | 18° $\mathbf{\text{Y}}$ 06'46 | -0°58'36 |
| retrograde | 4319 Jul 07 08:37 | 5° $\mathbf{\text{Y}}$ 04'16 | | minimum elong | 4326 Apr 08 01:35 | 18° $\mathbf{\text{Y}}$ 06'46 | 0°58'36 |
| min. Earth dist. | 4319 Sep 25 11:44 | 3° $\mathbf{\text{Y}}$ 40'53 | 29.00685 AU | max. Earth dist. | 4326 Apr 08 17:38 | 18° $\mathbf{\text{Y}}$ 08'17 | 30.94383 AU |
| opposition | 4319 Sep 26 00:10 | 3° $\mathbf{\text{Y}}$ 40'02 | -0°42'32 | morning rise | 4326 Apr 23 14:46 | 18° $\mathbf{\text{Y}}$ 41'55 | |
| direct | 4319 Dec 13 23:02 | 2° $\mathbf{\text{Y}}$ 16'51 | | retrograde | 4326 Jul 23 04:37 | 20° $\mathbf{\text{Y}}$ 40'04 | |
| evening set | 4320 Mar 09 22:37 | 4° $\mathbf{\text{Y}}$ 10'20 | | opposition | 4326 Oct 11 20:19 | 19° $\mathbf{\text{Y}}$ 15'23 | -1°04'03 |
| | | | | min. Earth dist. | 4326 Oct 11 04:40 | 19° $\mathbf{\text{Y}}$ 16'28 | 28.93824 AU |
| conjunction | 4320 Mar 25 07:49 | 4° $\mathbf{\text{Y}}$ 45'04 | -0°41'20 | direct | 4326 Dec 29 11:00 | 17° $\mathbf{\text{Y}}$ 52'13 | |
| minimum elong | 4320 Mar 25 07:49 | 4° $\mathbf{\text{Y}}$ 45'04 | 0°41'21 | evening set | 4327 Mar 26 01:52 | 19° $\mathbf{\text{Y}}$ 45'33 | |
| max. Earth dist. | 4320 Mar 25 20:43 | 4° $\mathbf{\text{Y}}$ 46'18 | 31.00292 AU | | | | |
| morning rise | 4320 Apr 09 19:14 | 5° $\mathbf{\text{Y}}$ 20'03 | | conjunction | 4327 Apr 10 12:41 | 20° $\mathbf{\text{Y}}$ 20'27 | -1°01'11 |
| retrograde | 4320 Jul 08 23:01 | 7° $\mathbf{\text{Y}}$ 17'34 | | minimum elong | 4327 Apr 10 12:40 | 20° $\mathbf{\text{Y}}$ 20'27 | 1°01'11 |
| opposition | 4320 Sep 27 13:16 | 5° $\mathbf{\text{Y}}$ 53'17 | -0°45'50 | max. Earth dist. | 4327 Apr 11 04:19 | 20° $\mathbf{\text{Y}}$ 21'56 | 30.93199 AU |
| min. Earth dist. | 4320 Sep 26 23:28 | 5° $\mathbf{\text{Y}}$ 54'14 | 28.99936 AU | morning rise | 4327 Apr 26 02:22 | 20° $\mathbf{\text{Y}}$ 55'38 | |
| direct | 4320 Dec 15 10:05 | 4° $\mathbf{\text{Y}}$ 30'09 | | retrograde | 4327 Jul 25 17:39 | 22° $\mathbf{\text{Y}}$ 53'52 | |
| evening set | 4321 Mar 12 09:06 | 6° $\mathbf{\text{Y}}$ 23'37 | | opposition | 4327 Oct 14 09:14 | 21° $\mathbf{\text{Y}}$ 29'06 | -1°06'47 |
| | | | | min. Earth dist. | 4327 Oct 13 16:56 | 21° $\mathbf{\text{Y}}$ 30'13 | 28.92683 AU |
| conjunction | 4321 Mar 27 18:28 | 6° $\mathbf{\text{Y}}$ 58'24 | -0°44'23 | direct | 4327 Dec 31 21:05 | 20° $\mathbf{\text{Y}}$ 05'54 | |
| minimum elong | 4321 Mar 27 18:28 | 6° $\mathbf{\text{Y}}$ 58'24 | 0°44'23 | evening set | 4328 Mar 27 12:44 | 21° $\mathbf{\text{Y}}$ 59'13 | |
| max. Earth dist. | 4321 Mar 28 08:11 | 6° $\mathbf{\text{Y}}$ 59'41 | 30.99517 AU | | | | |
| morning rise | 4321 Apr 12 06:06 | 7° $\mathbf{\text{Y}}$ 33'24 | | conjunction | 4328 Apr 11 23:57 | 22° $\mathbf{\text{Y}}$ 34'09 | -1°03'42 |
| retrograde | 4321 Jul 11 12:07 | 9° $\mathbf{\text{Y}}$ 31'03 | | minimum elong | 4328 Apr 11 23:57 | 22° $\mathbf{\text{Y}}$ 34'09 | 1°03'42 |
| opposition | 4321 Sep 30 02:30 | 8° $\mathbf{\text{Y}}$ 06'44 | -0°49'04 | max. Earth dist. | 4328 Apr 12 17:10 | 22° $\mathbf{\text{Y}}$ 35'46 | 30.92087 AU |
| min. Earth dist. | 4321 Sep 29 13:10 | 8° $\mathbf{\text{Y}}$ 07'39 | 28.99148 AU | morning rise | 4328 Apr 27 13:51 | 23° $\mathbf{\text{Y}}$ 09'21 | |
| direct | 4321 Dec 17 21:43 | 6° $\mathbf{\text{Y}}$ 43'38 | | retrograde | 4328 Jul 27 05:09 | 25° $\mathbf{\text{Y}}$ 07'40 | |
| evening set | 4322 Mar 14 19:44 | 8° $\mathbf{\text{Y}}$ 37'06 | | opposition | 4328 Oct 15 22:13 | 23° $\mathbf{\text{Y}}$ 42'49 | -1°09'25 |
| | | | | min. Earth dist. | 4328 Oct 15 05:42 | 23° $\mathbf{\text{Y}}$ 43'58 | 28.91626 AU |
| conjunction | 4322 Mar 30 05:21 | 9° $\mathbf{\text{Y}}$ 11'54 | -0°47'23 | direct | 4329 Jan 02 08:05 | 22° $\mathbf{\text{Y}}$ 19'37 | |
| minimum elong | 4322 Mar 30 05:21 | 9° $\mathbf{\text{Y}}$ 11'54 | 0°47'23 | evening set | 4329 Mar 29 23:38 | 24° $\mathbf{\text{Y}}$ 12'55 | |
| max. Earth dist. | 4322 Mar 30 19:35 | 9° $\mathbf{\text{Y}}$ 13'15 | 30.98703 AU | | | | |
| morning rise | 4322 Apr 14 17:15 | 9° $\mathbf{\text{Y}}$ 46'56 | | conjunction | 4329 Apr 14 11:04 | 24° $\mathbf{\text{Y}}$ 47'52 | -1°06'06 |

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|------------------|-------------------|-------------------------|-------------|------------------|-------------------|--------------------|-------------|
| minimum elong | 4329 Apr 14 11:04 | 24° Υ 47'52 | 1°06'06 | opposition | 4335 Nov 01 16:23 | 9° δ 22'51 | -1°24'43 |
| max. Earth dist. | 4329 Apr 15 04:26 | 24° Υ 49'31 | 30.91093 AU | min. Earth dist. | 4335 Oct 31 20:47 | 9° δ 24'12 | 28.86832 AU |
| morning rise | 4329 Apr 30 01:23 | 25° Υ 23'07 | | direct | 4336 Jan 18 18:19 | 7° δ 59'44 | |
| retrograde | 4329 Jul 29 18:56 | 27° Υ 21'32 | | evening set | 4336 Apr 14 07:11 | 9° δ 53'09 | |
| opposition | 4329 Oct 18 11:06 | 25° Υ 56'37 | -1°11'57 | | | | |
| min. Earth dist. | 4329 Oct 17 17:10 | 25° Υ 57'52 | 28.90701 AU | conjunction | 4336 Apr 29 20:56 | 10° δ 28'18 | -1°20'02 |
| direct | 4330 Jan 04 19:09 | 24° Υ 33'25 | | minimum elong | 4336 Apr 29 20:56 | 10° δ 28'18 | 1°20'02 |
| evening set | 4330 Apr 01 10:39 | 26° Υ 26'43 | | max. Earth dist. | 4336 Apr 30 16:40 | 10° δ 30'10 | 30.86399 AU |
| | | | | morning rise | 4336 May 15 14:02 | 11° δ 03'47 | |
| conjunction | 4330 Apr 16 22:23 | 27° Υ 01'42 | -1°08'25 | retrograde | 4336 Aug 14 18:55 | 13° δ 02'46 | |
| minimum elong | 4330 Apr 16 22:23 | 27° Υ 01'42 | 1°08'26 | min. Earth dist. | 4336 Nov 02 09:41 | 11° δ 39'04 | 28.86099 AU |
| max. Earth dist. | 4330 Apr 17 16:42 | 27° Υ 03'26 | 30.90222 AU | opposition | 4336 Nov 03 05:17 | 11° δ 37'42 | -1°26'25 |
| morning rise | 4330 May 02 13:04 | 27° Υ 36'58 | | direct | 4337 Jan 20 05:35 | 10° δ 14'33 | |
| retrograde | 4330 Aug 01 07:43 | 29° Υ 35'30 | | evening set | 4337 Apr 16 18:51 | 12° δ 07'57 | |
| min. Earth dist. | 4330 Oct 20 06:24 | 28° Υ 11'46 | 28.89902 AU | | | | |
| opposition | 4330 Oct 21 00:06 | 28° Υ 10'33 | -1°14'22 | conjunction | 4337 May 02 09:05 | 12° δ 43'09 | -1°21'34 |
| direct | 4331 Jan 07 06:06 | 26° Υ 47'21 | | minimum elong | 4337 May 02 09:05 | 12° δ 43'09 | 1°21'34 |
| evening set | 4331 Apr 03 21:39 | 28° Υ 40'40 | | max. Earth dist. | 4337 May 03 05:46 | 12° δ 45'06 | 30.85611 AU |
| | | | | morning rise | 4337 May 18 02:27 | 13° δ 18'39 | |
| conjunction | 4331 Apr 19 09:48 | 29° Υ 15'40 | -1°10'38 | | 4337 Jul 15 06:18 | 15° δ | |
| minimum elong | 4331 Apr 19 09:48 | 29° Υ 15'40 | 1°10'38 | retrograde | 4337 Aug 17 06:35 | 15° δ 17'40 | |
| max. Earth dist. | 4331 Apr 20 04:51 | 29° Υ 17'29 | 30.89488 AU | | 4337 Sep 19 21:32 | 15° δ | |
| morning rise | 4331 May 05 00:50 | 29° Υ 50'59 | | opposition | 4337 Nov 05 18:10 | 13° δ 52'32 | -1°28'00 |
| | 4331 May 09 03:11 | 0° δ | | min. Earth dist. | 4337 Nov 04 22:55 | 13° δ 53'52 | 28.85274 AU |
| retrograde | 4331 Aug 03 21:57 | 1° δ 49'36 | | direct | 4338 Jan 22 17:46 | 12° δ 29'20 | |
| opposition | 4331 Oct 23 12:55 | 0° δ 24'38 | -1°16'40 | evening set | 4338 Apr 19 06:41 | 14° δ 22'42 | |
| min. Earth dist. | 4331 Oct 22 17:37 | 0° δ 25'58 | 28.89217 AU | | | | |
| | 4331 Nov 07 14:47 | 30° κ Υ | | conjunction | 4338 May 04 21:16 | 14° δ 57'55 | -1°22'58 |
| direct | 4332 Jan 09 17:29 | 29° Υ 01'26 | | minimum elong | 4338 May 04 21:16 | 14° δ 57'55 | 1°22'59 |
| | 4332 Mar 09 14:34 | 0° δ | | | 4338 May 05 19:17 | 15° δ | |
| evening set | 4332 Apr 05 08:57 | 0° δ 54'47 | | max. Earth dist. | 4338 May 05 17:28 | 14° δ 59'50 | 30.84777 AU |
| | | | | morning rise | 4338 May 20 15:10 | 15° δ 33'27 | |
| conjunction | 4332 Apr 20 21:18 | 1° δ 29'50 | -1°12'44 | retrograde | 4338 Aug 19 19:30 | 17° δ 32'28 | |
| minimum elong | 4332 Apr 20 21:18 | 1° δ 29'50 | 1°12'44 | min. Earth dist. | 4338 Nov 07 10:50 | 16° δ 08'39 | 28.84437 AU |
| max. Earth dist. | 4332 Apr 21 16:26 | 1° δ 31'38 | 30.88839 AU | opposition | 4338 Nov 08 06:49 | 16° δ 07'16 | -1°29'26 |
| morning rise | 4332 May 06 12:48 | 2° δ 05'10 | | | 4338 Dec 25 02:30 | 15° δ | |
| retrograde | 4332 Aug 05 11:39 | 4° δ 03'53 | | direct | 4339 Jan 25 05:08 | 14° δ 44'00 | |
| min. Earth dist. | 4332 Oct 24 07:07 | 2° δ 40'11 | 28.88614 AU | | 4339 Feb 24 16:03 | 15° δ | |
| opposition | 4332 Oct 25 01:46 | 2° δ 38'54 | -1°18'52 | evening set | 4339 Apr 21 18:29 | 16° δ 37'21 | |
| direct | 4333 Jan 11 04:43 | 1° δ 15'45 | | | | | |
| evening set | 4333 Apr 07 20:13 | 3° δ 09'07 | | conjunction | 4339 May 07 09:30 | 17° δ 12'35 | -1°24'15 |
| | | | | minimum elong | 4339 May 07 09:30 | 17° δ 12'35 | 1°24'16 |
| conjunction | 4333 Apr 23 09:03 | 3° δ 44'11 | -1°14'44 | max. Earth dist. | 4339 May 08 06:12 | 17° δ 14'32 | 30.83936 AU |
| minimum elong | 4333 Apr 23 09:02 | 3° δ 44'11 | 1°14'44 | morning rise | 4339 May 23 03:49 | 17° δ 48'09 | |
| max. Earth dist. | 4333 Apr 24 05:26 | 3° δ 46'07 | 30.88263 AU | retrograde | 4339 Aug 22 07:06 | 19° δ 47'10 | |
| morning rise | 4333 May 09 00:47 | 4° δ 19'34 | | opposition | 4339 Nov 10 19:30 | 18° δ 21'53 | -1°30'44 |
| retrograde | 4333 Aug 08 02:31 | 6° δ 18'22 | | min. Earth dist. | 4339 Nov 10 00:13 | 18° δ 23'13 | 28.83625 AU |
| opposition | 4333 Oct 27 14:37 | 4° δ 53'22 | -1°20'56 | direct | 4340 Jan 27 16:03 | 16° δ 58'34 | |
| min. Earth dist. | 4333 Oct 26 18:49 | 4° δ 54'45 | 28.88049 AU | evening set | 4340 Apr 23 06:22 | 18° δ 51'54 | |
| direct | 4334 Jan 13 18:20 | 3° δ 30'15 | | | | | |
| evening set | 4334 Apr 10 07:41 | 5° δ 23'38 | | conjunction | 4340 May 08 21:49 | 19° δ 27'09 | -1°25'25 |
| | | | | minimum elong | 4340 May 08 21:49 | 19° δ 27'09 | 1°25'25 |
| conjunction | 4334 Apr 25 20:41 | 5° δ 58'45 | -1°16'37 | max. Earth dist. | 4340 May 09 18:51 | 19° δ 29'09 | 30.83166 AU |
| minimum elong | 4334 Apr 25 20:41 | 5° δ 58'45 | 1°16'37 | morning rise | 4340 May 24 16:29 | 20° δ 02'44 | |
| max. Earth dist. | 4334 Apr 26 16:25 | 6° δ 00'37 | 30.87696 AU | retrograde | 4340 Aug 23 20:46 | 22° δ 01'46 | |
| morning rise | 4334 May 11 12:59 | 6° δ 34'09 | | min. Earth dist. | 4340 Nov 11 11:16 | 20° δ 37'51 | 28.82904 AU |
| retrograde | 4334 Aug 10 16:27 | 8° δ 33'03 | | opposition | 4340 Nov 12 07:51 | 20° δ 36'25 | -1°31'54 |
| min. Earth dist. | 4334 Oct 29 08:22 | 7° δ 09'22 | 28.87478 AU | direct | 4341 Jan 29 03:32 | 19° δ 13'02 | |
| opposition | 4334 Oct 30 03:38 | 7° δ 08'03 | -1°22'53 | evening set | 4341 Apr 25 18:19 | 21° δ 06'23 | |
| direct | 4335 Jan 16 05:22 | 5° δ 44'56 | | | | | |
| evening set | 4335 Apr 12 19:19 | 7° δ 38'21 | | conjunction | 4341 May 11 10:04 | 21° δ 41'39 | -1°26'26 |
| | | | | minimum elong | 4341 May 11 10:04 | 21° δ 41'39 | 1°26'26 |
| conjunction | 4335 Apr 28 08:50 | 8° δ 13'28 | -1°18'23 | max. Earth dist. | 4341 May 12 07:02 | 21° δ 43'38 | 30.82498 AU |
| minimum elong | 4335 Apr 28 08:50 | 8° δ 13'28 | 1°18'23 | morning rise | 4341 May 27 05:15 | 22° δ 17'16 | |
| max. Earth dist. | 4335 Apr 29 05:41 | 8° δ 15'27 | 30.87089 AU | retrograde | 4341 Aug 26 09:51 | 24° δ 16'18 | |
| morning rise | 4335 May 14 01:22 | 8° δ 48'55 | | opposition | 4341 Nov 14 20:26 | 22° δ 50'55 | -1°32'56 |
| retrograde | 4335 Aug 13 04:40 | 10° δ 47'52 | | min. Earth dist. | 4341 Nov 14 00:31 | 22° δ 52'18 | 28.82315 AU |

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|------------------|-------------------|--------------------|-------------|------------------|-------------------|---------------------|-------------|
| direct | 4342 Jan 31 14:52 | 21° 8 27'30 | | minimum elong | 4348 May 27 03:15 | 7° II 26'02 | 1°29'52 |
| evening set | 4342 Apr 28 06:06 | 23° 8 20'51 | | max. Earth dist. | 4348 May 28 01:12 | 7° II 28'06 | 30.80999 AU |
| | | | | morning rise | 4348 Jun 12 01:27 | 8° II 01'52 | |
| conjunction | 4342 May 13 22:27 | 23° 8 56'09 | -1°27'20 | retrograde | 4348 Sep 11 08:43 | 10° II 01'01 | |
| minimum elong | 4342 May 13 22:27 | 23° 8 56'09 | 1°27'20 | opposition | 4348 Nov 30 11:01 | 8° II 35'46 | -1°36'05 |
| max. Earth dist. | 4342 May 14 20:37 | 23° 8 58'15 | 30.81982 AU | min. Earth dist. | 4348 Nov 29 15:22 | 8° II 37'09 | 28.81004 AU |
| morning rise | 4342 May 29 17:57 | 24° 8 31'47 | | direct | 4349 Feb 16 00:38 | 7° II 12'24 | |
| retrograde | 4342 Aug 29 00:02 | 26° 8 30'50 | | evening set | 4349 May 13 21:03 | 9° II 06'02 | |
| min. Earth dist. | 4342 Nov 16 11:44 | 25° 8 06'54 | 28.81867 AU | | | | |
| opposition | 4342 Nov 17 08:50 | 25° 8 05'25 | -1°33'49 | conjunction | 4349 May 29 16:31 | 9° II 41'35 | -1°29'49 |
| direct | 4343 Feb 03 04:05 | 23° 8 42'00 | | minimum elong | 4349 May 29 16:31 | 9° II 41'35 | 1°29'49 |
| evening set | 4343 Apr 30 18:16 | 25° 8 35'22 | | max. Earth dist. | 4349 May 30 13:58 | 9° II 43'36 | 30.80794 AU |
| | | | | morning rise | 4349 Jun 14 15:10 | 10° II 17'26 | |
| conjunction | 4343 May 16 10:54 | 26° 8 10'42 | -1°28'06 | retrograde | 4349 Sep 13 22:40 | 12° II 16'34 | |
| minimum elong | 4343 May 16 10:54 | 26° 8 10'42 | 1°28'06 | opposition | 4349 Dec 02 23:16 | 10° II 51'19 | -1°35'57 |
| max. Earth dist. | 4343 May 17 08:24 | 26° 8 12'44 | 30.81607 AU | min. Earth dist. | 4349 Dec 02 02:59 | 10° II 52'44 | 28.80751 AU |
| morning rise | 4343 Jun 01 07:01 | 26° 8 46'23 | | direct | 4350 Feb 18 12:00 | 9° II 27'54 | |
| retrograde | 4343 Aug 31 13:54 | 28° 8 45'27 | | evening set | 4350 May 16 09:50 | 11° II 21'33 | |
| opposition | 4343 Nov 19 21:10 | 27° 8 20'02 | -1°34'34 | | | | |
| min. Earth dist. | 4343 Nov 19 00:34 | 27° 8 21'28 | 28.81571 AU | conjunction | 4350 Jun 01 05:43 | 11° II 57'07 | -1°29'37 |
| direct | 4344 Feb 05 14:45 | 25° 8 56'36 | | minimum elong | 4350 Jun 01 05:43 | 11° II 57'07 | 1°29'37 |
| evening set | 4344 May 02 06:21 | 27° 8 50'00 | | max. Earth dist. | 4350 Jun 02 02:26 | 11° II 59'05 | 30.80501 AU |
| | | | | morning rise | 4350 Jun 17 04:54 | 12° II 33'01 | |
| conjunction | 4344 May 17 23:35 | 28° 8 25'23 | -1°28'44 | retrograde | 4350 Sep 16 10:54 | 14° II 32'06 | |
| minimum elong | 4344 May 17 23:35 | 28° 8 25'23 | 1°28'44 | opposition | 4350 Dec 05 11:36 | 13° II 06'49 | -1°35'40 |
| max. Earth dist. | 4344 May 18 22:23 | 28° 8 27'32 | 30.81372 AU | min. Earth dist. | 4350 Dec 04 16:41 | 13° II 08'09 | 28.80432 AU |
| morning rise | 4344 Jun 02 19:58 | 29° 8 01'05 | | direct | 4351 Feb 20 23:42 | 11° II 43'21 | |
| | 4344 Jul 01 18:44 | 0° II | | evening set | 4351 May 18 22:38 | 13° II 37'01 | |
| retrograde | 4344 Sep 02 03:12 | 1° II 00'10 | | | | | |
| | 4344 Nov 06 02:51 | 30° 8 | | conjunction | 4351 Jun 03 19:09 | 14° II 12'37 | -1°29'17 |
| opposition | 4344 Nov 21 09:32 | 29° 8 34'47 | -1°35'10 | minimum elong | 4351 Jun 03 19:09 | 14° II 12'37 | 1°29'17 |
| min. Earth dist. | 4344 Nov 20 12:22 | 29° 8 36'15 | 28.81390 AU | max. Earth dist. | 4351 Jun 04 16:16 | 14° II 14'36 | 30.80176 AU |
| direct | 4345 Feb 07 03:41 | 28° 8 11'22 | | morning rise | 4351 Jun 19 18:40 | 14° II 48'31 | |
| | 4345 May 02 13:59 | 0° II | | retrograde | 4351 Sep 19 00:17 | 16° II 47'32 | |
| evening set | 4345 May 04 18:33 | 0° II 04'49 | | opposition | 4351 Dec 07 23:29 | 15° II 22'14 | -1°35'15 |
| | | | | min. Earth dist. | 4351 Dec 07 04:02 | 15° II 23'36 | 28.80099 AU |
| conjunction | 4345 May 20 12:05 | 0° II 40'14 | -1°29'13 | direct | 4352 Feb 23 12:43 | 13° II 58'41 | |
| minimum elong | 4345 May 20 12:05 | 0° II 40'14 | 1°29'14 | evening set | 4352 May 20 11:35 | 15° II 52'22 | |
| max. Earth dist. | 4345 May 21 09:59 | 0° II 42'18 | 30.81248 AU | | | | |
| morning rise | 4345 Jun 05 09:04 | 1° II 15'58 | | conjunction | 4352 Jun 05 08:24 | 16° II 27'59 | -1°28'49 |
| retrograde | 4345 Sep 04 18:27 | 3° II 15'05 | | minimum elong | 4352 Jun 05 08:25 | 16° II 27'59 | 1°28'49 |
| opposition | 4345 Nov 23 21:59 | 1° II 49'44 | -1°35'37 | max. Earth dist. | 4352 Jun 06 04:24 | 16° II 29'52 | 30.79859 AU |
| min. Earth dist. | 4345 Nov 23 00:46 | 1° II 51'12 | 28.81309 AU | morning rise | 4352 Jun 21 08:30 | 17° II 03'55 | |
| direct | 4346 Feb 09 14:56 | 0° II 26'20 | | retrograde | 4352 Sep 20 13:47 | 19° II 02'52 | |
| evening set | 4346 May 07 06:56 | 2° II 19'50 | | opposition | 4352 Dec 09 11:35 | 17° II 37'32 | -1°34'40 |
| | | | | min. Earth dist. | 4352 Dec 08 17:03 | 17° II 38'50 | 28.79820 AU |
| conjunction | 4346 May 23 01:02 | 2° II 55'18 | -1°29'34 | direct | 4353 Feb 24 23:27 | 16° II 13'55 | |
| minimum elong | 4346 May 23 01:02 | 2° II 55'18 | 1°29'35 | evening set | 4353 May 23 00:13 | 18° II 07'36 | |
| max. Earth dist. | 4346 May 23 23:55 | 2° II 57'28 | 30.81184 AU | | | | |
| morning rise | 4346 Jun 07 22:19 | 3° II 31'04 | | conjunction | 4353 Jun 07 21:40 | 18° II 43'15 | -1°28'13 |
| retrograde | 4346 Sep 07 06:44 | 5° II 30'12 | | minimum elong | 4353 Jun 07 21:40 | 18° II 43'15 | 1°28'14 |
| opposition | 4346 Nov 26 10:18 | 4° II 04'54 | -1°35'55 | max. Earth dist. | 4353 Jun 08 18:40 | 18° II 45'14 | 30.79618 AU |
| min. Earth dist. | 4346 Nov 25 13:39 | 4° II 06'20 | 28.81254 AU | morning rise | 4353 Jun 23 22:02 | 19° II 19'12 | |
| direct | 4347 Feb 12 02:52 | 2° II 41'32 | | retrograde | 4353 Sep 23 03:16 | 21° II 18'05 | |
| evening set | 4347 May 09 19:34 | 4° II 35'05 | | opposition | 4353 Dec 11 23:30 | 19° II 52'44 | -1°33'57 |
| | | | | min. Earth dist. | 4353 Dec 11 04:37 | 19° II 54'03 | 28.79622 AU |
| conjunction | 4347 May 25 14:04 | 5° II 10'34 | -1°29'47 | direct | 4354 Feb 27 13:16 | 18° II 29'04 | |
| minimum elong | 4347 May 25 14:04 | 5° II 10'34 | 1°29'48 | evening set | 4354 May 25 13:12 | 20° II 22'45 | |
| max. Earth dist. | 4347 May 26 12:03 | 5° II 12'39 | 30.81129 AU | | | | |
| morning rise | 4347 Jun 10 11:54 | 5° II 46'23 | | conjunction | 4354 Jun 10 10:59 | 20° II 58'26 | -1°27'29 |
| retrograde | 4347 Sep 09 20:35 | 7° II 45'32 | | minimum elong | 4354 Jun 10 11:00 | 20° II 58'26 | 1°27'29 |
| opposition | 4347 Nov 28 22:38 | 6° II 20'16 | -1°36'05 | max. Earth dist. | 4354 Jun 11 06:46 | 21° II 00'18 | 30.79486 AU |
| min. Earth dist. | 4347 Nov 28 01:44 | 6° II 21'44 | 28.81175 AU | morning rise | 4354 Jun 26 11:58 | 21° II 34'25 | |
| direct | 4348 Feb 14 14:04 | 4° II 56'54 | | retrograde | 4354 Sep 25 18:18 | 23° II 33'12 | |
| evening set | 4348 May 11 08:18 | 6° II 50'31 | | opposition | 4354 Dec 14 11:18 | 22° II 07'51 | -1°33'06 |
| | | | | min. Earth dist. | 4354 Dec 13 16:35 | 22° II 09'09 | 28.79560 AU |
| conjunction | 4348 May 27 03:15 | 7° II 26'02 | -1°29'52 | direct | 4355 Mar 02 01:29 | 20° II 44'07 | |

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|------------------|-------------------|--------------------------------|------------------|-------------------|---------------------------------|
| evening set | 4355 May 28 02:07 | 22° Π 37'51 | conjunction | 4361 Jun 26 10:45 | 6° \ominus 45'13 -1°18'38 |
| | | | minimum elong | 4361 Jun 26 10:45 | 6° \ominus 45'13 1°18'39 |
| conjunction | 4355 Jun 13 00:32 | 23° Π 13'33 -1°26'37 | max. Earth dist. | 4361 Jun 27 03:48 | 6° \ominus 46'49 30.81280 AU |
| minimum elong | 4355 Jun 13 00:32 | 23° Π 13'33 1°26'38 | morning rise | 4361 Jul 12 14:30 | 7° \ominus 21'20 |
| max. Earth dist. | 4355 Jun 13 21:11 | 23° Π 15'30 30.79483 AU | retrograde | 4361 Oct 11 12:31 | 9° \ominus 19'38 |
| morning rise | 4355 Jun 29 01:47 | 23° Π 49'33 | opposition | 4361 Dec 29 21:17 | 7° \ominus 54'35 -1°23'09 |
| retrograde | 4355 Sep 28 06:01 | 25° Π 48'16 | min. Earth dist. | 4361 Dec 29 06:01 | 7° \ominus 55'39 28.81456 AU |
| opposition | 4355 Dec 16 23:06 | 24° Π 22'55 -1°32'06 | direct | 4362 Mar 17 09:44 | 6° \ominus 30'43 |
| min. Earth dist. | 4355 Dec 16 04:47 | 24° Π 24'13 28.79622 AU | evening set | 4362 Jun 12 23:12 | 8° \ominus 24'45 |
| direct | 4356 Mar 03 13:55 | 22° Π 59'10 | | | |
| evening set | 4356 May 29 15:05 | 24° Π 52'55 | conjunction | 4362 Jun 29 00:56 | 9° \ominus 00'39 -1°16'52 |
| | | | minimum elong | 4362 Jun 29 00:56 | 9° \ominus 00'39 1°16'53 |
| conjunction | 4356 Jun 14 13:53 | 25° Π 28'39 -1°25'37 | max. Earth dist. | 4362 Jun 29 18:10 | 9° \ominus 02'16 30.81465 AU |
| minimum elong | 4356 Jun 14 13:53 | 25° Π 28'39 1°25'37 | morning rise | 4362 Jul 15 04:54 | 9° \ominus 36'47 |
| max. Earth dist. | 4356 Jun 15 09:40 | 25° Π 30'31 30.79624 AU | retrograde | 4362 Oct 14 01:28 | 11° \ominus 34'58 |
| morning rise | 4356 Jun 30 15:38 | 26° Π 04'40 | opposition | 4363 Jan 01 08:43 | 10° \ominus 09'56 -1°21'12 |
| retrograde | 4356 Sep 29 20:21 | 28° Π 03'19 | min. Earth dist. | 4362 Dec 31 17:47 | 10° \ominus 10'59 28.81589 AU |
| opposition | 4356 Dec 18 10:47 | 26° Π 38'00 -1°30'57 | direct | 4363 Mar 19 23:30 | 8° \ominus 46'00 |
| min. Earth dist. | 4356 Dec 17 16:03 | 26° Π 39'20 28.79828 AU | evening set | 4363 Jun 15 12:54 | 10° \ominus 40'04 |
| direct | 4357 Mar 06 01:39 | 25° Π 14'14 | | | |
| evening set | 4357 Jun 01 04:10 | 27° Π 08'01 | conjunction | 4363 Jul 01 14:55 | 11° \ominus 15'59 -1°15'00 |
| | | | minimum elong | 4363 Jul 01 14:55 | 11° \ominus 15'59 1°15'01 |
| conjunction | 4357 Jun 17 03:27 | 27° Π 43'47 -1°24'29 | max. Earth dist. | 4363 Jul 02 06:12 | 11° \ominus 17'25 30.81578 AU |
| minimum elong | 4357 Jun 17 03:27 | 27° Π 43'48 1°24'29 | morning rise | 4363 Jul 17 19:26 | 11° \ominus 52'08 |
| max. Earth dist. | 4357 Jun 17 23:34 | 27° Π 45'41 30.79887 AU | retrograde | 4363 Oct 16 15:45 | 13° \ominus 50'12 |
| morning rise | 4357 Jul 03 05:34 | 28° Π 19'50 | opposition | 4364 Jan 03 20:12 | 12° \ominus 25'10 -1°19'08 |
| | 4357 Aug 29 17:45 | 0° \ominus | min. Earth dist. | 4364 Jan 03 06:01 | 12° \ominus 26'10 28.81685 AU |
| retrograde | 4357 Oct 02 08:51 | 0° \ominus 18'25 | direct | 4364 Mar 21 11:46 | 11° \ominus 01'10 |
| | 4357 Nov 05 08:54 | 30° \Re Π | evening set | 4364 Jun 17 02:18 | 12° \ominus 55'15 |
| opposition | 4357 Dec 20 22:34 | 28° Π 53'09 -1°29'40 | | | |
| min. Earth dist. | 4357 Dec 20 04:56 | 28° Π 54'24 28.80143 AU | conjunction | 4364 Jul 03 04:52 | 13° \ominus 31'12 -1°13'00 |
| direct | 4358 Mar 08 12:36 | 27° Π 29'23 | minimum elong | 4364 Jul 03 04:53 | 13° \ominus 31'12 1°13'00 |
| evening set | 4358 Jun 03 17:16 | 29° Π 23'13 | max. Earth dist. | 4364 Jul 03 20:36 | 13° \ominus 32'40 30.81664 AU |
| | | | morning rise | 4364 Jul 19 09:32 | 14° \ominus 07'21 |
| conjunction | 4358 Jun 19 17:06 | 29° Π 59'00 -1°23'12 | retrograde | 4364 Oct 18 03:31 | 16° \ominus 05'17 |
| minimum elong | 4358 Jun 19 17:06 | 29° Π 59'00 1°23'13 | opposition | 4365 Jan 05 07:33 | 14° \ominus 40'16 -1°16'57 |
| | 4358 Jun 20 03:39 | 0° \ominus | min. Earth dist. | 4365 Jan 04 18:10 | 14° \ominus 41'12 28.81773 AU |
| max. Earth dist. | 4358 Jun 20 12:44 | 0° \ominus 00'51 30.80257 AU | direct | 4365 Mar 24 00:31 | 13° \ominus 16'12 |
| morning rise | 4358 Jul 05 19:39 | 0° \ominus 35'04 | evening set | 4365 Jun 19 15:51 | 15° \ominus 10'18 |
| retrograde | 4358 Oct 04 22:23 | 2° \ominus 33'35 | | | |
| opposition | 4358 Dec 23 10:12 | 1° \ominus 08'24 -1°28'14 | conjunction | 4365 Jul 05 18:45 | 15° \ominus 46'16 -1°10'54 |
| min. Earth dist. | 4358 Dec 22 16:01 | 1° \ominus 09'41 28.80528 AU | minimum elong | 4365 Jul 05 18:45 | 15° \ominus 46'16 1°10'55 |
| | 4359 Feb 08 15:48 | 30° \Re Π | max. Earth dist. | 4365 Jul 06 09:06 | 15° \ominus 47'36 30.81791 AU |
| direct | 4359 Mar 11 00:16 | 29° Π 44'37 | morning rise | 4365 Jul 21 23:53 | 16° \ominus 22'26 |
| | 4359 Apr 09 21:48 | 0° \ominus | retrograde | 4365 Oct 20 18:05 | 18° \ominus 20'14 |
| evening set | 4359 Jun 06 06:44 | 1° \ominus 38'31 | opposition | 4366 Jan 07 18:43 | 16° \ominus 55'13 -1°14'39 |
| | | | min. Earth dist. | 4366 Jan 07 05:17 | 16° \ominus 56'10 28.81934 AU |
| conjunction | 4359 Jun 22 06:55 | 2° \ominus 14'20 -1°21'49 | direct | 4366 Mar 26 12:57 | 15° \ominus 31'05 |
| minimum elong | 4359 Jun 22 06:56 | 2° \ominus 14'20 1°21'49 | evening set | 4366 Jun 22 05:19 | 17° \ominus 25'13 |
| max. Earth dist. | 4359 Jun 23 01:43 | 2° \ominus 16'06 30.80642 AU | | | |
| morning rise | 4359 Jul 08 09:54 | 2° \ominus 50'25 | conjunction | 4366 Jul 08 08:42 | 18° \ominus 01'12 -1°08'42 |
| retrograde | 4359 Oct 07 10:03 | 4° \ominus 48'53 | minimum elong | 4366 Jul 08 08:43 | 18° \ominus 01'12 1°08'42 |
| opposition | 4359 Dec 25 21:52 | 3° \ominus 23'44 -1°26'40 | max. Earth dist. | 4366 Jul 08 23:13 | 18° \ominus 02'34 30.81989 AU |
| min. Earth dist. | 4359 Dec 25 05:19 | 3° \ominus 24'54 28.80908 AU | morning rise | 4366 Jul 24 14:05 | 18° \ominus 37'23 |
| direct | 4360 Mar 12 10:56 | 1° \ominus 59'57 | retrograde | 4366 Oct 23 06:14 | 20° \ominus 35'03 |
| evening set | 4360 Jun 07 20:10 | 3° \ominus 53'54 | opposition | 4367 Jan 10 05:57 | 19° \ominus 10'03 -1°12'14 |
| | | | min. Earth dist. | 4367 Jan 09 17:46 | 19° \ominus 10'55 28.82184 AU |
| conjunction | 4360 Jun 23 20:56 | 4° \ominus 29'45 -1°20'17 | direct | 4367 Mar 29 00:43 | 17° \ominus 45'52 |
| minimum elong | 4360 Jun 23 20:56 | 4° \ominus 29'45 1°20'17 | evening set | 4367 Jun 24 18:52 | 19° \ominus 40'02 |
| max. Earth dist. | 4360 Jun 24 15:38 | 4° \ominus 31'31 30.81006 AU | | | |
| morning rise | 4360 Jul 10 00:10 | 5° \ominus 05'51 | conjunction | 4367 Jul 10 22:38 | 20° \ominus 16'02 -1°06'24 |
| retrograde | 4360 Oct 08 23:22 | 7° \ominus 04'14 | minimum elong | 4367 Jul 10 22:38 | 20° \ominus 16'02 1°06'24 |
| opposition | 4360 Dec 27 09:30 | 5° \ominus 39'09 -1°24'58 | max. Earth dist. | 4367 Jul 11 12:23 | 20° \ominus 17'19 30.82311 AU |
| min. Earth dist. | 4360 Dec 26 16:45 | 5° \ominus 40'20 28.81226 AU | morning rise | 4367 Jul 27 04:19 | 20° \ominus 52'14 |
| direct | 4361 Mar 14 23:08 | 4° \ominus 15'20 | retrograde | 4367 Oct 25 19:00 | 22° \ominus 49'46 |
| evening set | 4361 Jun 10 09:40 | 6° \ominus 09'21 | opposition | 4368 Jan 12 16:54 | 21° \ominus 24'49 -1°09'43 |
| | | | min. Earth dist. | 4368 Jan 12 04:06 | 21° \ominus 25'43 28.82569 AU |

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|------------------|-------------------|------------------------|--|------------------|-------------------|------------|-------------|
| direct | 4368 Mar 30 12:49 | 20°00'35 | | minimum elong | 4374 Jul 27 00:53 | 6°00'07 | 0°47'38 |
| evening set | 4368 Jun 26 08:25 | 21°05'47 | | max. Earth dist. | 4374 Jul 27 09:16 | 6°00'53 | 30.87347 AU |
| | | | | morning rise | 4374 Aug 12 08:10 | 6°03'20 | |
| conjunction | 4368 Jul 12 12:30 | 22°03'48 -1°04'00 | | retrograde | 4374 Nov 10 10:36 | 8°03'04 | |
| minimum elong | 4368 Jul 12 12:30 | 22°03'48 1°04'00 | | opposition | 4375 Jan 27 21:46 | 7°08'36 | -0°49'19 |
| max. Earth dist. | 4368 Jul 13 01:43 | 22°03'202 30.82767 AU | | min. Earth dist. | 4375 Jan 27 13:50 | 7°09'09 | 28.87697 AU |
| morning rise | 4368 Jul 28 18:28 | 23°07'01 | | direct | 4375 Apr 15 22:13 | 5°04'13 | |
| retrograde | 4368 Oct 27 06:01 | 25°04'26 | | evening set | 4375 Jul 13 08:44 | 7°03'49 | |
| opposition | 4369 Jan 14 04:04 | 23°03'32 -1°07'05 | | | | | |
| min. Earth dist. | 4369 Jan 13 16:31 | 23°04'021 28.83106 AU | | conjunction | 4375 Jul 29 15:08 | 8°01'455 | -0°44'38 |
| direct | 4369 Apr 01 23:12 | 22°05'16 | | minimum elong | 4375 Jul 29 15:08 | 8°01'455 | 0°44'39 |
| evening set | 4369 Jun 28 21:45 | 24°09'31 | | max. Earth dist. | 4375 Jul 29 23:12 | 8°01'540 | 30.87976 AU |
| | | | | morning rise | 4375 Aug 14 22:24 | 8°05'108 | |
| conjunction | 4369 Jul 15 02:21 | 24°04'534 -1°01'29 | | retrograde | 4375 Nov 12 21:59 | 10°04'43 | |
| minimum elong | 4369 Jul 15 02:21 | 24°04'534 1°01'30 | | opposition | 4376 Jan 30 08:37 | 9°02'316 | -0°46'04 |
| max. Earth dist. | 4369 Jul 15 15:41 | 24°04'4649 30.83390 AU | | min. Earth dist. | 4376 Jan 30 02:25 | 9°02'342 | 28.88293 AU |
| morning rise | 4369 Jul 31 08:32 | 25°02'146 | | direct | 4376 Apr 17 10:51 | 7°05'49 | |
| retrograde | 4369 Oct 29 18:57 | 27°01'05 | | evening set | 4376 Jul 14 22:35 | 9°05'326 | |
| opposition | 4370 Jan 16 15:04 | 25°05'15 -1°04'21 | | | | | |
| min. Earth dist. | 4370 Jan 16 03:02 | 25°05'507 28.83786 AU | | conjunction | 4376 Jul 31 05:13 | 10°02'933 | -0°41'34 |
| direct | 4370 Apr 04 10:30 | 24°02'59 | | minimum elong | 4376 Jul 31 05:13 | 10°02'933 | 0°41'34 |
| evening set | 4370 Jul 01 11:30 | 26°02'18 | | max. Earth dist. | 4376 Jul 31 11:55 | 10°03'010 | 30.88566 AU |
| | | | | morning rise | 4376 Aug 16 12:41 | 11°05'45 | |
| conjunction | 4370 Jul 17 16:18 | 27°00'22 -0°58'53 | | retrograde | 4376 Nov 14 11:05 | 13°02'09 | |
| minimum elong | 4370 Jul 17 16:18 | 27°00'22 0°58'53 | | opposition | 4377 Jan 31 19:18 | 11°03'744 | -0°42'46 |
| max. Earth dist. | 4370 Jul 18 04:22 | 27°01'29 30.84136 AU | | min. Earth dist. | 4377 Jan 31 12:54 | 11°03'811 | 28.88867 AU |
| morning rise | 4370 Aug 02 22:51 | 27°03'635 | | direct | 4377 Apr 19 23:44 | 10°01'313 | |
| retrograde | 4370 Nov 01 06:39 | 29°03'348 | | evening set | 4377 Jul 17 12:20 | 12°07'50 | |
| opposition | 4371 Jan 19 02:00 | 28°09'03 -1°01'31 | | | | | |
| min. Earth dist. | 4371 Jan 18 15:18 | 28°09'48 28.84585 AU | | conjunction | 4377 Aug 02 19:10 | 12°04'357 | -0°38'27 |
| direct | 4371 Apr 06 20:20 | 26°04'46 | | minimum elong | 4377 Aug 02 19:11 | 12°04'357 | 0°38'28 |
| evening set | 4371 Jul 04 01:10 | 28°03'10 | | max. Earth dist. | 4377 Aug 03 01:03 | 12°04'430 | 30.89138 AU |
| | | | | morning rise | 4377 Aug 19 02:45 | 13°02'09 | |
| conjunction | 4371 Jul 20 06:28 | 29°01'14 -0°56'12 | | | 4377 Oct 16 12:14 | 15°0 | |
| minimum elong | 4371 Jul 20 06:28 | 29°01'14 0°56'13 | | retrograde | 4377 Nov 16 22:24 | 15°01'623 | |
| max. Earth dist. | 4371 Jul 20 18:51 | 29°01'623 30.84972 AU | | | 4377 Dec 18 14:23 | 15°00 | |
| morning rise | 4371 Aug 05 13:05 | 29°05'127 | | opposition | 4378 Feb 03 06:04 | 13°05'158 | -0°39'24 |
| | 4371 Aug 09 11:38 | 0°0 | | min. Earth dist. | 4378 Feb 03 01:21 | 13°05'218 | 28.89453 AU |
| retrograde | 4371 Nov 03 18:33 | 1°04'834 | | direct | 4378 Apr 22 10:52 | 12°02'724 | |
| opposition | 4372 Jan 21 12:56 | 0°02'355 -0°58'36 | | evening set | 4378 Jul 20 02:07 | 14°02'202 | |
| min. Earth dist. | 4372 Jan 21 02:33 | 0°02'439 28.85427 AU | | | | | |
| | 4372 Feb 04 19:23 | 30°00 | | conjunction | 4378 Aug 05 09:15 | 14°05'809 | -0°35'16 |
| direct | 4372 Apr 08 09:22 | 28°05'939 | | minimum elong | 4378 Aug 05 09:15 | 14°05'809 | 0°35'16 |
| | 4372 Jun 08 20:51 | 0°0 | | max. Earth dist. | 4378 Aug 05 14:42 | 14°05'839 | 30.89754 AU |
| evening set | 4372 Jul 05 14:59 | 0°05'407 | | | 4378 Aug 06 05:13 | 15°0 | |
| | | | | morning rise | 4378 Aug 21 16:52 | 15°03'419 | |
| conjunction | 4372 Jul 21 20:24 | 1°03'011 -0°53'25 | | retrograde | 4378 Nov 19 10:42 | 17°03'023 | |
| minimum elong | 4372 Jul 21 20:24 | 1°03'011 0°53'25 | | opposition | 4379 Feb 05 16:29 | 16°06'001 | -0°35'59 |
| max. Earth dist. | 4372 Jul 22 06:48 | 1°03'110 30.85819 AU | | min. Earth dist. | 4379 Feb 05 11:34 | 16°06'022 | 28.90092 AU |
| morning rise | 4372 Aug 07 03:20 | 2°06'24 | | | 4379 Mar 22 04:46 | 15°00 | |
| retrograde | 4372 Nov 05 08:05 | 4°03'26 | | direct | 4379 Apr 24 23:03 | 14°04'122 | |
| opposition | 4373 Jan 22 23:57 | 2°03'851 -0°55'35 | | | 4379 May 28 07:29 | 15°0 | |
| min. Earth dist. | 4373 Jan 22 14:25 | 2°03'931 28.86264 AU | | evening set | 4379 Jul 22 15:59 | 16°03'601 | |
| direct | 4373 Apr 10 20:42 | 1°01'433 | | | | | |
| evening set | 4373 Jul 08 04:48 | 3°09'05 | | conjunction | 4379 Aug 07 23:09 | 17°01'208 | -0°32'03 |
| | | | | minimum elong | 4379 Aug 07 23:09 | 17°01'208 | 0°32'04 |
| conjunction | 4373 Jul 24 10:41 | 3°04'510 -0°50'34 | | max. Earth dist. | 4379 Aug 08 03:17 | 17°01'231 | 30.90437 AU |
| minimum elong | 4373 Jul 24 10:41 | 3°04'510 0°50'35 | | morning rise | 4379 Aug 24 06:53 | 17°04'4818 | |
| max. Earth dist. | 4373 Jul 24 21:09 | 3°04'609 30.86622 AU | | retrograde | 4379 Nov 21 21:11 | 19°04'412 | |
| morning rise | 4373 Aug 09 17:38 | 4°02'124 | | opposition | 4380 Feb 08 03:08 | 18°01'953 | -0°32'30 |
| retrograde | 4373 Nov 07 20:00 | 6°01'817 | | min. Earth dist. | 4380 Feb 07 23:27 | 18°02'008 | 28.90838 AU |
| opposition | 4374 Jan 25 10:52 | 4°05'346 -0°52'29 | | direct | 4380 Apr 26 09:22 | 16°05'511 | |
| min. Earth dist. | 4374 Jan 25 02:32 | 4°05'421 28.87021 AU | | evening set | 4380 Jul 24 05:27 | 18°04'952 | |
| direct | 4374 Apr 13 08:53 | 3°02'927 | | | | | |
| evening set | 4374 Jul 10 18:49 | 5°02'401 | | conjunction | 4380 Aug 09 12:56 | 19°02'559 | -0°28'47 |
| | | | | minimum elong | 4380 Aug 09 12:56 | 19°02'559 | 0°28'47 |
| conjunction | 4374 Jul 27 00:53 | 6°00'07 -0°47'38 | | max. Earth dist. | 4380 Aug 09 17:31 | 19°02'624 | 30.91245 AU |

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|------------------|-------------------|-------------|-------------|------------------|-------------------|-------------|-------------|
| morning rise | 4380 Aug 25 20:33 | 20°02'08 | | behind sun end | 4386 Aug 24 05:51 | 2°04'49"51 | |
| retrograde | 4380 Nov 23 07:45 | 21°05'57"53 | | max. Earth dist. | 4386 Aug 23 23:04 | 2°04'49"16 | 30.98016 AU |
| opposition | 4381 Feb 09 13:39 | 20°03'33"37 | -0°28'59 | morning rise | 4386 Sep 09 07:25 | 3°04'25"24 | |
| min. Earth dist. | 4381 Feb 09 09:59 | 20°03'33"53 | 28.91705 AU | retrograde | 4386 Dec 07 09:48 | 5°04'20"30 | |
| direct | 4381 Apr 28 21:51 | 19°08'58"54 | | opposition | 4387 Feb 23 04:30 | 3°04'56"48 | -0°07'08 |
| evening set | 4381 Jul 26 19:14 | 21°03'38 | | min. Earth dist. | 4387 Feb 23 06:04 | 3°04'56"42 | 28.98537 AU |
| | | | | direct | 4387 May 12 20:48 | 2°04'32"08 | |
| | | | | evening set | 4387 Aug 10 06:08 | 4°04'27"18 | |
| conjunction | 4381 Aug 12 02:41 | 21°03'39"44 | -0°25'28 | | | | |
| minimum elong | 4381 Aug 12 02:41 | 21°03'39"44 | 0°25'29 | | | | |
| max. Earth dist. | 4381 Aug 12 05:34 | 21°04'00"00 | 30.92191 AU | conjunction | 4387 Aug 26 14:01 | 5°04'03"23 | -0°05'00 |
| morning rise | 4381 Aug 28 10:28 | 22°01'15"52 | | minimum elong | 4387 Aug 26 14:01 | 5°04'03"23 | 0°05'01 |
| retrograde | 4381 Nov 25 20:09 | 24°01'11"31 | | behind sun begin | 4387 Aug 26 07:36 | 5°04'02"49 | |
| opposition | 4382 Feb 12 00:04 | 22°04'47"19 | -0°25'25 | behind sun end | 4387 Aug 26 20:25 | 5°04'03"57 | |
| min. Earth dist. | 4382 Feb 11 20:55 | 22°04'47"32 | 28.92729 AU | max. Earth dist. | 4387 Aug 26 12:02 | 5°04'03"14 | 30.99025 AU |
| direct | 4382 May 01 08:15 | 21°02'23"34 | | morning rise | 4387 Sep 11 21:10 | 5°04'39"25 | |
| evening set | 4382 Jul 29 08:54 | 23°01'17"23 | | retrograde | 4387 Dec 09 22:18 | 7°04'34"22 | |
| | | | | opposition | 4388 Feb 25 14:57 | 6°04'10"44 | -0°03'25 |
| conjunction | 4382 Aug 14 16:39 | 23°05'53"29 | -0°22'07 | min. Earth dist. | 4388 Feb 25 16:36 | 6°04'10"37 | 28.99485 AU |
| minimum elong | 4382 Aug 14 16:39 | 23°05'53"29 | 0°22'07 | direct | 4388 May 14 09:26 | 4°04'46"02 | |
| max. Earth dist. | 4382 Aug 14 19:59 | 23°05'53"48 | 30.93279 AU | evening set | 4388 Aug 11 19:52 | 6°04'41"14 | |
| morning rise | 4382 Aug 31 00:15 | 24°02'29"37 | | | | | |
| retrograde | 4382 Nov 28 07:14 | 26°02'25"08 | | conjunction | 4388 Aug 28 03:37 | 7°04'17"18 | -0°01'31 |
| opposition | 4383 Feb 14 10:34 | 25°01'01"03 | -0°21'49 | minimum elong | 4388 Aug 28 03:36 | 7°04'17"18 | 0°01'30 |
| min. Earth dist. | 4383 Feb 14 08:18 | 25°01'01"12 | 28.93866 AU | behind sun begin | 4388 Aug 27 21:00 | 7°04'16"42 | |
| direct | 4383 May 03 19:56 | 23°03'36"19 | | behind sun end | 4388 Aug 28 10:12 | 7°04'17"53 | |
| evening set | 4383 Jul 31 22:42 | 25°03'31"13 | | max. Earth dist. | 4388 Aug 28 00:01 | 7°04'17"01 | 30.99925 AU |
| | | | | morning rise | 4388 Sep 13 10:40 | 7°04'53"19 | |
| conjunction | 4383 Aug 17 06:22 | 26°02'07"19 | -0°18'44 | retrograde | 4388 Dec 11 08:11 | 9°04'48"07 | |
| minimum elong | 4383 Aug 17 06:22 | 26°02'07"19 | 0°18'44 | asc. node | 4389 Jan 30 03:36 | 9°04'09"18 | |
| max. Earth dist. | 4383 Aug 17 08:00 | 26°02'07"27 | 30.94472 AU | opposition | 4389 Feb 27 01:27 | 8°04'24"32 | 0°00'17 |
| morning rise | 4383 Sep 02 14:04 | 26°04'43"25 | | min. Earth dist. | 4389 Feb 27 04:43 | 8°04'24"18 | 29.00353 AU |
| retrograde | 4383 Nov 30 21:08 | 28°02'38"51 | | direct | 4389 May 16 20:16 | 6°04'59"47 | |
| opposition | 4384 Feb 16 20:57 | 27°02'14"52 | -0°18'11 | evening set | 4389 Aug 14 09:35 | 8°04'55"00 | |
| min. Earth dist. | 4384 Feb 16 18:49 | 27°02'15"01 | 28.95088 AU | | | | |
| direct | 4384 May 05 08:34 | 25°02'50"10 | | conjunction | 4389 Aug 30 17:24 | 9°04'31"03 | 0°02'04 |
| evening set | 4384 Aug 02 12:28 | 27°02'45"09 | | minimum elong | 4389 Aug 30 17:25 | 9°04'31"03 | 0°02'03 |
| | | | | behind sun begin | 4389 Aug 30 10:49 | 9°04'30"28 | |
| conjunction | 4384 Aug 18 20:17 | 28°02'21"15 | -0°15'19 | behind sun end | 4389 Aug 31 00:00 | 9°04'31"38 | |
| minimum elong | 4384 Aug 18 20:17 | 28°02'21"15 | 0°15'19 | max. Earth dist. | 4389 Aug 30 13:44 | 9°04'30"45 | 31.00761 AU |
| behind sun begin | 4384 Aug 18 18:41 | 28°02'21"06 | | morning rise | 4389 Sep 16 00:11 | 10°04'07"02 | |
| behind sun end | 4384 Aug 18 21:54 | 28°02'21"23 | | retrograde | 4389 Dec 13 18:08 | 12°04'01"40 | |
| max. Earth dist. | 4384 Aug 18 21:56 | 28°02'21"23 | 30.95701 AU | opposition | 4390 Mar 01 11:41 | 10°04'38"08 | 0°03'59 |
| morning rise | 4384 Sep 04 03:46 | 28°02'57"20 | | min. Earth dist. | 4390 Mar 01 15:29 | 10°04'37"52 | 29.01157 AU |
| | 4384 Oct 05 20:52 | 0°04'00"00 | | direct | 4390 May 19 08:40 | 9°04'13"20 | |
| retrograde | 4384 Dec 02 08:23 | 0°04'52"40 | | evening set | 4390 Aug 16 23:24 | 11°04'08"33 | |
| | 4385 Jan 30 10:54 | 30°04'00"00 | | | | | |
| opposition | 4385 Feb 18 07:30 | 29°02'28"48 | -0°14'31 | conjunction | 4390 Sep 02 07:00 | 11°04'44"35 | 0°05'32 |
| min. Earth dist. | 4385 Feb 18 07:06 | 29°02'28"49 | 28.96315 AU | minimum elong | 4390 Sep 02 07:00 | 11°04'44"35 | 0°05'32 |
| direct | 4385 May 07 20:38 | 28°02'04"07 | | behind sun begin | 4390 Sep 02 00:39 | 11°04'44"02 | |
| evening set | 4385 Aug 05 02:16 | 29°02'59"11 | | behind sun end | 4390 Sep 02 13:20 | 11°04'45"09 | |
| | 4385 Aug 05 11:22 | 0°04'00"00 | | max. Earth dist. | 4390 Sep 02 01:18 | 11°04'44"05 | 31.01556 AU |
| conjunction | 4385 Aug 21 10:06 | 0°04'35"16 | -0°11'53 | morning rise | 4390 Sep 18 13:43 | 12°04'20"33 | |
| minimum elong | 4385 Aug 21 10:06 | 0°04'35"16 | 0°11'53 | retrograde | 4390 Dec 16 05:37 | 14°04'15"02 | |
| behind sun begin | 4385 Aug 21 05:37 | 0°04'34"52 | | opposition | 4391 Mar 03 22:00 | 12°04'51"31 | 0°07'40 |
| behind sun end | 4385 Aug 21 14:35 | 0°04'35"40 | | min. Earth dist. | 4391 Mar 04 02:32 | 12°04'51"12 | 29.01959 AU |
| max. Earth dist. | 4385 Aug 21 10:11 | 0°04'35"17 | 30.96911 AU | direct | 4391 May 21 18:49 | 11°04'26"39 | |
| morning rise | 4385 Sep 06 17:37 | 1°04'11"21 | | evening set | 4391 Aug 19 12:52 | 13°04'21"54 | |
| retrograde | 4385 Dec 04 21:53 | 3°04'06"34 | | | | | |
| opposition | 4386 Feb 20 17:57 | 1°04'42"48 | -0°10'50 | conjunction | 4391 Sep 04 20:29 | 13°04'57"54 | 0°08'57 |
| min. Earth dist. | 4386 Feb 20 17:32 | 1°04'42"50 | 28.97479 AU | minimum elong | 4391 Sep 04 20:29 | 13°04'57"54 | 0°08'57 |
| direct | 4386 May 10 09:25 | 0°04'18"08 | | behind sun begin | 4391 Sep 04 14:53 | 13°04'57"24 | |
| evening set | 4386 Aug 07 16:16 | 2°04'13"15 | | behind sun end | 4391 Sep 05 02:06 | 13°04'58"24 | |
| | | | | max. Earth dist. | 4391 Sep 04 15:09 | 13°04'57"26 | 31.02360 AU |
| conjunction | 4386 Aug 24 00:06 | 2°04'49"21 | -0°08'27 | morning rise | 4391 Sep 21 02:47 | 14°04'33"49 | |
| minimum elong | 4386 Aug 24 00:06 | 2°04'49"21 | 0°08'26 | retrograde | 4391 Dec 18 14:48 | 16°04'28"10 | |
| behind sun begin | 4386 Aug 23 18:20 | 2°04'48"50 | | opposition | 4392 Mar 05 08:18 | 15°04'04"41 | 0°11'20 |
| | | | | min. Earth dist. | 4392 Mar 05 13:47 | 15°04'04"18 | 29.02781 AU |

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| direct | 4392 May 23 06:58 | 13° \mathring{M} 39'46 | conjunction | 4398 Sep 20 17:04 | 29° \mathring{M} 27'39 0°32'19 |
| evening set | 4392 Aug 21 02:26 | 15° \mathring{M} 35'01 | minimum elong | 4398 Sep 20 17:04 | 29° \mathring{M} 27'39 0°32'19 |
| | | | max. Earth dist. | 4398 Sep 20 06:48 | 29° \mathring{M} 26'42 31.10019 AU |
| conjunction | 4392 Sep 06 09:46 | 16° \mathring{M} 10'59 0°12'22 | | 4398 Oct 05 08:17 | 0° \mathring{A} |
| minimum elong | 4392 Sep 06 09:46 | 16° \mathring{M} 10'59 0°12'22 | morning rise | 4398 Oct 06 21:11 | 0° \mathring{A} 03'20 |
| behind sun begin | 4392 Sep 06 05:32 | 16° \mathring{M} 10'37 | retrograde | 4399 Jan 02 21:38 | 1° \mathring{A} 56'54 |
| behind sun end | 4392 Sep 06 14:00 | 16° \mathring{M} 11'22 | opposition | 4399 Mar 21 08:04 | 0° \mathring{A} 33'55 0°36'13 |
| max. Earth dist. | 4392 Sep 06 02:44 | 16° \mathring{M} 10'21 31.03223 AU | min. Earth dist. | 4399 Mar 21 17:49 | 0° \mathring{A} 33'14 29.10559 AU |
| morning rise | 4392 Sep 22 15:59 | 16° \mathring{M} 46'53 | | 4399 Apr 11 01:10 | 30° \mathring{R} \mathring{M} |
| retrograde | 4392 Dec 20 02:45 | 18° \mathring{M} 41'05 | direct | 4399 Jun 08 19:44 | 29° \mathring{M} 09'00 |
| opposition | 4393 Mar 07 18:27 | 17° \mathring{M} 17'37 0°14'59 | | 4399 Aug 04 23:18 | 0° \mathring{A} |
| min. Earth dist. | 4393 Mar 07 23:49 | 17° \mathring{M} 17'15 29.03696 AU | evening set | 4399 Sep 07 00:14 | 1° \mathring{A} 04'35 |
| direct | 4393 May 25 19:29 | 15° \mathring{M} 52'39 | | | |
| evening set | 4393 Aug 23 15:47 | 17° \mathring{M} 47'56 | conjunction | 4399 Sep 23 06:00 | 1° \mathring{A} 40'24 0°35'30 |
| | | | minimum elong | 4399 Sep 23 06:00 | 1° \mathring{A} 40'24 0°35'30 |
| conjunction | 4393 Sep 08 23:07 | 18° \mathring{M} 23'54 0°15'46 | max. Earth dist. | 4399 Sep 22 17:42 | 1° \mathring{A} 39'16 31.11040 AU |
| minimum elong | 4393 Sep 08 23:07 | 18° \mathring{M} 23'54 0°15'46 | morning rise | 4399 Oct 09 09:50 | 2° \mathring{A} 16'03 |
| behind sun begin | 4393 Sep 08 22:51 | 18° \mathring{M} 23'52 | retrograde | 4400 Jan 05 08:55 | 4° \mathring{A} 09'31 |
| behind sun end | 4393 Sep 08 23:24 | 18° \mathring{M} 23'55 | opposition | 4400 Mar 22 18:27 | 2° \mathring{A} 46'36 0°39'35 |
| max. Earth dist. | 4393 Sep 08 16:25 | 18° \mathring{M} 23'17 31.04179 AU | min. Earth dist. | 4400 Mar 23 04:56 | 2° \mathring{A} 45'52 29.11532 AU |
| morning rise | 4393 Sep 25 04:55 | 18° \mathring{M} 59'45 | direct | 4400 Jun 10 05:50 | 1° \mathring{A} 21'39 |
| retrograde | 4393 Dec 22 12:42 | 20° \mathring{M} 53'49 | evening set | 4400 Sep 08 13:27 | 3° \mathring{A} 17'16 |
| opposition | 4394 Mar 10 04:47 | 19° \mathring{M} 30'24 0°18'37 | | | |
| min. Earth dist. | 4394 Mar 10 11:31 | 19° \mathring{M} 29'56 29.04709 AU | conjunction | 4400 Sep 24 19:05 | 3° \mathring{A} 53'03 0°38'38 |
| direct | 4394 May 28 07:16 | 18° \mathring{M} 05'25 | minimum elong | 4400 Sep 24 19:05 | 3° \mathring{A} 53'03 0°38'38 |
| evening set | 4394 Aug 26 05:17 | 20° \mathring{M} 00'44 | max. Earth dist. | 4400 Sep 24 06:54 | 3° \mathring{A} 51'56 31.11946 AU |
| | | | morning rise | 4400 Oct 10 22:22 | 4° \mathring{A} 28'40 |
| conjunction | 4394 Sep 11 12:21 | 20° \mathring{M} 36'40 0°19'09 | retrograde | 4401 Jan 06 17:44 | 6° \mathring{A} 22'02 |
| minimum elong | 4394 Sep 11 12:21 | 20° \mathring{M} 36'40 0°19'09 | opposition | 4401 Mar 25 04:44 | 4° \mathring{A} 59'10 0°42'53 |
| max. Earth dist. | 4394 Sep 11 04:30 | 20° \mathring{M} 35'57 31.05255 AU | min. Earth dist. | 4401 Mar 25 16:29 | 4° \mathring{A} 58'21 29.12380 AU |
| morning rise | 4394 Sep 27 17:58 | 21° \mathring{M} 12'29 | direct | 4401 Jun 12 17:54 | 3° \mathring{A} 34'13 |
| retrograde | 4394 Dec 25 01:20 | 23° \mathring{M} 06'26 | evening set | 4401 Sep 11 02:45 | 5° \mathring{A} 29'51 |
| opposition | 4395 Mar 12 14:53 | 21° \mathring{M} 43'06 0°22'13 | | | |
| min. Earth dist. | 4395 Mar 12 21:06 | 21° \mathring{M} 42'39 29.05836 AU | conjunction | 4401 Sep 27 07:56 | 6° \mathring{A} 05'36 0°41'41 |
| direct | 4395 May 30 20:04 | 20° \mathring{M} 18'06 | minimum elong | 4401 Sep 27 07:56 | 6° \mathring{A} 05'36 0°41'41 |
| evening set | 4395 Aug 28 18:42 | 22° \mathring{M} 13'29 | max. Earth dist. | 4401 Sep 26 17:43 | 6° \mathring{A} 04'17 31.12748 AU |
| | | | morning rise | 4401 Oct 13 11:00 | 6° \mathring{A} 41'10 |
| conjunction | 4395 Sep 14 01:35 | 22° \mathring{M} 49'23 0°22'30 | retrograde | 4402 Jan 09 05:07 | 8° \mathring{A} 34'26 |
| minimum elong | 4395 Sep 14 01:35 | 22° \mathring{M} 49'23 0°22'29 | opposition | 4402 Mar 27 15:00 | 7° \mathring{A} 11'35 0°46'08 |
| max. Earth dist. | 4395 Sep 13 17:22 | 22° \mathring{M} 48'38 31.06426 AU | min. Earth dist. | 4402 Mar 28 02:52 | 7° \mathring{A} 10'46 29.13141 AU |
| morning rise | 4395 Sep 30 06:48 | 23° \mathring{M} 25'10 | direct | 4402 Jun 15 06:00 | 5° \mathring{A} 46'36 |
| retrograde | 4395 Dec 27 12:52 | 25° \mathring{M} 19'01 | evening set | 4402 Sep 13 15:50 | 7° \mathring{A} 42'16 |
| opposition | 4396 Mar 14 01:15 | 23° \mathring{M} 55'46 0°25'47 | | | |
| min. Earth dist. | 4396 Mar 14 08:56 | 23° \mathring{M} 55'13 29.07051 AU | conjunction | 4402 Sep 29 20:48 | 8° \mathring{A} 17'59 0°44'41 |
| direct | 4396 Jun 01 07:43 | 22° \mathring{M} 30'48 | minimum elong | 4402 Sep 29 20:47 | 8° \mathring{A} 17'59 0°44'42 |
| evening set | 4396 Aug 30 07:54 | 24° \mathring{M} 26'14 | max. Earth dist. | 4402 Sep 29 06:43 | 8° \mathring{A} 16'41 31.13463 AU |
| | | | morning rise | 4402 Oct 15 23:14 | 8° \mathring{A} 53'31 |
| conjunction | 4396 Sep 15 14:37 | 25° \mathring{M} 02'07 0°25'48 | retrograde | 4403 Jan 11 14:20 | 10° \mathring{A} 46'40 |
| minimum elong | 4396 Sep 15 14:36 | 25° \mathring{M} 02'07 0°25'49 | opposition | 4403 Mar 30 01:18 | 9° \mathring{A} 23'51 0°49'18 |
| max. Earth dist. | 4396 Sep 15 05:53 | 25° \mathring{M} 01'19 31.07666 AU | min. Earth dist. | 4403 Mar 30 14:47 | 9° \mathring{A} 22'54 29.13835 AU |
| morning rise | 4396 Oct 01 19:32 | 25° \mathring{M} 37'52 | direct | 4403 Jun 17 17:23 | 7° \mathring{A} 58'49 |
| retrograde | 4396 Dec 29 00:48 | 27° \mathring{M} 31'37 | evening set | 4403 Sep 16 04:50 | 9° \mathring{A} 54'30 |
| opposition | 4397 Mar 16 11:27 | 26° \mathring{M} 08'28 0°29'18 | | | |
| min. Earth dist. | 4397 Mar 16 19:03 | 26° \mathring{M} 07'56 29.08284 AU | conjunction | 4403 Oct 02 09:21 | 10° \mathring{A} 30'11 0°47'37 |
| direct | 4397 Jun 03 20:49 | 24° \mathring{M} 43'31 | minimum elong | 4403 Oct 02 09:21 | 10° \mathring{A} 30'11 0°47'37 |
| evening set | 4397 Sep 01 21:25 | 26° \mathring{M} 39'01 | max. Earth dist. | 4403 Oct 01 18:05 | 10° \mathring{A} 28'46 31.14152 AU |
| | | | morning rise | 4403 Oct 18 11:29 | 11° \mathring{A} 05'40 |
| conjunction | 4397 Sep 18 03:47 | 27° \mathring{M} 14'53 0°29'05 | retrograde | 4404 Jan 14 02:11 | 12° \mathring{A} 58'43 |
| minimum elong | 4397 Sep 18 03:47 | 27° \mathring{M} 14'53 0°29'05 | opposition | 4404 Mar 31 11:29 | 11° \mathring{A} 35'55 0°52'24 |
| max. Earth dist. | 4397 Sep 17 17:40 | 27° \mathring{M} 13'57 31.08877 AU | min. Earth dist. | 4404 Apr 01 00:27 | 11° \mathring{A} 35'01 29.14526 AU |
| morning rise | 4397 Oct 04 08:23 | 27° \mathring{M} 50'36 | direct | 4404 Jun 19 06:26 | 10° \mathring{A} 10'51 |
| retrograde | 4397 Dec 31 11:20 | 29° \mathring{M} 44'15 | evening set | 4404 Sep 17 17:32 | 12° \mathring{A} 06'32 |
| opposition | 4398 Mar 18 21:42 | 28° \mathring{M} 21'12 0°32'47 | | | |
| min. Earth dist. | 4398 Mar 19 06:51 | 28° \mathring{M} 20'33 29.09477 AU | conjunction | 4404 Oct 03 21:44 | 12° \mathring{A} 42'11 0°50'29 |
| direct | 4398 Jun 06 07:18 | 26° \mathring{M} 56'16 | minimum elong | 4404 Oct 03 21:44 | 12° \mathring{A} 42'11 0°50'29 |
| evening set | 4398 Sep 04 10:50 | 28° \mathring{M} 51'49 | max. Earth dist. | 4404 Oct 03 06:17 | 12° \mathring{A} 40'46 31.14847 AU |
| | | | morning rise | 4404 Oct 19 23:21 | 13° \mathring{A} 17'38 |

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|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| retrograde | 4405 Jan 15 13:05 | 15° <u>♂</u> 10'35 | | minimum elong | 4411 Oct 20 10:57 | 28° <u>♂</u> 04'22 | 1°08'11 |
| opposition | 4405 Apr 02 21:48 | 13° <u>♂</u> 47'48 | 0°55'25 | max. Earth dist. | 4411 Oct 19 16:57 | 28° <u>♂</u> 02'42 | 31.21683 AU |
| min. Earth dist. | 4405 Apr 03 12:05 | 13° <u>♂</u> 46'48 | 29.15259 AU | morning rise | 4411 Nov 05 09:02 | 28° <u>♂</u> 39'33 | |
| direct | 4405 Jun 21 18:44 | 12° <u>♂</u> 22'43 | | | 4411 Dec 18 17:15 | 0° <u>♂</u> | |
| evening set | 4405 Sep 20 06:17 | 14° <u>♂</u> 18'25 | | retrograde | 4412 Jan 31 11:31 | 0° <u>♂</u> 32'03 | |
| | | | | | 4412 Mar 16 11:48 | 30° <u>♂</u> | |
| conjunction | 4405 Oct 06 10:07 | 14° <u>♂</u> 54'02 | 0°53'16 | opposition | 4412 Apr 17 22:05 | 29° <u>♂</u> 09'44 | 1°13'59 |
| minimum elong | 4405 Oct 06 10:07 | 14° <u>♂</u> 54'02 | 0°53'15 | min. Earth dist. | 4412 Apr 18 15:22 | 29° <u>♂</u> 08'32 | 29.22190 AU |
| max. Earth dist. | 4405 Oct 05 18:23 | 14° <u>♂</u> 52'34 | 31.15618 AU | direct | 4412 Jul 07 02:30 | 27° <u>♂</u> 44'47 | |
| morning rise | 4405 Oct 22 11:18 | 15° <u>♂</u> 29'26 | | evening set | 4412 Oct 05 22:07 | 29° <u>♂</u> 40'42 | |
| retrograde | 4406 Jan 18 00:02 | 17° <u>♂</u> 22'17 | | | 4412 Oct 14 17:20 | 0° <u>♂</u> | |
| opposition | 4406 Apr 05 07:53 | 15° <u>♂</u> 59'33 | 0°58'21 | | | | |
| min. Earth dist. | 4406 Apr 05 21:40 | 15° <u>♂</u> 58'35 | 29.16074 AU | conjunction | 4412 Oct 21 22:48 | 0° <u>♂</u> 16'04 | 1°10'20 |
| direct | 4406 Jun 24 08:25 | 14° <u>♂</u> 34'26 | | minimum elong | 4412 Oct 21 22:48 | 0° <u>♂</u> 16'04 | 1°10'21 |
| evening set | 4406 Sep 22 19:04 | 16° <u>♂</u> 30'10 | | max. Earth dist. | 4412 Oct 21 03:35 | 0° <u>♂</u> 14'17 | 31.22543 AU |
| | | | | morning rise | 4412 Nov 06 20:31 | 0° <u>♂</u> 51'13 | |
| conjunction | 4406 Oct 08 22:24 | 17° <u>♂</u> 05'45 | 0°55'58 | retrograde | 4413 Feb 01 22:41 | 2° <u>♂</u> 43'39 | |
| minimum elong | 4406 Oct 08 22:24 | 17° <u>♂</u> 05'45 | 0°55'58 | opposition | 4413 Apr 20 08:31 | 1° <u>♂</u> 21'22 | 1°16'14 |
| max. Earth dist. | 4406 Oct 08 05:53 | 17° <u>♂</u> 04'13 | 31.16484 AU | min. Earth dist. | 4413 Apr 21 01:24 | 1° <u>♂</u> 20'12 | 29.22983 AU |
| morning rise | 4406 Oct 24 23:07 | 17° <u>♂</u> 41'07 | | | 4413 Jun 24 17:49 | 30° <u>♂</u> | |
| retrograde | 4407 Jan 20 10:13 | 19° <u>♂</u> 33'53 | | direct | 4413 Jul 09 15:39 | 29° <u>♂</u> 56'24 | |
| opposition | 4407 Apr 07 18:14 | 18° <u>♂</u> 11'12 | 1°01'11 | | 4413 Jul 24 13:09 | 0° <u>♂</u> | |
| min. Earth dist. | 4407 Apr 08 08:48 | 18° <u>♂</u> 10'11 | 29.17012 AU | evening set | 4413 Oct 08 10:31 | 1° <u>♂</u> 52'20 | |
| direct | 4407 Jun 26 18:57 | 16° <u>♂</u> 46'07 | | | | | |
| evening set | 4407 Sep 25 07:29 | 18° <u>♂</u> 41'52 | | conjunction | 4413 Oct 24 10:47 | 2° <u>♂</u> 27'40 | 1°12'24 |
| | | | | minimum elong | 4413 Oct 24 10:47 | 2° <u>♂</u> 27'40 | 1°12'23 |
| conjunction | 4407 Oct 11 10:31 | 19° <u>♂</u> 17'25 | 0°58'36 | max. Earth dist. | 4413 Oct 23 15:07 | 2° <u>♂</u> 25'51 | 31.23264 AU |
| minimum elong | 4407 Oct 11 10:31 | 19° <u>♂</u> 17'25 | 0°58'35 | morning rise | 4413 Nov 09 07:53 | 3° <u>♂</u> 02'45 | |
| max. Earth dist. | 4407 Oct 10 18:40 | 19° <u>♂</u> 15'57 | 31.17477 AU | retrograde | 4414 Feb 04 09:05 | 4° <u>♂</u> 55'08 | |
| morning rise | 4407 Oct 27 10:39 | 19° <u>♂</u> 52'44 | | opposition | 4414 Apr 22 19:03 | 3° <u>♂</u> 32'52 | 1°18'22 |
| retrograde | 4408 Jan 22 20:17 | 21° <u>♂</u> 45'27 | | min. Earth dist. | 4414 Apr 23 13:27 | 3° <u>♂</u> 31'35 | 29.23657 AU |
| opposition | 4408 Apr 09 04:31 | 20° <u>♂</u> 22'51 | 1°03'57 | direct | 4414 Jul 12 03:38 | 2° <u>♂</u> 07'54 | |
| min. Earth dist. | 4408 Apr 09 19:06 | 20° <u>♂</u> 21'49 | 29.18048 AU | evening set | 4414 Oct 10 22:48 | 4° <u>♂</u> 03'49 | |
| direct | 4408 Jun 28 07:38 | 18° <u>♂</u> 57'47 | | | | | |
| evening set | 4408 Sep 26 20:08 | 20° <u>♂</u> 53'35 | | conjunction | 4414 Oct 26 22:36 | 4° <u>♂</u> 39'06 | 1°14'20 |
| | | | | minimum elong | 4414 Oct 26 22:36 | 4° <u>♂</u> 39'06 | 1°14'21 |
| conjunction | 4408 Oct 12 22:35 | 21° <u>♂</u> 29'06 | 1°01'08 | max. Earth dist. | 4414 Oct 26 02:30 | 4° <u>♂</u> 37'15 | 31.23888 AU |
| minimum elong | 4408 Oct 12 22:35 | 21° <u>♂</u> 29'06 | 1°01'08 | morning rise | 4414 Nov 11 19:13 | 5° <u>♂</u> 14'09 | |
| max. Earth dist. | 4408 Oct 12 05:24 | 21° <u>♂</u> 27'31 | 31.18554 AU | retrograde | 4415 Feb 06 19:39 | 7° <u>♂</u> 06'27 | |
| morning rise | 4408 Oct 28 22:23 | 22° <u>♂</u> 04'24 | | opposition | 4415 Apr 25 05:35 | 5° <u>♂</u> 44'11 | 1°20'24 |
| retrograde | 4409 Jan 24 07:19 | 23° <u>♂</u> 57'03 | | min. Earth dist. | 4415 Apr 25 23:39 | 5° <u>♂</u> 42'56 | 29.24229 AU |
| opposition | 4409 Apr 11 14:40 | 22° <u>♂</u> 34'31 | 1°06'36 | direct | 4415 Jul 14 17:22 | 4° <u>♂</u> 19'12 | |
| min. Earth dist. | 4409 Apr 12 05:31 | 22° <u>♂</u> 33'29 | 29.19157 AU | evening set | 4415 Oct 13 10:50 | 6° <u>♂</u> 15'06 | |
| direct | 4409 Jun 30 17:33 | 21° <u>♂</u> 09'30 | | | | | |
| evening set | 4409 Sep 29 08:38 | 23° <u>♂</u> 05'21 | | conjunction | 4415 Oct 29 10:04 | 6° <u>♂</u> 50'21 | 1°16'11 |
| | | | | minimum elong | 4415 Oct 29 10:04 | 6° <u>♂</u> 50'21 | 1°16'11 |
| conjunction | 4409 Oct 15 10:50 | 23° <u>♂</u> 40'50 | 1°03'34 | max. Earth dist. | 4415 Oct 28 13:07 | 6° <u>♂</u> 48'25 | 31.24421 AU |
| minimum elong | 4409 Oct 15 10:50 | 23° <u>♂</u> 40'50 | 1°03'35 | morning rise | 4415 Nov 14 06:12 | 7° <u>♂</u> 25'21 | |
| max. Earth dist. | 4409 Oct 14 18:13 | 23° <u>♂</u> 39'18 | 31.19658 AU | retrograde | 4416 Feb 09 06:02 | 9° <u>♂</u> 17'36 | |
| morning rise | 4409 Oct 31 09:58 | 24° <u>♂</u> 16'05 | | opposition | 4416 Apr 26 16:10 | 7° <u>♂</u> 55'19 | 1°22'18 |
| retrograde | 4410 Jan 26 15:31 | 26° <u>♂</u> 08'42 | | min. Earth dist. | 4416 Apr 27 11:06 | 7° <u>♂</u> 54'01 | 29.24753 AU |
| opposition | 4410 Apr 14 01:06 | 24° <u>♂</u> 46'15 | 1°09'10 | direct | 4416 Jul 16 04:33 | 6° <u>♂</u> 30'19 | |
| min. Earth dist. | 4410 Apr 14 16:59 | 24° <u>♂</u> 45'09 | 29.20245 AU | evening set | 4416 Oct 14 22:44 | 8° <u>♂</u> 26'11 | |
| direct | 4410 Jul 03 05:27 | 23° <u>♂</u> 21'17 | | | | | |
| evening set | 4410 Oct 01 21:16 | 25° <u>♂</u> 17'09 | | conjunction | 4416 Oct 30 21:37 | 9° <u>♂</u> 01'24 | 1°17'54 |
| | | | | minimum elong | 4416 Oct 30 21:37 | 9° <u>♂</u> 01'24 | 1°17'55 |
| conjunction | 4410 Oct 17 22:50 | 25° <u>♂</u> 52'36 | 1°05'56 | max. Earth dist. | 4416 Oct 30 01:19 | 8° <u>♂</u> 59'31 | 31.24931 AU |
| minimum elong | 4410 Oct 17 22:49 | 25° <u>♂</u> 52'36 | 1°05'56 | morning rise | 4416 Nov 15 17:10 | 9° <u>♂</u> 36'22 | |
| max. Earth dist. | 4410 Oct 17 04:33 | 25° <u>♂</u> 50'55 | 31.20717 AU | retrograde | 4417 Feb 10 15:39 | 11° <u>♂</u> 28'31 | |
| morning rise | 4410 Nov 02 21:35 | 26° <u>♂</u> 27'49 | | opposition | 4417 Apr 29 02:34 | 10° <u>♂</u> 06'16 | 1°24'05 |
| retrograde | 4411 Jan 29 02:16 | 28° <u>♂</u> 20'23 | | min. Earth dist. | 4417 Apr 29 21:37 | 10° <u>♂</u> 04'56 | 29.25258 AU |
| opposition | 4411 Apr 16 11:29 | 26° <u>♂</u> 58'00 | 1°11'38 | direct | 4417 Jul 18 18:12 | 8° <u>♂</u> 41'13 | |
| min. Earth dist. | 4411 Apr 17 03:13 | 26° <u>♂</u> 56'55 | 29.21271 AU | evening set | 4417 Oct 17 10:41 | 10° <u>♂</u> 37'05 | |
| direct | 4411 Jul 05 16:15 | 25° <u>♂</u> 33'03 | | max. Earth dist. | 4417 Nov 01 11:30 | 11° <u>♂</u> 10'17 | 31.25452 AU |
| evening set | 4411 Oct 04 09:44 | 27° <u>♂</u> 28'57 | | | | | |
| | | | | conjunction | 4417 Nov 02 08:56 | 11° <u>♂</u> 12'16 | 1°19'31 |
| conjunction | 4411 Oct 20 10:58 | 28° <u>♂</u> 04'22 | 1°08'11 | minimum elong | 4417 Nov 02 08:56 | 11° <u>♂</u> 12'16 | 1°19'32 |

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|------------------|-------------------|-------------------------------|-------------|------------------|-------------------|-------------------------------|-------------|
| morning rise | 4417 Nov 18 04:06 | 11° \mathbb{M} 47'11 | | direct | 4424 Aug 03 01:16 | 23° \mathbb{M} 57'28 | |
| retrograde | 4418 Feb 13 02:16 | 13° \mathbb{M} 39'17 | | evening set | 4424 Nov 01 19:32 | 25° \mathbb{M} 53'27 | |
| opposition | 4418 May 01 13:07 | 12° \mathbb{M} 17'02 | 1°25'45 | | | | |
| min. Earth dist. | 4418 May 02 07:57 | 12° \mathbb{M} 15'44 | 29.25821 AU | conjunction | 4424 Nov 17 14:20 | 26° \mathbb{M} 28'24 | 1°27'30 |
| direct | 4418 Jul 21 05:06 | 10° \mathbb{M} 52'00 | | minimum elong | 4424 Nov 17 14:20 | 26° \mathbb{M} 28'24 | 1°27'30 |
| evening set | 4418 Oct 19 22:18 | 12° \mathbb{M} 47'51 | | max. Earth dist. | 4424 Nov 16 16:36 | 26° \mathbb{M} 26'23 | 31.30514 AU |
| | | | | morning rise | 4424 Dec 03 05:57 | 27° \mathbb{M} 03'06 | |
| conjunction | 4418 Nov 04 20:12 | 13° \mathbb{M} 23'00 | 1°21'01 | retrograde | 4425 Feb 28 01:20 | 28° \mathbb{M} 55'14 | |
| minimum elong | 4418 Nov 04 20:11 | 13° \mathbb{M} 23'00 | 1°21'02 | opposition | 4425 May 16 16:32 | 27° \mathbb{M} 33'21 | 1°33'49 |
| max. Earth dist. | 4418 Nov 03 23:54 | 13° \mathbb{M} 21'07 | 31.26045 AU | min. Earth dist. | 4425 May 17 12:38 | 27° \mathbb{M} 31'59 | 29.30861 AU |
| morning rise | 4418 Nov 20 14:39 | 13° \mathbb{M} 57'52 | | direct | 4425 Aug 05 12:20 | 26° \mathbb{M} 08'39 | |
| | 4418 Dec 22 03:21 | 15° \mathbb{M} | | evening set | 4425 Nov 04 06:57 | 28° \mathbb{M} 04'38 | |
| retrograde | 4419 Feb 15 10:05 | 15° \mathbb{M} 49'57 | | max. Earth dist. | 4425 Nov 19 04:12 | 28° \mathbb{M} 37'35 | 31.30977 AU |
| | 4419 Apr 14 00:06 | 15° \mathbb{R} \mathbb{M} | | | | | |
| opposition | 4419 May 03 23:49 | 14° \mathbb{M} 27'44 | 1°27'18 | conjunction | 4425 Nov 20 01:23 | 28° \mathbb{M} 39'34 | 1°28'09 |
| min. Earth dist. | 4419 May 04 19:05 | 14° \mathbb{M} 26'24 | 29.26462 AU | minimum elong | 4425 Nov 20 01:23 | 28° \mathbb{M} 39'34 | 1°28'09 |
| direct | 4419 Jul 23 17:11 | 13° \mathbb{M} 02'43 | | morning rise | 4425 Dec 05 16:26 | 29° \mathbb{M} 14'13 | |
| evening set | 4419 Oct 22 10:01 | 14° \mathbb{M} 58'34 | | | 4425 Dec 27 23:55 | 0° \mathbb{A} | |
| | 4419 Oct 23 01:57 | 15° \mathbb{M} | | retrograde | 4426 Mar 02 11:53 | 1° \mathbb{A} 06'20 | |
| max. Earth dist. | 4419 Nov 06 10:01 | 15° \mathbb{M} 31'42 | 31.26746 AU | | 4426 May 09 16:17 | 30° \mathbb{R} \mathbb{M} | |
| | | | | opposition | 4426 May 19 03:39 | 29° \mathbb{M} 44'29 | 1°34'26 |
| conjunction | 4419 Nov 07 07:15 | 15° \mathbb{M} 33'40 | 1°22'25 | min. Earth dist. | 4426 May 19 23:58 | 29° \mathbb{M} 43'06 | 29.31240 AU |
| minimum elong | 4419 Nov 07 07:15 | 15° \mathbb{M} 33'40 | 1°22'25 | direct | 4426 Aug 08 02:42 | 28° \mathbb{M} 19'48 | |
| morning rise | 4419 Nov 23 01:23 | 16° \mathbb{M} 08'31 | | | 4426 Oct 30 09:42 | 0° \mathbb{A} | |
| retrograde | 4420 Feb 17 20:33 | 18° \mathbb{M} 00'34 | | evening set | 4426 Nov 06 18:19 | 0° \mathbb{A} 15'46 | |
| opposition | 4420 May 05 10:20 | 16° \mathbb{M} 38'25 | 1°28'43 | | | | |
| min. Earth dist. | 4420 May 06 04:44 | 16° \mathbb{M} 37'08 | 29.27219 AU | conjunction | 4426 Nov 22 12:06 | 0° \mathbb{A} 50'39 | 1°28'40 |
| direct | 4420 Jul 25 03:27 | 15° \mathbb{M} 13'26 | | minimum elong | 4426 Nov 22 12:06 | 0° \mathbb{A} 50'39 | 1°28'40 |
| evening set | 4420 Oct 23 21:27 | 17° \mathbb{M} 09'18 | | max. Earth dist. | 4426 Nov 21 13:40 | 0° \mathbb{A} 48'34 | 31.31284 AU |
| | | | | morning rise | 4426 Dec 08 02:48 | 1° \mathbb{A} 25'17 | |
| conjunction | 4420 Nov 08 18:22 | 17° \mathbb{M} 44'24 | 1°23'40 | retrograde | 4427 Mar 04 22:45 | 3° \mathbb{A} 17'24 | |
| minimum elong | 4420 Nov 08 18:22 | 17° \mathbb{M} 44'24 | 1°23'41 | opposition | 4427 May 21 14:45 | 1° \mathbb{A} 55'32 | 1°34'56 |
| max. Earth dist. | 4420 Nov 07 22:05 | 17° \mathbb{M} 42'30 | 31.27538 AU | min. Earth dist. | 4427 May 22 10:56 | 1° \mathbb{A} 54'09 | 29.31486 AU |
| morning rise | 4420 Nov 24 11:52 | 18° \mathbb{M} 19'13 | | direct | 4427 Aug 10 14:16 | 0° \mathbb{A} 30'51 | |
| retrograde | 4421 Feb 19 05:36 | 20° \mathbb{M} 11'17 | | evening set | 4427 Nov 09 05:26 | 2° \mathbb{A} 26'47 | |
| opposition | 4421 May 07 21:06 | 18° \mathbb{M} 49'11 | 1°30'00 | | | | |
| min. Earth dist. | 4421 May 08 16:33 | 18° \mathbb{M} 47'50 | 29.28038 AU | conjunction | 4427 Nov 24 22:56 | 3° \mathbb{A} 01'38 | 1°29'03 |
| direct | 4421 Jul 27 13:05 | 17° \mathbb{M} 24'16 | | minimum elong | 4427 Nov 24 22:56 | 3° \mathbb{A} 01'38 | 1°29'04 |
| evening set | 4421 Oct 26 09:05 | 19° \mathbb{M} 20'10 | | max. Earth dist. | 4427 Nov 24 01:24 | 2° \mathbb{A} 59'38 | 31.31462 AU |
| max. Earth dist. | 4421 Nov 10 08:32 | 19° \mathbb{M} 53'17 | 31.28374 AU | morning rise | 4427 Dec 10 13:02 | 3° \mathbb{A} 36'15 | |
| | | | | retrograde | 4428 Mar 06 06:33 | 5° \mathbb{A} 28'19 | |
| conjunction | 4421 Nov 11 05:24 | 19° \mathbb{M} 55'13 | 1°24'49 | opposition | 4428 May 23 01:50 | 4° \mathbb{A} 06'27 | 1°35'17 |
| minimum elong | 4421 Nov 11 05:24 | 19° \mathbb{M} 55'13 | 1°24'49 | min. Earth dist. | 4428 May 23 22:46 | 4° \mathbb{A} 05'01 | 29.31608 AU |
| morning rise | 4421 Nov 26 22:31 | 20° \mathbb{M} 30'01 | | direct | 4428 Aug 12 02:57 | 2° \mathbb{A} 41'45 | |
| retrograde | 4422 Feb 21 16:35 | 22° \mathbb{M} 22'05 | | evening set | 4428 Nov 10 16:31 | 4° \mathbb{A} 37'37 | |
| opposition | 4422 May 10 07:43 | 21° \mathbb{M} 00'04 | 1°31'09 | max. Earth dist. | 4428 Nov 25 10:51 | 5° \mathbb{A} 10'21 | 31.31549 AU |
| min. Earth dist. | 4422 May 11 02:19 | 20° \mathbb{M} 58'47 | 29.28866 AU | | | | |
| direct | 4422 Jul 30 01:27 | 19° \mathbb{M} 35'13 | | conjunction | 4428 Nov 26 09:26 | 5° \mathbb{A} 12'27 | 1°29'19 |
| evening set | 4422 Oct 28 20:38 | 21° \mathbb{M} 31'10 | | minimum elong | 4428 Nov 26 09:26 | 5° \mathbb{A} 12'27 | 1°29'20 |
| | | | | morning rise | 4428 Dec 11 23:18 | 5° \mathbb{A} 47'02 | |
| conjunction | 4422 Nov 13 16:29 | 22° \mathbb{M} 06'11 | 1°25'50 | retrograde | 4429 Mar 08 16:45 | 7° \mathbb{A} 39'05 | |
| minimum elong | 4422 Nov 13 16:29 | 22° \mathbb{M} 06'11 | 1°25'50 | opposition | 4429 May 25 12:51 | 6° \mathbb{A} 17'11 | 1°35'30 |
| max. Earth dist. | 4422 Nov 12 19:40 | 22° \mathbb{M} 04'15 | 31.29177 AU | min. Earth dist. | 4429 May 26 08:58 | 6° \mathbb{A} 15'48 | 29.31663 AU |
| morning rise | 4422 Nov 29 09:01 | 22° \mathbb{M} 40'57 | | direct | 4429 Aug 14 14:21 | 4° \mathbb{A} 52'27 | |
| retrograde | 4423 Feb 24 03:30 | 24° \mathbb{M} 33'03 | | evening set | 4429 Nov 13 03:23 | 6° \mathbb{A} 48'16 | |
| opposition | 4423 May 12 18:43 | 23° \mathbb{M} 11'05 | 1°32'10 | | | | |
| min. Earth dist. | 4423 May 13 14:24 | 23° \mathbb{M} 09'44 | 29.29648 AU | conjunction | 4429 Nov 28 19:57 | 7° \mathbb{A} 23'04 | 1°29'28 |
| direct | 4423 Aug 01 12:22 | 21° \mathbb{M} 46'19 | | minimum elong | 4429 Nov 28 19:57 | 7° \mathbb{A} 23'04 | 1°29'28 |
| evening set | 4423 Oct 31 08:00 | 23° \mathbb{M} 42'16 | | max. Earth dist. | 4429 Nov 27 22:22 | 7° \mathbb{A} 21'03 | 31.31580 AU |
| max. Earth dist. | 4423 Nov 15 06:31 | 24° \mathbb{M} 15'19 | 31.29913 AU | morning rise | 4429 Dec 14 09:14 | 7° \mathbb{A} 57'37 | |
| | | | | retrograde | 4430 Mar 11 01:13 | 9° \mathbb{A} 49'39 | |
| conjunction | 4423 Nov 16 03:22 | 24° \mathbb{M} 17'16 | 1°26'44 | opposition | 4430 May 28 00:02 | 8° \mathbb{A} 27'43 | 1°35'35 |
| minimum elong | 4423 Nov 16 03:21 | 24° \mathbb{M} 17'16 | 1°26'44 | min. Earth dist. | 4430 May 28 21:00 | 8° \mathbb{A} 26'17 | 29.31700 AU |
| morning rise | 4423 Dec 01 19:25 | 24° \mathbb{M} 51'59 | | direct | 4430 Aug 17 01:02 | 7° \mathbb{A} 02'58 | |
| retrograde | 4424 Feb 26 14:11 | 26° \mathbb{M} 44'07 | | evening set | 4430 Nov 15 14:14 | 8° \mathbb{A} 58'44 | |
| opposition | 4424 May 14 05:38 | 25° \mathbb{M} 22'12 | 1°33'04 | max. Earth dist. | 4430 Nov 30 08:35 | 9° \mathbb{A} 31'28 | 31.31643 AU |
| min. Earth dist. | 4424 May 15 00:53 | 25° \mathbb{M} 20'53 | 29.30319 AU | | | | |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| conjunction | 4430 Dec 01 06:14 | 9°♊33'30 | 1°29'28 | evening set | 4437 Nov 30 15:55 | 24°♊11'41 | |
| minimum elong | 4430 Dec 01 06:14 | 9°♊33'30 | 1°29'29 | max. Earth dist. | 4437 Dec 15 09:04 | 24°♊44'26 | 31.32991 AU |
| morning rise | 4430 Dec 16 19:12 | 10°♊08'01 | | | | | |
| retrograde | 4431 Mar 13 10:54 | 12°♊00'02 | | conjunction | 4437 Dec 16 04:59 | 24°♊46'18 | 1°25'59 |
| opposition | 4431 May 30 11:10 | 10°♊38'05 | 1°35'31 | minimum elong | 4437 Dec 16 04:59 | 24°♊46'18 | 1°25'59 |
| min. Earth dist. | 4431 May 31 06:42 | 10°♊36'45 | 29.31791 AU | morning rise | 4437 Dec 31 15:26 | 25°♊20'42 | |
| direct | 4431 Aug 19 13:19 | 9°♊13'20 | | retrograde | 4438 Mar 28 12:26 | 27°♊13'02 | |
| evening set | 4431 Nov 18 00:47 | 11°♊09'02 | | opposition | 4438 Jun 14 18:56 | 25°♊51'11 | 1°31'19 |
| | | | | min. Earth dist. | 4438 Jun 15 12:56 | 25°♊49'57 | 29.33036 AU |
| conjunction | 4431 Dec 03 16:24 | 11°♊43'47 | 1°29'21 | direct | 4438 Sep 03 22:52 | 24°♊26'45 | |
| minimum elong | 4431 Dec 03 16:24 | 11°♊43'47 | 1°29'22 | evening set | 4438 Dec 03 02:17 | 26°♊22'21 | |
| max. Earth dist. | 4431 Dec 02 19:18 | 11°♊41'49 | 31.31770 AU | | | | |
| morning rise | 4431 Dec 19 04:54 | 12°♊18'17 | | conjunction | 4438 Dec 18 15:06 | 26°♊56'58 | 1°24'59 |
| retrograde | 4432 Mar 14 20:51 | 14°♊10'20 | | minimum elong | 4438 Dec 18 15:07 | 26°♊56'58 | 1°24'59 |
| opposition | 4432 May 31 22:26 | 12°♊48'21 | 1°35'20 | max. Earth dist. | 4438 Dec 17 20:00 | 26°♊55'10 | 31.32870 AU |
| min. Earth dist. | 4432 Jun 01 18:24 | 12°♊46'59 | 29.31970 AU | morning rise | 4439 Jan 03 01:06 | 27°♊31'20 | |
| direct | 4432 Aug 20 23:17 | 11°♊23'38 | | retrograde | 4439 Mar 30 21:39 | 29°♊23'44 | |
| evening set | 4432 Nov 19 11:23 | 13°♊19'19 | | opposition | 4439 Jun 17 06:46 | 28°♊01'52 | 1°30'12 |
| max. Earth dist. | 4432 Dec 04 06:11 | 13°♊52'07 | 31.31996 AU | min. Earth dist. | 4439 Jun 18 01:41 | 28°♊00'35 | 29.32846 AU |
| | | | | direct | 4439 Sep 06 09:46 | 26°♊37'28 | |
| conjunction | 4432 Dec 05 02:37 | 13°♊54'02 | 1°29'07 | evening set | 4439 Dec 05 12:32 | 28°♊33'01 | |
| minimum elong | 4432 Dec 05 02:37 | 13°♊54'02 | 1°29'07 | max. Earth dist. | 4439 Dec 20 05:42 | 29°♊05'48 | 31.32618 AU |
| morning rise | 4432 Dec 20 14:44 | 14°♊28'30 | | | | | |
| retrograde | 4433 Mar 17 06:59 | 16°♊20'34 | | conjunction | 4439 Dec 21 00:57 | 29°♊07'36 | 1°23'52 |
| opposition | 4433 Jun 03 09:30 | 14°♊58'37 | 1°35'00 | minimum elong | 4439 Dec 21 00:57 | 29°♊07'36 | 1°23'52 |
| min. Earth dist. | 4433 Jun 04 04:26 | 14°♊57'20 | 29.32218 AU | morning rise | 4440 Jan 05 10:47 | 29°♊41'58 | |
| direct | 4433 Aug 23 11:22 | 13°♊33'56 | | | 4440 Jan 13 19:56 | 0°♊ | |
| evening set | 4433 Nov 21 22:02 | 15°♊29'37 | | retrograde | 4440 Apr 01 07:30 | 1°♊34'25 | |
| | | | | opposition | 4440 Jun 18 18:24 | 0°♊12'31 | 1°28'56 |
| conjunction | 4433 Dec 07 12:46 | 16°♊04'18 | 1°28'44 | min. Earth dist. | 4440 Jun 19 12:07 | 0°♊11'19 | 29.32517 AU |
| minimum elong | 4433 Dec 07 12:45 | 16°♊04'18 | 1°28'45 | | 4440 Jun 26 11:06 | 30°♊ | |
| max. Earth dist. | 4433 Dec 06 16:04 | 16°♊02'22 | 31.32273 AU | direct | 4440 Sep 07 22:01 | 28°♊48'07 | |
| morning rise | 4433 Dec 23 00:34 | 16°♊38'46 | | | 4440 Nov 15 20:25 | 0°♊ | |
| retrograde | 4434 Mar 19 18:31 | 18°♊30'53 | | evening set | 4440 Dec 06 22:46 | 0°♊43'37 | |
| opposition | 4434 Jun 05 20:53 | 17°♊08'57 | 1°34'32 | | | | |
| min. Earth dist. | 4434 Jun 06 15:57 | 17°♊07'39 | 29.32514 AU | conjunction | 4440 Dec 22 10:52 | 1°♊18'11 | 1°22'37 |
| direct | 4434 Aug 25 22:11 | 15°♊44'19 | | minimum elong | 4440 Dec 22 10:52 | 1°♊18'11 | 1°22'38 |
| evening set | 4434 Nov 24 08:24 | 17°♊39'59 | | max. Earth dist. | 4440 Dec 21 15:47 | 1°♊16'24 | 31.32232 AU |
| | | | | morning rise | 4441 Jan 06 20:23 | 1°♊52'33 | |
| conjunction | 4434 Dec 09 22:49 | 18°♊14'40 | 1°28'14 | retrograde | 4441 Apr 03 17:35 | 3°♊45'02 | |
| minimum elong | 4434 Dec 09 22:49 | 18°♊14'40 | 1°28'15 | opposition | 4441 Jun 21 06:05 | 2°♊23'05 | 1°27'34 |
| max. Earth dist. | 4434 Dec 09 03:27 | 18°♊12'51 | 31.32566 AU | min. Earth dist. | 4441 Jun 22 00:27 | 2°♊21'50 | 29.32091 AU |
| morning rise | 4434 Dec 25 10:08 | 18°♊49'06 | | direct | 4441 Sep 10 07:46 | 0°♊58'40 | |
| retrograde | 4435 Mar 22 05:02 | 20°♊41'16 | | evening set | 4441 Dec 09 08:51 | 2°♊54'06 | |
| opposition | 4435 Jun 08 08:20 | 19°♊19'22 | 1°33'56 | | | | |
| min. Earth dist. | 4435 Jun 09 03:10 | 19°♊18'05 | 29.32782 AU | conjunction | 4441 Dec 24 20:40 | 3°♊28'39 | 1°21'16 |
| direct | 4435 Aug 28 11:41 | 17°♊54'48 | | minimum elong | 4441 Dec 24 20:40 | 3°♊28'39 | 1°21'17 |
| evening set | 4435 Nov 26 18:58 | 19°♊50'28 | | max. Earth dist. | 4441 Dec 24 02:25 | 3°♊26'57 | 31.31783 AU |
| | | | | morning rise | 4442 Jan 09 05:54 | 4°♊03'00 | |
| conjunction | 4435 Dec 12 08:49 | 20°♊25'07 | 1°27'37 | retrograde | 4442 Apr 06 03:32 | 5°♊55'32 | |
| minimum elong | 4435 Dec 12 08:49 | 20°♊25'07 | 1°27'37 | opposition | 4442 Jun 23 17:51 | 4°♊33'31 | 1°26'04 |
| max. Earth dist. | 4435 Dec 11 12:39 | 20°♊23'14 | 31.32811 AU | min. Earth dist. | 4442 Jun 24 11:03 | 4°♊32'21 | 29.31618 AU |
| morning rise | 4435 Dec 27 19:57 | 20°♊59'32 | | direct | 4442 Sep 12 19:46 | 3°♊09'07 | |
| retrograde | 4436 Mar 23 16:34 | 22°♊51'46 | | evening set | 4442 Dec 11 18:46 | 5°♊04'29 | |
| opposition | 4436 Jun 09 19:41 | 21°♊29'54 | 1°33'12 | max. Earth dist. | 4442 Dec 26 11:51 | 5°♊37'18 | 31.31319 AU |
| min. Earth dist. | 4436 Jun 10 14:04 | 21°♊28'39 | 29.32995 AU | | | | |
| direct | 4436 Aug 29 22:35 | 20°♊05'23 | | conjunction | 4442 Dec 27 06:08 | 5°♊39'00 | 1°19'49 |
| evening set | 4436 Nov 28 05:22 | 22°♊01'02 | | minimum elong | 4442 Dec 27 06:08 | 5°♊39'01 | 1°19'49 |
| | | | | morning rise | 4443 Jan 11 15:13 | 6°♊13'21 | |
| conjunction | 4436 Dec 13 19:01 | 22°♊35'41 | 1°26'51 | retrograde | 4443 Apr 08 15:06 | 8°♊05'56 | |
| minimum elong | 4436 Dec 13 19:01 | 22°♊35'41 | 1°26'52 | opposition | 4443 Jun 26 05:42 | 6°♊43'52 | 1°24'26 |
| max. Earth dist. | 4436 Dec 12 23:58 | 22°♊33'54 | 31.32965 AU | min. Earth dist. | 4443 Jun 26 22:37 | 6°♊42'43 | 29.31186 AU |
| morning rise | 4436 Dec 29 05:39 | 23°♊10'05 | | direct | 4443 Sep 15 06:49 | 5°♊19'27 | |
| retrograde | 4437 Mar 26 01:26 | 25°♊02'22 | | evening set | 4443 Dec 14 04:35 | 7°♊14'46 | |
| opposition | 4437 Jun 12 07:21 | 23°♊40'31 | 1°32'20 | | | | |
| min. Earth dist. | 4437 Jun 13 02:18 | 23°♊39'13 | 29.33082 AU | conjunction | 4443 Dec 29 15:47 | 7°♊49'17 | 1°18'14 |
| direct | 4437 Sep 01 11:15 | 22°♊16'03 | | minimum elong | 4443 Dec 29 15:47 | 7°♊49'17 | 1°18'15 |

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|------------------|-------------------|--------------------------|-------------|------------------|-------------------|-----------------------------------|-------------|
| max. Earth dist. | 4443 Dec 28 23:15 | 7° $\overline{3}$ 47'44 | 31.30923 AU | conjunction | 4451 Jan 13 10:14 | 23° $\overline{3}$ 03'01 | 1°04'11 |
| morning rise | 4444 Jan 14 00:30 | 8° $\overline{3}$ 23'36 | | minimum elong | 4451 Jan 13 10:14 | 23° $\overline{3}$ 03'01 | 1°04'11 |
| retrograde | 4444 Apr 10 01:46 | 10° $\overline{3}$ 16'15 | | max. Earth dist. | 4451 Jan 12 21:47 | 23° $\overline{3}$ 01'51 | 31.29268 AU |
| opposition | 4444 Jun 27 17:24 | 8° $\overline{3}$ 54'08 | 1°22'42 | morning rise | 4451 Jan 28 17:49 | 23° $\overline{3}$ 37'21 | |
| min. Earth dist. | 4444 Jun 28 09:35 | 8° $\overline{3}$ 53'02 | 29.30827 AU | retrograde | 4451 Apr 26 03:00 | 25° $\overline{3}$ 30'38 | |
| direct | 4444 Sep 16 19:58 | 7° $\overline{3}$ 29'45 | | opposition | 4451 Jul 14 05:56 | 24° $\overline{3}$ 08'26 | 1°07'18 |
| evening set | 4444 Dec 15 14:30 | 9° $\overline{3}$ 25'02 | | min. Earth dist. | 4451 Jul 14 17:48 | 24° $\overline{3}$ 07'38 | 29.29062 AU |
| max. Earth dist. | 4444 Dec 30 08:26 | 9° $\overline{3}$ 57'57 | 31.30622 AU | direct | 4451 Oct 03 03:53 | 22° $\overline{3}$ 44'25 | |
| | | | | evening set | 4451 Dec 31 10:45 | 24° $\overline{3}$ 39'25 | |
| conjunction | 4444 Dec 31 01:15 | 9° $\overline{3}$ 59'32 | 1°16'33 | | | | |
| minimum elong | 4444 Dec 31 01:15 | 9° $\overline{3}$ 59'32 | 1°16'33 | conjunction | 4452 Jan 15 19:47 | 25° $\overline{3}$ 13'52 | 1°01'46 |
| morning rise | 4445 Jan 15 09:56 | 10° $\overline{3}$ 33'51 | | minimum elong | 4452 Jan 15 19:48 | 25° $\overline{3}$ 13'52 | 1°01'47 |
| retrograde | 4445 Apr 12 13:20 | 12° $\overline{3}$ 26'34 | | max. Earth dist. | 4452 Jan 15 06:52 | 25° $\overline{3}$ 12'39 | 31.28735 AU |
| opposition | 4445 Jun 30 05:12 | 11° $\overline{3}$ 04'26 | 1°20'50 | morning rise | 4452 Jan 31 03:24 | 25° $\overline{3}$ 48'12 | |
| min. Earth dist. | 4445 Jun 30 20:11 | 11° $\overline{3}$ 03'25 | 29.30575 AU | retrograde | 4452 Apr 27 14:54 | 27° $\overline{3}$ 41'34 | |
| direct | 4445 Sep 19 06:22 | 9° $\overline{3}$ 40'06 | | opposition | 4452 Jul 15 18:10 | 26° $\overline{3}$ 19'19 | 1°04'41 |
| evening set | 4445 Dec 18 00:09 | 11° $\overline{3}$ 35'21 | | min. Earth dist. | 4452 Jul 16 06:04 | 26° $\overline{3}$ 18'31 | 29.28463 AU |
| | | | | direct | 4452 Oct 04 14:20 | 24° $\overline{3}$ 55'19 | |
| conjunction | 4446 Jan 02 10:46 | 12° $\overline{3}$ 09'50 | 1°14'45 | evening set | 4453 Jan 01 20:26 | 26° $\overline{3}$ 50'14 | |
| minimum elong | 4446 Jan 02 10:47 | 12° $\overline{3}$ 09'50 | 1°14'46 | | | | |
| max. Earth dist. | 4446 Jan 01 19:44 | 12° $\overline{3}$ 08'26 | 31.30409 AU | conjunction | 4453 Jan 17 05:27 | 27° $\overline{3}$ 24'41 | 0°59'17 |
| morning rise | 4446 Jan 17 19:04 | 12° $\overline{3}$ 44'09 | | minimum elong | 4453 Jan 17 05:27 | 27° $\overline{3}$ 24'41 | 0°59'17 |
| retrograde | 4446 Apr 14 22:44 | 14° $\overline{3}$ 36'57 | | max. Earth dist. | 4453 Jan 16 17:58 | 27° $\overline{3}$ 23'36 | 31.28071 AU |
| opposition | 4446 Jul 02 17:12 | 13° $\overline{3}$ 14'50 | 1°18'51 | morning rise | 4453 Feb 01 12:50 | 27° $\overline{3}$ 59'01 | |
| min. Earth dist. | 4446 Jul 03 08:07 | 13° $\overline{3}$ 13'49 | 29.30389 AU | retrograde | 4453 Apr 30 01:37 | 29° $\overline{3}$ 52'28 | |
| direct | 4446 Sep 21 19:18 | 11° $\overline{3}$ 50'33 | | opposition | 4453 Jul 18 06:37 | 28° $\overline{3}$ 30'09 | 1°01'58 |
| evening set | 4446 Dec 20 09:59 | 13° $\overline{3}$ 45'46 | | min. Earth dist. | 4453 Jul 18 18:05 | 28° $\overline{3}$ 29'23 | 29.27727 AU |
| | | | | direct | 4453 Oct 07 02:58 | 27° $\overline{3}$ 06'09 | |
| conjunction | 4447 Jan 04 20:11 | 14° $\overline{3}$ 20'15 | 1°12'51 | evening set | 4454 Jan 04 06:06 | 29° $\overline{3}$ 01'00 | |
| minimum elong | 4447 Jan 04 20:11 | 14° $\overline{3}$ 20'15 | 1°12'51 | | | | |
| max. Earth dist. | 4447 Jan 04 05:00 | 14° $\overline{3}$ 18'49 | 31.30262 AU | conjunction | 4454 Jan 19 14:46 | 29° $\overline{3}$ 35'26 | 0°56'42 |
| morning rise | 4447 Jan 20 04:27 | 14° $\overline{3}$ 54'34 | | minimum elong | 4454 Jan 19 14:46 | 29° $\overline{3}$ 35'26 | 0°56'43 |
| retrograde | 4447 Apr 17 10:38 | 16° $\overline{3}$ 47'27 | | max. Earth dist. | 4454 Jan 19 02:51 | 29° $\overline{3}$ 34'19 | 31.27298 AU |
| opposition | 4447 Jul 05 05:05 | 15° $\overline{3}$ 25'20 | 1°16'46 | | 4454 Jan 30 12:29 | 0° \approx | |
| min. Earth dist. | 4447 Jul 05 18:29 | 15° $\overline{3}$ 24'25 | 29.30250 AU | morning rise | 4454 Feb 03 22:14 | 0° \approx 09'46 | |
| direct | 4447 Sep 24 07:15 | 14° $\overline{3}$ 01'07 | | retrograde | 4454 May 02 13:40 | 2° \approx 03'18 | |
| evening set | 4447 Dec 22 19:35 | 15° $\overline{3}$ 56'18 | | opposition | 4454 Jul 20 19:02 | 0° \approx 40'54 | 0°59'11 |
| | | | | min. Earth dist. | 4454 Jul 21 05:26 | 0° \approx 40'12 | 29.26925 AU |
| conjunction | 4448 Jan 07 05:39 | 16° $\overline{3}$ 30'47 | 1°10'50 | | 4454 Aug 16 01:40 | 30° \overline{R} $\overline{3}$ | |
| minimum elong | 4448 Jan 07 05:40 | 16° $\overline{3}$ 30'47 | 1°10'50 | direct | 4454 Oct 09 13:38 | 29° $\overline{3}$ 16'53 | |
| max. Earth dist. | 4448 Jan 06 15:42 | 16° $\overline{3}$ 29'28 | 31.30117 AU | | 4454 Nov 30 18:08 | 0° \approx | |
| morning rise | 4448 Jan 22 13:41 | 17° $\overline{3}$ 05'06 | | evening set | 4455 Jan 06 15:34 | 1° \approx 11'39 | |
| retrograde | 4448 Apr 18 20:18 | 18° $\overline{3}$ 58'06 | | | | | |
| opposition | 4448 Jul 06 17:13 | 17° $\overline{3}$ 35'58 | 1°14'33 | conjunction | 4455 Jan 22 00:13 | 1° \approx 46'05 | 0°54'03 |
| min. Earth dist. | 4448 Jul 07 07:11 | 17° $\overline{3}$ 35'01 | 29.30088 AU | minimum elong | 4455 Jan 22 00:14 | 1° \approx 46'05 | 0°54'04 |
| direct | 4448 Sep 25 18:25 | 16° $\overline{3}$ 11'49 | | max. Earth dist. | 4455 Jan 21 14:02 | 1° \approx 45'08 | 31.26480 AU |
| evening set | 4448 Dec 24 05:24 | 18° $\overline{3}$ 06'58 | | morning rise | 4455 Feb 06 07:29 | 2° \approx 20'26 | |
| | | | | retrograde | 4455 May 04 23:45 | 4° \approx 14'03 | |
| conjunction | 4449 Jan 08 15:10 | 18° $\overline{3}$ 41'26 | 1°08'43 | opposition | 4455 Jul 23 07:29 | 2° \approx 51'33 | 0°56'18 |
| minimum elong | 4449 Jan 08 15:10 | 18° $\overline{3}$ 41'26 | 1°08'42 | min. Earth dist. | 4455 Jul 23 17:46 | 2° \approx 50'52 | 29.26109 AU |
| max. Earth dist. | 4449 Jan 08 01:31 | 18° $\overline{3}$ 40'09 | 31.29934 AU | direct | 4455 Oct 12 02:44 | 1° \approx 27'33 | |
| morning rise | 4449 Jan 23 23:05 | 19° $\overline{3}$ 15'45 | | evening set | 4456 Jan 09 01:03 | 3° \approx 22'14 | |
| retrograde | 4449 Apr 21 06:03 | 21° $\overline{3}$ 08'50 | | | | | |
| opposition | 4449 Jul 09 05:13 | 19° $\overline{3}$ 46'43 | 1°12'14 | conjunction | 4456 Jan 24 09:27 | 3° \approx 56'40 | 0°51'19 |
| min. Earth dist. | 4449 Jul 09 17:44 | 19° $\overline{3}$ 45'52 | 29.29856 AU | minimum elong | 4456 Jan 24 09:27 | 3° \approx 56'40 | 0°51'20 |
| direct | 4449 Sep 28 06:13 | 18° $\overline{3}$ 22'37 | | max. Earth dist. | 4456 Jan 23 23:23 | 3° \approx 55'44 | 31.25695 AU |
| evening set | 4449 Dec 26 15:14 | 20° $\overline{3}$ 17'43 | | morning rise | 4456 Feb 08 16:50 | 4° \approx 31'01 | |
| max. Earth dist. | 4450 Jan 10 11:20 | 20° $\overline{3}$ 50'56 | 31.29654 AU | retrograde | 4456 May 06 12:02 | 6° \approx 24'43 | |
| | | | | opposition | 4456 Jul 24 19:50 | 5° \approx 02'10 | 0°53'21 |
| conjunction | 4450 Jan 11 00:44 | 20° $\overline{3}$ 52'11 | 1°06'29 | min. Earth dist. | 4456 Jul 25 04:15 | 5° \approx 01'36 | 29.25353 AU |
| minimum elong | 4450 Jan 11 00:44 | 20° $\overline{3}$ 52'11 | 1°06'30 | direct | 4456 Oct 13 15:00 | 3° \approx 38'10 | |
| morning rise | 4450 Jan 26 08:29 | 21° $\overline{3}$ 26'31 | | evening set | 4457 Jan 10 10:30 | 5° \approx 32'49 | |
| retrograde | 4450 Apr 23 16:34 | 23° $\overline{3}$ 19'43 | | | | | |
| opposition | 4450 Jul 11 17:36 | 21° $\overline{3}$ 57'33 | 1°09'49 | conjunction | 4457 Jan 25 18:48 | 6° \approx 07'15 | 0°48'31 |
| min. Earth dist. | 4450 Jul 12 06:32 | 21° $\overline{3}$ 56'41 | 29.29528 AU | minimum elong | 4457 Jan 25 18:49 | 6° \approx 07'15 | 0°48'31 |
| direct | 4450 Sep 30 15:50 | 20° $\overline{3}$ 33'30 | | max. Earth dist. | 4457 Jan 25 10:09 | 6° \approx 06'27 | 31.24972 AU |
| evening set | 4450 Dec 29 00:53 | 22° $\overline{3}$ 28'33 | | morning rise | 4457 Feb 10 02:01 | 6° \approx 41'37 | |

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| retrograde | 4457 May 08 21:59 | 8° \approx 35'26 | | min. Earth dist. | 4463 Aug 10 15:38 | 20° \approx 20'17 | 29.21156 AU |
| opposition | 4457 Jul 27 08:20 | 7° \approx 12'50 | 0°50'19 | direct | 4463 Oct 29 18:18 | 18° \approx 56'56 | |
| min. Earth dist. | 4457 Jul 27 16:50 | 7° \approx 12'15 | 29.24678 AU | evening set | 4464 Jan 26 05:17 | 20° \approx 51'22 | |
| direct | 4457 Oct 16 02:21 | 5° \approx 48'53 | | | | | |
| evening set | 4458 Jan 12 19:59 | 7° \approx 43'29 | | conjunction | 4464 Feb 10 13:00 | 21° \approx 25'50 | 0°27'05 |
| | | | | minimum elong | 4464 Feb 10 13:00 | 21° \approx 25'50 | 0°27'05 |
| conjunction | 4458 Jan 28 04:08 | 8° \approx 17'55 | 0°45'39 | max. Earth dist. | 4464 Feb 10 09:48 | 21° \approx 25'33 | 31.20718 AU |
| minimum elong | 4458 Jan 28 04:08 | 8° \approx 17'55 | 0°45'39 | morning rise | 4464 Feb 25 20:21 | 22° \approx 00'19 | |
| max. Earth dist. | 4458 Jan 27 20:26 | 8° \approx 17'12 | 31.24358 AU | retrograde | 4464 May 24 06:36 | 23° \approx 55'09 | |
| morning rise | 4458 Feb 12 11:22 | 8° \approx 52'18 | | opposition | 4464 Aug 12 01:21 | 22° \approx 32'21 | 0°27'11 |
| retrograde | 4458 May 11 08:16 | 10° \approx 46'14 | | min. Earth dist. | 4464 Aug 12 04:47 | 22° \approx 32'07 | 29.20266 AU |
| opposition | 4458 Jul 29 20:50 | 9° \approx 23'37 | 0°47'12 | direct | 4464 Oct 31 07:32 | 21° \approx 08'49 | |
| min. Earth dist. | 4458 Jul 30 03:17 | 9° \approx 23'11 | 29.24095 AU | evening set | 4465 Jan 27 15:02 | 23° \approx 03'11 | |
| direct | 4458 Oct 18 14:13 | 7° \approx 59'44 | | | | | |
| evening set | 4459 Jan 15 05:21 | 9° \approx 54'18 | | conjunction | 4465 Feb 11 22:35 | 23° \approx 37'39 | 0°23'49 |
| | | | | minimum elong | 4465 Feb 11 22:35 | 23° \approx 37'40 | 0°23'49 |
| conjunction | 4459 Jan 30 13:22 | 10° \approx 28'45 | 0°42'42 | max. Earth dist. | 4465 Feb 11 19:11 | 23° \approx 37'21 | 31.19763 AU |
| minimum elong | 4459 Jan 30 13:22 | 10° \approx 28'45 | 0°42'42 | morning rise | 4465 Feb 27 06:07 | 24° \approx 12'09 | |
| max. Earth dist. | 4459 Jan 30 06:18 | 10° \approx 28'05 | 31.23808 AU | retrograde | 4465 May 26 20:12 | 26° \approx 07'05 | |
| morning rise | 4459 Feb 14 20:39 | 11° \approx 03'08 | | opposition | 4465 Aug 14 14:12 | 24° \approx 44'12 | 0°23'40 |
| retrograde | 4459 May 13 19:14 | 12° \approx 57'14 | | min. Earth dist. | 4465 Aug 14 16:11 | 24° \approx 44'04 | 29.19234 AU |
| opposition | 4459 Aug 01 09:30 | 11° \approx 34'35 | 0°44'01 | direct | 4465 Nov 02 20:07 | 23° \approx 20'40 | |
| min. Earth dist. | 4459 Aug 01 15:56 | 11° \approx 34'09 | 29.23574 AU | evening set | 4466 Jan 30 00:43 | 25° \approx 14'58 | |
| direct | 4459 Oct 20 23:42 | 10° \approx 10'47 | | | | | |
| evening set | 4460 Jan 17 14:48 | 12° \approx 05'19 | | conjunction | 4466 Feb 14 08:19 | 25° \approx 49'27 | 0°20'31 |
| | | | | minimum elong | 4466 Feb 14 08:19 | 25° \approx 49'27 | 0°20'32 |
| conjunction | 4460 Feb 01 22:49 | 12° \approx 39'46 | 0°39'41 | max. Earth dist. | 4466 Feb 14 05:50 | 25° \approx 49'14 | 31.18667 AU |
| minimum elong | 4460 Feb 01 22:49 | 12° \approx 39'46 | 0°39'42 | morning rise | 4466 Mar 01 15:53 | 26° \approx 23'58 | |
| max. Earth dist. | 4460 Feb 01 17:12 | 12° \approx 39'14 | 31.23305 AU | retrograde | 4466 May 29 06:47 | 28° \approx 19'00 | |
| morning rise | 4460 Feb 17 06:02 | 13° \approx 14'10 | | opposition | 4466 Aug 17 03:17 | 26° \approx 56'01 | 0°20'08 |
| | 4460 Apr 22 20:38 | 15° \approx | | min. Earth dist. | 4466 Aug 17 05:41 | 26° \approx 55'51 | 29.18093 AU |
| retrograde | 4460 May 15 05:59 | 15° \approx 08'25 | | direct | 4466 Nov 05 07:50 | 25° \approx 32'28 | |
| | 4460 Jun 07 04:50 | 15° \approx | | evening set | 4467 Feb 01 10:13 | 27° \approx 26'40 | |
| opposition | 4460 Aug 02 21:56 | 13° \approx 45'46 | 0°40'45 | | | | |
| min. Earth dist. | 4460 Aug 03 02:59 | 13° \approx 45'25 | 29.23057 AU | conjunction | 4467 Feb 16 17:50 | 28° \approx 01'10 | 0°17'12 |
| direct | 4460 Oct 22 11:19 | 12° \approx 22'02 | | minimum elong | 4467 Feb 16 17:50 | 28° \approx 01'10 | 0°17'12 |
| evening set | 4461 Jan 19 00:26 | 14° \approx 16'33 | | max. Earth dist. | 4467 Feb 16 16:14 | 28° \approx 01'01 | 31.17503 AU |
| | | | | morning rise | 4467 Mar 04 01:33 | 28° \approx 35'41 | |
| conjunction | 4461 Feb 03 08:13 | 14° \approx 51'00 | 0°36'37 | | 4467 Apr 18 04:42 | 0° \approx | |
| minimum elong | 4461 Feb 03 08:13 | 14° \approx 51'00 | 0°36'37 | retrograde | 4467 May 31 17:34 | 0° \approx 30'49 | |
| max. Earth dist. | 4461 Feb 03 02:26 | 14° \approx 50'27 | 31.22781 AU | | 4467 Jul 15 21:29 | 30° \approx | |
| | 4461 Feb 07 07:25 | 15° \approx | | opposition | 4467 Aug 19 16:06 | 29° \approx 07'43 | 0°16'34 |
| morning rise | 4461 Feb 18 15:35 | 15° \approx 25'26 | | min. Earth dist. | 4467 Aug 19 16:43 | 29° \approx 07'40 | 29.16904 AU |
| retrograde | 4461 May 17 18:33 | 17° \approx 19'50 | | direct | 4467 Nov 07 21:02 | 27° \approx 44'09 | |
| opposition | 4461 Aug 05 10:44 | 15° \approx 57'10 | 0°37'26 | evening set | 4468 Feb 03 19:52 | 29° \approx 38'16 | |
| min. Earth dist. | 4461 Aug 05 15:28 | 15° \approx 56'50 | 29.22517 AU | | 4468 Feb 13 12:32 | 0° \approx | |
| | 4461 Sep 13 03:52 | 15° \approx | | | | | |
| direct | 4461 Oct 24 21:02 | 14° \approx 33'30 | | conjunction | 4468 Feb 19 03:24 | 0° \approx 12'46 | 0°13'52 |
| | 4461 Dec 04 06:07 | 15° \approx | | minimum elong | 4468 Feb 19 03:23 | 0° \approx 12'46 | 0°13'52 |
| evening set | 4462 Jan 21 09:53 | 16° \approx 27'59 | | behind sun begin | 4468 Feb 18 23:56 | 0° \approx 12'27 | |
| | | | | behind sun end | 4468 Feb 19 06:51 | 0° \approx 13'05 | |
| conjunction | 4462 Feb 05 17:43 | 17° \approx 02'27 | 0°33'29 | max. Earth dist. | 4468 Feb 19 02:12 | 0° \approx 12'40 | 31.16311 AU |
| minimum elong | 4462 Feb 05 17:43 | 17° \approx 02'27 | 0°33'29 | morning rise | 4468 Mar 05 11:17 | 0° \approx 47'18 | |
| max. Earth dist. | 4462 Feb 05 13:42 | 17° \approx 02'04 | 31.22204 AU | retrograde | 4468 Jun 02 04:50 | 2° \approx 42'32 | |
| morning rise | 4462 Feb 21 00:57 | 17° \approx 36'53 | | opposition | 4468 Aug 21 04:58 | 1° \approx 19'19 | 0°12'59 |
| retrograde | 4462 May 20 05:58 | 19° \approx 31'27 | | min. Earth dist. | 4468 Aug 21 05:32 | 1° \approx 19'17 | 29.15741 AU |
| opposition | 4462 Aug 07 23:37 | 18° \approx 08'45 | 0°34'04 | | 4468 Oct 24 03:13 | 30° \approx | |
| min. Earth dist. | 4462 Aug 08 03:47 | 18° \approx 08'28 | 29.21888 AU | direct | 4468 Nov 09 08:02 | 29° \approx 55'44 | |
| direct | 4462 Oct 27 08:30 | 16° \approx 45'09 | | | 4468 Nov 25 07:04 | 0° \approx | |
| evening set | 4463 Jan 23 19:39 | 18° \approx 39'37 | | evening set | 4469 Feb 05 05:24 | 1° \approx 49'47 | |
| | | | | | | | |
| conjunction | 4463 Feb 08 03:15 | 19° \approx 14'05 | 0°30'18 | conjunction | 4469 Feb 20 13:03 | 2° \approx 24'17 | 0°10'30 |
| minimum elong | 4463 Feb 08 03:15 | 19° \approx 14'05 | 0°30'18 | minimum elong | 4469 Feb 20 13:03 | 2° \approx 24'17 | 0°10'30 |
| max. Earth dist. | 4463 Feb 07 22:46 | 19° \approx 13'40 | 31.21529 AU | behind sun begin | 4469 Feb 20 08:00 | 2° \approx 23'50 | |
| morning rise | 4463 Feb 23 10:41 | 19° \approx 48'32 | | behind sun end | 4469 Feb 20 18:05 | 2° \approx 24'45 | |
| retrograde | 4463 May 22 18:58 | 21° \approx 43'15 | | max. Earth dist. | 4469 Feb 20 13:34 | 2° \approx 24'20 | 31.15184 AU |
| opposition | 4463 Aug 10 12:23 | 20° \approx 20'30 | 0°30'39 | morning rise | 4469 Mar 07 20:55 | 2° \approx 58'51 | |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|------------------------|-------------|
| retrograde | 4469 Jun 04 15:11 | 4° 1 54'11 | | conjunction | 4475 Mar 05 23:20 | 15° 1 35'20 | -0°10'00 |
| opposition | 4469 Aug 23 17:52 | 3° 1 30'53 | 0°09'22 | minimum elong | 4475 Mar 05 23:20 | 15° 1 35'21 | 0°10'01 |
| min. Earth dist. | 4469 Aug 23 16:39 | 3° 1 30'58 | 29.14650 AU | behind sun begin | 4475 Mar 05 18:08 | 15° 1 34'52 | |
| direct | 4469 Nov 11 20:31 | 2° 1 07'19 | | behind sun end | 4475 Mar 06 04:33 | 15° 1 35'49 | |
| evening set | 4470 Feb 07 14:58 | 4° 1 01'17 | | max. Earth dist. | 4475 Mar 06 04:51 | 15° 1 35'51 | 31.09860 AU |
| | | | | morning rise | 4475 Mar 21 08:17 | 16° 1 10'03 | |
| conjunction | 4470 Feb 22 22:27 | 4° 1 35'48 | 0°07'08 | retrograde | 4475 Jun 18 17:36 | 18° 1 06'19 | |
| minimum elong | 4470 Feb 22 22:27 | 4° 1 35'48 | 0°07'09 | opposition | 4475 Sep 07 00:06 | 16° 1 42'42 | -0°12'28 |
| behind sun begin | 4470 Feb 22 16:32 | 4° 1 35'16 | | min. Earth dist. | 4475 Sep 06 18:40 | 16° 1 43'04 | 29.09408 AU |
| behind sun end | 4470 Feb 23 04:22 | 4° 1 36'20 | | direct | 4475 Nov 25 13:46 | 15° 1 19'24 | |
| max. Earth dist. | 4470 Feb 22 23:07 | 4° 1 35'51 | 31.14144 AU | evening set | 4476 Feb 21 01:32 | 17° 1 13'14 | |
| morning rise | 4470 Mar 10 06:37 | 5° 1 10'23 | | | | | |
| retrograde | 4470 Jun 07 03:01 | 7° 1 05'52 | | conjunction | 4476 Mar 07 09:30 | 17° 1 47'50 | -0°13'23 |
| opposition | 4470 Aug 26 06:54 | 5° 1 42'28 | 0°05'44 | minimum elong | 4476 Mar 07 09:29 | 17° 1 47'50 | 0°13'23 |
| min. Earth dist. | 4470 Aug 26 04:58 | 5° 1 42'36 | 29.13669 AU | behind sun begin | 4476 Mar 07 05:44 | 17° 1 47'30 | |
| direct | 4470 Nov 14 06:14 | 4° 1 18'55 | | behind sun end | 4476 Mar 07 13:15 | 17° 1 48'11 | |
| evening set | 4471 Feb 10 00:29 | 6° 1 12'51 | | max. Earth dist. | 4476 Mar 07 15:42 | 17° 1 48'25 | 31.08922 AU |
| | | | | morning rise | 4476 Mar 22 18:35 | 18° 1 22'34 | |
| conjunction | 4471 Feb 25 08:12 | 6° 1 47'23 | 0°03'45 | retrograde | 4476 Jun 20 06:09 | 20° 1 18'59 | |
| minimum elong | 4471 Feb 25 08:12 | 6° 1 47'23 | 0°03'45 | opposition | 4476 Sep 08 13:06 | 18° 1 55'20 | -0°16'05 |
| behind sun begin | 4471 Feb 25 01:52 | 6° 1 46'48 | | min. Earth dist. | 4476 Sep 08 06:11 | 18° 1 55'48 | 29.08409 AU |
| behind sun end | 4471 Feb 25 14:32 | 6° 1 47'57 | | direct | 4476 Nov 27 02:53 | 17° 1 32'03 | |
| max. Earth dist. | 4471 Feb 25 10:58 | 6° 1 47'36 | 31.13208 AU | evening set | 4477 Feb 22 11:43 | 19° 1 25'52 | |
| morning rise | 4471 Mar 12 16:21 | 7° 1 21'59 | | | | | |
| retrograde | 4471 Jun 09 13:50 | 9° 1 17'36 | | conjunction | 4477 Mar 09 19:39 | 20° 1 00'29 | -0°16'45 |
| opposition | 4471 Aug 28 19:44 | 7° 1 54'09 | 0°02'06 | minimum elong | 4477 Mar 09 19:39 | 20° 1 00'29 | 0°16'45 |
| min. Earth dist. | 4471 Aug 28 16:53 | 7° 1 54'21 | 29.12769 AU | max. Earth dist. | 4477 Mar 10 01:46 | 20° 1 01'03 | 31.07858 AU |
| direct | 4471 Nov 16 17:18 | 6° 1 30'38 | | morning rise | 4477 Mar 25 05:02 | 20° 1 35'15 | |
| evening set | 4472 Feb 12 10:12 | 8° 1 24'32 | | retrograde | 4477 Jun 22 19:02 | 22° 1 31'48 | |
| | | | | opposition | 4477 Sep 11 02:28 | 21° 1 08'04 | -0°19'41 |
| conjunction | 4472 Feb 27 17:48 | 8° 1 59'05 | 0°00'17 | min. Earth dist. | 4477 Sep 10 19:54 | 21° 1 08'31 | 29.07293 AU |
| minimum elong | 4472 Feb 27 17:48 | 8° 1 59'05 | 0°00'17 | direct | 4477 Nov 29 14:11 | 19° 1 44'49 | |
| behind sun begin | 4472 Feb 27 11:27 | 8° 1 58'30 | | evening set | 4478 Feb 24 21:39 | 21° 1 38'35 | |
| behind sun end | 4472 Feb 28 00:09 | 8° 1 59'39 | | | | | |
| max. Earth dist. | 4472 Feb 27 20:30 | 8° 1 59'16 | 31.12351 AU | conjunction | 4478 Mar 12 05:52 | 22° 1 13'13 | -0°20'05 |
| morning rise | 4472 Mar 14 02:18 | 9° 1 33'42 | | minimum elong | 4478 Mar 12 05:52 | 22° 1 13'13 | 0°20'05 |
| desc. node | 4472 Mar 27 13:08 | 10° 1 02'35 | | max. Earth dist. | 4478 Mar 12 13:19 | 22° 1 13'55 | 31.06685 AU |
| retrograde | 4472 Jun 11 03:19 | 11° 1 29'29 | | morning rise | 4478 Mar 27 15:21 | 22° 1 48'01 | |
| opposition | 4472 Aug 30 08:41 | 10° 1 05'59 | -0°01'33 | retrograde | 4478 Jun 25 05:58 | 24° 1 44'41 | |
| min. Earth dist. | 4472 Aug 30 04:33 | 10° 1 06'16 | 29.11940 AU | opposition | 4478 Sep 13 15:39 | 23° 1 20'52 | -0°23'15 |
| direct | 4472 Nov 18 03:03 | 8° 1 42'31 | | min. Earth dist. | 4478 Sep 13 07:47 | 23° 1 21'24 | 29.06061 AU |
| evening set | 4473 Feb 13 19:47 | 10° 1 36'24 | | direct | 4478 Dec 02 03:09 | 21° 1 57'36 | |
| | | | | evening set | 4479 Feb 27 07:50 | 23° 1 51'18 | |
| conjunction | 4473 Mar 01 03:34 | 11° 1 10'57 | -0°03'13 | | | | |
| minimum elong | 4473 Mar 01 03:33 | 11° 1 10'57 | 0°03'13 | conjunction | 4479 Mar 14 16:02 | 24° 1 25'58 | -0°23'24 |
| behind sun begin | 4473 Feb 28 21:11 | 11° 1 10'23 | | minimum elong | 4479 Mar 14 16:02 | 24° 1 25'58 | 0°23'24 |
| behind sun end | 4473 Mar 01 09:55 | 11° 1 11'32 | | max. Earth dist. | 4479 Mar 14 23:06 | 24° 1 26'37 | 31.05420 AU |
| max. Earth dist. | 4473 Mar 01 07:57 | 11° 1 11'20 | 31.11528 AU | morning rise | 4479 Mar 30 01:56 | 25° 1 00'47 | |
| morning rise | 4473 Mar 16 12:04 | 11° 1 45'36 | | retrograde | 4479 Jun 27 17:46 | 26° 1 57'34 | |
| retrograde | 4473 Jun 13 15:20 | 13° 1 41'33 | | opposition | 4479 Sep 16 04:41 | 25° 1 33'38 | -0°26'46 |
| opposition | 4473 Sep 01 21:49 | 12° 1 18'01 | -0°05'12 | min. Earth dist. | 4479 Sep 15 20:39 | 25° 1 34'11 | 29.04784 AU |
| min. Earth dist. | 4473 Sep 01 17:30 | 12° 1 18'19 | 29.11123 AU | direct | 4479 Dec 04 13:21 | 24° 1 10'21 | |
| direct | 4473 Nov 20 15:07 | 10° 1 54'37 | | evening set | 4480 Feb 29 17:49 | 26° 1 04'00 | |
| evening set | 4474 Feb 16 05:38 | 12° 1 48'29 | | | | | |
| | | | | conjunction | 4480 Mar 16 02:20 | 26° 1 38'40 | -0°26'41 |
| conjunction | 4474 Mar 03 13:23 | 13° 1 23'03 | -0°06'37 | minimum elong | 4480 Mar 16 02:20 | 26° 1 38'40 | 0°26'41 |
| minimum elong | 4474 Mar 03 13:23 | 13° 1 23'03 | 0°06'37 | max. Earth dist. | 4480 Mar 16 11:15 | 26° 1 39'31 | 31.04131 AU |
| behind sun begin | 4474 Mar 03 07:23 | 13° 1 22'30 | | morning rise | 4480 Mar 31 12:18 | 27° 1 13'31 | |
| behind sun end | 4474 Mar 03 19:24 | 13° 1 23'35 | | retrograde | 4480 Jun 29 04:25 | 29° 1 10'24 | |
| max. Earth dist. | 4474 Mar 03 18:00 | 13° 1 23'27 | 31.10719 AU | opposition | 4480 Sep 17 17:45 | 27° 1 46'22 | -0°30'16 |
| morning rise | 4474 Mar 18 22:10 | 13° 1 57'43 | | min. Earth dist. | 4480 Sep 17 08:55 | 27° 1 46'59 | 29.03508 AU |
| retrograde | 4474 Jun 16 05:42 | 15° 1 53'49 | | direct | 4480 Dec 06 00:48 | 26° 1 23'05 | |
| opposition | 4474 Sep 04 10:52 | 14° 1 30'15 | -0°08'50 | evening set | 4481 Mar 03 03:54 | 28° 1 16'40 | |
| min. Earth dist. | 4474 Sep 04 04:55 | 14° 1 30'39 | 29.10301 AU | | | | |
| direct | 4474 Nov 23 02:34 | 13° 1 06'54 | | conjunction | 4481 Mar 18 12:22 | 28° 1 51'21 | -0°29'55 |
| evening set | 4475 Feb 18 15:29 | 15° 1 00'45 | | minimum elong | 4481 Mar 18 12:22 | 28° 1 51'21 | 0°29'56 |
| | | | | max. Earth dist. | 4481 Mar 18 21:16 | 28° 1 52'11 | 31.02890 AU |

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|------------------|-------------------|------------------------------------|------------------|-------------------|------------------------------------|
| morning rise | 4481 Apr 02 22:44 | 29° \mathbf{K} 26'13 | direct | 4487 Dec 22 09:10 | 11° \mathbf{Y} 54'31 |
| | 4481 Apr 18 18:22 | 0° \mathbf{Y} | evening set | 4488 Mar 18 04:15 | 13° \mathbf{Y} 48'00 |
| retrograde | 4481 Jul 01 17:44 | 1° \mathbf{Y} 23'13 | | | |
| | 4481 Sep 19 17:37 | 30° \mathbf{R} \mathbf{K} | conjunction | 4488 Apr 02 14:03 | 14° \mathbf{Y} 22'49 -0°51'12 |
| opposition | 4481 Sep 20 06:50 | 29° \mathbf{K} 59'06 -0°33'42 | minimum elong | 4488 Apr 02 14:03 | 14° \mathbf{Y} 22'49 0°51'12 |
| min. Earth dist. | 4481 Sep 19 20:42 | 29° \mathbf{K} 59'47 29.02322 AU | max. Earth dist. | 4488 Apr 03 04:18 | 14° \mathbf{Y} 24'10 30.96894 AU |
| direct | 4481 Dec 08 11:01 | 28° \mathbf{K} 35'47 | morning rise | 4488 Apr 18 02:25 | 14° \mathbf{Y} 57'54 |
| | 4482 Feb 19 21:41 | 0° \mathbf{Y} | retrograde | 4488 Jul 17 13:00 | 16° \mathbf{Y} 55'48 |
| evening set | 4482 Mar 05 13:57 | 0° \mathbf{Y} 29'20 | min. Earth dist. | 4488 Oct 05 11:38 | 15° \mathbf{Y} 32'21 28.96537 AU |
| | | | opposition | 4488 Oct 06 02:22 | 15° \mathbf{Y} 31'21 -0°56'15 |
| conjunction | 4482 Mar 20 22:41 | 1° \mathbf{Y} 04'02 -0°33'07 | direct | 4488 Dec 23 19:56 | 14° \mathbf{Y} 08'14 |
| minimum elong | 4482 Mar 20 22:41 | 1° \mathbf{Y} 04'02 0°33'07 | evening set | 4489 Mar 20 14:55 | 16° \mathbf{Y} 01'42 |
| max. Earth dist. | 4482 Mar 21 09:18 | 1° \mathbf{Y} 05'02 31.01748 AU | | | |
| morning rise | 4482 Apr 05 09:10 | 1° \mathbf{Y} 38'56 | conjunction | 4489 Apr 05 01:05 | 16° \mathbf{Y} 36'34 -0°53'59 |
| retrograde | 4482 Jul 04 05:30 | 3° \mathbf{Y} 36'03 | minimum elong | 4489 Apr 05 01:05 | 16° \mathbf{Y} 36'33 0°53'59 |
| opposition | 4482 Sep 22 19:54 | 2° \mathbf{Y} 11'51 -0°37'06 | max. Earth dist. | 4489 Apr 05 16:48 | 16° \mathbf{Y} 38'03 30.96073 AU |
| min. Earth dist. | 4482 Sep 22 09:23 | 2° \mathbf{Y} 12'34 29.01247 AU | morning rise | 4489 Apr 20 13:36 | 17° \mathbf{Y} 11'40 |
| direct | 4482 Dec 10 22:36 | 0° \mathbf{Y} 48'33 | retrograde | 4489 Jul 20 00:43 | 19° \mathbf{Y} 09'41 |
| evening set | 4483 Mar 08 00:05 | 2° \mathbf{Y} 42'04 | opposition | 4489 Oct 08 15:38 | 17° \mathbf{Y} 45'10 -0°59'10 |
| | | | min. Earth dist. | 4489 Oct 08 00:31 | 17° \mathbf{Y} 46'12 28.95662 AU |
| conjunction | 4483 Mar 23 08:57 | 3° \mathbf{Y} 16'47 -0°36'17 | direct | 4489 Dec 26 08:14 | 16° \mathbf{Y} 22'04 |
| minimum elong | 4483 Mar 23 08:57 | 3° \mathbf{Y} 16'47 0°36'17 | evening set | 4490 Mar 23 01:55 | 18° \mathbf{Y} 15'31 |
| max. Earth dist. | 4483 Mar 23 20:00 | 3° \mathbf{Y} 17'49 31.00745 AU | | | |
| morning rise | 4483 Apr 07 19:48 | 3° \mathbf{Y} 51'42 | conjunction | 4490 Apr 07 12:13 | 18° \mathbf{Y} 50'23 -0°56'41 |
| retrograde | 4483 Jul 06 19:37 | 5° \mathbf{Y} 48'57 | minimum elong | 4490 Apr 07 12:13 | 18° \mathbf{Y} 50'23 0°56'40 |
| opposition | 4483 Sep 25 08:51 | 4° \mathbf{Y} 24'41 -0°40'27 | max. Earth dist. | 4490 Apr 08 03:14 | 18° \mathbf{Y} 51'48 30.95149 AU |
| min. Earth dist. | 4483 Sep 24 20:31 | 4° \mathbf{Y} 25'32 29.00304 AU | morning rise | 4490 Apr 23 01:13 | 19° \mathbf{Y} 25'31 |
| direct | 4483 Dec 13 09:17 | 3° \mathbf{Y} 01'24 | retrograde | 4490 Jul 22 14:18 | 21° \mathbf{Y} 23'38 |
| evening set | 4484 Mar 09 10:18 | 4° \mathbf{Y} 54'54 | opposition | 4490 Oct 11 04:47 | 19° \mathbf{Y} 59'03 -1°02'01 |
| | | | min. Earth dist. | 4490 Oct 10 13:09 | 20° \mathbf{Y} 00'07 28.94690 AU |
| conjunction | 4484 Mar 24 19:20 | 5° \mathbf{Y} 29'39 -0°39'23 | direct | 4490 Dec 28 18:57 | 18° \mathbf{Y} 35'56 |
| minimum elong | 4484 Mar 24 19:20 | 5° \mathbf{Y} 29'39 0°39'23 | evening set | 4491 Mar 25 12:48 | 20° \mathbf{Y} 29'20 |
| max. Earth dist. | 4484 Mar 25 07:26 | 5° \mathbf{Y} 30'47 30.99846 AU | | | |
| morning rise | 4484 Apr 09 06:26 | 6° \mathbf{Y} 04'35 | conjunction | 4491 Apr 09 23:29 | 21° \mathbf{Y} 04'14 -0°59'18 |
| retrograde | 4484 Jul 08 07:54 | 8° \mathbf{Y} 01'59 | minimum elong | 4491 Apr 09 23:29 | 21° \mathbf{Y} 04'14 0°59'18 |
| opposition | 4484 Sep 26 21:54 | 6° \mathbf{Y} 37'39 -0°43'45 | max. Earth dist. | 4491 Apr 10 15:32 | 21° \mathbf{Y} 05'45 30.94118 AU |
| min. Earth dist. | 4484 Sep 26 09:46 | 6° \mathbf{Y} 38'29 28.99466 AU | morning rise | 4491 Apr 25 12:45 | 21° \mathbf{Y} 39'24 |
| direct | 4484 Dec 14 20:01 | 5° \mathbf{Y} 14'24 | retrograde | 4491 Jul 25 01:36 | 23° \mathbf{Y} 37'35 |
| evening set | 4485 Mar 11 20:34 | 7° \mathbf{Y} 07'54 | opposition | 4491 Oct 13 17:57 | 22° \mathbf{Y} 12'55 -1°04'46 |
| | | | min. Earth dist. | 4491 Oct 13 02:34 | 22° \mathbf{Y} 13'59 28.93622 AU |
| conjunction | 4485 Mar 27 05:51 | 7° \mathbf{Y} 42'39 -0°42'26 | direct | 4491 Dec 31 06:39 | 20° \mathbf{Y} 49'46 |
| minimum elong | 4485 Mar 27 05:51 | 7° \mathbf{Y} 42'39 0°42'26 | evening set | 4492 Mar 26 23:44 | 22° \mathbf{Y} 43'08 |
| max. Earth dist. | 4485 Mar 27 19:06 | 7° \mathbf{Y} 43'55 30.99063 AU | | | |
| morning rise | 4485 Apr 11 17:12 | 8° \mathbf{Y} 17'38 | conjunction | 4492 Apr 11 10:38 | 23° \mathbf{Y} 18'03 -1°01'49 |
| retrograde | 4485 Jul 10 22:00 | 10° \mathbf{Y} 15'09 | minimum elong | 4492 Apr 11 10:38 | 23° \mathbf{Y} 18'03 1°01'49 |
| opposition | 4485 Sep 29 10:57 | 8° \mathbf{Y} 50'48 -0°46'58 | max. Earth dist. | 4492 Apr 12 02:39 | 23° \mathbf{Y} 19'34 30.93036 AU |
| min. Earth dist. | 4485 Sep 28 21:01 | 8° \mathbf{Y} 51'45 28.98717 AU | morning rise | 4492 Apr 27 00:16 | 23° \mathbf{Y} 53'14 |
| direct | 4485 Dec 17 09:17 | 7° \mathbf{Y} 27'35 | retrograde | 4492 Jul 26 15:24 | 25° \mathbf{Y} 51'30 |
| evening set | 4486 Mar 14 06:56 | 9° \mathbf{Y} 21'04 | opposition | 4492 Oct 15 06:55 | 24° \mathbf{Y} 26'44 -1°07'25 |
| | | | min. Earth dist. | 4492 Oct 14 14:13 | 24° \mathbf{Y} 27'53 28.92540 AU |
| conjunction | 4486 Mar 29 16:19 | 9° \mathbf{Y} 55'51 -0°45'25 | direct | 4493 Jan 01 17:34 | 23° \mathbf{Y} 03'33 |
| minimum elong | 4486 Mar 29 16:19 | 9° \mathbf{Y} 55'51 0°45'25 | evening set | 4493 Mar 29 10:43 | 24° \mathbf{Y} 56'54 |
| max. Earth dist. | 4486 Mar 30 05:45 | 9° \mathbf{Y} 57'07 30.98335 AU | | | |
| morning rise | 4486 Apr 14 04:05 | 10° \mathbf{Y} 30'52 | conjunction | 4493 Apr 13 21:52 | 25° \mathbf{Y} 31'50 -1°04'15 |
| retrograde | 4486 Jul 13 12:06 | 12° \mathbf{Y} 28'31 | minimum elong | 4493 Apr 13 21:52 | 25° \mathbf{Y} 31'50 1°04'16 |
| min. Earth dist. | 4486 Oct 01 10:33 | 11° \mathbf{Y} 05'03 28.98016 AU | max. Earth dist. | 4493 Apr 14 14:38 | 25° \mathbf{Y} 33'25 30.91959 AU |
| opposition | 4486 Oct 02 00:11 | 11° \mathbf{Y} 04'07 -0°50'08 | morning rise | 4493 Apr 29 11:52 | 26° \mathbf{Y} 07'03 |
| direct | 4486 Dec 19 20:34 | 9° \mathbf{Y} 40'57 | retrograde | 4493 Jul 29 03:52 | 28° \mathbf{Y} 05'23 |
| evening set | 4487 Mar 16 17:26 | 11° \mathbf{Y} 34'26 | opposition | 4493 Oct 17 20:02 | 26° \mathbf{Y} 40'32 -1°09'59 |
| | | | min. Earth dist. | 4493 Oct 17 03:45 | 26° \mathbf{Y} 41'40 28.91504 AU |
| conjunction | 4487 Apr 01 03:12 | 12° \mathbf{Y} 09'15 -0°48'21 | direct | 4494 Jan 04 04:39 | 25° \mathbf{Y} 17'20 |
| minimum elong | 4487 Apr 01 03:12 | 12° \mathbf{Y} 09'15 0°48'21 | evening set | 4494 Mar 31 21:35 | 27° \mathbf{Y} 10'39 |
| max. Earth dist. | 4487 Apr 01 18:03 | 12° \mathbf{Y} 10'39 30.97634 AU | | | |
| morning rise | 4487 Apr 16 15:06 | 12° \mathbf{Y} 44'17 | conjunction | 4494 Apr 16 09:08 | 27° \mathbf{Y} 45'36 -1°06'36 |
| retrograde | 4487 Jul 15 23:46 | 14° \mathbf{Y} 42'04 | minimum elong | 4494 Apr 16 09:08 | 27° \mathbf{Y} 45'36 1°06'36 |
| opposition | 4487 Oct 04 13:07 | 13° \mathbf{Y} 17'39 -0°53'14 | max. Earth dist. | 4494 Apr 17 02:54 | 27° \mathbf{Y} 47'17 30.90969 AU |
| min. Earth dist. | 4487 Oct 03 22:18 | 13° \mathbf{Y} 18'40 28.97301 AU | morning rise | 4494 May 01 23:26 | 28° \mathbf{Y} 20'51 |

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|------------------|-------------------|-----------------------|--|------------------|-------------------|-----------------------|-------------|
| | 4494 Jun 27 06:31 | 0°♄ | | min. Earth dist. | 4500 Nov 02 18:37 | 12°♄21'39 | 28.87025 AU |
| retrograde | 4494 Jul 31 18:14 | 0°♄19'16 | | direct | 4501 Jan 20 14:55 | 10°♄57'13 | |
| | 4494 Sep 04 23:19 | 30°♄♂ | | evening set | 4501 Apr 17 05:05 | 12°♄50'39 | |
| opposition | 4494 Oct 20 08:54 | 28°♄54'21 -1°12'26 | | | | | |
| min. Earth dist. | 4494 Oct 19 15:00 | 28°♄55'35 28.90566 AU | | conjunction | 4501 May 02 18:55 | 13°♄25'49 -1°20'00 | |
| direct | 4495 Jan 06 17:51 | 27°♄31'07 | | minimum elong | 4501 May 02 18:55 | 13°♄25'49 1°20'01 | |
| evening set | 4495 Apr 03 08:45 | 29°♄24'26 | | max. Earth dist. | 4501 May 03 15:22 | 13°♄27'45 30.86685 AU | |
| | | | | morning rise | 4501 May 18 11:57 | 14°♄01'18 | |
| conjunction | 4495 Apr 18 20:29 | 29°♄59'25 -1°08'50 | | | 4501 Jun 16 06:05 | 15°♄ | |
| minimum elong | 4495 Apr 18 20:29 | 29°♄59'25 1°08'51 | | retrograde | 4501 Aug 17 15:10 | 16°♄00'19 | |
| | 4495 Apr 19 02:35 | 0°♄ | | | 4501 Oct 22 01:24 | 15°♄♂ | |
| max. Earth dist. | 4495 Apr 19 14:14 | 0°♄01'06 30.90079 AU | | min. Earth dist. | 4501 Nov 05 06:42 | 14°♄36'43 28.86475 AU | |
| morning rise | 4495 May 04 11:15 | 0°♄34'42 | | opposition | 4501 Nov 06 02:58 | 14°♄35'18 -1°26'21 | |
| retrograde | 4495 Aug 03 08:10 | 2°♄33'12 | | direct | 4502 Jan 23 01:17 | 13°♄12'13 | |
| opposition | 4495 Oct 22 21:45 | 1°♄08'14 -1°14'46 | | | 4502 Apr 17 03:10 | 15°♄ | |
| min. Earth dist. | 4495 Oct 22 04:13 | 1°♄09'26 28.89750 AU | | evening set | 4502 Apr 19 16:58 | 15°♄05'40 | |
| | 4495 Dec 10 00:37 | 30°♄♂ | | | | | |
| direct | 4496 Jan 09 05:00 | 29°♄45'00 | | conjunction | 4502 May 05 07:10 | 15°♄40'52 -1°21'28 | |
| | 4496 Feb 07 18:32 | 0°♄ | | minimum elong | 4502 May 05 07:10 | 15°♄40'52 1°21'27 | |
| evening set | 4496 Apr 04 19:49 | 1°♄38'20 | | max. Earth dist. | 4502 May 06 03:42 | 15°♄42'48 30.86070 AU | |
| | | | | morning rise | 4502 May 21 00:39 | 16°♄16'23 | |
| conjunction | 4496 Apr 20 08:00 | 2°♄13'21 -1°10'58 | | retrograde | 4502 Aug 20 03:20 | 18°♄15'27 | |
| minimum elong | 4496 Apr 20 08:00 | 2°♄13'21 1°10'58 | | opposition | 4502 Nov 08 15:58 | 16°♄50'24 -1°27'50 | |
| max. Earth dist. | 4496 Apr 21 03:15 | 2°♄15'10 30.89323 AU | | min. Earth dist. | 4502 Nov 07 20:46 | 16°♄51'44 28.85808 AU | |
| morning rise | 4496 May 05 22:59 | 2°♄48'39 | | direct | 4503 Jan 25 12:32 | 15°♄27'16 | |
| retrograde | 4496 Aug 04 20:40 | 4°♄47'14 | | evening set | 4503 Apr 22 04:55 | 17°♄20'44 | |
| opposition | 4496 Oct 24 10:34 | 3°♄22'15 -1°17'00 | | | | | |
| min. Earth dist. | 4496 Oct 23 15:35 | 3°♄23'33 28.89052 AU | | conjunction | 4503 May 07 19:37 | 17°♄55'56 -1°22'47 | |
| direct | 4497 Jan 10 17:39 | 1°♄59'02 | | minimum elong | 4503 May 07 19:37 | 17°♄55'56 1°22'48 | |
| evening set | 4497 Apr 07 06:57 | 3°♄52'23 | | max. Earth dist. | 4503 May 08 16:17 | 17°♄57'54 30.85355 AU | |
| | | | | morning rise | 4503 May 23 13:27 | 18°♄31'29 | |
| conjunction | 4497 Apr 22 19:18 | 4°♄27'25 -1°13'00 | | retrograde | 4503 Aug 22 17:26 | 20°♄30'34 | |
| minimum elong | 4497 Apr 22 19:18 | 4°♄27'25 1°13'01 | | min. Earth dist. | 4503 Nov 10 08:32 | 19°♄06'51 28.85040 AU | |
| max. Earth dist. | 4497 Apr 23 14:11 | 4°♄29'12 30.88685 AU | | opposition | 4503 Nov 11 04:35 | 19°♄05'27 -1°29'12 | |
| morning rise | 4497 May 08 10:51 | 5°♄02'46 | | direct | 4504 Jan 28 01:36 | 17°♄42'17 | |
| retrograde | 4497 Aug 07 10:54 | 7°♄01'26 | | evening set | 4504 Apr 23 16:57 | 19°♄35'43 | |
| opposition | 4497 Oct 26 23:33 | 5°♄36'26 -1°19'07 | | | | | |
| min. Earth dist. | 4497 Oct 26 04:31 | 5°♄37'45 28.88477 AU | | conjunction | 4504 May 09 07:55 | 20°♄10'58 -1°24'00 | |
| direct | 4498 Jan 13 04:46 | 4°♄13'16 | | minimum elong | 4504 May 09 07:55 | 20°♄10'58 1°23'59 | |
| evening set | 4498 Apr 09 18:14 | 6°♄06'37 | | max. Earth dist. | 4504 May 10 04:00 | 20°♄12'52 30.84549 AU | |
| | | | | morning rise | 4504 May 25 02:18 | 20°♄46'32 | |
| conjunction | 4498 Apr 25 07:05 | 6°♄41'42 -1°14'56 | | retrograde | 4504 Aug 24 06:48 | 22°♄45'37 | |
| minimum elong | 4498 Apr 25 07:05 | 6°♄41'42 1°14'56 | | opposition | 4504 Nov 12 17:25 | 21°♄20'26 -1°30'25 | |
| max. Earth dist. | 4498 Apr 26 03:37 | 6°♄43'38 30.88147 AU | | min. Earth dist. | 4504 Nov 11 22:19 | 21°♄21'46 28.84224 AU | |
| morning rise | 4498 May 10 22:52 | 7°♄17'04 | | direct | 4505 Jan 29 12:35 | 19°♄57'11 | |
| retrograde | 4498 Aug 09 23:30 | 9°♄15'50 | | evening set | 4505 Apr 26 04:42 | 21°♄50'36 | |
| opposition | 4498 Oct 29 12:19 | 7°♄50'50 -1°21'07 | | | | | |
| min. Earth dist. | 4498 Oct 28 16:48 | 7°♄52'11 28.87974 AU | | conjunction | 4505 May 11 20:15 | 22°♄25'52 -1°25'04 | |
| direct | 4499 Jan 15 17:05 | 6°♄27'42 | | minimum elong | 4505 May 11 20:15 | 22°♄25'52 1°25'05 | |
| evening set | 4499 Apr 12 05:45 | 8°♄21'05 | | max. Earth dist. | 4505 May 12 17:22 | 22°♄27'52 30.83733 AU | |
| | | | | morning rise | 4505 May 27 14:56 | 23°♄01'28 | |
| conjunction | 4499 Apr 27 18:50 | 8°♄56'11 -1°16'44 | | retrograde | 4505 Aug 26 20:09 | 25°♄00'32 | |
| minimum elong | 4499 Apr 27 18:50 | 8°♄56'11 1°16'45 | | min. Earth dist. | 4505 Nov 14 09:57 | 23°♄36'41 28.83416 AU | |
| max. Earth dist. | 4499 Apr 28 14:45 | 8°♄58'04 30.87674 AU | | opposition | 4505 Nov 15 06:02 | 23°♄35'17 -1°31'30 | |
| morning rise | 4499 May 13 11:10 | 9°♄31'36 | | direct | 4506 Feb 01 02:06 | 22°♄11'58 | |
| retrograde | 4499 Aug 12 13:10 | 11°♄30'28 | | evening set | 4506 Apr 28 16:48 | 24°♄05'22 | |
| min. Earth dist. | 4499 Oct 31 05:17 | 10°♄06'50 28.87516 AU | | | | | |
| opposition | 4499 Nov 01 01:11 | 10°♄05'28 -1°22'59 | | conjunction | 4506 May 14 08:37 | 24°♄40'40 -1°26'01 | |
| direct | 4500 Jan 18 03:42 | 8°♄42'21 | | minimum elong | 4506 May 14 08:37 | 24°♄40'40 1°26'01 | |
| evening set | 4500 Apr 14 17:17 | 10°♄35'46 | | max. Earth dist. | 4506 May 15 04:55 | 24°♄42'35 30.82953 AU | |
| | | | | morning rise | 4506 May 30 03:54 | 25°♄16'17 | |
| conjunction | 4500 Apr 30 06:47 | 11°♄10'54 -1°18'26 | | retrograde | 4506 Aug 29 10:58 | 27°♄15'20 | |
| minimum elong | 4500 Apr 30 06:47 | 11°♄10'54 1°18'26 | | opposition | 4506 Nov 17 18:31 | 25°♄50'01 -1°32'27 | |
| max. Earth dist. | 4500 May 01 03:42 | 11°♄12'53 30.87197 AU | | min. Earth dist. | 4506 Nov 16 22:49 | 25°♄51'23 28.82689 AU | |
| morning rise | 4500 May 15 23:22 | 11°♄46'21 | | direct | 4507 Feb 03 14:03 | 24°♄26'39 | |
| retrograde | 4500 Aug 15 00:26 | 13°♄45'18 | | evening set | 4507 May 01 04:47 | 26°♄20'02 | |
| opposition | 4500 Nov 03 14:06 | 12°♄20'18 -1°24'44 | | | | | |

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|------------------|-------------------|---------------------|-------------|------------------|-------------------|---------------------|-------------|
| conjunction | 4507 May 16 21:12 | 26° 8 55'21 | -1°26'50 | retrograde | 4513 Sep 14 06:07 | 12° II 59'24 | |
| minimum elong | 4507 May 16 21:12 | 26° 8 55'21 | 1°26'51 | opposition | 4513 Dec 03 09:00 | 11° II 34'06 | -1°35'03 |
| max. Earth dist. | 4507 May 17 18:53 | 26° 8 57'25 | 30.82268 AU | min. Earth dist. | 4513 Dec 02 13:15 | 11° II 35'29 | 28.80715 AU |
| morning rise | 4507 Jun 01 16:44 | 27° 8 31'00 | | direct | 4514 Feb 18 21:36 | 10° II 10'40 | |
| retrograde | 4507 Aug 31 23:16 | 29° 8 30'03 | | evening set | 4514 May 16 19:15 | 12° II 04'18 | |
| min. Earth dist. | 4507 Nov 19 10:49 | 28° 8 06'05 | 28.82059 AU | | | | |
| opposition | 4507 Nov 20 06:57 | 28° 8 04'40 | -1°33'15 | conjunction | 4514 Jun 01 14:50 | 12° II 39'50 | -1°28'48 |
| direct | 4508 Feb 06 03:18 | 26° 8 41'16 | | minimum elong | 4514 Jun 01 14:50 | 12° II 39'50 | 1°28'48 |
| evening set | 4508 May 02 16:50 | 28° 8 34'39 | | max. Earth dist. | 4514 Jun 02 12:50 | 12° II 41'55 | 30.80550 AU |
| | | | | morning rise | 4514 Jun 17 13:28 | 13° II 15'42 | |
| conjunction | 4508 May 18 09:31 | 29° 8 10'00 | -1°27'32 | retrograde | 4514 Sep 16 20:06 | 15° II 14'47 | |
| minimum elong | 4508 May 18 09:31 | 29° 8 10'00 | 1°27'31 | opposition | 4514 Dec 05 21:04 | 13° II 49'31 | -1°34'50 |
| max. Earth dist. | 4508 May 19 06:33 | 29° 8 11'59 | 30.81707 AU | min. Earth dist. | 4514 Dec 05 00:56 | 13° II 50'55 | 28.80549 AU |
| morning rise | 4508 Jun 03 05:38 | 29° 8 45'40 | | direct | 4515 Feb 21 10:47 | 12° II 26'03 | |
| | 4508 Jun 09 19:10 | 0° II | | evening set | 4515 May 19 08:15 | 14° II 19'44 | |
| retrograde | 4508 Sep 02 12:59 | 1° II 44'43 | | | | | |
| opposition | 4508 Nov 21 19:25 | 0° II 19'19 | -1°33'55 | conjunction | 4515 Jun 04 04:08 | 14° II 55'18 | -1°28'32 |
| min. Earth dist. | 4508 Nov 20 22:51 | 0° II 20'45 | 28.81575 AU | minimum elong | 4515 Jun 04 04:09 | 14° II 55'18 | 1°28'33 |
| | 4508 Dec 03 10:22 | 30° 8 | | max. Earth dist. | 4515 Jun 05 00:34 | 14° II 57'14 | 30.80342 AU |
| direct | 4509 Feb 07 14:24 | 28° 8 55'52 | | morning rise | 4515 Jun 20 03:23 | 15° II 31'12 | |
| | 4509 Apr 11 08:35 | 0° II | | retrograde | 4515 Sep 19 11:18 | 17° II 30'15 | |
| evening set | 4509 May 05 04:56 | 0° II 49'16 | | opposition | 4515 Dec 08 09:22 | 16° II 04'58 | -1°34'29 |
| | | | | min. Earth dist. | 4515 Dec 07 14:14 | 16° II 06'19 | 28.80303 AU |
| conjunction | 4509 May 20 22:09 | 1° II 24'39 | -1°28'05 | direct | 4516 Feb 23 22:48 | 14° II 41'28 | |
| minimum elong | 4509 May 20 22:09 | 1° II 24'39 | 1°28'06 | evening set | 4516 May 20 20:55 | 16° II 35'10 | |
| max. Earth dist. | 4509 May 21 20:19 | 1° II 26'45 | 30.81286 AU | | | | |
| morning rise | 4509 Jun 05 18:36 | 2° II 00'21 | | conjunction | 4516 Jun 05 17:27 | 17° II 10'46 | -1°28'09 |
| retrograde | 4509 Sep 05 00:42 | 3° II 59'24 | | minimum elong | 4516 Jun 05 17:27 | 17° II 10'46 | 1°28'09 |
| min. Earth dist. | 4509 Nov 23 11:28 | 2° II 35'24 | 28.81226 AU | max. Earth dist. | 4516 Jun 06 14:37 | 17° II 12'46 | 30.80059 AU |
| opposition | 4509 Nov 24 07:48 | 2° II 33'59 | -1°34'26 | morning rise | 4516 Jun 21 16:57 | 17° II 46'41 | |
| direct | 4510 Feb 10 02:10 | 1° II 10'32 | | retrograde | 4516 Sep 20 23:49 | 19° II 45'41 | |
| evening set | 4510 May 07 17:08 | 3° II 03'57 | | opposition | 4516 Dec 09 21:30 | 18° II 20'24 | -1°33'59 |
| | | | | min. Earth dist. | 4516 Dec 09 02:27 | 18° II 21'44 | 28.79987 AU |
| conjunction | 4510 May 23 10:48 | 3° II 39'22 | -1°28'30 | direct | 4517 Feb 25 12:20 | 16° II 56'51 | |
| minimum elong | 4510 May 23 10:48 | 3° II 39'22 | 1°28'30 | evening set | 4517 May 23 09:51 | 18° II 50'32 | |
| max. Earth dist. | 4510 May 24 08:36 | 3° II 41'26 | 30.81014 AU | | | | |
| morning rise | 4510 Jun 08 07:47 | 4° II 15'06 | | conjunction | 4517 Jun 08 06:44 | 19° II 26'10 | -1°27'37 |
| retrograde | 4510 Sep 07 15:20 | 6° II 14'10 | | minimum elong | 4517 Jun 08 06:44 | 19° II 26'10 | 1°27'38 |
| opposition | 4510 Nov 26 20:06 | 4° II 48'46 | -1°34'48 | max. Earth dist. | 4517 Jun 09 02:35 | 19° II 28'03 | 30.79745 AU |
| min. Earth dist. | 4510 Nov 25 22:52 | 4° II 50'15 | 28.81012 AU | morning rise | 4517 Jun 24 06:52 | 20° II 02'07 | |
| direct | 4511 Feb 12 12:56 | 3° II 25'18 | | retrograde | 4517 Sep 23 14:14 | 22° II 01'03 | |
| evening set | 4511 May 10 05:31 | 5° II 18'46 | | opposition | 4517 Dec 12 09:29 | 20° II 35'43 | -1°33'21 |
| | | | | min. Earth dist. | 4517 Dec 11 14:44 | 20° II 37'02 | 28.79680 AU |
| conjunction | 4511 May 25 23:35 | 5° II 54'13 | -1°28'47 | direct | 4518 Feb 27 23:55 | 19° II 12'06 | |
| minimum elong | 4511 May 25 23:35 | 5° II 54'13 | 1°28'48 | evening set | 4518 May 25 22:41 | 21° II 05'48 | |
| max. Earth dist. | 4511 May 26 21:42 | 5° II 56'18 | 30.80841 AU | | | | |
| morning rise | 4511 Jun 10 20:59 | 6° II 29'59 | | conjunction | 4518 Jun 10 20:11 | 21° II 41'29 | -1°26'57 |
| retrograde | 4511 Sep 10 02:46 | 8° II 29'03 | | minimum elong | 4518 Jun 10 20:11 | 21° II 41'29 | 1°26'57 |
| opposition | 4511 Nov 29 08:22 | 7° II 03'41 | -1°35'02 | max. Earth dist. | 4518 Jun 11 16:41 | 21° II 43'25 | 30.79447 AU |
| min. Earth dist. | 4511 Nov 28 12:07 | 7° II 05'07 | 28.80883 AU | morning rise | 4518 Jun 26 20:38 | 22° II 17'26 | |
| direct | 4512 Feb 14 23:36 | 5° II 40'15 | | retrograde | 4518 Sep 26 02:45 | 24° II 16'17 | |
| evening set | 4512 May 11 17:55 | 7° II 33'46 | | opposition | 4518 Dec 14 21:25 | 22° II 50'56 | -1°32'35 |
| | | | | min. Earth dist. | 4518 Dec 14 03:18 | 22° II 52'13 | 28.79408 AU |
| conjunction | 4512 May 27 12:32 | 8° II 09'14 | -1°28'55 | direct | 4519 Mar 02 12:49 | 21° II 27'16 | |
| minimum elong | 4512 May 27 12:32 | 8° II 09'14 | 1°28'55 | evening set | 4519 May 28 11:36 | 23° II 20'58 | |
| max. Earth dist. | 4512 May 28 10:52 | 8° II 11'21 | 30.80753 AU | | | | |
| morning rise | 4512 Jun 12 10:19 | 8° II 45'02 | | conjunction | 4519 Jun 13 09:30 | 23° II 56'40 | -1°26'10 |
| retrograde | 4512 Sep 11 16:45 | 10° II 44'08 | | minimum elong | 4519 Jun 13 09:30 | 23° II 56'40 | 1°26'10 |
| opposition | 4512 Nov 30 20:36 | 9° II 18'48 | -1°35'07 | max. Earth dist. | 4519 Jun 14 05:10 | 23° II 58'31 | 30.79225 AU |
| min. Earth dist. | 4512 Nov 29 23:31 | 9° II 20'17 | 28.80807 AU | morning rise | 4519 Jun 29 10:26 | 24° II 32'39 | |
| direct | 4513 Feb 16 11:31 | 7° II 55'22 | | retrograde | 4519 Sep 28 16:48 | 26° II 31'25 | |
| evening set | 4513 May 14 06:31 | 9° II 48'57 | | opposition | 4519 Dec 17 09:07 | 25° II 06'04 | -1°31'39 |
| | | | | min. Earth dist. | 4519 Dec 16 14:25 | 25° II 07'23 | 28.79240 AU |
| conjunction | 4513 May 30 01:28 | 10° II 24'27 | -1°28'56 | direct | 4520 Mar 04 00:31 | 23° II 42'19 | |
| minimum elong | 4513 May 30 01:28 | 10° II 24'27 | 1°28'57 | evening set | 4520 May 30 00:31 | 25° II 36'03 | |
| max. Earth dist. | 4513 May 30 23:06 | 10° II 26'30 | 30.80670 AU | | | | |
| morning rise | 4513 Jun 14 23:48 | 11° II 00'17 | | conjunction | 4520 Jun 14 22:52 | 26° II 11'46 | -1°25'14 |

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| minimum elong | 4520 Jun 14 22:53 | 26°II11'46 | 1°25'14 | opposition | 4527 Jan 01 18:38 | 10°☾51'54 | -1°21'22 |
| max. Earth dist. | 4520 Jun 15 18:46 | 26°II13'38 | 30.79112 AU | min. Earth dist. | 4527 Jan 01 02:35 | 10°☾53'02 | 28.81434 AU |
| morning rise | 4520 Jul 01 00:12 | 26°II47'46 | | direct | 4527 Mar 20 08:44 | 9°☾28'01 | |
| retrograde | 4520 Sep 30 03:20 | 28°II46'28 | | evening set | 4527 Jun 15 20:58 | 11°☾22'04 | |
| opposition | 4520 Dec 18 20:57 | 27°II21'06 | -1°30'36 | | | | |
| min. Earth dist. | 4520 Dec 18 03:13 | 27°II22'21 | 28.79201 AU | conjunction | 4527 Jul 01 22:40 | 11°☾57'58 | -1°15'12 |
| direct | 4521 Mar 06 11:33 | 25°II57'19 | | minimum elong | 4527 Jul 01 22:40 | 11°☾57'58 | 1°15'12 |
| evening set | 4521 Jun 01 13:19 | 27°II51'04 | | max. Earth dist. | 4527 Jul 02 16:17 | 11°☾59'37 | 30.81559 AU |
| | | | | morning rise | 4527 Jul 18 02:39 | 12°☾34'06 | |
| conjunction | 4521 Jun 17 12:15 | 28°II26'48 | -1°24'11 | retrograde | 4527 Oct 17 00:13 | 14°☾32'16 | |
| minimum elong | 4521 Jun 17 12:15 | 28°II26'48 | 1°24'12 | opposition | 4528 Jan 04 06:13 | 13°☾07'14 | -1°19'23 |
| max. Earth dist. | 4521 Jun 18 08:11 | 28°II28'41 | 30.79159 AU | min. Earth dist. | 4528 Jan 03 15:18 | 13°☾08'17 | 28.81801 AU |
| morning rise | 4521 Jul 03 13:59 | 29°II02'50 | | direct | 4528 Mar 21 22:03 | 11°☾43'19 | |
| | 4521 Jul 31 17:01 | 0°☾ | | evening set | 4528 Jun 17 10:34 | 13°☾37'24 | |
| retrograde | 4521 Oct 02 16:40 | 1°☾01'26 | | | | | |
| | 4521 Dec 07 00:55 | 30°☾II | | conjunction | 4528 Jul 03 12:38 | 14°☾13'19 | -1°13'17 |
| opposition | 4521 Dec 21 08:36 | 29°II36'06 | -1°29'24 | minimum elong | 4528 Jul 03 12:38 | 14°☾13'19 | 1°13'17 |
| min. Earth dist. | 4521 Dec 20 14:00 | 29°II37'25 | 28.79315 AU | max. Earth dist. | 4528 Jul 04 04:37 | 14°☾14'49 | 30.81899 AU |
| direct | 4522 Mar 08 23:07 | 28°II12'17 | | morning rise | 4528 Jul 19 17:05 | 14°☾49'28 | |
| | 4522 Jun 01 07:50 | 0°☾ | | retrograde | 4528 Oct 18 14:20 | 16°☾47'31 | |
| evening set | 4522 Jun 04 02:27 | 0°☾06'04 | | opposition | 4529 Jan 05 17:39 | 15°☾22'31 | -1°17'16 |
| | | | | min. Earth dist. | 4529 Jan 05 02:44 | 15°☾23'34 | 28.82099 AU |
| conjunction | 4522 Jun 20 01:45 | 0°☾41'50 | -1°23'00 | direct | 4529 Mar 24 10:24 | 13°☾58'32 | |
| minimum elong | 4522 Jun 20 01:45 | 0°☾41'50 | 1°23'00 | evening set | 4529 Jun 20 00:05 | 15°☾52'38 | |
| max. Earth dist. | 4522 Jun 20 21:06 | 0°☾43'39 | 30.79345 AU | | | | |
| morning rise | 4522 Jul 06 03:59 | 1°☾17'52 | | conjunction | 4529 Jul 06 02:38 | 16°☾28'35 | -1°11'15 |
| retrograde | 4522 Oct 05 04:50 | 3°☾16'25 | | minimum elong | 4529 Jul 06 02:38 | 16°☾28'35 | 1°11'16 |
| opposition | 4522 Dec 23 20:14 | 1°☾51'07 | -1°28'04 | max. Earth dist. | 4529 Jul 06 18:14 | 16°☾30'03 | 30.82162 AU |
| min. Earth dist. | 4522 Dec 23 02:49 | 1°☾52'21 | 28.79580 AU | morning rise | 4529 Jul 22 07:23 | 17°☾04'45 | |
| direct | 4523 Mar 11 08:26 | 0°☾27'16 | | retrograde | 4529 Oct 21 01:49 | 19°☾02'39 | |
| evening set | 4523 Jun 06 15:29 | 2°☾21'05 | | opposition | 4530 Jan 08 05:07 | 17°☾37'40 | -1°15'03 |
| | | | | min. Earth dist. | 4530 Jan 07 15:49 | 17°☾38'37 | 28.82336 AU |
| conjunction | 4523 Jun 22 15:24 | 2°☾56'53 | -1°21'42 | direct | 4530 Mar 26 22:04 | 16°☾13'39 | |
| minimum elong | 4523 Jun 22 15:24 | 2°☾56'53 | 1°21'43 | evening set | 4530 Jun 22 13:43 | 18°☾07'45 | |
| max. Earth dist. | 4523 Jun 23 11:18 | 2°☾58'45 | 30.79687 AU | | | | |
| morning rise | 4523 Jul 08 17:55 | 3°☾32'57 | | conjunction | 4530 Jul 08 16:43 | 18°☾43'43 | -1°09'07 |
| retrograde | 4523 Oct 07 17:36 | 5°☾31'25 | | minimum elong | 4530 Jul 08 16:43 | 18°☾43'43 | 1°09'07 |
| opposition | 4523 Dec 26 07:49 | 4°☾06'10 | -1°26'36 | max. Earth dist. | 4530 Jul 09 07:32 | 18°☾45'06 | 30.82403 AU |
| min. Earth dist. | 4523 Dec 25 13:46 | 4°☾07'27 | 28.79973 AU | morning rise | 4530 Jul 24 21:48 | 19°☾19'53 | |
| direct | 4524 Mar 12 21:32 | 2°☾42'19 | | retrograde | 4530 Oct 23 15:23 | 21°☾17'39 | |
| evening set | 4524 Jun 08 04:37 | 4°☾36'12 | | opposition | 4531 Jan 10 16:13 | 19°☾52'42 | -1°12'43 |
| | | | | min. Earth dist. | 4531 Jan 10 02:37 | 19°☾53'40 | 28.82571 AU |
| conjunction | 4524 Jun 24 04:49 | 5°☾12'01 | -1°20'15 | direct | 4531 Mar 29 10:12 | 18°☾28'36 | |
| minimum elong | 4524 Jun 24 04:49 | 5°☾12'01 | 1°20'15 | evening set | 4531 Jun 25 03:21 | 20°☾22'44 | |
| max. Earth dist. | 4524 Jun 24 23:28 | 5°☾13'46 | 30.80135 AU | | | | |
| morning rise | 4524 Jul 10 07:53 | 5°☾48'06 | | conjunction | 4531 Jul 11 06:40 | 20°☾58'43 | -1°06'53 |
| retrograde | 4524 Oct 09 07:27 | 7°☾46'31 | | minimum elong | 4531 Jul 11 06:40 | 20°☾58'43 | 1°06'54 |
| opposition | 4524 Dec 27 19:32 | 6°☾21'19 | -1°24'59 | max. Earth dist. | 4531 Jul 11 20:37 | 21°☾00'01 | 30.82651 AU |
| min. Earth dist. | 4524 Dec 27 02:25 | 6°☾22'32 | 28.80462 AU | morning rise | 4531 Jul 27 12:06 | 21°☾34'54 | |
| direct | 4525 Mar 15 08:24 | 4°☾57'28 | | retrograde | 4531 Oct 26 02:40 | 23°☾32'33 | |
| evening set | 4525 Jun 10 17:53 | 6°☾51'24 | | opposition | 4532 Jan 13 03:31 | 22°☾07'36 | -1°10'16 |
| | | | | min. Earth dist. | 4532 Jan 12 15:25 | 22°☾08'27 | 28.82852 AU |
| conjunction | 4525 Jun 26 18:44 | 7°☾27'15 | -1°18'41 | direct | 4532 Mar 30 19:59 | 20°☾43'26 | |
| minimum elong | 4525 Jun 26 18:44 | 7°☾27'15 | 1°18'43 | evening set | 4532 Jun 26 16:42 | 22°☾37'36 | |
| max. Earth dist. | 4525 Jun 27 14:01 | 7°☾29'04 | 30.80645 AU | | | | |
| morning rise | 4525 Jul 12 22:00 | 8°☾03'21 | | conjunction | 4532 Jul 12 20:32 | 23°☾13'35 | -1°04'33 |
| retrograde | 4525 Oct 11 20:18 | 10°☾01'42 | | minimum elong | 4532 Jul 12 20:32 | 23°☾13'35 | 1°04'33 |
| opposition | 4525 Dec 30 07:01 | 8°☾36'35 | -1°23'15 | max. Earth dist. | 4532 Jul 13 10:40 | 23°☾14'55 | 30.82978 AU |
| min. Earth dist. | 4525 Dec 29 14:16 | 8°☾37'46 | 28.80965 AU | morning rise | 4532 Jul 29 02:10 | 23°☾49'47 | |
| direct | 4526 Mar 17 21:03 | 7°☾12'43 | | retrograde | 4532 Oct 27 14:22 | 25°☾47'18 | |
| evening set | 4526 Jun 13 07:28 | 9°☾06'43 | | opposition | 4533 Jan 14 14:37 | 24°☾22'23 | -1°07'43 |
| | | | | min. Earth dist. | 4533 Jan 14 02:05 | 24°☾23'16 | 28.83216 AU |
| conjunction | 4526 Jun 29 08:37 | 9°☾42'35 | -1°17'00 | direct | 4533 Apr 02 09:11 | 22°☾58'10 | |
| minimum elong | 4526 Jun 29 08:37 | 9°☾42'35 | 1°17'00 | evening set | 4533 Jun 29 06:22 | 24°☾52'22 | |
| max. Earth dist. | 4526 Jun 30 02:06 | 9°☾44'14 | 30.81141 AU | | | | |
| morning rise | 4526 Jul 15 12:26 | 10°☾18'42 | | conjunction | 4533 Jul 15 10:26 | 25°☾28'22 | -1°02'07 |
| retrograde | 4526 Oct 14 11:18 | 12°☾16'58 | | minimum elong | 4533 Jul 15 10:27 | 25°☾28'22 | 1°02'08 |

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| max. Earth dist. | 4533 Jul 15 23:09 | 25° Ω 29'34 | 30.83400 AU | retrograde | 4539 Nov 13 10:19 | 11° Ω 30'23 | |
| morning rise | 4533 Jul 31 16:29 | 26° Ω 04'34 | | opposition | 4540 Jan 30 19:23 | 10° Ω 05'59 | -0°47'12 |
| retrograde | 4533 Oct 30 02:48 | 28° Ω 01'58 | | min. Earth dist. | 4540 Jan 30 11:07 | 10° Ω 06'34 | 28.88498 AU |
| opposition | 4534 Jan 17 01:39 | 26° Ω 37'05 | -1°05'04 | direct | 4540 Apr 17 20:58 | 8° Ω 41'41 | |
| min. Earth dist. | 4534 Jan 16 14:08 | 26° Ω 37'54 | 28.83707 AU | evening set | 4540 Jul 15 06:36 | 10° Ω 36'18 | |
| direct | 4534 Apr 04 19:33 | 25° Ω 12'49 | | | | | |
| evening set | 4534 Jul 01 19:55 | 27° Ω 07'05 | | conjunction | 4540 Jul 31 12:55 | 11° Ω 12'25 | -0°42'39 |
| | | | | minimum elong | 4540 Jul 31 12:55 | 11° Ω 12'25 | 0°42'40 |
| conjunction | 4534 Jul 18 00:32 | 27° Ω 43'06 | -0°59'35 | max. Earth dist. | 4540 Jul 31 20:43 | 11° Ω 13'08 | 30.88833 AU |
| minimum elong | 4534 Jul 18 00:32 | 27° Ω 43'06 | 0°59'36 | morning rise | 4540 Aug 16 20:15 | 11° Ω 48'38 | |
| max. Earth dist. | 4534 Jul 18 13:48 | 27° Ω 44'21 | 30.83955 AU | retrograde | 4540 Nov 14 21:11 | 13° Ω 45'13 | |
| morning rise | 4534 Aug 03 06:40 | 28° Ω 19'18 | | opposition | 4541 Feb 01 06:26 | 12° Ω 20'52 | -0°43'57 |
| | 4534 Sep 30 23:29 | 0° Ω | | min. Earth dist. | 4541 Feb 01 00:07 | 12° Ω 21'19 | 28.89190 AU |
| retrograde | 4534 Nov 01 14:50 | 0° Ω 16'35 | | direct | 4541 Apr 20 07:31 | 10° Ω 56'31 | |
| | 4534 Dec 03 16:59 | 30° Ω | | evening set | 4541 Jul 17 20:31 | 12° Ω 51'09 | |
| opposition | 4535 Jan 19 12:40 | 28° Ω 51'46 | -1°02'19 | | | | |
| min. Earth dist. | 4535 Jan 19 01:15 | 28° Ω 52'34 | 28.84319 AU | conjunction | 4541 Aug 03 03:13 | 13° Ω 27'16 | -0°39'35 |
| direct | 4535 Apr 07 07:41 | 27° Ω 27'29 | | minimum elong | 4541 Aug 03 03:13 | 13° Ω 27'16 | 0°39'36 |
| evening set | 4535 Jul 04 09:32 | 29° Ω 21'48 | | max. Earth dist. | 4541 Aug 03 10:26 | 13° Ω 27'56 | 30.89485 AU |
| | | | | morning rise | 4541 Aug 19 10:37 | 14° Ω 03'29 | |
| conjunction | 4535 Jul 20 14:19 | 29° Ω 57'50 | -0°56'58 | | 4541 Sep 16 12:36 | 15° Ω | |
| minimum elong | 4535 Jul 20 14:19 | 29° Ω 57'50 | 0°56'59 | retrograde | 4541 Nov 17 08:31 | 15° Ω 59'54 | |
| max. Earth dist. | 4535 Jul 21 02:03 | 29° Ω 58'55 | 30.84644 AU | | 4542 Jan 20 03:01 | 15° Ω | |
| | 4535 Jul 21 13:34 | 0° Ω | | opposition | 4542 Feb 03 17:06 | 14° Ω 35'35 | -0°40'39 |
| morning rise | 4535 Aug 05 20:50 | 0° Ω 34'02 | | min. Earth dist. | 4542 Feb 03 10:56 | 14° Ω 36'01 | 28.89788 AU |
| retrograde | 4535 Nov 04 04:53 | 2° Ω 31'13 | | direct | 4542 Apr 22 20:43 | 13° Ω 11'10 | |
| opposition | 4536 Jan 21 23:40 | 1° Ω 06'28 | -0°59'28 | | 4542 Jul 17 17:58 | 15° Ω | |
| min. Earth dist. | 4536 Jan 21 12:38 | 1° Ω 07'15 | 28.85075 AU | evening set | 4542 Jul 20 10:34 | 15° Ω 05'49 | |
| | 4536 Mar 07 00:29 | 30° Ω | | | | | |
| direct | 4536 Apr 08 19:14 | 29° Ω 42'10 | | conjunction | 4542 Aug 05 17:20 | 15° Ω 41'56 | -0°36'28 |
| | 4536 May 11 06:41 | 0° Ω | | minimum elong | 4542 Aug 05 17:20 | 15° Ω 41'56 | 0°36'28 |
| evening set | 4536 Jul 05 23:06 | 1° Ω 36'33 | | max. Earth dist. | 4542 Aug 05 22:38 | 15° Ω 42'26 | 30.90054 AU |
| | | | | morning rise | 4542 Aug 22 00:56 | 16° Ω 18'08 | |
| conjunction | 4536 Jul 22 04:23 | 2° Ω 12'37 | -0°54'16 | retrograde | 4542 Nov 19 20:12 | 18° Ω 14'24 | |
| minimum elong | 4536 Jul 22 04:23 | 2° Ω 12'37 | 0°54'16 | opposition | 4543 Feb 06 03:55 | 16° Ω 50'05 | -0°37'17 |
| max. Earth dist. | 4536 Jul 22 16:39 | 2° Ω 13'45 | 30.85457 AU | min. Earth dist. | 4543 Feb 05 23:10 | 16° Ω 50'26 | 28.90341 AU |
| morning rise | 4536 Aug 07 10:58 | 2° Ω 48'49 | | direct | 4543 Apr 25 06:49 | 15° Ω 25'35 | |
| retrograde | 4536 Nov 05 17:29 | 4° Ω 45'53 | | evening set | 4543 Jul 23 00:12 | 17° Ω 20'16 | |
| opposition | 4537 Jan 23 10:38 | 3° Ω 21'14 | -0°56'32 | | | | |
| min. Earth dist. | 4537 Jan 23 00:35 | 3° Ω 21'56 | 28.85928 AU | conjunction | 4543 Aug 08 07:20 | 17° Ω 56'23 | -0°33'17 |
| direct | 4537 Apr 11 08:24 | 1° Ω 56'57 | | minimum elong | 4543 Aug 08 07:20 | 17° Ω 56'23 | 0°33'18 |
| evening set | 4537 Jul 08 12:52 | 3° Ω 51'24 | | max. Earth dist. | 4543 Aug 08 12:48 | 17° Ω 56'53 | 30.90598 AU |
| | | | | morning rise | 4543 Aug 24 14:50 | 18° Ω 32'33 | |
| conjunction | 4537 Jul 24 18:22 | 4° Ω 27'29 | -0°51'29 | retrograde | 4543 Nov 22 06:48 | 20° Ω 28'39 | |
| minimum elong | 4537 Jul 24 18:23 | 4° Ω 27'29 | 0°51'29 | opposition | 4544 Feb 08 14:33 | 19° Ω 04'22 | -0°33'52 |
| max. Earth dist. | 4537 Jul 25 05:05 | 4° Ω 28'28 | 30.86356 AU | min. Earth dist. | 4544 Feb 08 10:14 | 19° Ω 04'40 | 28.90879 AU |
| morning rise | 4537 Aug 10 01:19 | 5° Ω 03'41 | | direct | 4544 Apr 26 19:13 | 17° Ω 39'47 | |
| retrograde | 4537 Nov 08 07:29 | 7° Ω 00'40 | | evening set | 4544 Jul 24 14:03 | 19° Ω 34'28 | |
| opposition | 4538 Jan 25 21:32 | 5° Ω 36'06 | -0°53'30 | | | | |
| min. Earth dist. | 4538 Jan 25 11:31 | 5° Ω 36'48 | 28.86834 AU | conjunction | 4544 Aug 09 21:11 | 20° Ω 10'34 | -0°30'04 |
| direct | 4538 Apr 13 20:35 | 4° Ω 11'49 | | minimum elong | 4544 Aug 09 21:11 | 20° Ω 10'34 | 0°30'05 |
| evening set | 4538 Jul 11 02:47 | 6° Ω 06'21 | | max. Earth dist. | 4544 Aug 10 00:47 | 20° Ω 10'54 | 30.91160 AU |
| | | | | morning rise | 4544 Aug 26 04:55 | 20° Ω 46'44 | |
| conjunction | 4538 Jul 27 08:37 | 6° Ω 42'26 | -0°48'36 | retrograde | 4544 Nov 23 18:52 | 22° Ω 42'40 | |
| minimum elong | 4538 Jul 27 08:37 | 6° Ω 42'26 | 0°48'36 | opposition | 4545 Feb 10 01:04 | 21° Ω 18'23 | -0°30'24 |
| max. Earth dist. | 4538 Jul 27 18:54 | 6° Ω 43'24 | 30.87247 AU | min. Earth dist. | 4545 Feb 09 21:22 | 21° Ω 18'39 | 28.91475 AU |
| morning rise | 4538 Aug 12 15:36 | 7° Ω 18'39 | | direct | 4545 Apr 29 06:53 | 19° Ω 53'44 | |
| retrograde | 4538 Nov 10 19:50 | 9° Ω 15'31 | | evening set | 4545 Jul 27 03:42 | 21° Ω 48'26 | |
| opposition | 4539 Jan 28 08:28 | 7° Ω 51'02 | -0°50'23 | | | | |
| min. Earth dist. | 4539 Jan 28 00:15 | 7° Ω 51'37 | 28.87704 AU | conjunction | 4545 Aug 12 11:10 | 22° Ω 24'32 | -0°26'49 |
| direct | 4539 Apr 16 08:19 | 6° Ω 26'46 | | minimum elong | 4545 Aug 12 11:10 | 22° Ω 24'32 | 0°26'49 |
| evening set | 4539 Jul 13 16:43 | 8° Ω 21'20 | | max. Earth dist. | 4545 Aug 12 15:12 | 22° Ω 24'55 | 30.91787 AU |
| | | | | morning rise | 4545 Aug 28 18:46 | 23° Ω 00'41 | |
| conjunction | 4539 Jul 29 22:50 | 8° Ω 57'27 | -0°45'40 | retrograde | 4545 Nov 26 05:41 | 23° Ω 56'27 | |
| minimum elong | 4539 Jul 29 22:50 | 8° Ω 57'27 | 0°45'40 | opposition | 4546 Feb 12 11:36 | 23° Ω 32'12 | -0°26'53 |
| max. Earth dist. | 4539 Jul 30 07:51 | 8° Ω 58'17 | 30.88093 AU | min. Earth dist. | 4546 Feb 12 08:56 | 23° Ω 32'23 | 28.92143 AU |
| morning rise | 4539 Aug 15 06:00 | 9° Ω 33'39 | | direct | 4546 May 01 19:49 | 22° Ω 07'29 | |

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| evening set | 4546 Jul 29 17:28 | 24°02'13 | | min. Earth dist. | 4552 Feb 26 03:19 | 6°05'53"56 | 28.98395 AU |
| | | | | direct | 4552 May 14 17:07 | 5°05'29"18 | |
| conjunction | 4546 Aug 15 00:55 | 24°038'19 | -0°23'31 | evening set | 4552 Aug 12 03:45 | 7°05'24"25 | |
| minimum elong | 4546 Aug 15 00:55 | 24°038'19 | 0°23'31 | | | | |
| max. Earth dist. | 4546 Aug 15 03:23 | 24°038'32 | 30.92519 AU | conjunction | 4552 Aug 28 11:36 | 8°05'00"29 | -0°03'14 |
| morning rise | 4546 Aug 31 08:38 | 25°014'27 | | minimum elong | 4552 Aug 28 11:36 | 8°05'00"29 | 0°03'14 |
| retrograde | 4546 Nov 28 18:40 | 27°010'03 | | behind sun begin | 4552 Aug 28 05:02 | 7°05'59"54 | |
| opposition | 4547 Feb 14 21:58 | 25°045'51 | -0°23'21 | behind sun end | 4552 Aug 28 18:10 | 8°05'01"04 | |
| min. Earth dist. | 4547 Feb 14 19:02 | 25°046'03 | 28.92939 AU | max. Earth dist. | 4552 Aug 28 10:13 | 8°05'00"25 | 30.98922 AU |
| direct | 4547 May 04 07:52 | 24°021'05 | | morning rise | 4552 Sep 13 18:38 | 8°05'36"31 | |
| evening set | 4547 Aug 01 07:08 | 26°015'52 | | retrograde | 4552 Dec 11 16:39 | 10°05'31"26 | |
| | | | | opposition | 4553 Feb 27 12:34 | 9°05'07"48 | -0°01'33 |
| conjunction | 4547 Aug 17 14:45 | 26°051'58 | -0°20'12 | min. Earth dist. | 4553 Feb 27 14:28 | 9°05'07"40 | 28.99424 AU |
| minimum elong | 4547 Aug 17 14:45 | 26°051'58 | 0°20'12 | direct | 4553 May 17 05:04 | 7°05'43"04 | |
| max. Earth dist. | 4547 Aug 17 17:17 | 26°052'11 | 30.93379 AU | asc. node | 4553 Aug 02 07:25 | 9°05'12"02 | |
| morning rise | 4547 Sep 02 22:18 | 27°028'04 | | evening set | 4553 Aug 14 17:42 | 9°05'38"14 | |
| retrograde | 4547 Dec 01 06:16 | 29°023'33 | | | | | |
| opposition | 4548 Feb 17 08:31 | 27°059'24 | -0°19'46 | conjunction | 4553 Aug 31 01:23 | 10°05'14"17 | 0°00'17 |
| min. Earth dist. | 4548 Feb 17 06:53 | 27°059'31 | 28.93874 AU | minimum elong | 4553 Aug 31 01:21 | 10°05'14"17 | 0°00'17 |
| direct | 4548 May 05 19:53 | 26°034'38 | | behind sun begin | 4553 Aug 30 18:48 | 10°05'13"42 | |
| evening set | 4548 Aug 02 20:40 | 28°029'28 | | behind sun end | 4553 Aug 31 07:54 | 10°05'14"52 | |
| | | | | max. Earth dist. | 4553 Aug 30 21:41 | 10°05'13"59 | 30.99904 AU |
| conjunction | 4548 Aug 19 04:22 | 29°005'33 | -0°16'50 | morning rise | 4553 Sep 16 08:24 | 10°05'50"18 | |
| minimum elong | 4548 Aug 19 04:22 | 29°005'33 | 0°16'50 | retrograde | 4553 Dec 14 04:08 | 12°05'45"05 | |
| max. Earth dist. | 4548 Aug 19 06:00 | 29°005'42 | 30.94395 AU | opposition | 4554 Mar 01 23:00 | 11°05'21"30 | 0°02'07 |
| morning rise | 4548 Sep 04 11:59 | 29°041'39 | | min. Earth dist. | 4554 Mar 02 01:46 | 11°05'21"18 | 29.00362 AU |
| | 4548 Sep 13 02:25 | 0°05'00 | | direct | 4554 May 19 16:27 | 9°05'56"44 | |
| retrograde | 4548 Dec 02 19:53 | 1°05'37"00 | | evening set | 4554 Aug 17 07:23 | 11°05'51"56 | |
| opposition | 4549 Feb 18 18:53 | 0°05'12"57 | -0°16'10 | | | | |
| min. Earth dist. | 4549 Feb 18 16:50 | 0°05'13"06 | 28.94942 AU | conjunction | 4554 Sep 02 15:07 | 12°05'27"59 | 0°03'46 |
| | 4549 Feb 26 10:36 | 30°05'00 | | minimum elong | 4554 Sep 02 15:07 | 12°05'27"59 | 0°03'46 |
| direct | 4549 May 08 08:43 | 28°048'11 | | behind sun begin | 4554 Sep 02 08:36 | 12°05'27"24 | |
| | 4549 Jul 15 11:09 | 0°05'00 | | behind sun end | 4554 Sep 02 21:39 | 12°05'28"34 | |
| evening set | 4549 Aug 05 10:28 | 0°05'43"05 | | max. Earth dist. | 4554 Sep 02 11:31 | 12°05'27"41 | 31.00788 AU |
| | | | | morning rise | 4554 Sep 18 21:47 | 13°05'03"57 | |
| conjunction | 4549 Aug 21 18:12 | 1°05'19"11 | -0°13'27 | retrograde | 4554 Dec 16 14:10 | 14°05'58"37 | |
| minimum elong | 4549 Aug 21 18:12 | 1°05'19"11 | 0°13'28 | opposition | 4555 Mar 04 09:24 | 13°05'35"04 | 0°05'46 |
| behind sun begin | 4549 Aug 21 14:38 | 1°05'18"52 | | min. Earth dist. | 4555 Mar 04 13:33 | 13°05'34"47 | 29.01205 AU |
| behind sun end | 4549 Aug 21 21:45 | 1°05'19"29 | | direct | 4555 May 22 04:54 | 12°05'10"16 | |
| max. Earth dist. | 4549 Aug 21 19:07 | 1°05'19"15 | 30.95510 AU | evening set | 4555 Aug 19 21:07 | 14°05'05"30 | |
| morning rise | 4549 Sep 07 01:43 | 1°05'55"16 | | | | | |
| retrograde | 4549 Dec 05 06:47 | 3°05'50"30 | | conjunction | 4555 Sep 05 04:39 | 14°05'41"31 | 0°07'10 |
| opposition | 4550 Feb 21 05:17 | 2°05'26"33 | -0°12'32 | minimum elong | 4555 Sep 05 04:38 | 14°05'41"31 | 0°07'10 |
| min. Earth dist. | 4550 Feb 21 04:57 | 2°05'26"35 | 28.96097 AU | behind sun begin | 4555 Sep 04 22:35 | 14°05'40"59 | |
| direct | 4550 May 10 19:06 | 1°05'01"49 | | behind sun end | 4555 Sep 05 10:41 | 14°05'42"03 | |
| evening set | 4550 Aug 08 00:14 | 2°05'56"48 | | max. Earth dist. | 4555 Sep 04 23:05 | 14°05'41"02 | 31.01613 AU |
| | | | | morning rise | 4555 Sep 21 11:15 | 15°05'17"28 | |
| conjunction | 4550 Aug 24 08:05 | 3°05'32"53 | -0°10'03 | retrograde | 4555 Dec 19 02:33 | 17°05'11"59 | |
| minimum elong | 4550 Aug 24 08:04 | 3°05'32"53 | 0°10'04 | opposition | 4556 Mar 05 19:38 | 15°05'48"29 | 0°09'24 |
| behind sun begin | 4550 Aug 24 02:49 | 3°05'32"25 | | min. Earth dist. | 4556 Mar 05 23:49 | 15°05'48"11 | 29.02015 AU |
| behind sun end | 4550 Aug 24 13:20 | 3°05'33"21 | | direct | 4556 May 23 16:35 | 14°05'23"37 | |
| max. Earth dist. | 4550 Aug 24 08:36 | 3°05'32"55 | 30.96688 AU | evening set | 4556 Aug 21 10:34 | 16°05'18"52 | |
| morning rise | 4550 Sep 09 15:27 | 4°05'08"57 | | | | | |
| retrograde | 4550 Dec 07 18:33 | 6°05'04"05 | | conjunction | 4556 Sep 06 18:06 | 16°05'54"52 | 0°10'33 |
| opposition | 4551 Feb 23 15:40 | 4°05'40"15 | -0°08'53 | minimum elong | 4556 Sep 06 18:06 | 16°05'54"52 | 0°10'33 |
| min. Earth dist. | 4551 Feb 23 15:23 | 4°05'40"16 | 28.97266 AU | behind sun begin | 4556 Sep 06 13:02 | 16°05'54"25 | |
| direct | 4551 May 13 07:38 | 3°05'15"32 | | behind sun end | 4556 Sep 06 23:11 | 16°05'55"19 | |
| evening set | 4551 Aug 10 14:00 | 5°05'10"35 | | max. Earth dist. | 4556 Sep 06 12:26 | 16°05'54"22 | 31.02407 AU |
| | | | | morning rise | 4556 Sep 23 00:23 | 17°05'30"47 | |
| conjunction | 4551 Aug 26 21:41 | 5°05'46"40 | -0°06'39 | retrograde | 4556 Dec 20 13:29 | 19°05'25"09 | |
| minimum elong | 4551 Aug 26 21:42 | 5°05'46"40 | 0°06'39 | opposition | 4557 Mar 08 05:59 | 18°05'01"40 | 0°13'02 |
| behind sun begin | 4551 Aug 26 15:32 | 5°05'46"07 | | min. Earth dist. | 4557 Mar 08 11:48 | 18°05'01"15 | 29.02811 AU |
| behind sun end | 4551 Aug 27 03:52 | 5°05'47"13 | | direct | 4557 May 26 05:36 | 16°05'36"46 | |
| max. Earth dist. | 4551 Aug 26 20:29 | 5°05'46"34 | 30.97837 AU | evening set | 4557 Aug 24 00:08 | 18°05'32"02 | |
| morning rise | 4551 Sep 12 05:01 | 6°05'22"43 | | | | | |
| retrograde | 4551 Dec 10 06:22 | 8°05'17"45 | | conjunction | 4557 Sep 09 07:30 | 19°05'08"00 | 0°13'55 |
| opposition | 4552 Feb 26 02:12 | 6°05'54"01 | -0°05'13 | minimum elong | 4557 Sep 09 07:29 | 19°05'08"00 | 0°13'55 |

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| behind sun begin | 4557 Sep 09 04:17 | 19° 00 07'43 | | max. Earth dist. | 4563 Sep 23 04:23 | 2° 00 23'09 | 31.10003 AU |
| behind sun end | 4557 Sep 09 10:42 | 19° 00 08'17 | | morning rise | 4563 Oct 09 18:02 | 2° 00 59'42 | |
| max. Earth dist. | 4557 Sep 09 00:37 | 19° 00 07'23 | 31.03223 AU | retrograde | 4564 Jan 05 16:58 | 4° 00 53'15 | |
| morning rise | 4557 Sep 25 13:36 | 19° 00 43'53 | | opposition | 4564 Mar 23 05:21 | 3° 00 30'15 | 0°37'30 |
| retrograde | 4557 Dec 23 02:00 | 21° 00 38'06 | | min. Earth dist. | 4564 Mar 23 14:59 | 3° 00 29'34 | 29.10650 AU |
| opposition | 4558 Mar 10 16:02 | 20° 00 14'39 | 0°16'38 | direct | 4564 Jun 10 15:14 | 2° 00 05'19 | |
| min. Earth dist. | 4558 Mar 10 21:31 | 20° 00 14'15 | 29.03648 AU | evening set | 4564 Sep 08 21:15 | 4° 00 00'52 | |
| direct | 4558 May 28 19:24 | 18° 00 49'41 | | | | | |
| evening set | 4558 Aug 26 13:36 | 20° 00 44'59 | | conjunction | 4564 Sep 25 02:58 | 4° 00 36'40 | 0°36'40 |
| | | | | minimum elong | 4564 Sep 25 02:58 | 4° 00 36'40 | 0°36'40 |
| conjunction | 4558 Sep 11 20:46 | 21° 00 20'56 | 0°17'16 | max. Earth dist. | 4564 Sep 24 15:24 | 4° 00 35'36 | 31.11245 AU |
| minimum elong | 4558 Sep 11 20:46 | 21° 00 20'56 | 0°17'16 | morning rise | 4564 Oct 11 06:47 | 5° 00 12'19 | |
| max. Earth dist. | 4558 Sep 11 13:22 | 21° 00 20'16 | 31.04089 AU | retrograde | 4565 Jan 07 04:55 | 7° 00 05'46 | |
| morning rise | 4558 Sep 28 02:33 | 21° 00 56'47 | | opposition | 4565 Mar 25 15:38 | 5° 00 42'50 | 0°40'48 |
| retrograde | 4558 Dec 25 12:18 | 23° 00 50'51 | | min. Earth dist. | 4565 Mar 26 01:19 | 5° 00 42'10 | 29.11843 AU |
| opposition | 4559 Mar 13 02:21 | 22° 00 27'26 | 0°20'12 | direct | 4565 Jun 13 02:37 | 4° 00 17'55 | |
| min. Earth dist. | 4559 Mar 13 09:16 | 22° 00 26'56 | 29.04573 AU | evening set | 4565 Sep 11 10:35 | 6° 00 13'30 | |
| direct | 4559 May 31 06:32 | 21° 00 02'26 | | | | | |
| evening set | 4559 Aug 29 02:44 | 22° 00 57'45 | | conjunction | 4565 Sep 27 16:06 | 6° 00 49'17 | 0°39'45 |
| | | | | minimum elong | 4565 Sep 27 16:06 | 6° 00 49'17 | 0°39'45 |
| conjunction | 4559 Sep 14 09:48 | 23° 00 33'40 | 0°20'36 | max. Earth dist. | 4565 Sep 27 04:15 | 6° 00 48'11 | 31.12365 AU |
| minimum elong | 4559 Sep 14 09:47 | 23° 00 33'40 | 0°20'36 | morning rise | 4565 Oct 13 19:20 | 7° 00 24'53 | |
| max. Earth dist. | 4559 Sep 14 02:19 | 23° 00 32'59 | 31.05071 AU | retrograde | 4566 Jan 09 15:09 | 9° 00 18'15 | |
| morning rise | 4559 Sep 30 15:15 | 24° 00 09'29 | | opposition | 4566 Mar 28 02:02 | 7° 00 55'23 | 0°44'03 |
| retrograde | 4559 Dec 27 23:44 | 26° 00 03'25 | | min. Earth dist. | 4566 Mar 28 13:32 | 7° 00 54'35 | 29.12907 AU |
| opposition | 4560 Mar 14 12:32 | 24° 00 40'03 | 0°23'44 | direct | 4566 Jun 15 15:09 | 6° 00 30'28 | |
| min. Earth dist. | 4560 Mar 14 19:02 | 24° 00 39'36 | 29.05613 AU | evening set | 4566 Sep 13 23:53 | 8° 00 26'05 | |
| direct | 4560 Jun 01 19:36 | 23° 00 15'03 | | | | | |
| evening set | 4560 Aug 30 16:05 | 25° 00 10'23 | | conjunction | 4566 Sep 30 05:01 | 9° 00 01'50 | 0°42'45 |
| | | | | minimum elong | 4566 Sep 30 05:01 | 9° 00 01'50 | 0°42'45 |
| conjunction | 4560 Sep 15 22:50 | 25° 00 46'17 | 0°23'53 | max. Earth dist. | 4566 Sep 29 15:42 | 9° 00 00'36 | 31.13371 AU |
| minimum elong | 4560 Sep 15 22:50 | 25° 00 46'17 | 0°23'53 | morning rise | 4566 Oct 16 07:55 | 9° 00 37'23 | |
| max. Earth dist. | 4560 Sep 15 14:10 | 25° 00 45'29 | 31.06174 AU | retrograde | 4567 Jan 12 03:14 | 11° 00 30'39 | |
| morning rise | 4560 Oct 02 04:04 | 26° 00 22'04 | | opposition | 4567 Mar 30 12:21 | 10° 00 07'50 | 0°47'14 |
| retrograde | 4560 Dec 29 11:10 | 28° 00 15'53 | | min. Earth dist. | 4567 Mar 30 23:41 | 10° 00 07'03 | 29.13850 AU |
| opposition | 4561 Mar 16 22:38 | 26° 00 52'35 | 0°27'15 | direct | 4567 Jun 18 04:41 | 8° 00 42'54 | |
| min. Earth dist. | 4561 Mar 17 06:03 | 26° 00 52'04 | 29.06790 AU | evening set | 4567 Sep 16 12:55 | 10° 00 38'33 | |
| direct | 4561 Jun 04 05:35 | 25° 00 27'35 | | | | | |
| evening set | 4561 Sep 02 05:19 | 27° 00 22'58 | | conjunction | 4567 Oct 02 17:43 | 11° 00 14'16 | 0°45'41 |
| | | | | minimum elong | 4567 Oct 02 17:43 | 11° 00 14'16 | 0°45'42 |
| conjunction | 4561 Sep 18 12:01 | 27° 00 58'51 | 0°27'09 | max. Earth dist. | 4567 Oct 02 03:39 | 11° 00 12'58 | 31.14251 AU |
| minimum elong | 4561 Sep 18 12:01 | 27° 00 58'51 | 0°27'09 | morning rise | 4567 Oct 18 20:09 | 11° 00 49'47 | |
| max. Earth dist. | 4561 Sep 18 03:41 | 27° 00 58'05 | 31.07406 AU | retrograde | 4568 Jan 14 13:36 | 13° 00 42'57 | |
| morning rise | 4561 Oct 04 16:48 | 28° 00 34'35 | | opposition | 4568 Mar 31 22:46 | 12° 00 20'10 | 0°50'20 |
| | 4561 Nov 20 13:57 | 0° 00 00 | | min. Earth dist. | 4568 Apr 01 11:50 | 12° 00 19'16 | 29.14691 AU |
| retrograde | 4561 Dec 31 20:27 | 0° 00 28'18 | | direct | 4568 Jun 19 16:03 | 10° 00 55'13 | |
| | 4562 Feb 11 19:57 | 30° 00 00 | | evening set | 4568 Sep 18 01:58 | 12° 00 50'53 | |
| opposition | 4562 Mar 19 08:51 | 29° 00 05'06 | 0°30'43 | | | | |
| min. Earth dist. | 4562 Mar 19 16:38 | 29° 00 04'34 | 29.08054 AU | conjunction | 4568 Oct 04 06:29 | 13° 00 26'33 | 0°48'34 |
| direct | 4562 Jun 06 17:49 | 27° 00 40'08 | | minimum elong | 4568 Oct 04 06:28 | 13° 00 26'33 | 0°48'33 |
| evening set | 4562 Sep 04 18:40 | 29° 00 35'34 | | max. Earth dist. | 4568 Oct 03 15:56 | 13° 00 25'12 | 31.15051 AU |
| | 4562 Sep 15 21:46 | 0° 00 00 | | morning rise | 4568 Oct 20 08:29 | 14° 00 02'02 | |
| | | | | retrograde | 4569 Jan 16 00:48 | 15° 00 55'05 | |
| conjunction | 4562 Sep 21 00:55 | 0° 00 11'25 | 0°30'22 | opposition | 4569 Apr 03 08:54 | 14° 00 32'20 | 0°53'22 |
| minimum elong | 4562 Sep 21 00:55 | 0° 00 11'25 | 0°30'22 | min. Earth dist. | 4569 Apr 03 21:58 | 14° 00 31'25 | 29.15450 AU |
| max. Earth dist. | 4562 Sep 20 14:54 | 0° 00 10'30 | 31.08702 AU | direct | 4569 Jun 22 05:45 | 13° 00 07'21 | |
| morning rise | 4562 Oct 07 05:28 | 0° 00 47'08 | | evening set | 4569 Sep 20 15:01 | 15° 00 03'02 | |
| retrograde | 4563 Jan 03 07:17 | 2° 00 40'46 | | | | | |
| opposition | 4563 Mar 21 19:03 | 1° 00 17'40 | 0°34'08 | conjunction | 4569 Oct 06 19:04 | 15° 00 38'40 | 0°51'22 |
| min. Earth dist. | 4563 Mar 22 03:20 | 1° 00 17'05 | 29.09371 AU | minimum elong | 4569 Oct 06 19:04 | 15° 00 38'40 | 0°51'22 |
| | 4563 May 19 00:31 | 30° 00 00 | | max. Earth dist. | 4569 Oct 06 03:11 | 15° 00 37'12 | 31.15783 AU |
| direct | 4563 Jun 09 04:05 | 29° 00 52'42 | | morning rise | 4569 Oct 22 20:41 | 16° 00 14'07 | |
| | 4563 Jun 30 05:40 | 0° 00 00 | | retrograde | 4570 Jan 18 11:57 | 18° 00 07'04 | |
| evening set | 4563 Sep 07 07:54 | 1° 00 48'12 | | opposition | 4570 Apr 05 19:13 | 16° 00 44'21 | 0°56'19 |
| | | | | min. Earth dist. | 4570 Apr 06 09:17 | 16° 00 43'22 | 29.16185 AU |
| conjunction | 4563 Sep 23 14:02 | 2° 00 24'02 | 0°33'33 | direct | 4570 Jun 24 16:41 | 15° 00 19'19 | |
| minimum elong | 4563 Sep 23 14:02 | 2° 00 24'02 | 0°33'34 | evening set | 4570 Sep 23 03:41 | 17° 00 15'01 | |

| | | | | | | | |
|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| conjunction | 4570 Oct 09 07:28 | 17° <u>♏</u> 50'37 | 0°54'05 | retrograde | 4577 Feb 02 10:12 | 3° <u>♍</u> 28'34 | |
| minimum elong | 4570 Oct 09 07:28 | 17° <u>♏</u> 50'37 | 0°54'05 | opposition | 4577 Apr 20 19:34 | 2° <u>♍</u> 06'16 | 1°14'22 |
| max. Earth dist. | 4570 Oct 08 16:00 | 17° <u>♏</u> 49'11 | 31.16513 AU | min. Earth dist. | 4577 Apr 21 12:36 | 2° <u>♍</u> 05'05 | 29.22736 AU |
| morning rise | 4570 Oct 25 08:29 | 18° <u>♏</u> 26'01 | | direct | 4577 Jul 10 00:28 | 0° <u>♍</u> 41'21 | |
| retrograde | 4571 Jan 20 20:29 | 20° <u>♏</u> 18'52 | | evening set | 4577 Oct 08 19:24 | 2° <u>♍</u> 37'17 | |
| opposition | 4571 Apr 08 05:31 | 18° <u>♏</u> 56'11 | 0°59'11 | | | | |
| min. Earth dist. | 4571 Apr 08 19:52 | 18° <u>♏</u> 55'10 | 29.16926 AU | conjunction | 4577 Oct 24 20:06 | 3° <u>♍</u> 12'39 | 1°10'40 |
| direct | 4571 Jun 27 05:35 | 17° <u>♏</u> 31'08 | | minimum elong | 4577 Oct 24 20:05 | 3° <u>♍</u> 12'39 | 1°10'40 |
| evening set | 4571 Sep 25 16:27 | 19° <u>♏</u> 26'50 | | max. Earth dist. | 4577 Oct 24 01:33 | 3° <u>♍</u> 10'56 | 31.23116 AU |
| | | | | morning rise | 4577 Nov 09 17:42 | 3° <u>♍</u> 47'47 | |
| conjunction | 4571 Oct 11 19:40 | 20° <u>♏</u> 02'24 | 0°56'43 | retrograde | 4578 Feb 04 21:47 | 5° <u>♍</u> 40'15 | |
| minimum elong | 4571 Oct 11 19:40 | 20° <u>♏</u> 02'24 | 0°56'44 | opposition | 4578 Apr 23 06:07 | 4° <u>♍</u> 18'00 | 1°16'32 |
| max. Earth dist. | 4571 Oct 11 02:46 | 20° <u>♏</u> 00'50 | 31.17284 AU | min. Earth dist. | 4578 Apr 23 23:06 | 4° <u>♍</u> 16'50 | 29.23581 AU |
| morning rise | 4571 Oct 27 20:22 | 20° <u>♏</u> 37'46 | | direct | 4578 Jul 12 14:40 | 2° <u>♍</u> 53'07 | |
| retrograde | 4572 Jan 23 06:34 | 22° <u>♏</u> 30'31 | | evening set | 4578 Oct 11 07:44 | 4° <u>♍</u> 49'04 | |
| opposition | 4572 Apr 09 15:42 | 21° <u>♏</u> 07'52 | 1°01'57 | | | | |
| min. Earth dist. | 4572 Apr 10 06:06 | 21° <u>♏</u> 06'52 | 29.17751 AU | conjunction | 4578 Oct 27 07:51 | 5° <u>♍</u> 24'24 | 1°12'38 |
| direct | 4572 Jun 28 15:50 | 19° <u>♏</u> 42'49 | | minimum elong | 4578 Oct 27 07:51 | 5° <u>♍</u> 24'24 | 1°12'38 |
| evening set | 4572 Sep 27 04:58 | 21° <u>♏</u> 38'32 | | max. Earth dist. | 4578 Oct 26 12:02 | 5° <u>♍</u> 22'33 | 31.23888 AU |
| | | | | morning rise | 4578 Nov 12 04:58 | 5° <u>♍</u> 59'29 | |
| conjunction | 4572 Oct 13 07:58 | 22° <u>♏</u> 14'05 | 0°59'16 | retrograde | 4579 Feb 07 09:07 | 7° <u>♍</u> 51'54 | |
| minimum elong | 4572 Oct 13 07:58 | 22° <u>♏</u> 14'05 | 0°59'16 | opposition | 4579 Apr 25 16:46 | 6° <u>♍</u> 29'41 | 1°18'36 |
| max. Earth dist. | 4572 Oct 12 15:54 | 22° <u>♏</u> 12'36 | 31.18145 AU | min. Earth dist. | 4579 Apr 26 10:37 | 6° <u>♍</u> 28'27 | 29.24300 AU |
| morning rise | 4572 Oct 29 08:02 | 22° <u>♏</u> 49'24 | | direct | 4579 Jul 15 02:27 | 5° <u>♍</u> 04'47 | |
| retrograde | 4573 Jan 24 15:30 | 24° <u>♏</u> 42'05 | | evening set | 4579 Oct 13 19:57 | 7° <u>♍</u> 00'44 | |
| opposition | 4573 Apr 12 02:05 | 23° <u>♏</u> 19'30 | 1°04'38 | | | | |
| min. Earth dist. | 4573 Apr 12 17:19 | 23° <u>♏</u> 18'26 | 29.18659 AU | conjunction | 4579 Oct 29 19:44 | 7° <u>♍</u> 36'02 | 1°14'31 |
| direct | 4573 Jul 01 02:33 | 21° <u>♏</u> 54'27 | | minimum elong | 4579 Oct 29 19:44 | 7° <u>♍</u> 36'02 | 1°14'32 |
| evening set | 4573 Sep 29 17:38 | 23° <u>♏</u> 50'12 | | max. Earth dist. | 4579 Oct 29 00:12 | 7° <u>♍</u> 34'13 | 31.24536 AU |
| | | | | morning rise | 4579 Nov 14 16:15 | 8° <u>♍</u> 11'04 | |
| conjunction | 4573 Oct 15 20:02 | 24° <u>♏</u> 25'43 | 1°01'44 | retrograde | 4580 Feb 09 17:45 | 10° <u>♍</u> 03'25 | |
| minimum elong | 4573 Oct 15 20:02 | 24° <u>♏</u> 25'42 | 1°01'45 | opposition | 4580 Apr 27 03:16 | 8° <u>♍</u> 41'13 | 1°20'32 |
| max. Earth dist. | 4573 Oct 15 02:42 | 24° <u>♏</u> 24'06 | 31.19106 AU | min. Earth dist. | 4580 Apr 27 21:42 | 8° <u>♍</u> 39'57 | 29.24879 AU |
| morning rise | 4573 Oct 31 19:45 | 25° <u>♏</u> 01'00 | | direct | 4580 Jul 16 15:33 | 7° <u>♍</u> 16'19 | |
| retrograde | 4574 Jan 27 02:26 | 26° <u>♏</u> 53'38 | | evening set | 4580 Oct 15 08:14 | 9° <u>♍</u> 12'14 | |
| opposition | 4574 Apr 14 12:18 | 25° <u>♏</u> 31'06 | 1°07'13 | max. Earth dist. | 4580 Oct 30 10:12 | 9° <u>♍</u> 45'32 | 31.25057 AU |
| min. Earth dist. | 4574 Apr 15 02:56 | 25° <u>♏</u> 30'05 | 29.19665 AU | | | | |
| direct | 4574 Jul 03 13:18 | 24° <u>♏</u> 06'06 | | conjunction | 4580 Oct 31 07:24 | 9° <u>♍</u> 47'30 | 1°16'16 |
| evening set | 4574 Oct 02 06:05 | 26° <u>♏</u> 01'54 | | minimum elong | 4580 Oct 31 07:24 | 9° <u>♍</u> 47'30 | 1°16'17 |
| | | | | morning rise | 4580 Nov 16 03:34 | 10° <u>♍</u> 22'30 | |
| conjunction | 4574 Oct 18 08:11 | 26° <u>♏</u> 37'22 | 1°04'07 | retrograde | 4581 Feb 11 04:09 | 12° <u>♍</u> 14'46 | |
| minimum elong | 4574 Oct 18 08:11 | 26° <u>♏</u> 37'22 | 1°04'07 | opposition | 4581 Apr 29 13:50 | 10° <u>♍</u> 52'35 | 1°22'22 |
| max. Earth dist. | 4574 Oct 17 15:20 | 26° <u>♏</u> 35'48 | 31.20139 AU | min. Earth dist. | 4581 Apr 30 08:26 | 10° <u>♍</u> 51'18 | 29.25354 AU |
| morning rise | 4574 Nov 03 07:15 | 27° <u>♏</u> 12'37 | | direct | 4581 Jul 19 02:50 | 9° <u>♍</u> 27'38 | |
| retrograde | 4575 Jan 29 12:06 | 29° <u>♏</u> 05'13 | | evening set | 4581 Oct 17 20:14 | 11° <u>♍</u> 23'32 | |
| opposition | 4575 Apr 16 22:47 | 27° <u>♏</u> 42'46 | 1°09'42 | | | | |
| min. Earth dist. | 4575 Apr 17 14:43 | 27° <u>♏</u> 41'40 | 29.20723 AU | conjunction | 4581 Nov 02 19:04 | 11° <u>♍</u> 58'46 | 1°17'55 |
| direct | 4575 Jul 06 01:06 | 26° <u>♏</u> 17'48 | | minimum elong | 4581 Nov 02 19:04 | 11° <u>♍</u> 58'46 | 1°17'57 |
| evening set | 4575 Oct 04 18:26 | 28° <u>♏</u> 13'39 | | max. Earth dist. | 4581 Nov 01 22:35 | 11° <u>♍</u> 56'52 | 31.25479 AU |
| | | | | morning rise | 4581 Nov 18 14:32 | 12° <u>♍</u> 33'44 | |
| conjunction | 4575 Oct 20 20:01 | 28° <u>♏</u> 49'05 | 1°06'24 | retrograde | 4582 Feb 13 12:38 | 14° <u>♍</u> 25'56 | |
| minimum elong | 4575 Oct 20 20:00 | 28° <u>♏</u> 49'05 | 1°06'25 | opposition | 4582 May 02 00:29 | 13° <u>♍</u> 03'44 | 1°24'04 |
| max. Earth dist. | 4575 Oct 20 02:17 | 28° <u>♏</u> 47'27 | 31.21202 AU | min. Earth dist. | 4582 May 02 20:08 | 13° <u>♍</u> 02'22 | 29.25743 AU |
| morning rise | 4575 Nov 05 18:43 | 29° <u>♏</u> 24'18 | | direct | 4582 Jul 21 14:31 | 11° <u>♍</u> 38'45 | |
| | 4575 Nov 22 22:42 | 0° <u>♍</u> | | evening set | 4582 Oct 20 08:12 | 13° <u>♍</u> 34'37 | |
| retrograde | 4576 Jan 31 23:37 | 1° <u>♍</u> 16'52 | | max. Earth dist. | 4582 Nov 04 08:46 | 14° <u>♍</u> 07'47 | 31.25856 AU |
| | 4576 Apr 15 01:48 | 30° <u>♏</u> | | | | | |
| opposition | 4576 Apr 18 09:06 | 29° <u>♏</u> 54'30 | 1°12'06 | conjunction | 4582 Nov 05 06:24 | 14° <u>♍</u> 09'48 | 1°19'28 |
| min. Earth dist. | 4576 Apr 19 00:34 | 29° <u>♏</u> 53'25 | 29.21767 AU | minimum elong | 4582 Nov 05 06:24 | 14° <u>♍</u> 09'48 | 1°19'28 |
| direct | 4576 Jul 07 13:35 | 28° <u>♏</u> 29'34 | | morning rise | 4582 Nov 21 01:32 | 14° <u>♍</u> 44'44 | |
| | 4576 Sep 24 04:52 | 0° <u>♍</u> | | | 4582 Nov 28 04:49 | 15° <u>♍</u> | |
| evening set | 4576 Oct 06 06:55 | 0° <u>♍</u> 25'27 | | retrograde | 4583 Feb 15 22:37 | 16° <u>♍</u> 36'52 | |
| | | | | opposition | 4583 May 04 11:00 | 15° <u>♍</u> 14'39 | 1°25'39 |
| conjunction | 4576 Oct 22 08:04 | 1° <u>♍</u> 00'52 | 1°08'35 | min. Earth dist. | 4583 May 05 05:54 | 15° <u>♍</u> 13'20 | 29.26122 AU |
| minimum elong | 4576 Oct 22 08:04 | 1° <u>♍</u> 00'52 | 1°08'34 | | 4583 May 13 07:45 | 15° <u>♏</u> | |
| max. Earth dist. | 4576 Oct 21 13:50 | 0° <u>♍</u> 59'11 | 31.22204 AU | direct | 4583 Jul 24 01:56 | 13° <u>♍</u> 49'38 | |
| morning rise | 4576 Nov 07 06:12 | 1° <u>♍</u> 36'02 | | | 4583 Sep 30 13:21 | 15° <u>♍</u> | |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|------------------------|-------------|
| evening set | 4583 Oct 22 19:46 | 15° ℳ 45'28 | | retrograde | 4590 Mar 02 22:28 | 1° ♂ 51'27 | |
| | | | | opposition | 4590 May 19 14:04 | 0° ♂ 29'31 | 1°33'10 |
| conjunction | 4583 Nov 07 17:37 | 16° ℳ 20'37 | 1°20'53 | min. Earth dist. | 4590 May 20 09:27 | 0° ♂ 28'11 | 29.30288 AU |
| minimum elong | 4583 Nov 07 17:37 | 16° ℳ 20'37 | 1°20'54 | | 4590 Jun 06 20:57 | 30° ℳ | |
| max. Earth dist. | 4583 Nov 06 20:42 | 16° ℳ 18'41 | 31.26235 AU | direct | 4590 Aug 08 12:12 | 29° ℳ 04'45 | |
| morning rise | 4583 Nov 23 12:08 | 16° ℳ 55'30 | | | 4590 Oct 07 13:14 | 0° ♂ | |
| retrograde | 4584 Feb 18 07:07 | 18° ℳ 47'35 | | evening set | 4590 Nov 07 03:57 | 1° ♂ 00'41 | |
| opposition | 4584 May 05 21:41 | 17° ℳ 25'22 | 1°27'07 | | | | |
| min. Earth dist. | 4584 May 06 17:35 | 17° ℳ 23'59 | 29.26532 AU | conjunction | 4590 Nov 22 22:24 | 1° ♂ 35'38 | 1°27'30 |
| direct | 4584 Jul 25 13:14 | 16° ℳ 00'21 | | minimum elong | 4590 Nov 22 22:23 | 1° ♂ 35'38 | 1°27'30 |
| evening set | 4584 Oct 24 07:28 | 17° ℳ 56'09 | | max. Earth dist. | 4590 Nov 22 01:36 | 1° ♂ 33'41 | 31.30446 AU |
| max. Earth dist. | 4584 Nov 08 07:24 | 18° ℳ 29'17 | 31.26684 AU | morning rise | 4590 Dec 08 13:25 | 2° ♂ 10'18 | |
| | | | | retrograde | 4591 Mar 05 07:42 | 4° ♂ 02'23 | |
| conjunction | 4584 Nov 09 04:45 | 18° ℳ 31'16 | 1°22'12 | opposition | 4591 May 22 01:08 | 2° ♂ 40'30 | 1°33'43 |
| minimum elong | 4584 Nov 09 04:45 | 18° ℳ 31'16 | 1°22'11 | min. Earth dist. | 4591 May 22 21:30 | 2° ♂ 39'06 | 29.30762 AU |
| morning rise | 4584 Nov 24 22:50 | 19° ℳ 06'07 | | direct | 4591 Aug 10 23:43 | 1° ♂ 15'47 | |
| retrograde | 4585 Feb 19 17:36 | 20° ℳ 58'09 | | evening set | 4591 Nov 09 15:12 | 3° ♂ 11'42 | |
| opposition | 4585 May 08 08:08 | 19° ℳ 35'57 | 1°28'27 | max. Earth dist. | 4591 Nov 24 11:07 | 3° ♂ 44'34 | 31.30859 AU |
| min. Earth dist. | 4585 May 09 03:00 | 19° ℳ 34'39 | 29.27024 AU | | | | |
| direct | 4585 Jul 28 01:07 | 18° ℳ 10'55 | | conjunction | 4591 Nov 25 09:03 | 3° ♂ 46'36 | 1°27'57 |
| evening set | 4585 Oct 26 19:04 | 20° ℳ 06'45 | | minimum elong | 4591 Nov 25 09:03 | 3° ♂ 46'36 | 1°27'58 |
| | | | | morning rise | 4591 Dec 10 23:49 | 4° ♂ 21'15 | |
| conjunction | 4585 Nov 11 15:52 | 20° ℳ 41'49 | 1°23'23 | retrograde | 4592 Mar 06 17:43 | 6° ♂ 13'21 | |
| minimum elong | 4585 Nov 11 15:52 | 20° ℳ 41'49 | 1°23'24 | opposition | 4592 May 23 12:08 | 4° ♂ 51'29 | 1°34'08 |
| max. Earth dist. | 4585 Nov 10 18:41 | 20° ℳ 39'51 | 31.27223 AU | min. Earth dist. | 4592 May 24 07:46 | 4° ♂ 50'08 | 29.31106 AU |
| morning rise | 4585 Nov 27 09:23 | 21° ℳ 16'38 | | direct | 4592 Aug 12 11:11 | 3° ♂ 26'46 | |
| retrograde | 4586 Feb 22 03:50 | 23° ℳ 08'40 | | evening set | 4592 Nov 11 02:21 | 5° ♂ 22'41 | |
| opposition | 4586 May 10 18:55 | 21° ℳ 46'29 | 1°29'39 | | | | |
| min. Earth dist. | 4586 May 11 14:32 | 21° ℳ 45'08 | 29.27626 AU | conjunction | 4592 Nov 26 19:51 | 5° ♂ 57'34 | 1°28'16 |
| direct | 4586 Jul 30 11:41 | 20° ℳ 21'30 | | minimum elong | 4592 Nov 26 19:51 | 5° ♂ 57'34 | 1°28'16 |
| evening set | 4586 Oct 29 06:24 | 22° ℳ 17'20 | | max. Earth dist. | 4592 Nov 25 22:22 | 5° ♂ 55'33 | 31.31126 AU |
| max. Earth dist. | 4586 Nov 13 06:09 | 22° ℳ 50'28 | 31.27875 AU | morning rise | 4592 Dec 12 10:01 | 6° ♂ 32'11 | |
| | | | | retrograde | 4593 Mar 09 02:09 | 8° ♂ 24'16 | |
| conjunction | 4586 Nov 14 02:45 | 22° ℳ 52'23 | 1°24'27 | opposition | 4593 May 25 23:14 | 7° ♂ 02'24 | 1°34'25 |
| minimum elong | 4586 Nov 14 02:44 | 22° ℳ 52'23 | 1°24'27 | min. Earth dist. | 4593 May 26 20:03 | 7° ♂ 00'59 | 29.31312 AU |
| morning rise | 4586 Nov 29 19:46 | 23° ℳ 27'10 | | direct | 4593 Aug 14 21:59 | 5° ♂ 37'42 | |
| retrograde | 4587 Feb 24 14:53 | 25° ℳ 19'12 | | evening set | 4593 Nov 13 13:29 | 7° ♂ 33'35 | |
| opposition | 4587 May 13 05:36 | 23° ℳ 57'05 | 1°30'44 | max. Earth dist. | 4593 Nov 28 08:29 | 8° ♂ 06'23 | 31.31283 AU |
| min. Earth dist. | 4587 May 14 00:32 | 23° ℳ 55'46 | 29.28303 AU | | | | |
| direct | 4587 Aug 02 01:14 | 22° ℳ 32'09 | | conjunction | 4593 Nov 29 06:27 | 8° ♂ 08'26 | 1°28'28 |
| evening set | 4587 Oct 31 17:52 | 24° ℳ 28'01 | | minimum elong | 4593 Nov 29 06:27 | 8° ♂ 08'26 | 1°28'29 |
| | | | | morning rise | 4593 Dec 14 20:17 | 8° ♂ 43'01 | |
| conjunction | 4587 Nov 16 13:39 | 25° ℳ 03'02 | 1°25'24 | retrograde | 4594 Mar 11 12:27 | 10° ♂ 35'06 | |
| minimum elong | 4587 Nov 16 13:39 | 25° ℳ 03'02 | 1°25'25 | opposition | 4594 May 28 10:20 | 9° ♂ 13'13 | 1°34'34 |
| max. Earth dist. | 4587 Nov 15 16:25 | 25° ℳ 01'03 | 31.28575 AU | min. Earth dist. | 4594 May 29 06:14 | 9° ♂ 11'51 | 29.31411 AU |
| morning rise | 4587 Dec 02 06:16 | 25° ℳ 37'47 | | direct | 4594 Aug 17 09:13 | 7° ♂ 48'31 | |
| retrograde | 4588 Feb 27 02:25 | 27° ℳ 29'50 | | evening set | 4594 Nov 16 00:17 | 9° ♂ 44'20 | |
| opposition | 4588 May 14 16:14 | 26° ℳ 07'46 | 1°31'41 | | | | |
| min. Earth dist. | 4588 May 15 11:34 | 26° ℳ 06'27 | 29.29022 AU | conjunction | 4594 Dec 01 16:49 | 10° ♂ 19'09 | 1°28'33 |
| direct | 4588 Aug 03 12:19 | 24° ℳ 42'54 | | minimum elong | 4594 Dec 01 16:49 | 10° ♂ 19'09 | 1°28'33 |
| evening set | 4588 Nov 02 05:14 | 26° ℳ 38'48 | | max. Earth dist. | 4594 Nov 30 18:55 | 10° ♂ 17'07 | 31.31341 AU |
| max. Earth dist. | 4588 Nov 17 04:14 | 27° ℳ 11'54 | 31.29279 AU | morning rise | 4594 Dec 17 06:13 | 10° ♂ 53'43 | |
| | | | | retrograde | 4595 Mar 13 22:30 | 12° ♂ 45'48 | |
| conjunction | 4588 Nov 18 00:41 | 27° ℳ 13'48 | 1°26'14 | opposition | 4595 May 30 21:33 | 11° ♂ 23'53 | 1°34'34 |
| minimum elong | 4588 Nov 18 00:41 | 27° ℳ 13'48 | 1°26'14 | min. Earth dist. | 4595 May 31 18:15 | 11° ♂ 22'28 | 29.31452 AU |
| morning rise | 4588 Dec 03 16:42 | 27° ℳ 48'31 | | direct | 4595 Aug 19 20:12 | 9° ♂ 59'10 | |
| retrograde | 4589 Feb 28 11:32 | 29° ℳ 40'35 | | evening set | 4595 Nov 18 11:03 | 11° ♂ 54'56 | |
| opposition | 4589 May 17 03:08 | 28° ℳ 18'36 | 1°32'29 | max. Earth dist. | 4595 Dec 03 06:00 | 12° ♂ 27'44 | 31.31373 AU |
| min. Earth dist. | 4589 May 17 22:43 | 28° ℳ 17'15 | 29.29692 AU | | | | |
| direct | 4589 Aug 06 00:59 | 26° ℳ 53'47 | | conjunction | 4595 Dec 04 03:12 | 12° ♂ 29'43 | 1°28'30 |
| evening set | 4589 Nov 04 16:42 | 28° ℳ 49'43 | | minimum elong | 4595 Dec 04 03:12 | 12° ♂ 29'43 | 1°28'31 |
| | | | | morning rise | 4595 Dec 19 16:10 | 13° ♂ 04'15 | |
| conjunction | 4589 Nov 20 11:28 | 29° ℳ 24'40 | 1°26'56 | retrograde | 4596 Mar 15 09:03 | 14° ♂ 56'19 | |
| minimum elong | 4589 Nov 20 11:28 | 29° ℳ 24'40 | 1°26'57 | opposition | 4596 Jun 01 08:31 | 13° ♂ 34'22 | 1°34'27 |
| max. Earth dist. | 4589 Nov 19 13:46 | 29° ℳ 22'39 | 31.29913 AU | min. Earth dist. | 4596 Jun 02 04:29 | 13° ♂ 33'00 | 29.31479 AU |
| morning rise | 4589 Dec 06 03:08 | 29° ℳ 59'22 | | direct | 4596 Aug 21 09:51 | 12° ♂ 09'37 | |
| | 4589 Dec 06 10:08 | 0° ♂ | | evening set | 4596 Nov 19 21:51 | 14° ♂ 05'22 | |

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| conjunction | 4596 Dec 05 13:27 | 14° \nearrow 40'07 | 1°28'19 |
| minimum elong | 4596 Dec 05 13:27 | 14° \nearrow 40'07 | 1°28'19 |
| max. Earth dist. | 4596 Dec 04 15:51 | 14° \nearrow 38'06 | 31.31419 AU |
| morning rise | 4596 Dec 21 02:06 | 15° \nearrow 14'37 | |
| retrograde | 4597 Mar 17 20:17 | 17° \nearrow 06'41 | |
| opposition | 4597 Jun 03 19:46 | 15° \nearrow 44'42 | 1°34'12 |
| min. Earth dist. | 4597 Jun 04 15:32 | 15° \nearrow 43'21 | 29.31569 AU |
| direct | 4597 Aug 23 20:58 | 14° \nearrow 19'58 | |
| evening set | 4597 Nov 22 08:19 | 16° \nearrow 15'40 | |

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| conjunction | 4597 Dec 07 23:37 | 16° \nearrow 50'23 | 1°28'01 |
| minimum elong | 4597 Dec 07 23:37 | 16° \nearrow 50'23 | 1°28'03 |
| max. Earth dist. | 4597 Dec 07 03:29 | 16° \nearrow 48'30 | 31.31549 AU |
| morning rise | 4597 Dec 23 11:43 | 17° \nearrow 24'52 | |
| retrograde | 4598 Mar 20 05:18 | 19° \nearrow 16'57 | |
| opposition | 4598 Jun 06 07:05 | 17° \nearrow 54'58 | 1°33'49 |
| min. Earth dist. | 4598 Jun 07 02:26 | 17° \nearrow 53'39 | 29.31739 AU |
| direct | 4598 Aug 26 09:46 | 16° \nearrow 30'16 | |
| evening set | 4598 Nov 24 18:56 | 18° \nearrow 25'55 | |

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| conjunction | 4598 Dec 10 09:39 | 19° \nearrow 00'37 | 1°27'36 |
| minimum elong | 4598 Dec 10 09:39 | 19° \nearrow 00'37 | 1°27'36 |
| max. Earth dist. | 4598 Dec 09 12:55 | 18° \nearrow 58'41 | 31.31776 AU |
| morning rise | 4598 Dec 25 21:33 | 19° \nearrow 35'05 | |
| retrograde | 4599 Mar 22 16:48 | 21° \nearrow 27'12 | |
| opposition | 4599 Jun 08 18:16 | 20° \nearrow 05'13 | 1°33'17 |
| min. Earth dist. | 4599 Jun 09 12:43 | 20° \nearrow 03'58 | 29.32013 AU |
| direct | 4599 Aug 28 21:35 | 18° \nearrow 40'34 | |
| evening set | 4599 Nov 27 05:15 | 20° \nearrow 36'13 | |

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| conjunction | 4599 Dec 12 19:46 | 21° \nearrow 10'54 | 1°27'02 |
| minimum elong | 4599 Dec 12 19:46 | 21° \nearrow 10'54 | 1°27'04 |
| max. Earth dist. | 4599 Dec 12 00:33 | 21° \nearrow 09'06 | 31.32078 AU |
| morning rise | 4599 Dec 28 07:10 | 21° \nearrow 45'20 | |
| retrograde | 4600 Mar 25 02:13 | 23° \nearrow 37'30 | |
| opposition | 4600 Jun 11 05:40 | 22° \nearrow 15'33 | 1°32'38 |
| min. Earth dist. | 4600 Jun 12 00:37 | 22° \nearrow 14'16 | 29.32324 AU |
| direct | 4600 Aug 31 09:38 | 20° \nearrow 50'57 | |
| evening set | 4600 Nov 29 15:47 | 22° \nearrow 46'36 | |
| max. Earth dist. | 4600 Dec 14 10:02 | 23° \nearrow 19'24 | 31.32399 AU |

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| conjunction | 4600 Dec 15 05:44 | 23° \nearrow 21'15 | 1°26'22 |
| minimum elong | 4600 Dec 15 05:44 | 23° \nearrow 21'15 | 1°26'21 |
| morning rise | 4600 Dec 30 16:55 | 23° \nearrow 55'41 | |
| retrograde | 4601 Mar 27 12:25 | 25° \nearrow 47'53 | |
| opposition | 4601 Jun 13 17:00 | 24° \nearrow 25'59 | 1°31'50 |
| min. Earth dist. | 4601 Jun 14 10:44 | 24° \nearrow 24'46 | 29.32630 AU |
| direct | 4601 Sep 02 20:57 | 23° \nearrow 01'27 | |
| evening set | 4601 Dec 02 02:12 | 24° \nearrow 57'04 | |

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| conjunction | 4601 Dec 17 15:51 | 25° \nearrow 31'43 | 1°25'33 |
| minimum elong | 4601 Dec 17 15:51 | 25° \nearrow 31'43 | 1°25'34 |
| max. Earth dist. | 4601 Dec 16 20:59 | 25° \nearrow 29'57 | 31.32675 AU |
| morning rise | 4602 Jan 02 02:34 | 26° \nearrow 06'08 | |