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|------------------|-------------------|------------------------|--|------------------|-------------------|------------------------|
| direct | 4100 Feb 25 08:05 | 13°II08'27 | | retrograde | 4106 Sep 20 06:18 | 21°II39'48 |
| | | | | opposition | 4106 Dec 12 23:31 | 20°II40'31 -14°52'56 |
| conjunction | 4100 Jun 03 11:39 | 14°II33'51 -15°06'20 | | min. Earth dist. | 4106 Dec 12 10:33 | 20°II41'07 48.34575 AU |
| minimum elong | 4100 Jun 03 11:48 | 14°II33'51 15°06'21 | | direct | 4107 Mar 04 14:00 | 19°II42'10 |
| max. Earth dist. | 4100 Jun 04 07:50 | 14°II34'59 50.37503 AU | | evening set | 4107 Jun 05 21:10 | 21°II00'34 |
| retrograde | 4100 Sep 14 01:54 | 16°II02'40 | | | | |
| opposition | 4100 Dec 06 21:53 | 15°II03'19 -15°39'43 | | conjunction | 4107 Jun 10 22:15 | 21°II07'24 -14°13'45 |
| min. Earth dist. | 4100 Dec 06 03:57 | 15°II04'09 48.44555 AU | | minimum elong | 4107 Jun 10 22:27 | 21°II07'25 14°13'45 |
| direct | 4101 Feb 26 12:05 | 14°II05'00 | | max. Earth dist. | 4107 Jun 11 10:52 | 21°II08'07 50.26841 AU |
| | | | | morning rise | 4107 Jun 16 00:04 | 21°II14'16 |
| conjunction | 4101 Jun 04 16:50 | 15°II30'20 -14°59'30 | | retrograde | 4107 Sep 21 12:13 | 22°II35'54 |
| minimum elong | 4101 Jun 04 17:00 | 15°II30'21 14°59'30 | | opposition | 4107 Dec 14 03:49 | 21°II36'39 -14°44'16 |
| evening set | 4101 Jun 04 04:18 | 15°II29'38 | | min. Earth dist. | 4107 Dec 13 16:02 | 21°II37'11 48.31814 AU |
| morning rise | 4101 Jun 05 05:44 | 15°II31'04 | | direct | 4108 Mar 04 15:37 | 20°II38'18 |
| max. Earth dist. | 4101 Jun 05 12:16 | 15°II31'26 50.37164 AU | | evening set | 4108 Jun 05 15:49 | 21°II56'10 |
| retrograde | 4101 Sep 15 07:22 | 16°II59'05 | | | | |
| min. Earth dist. | 4101 Dec 07 08:41 | 16°II00'34 48.43847 AU | | conjunction | 4108 Jun 11 03:20 | 22°II03'35 -14°05'17 |
| opposition | 4101 Dec 08 02:14 | 15°II59'44 -15°32'31 | | minimum elong | 4108 Jun 11 03:30 | 22°II03'36 14°05'17 |
| direct | 4102 Feb 27 15:03 | 15°II01'25 | | max. Earth dist. | 4108 Jun 11 15:58 | 22°II04'18 50.24047 AU |
| evening set | 4102 Jun 03 20:20 | 16°II23'55 | | morning rise | 4108 Jun 16 15:31 | 22°II11'02 |
| | | | | retrograde | 4108 Sep 21 14:54 | 23°II32'05 |
| conjunction | 4102 Jun 05 21:37 | 16°II26'43 -14°52'27 | | opposition | 4108 Dec 14 07:56 | 22°II32'52 -14°35'22 |
| minimum elong | 4102 Jun 05 21:47 | 16°II26'43 14°52'28 | | min. Earth dist. | 4108 Dec 13 21:22 | 22°II33'21 48.28722 AU |
| morning rise | 4102 Jun 07 23:18 | 16°II29'31 | | direct | 4109 Mar 05 21:19 | 21°II34'32 |
| max. Earth dist. | 4102 Jun 06 14:55 | 16°II27'41 50.36337 AU | | evening set | 4109 Jun 06 11:08 | 22°II51'54 |
| retrograde | 4102 Sep 16 12:11 | 17°II55'23 | | | | |
| opposition | 4102 Dec 09 06:41 | 16°II56'02 -15°25'05 | | conjunction | 4109 Jun 12 08:17 | 22°II59'51 -13°56'35 |
| min. Earth dist. | 4102 Dec 08 14:39 | 16°II56'47 48.42694 AU | | minimum elong | 4109 Jun 12 08:28 | 22°II59'52 13°56'36 |
| direct | 4103 Feb 28 18:57 | 15°II57'42 | | max. Earth dist. | 4109 Jun 12 19:20 | 23°II00'29 50.20918 AU |
| evening set | 4103 Jun 04 05:41 | 17°II19'04 | | morning rise | 4109 Jun 18 06:13 | 23°II07'52 |
| | | | | retrograde | 4109 Sep 22 18:30 | 24°II28'23 |
| conjunction | 4103 Jun 07 02:43 | 17°II22'58 -14°45'11 | | opposition | 4109 Dec 15 12:08 | 23°II29'12 -14°26'13 |
| minimum elong | 4103 Jun 07 02:54 | 17°II22'58 14°45'12 | | min. Earth dist. | 4109 Dec 15 01:59 | 23°II29'40 48.25267 AU |
| max. Earth dist. | 4103 Jun 07 19:57 | 17°II23'56 50.35088 AU | | direct | 4110 Mar 07 03:17 | 22°II30'53 |
| morning rise | 4103 Jun 10 00:13 | 17°II26'53 | | evening set | 4110 Jun 07 06:44 | 23°II47'47 |
| retrograde | 4103 Sep 17 13:20 | 18°II51'34 | | | | |
| opposition | 4103 Dec 10 10:54 | 17°II52'14 -15°17'25 | | conjunction | 4110 Jun 13 13:12 | 23°II56'15 -13°47'40 |
| min. Earth dist. | 4103 Dec 09 20:06 | 17°II52'55 48.41139 AU | | minimum elong | 4110 Jun 13 13:23 | 23°II56'15 13°47'39 |
| direct | 4104 Mar 01 02:19 | 16°II53'53 | | max. Earth dist. | 4110 Jun 13 22:56 | 23°II56'48 50.17372 AU |
| evening set | 4104 Jun 03 19:05 | 18°II14'20 | | morning rise | 4110 Jun 19 20:32 | 24°II04'47 |
| | | | | retrograde | 4110 Sep 24 01:26 | 25°II24'49 |
| conjunction | 4104 Jun 07 07:39 | 18°II19'07 -14°37'41 | | opposition | 4110 Dec 16 16:32 | 24°II25'39 -14°16'51 |
| minimum elong | 4104 Jun 07 07:49 | 18°II19'08 14°37'42 | | min. Earth dist. | 4110 Dec 16 08:31 | 24°II26'01 48.21362 AU |
| max. Earth dist. | 4104 Jun 07 23:14 | 18°II20'00 50.33483 AU | | direct | 4111 Mar 08 07:55 | 23°II27'20 |
| morning rise | 4104 Jun 10 20:44 | 18°II23'56 | | evening set | 4111 Jun 08 03:10 | 24°II43'47 |
| retrograde | 4104 Sep 17 18:04 | 19°II47'41 | | | | |
| opposition | 4104 Dec 10 15:06 | 18°II48'21 -15°09'30 | | conjunction | 4111 Jun 14 18:27 | 24°II52'45 -13°38'31 |
| min. Earth dist. | 4104 Dec 10 00:24 | 18°II49'02 48.39251 AU | | minimum elong | 4111 Jun 14 18:38 | 24°II52'46 13°38'32 |
| direct | 4105 Mar 02 07:27 | 17°II49'59 | | max. Earth dist. | 4111 Jun 15 03:27 | 24°II53'15 50.13355 AU |
| evening set | 4105 Jun 04 10:30 | 19°II09'41 | | morning rise | 4111 Jun 21 10:33 | 25°II01'47 |
| | | | | retrograde | 4111 Sep 25 08:49 | 26°II21'20 |
| conjunction | 4105 Jun 08 12:31 | 19°II15'13 -14°29'57 | | opposition | 4111 Dec 17 20:42 | 25°II22'11 -14°07'16 |
| minimum elong | 4105 Jun 08 12:42 | 19°II15'13 14°29'58 | | min. Earth dist. | 4111 Dec 17 13:15 | 25°II22'31 48.16946 AU |
| max. Earth dist. | 4105 Jun 09 03:13 | 19°II16'03 50.31546 AU | | direct | 4112 Mar 08 09:44 | 24°II23'51 |
| morning rise | 4105 Jun 12 15:08 | 19°II20'47 | | evening set | 4112 Jun 07 23:57 | 25°II39'51 |
| retrograde | 4105 Sep 19 00:34 | 20°II43'45 | | | | |
| opposition | 4105 Dec 11 19:22 | 19°II44'26 -15°01'21 | | conjunction | 4112 Jun 14 23:38 | 25°II49'18 -13°29'11 |
| min. Earth dist. | 4105 Dec 11 06:30 | 19°II45'02 48.37053 AU | | minimum elong | 4112 Jun 14 23:50 | 25°II49'19 13°29'11 |
| direct | 4106 Mar 03 11:30 | 18°II46'05 | | max. Earth dist. | 4112 Jun 15 06:05 | 25°II49'40 50.08807 AU |
| evening set | 4106 Jun 05 03:24 | 20°II05'05 | | morning rise | 4112 Jun 22 00:19 | 25°II58'48 |
| | | | | retrograde | 4112 Sep 25 15:06 | 27°II17'54 |
| conjunction | 4106 Jun 09 17:28 | 20°II11'18 -14°21'58 | | opposition | 4112 Dec 18 01:05 | 26°II18'44 -13°57'29 |
| minimum elong | 4106 Jun 09 17:38 | 20°II11'18 14°21'58 | | min. Earth dist. | 4112 Dec 17 19:27 | 26°II18'59 48.11997 AU |
| max. Earth dist. | 4106 Jun 10 07:59 | 20°II12'07 50.29334 AU | | direct | 4113 Mar 09 12:31 | 25°II20'22 |
| morning rise | 4106 Jun 14 08:06 | 20°II17'32 | | evening set | 4113 Jun 08 20:54 | 26°II35'56 |

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|------------------|-------------------|------------------------|------------------|-------------------|----------------------|
| conjunction | 4113 Jun 16 04:50 | 26°II45'51 -13°19'39 | max. Earth dist. | 4119 Jun 22 10:47 | 2°☾24'25 49.64643 AU |
| minimum elong | 4113 Jun 16 05:01 | 26°II45'52 13°19'39 | morning rise | 4119 Jul 01 16:42 | 2°☾36'55 |
| max. Earth dist. | 4113 Jun 16 10:45 | 26°II46'11 50.03722 AU | retrograde | 4119 Oct 02 20:59 | 3°☾53'16 |
| morning rise | 4113 Jun 23 13:39 | 26°II55'49 | opposition | 4119 Dec 25 06:56 | 2°☾53'51 -12°42'38 |
| retrograde | 4113 Sep 26 16:20 | 28°II14'27 | min. Earth dist. | 4119 Dec 25 07:50 | 2°☾53'49 47.65544 AU |
| opposition | 4113 Dec 19 05:23 | 27°II15'15 -13°47'30 | direct | 4120 Mar 15 22:28 | 1°☾55'07 |
| min. Earth dist. | 4113 Dec 19 01:09 | 27°II15'26 48.06517 AU | evening set | 4120 Jun 13 06:41 | 3°☾08'20 |
| direct | 4114 Mar 10 19:21 | 26°II16'50 | | | |
| evening set | 4114 Jun 09 18:18 | 27°II32'00 | conjunction | 4120 Jun 22 17:08 | 3°☾21'06 -12°06'38 |
| | | | minimum elong | 4120 Jun 22 17:20 | 3°☾21'07 12°06'39 |
| conjunction | 4114 Jun 17 09:57 | 27°II42'21 -13°09'54 | max. Earth dist. | 4120 Jun 22 14:58 | 3°☾20'59 49.57010 AU |
| minimum elong | 4114 Jun 17 10:09 | 27°II42'22 13°09'54 | morning rise | 4120 Jul 02 04:53 | 3°☾33'57 |
| max. Earth dist. | 4114 Jun 17 14:02 | 27°II42'35 49.98153 AU | retrograde | 4120 Oct 03 02:48 | 4°☾50'01 |
| morning rise | 4114 Jun 25 02:38 | 27°II52'46 | opposition | 4120 Dec 25 11:26 | 3°☾50'35 -12°30'58 |
| retrograde | 4114 Sep 27 19:37 | 29°II10'57 | min. Earth dist. | 4120 Dec 25 14:13 | 3°☾50'28 47.57603 AU |
| opposition | 4114 Dec 20 09:35 | 28°II11'43 -13°37'17 | direct | 4121 Mar 17 03:39 | 2°☾51'49 |
| min. Earth dist. | 4114 Dec 20 05:50 | 28°II11'53 48.00582 AU | evening set | 4121 Jun 14 05:31 | 4°☾04'47 |
| direct | 4115 Mar 12 01:20 | 27°II13'14 | | | |
| evening set | 4115 Jun 10 15:43 | 28°II28'02 | conjunction | 4121 Jun 23 22:30 | 4°☾17'57 -11°55'16 |
| | | | minimum elong | 4121 Jun 23 22:41 | 4°☾17'57 11°55'16 |
| conjunction | 4115 Jun 18 15:04 | 28°II38'48 -12°59'56 | max. Earth dist. | 4121 Jun 23 20:01 | 4°☾17'48 49.49041 AU |
| minimum elong | 4115 Jun 18 15:15 | 28°II38'48 12°59'56 | morning rise | 4121 Jul 03 16:40 | 4°☾31'11 |
| max. Earth dist. | 4115 Jun 18 17:54 | 28°II38'57 49.92137 AU | retrograde | 4121 Oct 04 10:12 | 5°☾46'58 |
| morning rise | 4115 Jun 26 15:31 | 28°II49'38 | opposition | 4121 Dec 26 15:47 | 4°☾47'33 -12°19'04 |
| | 4115 Sep 02 06:16 | 0°☾ | min. Earth dist. | 4121 Dec 26 18:47 | 4°☾47'25 47.49286 AU |
| retrograde | 4115 Sep 29 01:14 | 0°☾07'25 | direct | 4122 Mar 18 06:03 | 3°☾48'45 |
| | 4115 Oct 26 01:45 | 30°☾II | evening set | 4122 Jun 15 04:41 | 5°☾01'30 |
| opposition | 4115 Dec 21 13:56 | 29°II08'07 -13°26'50 | | | |
| min. Earth dist. | 4115 Dec 21 12:17 | 29°II08'12 47.94230 AU | conjunction | 4122 Jun 25 03:57 | 5°☾15'02 -11°43'40 |
| direct | 4116 Mar 12 06:36 | 28°II09'35 | minimum elong | 4122 Jun 25 04:08 | 5°☾15'03 11°43'41 |
| evening set | 4116 Jun 10 13:36 | 29°II24'00 | max. Earth dist. | 4122 Jun 24 23:08 | 5°☾14'46 49.40662 AU |
| | | | morning rise | 4122 Jul 05 04:39 | 5°☾28'39 |
| conjunction | 4116 Jun 18 20:20 | 29°II35'11 -12°49'45 | retrograde | 4122 Oct 05 18:06 | 6°☾44'11 |
| minimum elong | 4116 Jun 18 20:32 | 29°II35'12 12°49'45 | opposition | 4122 Dec 27 20:19 | 5°☾44'46 -12°06'56 |
| max. Earth dist. | 4116 Jun 18 22:45 | 29°II35'20 49.85741 AU | min. Earth dist. | 4122 Dec 28 01:12 | 5°☾44'32 47.40538 AU |
| morning rise | 4116 Jun 27 04:04 | 29°II46'27 | direct | 4123 Mar 19 07:45 | 4°☾45'55 |
| | 4116 Jul 07 09:08 | 0°☾ | evening set | 4123 Jun 16 04:03 | 5°☾58'28 |
| retrograde | 4116 Sep 29 06:39 | 1°☾03'50 | | | |
| opposition | 4116 Dec 21 18:00 | 0°☾04'30 -13°16'09 | conjunction | 4123 Jun 26 09:41 | 6°☾12'22 -11°31'51 |
| min. Earth dist. | 4116 Dec 21 16:26 | 0°☾04'35 47.87514 AU | minimum elong | 4123 Jun 26 09:53 | 6°☾12'23 11°31'51 |
| | 4116 Dec 25 18:02 | 30°☾II | max. Earth dist. | 4123 Jun 26 04:18 | 6°☾12'04 49.31804 AU |
| direct | 4117 Mar 13 10:22 | 29°II05'53 | morning rise | 4123 Jul 06 16:34 | 6°☾26'21 |
| | 4117 May 27 05:31 | 0°☾ | retrograde | 4123 Oct 06 21:12 | 7°☾41'39 |
| evening set | 4117 Jun 11 11:35 | 0°☾19'58 | opposition | 4123 Dec 29 00:56 | 6°☾42'12 -11°54'35 |
| | | | min. Earth dist. | 4123 Dec 29 07:12 | 6°☾41'54 47.31266 AU |
| conjunction | 4117 Jun 20 01:25 | 0°☾31'34 -12°39'20 | direct | 4124 Mar 19 14:16 | 5°☾43'18 |
| minimum elong | 4117 Jun 20 01:36 | 0°☾31'35 12°39'19 | evening set | 4124 Jun 16 03:51 | 6°☾55'40 |
| max. Earth dist. | 4117 Jun 20 01:47 | 0°☾31'35 49.79004 AU | | | |
| morning rise | 4117 Jun 28 16:30 | 0°☾43'15 | conjunction | 4124 Jun 26 15:26 | 7°☾09'55 -11°19'50 |
| retrograde | 4117 Sep 30 13:43 | 2°☾00'14 | minimum elong | 4124 Jun 26 15:37 | 7°☾09'56 11°19'50 |
| opposition | 4117 Dec 22 22:22 | 1°☾00'53 -13°05'14 | max. Earth dist. | 4124 Jun 26 07:54 | 7°☾09'29 49.22417 AU |
| min. Earth dist. | 4117 Dec 22 22:04 | 1°☾00'53 47.80489 AU | morning rise | 4124 Jul 07 04:26 | 7°☾24'15 |
| direct | 4118 Mar 14 11:55 | 0°☾02'13 | retrograde | 4124 Oct 07 00:58 | 8°☾39'19 |
| evening set | 4118 Jun 12 09:33 | 1°☾15'58 | opposition | 4124 Dec 29 05:27 | 7°☾39'49 -11°42'01 |
| | | | min. Earth dist. | 4124 Dec 29 12:35 | 7°☾39'29 47.21459 AU |
| conjunction | 4118 Jun 21 06:32 | 1°☾27'59 -12°28'40 | direct | 4125 Mar 20 20:43 | 6°☾40'51 |
| minimum elong | 4118 Jun 21 06:44 | 1°☾27'59 12°28'41 | evening set | 4125 Jun 17 03:39 | 7°☾53'01 |
| max. Earth dist. | 4118 Jun 21 07:04 | 1°☾28'00 49.71965 AU | | | |
| morning rise | 4118 Jun 30 04:36 | 1°☾40'03 | conjunction | 4125 Jun 27 21:14 | 8°☾07'37 -11°07'36 |
| retrograde | 4118 Oct 01 17:07 | 2°☾56'42 | minimum elong | 4125 Jun 27 21:26 | 8°☾07'38 11°07'36 |
| opposition | 4118 Dec 24 02:44 | 1°☾57'18 -12°54'04 | max. Earth dist. | 4125 Jun 27 12:05 | 8°☾07'06 49.12482 AU |
| min. Earth dist. | 4118 Dec 24 03:23 | 1°☾57'17 47.73158 AU | morning rise | 4125 Jul 08 16:15 | 8°☾22'19 |
| direct | 4119 Mar 15 17:24 | 0°☾58'36 | retrograde | 4125 Oct 08 06:52 | 9°☾37'09 |
| evening set | 4119 Jun 13 08:04 | 2°☾12'05 | opposition | 4125 Dec 30 10:15 | 8°☾37'35 -11°29'13 |
| | | | min. Earth dist. | 4125 Dec 30 19:38 | 8°☾37'09 47.11120 AU |
| conjunction | 4119 Jun 22 11:46 | 2°☾24'28 -12°17'46 | direct | 4126 Mar 22 02:22 | 7°☾38'32 |
| minimum elong | 4119 Jun 22 11:57 | 2°☾24'28 12°17'46 | evening set | 4126 Jun 18 03:32 | 8°☾50'30 |

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| conjunction | 4126 Jun 29 02:57 | 9°05'27" -10°55'09" | direct | 4133 Mar 28 08:31 | 14°05'25" 28 |
| minimum elong | 4126 Jun 29 03:08 | 9°05'28" 10°55'10" | evening set | 4133 Jun 23 08:31 | 15°03'36" 30 |
| max. Earth dist. | 4126 Jun 28 17:07 | 9°04'53" 49.02054 AU | | | |
| morning rise | 4126 Jul 10 03:41 | 9°02'30" | conjunction | 4133 Jul 05 21:10 | 15°05'34" -9°21'28" |
| retrograde | 4126 Oct 09 13:01 | 10°03'50" | minimum elong | 4133 Jul 05 21:20 | 15°05'34" 9°21'29" |
| opposition | 4126 Dec 31 14:55 | 9°03'58" -11°16'13" | max. Earth dist. | 4133 Jul 05 03:56 | 15°05'24" 48.19008 AU |
| min. Earth dist. | 4127 Jan 01 00:34 | 9°03'50" 47.00304 AU | morning rise | 4133 Jul 18 11:11 | 16°01'10" |
| direct | 4127 Mar 23 06:40 | 8°03'18" | retrograde | 4133 Oct 16 08:25 | 17°02'43" |
| evening set | 4127 Jun 19 03:47 | 9°04'05" | opposition | 4134 Jan 07 01:18 | 16°02'42" -9°38'09" |
| | | | min. Earth dist. | 4134 Jan 07 17:59 | 16°02'32" 46.15137 AU |
| conjunction | 4127 Jun 30 08:46 | 10°03'23" -10°42'30" | direct | 4134 Mar 29 14:17 | 15°02'42" |
| minimum elong | 4127 Jun 30 08:58 | 10°03'23" 10°42'30" | evening set | 4134 Jun 24 10:06 | 16°03'25" |
| max. Earth dist. | 4127 Jun 29 20:39 | 10°02'41" 48.91169 AU | max. Earth dist. | 4134 Jul 06 08:32 | 16°05'15" 48.05912 AU |
| morning rise | 4127 Jul 11 15:22 | 10°01'46" | | | |
| retrograde | 4127 Oct 10 21:39 | 11°03'38" | conjunction | 4134 Jul 07 03:28 | 16°05'25" -9°07'07" |
| opposition | 4128 Jan 01 19:36 | 10°03'26" -11°02'58" | minimum elong | 4134 Jul 07 03:38 | 16°05'25" 9°07'06" |
| min. Earth dist. | 4128 Jan 02 06:59 | 10°03'25" 46.89075 AU | morning rise | 4134 Jul 19 22:25 | 17°01'03" |
| direct | 4128 Mar 23 08:16 | 9°03'40" | retrograde | 4134 Oct 17 13:43 | 18°02'35" |
| evening set | 4128 Jun 19 04:05 | 10°04'54" | opposition | 4135 Jan 08 06:34 | 17°02'34" -9°23'08" |
| | | | min. Earth dist. | 4135 Jan 09 00:02 | 17°02'25" 46.01690 AU |
| conjunction | 4128 Jun 30 14:47 | 11°01'24" -10°29'36" | direct | 4135 Mar 30 20:26 | 16°02'34" |
| minimum elong | 4128 Jun 30 14:57 | 11°01'25" 10°29'36" | evening set | 4135 Jun 25 12:04 | 17°03'43" |
| max. Earth dist. | 4128 Jun 30 02:29 | 11°00'42" 48.79889 AU | | | |
| morning rise | 4128 Jul 12 02:48 | 11°01'07" | conjunction | 4135 Jul 08 10:13 | 17°05'23" -8°52'31" |
| retrograde | 4128 Oct 11 02:16 | 12°03'11" | minimum elong | 4135 Jul 08 10:23 | 17°05'23" 8°52'32" |
| opposition | 4129 Jan 02 00:23 | 11°03'12" -10°49'28" | max. Earth dist. | 4135 Jul 07 13:44 | 17°05'19" 47.92369 AU |
| min. Earth dist. | 4129 Jan 02 12:46 | 11°03'05" 46.77472 AU | morning rise | 4135 Jul 21 09:55 | 18°01'02" |
| direct | 4129 Mar 24 13:48 | 10°03'20" | retrograde | 4135 Oct 18 19:07 | 19°02'34" |
| evening set | 4129 Jun 20 04:34 | 11°04'33" | opposition | 4136 Jan 09 11:58 | 18°02'32" -9°07'51" |
| | | | min. Earth dist. | 4136 Jan 10 07:43 | 18°02'22" 45.87771 AU |
| conjunction | 4129 Jul 01 20:32 | 11°05'31" -10°16'28" | direct | 4136 Mar 31 03:11 | 17°02'31" |
| minimum elong | 4129 Jul 01 20:44 | 11°05'32" 10°16'28" | evening set | 4136 Jun 25 14:21 | 18°03'41" |
| max. Earth dist. | 4129 Jul 01 06:43 | 11°05'44" 48.68278 AU | | | |
| morning rise | 4129 Jul 13 14:02 | 12°01'54" | conjunction | 4136 Jul 08 17:08 | 18°05'21" -8°37'42" |
| retrograde | 4129 Oct 12 06:31 | 13°02'33" | minimum elong | 4136 Jul 08 17:19 | 18°05'21" 8°37'42" |
| opposition | 4130 Jan 03 05:11 | 12°02'39" -10°35'43" | max. Earth dist. | 4136 Jul 07 19:44 | 18°05'10" 47.78347 AU |
| min. Earth dist. | 4130 Jan 03 17:50 | 12°02'03" 46.65567 AU | morning rise | 4136 Jul 21 21:19 | 19°01'03" |
| direct | 4130 Mar 25 19:11 | 11°03'09" | retrograde | 4136 Oct 19 01:39 | 20°02'34" |
| evening set | 4130 Jun 21 05:12 | 12°04'12" | opposition | 4137 Jan 09 17:28 | 19°02'32" -8°52'21" |
| max. Earth dist. | 4130 Jul 02 11:36 | 12°05'55" 48.56367 AU | min. Earth dist. | 4137 Jan 10 13:32 | 19°02'22" 45.73351 AU |
| | | | direct | 4137 Apr 01 09:00 | 18°02'30" |
| conjunction | 4130 Jul 03 02:31 | 12°05'46" -10°03'05" | evening set | 4137 Jun 26 16:45 | 19°03'35" |
| minimum elong | 4130 Jul 03 02:42 | 12°05'47" 10°03'05" | | | |
| morning rise | 4130 Jul 15 01:22 | 13°01'40" | conjunction | 4137 Jul 09 23:53 | 19°05'22" -8°22'39" |
| retrograde | 4130 Oct 13 10:26 | 14°02'58" | minimum elong | 4137 Jul 10 00:02 | 19°05'22" 8°22'40" |
| opposition | 4131 Jan 04 10:08 | 13°02'59" -10°21'43" | max. Earth dist. | 4137 Jul 08 23:59 | 19°05'10" 47.63815 AU |
| min. Earth dist. | 4131 Jan 05 00:28 | 13°02'18" 46.53381 AU | morning rise | 4137 Jul 23 08:41 | 20°01'10" |
| direct | 4131 Mar 27 02:42 | 12°02'23" | retrograde | 4137 Oct 20 11:02 | 21°02'40" |
| evening set | 4131 Jun 22 06:03 | 13°03'35" | opposition | 4138 Jan 10 23:11 | 20°02'34" -8°36'36" |
| | | | min. Earth dist. | 4138 Jan 11 21:14 | 20°02'23" 45.58442 AU |
| conjunction | 4131 Jul 04 08:39 | 13°05'11" -9°49'28" | direct | 4138 Apr 02 12:15 | 19°02'31" |
| minimum elong | 4131 Jul 04 08:50 | 13°05'12" 9°49'29" | evening set | 4138 Jun 27 19:19 | 20°03'40" |
| max. Earth dist. | 4131 Jul 03 17:34 | 13°05'19" 48.44199 AU | max. Earth dist. | 4138 Jul 10 06:44 | 20°05'12" 47.48808 AU |
| morning rise | 4131 Jul 16 12:37 | 14°01'25" | | | |
| retrograde | 4131 Oct 14 17:38 | 15°02'34" | conjunction | 4138 Jul 11 06:59 | 20°05'24" -8°07'22" |
| opposition | 4132 Jan 05 15:04 | 14°02'30" -10°07'27" | minimum elong | 4138 Jul 11 07:09 | 20°05'24" 8°07'23" |
| min. Earth dist. | 4132 Jan 06 05:19 | 14°02'54" 46.40928 AU | morning rise | 4138 Jul 24 19:59 | 21°01'14" |
| direct | 4132 Mar 27 07:10 | 13°02'48" | retrograde | 4138 Oct 21 17:52 | 22°02'44" |
| evening set | 4132 Jun 22 07:15 | 14°03'54" | opposition | 4139 Jan 12 04:50 | 21°02'40" -8°20'36" |
| | | | min. Earth dist. | 4139 Jan 13 03:56 | 21°02'25" 45.43077 AU |
| conjunction | 4132 Jul 04 14:47 | 14°05'45" -9°35'36" | direct | 4139 Apr 03 18:00 | 20°02'32" |
| minimum elong | 4132 Jul 04 14:58 | 14°05'45" 9°35'35" | evening set | 4139 Jun 28 22:16 | 21°03'42" |
| max. Earth dist. | 4132 Jul 03 21:38 | 14°05'51" 48.31753 AU | max. Earth dist. | 4139 Jul 11 11:51 | 21°05'15" 47.33384 AU |
| morning rise | 4132 Jul 16 23:59 | 15°01'15" | | | |
| retrograde | 4132 Oct 15 02:53 | 16°02'24" | conjunction | 4139 Jul 12 14:04 | 21°05'32" -7°51'51" |
| opposition | 4133 Jan 05 20:07 | 15°02'51" -9°52'56" | minimum elong | 4139 Jul 12 14:13 | 21°05'32" 7°51'51" |
| min. Earth dist. | 4133 Jan 06 11:56 | 15°02'43" 46.28199 AU | morning rise | 4139 Jul 26 07:26 | 22°01'23" |

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|------------------|-------------------|------------------------------------|------------------|-------------------|------------------------------------|
| retrograde | 4139 Oct 23 01:09 | 23° 0 25'34 | conjunction | 4146 Jul 19 19:34 | 29° 0 07'06 -5°56'08 |
| opposition | 4140 Jan 13 10:35 | 22° 0 24'44 -8°04'21 | minimum elong | 4146 Jul 19 19:42 | 29° 0 07'07 5°56'09 |
| min. Earth dist. | 4140 Jan 14 10:25 | 22° 0 23'35 45.27325 AU | morning rise | 4146 Aug 03 14:51 | 29° 0 28'14 |
| direct | 4140 Apr 03 23:32 | 21° 0 24'01 | | 4146 Aug 27 18:24 | 0° 0 |
| evening set | 4140 Jun 29 01:21 | 22° 0 34'53 | retrograde | 4146 Oct 30 04:11 | 0° 0 41'33 |
| | | | | 4147 Jan 03 00:57 | 30° 0 |
| conjunction | 4140 Jul 12 21:19 | 22° 0 54'14 -7°36'05 | opposition | 4147 Jan 20 06:49 | 29° 0 39'52 -6°03'03 |
| minimum elong | 4140 Jul 12 21:28 | 22° 0 54'15 7°36'05 | min. Earth dist. | 4147 Jan 21 12:55 | 29° 0 38'23 44.09088 AU |
| max. Earth dist. | 4140 Jul 11 17:56 | 22° 0 52'38 47.17572 AU | direct | 4147 Apr 11 21:01 | 28° 0 38'05 |
| morning rise | 4140 Jul 26 18:44 | 23° 0 13'42 | evening set | 4147 Jul 06 06:52 | 29° 0 49'40 |
| retrograde | 4140 Oct 23 05:27 | 24° 0 26'41 | | 4147 Jul 13 13:07 | 0° 0 |
| opposition | 4141 Jan 13 16:29 | 23° 0 25'43 -7°47'51 | max. Earth dist. | 4147 Jul 19 16:51 | 0° 0 08'51 45.99156 AU |
| min. Earth dist. | 4141 Jan 14 18:05 | 23° 0 24'28 45.11223 AU | | | |
| direct | 4141 Apr 05 07:51 | 22° 0 24'50 | conjunction | 4147 Jul 21 04:02 | 0° 0 10'58 -5°38'35 |
| evening set | 4141 Jun 30 04:40 | 23° 0 35'44 | minimum elong | 4147 Jul 21 04:10 | 0° 0 10'59 5°38'35 |
| max. Earth dist. | 4141 Jul 13 00:56 | 23° 0 53'44 47.01458 AU | morning rise | 4147 Aug 05 02:37 | 0° 0 32'23 |
| | | | retrograde | 4147 Oct 31 14:44 | 1° 0 45'50 |
| conjunction | 4141 Jul 14 04:39 | 23° 0 55'22 -7°20'05 | opposition | 4148 Jan 21 13:57 | 0° 0 44'01 -5°44'39 |
| minimum elong | 4141 Jul 14 04:48 | 23° 0 55'23 7°20'04 | min. Earth dist. | 4148 Jan 22 22:13 | 0° 0 42'24 43.90913 AU |
| morning rise | 4141 Jul 28 05:58 | 24° 0 15'07 | | 4148 Mar 02 12:49 | 30° 0 |
| retrograde | 4141 Oct 24 12:26 | 25° 0 28'06 | direct | 4148 Apr 12 01:47 | 29° 0 42'03 |
| opposition | 4142 Jan 14 22:27 | 24° 0 27'00 -7°31'04 | | 4148 May 22 04:33 | 0° 0 |
| min. Earth dist. | 4142 Jan 15 23:57 | 24° 0 25'45 44.94841 AU | evening set | 4148 Jul 06 12:27 | 0° 0 53'48 |
| direct | 4142 Apr 06 14:08 | 23° 0 25'57 | max. Earth dist. | 4148 Jul 20 01:10 | 1° 0 13'13 45.80847 AU |
| evening set | 4142 Jul 01 08:11 | 24° 0 36'54 | | | |
| max. Earth dist. | 4142 Jul 14 06:14 | 24° 0 55'05 46.85069 AU | conjunction | 4148 Jul 21 12:50 | 1° 0 15'23 -5°20'47 |
| | | | minimum elong | 4148 Jul 21 12:58 | 1° 0 15'23 5°20'47 |
| conjunction | 4142 Jul 15 11:56 | 24° 0 56'50 -7°03'49 | morning rise | 4148 Aug 05 14:16 | 1° 0 37'02 |
| minimum elong | 4142 Jul 15 12:05 | 24° 0 56'50 7°03'49 | retrograde | 4148 Nov 01 01:08 | 2° 0 50'37 |
| morning rise | 4142 Jul 29 17:16 | 25° 0 16'51 | opposition | 4149 Jan 21 21:08 | 1° 0 48'38 -5°25'58 |
| retrograde | 4142 Oct 25 23:08 | 26° 0 29'52 | min. Earth dist. | 4149 Jan 23 06:18 | 1° 0 46'59 43.72256 AU |
| opposition | 4143 Jan 16 04:42 | 25° 0 28'39 -7°14'01 | direct | 4149 Apr 13 07:20 | 0° 0 46'29 |
| min. Earth dist. | 4143 Jan 17 07:47 | 25° 0 27'19 44.78210 AU | evening set | 4149 Jul 07 18:30 | 1° 0 58'25 |
| direct | 4143 Apr 07 16:22 | 24° 0 27'27 | max. Earth dist. | 4149 Jul 21 07:38 | 2° 0 17'57 45.62066 AU |
| evening set | 4143 Jul 02 12:02 | 25° 0 38'29 | | | |
| | | | conjunction | 4149 Jul 22 21:40 | 2° 0 20'15 -5°02'44 |
| conjunction | 4143 Jul 16 19:41 | 25° 0 58'41 -6°47'17 | minimum elong | 4149 Jul 22 21:47 | 2° 0 20'16 5°02'44 |
| minimum elong | 4143 Jul 16 19:50 | 25° 0 58'42 6°47'17 | morning rise | 4149 Aug 07 02:07 | 2° 0 42'10 |
| max. Earth dist. | 4143 Jul 15 14:03 | 25° 0 56'56 46.68439 AU | retrograde | 4149 Nov 02 12:33 | 3° 0 55'52 |
| morning rise | 4143 Jul 31 04:34 | 26° 0 18'59 | opposition | 4150 Jan 23 04:33 | 2° 0 53'43 -5°07'02 |
| retrograde | 4143 Oct 27 06:44 | 27° 0 32'02 | min. Earth dist. | 4150 Jan 24 14:51 | 2° 0 52'00 43.53143 AU |
| opposition | 4144 Jan 17 10:55 | 26° 0 30'42 -6°56'41 | direct | 4150 Apr 14 12:51 | 1° 0 51'21 |
| min. Earth dist. | 4144 Jan 18 14:27 | 26° 0 29'21 44.61338 AU | evening set | 4150 Jul 09 00:39 | 3° 0 03'28 |
| direct | 4144 Apr 07 22:38 | 25° 0 29'21 | max. Earth dist. | 4150 Jul 22 15:29 | 3° 0 23'10 45.42818 AU |
| evening set | 4144 Jul 02 16:19 | 26° 0 40'30 | | | |
| max. Earth dist. | 4144 Jul 15 20:14 | 26° 0 59'07 46.51579 AU | conjunction | 4150 Jul 24 06:43 | 3° 0 25'33 -4°44'26 |
| | | | minimum elong | 4150 Jul 24 06:49 | 3° 0 25'34 4°44'27 |
| conjunction | 4144 Jul 17 03:27 | 27° 0 00'59 -6°30'29 | morning rise | 4150 Aug 08 13:50 | 3° 0 47'44 |
| minimum elong | 4144 Jul 17 03:36 | 27° 0 00'59 6°30'31 | retrograde | 4150 Nov 03 18:53 | 5° 0 01'33 |
| morning rise | 4144 Jul 31 16:04 | 27° 0 21'34 | opposition | 4151 Jan 24 12:12 | 3° 0 59'13 -4°47'50 |
| retrograde | 4144 Oct 27 14:44 | 28° 0 34'40 | min. Earth dist. | 4151 Jan 26 00:21 | 3° 0 57'24 43.33581 AU |
| opposition | 4145 Jan 17 17:24 | 27° 0 33'13 -6°39'05 | direct | 4151 Apr 15 22:45 | 2° 0 56'37 |
| min. Earth dist. | 4145 Jan 18 21:33 | 27° 0 31'50 44.44233 AU | evening set | 4151 Jul 10 07:19 | 4° 0 08'56 |
| direct | 4145 Apr 09 05:07 | 26° 0 31'44 | max. Earth dist. | 4151 Jul 23 23:55 | 4° 0 28'49 45.23159 AU |
| evening set | 4145 Jul 03 20:39 | 27° 0 43'00 | | | |
| max. Earth dist. | 4145 Jul 17 03:12 | 28° 0 01'51 46.34445 AU | conjunction | 4151 Jul 25 16:03 | 4° 0 31'16 -4°25'54 |
| | | | minimum elong | 4151 Jul 25 16:09 | 4° 0 31'16 4°25'54 |
| conjunction | 4145 Jul 18 11:20 | 28° 0 03'46 -6°13'27 | morning rise | 4151 Aug 10 01:46 | 4° 0 53'41 |
| minimum elong | 4145 Jul 18 11:28 | 28° 0 03'47 6°13'27 | retrograde | 4151 Nov 05 01:29 | 6° 0 07'40 |
| morning rise | 4145 Aug 02 03:20 | 28° 0 24'38 | opposition | 4152 Jan 25 19:45 | 5° 0 05'07 -4°28'21 |
| retrograde | 4145 Oct 28 20:54 | 29° 0 37'50 | min. Earth dist. | 4152 Jan 27 08:13 | 5° 0 03'16 43.13637 AU |
| opposition | 4146 Jan 19 00:09 | 28° 0 36'16 -6°21'12 | direct | 4152 Apr 16 08:51 | 4° 0 02'16 |
| min. Earth dist. | 4146 Jan 20 06:01 | 28° 0 34'47 44.26834 AU | evening set | 4152 Jul 10 14:25 | 5° 0 14'48 |
| direct | 4146 Apr 10 13:32 | 27° 0 34'38 | max. Earth dist. | 4152 Jul 24 07:12 | 5° 0 34'47 45.03127 AU |
| evening set | 4146 Jul 05 01:30 | 28° 0 46'03 | | | |
| max. Earth dist. | 4146 Jul 18 10:46 | 29° 0 05'08 46.17003 AU | conjunction | 4152 Jul 26 01:30 | 5° 0 37'23 -4°07'05 |
| | | | minimum elong | 4152 Jul 26 01:36 | 5° 0 37'23 4°07'06 |

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|------------------|-------------------|-----------------------|------------------|-------------------|-----------------------|
| morning rise | 4152 Aug 10 13:43 | 6°Ω00'02 | conjunction | 4159 Aug 04 02:17 | 13°Ω35'29 -1°48'09 |
| retrograde | 4152 Nov 05 11:26 | 7°Ω14'12 | minimum elong | 4159 Aug 04 02:20 | 13°Ω35'30 1°48'09 |
| opposition | 4153 Jan 26 03:47 | 6°Ω11'26 -4°08'36 | morning rise | 4159 Aug 20 02:44 | 13°Ω59'42 |
| min. Earth dist. | 4153 Jan 27 18:10 | 6°Ω09'29 42.93366 AU | | 4159 Oct 08 14:38 | 15°Ω |
| direct | 4153 Apr 17 15:18 | 5°Ω08'20 | retrograde | 4159 Nov 14 16:54 | 15°Ω15'54 |
| evening set | 4153 Jul 11 21:31 | 6°Ω21'07 | | 4159 Dec 21 22:11 | 15°RΩ |
| max. Earth dist. | 4153 Jul 25 16:51 | 6°Ω41'19 44.82790 AU | opposition | 4160 Feb 03 17:40 | 14°Ω11'45 -1°42'25 |
| | | | min. Earth dist. | 4160 Feb 05 14:10 | 14°Ω09'26 41.44798 AU |
| conjunction | 4153 Jul 27 11:04 | 6°Ω43'55 -3°48'02 | direct | 4160 Apr 24 23:11 | 13°Ω07'00 |
| minimum elong | 4153 Jul 27 11:10 | 6°Ω43'56 3°48'02 | evening set | 4160 Jul 19 13:06 | 14°Ω22'21 |
| morning rise | 4153 Aug 12 01:24 | 7°Ω06'49 | max. Earth dist. | 4160 Aug 02 11:44 | 14°Ω43'30 43.33696 AU |
| retrograde | 4153 Nov 06 20:43 | 8°Ω21'10 | | | |
| opposition | 4154 Jan 27 11:54 | 7°Ω18'12 -3°48'34 | conjunction | 4160 Aug 04 14:05 | 14°Ω46'43 -1°27'15 |
| min. Earth dist. | 4154 Jan 29 02:27 | 7°Ω16'14 42.72814 AU | minimum elong | 4160 Aug 04 14:07 | 14°Ω46'43 1°27'15 |
| direct | 4154 Apr 18 23:19 | 6°Ω14'51 | | 4160 Aug 13 06:21 | 15°Ω |
| evening set | 4154 Jul 13 05:18 | 7°Ω27'54 | morning rise | 4160 Aug 20 15:21 | 15°Ω11'08 |
| max. Earth dist. | 4154 Jul 27 00:49 | 7°Ω48'13 44.62203 AU | retrograde | 4160 Nov 15 04:36 | 16°Ω27'44 |
| | | | opposition | 4161 Feb 04 03:45 | 15°Ω23'21 -1°20'25 |
| conjunction | 4154 Jul 28 20:52 | 7°Ω50'56 -3°28'42 | min. Earth dist. | 4161 Feb 06 01:37 | 15°Ω20'57 41.22360 AU |
| minimum elong | 4154 Jul 28 20:57 | 7°Ω50'56 3°28'42 | | 4161 Feb 23 03:44 | 15°RΩ |
| morning rise | 4154 Aug 13 13:27 | 8°Ω14'03 | direct | 4161 Apr 26 09:33 | 14°Ω18'20 |
| retrograde | 4154 Nov 08 09:09 | 9°Ω28'38 | | 4161 Jun 26 11:15 | 15°Ω |
| opposition | 4155 Jan 28 20:10 | 8°Ω25'27 -3°28'15 | evening set | 4161 Jul 21 00:04 | 15°Ω34'10 |
| min. Earth dist. | 4155 Jan 30 11:41 | 8°Ω23'26 42.52048 AU | max. Earth dist. | 4161 Aug 03 22:08 | 15°Ω55'24 43.11100 AU |
| direct | 4155 Apr 20 05:32 | 7°Ω21'51 | | | |
| evening set | 4155 Jul 14 13:23 | 8°Ω35'12 | conjunction | 4161 Aug 06 01:52 | 15°Ω58'43 -1°06'07 |
| max. Earth dist. | 4155 Jul 28 10:26 | 8°Ω55'42 44.41392 AU | minimum elong | 4161 Aug 06 01:53 | 15°Ω58'43 1°06'08 |
| | | | morning rise | 4161 Aug 22 04:02 | 16°Ω23'19 |
| conjunction | 4155 Jul 30 07:04 | 8°Ω58'29 -3°09'07 | retrograde | 4161 Nov 16 16:07 | 17°Ω40'20 |
| minimum elong | 4155 Jul 30 07:09 | 8°Ω58'29 3°09'08 | opposition | 4162 Feb 05 13:59 | 16°Ω35'43 -0°58'09 |
| morning rise | 4155 Aug 15 01:28 | 9°Ω21'50 | min. Earth dist. | 4162 Feb 07 12:25 | 16°Ω33'17 40.99534 AU |
| retrograde | 4155 Nov 09 19:02 | 10°Ω36'40 | direct | 4162 Apr 27 21:48 | 15°Ω30'25 |
| opposition | 4156 Jan 30 04:51 | 9°Ω33'16 -3°07'39 | evening set | 4162 Jul 22 11:41 | 16°Ω46'44 |
| min. Earth dist. | 4156 Jan 31 21:35 | 9°Ω31'11 42.31069 AU | max. Earth dist. | 4162 Aug 05 08:25 | 17°Ω08'00 42.88101 AU |
| direct | 4156 Apr 20 15:10 | 8°Ω29'26 | | | |
| evening set | 4156 Jul 14 21:55 | 9°Ω43'07 | conjunction | 4162 Aug 07 14:09 | 17°Ω11'29 -0°44'44 |
| max. Earth dist. | 4156 Jul 28 20:01 | 10°Ω03'47 44.20390 AU | minimum elong | 4162 Aug 07 14:10 | 17°Ω11'29 0°44'44 |
| | | | morning rise | 4162 Aug 23 16:54 | 17°Ω36'16 |
| conjunction | 4156 Jul 30 17:23 | 10°Ω06'38 -2°49'16 | retrograde | 4162 Nov 18 03:02 | 18°Ω53'42 |
| minimum elong | 4156 Jul 30 17:27 | 10°Ω06'38 2°49'16 | opposition | 4163 Feb 07 00:31 | 17°Ω48'50 -0°35'36 |
| morning rise | 4156 Aug 15 13:34 | 10°Ω30'12 | min. Earth dist. | 4163 Feb 09 01:06 | 17°Ω46'16 40.76339 AU |
| retrograde | 4156 Nov 10 04:36 | 11°Ω45'19 | direct | 4163 Apr 29 08:49 | 16°Ω43'13 |
| opposition | 4157 Jan 30 13:35 | 10°Ω41'44 -2°46'46 | evening set | 4163 Jul 23 23:44 | 18°Ω00'03 |
| min. Earth dist. | 4157 Feb 01 06:13 | 10°Ω39'39 42.09901 AU | max. Earth dist. | 4163 Aug 06 20:44 | 18°Ω21'27 42.64761 AU |
| direct | 4157 Apr 22 00:46 | 9°Ω37'41 | | | |
| evening set | 4157 Jul 16 06:57 | 10°Ω51'44 | conjunction | 4163 Aug 09 02:48 | 18°Ω24'58 -0°23'07 |
| max. Earth dist. | 4157 Jul 30 04:55 | 11°Ω12'30 43.99171 AU | minimum elong | 4163 Aug 09 02:48 | 18°Ω24'58 0°23'07 |
| | | | morning rise | 4163 Aug 25 05:52 | 18°Ω49'56 |
| conjunction | 4157 Aug 01 04:00 | 11°Ω15'28 -2°29'09 | retrograde | 4163 Nov 19 14:15 | 20°Ω07'49 |
| minimum elong | 4157 Aug 01 04:03 | 11°Ω15'28 2°29'10 | opposition | 4164 Feb 08 11:17 | 19°Ω02'41 -0°12'46 |
| morning rise | 4157 Aug 17 01:48 | 11°Ω39'16 | min. Earth dist. | 4164 Feb 10 11:56 | 19°Ω00'05 40.52827 AU |
| retrograde | 4157 Nov 11 14:45 | 12°Ω54'43 | direct | 4164 Apr 29 19:52 | 17°Ω56'45 |
| opposition | 4158 Jan 31 22:44 | 11°Ω50'57 -2°25'35 | evening set | 4164 Jul 24 12:23 | 19°Ω14'06 |
| min. Earth dist. | 4158 Feb 02 17:15 | 11°Ω48'45 41.88511 AU | max. Earth dist. | 4164 Aug 07 07:18 | 19°Ω35'31 42.41121 AU |
| direct | 4158 Apr 23 08:57 | 10°Ω46'40 | | | |
| evening set | 4158 Jul 17 16:18 | 12°Ω01'08 | conjunction | 4164 Aug 09 15:30 | 19°Ω39'11 -0°01'15 |
| max. Earth dist. | 4158 Jul 31 15:53 | 12°Ω22'06 43.77700 AU | minimum elong | 4164 Aug 09 15:30 | 19°Ω39'11 0°01'15 |
| | | | behind sun begin | 4164 Aug 09 08:59 | 19°Ω38'47 |
| conjunction | 4158 Aug 02 14:58 | 12°Ω25'04 -2°08'46 | behind sun end | 4164 Aug 09 22:01 | 19°Ω39'35 |
| minimum elong | 4158 Aug 02 15:01 | 12°Ω25'05 2°08'46 | morning rise | 4164 Aug 25 18:51 | 20°Ω04'19 |
| morning rise | 4158 Aug 18 14:04 | 12°Ω49'05 | asc. node | 4164 Aug 29 16:58 | 20°Ω10'15 |
| retrograde | 4158 Nov 13 02:22 | 14°Ω04'54 | retrograde | 4164 Nov 20 04:55 | 21°Ω22'41 |
| opposition | 4159 Feb 02 08:05 | 13°Ω00'57 -2°04'09 | opposition | 4165 Feb 08 22:23 | 20°Ω17'16 0°10'19 |
| min. Earth dist. | 4159 Feb 04 02:58 | 12°Ω58'43 41.66828 AU | min. Earth dist. | 4165 Feb 11 00:36 | 20°Ω14'35 40.29068 AU |
| direct | 4159 Apr 24 17:02 | 11°Ω56'26 | direct | 4165 May 01 04:01 | 19°Ω11'00 |
| evening set | 4159 Jul 19 02:31 | 13°Ω11'20 | evening set | 4165 Jul 26 01:24 | 20°Ω28'55 |
| max. Earth dist. | 4159 Aug 02 00:46 | 13°Ω32'21 43.55895 AU | max. Earth dist. | 4165 Aug 08 20:25 | 20°Ω50'28 42.17249 AU |

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| conjunction | 4165 Aug 11 04:42 | 20° Ω 54'10 | 0°20'57 | min. Earth dist. | 4172 Feb 20 21:11 | 29° Ω 20'55 | 38.59134 AU |
| minimum elong | 4165 Aug 11 04:41 | 20° Ω 54'10 | 0°20'57 | direct | 4172 May 09 14:53 | 28° Ω 15'23 | |
| morning rise | 4165 Aug 27 07:47 | 21° Ω 19'26 | | evening set | 4172 Aug 04 15:20 | 29° Ω 38'26 | |
| retrograde | 4165 Nov 21 19:24 | 22° Ω 38'20 | | | 4172 Aug 17 18:59 | 0° Υ | |
| opposition | 4166 Feb 10 09:48 | 21° Ω 32'36 | 0°33'41 | max. Earth dist. | 4172 Aug 17 20:35 | 0° Υ 00'07 | 40.46533 AU |
| min. Earth dist. | 4166 Feb 12 12:39 | 21° Ω 29'52 | 40.05115 AU | | | | |
| direct | 4166 May 02 14:27 | 20° Ω 26'00 | | conjunction | 4172 Aug 20 11:30 | 0° Υ 04'27 | 3°02'17 |
| evening set | 4166 Jul 27 15:03 | 21° Ω 44'32 | | minimum elong | 4172 Aug 20 11:24 | 0° Υ 04'27 | 3°02'17 |
| max. Earth dist. | 4166 Aug 10 08:29 | 22° Ω 06'06 | 41.93220 AU | morning rise | 4172 Sep 05 06:52 | 0° Υ 30'28 | |
| | | | | retrograde | 4172 Dec 01 06:15 | 1° Υ 54'03 | |
| conjunction | 4166 Aug 12 18:01 | 22° Ω 09'55 | 0°43'18 | opposition | 4173 Feb 19 04:21 | 0° Υ 46'18 | 3°24'17 |
| minimum elong | 4166 Aug 12 18:00 | 22° Ω 09'55 | 0°43'19 | min. Earth dist. | 4173 Feb 21 13:05 | 0° Υ 43'08 | 38.34196 AU |
| morning rise | 4166 Aug 28 20:58 | 22° Ω 35'19 | | | 4173 Mar 29 02:42 | 30° \mathcal{R} Ω | |
| retrograde | 4166 Nov 23 11:08 | 23° Ω 54'46 | | direct | 4173 May 11 05:00 | 29° Ω 37'21 | |
| opposition | 4167 Feb 11 21:31 | 22° Ω 48'44 | 0°57'18 | | 4173 Jun 22 20:56 | 0° Υ | |
| min. Earth dist. | 4167 Feb 14 00:37 | 22° Ω 45'59 | 39.81038 AU | evening set | 4173 Aug 06 10:02 | 1° Υ 01'18 | |
| direct | 4167 May 04 01:07 | 21° Ω 41'48 | | max. Earth dist. | 4173 Aug 19 12:11 | 1° Υ 22'56 | 40.21394 AU |
| evening set | 4167 Jul 29 05:24 | 23° Ω 00'59 | | | | | |
| max. Earth dist. | 4167 Aug 11 21:23 | 23° Ω 22'36 | 41.69057 AU | conjunction | 4173 Aug 22 04:02 | 1° Υ 27'23 | 3°26'11 |
| | | | | minimum elong | 4173 Aug 22 03:56 | 1° Υ 27'22 | 3°26'11 |
| conjunction | 4167 Aug 14 07:56 | 23° Ω 26'30 | 1°05'55 | morning rise | 4173 Sep 06 21:14 | 1° Υ 53'26 | |
| minimum elong | 4167 Aug 14 07:54 | 23° Ω 26'30 | 1°05'55 | retrograde | 4173 Dec 02 23:00 | 3° Υ 17'50 | |
| morning rise | 4167 Aug 30 10:13 | 23° Ω 52'02 | | opposition | 4174 Feb 20 18:56 | 2° Υ 09'46 | 3°49'36 |
| retrograde | 4167 Nov 24 23:12 | 25° Ω 12'03 | | min. Earth dist. | 4174 Feb 23 03:48 | 2° Υ 06'34 | 38.09010 AU |
| opposition | 4168 Feb 13 09:39 | 24° Ω 05'45 | 1°21'11 | direct | 4174 May 12 20:33 | 1° Υ 00'26 | |
| min. Earth dist. | 4168 Feb 15 14:10 | 24° Ω 02'54 | 39.56861 AU | evening set | 4174 Aug 08 05:31 | 2° Υ 25'19 | |
| direct | 4168 May 04 14:55 | 22° Ω 58'29 | | max. Earth dist. | 4174 Aug 21 03:09 | 2° Υ 46'48 | 39.95986 AU |
| evening set | 4168 Jul 29 20:20 | 24° Ω 18'20 | | | | | |
| max. Earth dist. | 4168 Aug 12 11:42 | 24° Ω 40'04 | 41.44820 AU | conjunction | 4174 Aug 23 21:02 | 2° Υ 51'25 | 3°50'16 |
| | | | | minimum elong | 4174 Aug 23 20:55 | 2° Υ 51'25 | 3°50'15 |
| conjunction | 4168 Aug 14 22:11 | 24° Ω 43'59 | 1°28'45 | morning rise | 4174 Sep 08 11:43 | 3° Υ 17'30 | |
| minimum elong | 4168 Aug 14 22:09 | 24° Ω 43'59 | 1°28'45 | retrograde | 4174 Dec 04 15:00 | 4° Υ 42'45 | |
| morning rise | 4168 Aug 30 23:38 | 25° Ω 09'39 | | opposition | 4175 Feb 22 10:09 | 3° Υ 34'21 | 4°15'07 |
| retrograde | 4168 Nov 25 11:45 | 26° Ω 30'17 | | min. Earth dist. | 4175 Feb 24 20:57 | 3° Υ 31'02 | 37.83584 AU |
| opposition | 4169 Feb 13 22:07 | 25° Ω 23'42 | 1°45'20 | direct | 4175 May 14 11:16 | 2° Υ 24'37 | |
| min. Earth dist. | 4169 Feb 16 02:16 | 25° Ω 20'51 | 39.32617 AU | evening set | 4175 Aug 10 01:48 | 3° Υ 50'28 | |
| direct | 4169 May 06 04:45 | 24° Ω 16'06 | | max. Earth dist. | 4175 Aug 22 20:47 | 4° Υ 11'56 | 39.70355 AU |
| evening set | 4169 Jul 31 11:53 | 25° Ω 36'41 | | | | | |
| max. Earth dist. | 4169 Aug 14 00:20 | 25° Ω 58'23 | 41.20494 AU | conjunction | 4175 Aug 25 14:38 | 4° Υ 16'36 | 4°14'31 |
| | | | | minimum elong | 4175 Aug 25 14:31 | 4° Υ 16'35 | 4°14'32 |
| conjunction | 4169 Aug 16 12:37 | 26° Ω 02'28 | 1°51'49 | morning rise | 4175 Sep 10 02:20 | 4° Υ 42'41 | |
| minimum elong | 4169 Aug 16 12:34 | 26° Ω 02'28 | 1°51'48 | retrograde | 4175 Dec 06 07:04 | 6° Υ 08'49 | |
| morning rise | 4169 Sep 01 13:05 | 26° Ω 28'14 | | opposition | 4176 Feb 24 01:38 | 5° Υ 00'04 | 4°40'50 |
| retrograde | 4169 Nov 27 03:00 | 27° Ω 49'33 | | min. Earth dist. | 4176 Feb 26 12:32 | 4° Υ 56'43 | 37.57965 AU |
| opposition | 4170 Feb 15 11:05 | 26° Ω 42'41 | 2°09'43 | direct | 4176 May 15 02:23 | 3° Υ 49'56 | |
| min. Earth dist. | 4170 Feb 17 16:50 | 26° Ω 39'44 | 39.08288 AU | evening set | 4176 Aug 10 23:00 | 5° Υ 16'47 | |
| direct | 4170 May 07 14:48 | 25° Ω 34'46 | | max. Earth dist. | 4176 Aug 23 12:41 | 5° Υ 38'04 | 39.44553 AU |
| evening set | 4170 Aug 02 04:10 | 26° Ω 56'08 | | | | | |
| max. Earth dist. | 4170 Aug 15 15:41 | 27° Ω 17'54 | 40.96047 AU | conjunction | 4176 Aug 26 08:32 | 5° Υ 42'54 | 4°38'57 |
| | | | | minimum elong | 4176 Aug 26 08:23 | 5° Υ 42'54 | 4°38'56 |
| conjunction | 4170 Aug 18 03:49 | 27° Ω 22'00 | 2°15'06 | morning rise | 4176 Sep 10 17:09 | 6° Υ 08'59 | |
| minimum elong | 4170 Aug 18 03:45 | 27° Ω 22'00 | 2°15'05 | retrograde | 4176 Dec 07 02:30 | 7° Υ 36'04 | |
| morning rise | 4170 Sep 03 02:48 | 27° Ω 47'52 | | opposition | 4177 Feb 24 17:42 | 6° Υ 26'57 | 5°06'43 |
| retrograde | 4170 Nov 28 17:58 | 29° Ω 09'54 | | min. Earth dist. | 4177 Feb 27 05:49 | 6° Υ 23'31 | 37.32231 AU |
| opposition | 4171 Feb 17 00:17 | 28° Ω 02'46 | 2°34'20 | direct | 4177 May 16 15:21 | 5° Υ 16'24 | |
| min. Earth dist. | 4171 Feb 19 06:25 | 27° Ω 59'47 | 38.83809 AU | evening set | 4177 Aug 12 20:40 | 6° Υ 44'19 | |
| direct | 4171 May 09 03:29 | 26° Ω 54'31 | | max. Earth dist. | 4177 Aug 25 07:03 | 7° Υ 05'32 | 39.18641 AU |
| evening set | 4171 Aug 03 21:28 | 28° Ω 16'42 | | | | | |
| max. Earth dist. | 4171 Aug 17 05:26 | 28° Ω 38'25 | 40.71419 AU | conjunction | 4177 Aug 28 02:53 | 7° Υ 10'24 | 5°03'31 |
| | | | | minimum elong | 4177 Aug 28 02:43 | 7° Υ 10'23 | 5°03'31 |
| conjunction | 4171 Aug 19 19:24 | 28° Ω 42'39 | 2°38'35 | morning rise | 4177 Sep 12 07:46 | 7° Υ 36'26 | |
| minimum elong | 4171 Aug 19 19:20 | 28° Ω 42'39 | 2°38'35 | retrograde | 4177 Dec 08 21:24 | 9° Υ 04'32 | |
| morning rise | 4171 Sep 04 16:54 | 29° Ω 08'36 | | opposition | 4178 Feb 26 10:17 | 7° Υ 55'02 | 5°32'47 |
| | 4171 Oct 10 19:49 | 0° Υ | | min. Earth dist. | 4178 Feb 28 22:59 | 7° Υ 51'32 | 37.06425 AU |
| retrograde | 4171 Nov 30 12:56 | 0° Υ 31'24 | | direct | 4178 May 18 07:43 | 6° Υ 44'03 | |
| | 4172 Jan 20 22:36 | 30° \mathcal{R} Ω | | evening set | 4178 Aug 14 19:32 | 8° Υ 13'07 | |
| opposition | 4172 Feb 18 14:02 | 29° Ω 23'58 | 2°59'12 | max. Earth dist. | 4178 Aug 27 01:03 | 8° Υ 34'10 | 38.92698 AU |

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|------------------|-------------------|--------------------------|-------------|------------------|-------------------|-----------------------------------|-------------|
| conjunction | 4178 Aug 29 21:45 | 8° \mathring{M} 39'08 | 5°28'12 | evening set | 4185 Aug 27 15:25 | 19° \mathring{M} 17'00 | |
| minimum elong | 4178 Aug 29 21:34 | 8° \mathring{M} 39'08 | 5°28'12 | max. Earth dist. | 4185 Sep 07 02:09 | 19° \mathring{M} 36'12 | 37.12267 AU |
| morning rise | 4178 Sep 13 22:50 | 9° \mathring{M} 05'07 | | | | | |
| retrograde | 4178 Dec 10 19:16 | 10° \mathring{M} 34'15 | | conjunction | 4185 Sep 10 02:47 | 19° \mathring{M} 41'48 | 8°22'49 |
| opposition | 4179 Feb 28 03:10 | 9° \mathring{M} 24'22 | 5°58'59 | minimum elong | 4185 Sep 10 02:31 | 19° \mathring{M} 41'47 | 8°22'50 |
| min. Earth dist. | 4179 Mar 02 15:52 | 9° \mathring{M} 20'52 | 36.80634 AU | morning rise | 4185 Sep 23 12:35 | 20° \mathring{M} 06'30 | |
| direct | 4179 May 20 00:51 | 8° \mathring{M} 12'59 | | retrograde | 4185 Dec 22 06:10 | 21° \mathring{M} 44'47 | |
| evening set | 4179 Aug 16 19:16 | 9° \mathring{M} 43'14 | | opposition | 4186 Mar 10 19:16 | 20° \mathring{M} 32'23 | 9°04'30 |
| max. Earth dist. | 4179 Aug 28 19:47 | 10° \mathring{M} 04'07 | 38.66764 AU | min. Earth dist. | 4186 Mar 13 11:34 | 20° \mathring{M} 28'31 | 35.01626 AU |
| | | | | direct | 4186 May 30 09:40 | 19° \mathring{M} 18'05 | |
| conjunction | 4179 Aug 31 17:17 | 10° \mathring{M} 09'11 | 5°53'00 | evening set | 4186 Aug 29 22:53 | 20° \mathring{M} 58'34 | |
| minimum elong | 4179 Aug 31 17:06 | 10° \mathring{M} 09'10 | 5°53'01 | max. Earth dist. | 4186 Sep 09 00:58 | 21° \mathring{M} 17'17 | 36.86431 AU |
| morning rise | 4179 Sep 15 13:57 | 10° \mathring{M} 35'04 | | | | | |
| retrograde | 4179 Dec 12 15:24 | 12° \mathring{M} 05'19 | | conjunction | 4186 Sep 12 02:52 | 21° \mathring{M} 23'02 | 8°47'46 |
| opposition | 4180 Feb 29 20:53 | 10° \mathring{M} 55'05 | 6°25'18 | minimum elong | 4186 Sep 12 02:36 | 21° \mathring{M} 23'01 | 8°47'45 |
| min. Earth dist. | 4180 Mar 03 10:51 | 10° \mathring{M} 51'29 | 36.54895 AU | morning rise | 4186 Sep 25 05:10 | 21° \mathring{M} 47'24 | |
| direct | 4180 May 20 18:15 | 9° \mathring{M} 43'17 | | retrograde | 4186 Dec 24 06:11 | 23° \mathring{M} 27'13 | |
| evening set | 4180 Aug 17 19:50 | 11° \mathring{M} 14'48 | | opposition | 4187 Mar 12 17:20 | 22° \mathring{M} 14'24 | 9°31'01 |
| max. Earth dist. | 4180 Aug 29 16:02 | 11° \mathring{M} 35'32 | 38.40908 AU | min. Earth dist. | 4187 Mar 15 11:17 | 22° \mathring{M} 10'24 | 34.76016 AU |
| | | | | direct | 4187 Jun 01 07:07 | 20° \mathring{M} 59'37 | |
| conjunction | 4180 Sep 01 13:11 | 11° \mathring{M} 40'38 | 6°17'53 | evening set | 4187 Sep 01 07:38 | 22° \mathring{M} 41'49 | |
| minimum elong | 4180 Sep 01 12:59 | 11° \mathring{M} 40'37 | 6°17'53 | max. Earth dist. | 4187 Sep 11 01:56 | 23° \mathring{M} 00'06 | 36.60585 AU |
| morning rise | 4180 Sep 16 05:05 | 12° \mathring{M} 06'24 | | | | | |
| retrograde | 4180 Dec 13 10:22 | 13° \mathring{M} 37'49 | | conjunction | 4187 Sep 14 03:38 | 23° \mathring{M} 05'54 | 9°12'37 |
| opposition | 4181 Mar 02 15:00 | 12° \mathring{M} 27'14 | 6°51'43 | minimum elong | 4187 Sep 14 03:19 | 23° \mathring{M} 05'53 | 9°12'37 |
| min. Earth dist. | 4181 Mar 05 04:16 | 12° \mathring{M} 23'39 | 36.29252 AU | morning rise | 4187 Sep 26 21:50 | 23° \mathring{M} 29'53 | |
| direct | 4181 May 22 13:00 | 11° \mathring{M} 15'02 | | retrograde | 4187 Dec 26 06:52 | 25° \mathring{M} 11'17 | |
| evening set | 4181 Aug 19 21:31 | 12° \mathring{M} 47'52 | | opposition | 4188 Mar 13 16:02 | 23° \mathring{M} 58'03 | 9°57'28 |
| max. Earth dist. | 4181 Aug 31 11:04 | 13° \mathring{M} 08'19 | 38.15139 AU | min. Earth dist. | 4188 Mar 16 09:35 | 23° \mathring{M} 54'02 | 34.50423 AU |
| | | | | direct | 4188 Jun 02 07:06 | 22° \mathring{M} 42'46 | |
| conjunction | 4181 Sep 03 09:43 | 13° \mathring{M} 13'35 | 6°42'50 | evening set | 4188 Sep 02 17:27 | 24° \mathring{M} 26'45 | |
| minimum elong | 4181 Sep 03 09:30 | 13° \mathring{M} 13'34 | 6°42'50 | max. Earth dist. | 4188 Sep 12 01:32 | 24° \mathring{M} 44'25 | 36.34769 AU |
| morning rise | 4181 Sep 17 20:35 | 13° \mathring{M} 39'13 | | | | | |
| retrograde | 4181 Dec 15 06:54 | 15° \mathring{M} 11'53 | | conjunction | 4188 Sep 15 04:48 | 24° \mathring{M} 50'24 | 9°37'21 |
| opposition | 4182 Mar 04 09:45 | 14° \mathring{M} 00'57 | 7°18'13 | minimum elong | 4188 Sep 15 04:29 | 24° \mathring{M} 50'22 | 9°37'21 |
| min. Earth dist. | 4182 Mar 07 00:17 | 13° \mathring{M} 57'16 | 36.03711 AU | morning rise | 4188 Sep 27 14:32 | 25° \mathring{M} 13'55 | |
| direct | 4182 May 24 05:02 | 12° \mathring{M} 48'21 | | retrograde | 4188 Dec 27 08:33 | 26° \mathring{M} 57'00 | |
| evening set | 4182 Aug 22 00:11 | 14° \mathring{M} 22'35 | | opposition | 4189 Mar 15 15:29 | 25° \mathring{M} 43'19 | 10°23'47 |
| max. Earth dist. | 4182 Sep 02 09:02 | 14° \mathring{M} 42'52 | 37.89442 AU | min. Earth dist. | 4189 Mar 18 10:11 | 25° \mathring{M} 39'12 | 34.24915 AU |
| | | | | direct | 4189 Jun 04 04:12 | 24° \mathring{M} 27'32 | |
| conjunction | 4182 Sep 05 07:02 | 14° \mathring{M} 48'07 | 7°07'49 | evening set | 4189 Sep 05 04:32 | 26° \mathring{M} 13'22 | |
| minimum elong | 4182 Sep 05 06:49 | 14° \mathring{M} 48'06 | 7°07'49 | max. Earth dist. | 4189 Sep 14 04:22 | 26° \mathring{M} 30'33 | 36.09062 AU |
| morning rise | 4182 Sep 19 12:12 | 15° \mathring{M} 13'35 | | | | | |
| retrograde | 4182 Dec 17 03:45 | 16° \mathring{M} 47'34 | | conjunction | 4189 Sep 17 06:51 | 26° \mathring{M} 36'31 | 10°01'56 |
| opposition | 4183 Mar 06 05:08 | 15° \mathring{M} 36'18 | 7°44'45 | minimum elong | 4189 Sep 17 06:31 | 26° \mathring{M} 36'30 | 10°01'56 |
| min. Earth dist. | 4183 Mar 08 19:38 | 15° \mathring{M} 32'35 | 35.78216 AU | morning rise | 4189 Sep 29 07:16 | 26° \mathring{M} 59'33 | |
| direct | 4183 May 25 22:24 | 14° \mathring{M} 23'17 | | retrograde | 4189 Dec 29 09:01 | 27° \mathring{M} 44'23 | |
| evening set | 4183 Aug 24 04:13 | 15° \mathring{M} 59'00 | | opposition | 4190 Mar 17 15:31 | 27° \mathring{M} 30'15 | 10°49'55 |
| max. Earth dist. | 4183 Sep 04 05:21 | 16° \mathring{M} 18'54 | 37.63759 AU | min. Earth dist. | 4190 Mar 20 09:58 | 27° \mathring{M} 26'07 | 33.99557 AU |
| | | | | direct | 4190 Jun 06 03:49 | 26° \mathring{M} 13'57 | |
| conjunction | 4183 Sep 07 04:55 | 16° \mathring{M} 24'20 | 7°32'50 | evening set | 4190 Sep 07 17:05 | 28° \mathring{M} 01'43 | |
| minimum elong | 4183 Sep 07 04:40 | 16° \mathring{M} 24'18 | 7°32'50 | max. Earth dist. | 4190 Sep 16 06:03 | 28° \mathring{M} 18'12 | 35.83544 AU |
| morning rise | 4183 Sep 21 04:13 | 16° \mathring{M} 49'35 | | | | | |
| retrograde | 4183 Dec 19 03:52 | 18° \mathring{M} 24'56 | | conjunction | 4190 Sep 19 09:28 | 28° \mathring{M} 24'19 | 10°26'17 |
| opposition | 4184 Mar 07 01:05 | 17° \mathring{M} 13'19 | 8°11'20 | minimum elong | 4190 Sep 19 09:08 | 28° \mathring{M} 24'17 | 10°26'17 |
| min. Earth dist. | 4184 Mar 09 16:28 | 17° \mathring{M} 09'32 | 35.52731 AU | morning rise | 4190 Oct 01 00:16 | 28° \mathring{M} 46'47 | |
| direct | 4184 May 26 15:36 | 15° \mathring{M} 59'54 | | | 4190 Nov 13 12:12 | 0° \mathring{M} | |
| evening set | 4184 Aug 25 09:14 | 17° \mathring{M} 37'08 | | retrograde | 4190 Dec 31 12:43 | 0° \mathring{M} 33'27 | |
| max. Earth dist. | 4184 Sep 05 03:47 | 17° \mathring{M} 56'44 | 37.38036 AU | | 4191 Feb 18 15:23 | 30° \mathring{R} \mathring{M} | |
| | | | | opposition | 4191 Mar 19 16:19 | 29° \mathring{M} 18'51 | 11°15'49 |
| conjunction | 4184 Sep 08 03:39 | 18° \mathring{M} 02'14 | 7°57'50 | min. Earth dist. | 4191 Mar 22 10:51 | 29° \mathring{M} 14'42 | 33.74440 AU |
| minimum elong | 4184 Sep 08 03:24 | 18° \mathring{M} 02'12 | 7°57'50 | direct | 4191 Jun 08 02:28 | 28° \mathring{M} 02'02 | |
| morning rise | 4184 Sep 21 20:18 | 18° \mathring{M} 27'13 | | evening set | 4191 Sep 10 06:51 | 29° \mathring{M} 51'52 | |
| retrograde | 4184 Dec 20 03:57 | 20° \mathring{M} 04'01 | | | 4191 Sep 14 11:21 | 0° \mathring{M} | |
| opposition | 4185 Mar 08 21:56 | 18° \mathring{M} 52'01 | 8°37'55 | max. Earth dist. | 4191 Sep 18 10:05 | 0° \mathring{M} 07'43 | 35.58277 AU |
| min. Earth dist. | 4185 Mar 11 14:18 | 18° \mathring{M} 48'10 | 35.27200 AU | | | | |
| direct | 4185 May 28 12:04 | 17° \mathring{M} 38'10 | | conjunction | 4191 Sep 21 12:55 | 0° \mathring{M} 13'50 | 10°50'22 |

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|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| minimum elong | 4191 Sep 21 12:34 | 0° <u>♁</u> 13'48 | 10°50'22 | direct | 4198 Jun 20 22:19 | 11° <u>♁</u> 33'50 | |
| morning rise | 4191 Oct 02 17:09 | 0° <u>♁</u> 35'41 | | evening set | 4198 Sep 28 05:30 | 13° <u>♁</u> 41'10 | |
| retrograde | 4192 Jan 02 15:59 | 2° <u>♁</u> 24'16 | | max. Earth dist. | 4198 Oct 02 09:54 | 13° <u>♁</u> 49'56 | 33.91635 AU |
| opposition | 4192 Mar 20 17:59 | 1° <u>♁</u> 09'14 | 11°41'25 | | | | |
| min. Earth dist. | 4192 Mar 23 12:51 | 1° <u>♁</u> 05'01 | 33.49622 AU | conjunction | 4198 Oct 05 10:41 | 13° <u>♁</u> 56'19 | 13°26'50 |
| | 4192 May 16 12:08 | 30° <u>♁</u> 17'17 | | minimum elong | 4198 Oct 05 10:19 | 13° <u>♁</u> 56'17 | 13°26'50 |
| direct | 4192 Jun 09 02:51 | 29° <u>♁</u> 51'55 | | morning rise | 4198 Oct 12 14:32 | 14° <u>♁</u> 11'22 | |
| | 4192 Jul 02 15:58 | 0° <u>♁</u> | | retrograde | 4199 Jan 16 20:20 | 16° <u>♁</u> 16'32 | |
| evening set | 4192 Sep 11 22:13 | 1° <u>♁</u> 43'53 | | opposition | 4199 Apr 04 04:20 | 14° <u>♁</u> 58'44 | 14°27'32 |
| max. Earth dist. | 4192 Sep 19 14:20 | 1° <u>♁</u> 59'00 | 35.33362 AU | min. Earth dist. | 4199 Apr 06 21:47 | 14° <u>♁</u> 54'25 | 31.86321 AU |
| | | | | direct | 4199 Jun 23 03:41 | 13° <u>♁</u> 38'16 | |
| conjunction | 4192 Sep 22 16:58 | 2° <u>♁</u> 05'09 | 11°14'07 | evening set | 4199 Oct 01 10:11 | 15° <u>♁</u> 48'39 | |
| minimum elong | 4192 Sep 22 16:37 | 2° <u>♁</u> 05'08 | 11°14'07 | max. Earth dist. | 4199 Oct 04 19:34 | 15° <u>♁</u> 55'50 | 33.69219 AU |
| morning rise | 4192 Oct 03 10:07 | 2° <u>♁</u> 26'19 | | | | | |
| retrograde | 4193 Jan 03 22:22 | 4° <u>♁</u> 16'56 | | conjunction | 4199 Oct 07 20:27 | 16° <u>♁</u> 02'17 | 13°46'49 |
| opposition | 4193 Mar 22 20:20 | 3° <u>♁</u> 01'28 | 12°06'40 | minimum elong | 4199 Oct 07 20:04 | 16° <u>♁</u> 02'15 | 13°46'50 |
| min. Earth dist. | 4193 Mar 25 14:04 | 2° <u>♁</u> 57'18 | 33.25189 AU | morning rise | 4199 Oct 14 05:37 | 16° <u>♁</u> 15'51 | |
| direct | 4193 Jun 11 04:41 | 1° <u>♁</u> 43'40 | | retrograde | 4200 Jan 19 07:50 | 18° <u>♁</u> 23'54 | |
| evening set | 4193 Sep 14 14:47 | 3° <u>♁</u> 37'53 | | opposition | 4200 Apr 06 12:38 | 17° <u>♁</u> 05'41 | 14°48'42 |
| max. Earth dist. | 4193 Sep 21 19:02 | 3° <u>♁</u> 52'11 | 35.08828 AU | min. Earth dist. | 4200 Apr 09 05:13 | 17° <u>♁</u> 01'24 | 31.64399 AU |
| | | | | direct | 4200 Jun 25 12:02 | 15° <u>♁</u> 44'46 | |
| conjunction | 4193 Sep 24 21:46 | 3° <u>♁</u> 58'24 | 11°37'30 | evening set | 4200 Oct 04 17:52 | 17° <u>♁</u> 58'25 | |
| minimum elong | 4193 Sep 24 21:23 | 3° <u>♁</u> 58'22 | 11°37'30 | max. Earth dist. | 4200 Oct 07 06:58 | 18° <u>♁</u> 03'52 | 33.47206 AU |
| morning rise | 4193 Oct 05 03:04 | 4° <u>♁</u> 18'48 | | | | | |
| retrograde | 4194 Jan 06 04:35 | 6° <u>♁</u> 11'33 | | conjunction | 4200 Oct 10 07:10 | 18° <u>♁</u> 10'19 | 14°06'02 |
| opposition | 4194 Mar 24 23:37 | 4° <u>♁</u> 55'40 | 12°31'30 | minimum elong | 4200 Oct 10 06:49 | 18° <u>♁</u> 10'17 | 14°06'02 |
| min. Earth dist. | 4194 Mar 27 18:02 | 4° <u>♁</u> 51'26 | 33.01151 AU | morning rise | 4200 Oct 15 19:25 | 18° <u>♁</u> 22'08 | |
| direct | 4194 Jun 13 07:03 | 3° <u>♁</u> 37'26 | | retrograde | 4201 Jan 21 18:38 | 20° <u>♁</u> 33'18 | |
| evening set | 4194 Sep 17 09:19 | 5° <u>♁</u> 34'02 | | opposition | 4201 Apr 08 21:55 | 19° <u>♁</u> 14'39 | 15°09'00 |
| max. Earth dist. | 4194 Sep 24 01:57 | 5° <u>♁</u> 47'30 | 34.84699 AU | min. Earth dist. | 4201 Apr 11 14:51 | 19° <u>♁</u> 10'20 | 31.42912 AU |
| | | | | direct | 4201 Jun 27 20:32 | 17° <u>♁</u> 53'16 | |
| conjunction | 4194 Sep 27 03:30 | 5° <u>♁</u> 53'42 | 12°00'26 | evening set | 4201 Oct 08 05:37 | 20° <u>♁</u> 10'30 | |
| minimum elong | 4194 Sep 27 03:09 | 5° <u>♁</u> 53'40 | 12°00'26 | max. Earth dist. | 4201 Oct 09 19:15 | 20° <u>♁</u> 13'53 | 33.25688 AU |
| morning rise | 4194 Oct 06 20:05 | 6° <u>♁</u> 13'14 | | | | | |
| retrograde | 4195 Jan 08 12:24 | 8° <u>♁</u> 08'13 | | conjunction | 4201 Oct 12 18:27 | 20° <u>♁</u> 20'19 | 14°24'22 |
| opposition | 4195 Mar 27 03:28 | 6° <u>♁</u> 51'58 | 12°55'52 | minimum elong | 4201 Oct 12 18:05 | 20° <u>♁</u> 20'17 | 14°24'22 |
| min. Earth dist. | 4195 Mar 29 20:46 | 6° <u>♁</u> 47'46 | 32.77505 AU | morning rise | 4201 Oct 17 06:21 | 20° <u>♁</u> 30'03 | |
| direct | 4195 Jun 15 11:34 | 5° <u>♁</u> 33'18 | | retrograde | 4202 Jan 24 07:38 | 22° <u>♁</u> 44'39 | |
| evening set | 4195 Sep 20 05:25 | 7° <u>♁</u> 32'23 | | opposition | 4202 Apr 11 07:53 | 21° <u>♁</u> 25'36 | 15°28'21 |
| max. Earth dist. | 4195 Sep 26 07:42 | 7° <u>♁</u> 44'47 | 34.60935 AU | min. Earth dist. | 4202 Apr 13 23:08 | 21° <u>♁</u> 21'22 | 31.21938 AU |
| | | | | direct | 4202 Jun 30 07:13 | 20° <u>♁</u> 03'45 | |
| conjunction | 4195 Sep 29 10:02 | 7° <u>♁</u> 51'06 | 12°22'53 | evening set | 4202 Oct 12 00:18 | 22° <u>♁</u> 25'08 | |
| minimum elong | 4195 Sep 29 09:39 | 7° <u>♁</u> 51'05 | 12°22'53 | max. Earth dist. | 4202 Oct 12 07:49 | 22° <u>♁</u> 25'49 | 33.04713 AU |
| morning rise | 4195 Oct 08 13:11 | 8° <u>♁</u> 09'42 | | | | | |
| retrograde | 4196 Jan 10 19:36 | 10° <u>♁</u> 07'04 | | conjunction | 4202 Oct 15 06:38 | 22° <u>♁</u> 32'16 | 14°41'46 |
| opposition | 4196 Mar 28 08:24 | 8° <u>♁</u> 50'26 | 13°19'42 | minimum elong | 4202 Oct 15 06:18 | 22° <u>♁</u> 32'14 | 14°41'46 |
| min. Earth dist. | 4196 Mar 31 02:30 | 8° <u>♁</u> 46'09 | 32.54223 AU | morning rise | 4202 Oct 18 12:12 | 22° <u>♁</u> 39'19 | |
| direct | 4196 Jun 16 13:50 | 7° <u>♁</u> 31'19 | | retrograde | 4203 Jan 26 20:50 | 24° <u>♁</u> 57'56 | |
| evening set | 4196 Sep 22 03:20 | 9° <u>♁</u> 33'02 | | opposition | 4203 Apr 13 18:45 | 23° <u>♁</u> 38'28 | 15°46'40 |
| max. Earth dist. | 4196 Sep 27 16:24 | 9° <u>♁</u> 44'25 | 34.37512 AU | min. Earth dist. | 4203 Apr 16 10:08 | 23° <u>♁</u> 34'11 | 31.01556 AU |
| | | | | direct | 4203 Jul 02 17:02 | 22° <u>♁</u> 16'10 | |
| conjunction | 4196 Sep 30 17:21 | 9° <u>♁</u> 50'41 | 12°44'48 | max. Earth dist. | 4203 Oct 14 22:56 | 24° <u>♁</u> 39'50 | 32.84395 AU |
| minimum elong | 4196 Sep 30 16:59 | 9° <u>♁</u> 50'39 | 12°44'49 | evening set | 4203 Oct 16 18:05 | 24° <u>♁</u> 43'48 | |
| morning rise | 4196 Oct 09 05:50 | 10° <u>♁</u> 08'14 | | | | | |
| retrograde | 4197 Jan 12 02:17 | 12° <u>♁</u> 08'04 | | conjunction | 4203 Oct 17 19:32 | 24° <u>♁</u> 46'08 | 14°58'07 |
| opposition | 4197 Mar 30 14:13 | 10° <u>♁</u> 51'03 | 13°42'58 | minimum elong | 4203 Oct 17 19:11 | 24° <u>♁</u> 46'06 | 14°58'07 |
| min. Earth dist. | 4197 Apr 02 07:35 | 10° <u>♁</u> 46'48 | 32.31261 AU | morning rise | 4203 Oct 18 20:18 | 24° <u>♁</u> 48'24 | |
| direct | 4197 Jun 18 18:56 | 9° <u>♁</u> 31'31 | | retrograde | 4204 Jan 29 11:29 | 27° <u>♁</u> 13'07 | |
| evening set | 4197 Sep 25 03:16 | 11° <u>♁</u> 35'57 | | opposition | 4204 Apr 15 06:31 | 25° <u>♁</u> 53'14 | 16°03'50 |
| max. Earth dist. | 4197 Sep 29 23:37 | 11° <u>♁</u> 46'01 | 34.14413 AU | min. Earth dist. | 4204 Apr 17 19:51 | 25° <u>♁</u> 49'05 | 30.81855 AU |
| | | | | direct | 4204 Jul 04 06:01 | 24° <u>♁</u> 30'30 | |
| conjunction | 4197 Oct 03 01:29 | 11° <u>♁</u> 52'26 | 13°06'09 | max. Earth dist. | 4204 Oct 16 12:52 | 26° <u>♁</u> 55'35 | 32.64812 AU |
| minimum elong | 4197 Oct 03 01:06 | 11° <u>♁</u> 52'24 | 13°06'09 | | | | |
| morning rise | 4197 Oct 10 22:25 | 12° <u>♁</u> 08'48 | | conjunction | 4204 Oct 19 08:56 | 27° <u>♁</u> 01'54 | 15°13'21 |
| retrograde | 4198 Jan 14 11:50 | 14° <u>♁</u> 11'14 | | minimum elong | 4204 Oct 19 08:38 | 27° <u>♁</u> 01'52 | 15°13'20 |
| opposition | 4198 Apr 01 20:43 | 12° <u>♁</u> 53'50 | 14°05'36 | retrograde | 4205 Jan 31 01:14 | 29° <u>♁</u> 30'11 | |
| min. Earth dist. | 4198 Apr 04 14:09 | 12° <u>♁</u> 49'33 | 32.08630 AU | opposition | 4205 Apr 17 19:09 | 28° <u>♁</u> 09'56 | 16°19'45 |

| | | | | | | | |
|------------------|-------------------|-----------------------|-------------|------------------|-------------------|-----------------------|-------------|
| min. Earth dist. | 4205 Apr 20 07:48 | 28° <u>♄</u> 05'47 | 30.62926 AU | minimum elong | 4212 Nov 07 23:04 | 16° <u>♄</u> 15'24 | 16°25'41 |
| direct | 4205 Jul 06 16:42 | 26° <u>♄</u> 46'47 | | retrograde | 4213 Feb 19 18:29 | 18° <u>♄</u> 52'30 | |
| max. Earth dist. | 4205 Oct 19 06:00 | 29° <u>♄</u> 13'29 | 32.46046 AU | opposition | 4213 May 07 04:57 | 17° <u>♄</u> 30'07 | 17°33'03 |
| | | | | min. Earth dist. | 4213 May 09 04:46 | 17° <u>♄</u> 26'46 | 29.40413 AU |
| conjunction | 4205 Oct 21 23:21 | 29° <u>♄</u> 19'35 | 15°27'21 | direct | 4213 Jul 25 20:41 | 16° <u>♄</u> 04'44 | |
| minimum elong | 4205 Oct 21 23:02 | 29° <u>♄</u> 19'33 | 15°27'21 | max. Earth dist. | 4213 Nov 08 15:01 | 18° <u>♄</u> 41'39 | 31.25680 AU |
| | 4205 Nov 09 04:27 | 0° <u>♄</u> | | | | | |
| retrograde | 4206 Feb 02 15:15 | 1° <u>♄</u> 49'07 | | conjunction | 4213 Nov 10 18:33 | 18° <u>♄</u> 46'44 | 16°27'39 |
| opposition | 4206 Apr 20 08:28 | 0° <u>♄</u> 28'33 | 16°34'20 | minimum elong | 4213 Nov 10 18:28 | 18° <u>♄</u> 46'44 | 16°27'40 |
| min. Earth dist. | 4206 Apr 22 19:20 | 0° <u>♄</u> 24'31 | 30.44805 AU | retrograde | 4214 Feb 22 14:02 | 21° <u>♄</u> 24'36 | |
| | 4206 May 08 01:17 | 30° <u>♄</u> <u>♄</u> | | opposition | 4214 May 10 00:14 | 20° <u>♄</u> 02'00 | 17°34'30 |
| direct | 4206 Jul 09 05:47 | 29° <u>♄</u> 05'03 | | min. Earth dist. | 4214 May 11 23:03 | 19° <u>♄</u> 58'42 | 29.28757 AU |
| | 4206 Sep 06 20:54 | 0° <u>♄</u> | | direct | 4214 Jul 28 14:45 | 18° <u>♄</u> 36'23 | |
| max. Earth dist. | 4206 Oct 21 21:41 | 1° <u>♄</u> 33'07 | 32.28130 AU | max. Earth dist. | 4214 Nov 11 14:09 | 21° <u>♄</u> 14'22 | 31.14479 AU |
| | | | | | | | |
| conjunction | 4206 Oct 24 14:25 | 1° <u>♄</u> 39'13 | 15°40'04 | conjunction | 4214 Nov 13 14:21 | 21° <u>♄</u> 19'09 | 16°27'51 |
| minimum elong | 4206 Oct 24 14:09 | 1° <u>♄</u> 39'12 | 15°40'04 | minimum elong | 4214 Nov 13 14:20 | 21° <u>♄</u> 19'09 | 16°27'51 |
| retrograde | 4207 Feb 05 08:08 | 4° <u>♄</u> 10'01 | | retrograde | 4215 Feb 25 10:31 | 23° <u>♄</u> 57'41 | |
| opposition | 4207 Apr 22 22:43 | 2° <u>♄</u> 49'08 | 16°47'29 | opposition | 4215 May 12 20:06 | 22° <u>♄</u> 34'53 | 17°34'01 |
| min. Earth dist. | 4207 Apr 25 08:06 | 2° <u>♄</u> 45'11 | 30.27525 AU | min. Earth dist. | 4215 May 14 16:10 | 22° <u>♄</u> 31'47 | 29.18032 AU |
| direct | 4207 Jul 11 17:33 | 1° <u>♄</u> 25'18 | | direct | 4215 Jul 31 12:16 | 21° <u>♄</u> 09'06 | |
| max. Earth dist. | 4207 Oct 24 16:16 | 3° <u>♄</u> 54'55 | 32.11052 AU | max. Earth dist. | 4215 Nov 14 11:35 | 23° <u>♄</u> 47'52 | 31.04280 AU |
| | | | | | | | |
| conjunction | 4207 Oct 27 06:16 | 4° <u>♄</u> 00'49 | 15°51'25 | conjunction | 4215 Nov 16 10:12 | 23° <u>♄</u> 52'31 | 16°26'14 |
| minimum elong | 4207 Oct 27 06:00 | 4° <u>♄</u> 00'47 | 15°51'26 | minimum elong | 4215 Nov 16 10:11 | 23° <u>♄</u> 52'31 | 16°26'15 |
| retrograde | 4208 Feb 07 22:56 | 6° <u>♄</u> 32'49 | | retrograde | 4216 Feb 28 07:14 | 26° <u>♄</u> 31'38 | |
| opposition | 4208 Apr 24 13:54 | 5° <u>♄</u> 11'40 | 16°59'10 | opposition | 4216 May 14 16:27 | 25° <u>♄</u> 08'39 | 17°31'33 |
| min. Earth dist. | 4208 Apr 26 22:12 | 5° <u>♄</u> 07'46 | 30.11046 AU | min. Earth dist. | 4216 May 16 10:25 | 25° <u>♄</u> 05'42 | 29.08336 AU |
| direct | 4208 Jul 13 06:55 | 3° <u>♄</u> 47'33 | | direct | 4216 Aug 02 08:02 | 23° <u>♄</u> 42'43 | |
| max. Earth dist. | 4208 Oct 26 09:50 | 6° <u>♄</u> 18'29 | 31.94806 AU | max. Earth dist. | 4216 Nov 16 11:51 | 26° <u>♄</u> 22'25 | 30.95177 AU |
| | | | | | | | |
| conjunction | 4208 Oct 28 22:44 | 6° <u>♄</u> 24'20 | 16°01'20 | conjunction | 4216 Nov 18 06:28 | 26° <u>♄</u> 26'40 | 16°22'45 |
| minimum elong | 4208 Oct 28 22:31 | 6° <u>♄</u> 24'18 | 16°01'21 | minimum elong | 4216 Nov 18 06:31 | 26° <u>♄</u> 26'41 | 16°22'45 |
| retrograde | 4209 Feb 09 16:22 | 8° <u>♄</u> 57'29 | | retrograde | 4217 Mar 02 02:22 | 29° <u>♄</u> 06'17 | |
| opposition | 4209 Apr 27 05:43 | 7° <u>♄</u> 36'04 | 17°09'17 | opposition | 4217 May 17 13:08 | 27° <u>♄</u> 43'11 | 17°27'03 |
| min. Earth dist. | 4209 Apr 29 12:00 | 7° <u>♄</u> 32'18 | 29.95370 AU | min. Earth dist. | 4217 May 19 04:24 | 27° <u>♄</u> 40'24 | 28.99728 AU |
| direct | 4209 Jul 15 22:10 | 6° <u>♄</u> 11'40 | | direct | 4217 Aug 05 05:30 | 26° <u>♄</u> 17'08 | |
| max. Earth dist. | 4209 Oct 29 05:15 | 8° <u>♄</u> 44'00 | 31.79352 AU | max. Earth dist. | 4217 Nov 19 10:03 | 28° <u>♄</u> 57'26 | 30.87240 AU |
| | | | | | | | |
| conjunction | 4209 Oct 31 16:00 | 8° <u>♄</u> 49'40 | 16°09'47 | conjunction | 4217 Nov 21 02:48 | 29° <u>♄</u> 01'32 | 16°17'23 |
| minimum elong | 4209 Oct 31 15:47 | 8° <u>♄</u> 49'39 | 16°09'48 | minimum elong | 4217 Nov 21 02:52 | 29° <u>♄</u> 01'32 | 16°17'24 |
| retrograde | 4210 Feb 12 09:08 | 11° <u>♄</u> 23'56 | | | 4217 Dec 15 22:23 | 0° <u>♄</u> | |
| opposition | 4210 Apr 29 22:33 | 10° <u>♄</u> 02'15 | 17°17'48 | retrograde | 4218 Mar 05 00:04 | 1° <u>♄</u> 41'33 | |
| min. Earth dist. | 4210 May 02 04:18 | 9° <u>♄</u> 58'31 | 29.80451 AU | opposition | 4218 May 20 10:10 | 0° <u>♄</u> 18'21 | 17°20'29 |
| direct | 4210 Jul 18 13:12 | 8° <u>♄</u> 37'35 | | min. Earth dist. | 4218 May 21 22:25 | 0° <u>♄</u> 15'47 | 28.92284 AU |
| max. Earth dist. | 4210 Nov 01 00:43 | 11° <u>♄</u> 11'11 | 31.64697 AU | | 4218 May 31 07:34 | 30° <u>♄</u> <u>♄</u> | |
| | | | | direct | 4218 Aug 08 01:47 | 28° <u>♄</u> 52'14 | |
| conjunction | 4210 Nov 03 09:51 | 11° <u>♄</u> 16'44 | 16°16'42 | | 4218 Oct 11 22:08 | 0° <u>♄</u> | |
| minimum elong | 4210 Nov 03 09:41 | 11° <u>♄</u> 16'43 | 16°16'41 | max. Earth dist. | 4218 Nov 22 10:53 | 1° <u>♄</u> 33'19 | 30.80502 AU |
| retrograde | 4211 Feb 15 04:15 | 13° <u>♄</u> 52'01 | | | | | |
| opposition | 4211 May 02 15:54 | 12° <u>♄</u> 30'06 | 17°24'39 | conjunction | 4218 Nov 23 23:28 | 1° <u>♄</u> 37'00 | 16°10'05 |
| min. Earth dist. | 4211 May 04 19:07 | 12° <u>♄</u> 26'31 | 29.66304 AU | minimum elong | 4218 Nov 23 23:34 | 1° <u>♄</u> 37'01 | 16°10'05 |
| direct | 4211 Jul 21 06:47 | 11° <u>♄</u> 05'10 | | retrograde | 4219 Mar 07 19:38 | 4° <u>♄</u> 17'21 | |
| max. Earth dist. | 4211 Nov 03 20:51 | 13° <u>♄</u> 39'56 | 31.50837 AU | opposition | 4219 May 23 07:35 | 2° <u>♄</u> 54'06 | 17°11'51 |
| | | | | min. Earth dist. | 4219 May 24 17:35 | 2° <u>♄</u> 51'42 | 28.86003 AU |
| conjunction | 4211 Nov 06 04:22 | 13° <u>♄</u> 45'22 | 16°22'01 | direct | 4219 Aug 10 22:25 | 1° <u>♄</u> 27'59 | |
| minimum elong | 4211 Nov 06 04:13 | 13° <u>♄</u> 45'21 | 16°22'02 | max. Earth dist. | 4219 Nov 25 09:45 | 4° <u>♄</u> 09'32 | 30.74979 AU |
| | 4211 Dec 09 06:28 | 15° <u>♄</u> | | | | | |
| retrograde | 4212 Feb 17 22:42 | 16° <u>♄</u> 21'36 | | conjunction | 4219 Nov 26 20:03 | 4° <u>♄</u> 12'59 | 16°00'52 |
| opposition | 4212 May 04 10:13 | 14° <u>♄</u> 59'26 | 17°29'45 | minimum elong | 4219 Nov 26 20:13 | 4° <u>♄</u> 13'00 | 16°00'53 |
| | 4212 May 04 02:09 | 15° <u>♄</u> <u>♄</u> | | retrograde | 4220 Mar 09 16:34 | 6° <u>♄</u> 53'35 | |
| min. Earth dist. | 4212 May 06 12:47 | 14° <u>♄</u> 55'54 | 29.52947 AU | opposition | 4220 May 25 05:09 | 5° <u>♄</u> 30'20 | 17°01'08 |
| direct | 4212 Jul 23 00:15 | 13° <u>♄</u> 34'16 | | min. Earth dist. | 4220 May 26 11:33 | 5° <u>♄</u> 28'11 | 28.80899 AU |
| | 4212 Oct 05 15:14 | 15° <u>♄</u> | | direct | 4220 Aug 12 20:04 | 4° <u>♄</u> 04'14 | |
| max. Earth dist. | 4212 Nov 05 18:12 | 16° <u>♄</u> 10'13 | 31.37825 AU | max. Earth dist. | 4220 Nov 27 10:19 | 6° <u>♄</u> 46'19 | 30.70627 AU |
| | | | | | | | |
| conjunction | 4212 Nov 07 23:10 | 16° <u>♄</u> 15'25 | 16°25'41 | conjunction | 4220 Nov 28 16:45 | 6° <u>♄</u> 49'23 | 15°49'45 |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| minimum elong | 4220 Nov 28 16:56 | 6°♄49'24 | 15°49'45 | min. Earth dist. | 4228 Jun 15 19:48 | 26°♄14'47 | 28.78337 AU |
| retrograde | 4221 Mar 12 11:55 | 9°♄30'07 | | direct | 4228 Sep 03 07:18 | 24°♄50'13 | |
| opposition | 4221 May 28 03:02 | 8°♄06'53 | 16°48'23 | evening set | 4228 Dec 12 02:29 | 27°♄14'48 | |
| min. Earth dist. | 4221 May 29 07:37 | 8°♄04'52 | 28.76912 AU | | | | |
| direct | 4221 Aug 15 17:02 | 6°♄40'52 | | conjunction | 4228 Dec 19 08:31 | 27°♄32'08 | 13°17'52 |
| max. Earth dist. | 4221 Nov 30 09:25 | 9°♄23'11 | 30.67414 AU | minimum elong | 4228 Dec 19 08:53 | 27°♄32'10 | 13°17'51 |
| | | | | max. Earth dist. | 4228 Dec 19 01:09 | 27°♄31'24 | 30.74713 AU |
| conjunction | 4221 Dec 01 13:27 | 9°♄26'01 | 15°36'47 | morning rise | 4228 Dec 26 14:49 | 27°♄49'30 | |
| minimum elong | 4221 Dec 01 13:41 | 9°♄26'02 | 15°36'47 | | 4229 Mar 09 00:52 | 0°♄ | |
| retrograde | 4222 Mar 15 09:32 | 12°♄06'47 | | retrograde | 4229 Apr 02 00:26 | 0°♄10'10 | |
| opposition | 4222 May 31 00:47 | 10°♄43'35 | 16°33'39 | | 4229 Apr 26 10:02 | 30°♄♂ | |
| min. Earth dist. | 4222 Jun 01 01:42 | 10°♄41'50 | 28.74009 AU | opposition | 4229 Jun 18 07:40 | 28°♄47'29 | 13°59'14 |
| direct | 4222 Aug 18 14:40 | 9°♄17'39 | | min. Earth dist. | 4229 Jun 18 12:59 | 28°♄47'06 | 28.82824 AU |
| max. Earth dist. | 4222 Dec 03 09:23 | 12°♄00'11 | 30.65283 AU | direct | 4229 Sep 06 05:04 | 27°♄22'29 | |
| | | | | evening set | 4229 Dec 14 01:30 | 29°♄44'23 | |
| conjunction | 4222 Dec 04 10:14 | 12°♄02'42 | 15°21'59 | | 4229 Dec 20 15:08 | 0°♄ | |
| minimum elong | 4222 Dec 04 10:28 | 12°♄02'44 | 15°21'59 | | | | |
| retrograde | 4223 Mar 18 04:16 | 14°♄43'24 | | conjunction | 4229 Dec 22 02:43 | 0°♄03'32 | 12°51'51 |
| opposition | 4223 Jun 02 22:56 | 13°♄20'15 | 16°16'57 | minimum elong | 4229 Dec 22 03:07 | 0°♄03'34 | 12°51'51 |
| min. Earth dist. | 4223 Jun 03 22:12 | 13°♄18'37 | 28.72158 AU | max. Earth dist. | 4229 Dec 21 23:49 | 0°♄03'15 | 30.80153 AU |
| direct | 4223 Aug 21 12:38 | 11°♄54'25 | | morning rise | 4229 Dec 30 03:56 | 0°♄22'42 | |
| max. Earth dist. | 4223 Dec 06 08:47 | 14°♄37'01 | 30.64226 AU | retrograde | 4230 Apr 04 17:04 | 2°♄40'50 | |
| | | | | opposition | 4230 Jun 21 03:54 | 1°♄18'17 | 13°30'38 |
| conjunction | 4223 Dec 07 06:40 | 14°♄39'14 | 15°05'24 | min. Earth dist. | 4230 Jun 21 06:36 | 1°♄18'06 | 28.88482 AU |
| minimum elong | 4223 Dec 07 06:58 | 14°♄39'16 | 15°05'25 | | 4230 Aug 20 04:49 | 30°♄♂ | |
| retrograde | 4224 Mar 20 00:42 | 17°♄19'44 | | direct | 4230 Sep 09 03:30 | 29°♄53'32 | |
| opposition | 4224 Jun 04 20:56 | 15°♄56'39 | 15°58'22 | | 4230 Sep 28 17:13 | 0°♄ | |
| min. Earth dist. | 4224 Jun 05 16:35 | 15°♄55'16 | 28.71331 AU | evening set | 4230 Dec 16 01:34 | 2°♄12'52 | |
| direct | 4224 Aug 23 12:24 | 14°♄30'55 | | | | | |
| evening set | 4224 Dec 06 11:23 | 17°♄08'58 | | conjunction | 4230 Dec 24 20:13 | 2°♄33'40 | 12°24'30 |
| max. Earth dist. | 4224 Dec 08 07:48 | 17°♄13'27 | 30.64204 AU | minimum elong | 4230 Dec 24 20:36 | 2°♄33'42 | 12°24'30 |
| | | | | max. Earth dist. | 4230 Dec 24 19:39 | 2°♄33'36 | 30.86800 AU |
| conjunction | 4224 Dec 09 03:03 | 17°♄15'23 | 14°47'07 | morning rise | 4231 Jan 02 14:57 | 2°♄54'28 | |
| minimum elong | 4224 Dec 09 03:21 | 17°♄15'25 | 14°47'07 | retrograde | 4231 Apr 07 10:50 | 5°♄10'10 | |
| morning rise | 4224 Dec 11 19:15 | 17°♄21'52 | | opposition | 4231 Jun 23 23:45 | 3°♄47'49 | 13°00'39 |
| retrograde | 4225 Mar 22 20:13 | 19°♄55'36 | | min. Earth dist. | 4231 Jun 23 22:11 | 3°♄47'56 | 28.95352 AU |
| opposition | 4225 Jun 07 18:46 | 18°♄32'34 | 15°37'57 | direct | 4231 Sep 12 00:13 | 2°♄23'21 | |
| min. Earth dist. | 4225 Jun 08 12:30 | 18°♄31'20 | 28.71531 AU | evening set | 4231 Dec 18 02:13 | 4°♄40'13 | |
| direct | 4225 Aug 26 09:24 | 17°♄06'57 | | | | | |
| evening set | 4225 Dec 07 18:09 | 19°♄40'47 | | conjunction | 4231 Dec 27 13:10 | 5°♄02'30 | 11°55'55 |
| | | | | minimum elong | 4231 Dec 27 13:35 | 5°♄02'32 | 11°55'56 |
| conjunction | 4225 Dec 11 23:10 | 19°♄50'57 | 14°27'09 | max. Earth dist. | 4231 Dec 27 16:59 | 5°♄02'52 | 30.94644 AU |
| minimum elong | 4225 Dec 11 23:31 | 19°♄50'59 | 14°27'10 | morning rise | 4232 Jan 05 23:57 | 5°♄24'47 | |
| max. Earth dist. | 4225 Dec 11 07:19 | 19°♄49'21 | 30.65232 AU | retrograde | 4232 Apr 09 01:52 | 7°♄38'11 | |
| morning rise | 4225 Dec 16 04:40 | 20°♄01'10 | | opposition | 4232 Jun 25 19:12 | 6°♄16'04 | 12°29'23 |
| retrograde | 4226 Mar 25 15:42 | 22°♄30'45 | | min. Earth dist. | 4232 Jun 25 15:21 | 6°♄16'20 | 29.03396 AU |
| opposition | 4226 Jun 10 16:26 | 21°♄07'48 | 15°15'46 | direct | 4232 Sep 13 20:19 | 4°♄51'55 | |
| min. Earth dist. | 4226 Jun 11 06:51 | 21°♄06'47 | 28.72739 AU | evening set | 4232 Dec 19 03:42 | 7°♄06'25 | |
| direct | 4226 Aug 29 09:53 | 19°♄42'19 | | | | | |
| evening set | 4226 Dec 09 09:36 | 22°♄12'46 | | conjunction | 4232 Dec 29 05:32 | 7°♄30'02 | 11°26'12 |
| | | | | minimum elong | 4232 Dec 29 05:54 | 7°♄30'05 | 11°26'12 |
| conjunction | 4226 Dec 14 18:47 | 22°♄25'43 | 14°05'35 | max. Earth dist. | 4232 Dec 29 11:41 | 7°♄30'39 | 31.03649 AU |
| minimum elong | 4226 Dec 14 19:07 | 22°♄25'45 | 14°05'35 | morning rise | 4233 Jan 08 07:16 | 7°♄53'39 | |
| max. Earth dist. | 4226 Dec 14 05:08 | 22°♄24'21 | 30.67295 AU | retrograde | 4233 Apr 11 18:58 | 10°♄04'50 | |
| morning rise | 4226 Dec 20 04:21 | 22°♄38'43 | | opposition | 4233 Jun 28 13:47 | 8°♄43'00 | 11°56'56 |
| retrograde | 4227 Mar 28 11:27 | 25°♄05'01 | | min. Earth dist. | 4233 Jun 28 05:51 | 8°♄43'32 | 29.12568 AU |
| opposition | 4227 Jun 13 13:53 | 23°♄42'08 | 14°51'52 | direct | 4233 Sep 16 15:48 | 7°♄19'11 | |
| min. Earth dist. | 4227 Jun 14 01:39 | 23°♄41'19 | 28.74999 AU | evening set | 4233 Dec 21 05:34 | 9°♄31'24 | |
| direct | 4227 Sep 01 08:14 | 22°♄16'47 | | | | | |
| evening set | 4227 Dec 11 05:05 | 24°♄44'13 | | conjunction | 4233 Dec 31 21:25 | 9°♄56'15 | 10°55'27 |
| | | | | minimum elong | 4233 Dec 31 21:48 | 9°♄56'17 | 10°55'27 |
| conjunction | 4227 Dec 17 14:02 | 24°♄59'30 | 13°42'27 | max. Earth dist. | 4234 Jan 01 07:12 | 9°♄57'12 | 31.13732 AU |
| minimum elong | 4227 Dec 17 14:24 | 24°♄59'32 | 13°42'28 | morning rise | 4234 Jan 11 12:59 | 10°♄21'04 | |
| max. Earth dist. | 4227 Dec 17 04:24 | 24°♄58'32 | 30.70444 AU | retrograde | 4234 Apr 14 08:34 | 12°♄30'08 | |
| morning rise | 4227 Dec 23 23:12 | 25°♄14'49 | | opposition | 4234 Jul 01 08:10 | 11°♄08'35 | 11°23'27 |
| retrograde | 4228 Mar 30 05:01 | 27°♄38'12 | | min. Earth dist. | 4234 Jun 30 22:22 | 11°♄09'15 | 29.22794 AU |
| opposition | 4228 Jun 15 10:59 | 26°♄15'24 | 14°26'20 | direct | 4234 Sep 19 09:49 | 9°♄45'08 | |

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|------------------|-------------------|--------------------------|------------------|-------------------|--------------------------|-----------------------------------|
| evening set | 4234 Dec 23 07:54 | 11° $\overline{3}$ 55'08 | opposition | 4241 Jul 17 22:17 | 27° $\overline{3}$ 22'46 | 7°09'28 |
| | | | min. Earth dist. | 4241 Jul 16 18:22 | 27° $\overline{3}$ 24'35 | 30.19084 AU |
| conjunction | 4235 Jan 03 12:31 | 12° $\overline{3}$ 21'04 | 10°23'46 | direct | 4241 Oct 06 08:50 | 26° $\overline{3}$ 01'52 |
| minimum elong | 4235 Jan 03 12:53 | 12° $\overline{3}$ 21'06 | 10°23'47 | evening set | 4242 Jan 05 05:46 | 27° $\overline{3}$ 58'08 |
| max. Earth dist. | 4235 Jan 04 00:56 | 12° $\overline{3}$ 22'16 | 31.24835 AU | | | |
| morning rise | 4235 Jan 14 16:49 | 12° $\overline{3}$ 46'58 | | conjunction | 4242 Jan 19 03:25 | 28° $\overline{3}$ 28'46 |
| retrograde | 4235 Apr 16 22:47 | 14° $\overline{3}$ 53'59 | | minimum elong | 4242 Jan 19 03:41 | 28° $\overline{3}$ 28'47 |
| opposition | 4235 Jul 04 01:51 | 13° $\overline{3}$ 32'44 | 10°49'03 | max. Earth dist. | 4242 Jan 20 09:13 | 28° $\overline{3}$ 31'31 |
| min. Earth dist. | 4235 Jul 03 12:22 | 13° $\overline{3}$ 33'38 | 29.34000 AU | morning rise | 4242 Feb 02 00:41 | 28° $\overline{3}$ 59'21 |
| direct | 4235 Sep 22 05:09 | 12° $\overline{3}$ 09'39 | | | 4242 Mar 04 14:36 | 0° \approx |
| evening set | 4235 Dec 25 10:33 | 14° $\overline{3}$ 17'31 | | retrograde | 4242 May 02 11:15 | 0° \approx 53'53 |
| | | | | | 4242 Jul 03 22:04 | 30° \overline{R} $\overline{3}$ |
| conjunction | 4236 Jan 06 03:05 | 14° $\overline{3}$ 44'25 | 9°51'18 | min. Earth dist. | 4242 Jul 19 03:26 | 29° $\overline{3}$ 36'38 |
| minimum elong | 4236 Jan 06 03:27 | 14° $\overline{3}$ 44'27 | 9°51'18 | opposition | 4242 Jul 20 11:05 | 29° $\overline{3}$ 34'34 |
| max. Earth dist. | 4236 Jan 06 18:17 | 14° $\overline{3}$ 45'53 | 31.36869 AU | direct | 4242 Oct 08 23:31 | 28° $\overline{3}$ 14'02 |
| morning rise | 4236 Jan 17 19:17 | 15° $\overline{3}$ 11'17 | | | 4243 Jan 03 08:03 | 0° \approx |
| retrograde | 4236 Apr 18 12:35 | 17° $\overline{3}$ 16'21 | | evening set | 4243 Jan 07 08:52 | 0° \approx 08'37 |
| opposition | 4236 Jul 05 19:01 | 15° $\overline{3}$ 55'22 | 10°13'50 | | | |
| min. Earth dist. | 4236 Jul 05 03:26 | 15° $\overline{3}$ 56'25 | 29.46138 AU | conjunction | 4243 Jan 21 12:44 | 0° \approx 39'34 |
| direct | 4236 Sep 23 20:44 | 14° $\overline{3}$ 32'41 | | minimum elong | 4243 Jan 21 12:58 | 0° \approx 39'35 |
| evening set | 4236 Dec 26 13:27 | 16° $\overline{3}$ 38'27 | | max. Earth dist. | 4243 Jan 22 21:58 | 0° \approx 42'37 |
| | | | | morning rise | 4243 Feb 04 16:03 | 1° \approx 10'28 |
| conjunction | 4237 Jan 07 16:59 | 17° $\overline{3}$ 06'13 | 9°18'07 | retrograde | 4243 May 04 17:46 | 3° \approx 03'31 |
| minimum elong | 4237 Jan 07 17:20 | 17° $\overline{3}$ 06'15 | 9°18'07 | opposition | 4243 Jul 22 23:20 | 1° \approx 44'30 |
| max. Earth dist. | 4237 Jan 08 11:04 | 17° $\overline{3}$ 07'57 | 31.49792 AU | min. Earth dist. | 4243 Jul 21 14:00 | 1° \approx 46'40 |
| morning rise | 4237 Jan 19 20:01 | 17° $\overline{3}$ 33'57 | | direct | 4243 Oct 11 12:43 | 0° \approx 24'22 |
| retrograde | 4237 Apr 21 01:28 | 19° $\overline{3}$ 37'06 | | evening set | 4244 Jan 09 12:07 | 2° \approx 17'20 |
| opposition | 4237 Jul 08 11:28 | 18° $\overline{3}$ 16'25 | 9°37'56 | | | |
| min. Earth dist. | 4237 Jul 07 16:59 | 18° $\overline{3}$ 17'40 | 29.59121 AU | conjunction | 4244 Jan 23 21:23 | 2° \approx 48'32 |
| direct | 4237 Sep 26 15:26 | 16° $\overline{3}$ 54'06 | | minimum elong | 4244 Jan 23 21:36 | 2° \approx 48'33 |
| evening set | 4237 Dec 28 16:38 | 18° $\overline{3}$ 57'51 | | max. Earth dist. | 4244 Jan 25 08:37 | 2° \approx 51'44 |
| | | | | morning rise | 4244 Feb 07 06:09 | 3° \approx 19'41 |
| conjunction | 4238 Jan 10 06:09 | 19° $\overline{3}$ 26'22 | 8°44'21 | retrograde | 4244 May 06 01:00 | 5° \approx 11'17 |
| minimum elong | 4238 Jan 10 06:30 | 19° $\overline{3}$ 26'24 | 8°44'20 | min. Earth dist. | 4244 Jul 22 21:47 | 3° \approx 54'59 |
| max. Earth dist. | 4238 Jan 11 02:02 | 19° $\overline{3}$ 28'16 | 31.63519 AU | opposition | 4244 Jul 24 10:32 | 3° \approx 52'37 |
| morning rise | 4238 Jan 22 19:21 | 19° $\overline{3}$ 54'52 | | direct | 4244 Oct 13 01:42 | 2° \approx 32'53 |
| retrograde | 4238 Apr 23 15:20 | 21° $\overline{3}$ 56'11 | | evening set | 4245 Jan 10 15:13 | 4° \approx 24'19 |
| min. Earth dist. | 4238 Jul 10 06:15 | 20° $\overline{3}$ 37'10 | 29.72924 AU | | | |
| opposition | 4238 Jul 11 03:14 | 20° $\overline{3}$ 35'47 | 9°01'26 | conjunction | 4245 Jan 25 05:14 | 4° \approx 55'42 |
| direct | 4238 Sep 29 07:39 | 19° $\overline{3}$ 13'49 | | minimum elong | 4245 Jan 25 05:25 | 4° \approx 55'43 |
| evening set | 4238 Dec 30 19:53 | 21° $\overline{3}$ 15'36 | | max. Earth dist. | 4245 Jan 26 19:06 | 4° \approx 59'07 |
| | | | | morning rise | 4245 Feb 08 18:51 | 5° \approx 27'02 |
| conjunction | 4239 Jan 12 18:46 | 21° $\overline{3}$ 44'48 | 8°10'03 | retrograde | 4245 May 08 08:03 | 7° \approx 17'18 |
| minimum elong | 4239 Jan 12 19:05 | 21° $\overline{3}$ 44'49 | 8°10'04 | min. Earth dist. | 4245 Jul 25 06:32 | 6° \approx 01'27 |
| max. Earth dist. | 4239 Jan 13 17:54 | 21° $\overline{3}$ 46'59 | 31.78039 AU | opposition | 4245 Jul 26 21:13 | 5° \approx 58'58 |
| morning rise | 4239 Jan 25 17:00 | 22° $\overline{3}$ 13'56 | | direct | 4245 Oct 15 11:27 | 4° \approx 39'40 |
| retrograde | 4239 Apr 26 02:25 | 24° $\overline{3}$ 13'28 | | evening set | 4246 Jan 12 18:17 | 6° \approx 29'40 |
| opposition | 4239 Jul 13 18:26 | 22° $\overline{3}$ 53'20 | 8°24'29 | | | |
| min. Earth dist. | 4239 Jul 12 19:22 | 22° $\overline{3}$ 54'52 | 29.87508 AU | conjunction | 4246 Jan 27 12:27 | 7° \approx 01'09 |
| direct | 4239 Oct 02 00:58 | 21° $\overline{3}$ 31'44 | | minimum elong | 4246 Jan 27 12:37 | 7° \approx 01'10 |
| evening set | 4240 Jan 01 23:10 | 23° $\overline{3}$ 31'37 | | max. Earth dist. | 4246 Jan 29 04:48 | 7° \approx 04'47 |
| | | | | morning rise | 4246 Feb 11 06:05 | 7° \approx 32'37 |
| conjunction | 4240 Jan 15 06:19 | 24° $\overline{3}$ 01'22 | 7°35'21 | retrograde | 4246 May 10 13:45 | 9° \approx 21'37 |
| minimum elong | 4240 Jan 15 06:37 | 24° $\overline{3}$ 01'24 | 7°35'21 | min. Earth dist. | 4246 Jul 27 13:59 | 8° \approx 06'16 |
| max. Earth dist. | 4240 Jan 16 06:58 | 24° $\overline{3}$ 03'41 | 31.93324 AU | opposition | 4246 Jul 29 07:07 | 8° \approx 03'38 |
| morning rise | 4240 Jan 28 13:07 | 24° $\overline{3}$ 31'05 | | direct | 4246 Oct 17 23:12 | 6° \approx 44'47 |
| retrograde | 4240 Apr 27 14:39 | 26° $\overline{3}$ 28'53 | | evening set | 4247 Jan 14 21:27 | 8° \approx 33'24 |
| min. Earth dist. | 4240 Jul 14 06:29 | 25° $\overline{3}$ 10'45 | 30.02892 AU | | | |
| opposition | 4240 Jul 15 08:47 | 25° $\overline{3}$ 09'01 | 7°47'07 | conjunction | 4247 Jan 29 18:56 | 9° \approx 04'57 |
| direct | 4240 Oct 03 15:55 | 23° $\overline{3}$ 47'46 | | minimum elong | 4247 Jan 29 19:04 | 9° \approx 04'57 |
| evening set | 4241 Jan 03 02:23 | 25° $\overline{3}$ 45'48 | | max. Earth dist. | 4247 Jan 31 12:47 | 9° \approx 08'40 |
| | | | | morning rise | 4247 Feb 13 16:11 | 9° \approx 36'27 |
| conjunction | 4241 Jan 16 17:20 | 26° $\overline{3}$ 16'02 | 7°00'19 | retrograde | 4247 May 12 21:15 | 11° \approx 24'16 |
| minimum elong | 4241 Jan 16 17:37 | 26° $\overline{3}$ 16'04 | 7°00'20 | min. Earth dist. | 4247 Jul 29 21:02 | 10° \approx 09'24 |
| max. Earth dist. | 4241 Jan 17 21:34 | 26° $\overline{3}$ 18'40 | 32.09390 AU | opposition | 4247 Jul 31 16:29 | 10° \approx 06'39 |
| morning rise | 4241 Jan 30 07:37 | 26° $\overline{3}$ 46'14 | | direct | 4247 Oct 20 07:07 | 8° \approx 48'14 |
| retrograde | 4241 Apr 30 00:21 | 28° $\overline{3}$ 42'21 | | evening set | 4248 Jan 17 00:21 | 10° \approx 35'33 |

| | | | | | | | |
|------------------|-------------------|----------|-------------|------------------|-------------------|----------|-------------|
| conjunction | 4248 Feb 01 00:50 | 11°07'06 | 2°52'09 | conjunction | 4254 Feb 11 22:39 | 22°45'33 | -0°32'33 |
| minimum elong | 4248 Feb 01 00:57 | 11°07'06 | 2°52'09 | minimum elong | 4254 Feb 11 22:38 | 22°45'33 | 0°32'33 |
| max. Earth dist. | 4248 Feb 02 21:28 | 11°11'02 | 33.44096 AU | max. Earth dist. | 4254 Feb 14 03:31 | 22°50'00 | 34.80169 AU |
| morning rise | 4248 Feb 16 00:49 | 11°38'36 | | morning rise | 4254 Feb 27 04:34 | 23°16'04 | |
| retrograde | 4248 May 14 02:16 | 13°25'17 | | retrograde | 4254 May 25 20:50 | 24°57'04 | |
| min. Earth dist. | 4248 Jul 31 04:30 | 12°10'50 | 31.55016 AU | min. Earth dist. | 4254 Aug 12 07:55 | 23°45'04 | 32.91945 AU |
| opposition | 4248 Aug 02 01:09 | 12°08'02 | 2°44'29 | opposition | 4254 Aug 14 14:23 | 23°41'45 | -0°51'53 |
| direct | 4248 Oct 21 16:39 | 10°50'03 | | direct | 4254 Nov 03 11:33 | 22°26'08 | |
| evening set | 4249 Jan 18 03:31 | 12°36'08 | | evening set | 4255 Jan 29 18:58 | 24°05'56 | |
| conjunction | 4249 Feb 02 06:05 | 13°07'37 | 2°17'09 | conjunction | 4255 Feb 14 00:03 | 24°36'09 | -1°05'09 |
| minimum elong | 4249 Feb 02 06:10 | 13°07'38 | 2°17'10 | minimum elong | 4255 Feb 14 00:01 | 24°36'09 | 1°05'10 |
| max. Earth dist. | 4249 Feb 04 03:22 | 13°11'35 | 33.65894 AU | max. Earth dist. | 4255 Feb 16 07:08 | 24°40'45 | 35.04052 AU |
| morning rise | 4249 Feb 17 08:30 | 13°39'05 | | morning rise | 4255 Mar 01 05:02 | 25°06'22 | |
| | 4249 Apr 06 00:38 | 15° | | retrograde | 4255 May 27 20:51 | 26°46'37 | |
| retrograde | 4249 May 16 08:52 | 15°24'41 | | min. Earth dist. | 4255 Aug 14 10:28 | 25°34'59 | 33.16058 AU |
| | 4249 Jun 27 03:19 | 15° | | opposition | 4255 Aug 16 18:13 | 25°31'37 | -1°26'11 |
| min. Earth dist. | 4249 Aug 02 09:40 | 14°10'44 | 31.76943 AU | direct | 4255 Nov 05 16:57 | 24°16'22 | |
| opposition | 4249 Aug 04 08:54 | 14°07'47 | 2°07'21 | evening set | 4256 Jan 31 20:57 | 25°55'19 | |
| direct | 4249 Oct 24 00:33 | 12°50'13 | | conjunction | 4256 Feb 16 00:37 | 26°25'12 | -1°37'15 |
| evening set | 4250 Jan 20 06:29 | 14°35'09 | | minimum elong | 4256 Feb 16 00:33 | 26°25'12 | 1°37'15 |
| | 4250 Feb 01 07:41 | 15° | | max. Earth dist. | 4256 Feb 18 08:18 | 26°29'49 | 35.28328 AU |
| conjunction | 4250 Feb 04 10:51 | 15°06'31 | 1°42'27 | morning rise | 4256 Mar 02 04:35 | 26°55'06 | |
| minimum elong | 4250 Feb 04 10:55 | 15°06'32 | 1°42'28 | retrograde | 4256 May 28 23:46 | 28°34'38 | |
| max. Earth dist. | 4250 Feb 06 10:43 | 15°10'41 | 33.88097 AU | min. Earth dist. | 4256 Aug 15 11:16 | 27°23'26 | 33.40589 AU |
| morning rise | 4250 Feb 19 14:51 | 15°37'53 | | opposition | 4256 Aug 17 21:23 | 27°19'57 | -1°59'54 |
| retrograde | 4250 May 18 12:51 | 17°22'28 | | direct | 4256 Nov 06 18:41 | 26°05'06 | |
| min. Earth dist. | 4250 Aug 04 16:30 | 16°08'53 | 31.99260 AU | evening set | 4257 Feb 01 22:43 | 27°43'16 | |
| opposition | 4250 Aug 06 16:18 | 16°05'55 | 1°30'35 | conjunction | 4257 Feb 17 00:50 | 28°12'47 | -2°08'49 |
| | 4250 Sep 28 13:05 | 15° | | minimum elong | 4257 Feb 17 00:46 | 28°12'47 | 2°08'48 |
| direct | 4250 Oct 26 10:14 | 14°48'46 | | max. Earth dist. | 4257 Feb 19 11:02 | 28°17'34 | 35.52984 AU |
| | 4250 Nov 22 16:41 | 15° | | morning rise | 4257 Mar 04 03:01 | 28°42'19 | |
| evening set | 4251 Jan 22 09:20 | 16°32'34 | | | 4257 Apr 22 10:21 | 0° | |
| conjunction | 4251 Feb 06 14:45 | 17°03'47 | 1°08'06 | retrograde | 4257 May 31 00:13 | 0° | |
| minimum elong | 4251 Feb 06 14:47 | 17°03'48 | 1°08'07 | | 4257 Jul 09 17:37 | 30° | |
| max. Earth dist. | 4251 Feb 08 15:07 | 17°07'57 | 34.10649 AU | min. Earth dist. | 4257 Aug 17 13:16 | 29°10'21 | 33.65488 AU |
| morning rise | 4251 Feb 21 20:02 | 17°35'00 | | opposition | 4257 Aug 19 23:51 | 29°06'52 | -2°33'00 |
| retrograde | 4251 May 20 17:33 | 19°18'37 | | direct | 4257 Nov 08 21:31 | 27°52'25 | |
| min. Earth dist. | 4251 Aug 06 20:34 | 18°05'30 | 32.21922 AU | evening set | 4258 Feb 04 00:25 | 29°29'52 | |
| opposition | 4251 Aug 08 22:53 | 18°02'23 | 0°54'15 | conjunction | 4258 Feb 19 00:22 | 29°59'00 | -2°39'48 |
| direct | 4251 Oct 28 18:31 | 16°45'38 | | minimum elong | 4258 Feb 19 00:16 | 29°58'59 | 2°39'48 |
| evening set | 4252 Jan 24 12:05 | 18°28'22 | | | 4258 Feb 19 12:40 | 0° | |
| conjunction | 4252 Feb 08 18:08 | 18°59'24 | 0°34'08 | max. Earth dist. | 4258 Feb 21 10:59 | 0°03'47 | 35.77980 AU |
| minimum elong | 4252 Feb 08 18:10 | 18°59'24 | 0°34'09 | morning rise | 4258 Mar 06 00:37 | 0° | |
| max. Earth dist. | 4252 Feb 10 20:28 | 19°03'42 | 34.33503 AU | retrograde | 4258 Jun 02 00:22 | 2°06'26 | |
| morning rise | 4252 Feb 24 00:06 | 19°30'25 | | min. Earth dist. | 4258 Aug 19 12:44 | 0°56'03 | 33.90714 AU |
| retrograde | 4252 May 21 18:37 | 21°13'06 | | opposition | 4258 Aug 22 01:47 | 0°52'26 | -3°05'27 |
| min. Earth dist. | 4252 Aug 08 01:54 | 20°00'19 | 32.44915 AU | | 4258 Oct 01 20:28 | 30° | |
| opposition | 4252 Aug 10 04:45 | 19°57'11 | 0°18'22 | direct | 4258 Nov 10 23:43 | 29°38'23 | |
| direct | 4252 Oct 30 01:17 | 18°40'49 | | | 4258 Dec 19 23:31 | 0° | |
| evening set | 4253 Jan 25 14:34 | 20°22'31 | | evening set | 4259 Feb 06 01:48 | 1°15'09 | |
| conjunction | 4253 Feb 09 20:48 | 20°53'19 | 0°00'35 | conjunction | 4259 Feb 20 23:18 | 1°43'53 | -3°10'13 |
| minimum elong | 4253 Feb 09 20:50 | 20°53'19 | 0°00'35 | minimum elong | 4259 Feb 20 23:12 | 1°43'52 | 3°10'13 |
| behind sun begin | 4253 Feb 09 14:29 | 20°52'48 | | max. Earth dist. | 4259 Feb 23 11:53 | 1°48'47 | 36.03242 AU |
| behind sun end | 4253 Feb 10 03:10 | 20°53'49 | | morning rise | 4259 Mar 07 21:07 | 2°12'37 | |
| max. Earth dist. | 4253 Feb 12 00:21 | 20°57'41 | 34.56676 AU | retrograde | 4259 Jun 03 21:58 | 3°50'22 | |
| desc. node | 4253 Feb 16 01:34 | 21°05'55 | | min. Earth dist. | 4259 Aug 21 13:58 | 2°40'19 | 34.16197 AU |
| morning rise | 4253 Feb 25 02:56 | 21°24'06 | | opposition | 4259 Aug 24 03:18 | 2°36'41 | -3°37'16 |
| retrograde | 4253 May 23 19:01 | 23°05'55 | | direct | 4259 Nov 13 03:15 | 1°23'03 | |
| min. Earth dist. | 4253 Aug 10 04:59 | 21°53'32 | 32.68237 AU | evening set | 4260 Feb 08 03:09 | 2°59'11 | |
| opposition | 4253 Aug 12 09:50 | 21°50'18 | -0°17'02 | conjunction | 4260 Feb 22 21:52 | 3°27'29 | -3°40'02 |
| direct | 4253 Nov 01 08:23 | 20°34'18 | | minimum elong | 4260 Feb 22 21:45 | 3°27'28 | 3°40'01 |
| evening set | 4254 Jan 27 16:54 | 22°15'01 | | | | | |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|------------------------|-------------|
| max. Earth dist. | 4260 Feb 25 11:10 | 3° ✕ 32'24 | 36.28716 AU | conjunction | 4267 Mar 05 22:03 | 14° ✕ 56'37 | -6°51'26 |
| morning rise | 4260 Mar 08 16:52 | 3° ✕ 55'47 | | minimum elong | 4267 Mar 05 21:52 | 14° ✕ 56'36 | 6°51'27 |
| retrograde | 4260 Jun 04 18:52 | 5° ✕ 33'01 | | max. Earth dist. | 4267 Mar 08 15:59 | 15° ✕ 01'40 | 38.07686 AU |
| min. Earth dist. | 4260 Aug 22 13:10 | 4° ✕ 23'22 | 34.41850 AU | morning rise | 4267 Mar 19 12:22 | 15° ✕ 21'24 | |
| opposition | 4260 Aug 25 03:55 | 4° ✕ 19'41 | -4°08'24 | retrograde | 4267 Jun 16 16:41 | 16° ✕ 55'50 | |
| direct | 4260 Nov 14 06:10 | 3° ✕ 06'25 | | min. Earth dist. | 4267 Sep 03 23:35 | 15° ✕ 48'15 | 36.21964 AU |
| evening set | 4261 Feb 09 04:29 | 4° ✕ 41'58 | | opposition | 4267 Sep 06 18:52 | 15° ✕ 44'26 | -7°27'22 |
| | | | | direct | 4267 Nov 27 00:40 | 14° ✕ 33'27 | |
| conjunction | 4261 Feb 23 19:54 | 5° ✕ 09'48 | -4°09'14 | evening set | 4268 Feb 22 08:12 | 16° ✕ 05'41 | |
| minimum elong | 4261 Feb 23 19:46 | 5° ✕ 09'48 | 4°09'15 | | | | |
| max. Earth dist. | 4261 Feb 26 09:52 | 5° ✕ 14'45 | 36.54300 AU | conjunction | 4268 Mar 06 16:38 | 16° ✕ 29'51 | -7°16'14 |
| morning rise | 4261 Mar 10 11:53 | 5° ✕ 37'40 | | minimum elong | 4268 Mar 06 16:27 | 16° ✕ 29'50 | 7°16'13 |
| retrograde | 4261 Jun 06 17:02 | 7° ✕ 14'25 | | max. Earth dist. | 4268 Mar 09 10:56 | 16° ✕ 34'53 | 38.33291 AU |
| min. Earth dist. | 4261 Aug 24 12:49 | 6° ✕ 05'07 | 34.67611 AU | morning rise | 4268 Mar 20 01:52 | 16° ✕ 54'04 | |
| opposition | 4261 Aug 27 04:16 | 6° ✕ 01'25 | -4°38'53 | retrograde | 4268 Jun 17 11:08 | 18° ✕ 28'15 | |
| direct | 4261 Nov 16 05:56 | 4° ✕ 48'33 | | min. Earth dist. | 4268 Sep 04 19:12 | 17° ✕ 20'57 | 36.47820 AU |
| evening set | 4262 Feb 11 05:28 | 6° ✕ 23'32 | | opposition | 4268 Sep 07 15:21 | 17° ✕ 17'06 | -7°53'01 |
| | | | | direct | 4268 Nov 27 20:54 | 16° ✕ 06'26 | |
| conjunction | 4262 Feb 25 17:30 | 6° ✕ 50'53 | -4°37'50 | evening set | 4269 Feb 23 07:51 | 17° ✕ 38'21 | |
| minimum elong | 4262 Feb 25 17:22 | 6° ✕ 50'52 | 4°37'50 | | | | |
| max. Earth dist. | 4262 Feb 28 08:49 | 6° ✕ 55'54 | 36.79941 AU | conjunction | 4269 Mar 08 10:56 | 18° ✕ 01'57 | -7°40'23 |
| morning rise | 4262 Mar 12 05:49 | 7° ✕ 18'16 | | minimum elong | 4269 Mar 08 10:44 | 18° ✕ 01'56 | 7°40'23 |
| retrograde | 4262 Jun 08 13:13 | 8° ✕ 54'35 | | max. Earth dist. | 4269 Mar 11 06:50 | 18° ✕ 07'04 | 38.58996 AU |
| min. Earth dist. | 4262 Aug 26 12:17 | 7° ✕ 45'36 | 34.93387 AU | morning rise | 4269 Mar 21 14:29 | 18° ✕ 25'36 | |
| opposition | 4262 Aug 29 04:04 | 7° ✕ 41'53 | -5°08'40 | retrograde | 4269 Jun 19 04:50 | 19° ✕ 59'33 | |
| direct | 4262 Nov 18 06:48 | 6° ✕ 29'22 | | min. Earth dist. | 4269 Sep 06 15:06 | 18° ✕ 52'31 | 36.73753 AU |
| evening set | 4263 Feb 13 06:34 | 8° ✕ 03'49 | | opposition | 4269 Sep 09 11:26 | 18° ✕ 48'40 | -8°17'57 |
| | | | | direct | 4269 Nov 29 17:19 | 17° ✕ 38'21 | |
| conjunction | 4263 Feb 27 14:36 | 8° ✕ 30'41 | -5°05'49 | evening set | 4270 Feb 25 07:23 | 19° ✕ 09'58 | |
| minimum elong | 4263 Feb 27 14:27 | 8° ✕ 30'40 | 5°05'49 | | | | |
| max. Earth dist. | 4263 Mar 02 05:29 | 8° ✕ 35'38 | 37.05564 AU | conjunction | 4270 Mar 10 04:31 | 19° ✕ 32'59 | -8°03'53 |
| morning rise | 4263 Mar 13 23:16 | 8° ✕ 57'35 | | minimum elong | 4270 Mar 10 04:19 | 19° ✕ 32'58 | 8°03'52 |
| retrograde | 4263 Jun 10 12:30 | 10° ✕ 33'29 | | max. Earth dist. | 4270 Mar 13 00:08 | 19° ✕ 38'03 | 38.84768 AU |
| min. Earth dist. | 4263 Aug 28 10:12 | 9° ✕ 24'49 | 35.19150 AU | morning rise | 4270 Mar 23 02:25 | 19° ✕ 56'03 | |
| opposition | 4263 Aug 31 03:20 | 9° ✕ 21'04 | -5°37'47 | retrograde | 4270 Jun 21 00:55 | 21° ✕ 29'49 | |
| direct | 4263 Nov 20 03:56 | 8° ✕ 08'53 | | min. Earth dist. | 4270 Sep 08 09:04 | 20° ✕ 23'09 | 36.99753 AU |
| evening set | 4264 Feb 15 07:16 | 9° ✕ 42'49 | | opposition | 4270 Sep 11 07:05 | 20° ✕ 19'14 | -8°42'11 |
| | | | | direct | 4270 Dec 01 10:37 | 19° ✕ 09'15 | |
| conjunction | 4264 Feb 29 11:19 | 10° ✕ 09'11 | -5°33'10 | evening set | 4271 Feb 27 06:41 | 20° ✕ 40'37 | |
| minimum elong | 4264 Feb 29 11:08 | 10° ✕ 09'10 | 5°33'10 | | | | |
| max. Earth dist. | 4264 Mar 03 03:40 | 10° ✕ 14'12 | 37.31139 AU | conjunction | 4271 Mar 11 21:58 | 21° ✕ 03'03 | -8°26'44 |
| morning rise | 4264 Mar 14 15:46 | 10° ✕ 35'34 | | minimum elong | 4271 Mar 11 21:45 | 21° ✕ 03'02 | 8°26'44 |
| retrograde | 4264 Jun 11 08:43 | 12° ✕ 11'04 | | max. Earth dist. | 4271 Mar 14 19:08 | 21° ✕ 08'12 | 39.10577 AU |
| min. Earth dist. | 4264 Aug 29 09:31 | 11° ✕ 02'37 | 35.44854 AU | morning rise | 4271 Mar 24 13:50 | 21° ✕ 25'33 | |
| opposition | 4264 Sep 01 02:06 | 10° ✕ 58'55 | -6°06'13 | retrograde | 4271 Jun 22 18:22 | 22° ✕ 59'09 | |
| direct | 4264 Nov 21 03:04 | 9° ✕ 47'03 | | min. Earth dist. | 4271 Sep 10 04:57 | 21° ✕ 52'43 | 37.25768 AU |
| evening set | 4265 Feb 16 07:54 | 11° ✕ 20'31 | | opposition | 4271 Sep 13 02:21 | 21° ✕ 48'52 | -9°05'43 |
| | | | | direct | 4271 Dec 03 05:56 | 20° ✕ 39'13 | |
| conjunction | 4265 Mar 02 07:25 | 11° ✕ 46'20 | -5°59'54 | evening set | 4272 Feb 29 05:57 | 22° ✕ 10'22 | |
| minimum elong | 4265 Mar 02 07:15 | 11° ✕ 46'19 | 5°59'54 | | | | |
| max. Earth dist. | 4265 Mar 04 23:24 | 11° ✕ 51'17 | 37.56657 AU | conjunction | 4272 Mar 12 14:57 | 22° ✕ 32'13 | -8°48'56 |
| morning rise | 4265 Mar 16 07:31 | 12° ✕ 12'12 | | minimum elong | 4272 Mar 12 14:45 | 22° ✕ 32'12 | 8°48'56 |
| retrograde | 4265 Jun 13 04:55 | 13° ✕ 47'18 | | max. Earth dist. | 4272 Mar 15 11:53 | 22° ✕ 37'19 | 39.36374 AU |
| min. Earth dist. | 4265 Aug 31 05:54 | 12° ✕ 39'11 | 35.70522 AU | morning rise | 4272 Mar 25 00:34 | 22° ✕ 54'07 | |
| opposition | 4265 Sep 03 00:04 | 12° ✕ 35'24 | -6°33'58 | retrograde | 4272 Jun 23 11:13 | 24° ✕ 27'35 | |
| direct | 4265 Nov 23 02:21 | 11° ✕ 23'50 | | min. Earth dist. | 4272 Sep 10 22:24 | 23° ✕ 21'31 | 37.51731 AU |
| evening set | 4266 Feb 18 08:14 | 12° ✕ 56'51 | | opposition | 4272 Sep 13 21:03 | 23° ✕ 17'36 | -9°28'35 |
| | | | | direct | 4272 Dec 04 01:41 | 22° ✕ 08'17 | |
| conjunction | 4266 Mar 04 03:01 | 13° ✕ 22'08 | -6°25'59 | evening set | 4273 Mar 02 05:06 | 23° ✕ 39'16 | |
| minimum elong | 4266 Mar 04 02:50 | 13° ✕ 22'07 | 6°25'59 | | | | |
| max. Earth dist. | 4266 Mar 06 20:16 | 13° ✕ 27'09 | 37.82148 AU | conjunction | 4273 Mar 14 07:36 | 24° ✕ 00'31 | -9°10'31 |
| morning rise | 4266 Mar 17 22:26 | 13° ✕ 47'28 | | minimum elong | 4273 Mar 14 07:23 | 24° ✕ 00'30 | 9°10'32 |
| retrograde | 4266 Jun 14 23:43 | 15° ✕ 22'13 | | max. Earth dist. | 4273 Mar 17 05:05 | 24° ✕ 05'37 | 39.62072 AU |
| min. Earth dist. | 4266 Sep 02 03:42 | 14° ✕ 14'19 | 35.96214 AU | morning rise | 4273 Mar 26 10:51 | 24° ✕ 21'48 | |
| opposition | 4266 Sep 04 21:49 | 14° ✕ 10'33 | -7°01'01 | retrograde | 4273 Jun 25 03:28 | 25° ✕ 55'11 | |
| direct | 4266 Nov 25 01:24 | 12° ✕ 59'17 | | min. Earth dist. | 4273 Sep 12 17:11 | 24° ✕ 49'22 | 37.77584 AU |
| evening set | 4267 Feb 20 08:12 | 14° ✕ 31'53 | | opposition | 4273 Sep 15 15:27 | 24° ✕ 45'29 | -9°50'46 |

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|------------------|-------------------|---|------------------|-------------------|---|
| direct | 4273 Dec 05 20:40 | 23° $\mathbf{\text{H}}$ 36'30 | conjunction | 4280 Mar 23 18:50 | 3° $\mathbf{\text{Y}}$ 53'31 -11°24'49 |
| evening set | 4274 Mar 04 04:09 | 25° $\mathbf{\text{H}}$ 07'20 | minimum elong | 4280 Mar 23 18:38 | 3° $\mathbf{\text{Y}}$ 53'31 11°24'49 |
| | | | max. Earth dist. | 4280 Mar 26 16:26 | 3° $\mathbf{\text{Y}}$ 58'26 41.36209 AU |
| conjunction | 4274 Mar 16 00:04 | 25° $\mathbf{\text{H}}$ 27'58 -9°31'29 | morning rise | 4280 Apr 02 18:45 | 4° $\mathbf{\text{Y}}$ 10'21 |
| minimum elong | 4274 Mar 15 23:52 | 25° $\mathbf{\text{H}}$ 27'57 9°31'29 | retrograde | 4280 Jul 04 12:57 | 5° $\mathbf{\text{Y}}$ 43'26 |
| max. Earth dist. | 4274 Mar 18 21:58 | 25° $\mathbf{\text{H}}$ 33'04 39.87633 AU | min. Earth dist. | 4280 Sep 22 14:28 | 4° $\mathbf{\text{Y}}$ 39'08 39.52532 AU |
| morning rise | 4274 Mar 27 20:29 | 25° $\mathbf{\text{H}}$ 48'38 | opposition | 4280 Sep 25 13:08 | 4° $\mathbf{\text{Y}}$ 35'21 -12°08'16 |
| retrograde | 4274 Jun 26 17:59 | 27° $\mathbf{\text{H}}$ 21'57 | direct | 4280 Dec 15 20:47 | 3° $\mathbf{\text{Y}}$ 28'12 |
| min. Earth dist. | 4274 Sep 14 11:05 | 26° $\mathbf{\text{H}}$ 16'24 38.03251 AU | evening set | 4281 Mar 15 17:36 | 4° $\mathbf{\text{Y}}$ 58'23 |
| opposition | 4274 Sep 17 09:28 | 26° $\mathbf{\text{H}}$ 12'32 -10°12'18 | | | |
| direct | 4274 Dec 07 16:33 | 25° $\mathbf{\text{H}}$ 03'51 | conjunction | 4281 Mar 25 08:49 | 5° $\mathbf{\text{Y}}$ 14'31 -11°41'39 |
| evening set | 4275 Mar 06 03:05 | 26° $\mathbf{\text{H}}$ 34'33 | minimum elong | 4281 Mar 25 08:36 | 5° $\mathbf{\text{Y}}$ 14'30 11°41'39 |
| | | | max. Earth dist. | 4281 Mar 28 07:25 | 5° $\mathbf{\text{Y}}$ 19'28 41.60426 AU |
| conjunction | 4275 Mar 17 15:59 | 26° $\mathbf{\text{H}}$ 54'33 -9°51'51 | morning rise | 4281 Apr 04 00:22 | 5° $\mathbf{\text{Y}}$ 30'41 |
| minimum elong | 4275 Mar 17 15:46 | 26° $\mathbf{\text{H}}$ 54'32 9°51'51 | retrograde | 4281 Jul 06 00:45 | 7° $\mathbf{\text{Y}}$ 03'48 |
| max. Earth dist. | 4275 Mar 20 13:05 | 26° $\mathbf{\text{H}}$ 59'35 40.12974 AU | min. Earth dist. | 4281 Sep 24 05:53 | 5° $\mathbf{\text{Y}}$ 59'42 39.76903 AU |
| morning rise | 4275 Mar 29 05:39 | 27° $\mathbf{\text{H}}$ 14'37 | opposition | 4281 Sep 27 04:20 | 5° $\mathbf{\text{Y}}$ 55'56 -12°25'24 |
| retrograde | 4275 Jun 28 11:09 | 28° $\mathbf{\text{H}}$ 47'52 | direct | 4281 Dec 17 14:09 | 4° $\mathbf{\text{Y}}$ 49'03 |
| min. Earth dist. | 4275 Sep 16 04:26 | 27° $\mathbf{\text{H}}$ 42'34 38.28692 AU | evening set | 4282 Mar 17 15:41 | 6° $\mathbf{\text{Y}}$ 19'14 |
| opposition | 4275 Sep 19 03:10 | 27° $\mathbf{\text{H}}$ 38'42 -10°33'12 | | | |
| direct | 4275 Dec 09 09:28 | 26° $\mathbf{\text{H}}$ 30'19 | conjunction | 4282 Mar 26 22:22 | 6° $\mathbf{\text{Y}}$ 34'41 -11°57'54 |
| evening set | 4276 Mar 07 01:55 | 28° $\mathbf{\text{H}}$ 00'52 | minimum elong | 4282 Mar 26 22:10 | 6° $\mathbf{\text{Y}}$ 34'40 11°57'54 |
| | | | max. Earth dist. | 4282 Mar 29 20:08 | 6° $\mathbf{\text{Y}}$ 39'33 41.84552 AU |
| conjunction | 4276 Mar 18 07:53 | 28° $\mathbf{\text{H}}$ 20'16 -10°11'37 | morning rise | 4282 Apr 05 05:33 | 6° $\mathbf{\text{Y}}$ 50'12 |
| minimum elong | 4276 Mar 18 07:41 | 28° $\mathbf{\text{H}}$ 20'15 10°11'36 | retrograde | 4282 Jul 07 16:43 | 8° $\mathbf{\text{Y}}$ 23'22 |
| max. Earth dist. | 4276 Mar 21 05:53 | 28° $\mathbf{\text{H}}$ 25'19 40.38063 AU | min. Earth dist. | 4282 Sep 25 19:51 | 7° $\mathbf{\text{Y}}$ 19'32 40.01185 AU |
| morning rise | 4276 Mar 29 14:20 | 28° $\mathbf{\text{H}}$ 39'42 | opposition | 4282 Sep 28 19:19 | 7° $\mathbf{\text{Y}}$ 15'44 -12°41'56 |
| | 4276 May 28 06:14 | 0° $\mathbf{\text{Y}}$ | direct | 4282 Dec 19 03:15 | 6° $\mathbf{\text{Y}}$ 09'07 |
| retrograde | 4276 Jun 29 03:31 | 0° $\mathbf{\text{Y}}$ 12'53 | evening set | 4283 Mar 19 13:28 | 7° $\mathbf{\text{Y}}$ 39'19 |
| | 4276 Jul 31 17:27 | 30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$ | | | |
| min. Earth dist. | 4276 Sep 16 22:35 | 29° $\mathbf{\text{H}}$ 07'45 38.53856 AU | conjunction | 4283 Mar 28 11:39 | 7° $\mathbf{\text{Y}}$ 54'07 -12°13'35 |
| opposition | 4276 Sep 19 20:16 | 29° $\mathbf{\text{H}}$ 03'57 -10°53'28 | minimum elong | 4283 Mar 28 11:27 | 7° $\mathbf{\text{Y}}$ 54'06 12°13'34 |
| direct | 4276 Dec 10 02:08 | 27° $\mathbf{\text{H}}$ 55'50 | max. Earth dist. | 4283 Mar 31 10:34 | 7° $\mathbf{\text{Y}}$ 59'02 42.08563 AU |
| evening set | 4277 Mar 09 00:40 | 29° $\mathbf{\text{H}}$ 26'17 | morning rise | 4283 Apr 06 10:13 | 8° $\mathbf{\text{Y}}$ 08'57 |
| | | | retrograde | 4283 Jul 09 07:42 | 9° $\mathbf{\text{Y}}$ 42'13 |
| conjunction | 4277 Mar 19 23:12 | 29° $\mathbf{\text{H}}$ 45'02 -10°30'48 | min. Earth dist. | 4283 Sep 27 11:36 | 8° $\mathbf{\text{Y}}$ 38'33 40.25325 AU |
| minimum elong | 4277 Mar 19 22:59 | 29° $\mathbf{\text{H}}$ 45'01 10°30'48 | opposition | 4283 Sep 30 10:03 | 8° $\mathbf{\text{Y}}$ 34'49 -12°57'52 |
| max. Earth dist. | 4277 Mar 22 20:06 | 29° $\mathbf{\text{H}}$ 49'58 40.62889 AU | direct | 4283 Dec 20 16:41 | 7° $\mathbf{\text{Y}}$ 28'28 |
| | 4277 Mar 28 16:18 | 0° $\mathbf{\text{Y}}$ | evening set | 4284 Mar 20 11:32 | 8° $\mathbf{\text{Y}}$ 58'44 |
| morning rise | 4277 Mar 30 22:20 | 0° $\mathbf{\text{Y}}$ 03'50 | | | |
| retrograde | 4277 Jun 30 20:29 | 1° $\mathbf{\text{Y}}$ 36'57 | conjunction | 4284 Mar 29 00:47 | 9° $\mathbf{\text{Y}}$ 12'51 -12°28'42 |
| min. Earth dist. | 4277 Sep 18 14:19 | 0° $\mathbf{\text{Y}}$ 32'05 38.78771 AU | minimum elong | 4284 Mar 29 00:36 | 9° $\mathbf{\text{Y}}$ 12'50 12°28'43 |
| opposition | 4277 Sep 21 13:01 | 0° $\mathbf{\text{Y}}$ 28'15 -11°13'06 | max. Earth dist. | 4284 Mar 31 23:07 | 9° $\mathbf{\text{Y}}$ 17'41 42.32422 AU |
| | 4277 Oct 13 21:41 | 30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$ | morning rise | 4284 Apr 06 14:22 | 9° $\mathbf{\text{Y}}$ 26'59 |
| direct | 4277 Dec 11 17:20 | 29° $\mathbf{\text{H}}$ 20'23 | retrograde | 4284 Jul 09 20:32 | 11° $\mathbf{\text{Y}}$ 00'22 |
| | 4278 Feb 06 00:50 | 0° $\mathbf{\text{Y}}$ | min. Earth dist. | 4284 Sep 28 00:56 | 9° $\mathbf{\text{Y}}$ 56'58 40.49273 AU |
| evening set | 4278 Mar 10 22:59 | 0° $\mathbf{\text{Y}}$ 50'43 | opposition | 4284 Oct 01 00:09 | 9° $\mathbf{\text{Y}}$ 53'13 -13°13'13 |
| | | | direct | 4284 Dec 21 06:31 | 8° $\mathbf{\text{Y}}$ 47'07 |
| conjunction | 4278 Mar 21 14:03 | 1° $\mathbf{\text{Y}}$ 08'50 -10°49'24 | evening set | 4285 Mar 22 09:29 | 10° $\mathbf{\text{Y}}$ 17'30 |
| minimum elong | 4278 Mar 21 13:51 | 1° $\mathbf{\text{Y}}$ 08'49 10°49'24 | | | |
| max. Earth dist. | 4278 Mar 24 11:44 | 1° $\mathbf{\text{Y}}$ 13'47 40.87477 AU | conjunction | 4285 Mar 30 13:35 | 10° $\mathbf{\text{Y}}$ 30'55 -12°43'17 |
| morning rise | 4278 Apr 01 05:41 | 1° $\mathbf{\text{Y}}$ 26'59 | minimum elong | 4285 Mar 30 13:24 | 10° $\mathbf{\text{Y}}$ 30'54 12°43'17 |
| retrograde | 4278 Jul 02 10:38 | 3° $\mathbf{\text{Y}}$ 00'04 | max. Earth dist. | 4285 Apr 02 11:47 | 10° $\mathbf{\text{Y}}$ 35'44 42.56054 AU |
| min. Earth dist. | 4278 Sep 20 07:47 | 1° $\mathbf{\text{Y}}$ 55'20 39.03486 AU | morning rise | 4285 Apr 07 18:06 | 10° $\mathbf{\text{Y}}$ 44'21 |
| opposition | 4278 Sep 23 05:34 | 1° $\mathbf{\text{Y}}$ 51'34 -11°32'07 | retrograde | 4285 Jul 11 08:56 | 12° $\mathbf{\text{Y}}$ 17'54 |
| direct | 4278 Dec 13 10:46 | 0° $\mathbf{\text{Y}}$ 43'56 | min. Earth dist. | 4285 Sep 29 15:56 | 11° $\mathbf{\text{Y}}$ 14'41 40.72980 AU |
| evening set | 4279 Mar 12 21:21 | 2° $\mathbf{\text{Y}}$ 14'11 | opposition | 4285 Oct 02 14:18 | 11° $\mathbf{\text{Y}}$ 10'59 -13°28'00 |
| | | | direct | 4285 Dec 22 21:03 | 10° $\mathbf{\text{Y}}$ 05'09 |
| conjunction | 4279 Mar 23 04:41 | 2° $\mathbf{\text{Y}}$ 31'39 -11°07'24 | evening set | 4286 Mar 24 07:28 | 11° $\mathbf{\text{Y}}$ 35'40 |
| minimum elong | 4279 Mar 23 04:27 | 2° $\mathbf{\text{Y}}$ 31'38 11°07'24 | | | |
| max. Earth dist. | 4279 Mar 26 02:20 | 2° $\mathbf{\text{Y}}$ 36'35 41.11907 AU | conjunction | 4286 Apr 01 02:12 | 11° $\mathbf{\text{Y}}$ 48'22 -12°57'20 |
| morning rise | 4279 Apr 02 12:25 | 2° $\mathbf{\text{Y}}$ 49'09 | minimum elong | 4286 Apr 01 02:01 | 11° $\mathbf{\text{Y}}$ 48'22 12°57'21 |
| retrograde | 4279 Jul 03 23:00 | 4° $\mathbf{\text{Y}}$ 22'12 | max. Earth dist. | 4286 Apr 04 00:38 | 11° $\mathbf{\text{Y}}$ 53'11 42.79416 AU |
| min. Earth dist. | 4279 Sep 21 22:56 | 3° $\mathbf{\text{Y}}$ 17'42 39.28057 AU | morning rise | 4286 Apr 08 21:06 | 12° $\mathbf{\text{Y}}$ 01'05 |
| opposition | 4279 Sep 24 21:27 | 3° $\mathbf{\text{Y}}$ 13'54 -11°50'30 | retrograde | 4286 Jul 12 19:24 | 13° $\mathbf{\text{Y}}$ 34'49 |
| direct | 4279 Dec 15 04:34 | 2° $\mathbf{\text{Y}}$ 06'31 | min. Earth dist. | 4286 Oct 01 06:12 | 12° $\mathbf{\text{Y}}$ 31'48 40.96361 AU |
| evening set | 4280 Mar 13 19:33 | 3° $\mathbf{\text{Y}}$ 36'43 | opposition | 4286 Oct 04 04:05 | 12° $\mathbf{\text{Y}}$ 28'08 -13°42'14 |

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|------------------|-------------------|-----------------------|--|------------------|-------------------|-----------------------|-------------|
| direct | 4286 Dec 24 13:07 | 11°♈22'34 | | retrograde | 4293 Jul 21 04:01 | 22°♈15'01 | |
| evening set | 4287 Mar 26 05:45 | 12°♈53'14 | | min. Earth dist. | 4293 Oct 10 01:40 | 21°♈13'04 | 42.49972 AU |
| | | | | opposition | 4293 Oct 12 20:09 | 21°♈09'40 | -15°07'42 |
| conjunction | 4287 Apr 02 14:36 | 13°♈05'12 -13°10'54 | | direct | 4294 Jan 02 07:27 | 20°♈05'33 | |
| minimum elong | 4287 Apr 02 14:25 | 13°♈05'11 13°10'53 | | evening set | 4294 Apr 07 02:24 | 21°♈38'23 | |
| max. Earth dist. | 4287 Apr 05 11:40 | 13°♈09'54 43.02429 AU | | | | | |
| morning rise | 4287 Apr 09 23:45 | 13°♈17'12 | | conjunction | 4294 Apr 10 22:15 | 21°♈44'24 -14°32'16 | |
| retrograde | 4287 Jul 14 09:01 | 14°♈51'08 | | minimum elong | 4294 Apr 10 22:06 | 21°♈44'24 14°32'16 | |
| min. Earth dist. | 4287 Oct 02 19:41 | 13°♈48'19 41.19381 AU | | morning rise | 4294 Apr 14 18:00 | 21°♈50'26 | |
| opposition | 4287 Oct 05 17:33 | 13°♈44'40 -13°55'57 | | max. Earth dist. | 4294 Apr 13 16:55 | 21°♈48'47 44.53752 AU | |
| direct | 4287 Dec 26 01:54 | 12°♈39'20 | | retrograde | 4294 Jul 22 16:52 | 23°♈26'48 | |
| evening set | 4288 Mar 27 04:06 | 14°♈10'10 | | min. Earth dist. | 4294 Oct 11 12:20 | 22°♈25'05 42.70865 AU | |
| | | | | opposition | 4294 Oct 14 07:38 | 22°♈21'39 -15°17'54 | |
| conjunction | 4288 Apr 03 02:55 | 14°♈21'24 -13°23'57 | | direct | 4295 Jan 03 17:03 | 21°♈17'44 | |
| minimum elong | 4288 Apr 03 02:45 | 14°♈21'24 13°23'58 | | evening set | 4295 Apr 09 06:21 | 22°♈51'16 | |
| max. Earth dist. | 4288 Apr 06 00:25 | 14°♈26'06 43.25050 AU | | | | | |
| morning rise | 4288 Apr 10 01:53 | 14°♈32'40 | | conjunction | 4295 Apr 12 08:41 | 22°♈56'07 -14°41'59 | |
| retrograde | 4288 Jul 14 21:42 | 16°♈06'48 | | minimum elong | 4295 Apr 12 08:34 | 22°♈56'07 14°41'59 | |
| min. Earth dist. | 4288 Oct 03 10:30 | 15°♈04'06 41.41977 AU | | morning rise | 4295 Apr 15 10:56 | 23°♈00'58 | |
| opposition | 4288 Oct 06 06:49 | 15°♈00'33 -14°09'10 | | max. Earth dist. | 4295 Apr 15 03:49 | 23°♈00'30 44.74378 AU | |
| direct | 4288 Dec 26 15:24 | 13°♈59'26 | | retrograde | 4295 Jul 24 04:56 | 24°♈38'04 | |
| evening set | 4289 Mar 29 02:43 | 15°♈26'28 | | min. Earth dist. | 4295 Oct 13 00:54 | 23°♈36'27 42.91529 AU | |
| | | | | opposition | 4295 Oct 15 18:52 | 23°♈33'06 -15°27'36 | |
| conjunction | 4289 Apr 04 14:49 | 15°♈36'56 -13°36'32 | | direct | 4296 Jan 05 02:21 | 22°♈29'25 | |
| minimum elong | 4289 Apr 04 14:39 | 15°♈36'56 13°36'32 | | evening set | 4296 Apr 10 14:56 | 24°♈03'58 | |
| max. Earth dist. | 4289 Apr 07 10:48 | 15°♈41'30 43.47264 AU | | | | | |
| morning rise | 4289 Apr 11 03:03 | 15°♈47'26 | | conjunction | 4296 Apr 12 18:58 | 24°♈07'21 -14°51'14 | |
| retrograde | 4289 Jul 16 11:39 | 17°♈21'48 | | minimum elong | 4296 Apr 12 18:50 | 24°♈07'20 14°51'14 | |
| min. Earth dist. | 4289 Oct 04 22:53 | 16°♈19'18 41.64169 AU | | morning rise | 4296 Apr 14 22:49 | 24°♈10'43 | |
| opposition | 4289 Oct 07 19:38 | 16°♈15'44 -14°21'53 | | max. Earth dist. | 4296 Apr 15 13:35 | 24°♈11'40 44.94775 AU | |
| direct | 4289 Dec 28 02:08 | 15°♈10'49 | | retrograde | 4296 Jul 24 14:39 | 25°♈48'51 | |
| evening set | 4290 Mar 31 01:25 | 16°♈42'06 | | min. Earth dist. | 4296 Oct 13 11:36 | 24°♈47'27 43.11919 AU | |
| | | | | opposition | 4296 Oct 16 05:47 | 24°♈44'06 -15°36'50 | |
| conjunction | 4290 Apr 06 02:27 | 16°♈51'47 -13°48'39 | | direct | 4297 Jan 05 12:19 | 23°♈40'36 | |
| minimum elong | 4290 Apr 06 02:17 | 16°♈51'46 13°48'40 | | | | | |
| max. Earth dist. | 4290 Apr 08 22:26 | 16°♈56'19 43.69093 AU | | conjunction | 4297 Apr 14 04:52 | 25°♈18'06 -15°00'02 | |
| morning rise | 4290 Apr 12 03:34 | 17°♈01'27 | | minimum elong | 4297 Apr 14 04:46 | 25°♈18'06 15°00'03 | |
| retrograde | 4290 Jul 17 23:24 | 18°♈36'07 | | max. Earth dist. | 4297 Apr 16 22:38 | 25°♈22'21 45.14871 AU | |
| min. Earth dist. | 4290 Oct 06 12:57 | 17°♈33'42 41.86015 AU | | retrograde | 4297 Jul 26 00:12 | 26°♈59'11 | |
| opposition | 4290 Oct 09 08:20 | 17°♈30'13 -14°34'06 | | min. Earth dist. | 4297 Oct 14 23:17 | 25°♈57'56 43.31998 AU | |
| direct | 4290 Dec 29 14:01 | 16°♈25'30 | | opposition | 4297 Oct 17 16:39 | 25°♈54'38 -15°45'38 | |
| evening set | 4291 Apr 02 00:35 | 17°♈57'03 | | direct | 4298 Jan 06 23:52 | 24°♈51'21 | |
| | | | | | | | |
| conjunction | 4291 Apr 07 13:48 | 18°♈05'54 -14°00'16 | | conjunction | 4298 Apr 15 14:52 | 26°♈28'25 -15°08'26 | |
| minimum elong | 4291 Apr 07 13:40 | 18°♈05'54 14°00'16 | | minimum elong | 4298 Apr 15 14:46 | 26°♈28'24 15°08'26 | |
| max. Earth dist. | 4291 Apr 10 09:45 | 18°♈10'25 43.90616 AU | | max. Earth dist. | 4298 Apr 18 08:57 | 26°♈32'40 45.34634 AU | |
| morning rise | 4291 Apr 13 03:03 | 18°♈14'45 | | retrograde | 4298 Jul 27 07:15 | 28°♈09'05 | |
| retrograde | 4291 Jul 19 07:25 | 19°♈49'43 | | min. Earth dist. | 4298 Oct 16 10:56 | 27°♈07'58 43.51694 AU | |
| min. Earth dist. | 4291 Oct 08 01:00 | 18°♈47'29 42.07562 AU | | opposition | 4298 Oct 19 03:15 | 27°♈04'43 -15°53'59 | |
| opposition | 4291 Oct 10 20:33 | 18°♈44'00 -14°45'48 | | direct | 4299 Jan 08 13:44 | 26°♈01'39 | |
| direct | 4291 Dec 31 05:12 | 17°♈39'29 | | | | | |
| evening set | 4292 Apr 03 00:13 | 19°♈11'22 | | conjunction | 4299 Apr 17 00:34 | 27°♈38'16 -15°16'24 | |
| | | | | minimum elong | 4299 Apr 17 00:29 | 27°♈38'15 15°16'25 | |
| conjunction | 4292 Apr 08 00:51 | 19°♈19'21 -14°11'25 | | max. Earth dist. | 4299 Apr 19 16:49 | 27°♈42'23 45.53993 AU | |
| minimum elong | 4292 Apr 08 00:41 | 19°♈19'21 14°11'25 | | retrograde | 4299 Jul 28 18:58 | 29°♈18'32 | |
| max. Earth dist. | 4292 Apr 10 19:47 | 19°♈23'47 44.11869 AU | | min. Earth dist. | 4299 Oct 17 21:25 | 28°♈17'33 43.70959 AU | |
| morning rise | 4292 Apr 13 01:30 | 19°♈27'20 | | opposition | 4299 Oct 20 13:38 | 28°♈14'20 -16°01'55 | |
| retrograde | 4292 Jul 19 17:47 | 21°♈02'40 | | direct | 4300 Jan 09 23:33 | 27°♈11'26 | |
| min. Earth dist. | 4292 Oct 08 13:03 | 20°♈00'36 42.28878 AU | | | | | |
| opposition | 4292 Oct 11 08:25 | 19°♈57'08 -14°57'00 | | conjunction | 4300 Apr 18 10:18 | 28°♈47'37 -15°23'59 | |
| direct | 4292 Dec 31 18:18 | 18°♈52'49 | | minimum elong | 4300 Apr 18 10:12 | 28°♈47'37 15°23'59 | |
| evening set | 4293 Apr 05 00:46 | 20°♈25'08 | | max. Earth dist. | 4300 Apr 21 02:24 | 28°♈51'43 45.72888 AU | |
| | | | | | 4300 Jun 10 06:31 | 0°♈ | |
| conjunction | 4293 Apr 09 11:48 | 20°♈32'10 -14°22'05 | | retrograde | 4300 Jul 30 06:03 | 0°♈27'28 | |
| minimum elong | 4293 Apr 09 11:41 | 20°♈32'10 14°22'05 | | | 4300 Sep 19 13:41 | 30°♈ | |
| max. Earth dist. | 4293 Apr 12 07:34 | 20°♈36'38 44.32911 AU | | min. Earth dist. | 4300 Oct 19 09:34 | 29°♈26'33 43.89740 AU | |
| morning rise | 4293 Apr 13 22:47 | 20°♈39'13 | | opposition | 4300 Oct 21 23:46 | 29°♈23'26 -16°09'27 | |

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|------------------|-------------------|------------------------------------|------------------|-------------------|-------------------------------------|
| direct | 4301 Jan 11 09:19 | 28° Υ 20'42 | direct | 4309 Jan 20 11:46 | 7° \mathcal{B} 15'06 |
| conjunction | 4301 Apr 19 19:47 | 29° Υ 56'26 -15°31'12 | conjunction | 4309 Apr 28 15:42 | 8° \mathcal{B} 47'47 -16°14'54 |
| minimum elong | 4301 Apr 19 19:42 | 29° Υ 56'26 15°31'12 | minimum elong | 4309 Apr 28 15:39 | 8° \mathcal{B} 47'47 16°14'55 |
| max. Earth dist. | 4301 Apr 22 10:43 | 0° \mathcal{B} 00'26 45.91319 AU | max. Earth dist. | 4309 May 01 01:58 | 8° \mathcal{B} 51'23 47.26735 AU |
| | 4301 Apr 22 03:46 | 0° \mathcal{B} | retrograde | 4309 Aug 09 07:45 | 10° \mathcal{B} 24'15 |
| retrograde | 4301 Jul 31 15:03 | 1° \mathcal{B} 35'51 | min. Earth dist. | 4309 Oct 29 23:35 | 9° \mathcal{B} 24'20 45.43000 AU |
| min. Earth dist. | 4301 Oct 20 19:25 | 0° \mathcal{B} 35'04 44.08048 AU | opposition | 4309 Nov 01 09:17 | 9° \mathcal{B} 21'31 -16°59'17 |
| opposition | 4301 Oct 23 09:41 | 0° \mathcal{B} 31'57 -16°16'36 | direct | 4310 Jan 21 20:39 | 8° \mathcal{B} 20'09 |
| | 4301 Nov 20 07:54 | 30° $\mathcal{R}\Upsilon$ | | | |
| direct | 4302 Jan 12 18:22 | 29° Υ 29'21 | conjunction | 4310 Apr 29 23:32 | 9° \mathcal{B} 52'32 -16°18'41 |
| | 4302 Mar 05 12:17 | 0° \mathcal{B} | minimum elong | 4310 Apr 29 23:32 | 9° \mathcal{B} 52'32 16°18'41 |
| | | | max. Earth dist. | 4310 May 02 10:08 | 9° \mathcal{B} 56'08 47.42365 AU |
| conjunction | 4302 Apr 21 04:47 | 1° \mathcal{B} 04'40 -15°38'01 | retrograde | 4310 Aug 10 16:32 | 11° \mathcal{B} 28'43 |
| minimum elong | 4302 Apr 21 04:42 | 1° \mathcal{B} 04'40 15°38'01 | min. Earth dist. | 4310 Oct 31 09:41 | 10° \mathcal{B} 28'53 45.58492 AU |
| max. Earth dist. | 4302 Apr 23 18:40 | 1° \mathcal{B} 08'35 46.09295 AU | opposition | 4310 Nov 02 17:33 | 10° \mathcal{B} 26'09 -17°02'54 |
| retrograde | 4302 Aug 01 23:32 | 2° \mathcal{B} 43'39 | direct | 4311 Jan 23 05:46 | 9° \mathcal{B} 24'58 |
| min. Earth dist. | 4302 Oct 22 06:27 | 1° \mathcal{B} 42'55 44.25942 AU | | | |
| opposition | 4302 Oct 24 19:31 | 1° \mathcal{B} 39'52 -16°23'21 | conjunction | 4311 May 01 07:24 | 10° \mathcal{B} 57'02 -16°22'07 |
| direct | 4303 Jan 14 03:53 | 0° \mathcal{B} 37'25 | minimum elong | 4311 May 01 07:23 | 10° \mathcal{B} 57'02 16°22'06 |
| | | | max. Earth dist. | 4311 May 03 16:27 | 11° \mathcal{B} 00'32 47.57586 AU |
| conjunction | 4303 Apr 22 13:51 | 2° \mathcal{B} 12'17 -15°44'28 | retrograde | 4311 Aug 12 02:05 | 12° \mathcal{B} 32'54 |
| minimum elong | 4303 Apr 22 13:47 | 2° \mathcal{B} 12'17 15°44'29 | min. Earth dist. | 4311 Nov 01 17:36 | 11° \mathcal{B} 33'14 45.73536 AU |
| max. Earth dist. | 4303 Apr 25 03:58 | 2° \mathcal{B} 16'12 46.26895 AU | opposition | 4311 Nov 04 01:26 | 11° \mathcal{B} 30'31 -17°06'10 |
| retrograde | 4303 Aug 03 05:31 | 3° \mathcal{B} 50'51 | direct | 4312 Jan 24 11:38 | 10° \mathcal{B} 29'29 |
| min. Earth dist. | 4303 Oct 23 16:35 | 2° \mathcal{B} 50'11 44.43472 AU | | | |
| opposition | 4303 Oct 26 04:50 | 2° \mathcal{B} 47'11 -16°29'42 | conjunction | 4312 May 01 15:09 | 12° \mathcal{B} 01'16 -16°25'14 |
| direct | 4304 Jan 15 15:56 | 1° \mathcal{B} 44'51 | minimum elong | 4312 May 01 15:09 | 12° \mathcal{B} 01'16 16°25'14 |
| | | | max. Earth dist. | 4312 May 03 23:03 | 12° \mathcal{B} 04'40 47.72321 AU |
| conjunction | 4304 Apr 22 22:33 | 3° \mathcal{B} 19'19 -15°50'31 | retrograde | 4312 Aug 12 11:14 | 13° \mathcal{B} 36'50 |
| minimum elong | 4304 Apr 22 22:30 | 3° \mathcal{B} 19'19 15°50'31 | min. Earth dist. | 4312 Nov 02 03:33 | 12° \mathcal{B} 37'11 45.88079 AU |
| max. Earth dist. | 4304 Apr 25 11:11 | 3° \mathcal{B} 23'08 46.44172 AU | opposition | 4312 Nov 04 09:27 | 12° \mathcal{B} 34'35 -17°09'07 |
| retrograde | 4304 Aug 03 14:31 | 4° \mathcal{B} 57'29 | direct | 4313 Jan 24 17:24 | 11° \mathcal{B} 33'41 |
| min. Earth dist. | 4304 Oct 24 01:39 | 3° \mathcal{B} 56'57 44.60712 AU | | | |
| opposition | 4304 Oct 26 14:03 | 3° \mathcal{B} 53'57 -16°35'38 | conjunction | 4313 May 02 22:44 | 13° \mathcal{B} 05'09 -16°28'02 |
| direct | 4305 Jan 16 01:28 | 2° \mathcal{B} 51'46 | minimum elong | 4313 May 02 22:44 | 13° \mathcal{B} 05'09 16°28'02 |
| | | | max. Earth dist. | 4313 May 05 06:07 | 13° \mathcal{B} 08'32 47.86561 AU |
| conjunction | 4305 Apr 24 07:04 | 4° \mathcal{B} 25'49 -15°56'10 | retrograde | 4313 Aug 13 16:08 | 14° \mathcal{B} 40'24 |
| minimum elong | 4305 Apr 24 06:59 | 4° \mathcal{B} 25'49 15°56'11 | min. Earth dist. | 4313 Nov 03 11:57 | 13° \mathcal{B} 40'51 46.02107 AU |
| max. Earth dist. | 4305 Apr 26 20:13 | 4° \mathcal{B} 29'39 46.61174 AU | opposition | 4313 Nov 05 17:12 | 13° \mathcal{B} 38'17 -17°11'45 |
| retrograde | 4305 Aug 04 23:49 | 6° \mathcal{B} 03'37 | direct | 4314 Jan 26 02:08 | 12° \mathcal{B} 37'30 |
| min. Earth dist. | 4305 Oct 25 12:05 | 5° \mathcal{B} 03'08 44.77687 AU | | | |
| opposition | 4305 Oct 27 23:09 | 5° \mathcal{B} 00'13 -16°41'10 | conjunction | 4314 May 04 06:06 | 14° \mathcal{B} 08'39 -16°30'33 |
| direct | 4306 Jan 17 10:57 | 3° \mathcal{B} 58'11 | minimum elong | 4314 May 04 06:06 | 14° \mathcal{B} 08'39 16°30'34 |
| | | | max. Earth dist. | 4314 May 06 11:35 | 14° \mathcal{B} 11'54 48.00314 AU |
| conjunction | 4306 Apr 25 15:28 | 5° \mathcal{B} 31'51 -16°01'26 | | 4314 Jun 10 11:54 | 15° \mathcal{B} |
| minimum elong | 4306 Apr 25 15:26 | 5° \mathcal{B} 31'51 16°01'26 | retrograde | 4314 Aug 14 22:39 | 15° \mathcal{B} 43'36 |
| max. Earth dist. | 4306 Apr 28 03:43 | 5° \mathcal{B} 35'37 46.77949 AU | | 4314 Oct 21 22:15 | 15° $\mathcal{R}\mathcal{B}$ |
| retrograde | 4306 Aug 06 10:03 | 7° \mathcal{B} 09'17 | min. Earth dist. | 4314 Nov 04 20:22 | 14° \mathcal{B} 44'06 46.15684 AU |
| min. Earth dist. | 4306 Oct 26 20:16 | 6° \mathcal{B} 08'59 44.94425 AU | opposition | 4314 Nov 07 00:47 | 14° \mathcal{B} 41'34 -17°14'04 |
| opposition | 4306 Oct 29 07:54 | 6° \mathcal{B} 06'02 -16°46'17 | direct | 4315 Jan 27 10:48 | 13° \mathcal{B} 40'54 |
| direct | 4307 Jan 18 17:14 | 5° \mathcal{B} 04'09 | | 4315 Apr 27 10:43 | 15° \mathcal{B} |
| | | | | | |
| conjunction | 4307 Apr 26 23:36 | 6° \mathcal{B} 37'29 -16°06'18 | conjunction | 4315 May 05 13:23 | 15° \mathcal{B} 11'44 -16°32'44 |
| minimum elong | 4307 Apr 26 23:33 | 6° \mathcal{B} 37'29 16°06'18 | minimum elong | 4315 May 05 13:24 | 15° \mathcal{B} 11'44 16°32'44 |
| max. Earth dist. | 4307 Apr 29 11:21 | 6° \mathcal{B} 41'12 46.94478 AU | max. Earth dist. | 4315 May 07 19:02 | 15° \mathcal{B} 14'59 48.13636 AU |
| retrograde | 4307 Aug 07 18:33 | 8° \mathcal{B} 14'35 | retrograde | 4315 Aug 16 04:22 | 16° \mathcal{B} 46'22 |
| min. Earth dist. | 4307 Oct 28 06:15 | 7° \mathcal{B} 14'22 45.10915 AU | min. Earth dist. | 4315 Nov 06 05:17 | 15° \mathcal{B} 46'54 46.28846 AU |
| opposition | 4307 Oct 30 16:38 | 7° \mathcal{B} 11'30 -16°51'00 | opposition | 4315 Nov 08 08:12 | 15° \mathcal{B} 44'26 -17°16'04 |
| direct | 4308 Jan 20 00:56 | 6° \mathcal{B} 09'47 | | 4315 Dec 21 05:14 | 15° $\mathcal{R}\mathcal{B}$ |
| | | | direct | 4316 Jan 28 21:36 | 14° \mathcal{B} 43'52 |
| conjunction | 4308 Apr 27 07:50 | 7° \mathcal{B} 42'47 -16°10'47 | | 4316 Mar 06 15:15 | 15° \mathcal{B} |
| minimum elong | 4308 Apr 27 07:48 | 7° \mathcal{B} 42'47 16°10'47 | | | |
| max. Earth dist. | 4308 Apr 29 19:46 | 7° \mathcal{B} 46'30 47.10756 AU | conjunction | 4316 May 05 20:29 | 16° \mathcal{B} 14'23 -16°34'37 |
| retrograde | 4308 Aug 07 23:21 | 9° \mathcal{B} 19'33 | minimum elong | 4316 May 05 20:30 | 16° \mathcal{B} 14'23 16°34'37 |
| min. Earth dist. | 4308 Oct 28 14:56 | 8° \mathcal{B} 19'29 45.27113 AU | max. Earth dist. | 4316 May 08 00:40 | 16° \mathcal{B} 17'32 48.26590 AU |
| opposition | 4308 Oct 31 00:56 | 8° \mathcal{B} 16'38 -16°55'20 | retrograde | 4316 Aug 16 13:52 | 17° \mathcal{B} 48'43 |

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| min. Earth dist. | 4316 Nov 06 12:07 | 16°8'49"21 | 46.41664 AU | conjunction | 4325 May 15 07:46 | 25°8'24"27 | -16°37'26 |
| opposition | 4316 Nov 08 15:14 | 16°8'46"53 | -17°17'44 | minimum elong | 4325 May 15 07:50 | 25°8'24"27 | 16°37'27 |
| direct | 4317 Jan 29 03:31 | 15°8'46"24 | | max. Earth dist. | 4325 May 17 04:50 | 25°8'27"06 | 49.28432 AU |
| | | | | retrograde | 4325 Aug 25 21:54 | 26°8'56"32 | |
| conjunction | 4317 May 07 03:23 | 17°8'16"38 | -16°36'10 | min. Earth dist. | 4325 Nov 16 08:35 | 25°8'57"44 | 47.41784 AU |
| minimum elong | 4317 May 07 03:25 | 17°8'16"38 | 16°36'10 | opposition | 4325 Nov 18 02:36 | 25°8'55"44 | -17°18'23 |
| max. Earth dist. | 4317 May 09 07:06 | 17°8'19"45 | 48.39221 AU | direct | 4326 Feb 07 15:54 | 24°8'56"15 | |
| retrograde | 4317 Aug 17 22:31 | 18°8'50"40 | | | | | |
| min. Earth dist. | 4317 Nov 07 20:49 | 17°8'51"20 | 46.54184 AU | conjunction | 4326 May 16 13:51 | 26°8'24"23 | -16°36'22 |
| opposition | 4317 Nov 09 22:24 | 17°8'48"56 | -17°19'03 | minimum elong | 4326 May 16 13:56 | 26°8'24"23 | 16°36'22 |
| direct | 4318 Jan 30 08:27 | 16°8'48"34 | | max. Earth dist. | 4326 May 18 08:57 | 26°8'26"55 | 49.37529 AU |
| | | | | retrograde | 4326 Aug 27 05:27 | 27°8'56"15 | |
| conjunction | 4318 May 08 10:10 | 18°8'18"31 | -16°37'23 | min. Earth dist. | 4326 Nov 17 14:53 | 26°8'57"31 | 47.50610 AU |
| minimum elong | 4318 May 08 10:11 | 18°8'18"31 | 16°37'24 | opposition | 4326 Nov 19 08:37 | 26°8'55"32 | -17°17'04 |
| max. Earth dist. | 4318 May 10 13:51 | 18°8'21"37 | 48.51581 AU | direct | 4327 Feb 08 21:56 | 25°8'56"07 | |
| retrograde | 4318 Aug 19 02:59 | 19°8'52"15 | | | | | |
| min. Earth dist. | 4318 Nov 09 03:46 | 18°8'53"01 | 46.66415 AU | conjunction | 4327 May 17 19:59 | 27°8'24"01 | -16°35'03 |
| opposition | 4318 Nov 11 05:18 | 18°8'50"38 | -17°20'03 | minimum elong | 4327 May 17 20:03 | 27°8'24"02 | 16°35'04 |
| direct | 4319 Jan 31 16:00 | 17°8'50"23 | | max. Earth dist. | 4327 May 19 14:17 | 27°8'26"30 | 49.46139 AU |
| | | | | retrograde | 4327 Aug 28 13:52 | 28°8'55"40 | |
| conjunction | 4319 May 09 16:50 | 19°8'20"04 | -16°38'17 | min. Earth dist. | 4327 Nov 18 22:52 | 27°8'56"54 | 47.58986 AU |
| minimum elong | 4319 May 09 16:53 | 19°8'20"04 | 16°38'17 | opposition | 4327 Nov 20 14:29 | 27°8'55"02 | -17°15'28 |
| max. Earth dist. | 4319 May 11 18:54 | 19°8'23"03 | 48.63658 AU | direct | 4328 Feb 10 02:21 | 26°8'55"41 | |
| retrograde | 4319 Aug 20 08:12 | 20°8'53"32 | | | | | |
| min. Earth dist. | 4319 Nov 10 11:06 | 19°8'54"22 | 46.78370 AU | conjunction | 4328 May 18 02:01 | 28°8'23"23 | -16°33'28 |
| opposition | 4319 Nov 12 12:01 | 19°8'52"02 | -17°20'42 | minimum elong | 4328 May 18 02:07 | 28°8'23"23 | 16°33'28 |
| direct | 4320 Feb 01 23:07 | 18°8'51"53 | | max. Earth dist. | 4328 May 19 19:48 | 28°8'25"49 | 49.54347 AU |
| | | | | retrograde | 4328 Aug 28 18:19 | 29°8'54"48 | |
| conjunction | 4320 May 09 23:33 | 20°8'21"19 | -16°38'52 | min. Earth dist. | 4328 Nov 19 04:37 | 28°8'56"06 | 47.66972 AU |
| minimum elong | 4320 May 09 23:35 | 20°8'21"20 | 16°38'53 | opposition | 4328 Nov 20 20:10 | 28°8'54"14 | -17°13'36 |
| max. Earth dist. | 4320 May 12 01:58 | 20°8'24"20 | 48.75448 AU | direct | 4329 Feb 10 07:49 | 27°8'54"57 | |
| retrograde | 4320 Aug 20 13:21 | 21°8'54"33 | | | | | |
| min. Earth dist. | 4320 Nov 10 19:14 | 20°8'55"27 | 46.90007 AU | conjunction | 4329 May 19 07:39 | 29°8'22"28 | -16°31'36 |
| opposition | 4320 Nov 12 18:44 | 20°8'53"10 | -17°21'02 | minimum elong | 4329 May 19 07:43 | 29°8'22"28 | 16°31'37 |
| direct | 4321 Feb 02 07:58 | 19°8'53"09 | | max. Earth dist. | 4329 May 20 23:44 | 29°8'24"48 | 49.62192 AU |
| | | | | | 4329 Jun 15 23:11 | 0°8'22"28 | |
| conjunction | 4321 May 11 05:56 | 21°8'22"20 | -16°39'08 | retrograde | 4329 Aug 29 22:43 | 0°8'22"28 | |
| minimum elong | 4321 May 11 06:00 | 21°8'22"21 | 16°39'09 | | 4329 Nov 16 01:25 | 30°8'22"28 | |
| max. Earth dist. | 4321 May 13 06:56 | 21°8'25"15 | 48.86920 AU | min. Earth dist. | 4329 Nov 20 11:22 | 29°8'55"00 | 47.74632 AU |
| retrograde | 4321 Aug 21 21:19 | 22°8'55"20 | | opposition | 4329 Nov 22 01:56 | 29°8'53"11 | -17°11'27 |
| min. Earth dist. | 4321 Nov 12 01:38 | 21°8'56"22 | 47.01299 AU | direct | 4330 Feb 11 13:15 | 28°8'53"58 | |
| opposition | 4321 Nov 14 01:18 | 21°8'54"05 | -17°21'04 | | 4330 May 05 03:34 | 0°8'53"58 | |
| direct | 4322 Feb 03 14:12 | 20°8'54"11 | | | | | |
| | | | | conjunction | 4330 May 20 13:29 | 0°8'54"11 | -16°29'27 |
| conjunction | 4322 May 12 12:24 | 22°8'23"10 | -16°39'07 | minimum elong | 4330 May 20 13:36 | 0°8'54"11 | 16°29'28 |
| minimum elong | 4322 May 12 12:26 | 22°8'23"10 | 16°39'08 | max. Earth dist. | 4330 May 22 05:56 | 0°8'52"20 | 49.69730 AU |
| max. Earth dist. | 4322 May 14 12:37 | 22°8'26"01 | 48.98010 AU | retrograde | 4330 Aug 31 01:50 | 1°8'52"20 | |
| retrograde | 4322 Aug 23 06:11 | 23°8'55"56 | | min. Earth dist. | 4330 Nov 21 18:00 | 0°8'53"41 | 47.81979 AU |
| min. Earth dist. | 4322 Nov 13 10:11 | 22°8'56"59 | 47.12184 AU | opposition | 4330 Nov 23 07:27 | 0°8'51"55 | -17°09'01 |
| opposition | 4322 Nov 15 07:50 | 22°8'54"49 | -17°20'48 | | 4331 Jan 18 01:23 | 30°8'51"55 | |
| direct | 4323 Feb 04 18:57 | 21°8'55"02 | | direct | 4331 Feb 12 21:33 | 29°8'52"47 | |
| | | | | | 4331 Mar 10 08:38 | 0°8'52"47 | |
| conjunction | 4323 May 13 18:58 | 23°8'23"48 | -16°38'49 | | | | |
| minimum elong | 4323 May 13 19:02 | 23°8'23"48 | 16°38'50 | conjunction | 4331 May 21 19:08 | 1°8'21"18 | -16°29'27 |
| max. Earth dist. | 4323 May 15 18:32 | 23°8'26"37 | 49.08673 AU | minimum elong | 4331 May 21 19:13 | 1°8'21"19 | 16°29'28 |
| retrograde | 4323 Aug 24 12:12 | 24°8'56"20 | | max. Earth dist. | 4331 May 23 10:02 | 1°8'23"40 | 49.69730 AU |
| min. Earth dist. | 4323 Nov 14 17:05 | 23°8'57"29 | 47.22584 AU | retrograde | 4331 Sep 01 08:17 | 2°8'23"40 | |
| opposition | 4323 Nov 16 14:08 | 23°8'55"21 | -17°20'15 | min. Earth dist. | 4331 Nov 22 23:20 | 2°8'52"20 | 47.81979 AU |
| direct | 4324 Feb 06 00:05 | 22°8'55"41 | | opposition | 4331 Nov 24 12:53 | 1°8'52"15 | 47.89036 AU |
| | | | | direct | 4332 Feb 14 03:23 | 1°8'50"29 | -17°06'17 |
| conjunction | 4324 May 14 01:19 | 24°8'24"14 | -16°38'15 | | | 0°8'51"26 | |
| minimum elong | 4324 May 14 01:22 | 24°8'24"14 | 16°38'15 | conjunction | 4332 May 22 00:42 | 2°8'51"26 | -16°24'20 |
| max. Earth dist. | 4324 May 15 22:41 | 24°8'26"55 | 49.18819 AU | minimum elong | 4332 May 22 00:49 | 2°8'18"26 | 16°24'20 |
| retrograde | 4324 Aug 24 18:28 | 25°8'56"33 | | max. Earth dist. | 4332 May 23 15:01 | 2°8'18"26 | 16°24'20 |
| min. Earth dist. | 4324 Nov 15 00:43 | 24°8'57"44 | 47.32459 AU | retrograde | 4332 Sep 01 16:11 | 2°8'20"39 | 49.83922 AU |
| opposition | 4324 Nov 16 20:23 | 24°8'55"40 | -17°19'26 | min. Earth dist. | 4332 Nov 23 06:28 | 3°8'24"49 | |
| direct | 4325 Feb 06 06:23 | 23°8'56"06 | | opposition | 4332 Nov 24 18:17 | 2°8'50"36 | 47.95778 AU |
| | | | | | | 2°8'48"55 | -17°03'16 |

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| direct | 4333 Feb 14 07:59 | 1°II49'57 | | minimum elong | 4341 May 31 01:29 | 10°II58'23 | 15°48'58 |
| | | | | max. Earth dist. | 4341 Jun 01 05:32 | 10°II59'59 | 50.27492 AU |
| conjunction | 4333 May 23 06:18 | 3°II16'48 -16°21'22 | | retrograde | 4341 Sep 10 12:37 | 12°II27'43 | |
| minimum elong | 4333 May 23 06:24 | 3°II16'49 16°21'22 | | opposition | 4341 Dec 03 15:24 | 11°II28'00 | -16°25'02 |
| max. Earth dist. | 4333 May 24 20:13 | 3°II19'00 49.90561 AU | | min. Earth dist. | 4341 Dec 02 12:26 | 11°II29'16 | 48.36778 AU |
| retrograde | 4333 Sep 02 23:11 | 4°II47'21 | | direct | 4342 Feb 23 06:32 | 10°II29'26 | |
| min. Earth dist. | 4333 Nov 24 11:52 | 3°II48'54 48.02181 AU | | | | | |
| opposition | 4333 Nov 25 23:33 | 3°II47'13 -16°59'59 | | conjunction | 4342 Jun 01 06:22 | 11°II55'07 | -15°43'52 |
| direct | 4334 Feb 15 10:19 | 2°II48'20 | | minimum elong | 4342 Jun 01 06:30 | 11°II55'08 | 15°43'52 |
| | | | | max. Earth dist. | 4342 Jun 02 09:58 | 11°II56'42 | 50.30246 AU |
| conjunction | 4334 May 24 11:40 | 4°II15'05 -16°18'08 | | retrograde | 4342 Sep 11 18:43 | 13°II24'21 | |
| minimum elong | 4334 May 24 11:48 | 4°II15'05 16°18'08 | | opposition | 4342 Dec 04 20:09 | 12°II24'41 | -16°19'33 |
| max. Earth dist. | 4334 May 25 23:49 | 4°II17'10 49.96832 AU | | min. Earth dist. | 4342 Dec 03 18:57 | 12°II25'51 | 48.39303 AU |
| retrograde | 4334 Sep 04 05:33 | 5°II45'29 | | direct | 4343 Feb 24 12:03 | 11°II26'08 | |
| min. Earth dist. | 4334 Nov 25 18:36 | 4°II47'03 48.08196 AU | | | | | |
| opposition | 4334 Nov 27 04:52 | 4°II45'26 -16°56'27 | | conjunction | 4343 Jun 02 11:32 | 12°II51'44 | -15°38'29 |
| direct | 4335 Feb 16 14:07 | 3°II46'38 | | minimum elong | 4343 Jun 02 11:41 | 12°II51'45 | 15°38'29 |
| | | | | max. Earth dist. | 4343 Jun 03 14:47 | 12°II53'17 | 50.32721 AU |
| conjunction | 4335 May 25 17:21 | 5°II13'15 -16°14'39 | | retrograde | 4343 Sep 13 00:58 | 14°II20'51 | |
| minimum elong | 4335 May 25 17:28 | 5°II13'15 16°14'39 | | min. Earth dist. | 4343 Dec 04 23:17 | 13°II22'25 | 48.41538 AU |
| max. Earth dist. | 4335 May 27 05:16 | 5°II15'19 50.02676 AU | | opposition | 4343 Dec 06 00:32 | 13°II21'15 | -16°13'49 |
| retrograde | 4335 Sep 05 06:53 | 6°II43'30 | | direct | 4344 Feb 25 14:43 | 12°II22'45 | |
| min. Earth dist. | 4335 Nov 27 01:11 | 5°II45'05 48.13737 AU | | | | | |
| opposition | 4335 Nov 28 09:56 | 5°II43'33 -16°52'39 | | conjunction | 4344 Jun 02 16:29 | 13°II48'17 | -15°32'51 |
| direct | 4336 Feb 17 22:36 | 4°II44'49 | | minimum elong | 4344 Jun 02 16:37 | 13°II48'18 | 15°32'52 |
| | | | | max. Earth dist. | 4344 Jun 03 17:58 | 13°II49'44 | 50.34904 AU |
| conjunction | 4336 May 25 22:54 | 6°II11'18 -16°10'56 | | retrograde | 4344 Sep 13 07:26 | 15°II17'19 | |
| minimum elong | 4336 May 25 23:02 | 6°II11'18 16°10'57 | | min. Earth dist. | 4344 Dec 05 05:10 | 14°II18'53 | 48.43485 AU |
| max. Earth dist. | 4336 May 27 08:42 | 6°II13'15 50.08034 AU | | opposition | 4344 Dec 06 05:11 | 14°II17'46 | -16°07'49 |
| retrograde | 4336 Sep 05 12:03 | 7°II41'25 | | direct | 4345 Feb 25 16:44 | 13°II19'20 | |
| min. Earth dist. | 4336 Nov 27 06:52 | 6°II43'02 48.18767 AU | | | | | |
| opposition | 4336 Nov 28 15:04 | 6°II41'32 -16°48'38 | | conjunction | 4345 Jun 03 21:25 | 14°II44'49 | -15°26'58 |
| direct | 4337 Feb 18 05:23 | 5°II42'51 | | minimum elong | 4345 Jun 03 21:36 | 14°II44'50 | 15°26'59 |
| | | | | max. Earth dist. | 4345 Jun 04 23:07 | 14°II46'17 | 50.36786 AU |
| conjunction | 4337 May 27 04:15 | 7°II09'11 -16°07'00 | | retrograde | 4345 Sep 14 09:30 | 16°II13'47 | |
| minimum elong | 4337 May 27 04:22 | 7°II09'12 16°07'00 | | min. Earth dist. | 4345 Dec 06 10:43 | 15°II15'23 | 48.45094 AU |
| max. Earth dist. | 4337 May 28 12:59 | 7°II11'04 50.12855 AU | | opposition | 4345 Dec 07 09:46 | 15°II14'18 | -16°01'33 |
| retrograde | 4337 Sep 06 19:48 | 8°II39'09 | | direct | 4346 Feb 26 23:29 | 14°II15'56 | |
| opposition | 4337 Nov 29 20:18 | 7°II39'19 -16°44'24 | | | | | |
| min. Earth dist. | 4337 Nov 28 14:19 | 7°II40'43 48.23260 AU | | conjunction | 4346 Jun 05 02:26 | 15°II41'23 | -15°20'51 |
| direct | 4338 Feb 19 10:36 | 6°II40'40 | | minimum elong | 4346 Jun 05 02:35 | 15°II41'23 | 15°20'52 |
| | | | | max. Earth dist. | 4346 Jun 06 02:21 | 15°II42'44 | 50.38323 AU |
| conjunction | 4338 May 28 09:44 | 8°II06'52 -16°02'51 | | retrograde | 4346 Sep 15 13:57 | 17°II10'18 | |
| minimum elong | 4338 May 28 09:53 | 8°II06'52 16°02'52 | | opposition | 4346 Dec 08 14:10 | 16°II10'54 | -15°55'04 |
| max. Earth dist. | 4338 May 29 17:36 | 8°II08'41 50.17170 AU | | min. Earth dist. | 4346 Dec 07 15:38 | 16°II11'57 | 48.46331 AU |
| retrograde | 4338 Sep 08 00:54 | 9°II36'40 | | direct | 4347 Feb 28 05:20 | 15°II12'34 | |
| min. Earth dist. | 4338 Nov 29 19:29 | 8°II38'15 48.27249 AU | | | | | |
| opposition | 4338 Dec 01 01:08 | 8°II36'52 -16°39'55 | | conjunction | 4347 Jun 06 07:33 | 16°II38'00 | -15°14'30 |
| direct | 4339 Feb 20 14:40 | 7°II38'14 | | minimum elong | 4347 Jun 06 07:44 | 16°II38'00 | 15°14'31 |
| | | | | max. Earth dist. | 4347 Jun 07 06:29 | 16°II39'18 | 50.39433 AU |
| conjunction | 4339 May 29 14:59 | 9°II04'17 -15°58'28 | | retrograde | 4347 Sep 16 21:33 | 18°II06'53 | |
| minimum elong | 4339 May 29 15:07 | 9°II04'18 15°58'28 | | opposition | 4347 Dec 09 18:45 | 17°II07'33 | -15°48'20 |
| max. Earth dist. | 4339 May 30 20:45 | 9°II05'59 50.21003 AU | | min. Earth dist. | 4347 Dec 08 22:28 | 17°II08'29 | 48.47105 AU |
| retrograde | 4339 Sep 09 06:19 | 10°II33'55 | | direct | 4348 Feb 29 09:45 | 16°II09'16 | |
| min. Earth dist. | 4339 Dec 01 01:54 | 9°II35'27 48.30797 AU | | | | | |
| opposition | 4339 Dec 02 06:03 | 9°II34'08 -16°35'13 | | conjunction | 4348 Jun 06 12:42 | 17°II34'40 | -15°07'56 |
| direct | 4340 Feb 21 18:09 | 8°II35'32 | | minimum elong | 4348 Jun 06 12:51 | 17°II34'41 | 15°07'56 |
| | | | | max. Earth dist. | 4348 Jun 07 10:35 | 17°II35'55 | 50.40060 AU |
| conjunction | 4340 May 29 20:16 | 10°II01'27 -15°53'51 | | retrograde | 4348 Sep 17 03:33 | 19°II03'30 | |
| minimum elong | 4340 May 29 20:24 | 10°II01'28 15°53'51 | | opposition | 4348 Dec 09 23:08 | 18°II04'13 | -15°41'24 |
| max. Earth dist. | 4340 May 31 02:08 | 10°II03'09 50.24421 AU | | min. Earth dist. | 4348 Dec 09 03:13 | 18°II05'09 | 48.47355 AU |
| retrograde | 4340 Sep 09 08:04 | 11°II30'55 | | direct | 4349 Mar 01 12:32 | 17°II05'59 | |
| min. Earth dist. | 4340 Dec 01 07:47 | 10°II32'26 48.33947 AU | | | | | |
| opposition | 4340 Dec 02 10:45 | 10°II31'10 -16°30'15 | | conjunction | 4349 Jun 07 17:44 | 18°II31'21 | -15°01'10 |
| direct | 4341 Feb 22 01:22 | 9°II32'35 | | minimum elong | 4349 Jun 07 17:54 | 18°II31'21 | 15°01'11 |
| | | | | max. Earth dist. | 4349 Jun 08 13:18 | 18°II32'27 | 50.40150 AU |
| conjunction | 4341 May 31 01:20 | 10°II58'23 -15°48'59 | | retrograde | 4349 Sep 18 09:35 | 20°II00'07 | |

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|------------------|-------------------|------------|-------------|------------------|-------------------|------------|-------------|
| min. Earth dist. | 4349 Dec 10 09:39 | 19°II01'43 | 48.47072 AU | max. Earth dist. | 4356 Jun 14 16:43 | 25°II06'17 | 50.28383 AU |
| opposition | 4349 Dec 11 03:41 | 19°II00'52 | -15°34'15 | morning rise | 4356 Jun 19 13:36 | 25°II12'52 | |
| direct | 4350 Mar 02 15:08 | 18°II02'39 | | retrograde | 4356 Sep 24 14:35 | 26°II34'00 | |
| evening set | 4350 Jun 07 03:35 | 19°II25'31 | | opposition | 4356 Dec 17 09:34 | 25°II34'48 | -14°37'53 |
| | | | | min. Earth dist. | 4356 Dec 16 21:56 | 25°II35'20 | 48.33144 AU |
| conjunction | 4350 Jun 08 22:51 | 19°II27'58 | -14°54'12 | direct | 4357 Mar 09 00:44 | 24°II36'29 | |
| minimum elong | 4350 Jun 08 23:01 | 19°II27'59 | 14°54'11 | evening set | 4357 Jun 09 14:54 | 25°II53'54 | |
| morning rise | 4350 Jun 10 18:31 | 19°II30'27 | | | | | |
| max. Earth dist. | 4350 Jun 09 18:05 | 19°II29'04 | 50.39709 AU | conjunction | 4357 Jun 15 09:18 | 26°II01'41 | -13°59'06 |
| retrograde | 4350 Sep 19 10:59 | 20°II56'40 | | minimum elong | 4357 Jun 15 09:28 | 26°II01'42 | 13°59'07 |
| opposition | 4350 Dec 12 08:08 | 19°II57'26 | -15°26'54 | max. Earth dist. | 4357 Jun 15 20:48 | 26°II02'20 | 50.25350 AU |
| min. Earth dist. | 4350 Dec 11 15:27 | 19°II58'13 | 48.46254 AU | morning rise | 4357 Jun 21 04:27 | 26°II09'32 | |
| direct | 4351 Mar 03 21:49 | 18°II59'12 | | retrograde | 4357 Sep 25 19:54 | 27°II30'07 | |
| evening set | 4351 Jun 07 11:18 | 20°II20'51 | | opposition | 4357 Dec 18 13:52 | 26°II30'55 | -14°28'52 |
| | | | | min. Earth dist. | 4357 Dec 18 04:07 | 26°II31'22 | 48.29817 AU |
| conjunction | 4351 Jun 10 03:53 | 20°II24'30 | -14°47'01 | direct | 4358 Mar 10 06:18 | 25°II32'37 | |
| minimum elong | 4351 Jun 10 04:03 | 20°II24'31 | 14°47'01 | evening set | 4358 Jun 10 10:36 | 26°II49'32 | |
| max. Earth dist. | 4351 Jun 10 21:00 | 20°II25'28 | 50.38771 AU | | | | |
| morning rise | 4351 Jun 12 20:55 | 20°II28'11 | | conjunction | 4358 Jun 16 14:18 | 26°II57'51 | -13°50'17 |
| retrograde | 4351 Sep 20 14:40 | 21°II53'08 | | minimum elong | 4358 Jun 16 14:30 | 26°II57'51 | 13°50'18 |
| opposition | 4351 Dec 13 12:19 | 20°II53'54 | -15°19'20 | max. Earth dist. | 4358 Jun 17 01:13 | 26°II58'28 | 50.21977 AU |
| min. Earth dist. | 4351 Dec 12 20:13 | 20°II54'39 | 48.44972 AU | morning rise | 4358 Jun 22 18:46 | 27°II06'13 | |
| direct | 4352 Mar 04 03:01 | 19°II55'39 | | retrograde | 4358 Sep 27 02:16 | 28°II26'17 | |
| evening set | 4352 Jun 06 23:58 | 21°II16'20 | | opposition | 4358 Dec 19 18:02 | 27°II27'07 | -14°19'37 |
| | | | | min. Earth dist. | 4358 Dec 19 08:27 | 27°II27'34 | 48.26101 AU |
| conjunction | 4352 Jun 10 08:52 | 21°II20'54 | -14°39'37 | direct | 4359 Mar 11 09:31 | 26°II28'48 | |
| minimum elong | 4352 Jun 10 09:03 | 21°II20'55 | 14°39'36 | evening set | 4359 Jun 11 06:46 | 27°II45'16 | |
| max. Earth dist. | 4352 Jun 11 01:03 | 21°II21'49 | 50.37381 AU | | | | |
| morning rise | 4352 Jun 13 18:16 | 21°II25'30 | | conjunction | 4359 Jun 17 19:21 | 27°II54'05 | -13°41'15 |
| retrograde | 4352 Sep 20 19:51 | 22°II49'29 | | minimum elong | 4359 Jun 17 19:32 | 27°II54'06 | 13°41'15 |
| opposition | 4352 Dec 13 16:43 | 21°II50'15 | -15°11'32 | max. Earth dist. | 4359 Jun 18 04:02 | 27°II54'35 | 50.18172 AU |
| min. Earth dist. | 4352 Dec 13 02:33 | 21°II50'55 | 48.43271 AU | morning rise | 4359 Jun 24 08:51 | 28°II02'57 | |
| direct | 4353 Mar 05 09:20 | 20°II51'59 | | retrograde | 4359 Sep 28 09:10 | 29°II22'33 | |
| evening set | 4353 Jun 07 15:05 | 22°II11'51 | | opposition | 4359 Dec 20 22:15 | 28°II23'24 | -14°10'08 |
| | | | | min. Earth dist. | 4359 Dec 20 14:40 | 28°II23'45 | 48.21933 AU |
| conjunction | 4353 Jun 11 13:42 | 22°II17'11 | -14°31'59 | direct | 4360 Mar 11 11:33 | 27°II25'05 | |
| minimum elong | 4353 Jun 11 13:52 | 22°II17'12 | 14°32'00 | evening set | 4360 Jun 11 03:26 | 28°II41'07 | |
| max. Earth dist. | 4353 Jun 12 05:27 | 22°II18'05 | 50.35618 AU | | | | |
| morning rise | 4353 Jun 15 12:50 | 22°II22'34 | | conjunction | 4360 Jun 18 00:36 | 28°II50'25 | -13°32'01 |
| retrograde | 4353 Sep 22 02:22 | 23°II45'43 | | minimum elong | 4360 Jun 18 00:48 | 28°II50'26 | 13°32'02 |
| opposition | 4353 Dec 14 20:57 | 22°II46'29 | -15°03'29 | max. Earth dist. | 4360 Jun 18 08:53 | 28°II50'53 | 50.13878 AU |
| min. Earth dist. | 4353 Dec 14 06:49 | 22°II47'08 | 48.41210 AU | morning rise | 4360 Jun 24 22:37 | 28°II59'46 | |
| direct | 4354 Mar 06 12:27 | 21°II48'12 | | | 4360 Aug 16 02:49 | 0°☾ | |
| evening set | 4354 Jun 08 07:42 | 23°II07'22 | | retrograde | 4360 Sep 28 12:11 | 0°☾18'53 | |
| | | | | | 4360 Nov 11 10:02 | 30°☾II | |
| conjunction | 4354 Jun 12 18:33 | 23°II13'23 | -14°24'07 | opposition | 4360 Dec 21 02:36 | 29°II19'45 | -14°00'27 |
| minimum elong | 4354 Jun 12 18:45 | 23°II13'24 | 14°24'07 | min. Earth dist. | 4360 Dec 20 20:18 | 29°II20'02 | 48.17237 AU |
| max. Earth dist. | 4354 Jun 13 08:25 | 23°II14'10 | 50.33511 AU | direct | 4361 Mar 12 16:50 | 28°II21'25 | |
| morning rise | 4354 Jun 17 06:04 | 23°II19'27 | | evening set | 4361 Jun 12 00:21 | 29°II37'03 | |
| retrograde | 4354 Sep 23 09:45 | 24°II41'51 | | | | | |
| opposition | 4354 Dec 16 01:11 | 23°II42'38 | -14°55'12 | conjunction | 4361 Jun 19 05:37 | 29°II46'48 | -13°22'35 |
| min. Earth dist. | 4354 Dec 15 12:25 | 23°II43'13 | 48.38833 AU | minimum elong | 4361 Jun 19 05:48 | 29°II46'49 | 13°22'34 |
| direct | 4355 Mar 07 12:59 | 22°II44'19 | | max. Earth dist. | 4361 Jun 19 11:37 | 29°II47'09 | 50.09054 AU |
| evening set | 4355 Jun 09 01:27 | 24°II02'51 | | morning rise | 4361 Jun 26 11:51 | 29°II56'37 | |
| | | | | | 4361 Jun 29 00:26 | 0°☾ | |
| conjunction | 4355 Jun 13 23:36 | 24°II09'30 | -14°16'01 | retrograde | 4361 Sep 29 16:19 | 1°☾15'18 | |
| minimum elong | 4355 Jun 13 23:46 | 24°II09'31 | 14°16'02 | opposition | 4361 Dec 22 06:57 | 0°☾16'08 | -13°50'33 |
| max. Earth dist. | 4355 Jun 14 13:30 | 24°II10'17 | 50.31096 AU | min. Earth dist. | 4361 Dec 22 01:25 | 0°☾16'24 | 48.12001 AU |
| morning rise | 4355 Jun 18 22:20 | 24°II16'11 | | | 4362 Jan 05 21:23 | 30°☾II | |
| retrograde | 4355 Sep 24 12:20 | 25°II37'56 | | direct | 4362 Mar 13 21:48 | 29°II17'46 | |
| opposition | 4355 Dec 17 05:24 | 24°II38'43 | -14°46'40 | | 4362 May 18 00:36 | 0°☾ | |
| min. Earth dist. | 4355 Dec 16 17:30 | 24°II39'16 | 48.36138 AU | evening set | 4362 Jun 12 21:37 | 0°☾33'01 | |
| direct | 4356 Mar 07 18:46 | 23°II40'24 | | | | | |
| evening set | 4356 Jun 08 19:53 | 24°II58'21 | | conjunction | 4362 Jun 20 10:52 | 0°☾43'13 | -13°12'56 |
| | | | | minimum elong | 4362 Jun 20 11:03 | 0°☾43'13 | 13°12'57 |
| conjunction | 4356 Jun 14 04:22 | 25°II05'35 | -14°07'41 | max. Earth dist. | 4362 Jun 20 15:33 | 0°☾43'28 | 50.03678 AU |
| minimum elong | 4356 Jun 14 04:34 | 25°II05'36 | 14°07'41 | morning rise | 4362 Jun 28 01:07 | 0°☾53'28 | |

| | | | | | |
|------------------|-------------------|----------------------|------------------|-------------------|-----------------------|
| retrograde | 4362 Sep 30 21:03 | 2°☾11'44 | minimum elong | 4369 Jun 26 23:08 | 7°☾18'42 11°59'15 |
| opposition | 4362 Dec 23 11:15 | 1°☾12'33 -13°40'27 | max. Earth dist. | 4369 Jun 26 19:55 | 7°☾18'31 49.54834 AU |
| min. Earth dist. | 4362 Dec 23 08:03 | 1°☾12'42 48.06229 AU | morning rise | 4369 Jul 06 14:52 | 7°☾31'47 |
| direct | 4363 Mar 15 03:46 | 0°☾14'08 | retrograde | 4369 Oct 07 12:00 | 8°☾47'37 |
| evening set | 4363 Jun 13 19:17 | 1°☾28'59 | opposition | 4369 Dec 29 17:19 | 7°☾48'14 -12°23'15 |
| | | | min. Earth dist. | 4369 Dec 29 20:21 | 7°☾48'06 47.55204 AU |
| conjunction | 4363 Jun 21 16:08 | 1°☾39'37 -13°03'05 | direct | 4370 Mar 21 06:33 | 6°☾49'29 |
| minimum elong | 4363 Jun 21 16:20 | 1°☾39'37 13°03'06 | evening set | 4370 Jun 18 07:21 | 8°☾02'15 |
| max. Earth dist. | 4363 Jun 21 19:58 | 1°☾39'50 49.97804 AU | | | |
| morning rise | 4363 Jun 29 13:58 | 1°☾50'19 | conjunction | 4370 Jun 28 04:24 | 8°☾15'38 -11°47'46 |
| retrograde | 4363 Oct 02 02:57 | 3°☾08'09 | minimum elong | 4370 Jun 28 04:35 | 8°☾15'39 11°47'47 |
| opposition | 4363 Dec 24 15:27 | 2°☾08'57 -13°30'09 | max. Earth dist. | 4370 Jun 28 01:20 | 8°☾15'28 49.46613 AU |
| min. Earth dist. | 4363 Dec 24 12:32 | 2°☾09'05 47.99977 AU | morning rise | 4370 Jul 08 02:39 | 8°☾29'06 |
| direct | 4364 Mar 15 07:38 | 1°☾10'28 | retrograde | 4370 Oct 08 16:08 | 9°☾44'41 |
| evening set | 4364 Jun 13 16:55 | 2°☾24'57 | opposition | 4370 Dec 30 21:37 | 8°☾45'17 -12°11'14 |
| | | | min. Earth dist. | 4370 Dec 31 01:37 | 8°☾45'06 47.46651 AU |
| conjunction | 4364 Jun 21 21:07 | 2°☾36'01 -12°53'02 | direct | 4371 Mar 22 11:03 | 7°☾46'29 |
| minimum elong | 4364 Jun 21 21:18 | 2°☾36'01 12°53'03 | evening set | 4371 Jun 19 06:43 | 8°☾59'03 |
| max. Earth dist. | 4364 Jun 21 22:46 | 2°☾36'06 49.91471 AU | | | |
| morning rise | 4364 Jun 30 02:30 | 2°☾47'08 | conjunction | 4371 Jun 29 09:53 | 9°☾12'49 -11°36'04 |
| retrograde | 4364 Oct 02 10:34 | 4°☾04'35 | minimum elong | 4371 Jun 29 10:05 | 9°☾12'49 11°36'05 |
| opposition | 4364 Dec 24 19:45 | 3°☾05'20 -13°19'36 | max. Earth dist. | 4371 Jun 29 04:51 | 9°☾12'31 49.38016 AU |
| min. Earth dist. | 4364 Dec 24 18:30 | 3°☾05'23 47.93310 AU | morning rise | 4371 Jul 09 14:28 | 9°☾26'38 |
| direct | 4365 Mar 16 08:36 | 2°☾06'48 | retrograde | 4371 Oct 09 20:27 | 10°☾41'58 |
| evening set | 4365 Jun 14 14:49 | 3°☾20'57 | opposition | 4372 Jan 01 02:04 | 9°☾42'33 -11°58'59 |
| | | | min. Earth dist. | 4372 Jan 01 06:51 | 9°☾42'19 47.37691 AU |
| conjunction | 4365 Jun 23 02:20 | 3°☾32'25 -12°42'45 | direct | 4372 Mar 22 16:10 | 8°☾43'42 |
| minimum elong | 4365 Jun 23 02:31 | 3°☾32'25 12°42'45 | evening set | 4372 Jun 19 06:05 | 9°☾56'04 |
| max. Earth dist. | 4365 Jun 23 04:00 | 3°☾32'30 49.84755 AU | | | |
| morning rise | 4365 Jul 01 14:53 | 3°☾43'56 | conjunction | 4372 Jun 29 15:25 | 10°☾10'11 -11°24'09 |
| retrograde | 4365 Oct 03 14:13 | 5°☾01'01 | minimum elong | 4372 Jun 29 15:36 | 10°☾10'12 11°24'09 |
| opposition | 4365 Dec 25 23:59 | 4°☾01'44 -13°08'50 | max. Earth dist. | 4372 Jun 29 09:07 | 10°☾09'49 49.28954 AU |
| min. Earth dist. | 4365 Dec 25 23:33 | 4°☾01'45 47.86279 AU | morning rise | 4372 Jul 10 02:09 | 10°☾24'22 |
| direct | 4366 Mar 17 13:40 | 3°☾03'09 | retrograde | 4372 Oct 10 00:38 | 11°☾39'28 |
| evening set | 4366 Jun 15 12:58 | 4°☾16'59 | opposition | 4373 Jan 01 06:44 | 10°☾40'01 -11°46'31 |
| | | | min. Earth dist. | 4373 Jan 01 13:43 | 10°☾39'41 47.28239 AU |
| conjunction | 4366 Jun 24 07:24 | 4°☾28'50 -12°32'14 | direct | 4373 Mar 23 22:31 | 9°☾41'06 |
| minimum elong | 4366 Jun 24 07:35 | 4°☾28'51 12°32'14 | evening set | 4373 Jun 20 05:51 | 10°☾53'16 |
| max. Earth dist. | 4366 Jun 24 07:25 | 4°☾28'50 49.77713 AU | | | |
| morning rise | 4366 Jul 03 03:02 | 4°☾40'45 | conjunction | 4373 Jun 30 21:10 | 11°☾07'44 -11°12'01 |
| retrograde | 4366 Oct 04 16:52 | 5°☾57'30 | minimum elong | 4373 Jun 30 21:22 | 11°☾07'44 11°12'02 |
| opposition | 4366 Dec 27 04:14 | 4°☾58'11 -12°57'48 | max. Earth dist. | 4373 Jun 30 13:53 | 11°☾07'19 49.19400 AU |
| min. Earth dist. | 4366 Dec 27 04:13 | 4°☾58'11 47.78942 AU | morning rise | 4373 Jul 11 13:47 | 11°☾22'17 |
| direct | 4367 Mar 18 19:29 | 3°☾59'32 | retrograde | 4373 Oct 11 06:26 | 12°☾37'08 |
| evening set | 4367 Jun 16 11:17 | 5°☾13'05 | opposition | 4374 Jan 02 11:16 | 11°☾37'38 -11°33'50 |
| | | | min. Earth dist. | 4374 Jan 02 18:39 | 11°☾37'17 47.18272 AU |
| conjunction | 4367 Jun 25 12:38 | 5°☾25'20 -12°21'29 | direct | 4374 Mar 25 03:46 | 10°☾38'38 |
| minimum elong | 4367 Jun 25 12:50 | 5°☾25'20 12°21'28 | evening set | 4374 Jun 21 05:48 | 11°☾50'35 |
| max. Earth dist. | 4367 Jun 25 11:45 | 5°☾25'17 49.70359 AU | | | |
| morning rise | 4367 Jul 04 15:14 | 5°☾37'39 | conjunction | 4374 Jul 02 02:53 | 12°☾05'24 -10°59'41 |
| retrograde | 4367 Oct 05 21:17 | 6°☾54'04 | minimum elong | 4374 Jul 02 03:04 | 12°☾05'24 10°59'41 |
| opposition | 4367 Dec 28 08:31 | 5°☾54'43 -12°46'32 | max. Earth dist. | 4374 Jul 01 17:03 | 12°☾04'50 49.09322 AU |
| min. Earth dist. | 4367 Dec 28 10:10 | 5°☾54'38 47.71310 AU | morning rise | 4374 Jul 13 01:31 | 12°☾20'18 |
| direct | 4368 Mar 19 01:56 | 4°☾56'02 | retrograde | 4374 Oct 12 15:38 | 13°☾34'55 |
| evening set | 4368 Jun 16 09:50 | 6°☾09'18 | opposition | 4375 Jan 03 16:01 | 12°☾35'20 -11°20'56 |
| | | | min. Earth dist. | 4375 Jan 04 01:23 | 12°☾34'53 47.07797 AU |
| conjunction | 4368 Jun 25 17:52 | 6°☾21'56 -12°10'29 | direct | 4375 Mar 26 05:21 | 11°☾36'14 |
| minimum elong | 4368 Jun 25 18:03 | 6°☾21'56 12°10'29 | evening set | 4375 Jun 22 05:52 | 12°☾48'00 |
| max. Earth dist. | 4368 Jun 25 16:38 | 6°☾21'51 49.62740 AU | | | |
| morning rise | 4368 Jul 05 03:03 | 6°☾34'38 | conjunction | 4375 Jul 03 08:48 | 13°☾03'09 -10°47'08 |
| retrograde | 4368 Oct 06 04:26 | 7°☾50'45 | minimum elong | 4375 Jul 03 08:59 | 13°☾03'10 10°47'08 |
| opposition | 4368 Dec 28 12:49 | 6°☾51'23 -12°35'01 | max. Earth dist. | 4375 Jul 02 22:39 | 13°☾02'34 48.98747 AU |
| min. Earth dist. | 4368 Dec 28 14:16 | 6°☾51'19 47.63402 AU | morning rise | 4375 Jul 14 13:02 | 13°☾18'24 |
| direct | 4369 Mar 20 04:57 | 5°☾52'40 | retrograde | 4375 Oct 13 21:07 | 14°☾32'46 |
| evening set | 4369 Jun 17 08:25 | 7°☾05'40 | opposition | 4376 Jan 04 20:37 | 13°☾33'06 -11°07'48 |
| | | | min. Earth dist. | 4376 Jan 05 07:04 | 13°☾32'37 46.96841 AU |
| conjunction | 4369 Jun 26 22:56 | 7°☾18'41 -11°59'15 | direct | 4376 Mar 26 09:53 | 12°☾33'54 |

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|------------------|-------------------|---|------------------|-------------------|---|
| evening set | 4376 Jun 22 06:13 | 13° $\overline{045}^{\circ}29'$ | opposition | 4383 Jan 11 07:19 | 20° $\overline{021}^{\circ}25'$ -9°28'54 |
| | | | min. Earth dist. | 4383 Jan 12 00:40 | 20° $\overline{020}^{\circ}35'$ 46.10876 AU |
| conjunction | 4376 Jul 03 14:34 | 14° $\overline{000}^{\circ}58'$ -10°34'21 | direct | 4383 Apr 02 22:38 | 19° $\overline{021}^{\circ}30'$ |
| minimum elong | 4376 Jul 03 14:45 | 14° $\overline{000}^{\circ}58'$ 10°34'21 | evening set | 4383 Jun 28 13:19 | 20° $\overline{032}^{\circ}24'$ |
| max. Earth dist. | 4376 Jul 03 02:29 | 14° $\overline{000}^{\circ}16'$ 48.87738 AU | | | |
| morning rise | 4376 Jul 15 00:27 | 14° $\overline{016}^{\circ}32'$ | conjunction | 4383 Jul 11 09:31 | 20° $\overline{050}^{\circ}07'$ -8°58'10 |
| retrograde | 4376 Oct 14 01:30 | 15° $\overline{030}^{\circ}42'$ | minimum elong | 4383 Jul 11 09:41 | 20° $\overline{050}^{\circ}08'$ 8°58'10 |
| opposition | 4377 Jan 05 01:21 | 14° $\overline{030}^{\circ}56'$ -10°54'26 | max. Earth dist. | 4383 Jul 10 14:48 | 20° $\overline{049}^{\circ}02'$ 48.01674 AU |
| min. Earth dist. | 4377 Jan 05 12:28 | 14° $\overline{030}^{\circ}25'$ 46.85490 AU | morning rise | 4383 Jul 24 07:09 | 21° $\overline{007}^{\circ}57'$ |
| direct | 4377 Mar 27 15:01 | 13° $\overline{031}^{\circ}37'$ | retrograde | 4383 Oct 21 18:02 | 22° $\overline{021}^{\circ}12'$ |
| evening set | 4377 Jun 23 06:25 | 14° $\overline{043}^{\circ}02'$ | opposition | 4384 Jan 12 12:30 | 21° $\overline{020}^{\circ}56'$ -9°13'45 |
| | | | min. Earth dist. | 4384 Jan 13 06:07 | 21° $\overline{020}^{\circ}05'$ 45.97305 AU |
| conjunction | 4377 Jul 04 20:19 | 14° $\overline{058}^{\circ}50'$ -10°21'20 | direct | 4384 Apr 03 04:19 | 20° $\overline{020}^{\circ}56'$ |
| minimum elong | 4377 Jul 04 20:30 | 14° $\overline{058}^{\circ}51'$ 10°21'21 | evening set | 4384 Jun 28 15:26 | 21° $\overline{031}^{\circ}48'$ |
| max. Earth dist. | 4377 Jul 04 07:13 | 14° $\overline{058}^{\circ}05'$ 48.76337 AU | | | |
| morning rise | 4377 Jul 16 11:44 | 15° $\overline{014}^{\circ}45'$ | conjunction | 4384 Jul 11 16:09 | 21° $\overline{049}^{\circ}51'$ -8°43'28 |
| retrograde | 4377 Oct 15 04:39 | 16° $\overline{028}^{\circ}43'$ | minimum elong | 4384 Jul 11 16:20 | 21° $\overline{049}^{\circ}51'$ 8°43'28 |
| opposition | 4378 Jan 06 06:14 | 15° $\overline{028}^{\circ}51'$ -10°40'49 | max. Earth dist. | 4384 Jul 10 19:03 | 21° $\overline{048}^{\circ}37'$ 47.88014 AU |
| min. Earth dist. | 4378 Jan 06 19:07 | 15° $\overline{028}^{\circ}14'$ 46.73775 AU | morning rise | 4384 Jul 24 18:35 | 22° $\overline{007}^{\circ}59'$ |
| direct | 4378 Mar 28 22:44 | 14° $\overline{029}^{\circ}25'$ | retrograde | 4384 Oct 22 04:12 | 23° $\overline{021}^{\circ}11'$ |
| evening set | 4378 Jun 24 07:06 | 15° $\overline{040}^{\circ}41'$ | opposition | 4385 Jan 12 18:05 | 22° $\overline{020}^{\circ}51'$ -8°58'22 |
| | | | min. Earth dist. | 4385 Jan 13 13:47 | 22° $\overline{019}^{\circ}54'$ 45.83270 AU |
| conjunction | 4378 Jul 06 02:21 | 15° $\overline{056}^{\circ}49'$ -10°08'05 | direct | 4385 Apr 04 06:35 | 21° $\overline{020}^{\circ}45'$ |
| minimum elong | 4378 Jul 06 02:32 | 15° $\overline{056}^{\circ}49'$ 10°08'05 | evening set | 4385 Jun 29 17:35 | 22° $\overline{031}^{\circ}36'$ |
| max. Earth dist. | 4378 Jul 05 12:49 | 15° $\overline{056}^{\circ}02'$ 48.64615 AU | | | |
| morning rise | 4378 Jul 17 23:00 | 16° $\overline{013}^{\circ}03'$ | conjunction | 4385 Jul 12 23:00 | 22° $\overline{049}^{\circ}57'$ -8°28'32 |
| retrograde | 4378 Oct 16 10:35 | 17° $\overline{026}^{\circ}50'$ | minimum elong | 4385 Jul 12 23:10 | 22° $\overline{049}^{\circ}58'$ 8°28'31 |
| opposition | 4379 Jan 07 10:55 | 16° $\overline{026}^{\circ}53'$ -10°26'57 | max. Earth dist. | 4385 Jul 12 01:28 | 22° $\overline{048}^{\circ}42'$ 47.73859 AU |
| min. Earth dist. | 4379 Jan 07 23:43 | 16° $\overline{026}^{\circ}17'$ 46.61753 AU | morning rise | 4385 Jul 26 05:47 | 23° $\overline{008}^{\circ}24'$ |
| direct | 4379 Mar 30 03:53 | 15° $\overline{027}^{\circ}20'$ | retrograde | 4385 Oct 23 12:12 | 24° $\overline{021}^{\circ}32'$ |
| evening set | 4379 Jun 25 07:59 | 16° $\overline{038}^{\circ}28'$ | opposition | 4386 Jan 13 23:44 | 23° $\overline{021}^{\circ}07'$ -8°42'45 |
| | | | min. Earth dist. | 4386 Jan 14 20:28 | 23° $\overline{020}^{\circ}07'$ 45.68711 AU |
| conjunction | 4379 Jul 07 08:20 | 16° $\overline{054}^{\circ}56'$ -9°54'36 | direct | 4386 Apr 05 10:56 | 22° $\overline{020}^{\circ}54'$ |
| minimum elong | 4379 Jul 07 08:31 | 16° $\overline{054}^{\circ}57'$ 9°54'37 | evening set | 4386 Jun 30 20:19 | 23° $\overline{031}^{\circ}45'$ |
| max. Earth dist. | 4379 Jul 06 16:51 | 16° $\overline{054}^{\circ}03'$ 48.52592 AU | max. Earth dist. | 4386 Jul 13 06:05 | 23° $\overline{049}^{\circ}00'$ 47.59188 AU |
| morning rise | 4379 Jul 19 10:23 | 17° $\overline{011}^{\circ}30'$ | | | |
| retrograde | 4379 Oct 17 18:50 | 18° $\overline{025}^{\circ}07'$ | conjunction | 4386 Jul 14 05:59 | 23° $\overline{050}^{\circ}23'$ -8°13'22 |
| opposition | 4380 Jan 08 15:56 | 17° $\overline{025}^{\circ}06'$ -10°12'50 | minimum elong | 4386 Jul 14 06:09 | 23° $\overline{050}^{\circ}24'$ 8°13'23 |
| min. Earth dist. | 4380 Jan 09 06:22 | 17° $\overline{024}^{\circ}25'$ 46.49457 AU | morning rise | 4386 Jul 27 17:18 | 24° $\overline{009}^{\circ}08'$ |
| direct | 4380 Mar 30 06:15 | 16° $\overline{025}^{\circ}27'$ | retrograde | 4386 Oct 24 19:40 | 25° $\overline{022}^{\circ}13'$ |
| evening set | 4380 Jun 25 08:48 | 17° $\overline{036}^{\circ}29'$ | opposition | 4387 Jan 15 05:20 | 24° $\overline{021}^{\circ}41'$ -8°26'53 |
| | | | min. Earth dist. | 4387 Jan 16 03:16 | 24° $\overline{020}^{\circ}38'$ 45.53649 AU |
| conjunction | 4380 Jul 07 14:24 | 17° $\overline{053}^{\circ}16'$ -9°40'52 | direct | 4387 Apr 06 15:51 | 23° $\overline{021}^{\circ}19'$ |
| minimum elong | 4380 Jul 07 14:35 | 17° $\overline{053}^{\circ}16'$ 9°40'52 | evening set | 4387 Jul 01 23:08 | 24° $\overline{032}^{\circ}11'$ |
| max. Earth dist. | 4380 Jul 06 23:02 | 17° $\overline{052}^{\circ}23'$ 48.40300 AU | max. Earth dist. | 4387 Jul 14 11:54 | 24° $\overline{049}^{\circ}38'$ 47.44008 AU |
| morning rise | 4380 Jul 19 21:23 | 18° $\overline{010}^{\circ}09'$ | | | |
| retrograde | 4380 Oct 18 00:36 | 19° $\overline{023}^{\circ}38'$ | conjunction | 4387 Jul 15 13:10 | 24° $\overline{051}^{\circ}07'$ -7°57'59 |
| opposition | 4381 Jan 08 20:58 | 18° $\overline{023}^{\circ}33'$ -9°58'27 | minimum elong | 4387 Jul 15 13:20 | 24° $\overline{051}^{\circ}07'$ 7°57'59 |
| min. Earth dist. | 4381 Jan 09 11:50 | 18° $\overline{022}^{\circ}50'$ 46.36885 AU | morning rise | 4387 Jul 29 04:41 | 25° $\overline{010}^{\circ}09'$ |
| direct | 4381 Mar 31 11:14 | 17° $\overline{023}^{\circ}48'$ | retrograde | 4387 Oct 25 22:53 | 26° $\overline{023}^{\circ}11'$ |
| evening set | 4381 Jun 26 10:05 | 18° $\overline{034}^{\circ}46'$ | opposition | 4388 Jan 16 11:13 | 25° $\overline{022}^{\circ}32'$ -8°10'46 |
| | | | min. Earth dist. | 4388 Jan 17 11:04 | 25° $\overline{021}^{\circ}23'$ 45.38102 AU |
| conjunction | 4381 Jul 08 20:32 | 18° $\overline{051}^{\circ}52'$ -9°26'52 | direct | 4388 Apr 07 01:15 | 24° $\overline{022}^{\circ}01'$ |
| minimum elong | 4381 Jul 08 20:42 | 18° $\overline{051}^{\circ}52'$ 9°26'53 | evening set | 4388 Jul 02 02:02 | 25° $\overline{032}^{\circ}52'$ |
| max. Earth dist. | 4381 Jul 08 03:31 | 18° $\overline{050}^{\circ}53'$ 48.27749 AU | | | |
| morning rise | 4381 Jul 21 08:38 | 19° $\overline{009}^{\circ}04'$ | conjunction | 4388 Jul 15 20:13 | 25° $\overline{052}^{\circ}05'$ -7°42'21 |
| retrograde | 4381 Oct 19 06:34 | 20° $\overline{022}^{\circ}26'$ | minimum elong | 4388 Jul 15 20:23 | 25° $\overline{052}^{\circ}06'$ 7°42'22 |
| opposition | 4382 Jan 10 02:01 | 19° $\overline{022}^{\circ}17'$ -9°43'48 | max. Earth dist. | 4388 Jul 14 18:13 | 25° $\overline{050}^{\circ}33'$ 47.28386 AU |
| min. Earth dist. | 4382 Jan 10 17:27 | 19° $\overline{021}^{\circ}33'$ 46.24049 AU | morning rise | 4388 Jul 29 15:50 | 26° $\overline{011}^{\circ}25'$ |
| direct | 4382 Apr 01 16:10 | 18° $\overline{022}^{\circ}28'$ | retrograde | 4388 Oct 26 04:35 | 27° $\overline{024}^{\circ}25'$ |
| evening set | 4382 Jun 27 11:30 | 19° $\overline{033}^{\circ}23'$ | opposition | 4389 Jan 16 17:01 | 26° $\overline{023}^{\circ}38'$ -7°54'25 |
| max. Earth dist. | 4382 Jul 09 09:01 | 19° $\overline{049}^{\circ}46'$ 48.14890 AU | min. Earth dist. | 4389 Jan 17 17:04 | 26° $\overline{022}^{\circ}28'$ 45.22140 AU |
| | | | direct | 4389 Apr 08 08:37 | 25° $\overline{022}^{\circ}56'$ |
| conjunction | 4382 Jul 10 02:56 | 19° $\overline{050}^{\circ}48'$ -9°12'38 | evening set | 4389 Jul 03 05:21 | 26° $\overline{033}^{\circ}48'$ |
| minimum elong | 4382 Jul 10 03:07 | 19° $\overline{050}^{\circ}49'$ 9°12'39 | max. Earth dist. | 4389 Jul 15 23:20 | 26° $\overline{051}^{\circ}39'$ 47.12363 AU |
| morning rise | 4382 Jul 22 19:56 | 20° $\overline{008}^{\circ}19'$ | | | |
| retrograde | 4382 Oct 20 11:40 | 21° $\overline{021}^{\circ}37'$ | conjunction | 4389 Jul 17 03:28 | 26° $\overline{053}^{\circ}19'$ -7°26'29 |

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|------------------|-------------------|-----------------------|------------------|-------------------|-----------------------|
| minimum elong | 4389 Jul 17 03:38 | 26°☾53'19 7°26'29 | retrograde | 4395 Nov 03 13:32 | 4°♂41'56 |
| morning rise | 4389 Jul 31 03:13 | 27°☾12'55 | opposition | 4396 Jan 24 13:52 | 3°♂40'10 -5°52'23 |
| retrograde | 4389 Oct 27 13:50 | 28°☾25'55 | min. Earth dist. | 4396 Jan 25 20:51 | 3°♂38'37 44.02008 AU |
| opposition | 4390 Jan 17 23:00 | 27°☾24'59 -7°37'48 | direct | 4396 Apr 15 01:21 | 2°♂38'17 |
| min. Earth dist. | 4390 Jan 19 00:59 | 27°☾23'43 45.05822 AU | evening set | 4396 Jul 09 12:00 | 3°♂49'50 |
| direct | 4390 Apr 09 12:08 | 26°☾24'07 | max. Earth dist. | 4396 Jul 22 23:15 | 4°♂09'08 45.92005 AU |
| evening set | 4390 Jul 04 08:47 | 27°☾35'00 | | | |
| max. Earth dist. | 4390 Jul 17 06:45 | 27°☾53'08 46.96005 AU | conjunction | 4396 Jul 24 10:46 | 4°♂11'16 -5°28'18 |
| | | | minimum elong | 4396 Jul 24 10:54 | 4°♂11'16 5°28'18 |
| conjunction | 4390 Jul 18 10:59 | 27°☾54'48 -7°10'22 | morning rise | 4396 Aug 08 10:59 | 4°♂32'47 |
| minimum elong | 4390 Jul 18 11:08 | 27°☾54'48 7°10'23 | retrograde | 4396 Nov 04 00:25 | 5°♂46'13 |
| morning rise | 4390 Aug 01 14:29 | 28°☾14'42 | opposition | 4397 Jan 24 21:00 | 4°♂44'17 -5°33'52 |
| retrograde | 4390 Oct 28 21:41 | 29°☾27'41 | min. Earth dist. | 4397 Jan 26 05:18 | 4°♂42'41 43.83561 AU |
| opposition | 4391 Jan 19 05:05 | 28°☾26'36 -7°20'55 | direct | 4397 Apr 16 06:07 | 3°♂42'14 |
| min. Earth dist. | 4391 Jan 20 07:29 | 28°☾25'18 44.89182 AU | evening set | 4397 Jul 10 17:45 | 4°♂53'58 |
| direct | 4391 Apr 10 18:02 | 27°☾25'33 | max. Earth dist. | 4397 Jul 24 06:57 | 5°♂13'26 45.73422 AU |
| evening set | 4391 Jul 05 12:39 | 28°☾36'30 | | | |
| | | | conjunction | 4397 Jul 25 19:38 | 5°♂15'39 -5°10'24 |
| conjunction | 4391 Jul 19 18:27 | 28°☾56'34 -6°54'00 | minimum elong | 4397 Jul 25 19:45 | 5°♂15'40 5°10'25 |
| minimum elong | 4391 Jul 19 18:37 | 28°☾56'34 6°54'00 | morning rise | 4397 Aug 09 22:40 | 5°♂37'26 |
| max. Earth dist. | 4391 Jul 18 12:26 | 28°☾54'47 46.79354 AU | retrograde | 4397 Nov 05 07:30 | 6°♂50'59 |
| morning rise | 4391 Aug 03 01:50 | 29°☾16'44 | opposition | 4398 Jan 26 04:20 | 5°♂48'55 -5°15'06 |
| | 4391 Sep 06 18:40 | 0°♂ | min. Earth dist. | 4398 Jan 27 14:24 | 5°♂47'12 43.64643 AU |
| retrograde | 4391 Oct 30 06:35 | 0°♂29'44 | direct | 4398 Apr 17 15:19 | 4°♂46'39 |
| | 4391 Dec 23 07:23 | 30°♂☾ | evening set | 4398 Jul 11 23:56 | 5°♂58'35 |
| opposition | 4392 Jan 20 11:15 | 29°☾28'30 -7°03'45 | max. Earth dist. | 4398 Jul 25 14:44 | 6°♂18'13 45.54381 AU |
| min. Earth dist. | 4392 Jan 21 14:22 | 29°☾27'10 44.72280 AU | | | |
| direct | 4392 Apr 10 22:55 | 28°☾27'16 | conjunction | 4398 Jul 27 04:40 | 6°♂20'31 -4°52'16 |
| evening set | 4392 Jul 05 16:38 | 29°☾38'18 | minimum elong | 4398 Jul 27 04:46 | 6°♂20'32 4°52'16 |
| max. Earth dist. | 4392 Jul 18 19:29 | 29°☾56'50 46.62439 AU | morning rise | 4398 Aug 11 10:32 | 6°♂42'34 |
| | | | retrograde | 4398 Nov 06 14:49 | 7°♂56'15 |
| conjunction | 4392 Jul 20 02:11 | 29°☾58'39 -6°37'23 | opposition | 4399 Jan 27 11:46 | 6°♂54'00 -4°56'03 |
| minimum elong | 4392 Jul 20 02:19 | 29°☾58'40 6°37'24 | min. Earth dist. | 4399 Jan 28 22:17 | 6°♂52'16 43.45267 AU |
| | 4392 Jul 21 00:51 | 0°♂ | direct | 4399 Apr 19 00:32 | 5°♂51'31 |
| morning rise | 4392 Aug 03 13:06 | 0°♂19'06 | evening set | 4399 Jul 13 06:27 | 7°♂03'39 |
| retrograde | 4392 Oct 30 13:03 | 1°♂32'08 | max. Earth dist. | 4399 Jul 26 21:34 | 7°♂23'23 45.34873 AU |
| opposition | 4393 Jan 20 17:45 | 0°♂30'45 -6°46'19 | | | |
| min. Earth dist. | 4393 Jan 21 22:17 | 0°♂29'21 44.55127 AU | conjunction | 4399 Jul 28 13:47 | 7°♂25'51 -4°33'52 |
| | 4393 Feb 16 23:24 | 30°♂☾ | minimum elong | 4399 Jul 28 13:53 | 7°♂25'51 4°33'53 |
| direct | 4393 Apr 12 06:28 | 29°☾29'22 | morning rise | 4399 Aug 12 22:20 | 7°♂48'08 |
| | 4393 Jun 04 17:37 | 0°♂ | retrograde | 4399 Nov 08 00:06 | 9°♂01'59 |
| evening set | 4393 Jul 06 20:50 | 0°♂40'29 | opposition | 4400 Jan 28 19:27 | 7°♂59'32 -4°36'45 |
| max. Earth dist. | 4393 Jul 20 02:41 | 0°♂59'15 46.45294 AU | min. Earth dist. | 4400 Jan 30 08:11 | 7°♂57'41 43.25460 AU |
| | | | direct | 4400 Apr 19 07:09 | 6°♂56'50 |
| conjunction | 4393 Jul 21 09:57 | 1°♂01'07 -6°20'30 | evening set | 4400 Jul 13 13:08 | 8°♂09'10 |
| minimum elong | 4393 Jul 21 10:06 | 1°♂01'07 6°20'30 | max. Earth dist. | 4400 Jul 27 06:42 | 8°♂29'08 45.14965 AU |
| morning rise | 4393 Aug 05 00:23 | 1°♂21'50 | | | |
| retrograde | 4393 Oct 31 18:48 | 2°♂34'55 | conjunction | 4400 Jul 28 23:10 | 8°♂31'37 -4°15'14 |
| opposition | 4394 Jan 22 00:16 | 1°♂33'25 -6°28'37 | minimum elong | 4400 Jul 28 23:16 | 8°♂31'37 4°15'13 |
| min. Earth dist. | 4394 Jan 23 04:42 | 1°♂32'01 44.37730 AU | morning rise | 4400 Aug 13 10:04 | 8°♂54'09 |
| direct | 4394 Apr 13 14:35 | 0°♂31'52 | retrograde | 4400 Nov 08 09:15 | 10°♂08'11 |
| evening set | 4394 Jul 08 01:36 | 1°♂43'06 | opposition | 4401 Jan 29 03:13 | 9°♂05'32 -4°17'10 |
| max. Earth dist. | 4394 Jul 21 08:48 | 2°♂02'01 46.27872 AU | min. Earth dist. | 4401 Jan 30 16:14 | 9°♂03'39 43.05279 AU |
| | | | direct | 4401 Apr 20 14:52 | 8°♂02'35 |
| conjunction | 4394 Jul 22 18:02 | 2°♂04'00 -6°03'21 | evening set | 4401 Jul 14 20:14 | 9°♂15'10 |
| minimum elong | 4394 Jul 22 18:09 | 2°♂04'00 6°03'22 | max. Earth dist. | 4401 Jul 28 13:59 | 9°♂35'14 44.94712 AU |
| morning rise | 4394 Aug 06 11:57 | 2°♂25'00 | | | |
| retrograde | 4394 Nov 02 03:48 | 3°♂38'11 | conjunction | 4401 Jul 30 08:30 | 9°♂37'51 -3°56'20 |
| opposition | 4395 Jan 23 06:58 | 2°♂36'32 -6°10'38 | minimum elong | 4401 Jul 30 08:36 | 9°♂37'52 3°56'20 |
| min. Earth dist. | 4395 Jan 24 13:20 | 2°♂35'02 44.20047 AU | morning rise | 4401 Aug 14 21:57 | 10°♂00'37 |
| direct | 4395 Apr 14 20:06 | 1°♂34'50 | retrograde | 4401 Nov 09 21:39 | 11°♂14'51 |
| evening set | 4395 Jul 09 06:36 | 2°♂46'13 | opposition | 4402 Jan 30 11:15 | 10°♂12'00 -3°57'19 |
| max. Earth dist. | 4395 Jul 22 17:10 | 3°♂05'23 46.10132 AU | min. Earth dist. | 4402 Feb 01 01:30 | 10°♂10'03 42.84793 AU |
| | | | direct | 4402 Apr 21 20:21 | 9°♂08'48 |
| conjunction | 4395 Jul 24 02:27 | 3°♂07'23 -5°45'57 | evening set | 4402 Jul 16 03:42 | 10°♂21'40 |
| minimum elong | 4395 Jul 24 02:35 | 3°♂07'23 5°45'58 | max. Earth dist. | 4402 Jul 29 23:18 | 10°♂41'56 44.74156 AU |
| morning rise | 4395 Aug 07 23:25 | 3°♂28'38 | | | |

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|------------------|-------------------|--------------------------------|------------------|-------------------|--------------------------------|
| conjunction | 4402 Jul 31 18:20 | 10° Ω 44'35 -3°37'10 | morning rise | 4408 Aug 23 10:44 | 18° Ω 02'32 |
| minimum elong | 4402 Jul 31 18:25 | 10° Ω 44'36 3°37'10 | retrograde | 4408 Nov 18 01:14 | 19° Ω 18'55 |
| morning rise | 4402 Aug 16 09:47 | 11° Ω 07'35 | opposition | 4409 Feb 07 01:43 | 18° Ω 14'40 -1°30'24 |
| retrograde | 4402 Nov 11 07:28 | 12° Ω 22'02 | min. Earth dist. | 4409 Feb 08 21:42 | 18° Ω 12'23 41.35281 AU |
| opposition | 4403 Jan 31 19:23 | 11° Ω 18'58 -3°37'10 | direct | 4409 Apr 29 08:59 | 17° Ω 09'50 |
| min. Earth dist. | 4403 Feb 02 10:53 | 11° Ω 16'57 42.64036 AU | evening set | 4409 Jul 23 20:21 | 18° Ω 25'23 |
| direct | 4403 Apr 23 05:14 | 10° Ω 15'32 | max. Earth dist. | 4409 Aug 06 18:49 | 18° Ω 46'35 43.24177 AU |
| evening set | 4403 Jul 17 11:36 | 11° Ω 28'42 | | | |
| max. Earth dist. | 4403 Jul 31 08:18 | 11° Ω 49'07 44.53371 AU | conjunction | 4409 Aug 08 21:37 | 18° Ω 49'50 -1°15'44 |
| | | | minimum elong | 4409 Aug 08 21:39 | 18° Ω 49'50 1°15'44 |
| conjunction | 4403 Aug 02 04:14 | 11° Ω 51'51 -3°17'45 | morning rise | 4409 Aug 24 23:21 | 19° Ω 14'20 |
| minimum elong | 4403 Aug 02 04:19 | 11° Ω 51'51 3°17'46 | retrograde | 4409 Nov 19 12:12 | 20° Ω 31'07 |
| morning rise | 4403 Aug 17 21:45 | 12° Ω 15'05 | opposition | 4410 Feb 08 11:56 | 19° Ω 26'39 -1°08'18 |
| retrograde | 4403 Nov 12 16:02 | 13° Ω 29'46 | min. Earth dist. | 4410 Feb 10 10:07 | 19° Ω 24'14 41.12807 AU |
| opposition | 4404 Feb 02 03:46 | 12° Ω 26'30 -3°16'45 | direct | 4410 Apr 30 19:53 | 18° Ω 21'32 |
| min. Earth dist. | 4404 Feb 03 19:13 | 12° Ω 24'29 42.43080 AU | evening set | 4410 Jul 25 07:41 | 19° Ω 37'33 |
| direct | 4404 Apr 23 14:44 | 11° Ω 22'50 | max. Earth dist. | 4410 Aug 08 06:25 | 19° Ω 58'53 43.01538 AU |
| evening set | 4404 Jul 17 19:46 | 12° Ω 36'19 | | | |
| max. Earth dist. | 4404 Jul 31 16:49 | 12° Ω 56'51 44.32381 AU | conjunction | 4410 Aug 10 09:50 | 20° Ω 02'11 -0°54'31 |
| | | | minimum elong | 4410 Aug 10 09:51 | 20° Ω 02'12 0°54'31 |
| conjunction | 4404 Aug 02 14:13 | 12° Ω 59'42 -2°58'04 | morning rise | 4410 Aug 26 12:11 | 20° Ω 26'53 |
| minimum elong | 4404 Aug 02 14:18 | 12° Ω 59'42 2°58'04 | retrograde | 4410 Nov 20 22:11 | 21° Ω 44'05 |
| morning rise | 4404 Aug 18 09:35 | 13° Ω 23'09 | opposition | 4411 Feb 09 22:12 | 20° Ω 39'22 -0°45'55 |
| retrograde | 4404 Nov 13 00:34 | 14° Ω 38'08 | min. Earth dist. | 4411 Feb 11 20:38 | 20° Ω 36'55 40.89943 AU |
| opposition | 4405 Feb 02 12:34 | 13° Ω 34'40 -2°56'03 | direct | 4411 May 02 07:06 | 19° Ω 33'58 |
| min. Earth dist. | 4405 Feb 04 05:35 | 13° Ω 32'33 42.21944 AU | evening set | 4411 Jul 26 19:38 | 20° Ω 50'28 |
| direct | 4405 Apr 24 23:49 | 12° Ω 30'46 | max. Earth dist. | 4411 Aug 09 16:20 | 21° Ω 11'47 42.78509 AU |
| evening set | 4405 Jul 19 04:23 | 13° Ω 44'35 | | | |
| max. Earth dist. | 4405 Aug 02 03:32 | 14° Ω 05'21 44.11225 AU | conjunction | 4411 Aug 11 22:11 | 21° Ω 15'17 -0°33'03 |
| | | | minimum elong | 4411 Aug 11 22:12 | 21° Ω 15'17 0°33'03 |
| conjunction | 4405 Aug 04 00:43 | 14° Ω 08'11 -2°38'07 | morning rise | 4411 Aug 28 01:09 | 21° Ω 40'08 |
| minimum elong | 4405 Aug 04 00:47 | 14° Ω 08'12 2°38'08 | retrograde | 4411 Nov 22 11:52 | 22° Ω 57'48 |
| morning rise | 4405 Aug 19 21:38 | 14° Ω 31'52 | opposition | 4412 Feb 11 08:57 | 21° Ω 52'48 -0°23'17 |
| | 4405 Sep 09 04:25 | 15° Ω | min. Earth dist. | 4412 Feb 13 09:11 | 21° Ω 50'15 40.66723 AU |
| retrograde | 4405 Nov 14 11:15 | 15° Ω 47'10 | direct | 4412 May 02 15:04 | 20° Ω 47'05 |
| | 4406 Jan 21 09:34 | 15° Ω | evening set | 4412 Jul 27 07:45 | 22° Ω 04'06 |
| opposition | 4406 Feb 03 21:21 | 14° Ω 43'30 -2°35'03 | max. Earth dist. | 4412 Aug 10 04:43 | 22° Ω 25'33 42.55131 AU |
| min. Earth dist. | 4406 Feb 05 14:20 | 14° Ω 41'23 42.00638 AU | | | |
| direct | 4406 Apr 26 07:21 | 13° Ω 39'23 | conjunction | 4412 Aug 12 10:49 | 22° Ω 29'05 -0°11'21 |
| evening set | 4406 Jul 20 13:41 | 14° Ω 53'35 | minimum elong | 4412 Aug 12 10:49 | 22° Ω 29'05 0°11'21 |
| | 4406 Jul 24 21:48 | 15° Ω | behind sun begin | 4412 Aug 12 06:08 | 22° Ω 28'48 |
| max. Earth dist. | 4406 Aug 03 12:12 | 15° Ω 14'26 43.89885 AU | behind sun end | 4412 Aug 12 15:30 | 22° Ω 29'22 |
| | | | morning rise | 4412 Aug 28 13:52 | 22° Ω 54'06 |
| conjunction | 4406 Aug 05 11:25 | 15° Ω 17'25 -2°17'55 | retrograde | 4412 Nov 23 01:13 | 24° Ω 12'13 |
| minimum elong | 4406 Aug 05 11:29 | 15° Ω 17'25 2°17'55 | opposition | 4413 Feb 11 19:58 | 23° Ω 06'56 -0°00'22 |
| morning rise | 4406 Aug 21 09:59 | 15° Ω 41'18 | min. Earth dist. | 4413 Feb 13 21:02 | 23° Ω 04'20 40.43180 AU |
| retrograde | 4406 Nov 16 00:50 | 16° Ω 56'57 | asc. node | 4413 Feb 17 12:59 | 22° Ω 59'39 |
| opposition | 4407 Feb 05 06:33 | 15° Ω 53'06 -2°13'47 | direct | 4413 May 04 00:52 | 22° Ω 00'53 |
| min. Earth dist. | 4407 Feb 07 00:53 | 15° Ω 50'55 41.79139 AU | evening set | 4413 Jul 28 20:41 | 23° Ω 18'27 |
| | 4407 Mar 27 11:32 | 15° Ω | max. Earth dist. | 4413 Aug 11 16:02 | 23° Ω 39'56 42.31466 AU |
| direct | 4407 Apr 27 12:39 | 14° Ω 48'45 | | | |
| | 4407 May 28 13:28 | 15° Ω | conjunction | 4413 Aug 13 23:46 | 23° Ω 43'35 0°10'42 |
| evening set | 4407 Jul 21 23:19 | 16° Ω 03'23 | minimum elong | 4413 Aug 13 23:45 | 23° Ω 43'35 0°10'42 |
| max. Earth dist. | 4407 Aug 04 22:56 | 16° Ω 24'24 43.68301 AU | behind sun begin | 4413 Aug 13 18:48 | 23° Ω 43'17 |
| | | | behind sun end | 4413 Aug 14 04:42 | 23° Ω 43'54 |
| conjunction | 4407 Aug 06 22:31 | 16° Ω 27'25 -1°57'26 | morning rise | 4413 Aug 30 03:01 | 24° Ω 08'46 |
| minimum elong | 4407 Aug 06 22:34 | 16° Ω 27'25 1°57'27 | retrograde | 4413 Nov 24 16:03 | 25° Ω 27'22 |
| morning rise | 4407 Aug 22 22:10 | 16° Ω 51'31 | opposition | 4414 Feb 13 07:04 | 24° Ω 21'48 0°22'50 |
| retrograde | 4407 Nov 17 12:45 | 18° Ω 07'32 | min. Earth dist. | 4414 Feb 15 08:49 | 24° Ω 19'08 40.19394 AU |
| opposition | 4408 Feb 06 16:01 | 17° Ω 03'29 -1°52'14 | direct | 4414 May 05 10:53 | 23° Ω 15'24 |
| min. Earth dist. | 4408 Feb 08 11:26 | 17° Ω 01'14 41.57367 AU | evening set | 4414 Jul 30 10:08 | 24° Ω 33'33 |
| direct | 4408 Apr 27 22:13 | 15° Ω 58'54 | max. Earth dist. | 4414 Aug 13 04:15 | 24° Ω 55'05 42.07552 AU |
| evening set | 4408 Jul 22 09:36 | 17° Ω 13'59 | | | |
| max. Earth dist. | 4408 Aug 05 08:57 | 17° Ω 35'07 43.46426 AU | conjunction | 4414 Aug 15 13:10 | 24° Ω 58'50 0°32'54 |
| | | | minimum elong | 4414 Aug 15 13:09 | 24° Ω 58'50 0°32'53 |
| conjunction | 4408 Aug 07 09:53 | 17° Ω 38'14 -1°36'43 | morning rise | 4414 Aug 31 16:09 | 25° Ω 24'09 |
| minimum elong | 4408 Aug 07 09:55 | 17° Ω 38'14 1°36'43 | retrograde | 4414 Nov 26 04:23 | 26° Ω 43'17 |

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| opposition | 4415 Feb 14 18:46 | 25°03'24 | 0°46'17 | direct | 4421 May 14 01:59 | 2°00'22'32 | |
| min. Earth dist. | 4415 Feb 16 22:02 | 25°03'39 | 39.95400 AU | evening set | 4421 Aug 09 02:22 | 3°00'45'59 | |
| direct | 4415 May 07 00:19 | 24°03'41 | | max. Earth dist. | 4421 Aug 22 05:46 | 4°00'07'37 | 40.36317 AU |
| evening set | 4415 Aug 01 00:04 | 25°03'26 | | | | | |
| max. Earth dist. | 4415 Aug 14 17:45 | 26°03'11'05 | 41.83466 AU | conjunction | 4421 Aug 24 21:19 | 4°00'12'01 | 3°14'42 |
| | | | | minimum elong | 4421 Aug 24 21:13 | 4°00'12'01 | 3°14'42 |
| conjunction | 4415 Aug 17 02:45 | 26°03'14'52 | 0°55'20 | morning rise | 4421 Sep 09 15:39 | 4°00'38'03 | |
| minimum elong | 4415 Aug 17 02:44 | 26°03'14'52 | 0°55'21 | retrograde | 4421 Dec 05 15:41 | 6°00'02'03 | |
| morning rise | 4415 Sep 02 05:16 | 26°03'40'19 | | opposition | 4422 Feb 23 14:44 | 4°00'54'13 | 3°37'24 |
| retrograde | 4415 Nov 27 16:41 | 28°03'00'00 | | min. Earth dist. | 4422 Feb 25 23:41 | 4°00'51'02 | 38.23971 AU |
| opposition | 4416 Feb 16 06:37 | 26°03'53'50 | 1°09'59 | direct | 4422 May 15 16:00 | 3°00'45'11 | |
| min. Earth dist. | 4416 Feb 18 09:36 | 26°03'51'04 | 39.71266 AU | evening set | 4422 Aug 10 21:29 | 5°00'09'33 | |
| direct | 4416 May 07 13:40 | 25°03'46'46 | | max. Earth dist. | 4422 Aug 23 22:31 | 5°00'31'11 | 40.11067 AU |
| evening set | 4416 Aug 01 14:44 | 27°03'06'11 | | | | | |
| max. Earth dist. | 4416 Aug 15 05:52 | 27°03'27'48 | 41.59249 AU | conjunction | 4422 Aug 26 14:15 | 5°00'35'39 | 3°38'38 |
| | | | | minimum elong | 4422 Aug 26 14:09 | 5°00'35'38 | 3°38'38 |
| conjunction | 4416 Aug 17 16:42 | 27°03'31'44 | 1°18'01 | morning rise | 4422 Sep 11 06:05 | 6°00'01'42 | |
| minimum elong | 4416 Aug 17 16:40 | 27°03'31'44 | 1°18'00 | retrograde | 4422 Dec 07 07:18 | 7°00'26'34 | |
| morning rise | 4416 Sep 02 18:36 | 27°03'57'19 | | opposition | 4423 Feb 25 05:40 | 6°00'18'25 | 4°02'46 |
| retrograde | 4416 Nov 28 07:02 | 29°03'17'36 | | min. Earth dist. | 4423 Feb 27 14:49 | 6°00'15'12 | 37.98669 AU |
| opposition | 4417 Feb 16 18:59 | 28°03'11'09 | 1°33'58 | direct | 4423 May 17 06:08 | 5°00'09'01 | |
| min. Earth dist. | 4417 Feb 18 23:30 | 28°03'08'18 | 39.47040 AU | evening set | 4423 Aug 12 17:26 | 6°00'34'21 | |
| direct | 4417 May 08 23:42 | 27°03'03'45 | | max. Earth dist. | 4423 Aug 25 13:24 | 6°00'55'48 | 39.85539 AU |
| evening set | 4417 Aug 03 05:50 | 28°03'23'52 | | | | | |
| max. Earth dist. | 4417 Aug 16 20:34 | 28°03'45'37 | 41.34942 AU | conjunction | 4423 Aug 28 07:23 | 7°00'00'27 | 4°02'46 |
| | | | | minimum elong | 4423 Aug 28 07:16 | 7°00'00'26 | 4°02'46 |
| conjunction | 4417 Aug 19 07:09 | 28°03'49'33 | 1°40'56 | morning rise | 4423 Sep 12 20:38 | 7°00'26'32 | |
| minimum elong | 4417 Aug 19 07:06 | 28°03'49'33 | 1°40'56 | retrograde | 4423 Dec 09 02:01 | 8°00'52'17 | |
| morning rise | 4417 Sep 04 07:58 | 29°03'15'15 | | opposition | 4424 Feb 26 21:03 | 7°00'43'47 | 4°28'20 |
| | 4417 Oct 05 17:25 | 0°00' | | min. Earth dist. | 4424 Feb 29 07:45 | 7°00'40'28 | 37.73126 AU |
| retrograde | 4417 Nov 29 21:14 | 0°00'36'12 | | direct | 4424 May 17 18:40 | 6°00'33'59 | |
| | 4418 Jan 25 02:22 | 30°03'03 | | evening set | 4424 Aug 13 14:02 | 8°00'00'19 | |
| opposition | 4418 Feb 18 07:42 | 29°03'29'28 | 1°58'11 | max. Earth dist. | 4424 Aug 26 06:51 | 8°00'21'43 | 39.59774 AU |
| min. Earth dist. | 4418 Feb 20 12:15 | 29°03'26'35 | 39.22724 AU | | | | |
| direct | 4418 May 10 11:47 | 28°03'21'45 | | conjunction | 4424 Aug 29 01:13 | 8°00'26'26 | 4°27'04 |
| evening set | 4418 Aug 04 21:56 | 29°03'42'37 | | minimum elong | 4424 Aug 29 01:05 | 8°00'26'25 | 4°27'03 |
| | 4418 Aug 15 17:46 | 0°00' | | morning rise | 4424 Sep 13 11:14 | 8°00'52'30 | |
| max. Earth dist. | 4418 Aug 18 09:46 | 0°00'04'20 | 41.10544 AU | retrograde | 4424 Dec 09 20:33 | 10°00'19'11 | |
| | | | | opposition | 4425 Feb 27 12:53 | 9°00'10'19 | 4°54'06 |
| conjunction | 4418 Aug 20 21:57 | 0°00'08'25 | 2°04'03 | min. Earth dist. | 4425 Mar 02 00:25 | 9°00'06'56 | 37.47379 AU |
| minimum elong | 4418 Aug 20 21:53 | 0°00'08'24 | 2°04'03 | direct | 4425 May 19 09:58 | 8°00'00'06 | |
| morning rise | 4418 Sep 05 21:43 | 0°00'34'12 | | evening set | 4425 Aug 15 11:36 | 9°00'27'29 | |
| retrograde | 4418 Dec 01 15:30 | 1°00'55'51 | | max. Earth dist. | 4425 Aug 27 23:45 | 9°00'48'44 | 39.33840 AU |
| opposition | 4419 Feb 19 20:42 | 0°00'48'51 | 2°22'38 | | | | |
| min. Earth dist. | 4419 Feb 22 02:03 | 0°00'45'56 | 38.98320 AU | conjunction | 4425 Aug 30 19:21 | 9°00'53'34 | 4°51'31 |
| | 4419 Apr 02 04:21 | 30°03'03 | | minimum elong | 4425 Aug 30 19:12 | 9°00'53'33 | 4°51'31 |
| direct | 4419 May 11 22:13 | 29°03'40'49 | | morning rise | 4425 Sep 15 02:10 | 10°00'19'37 | |
| | 4419 Jun 20 09:40 | 0°00' | | retrograde | 4425 Dec 11 17:55 | 11°00'47'15 | |
| evening set | 4419 Aug 06 14:37 | 1°00'02'31 | | opposition | 4426 Mar 01 05:06 | 10°00'38'01 | 5°20'02 |
| max. Earth dist. | 4419 Aug 20 00:37 | 1°00'24'16 | 40.86007 AU | min. Earth dist. | 4426 Mar 03 16:57 | 10°00'34'36 | 37.21504 AU |
| | | | | direct | 4426 May 21 02:04 | 9°00'27'22 | |
| conjunction | 4419 Aug 22 13:21 | 1°00'28'25 | 2°27'24 | evening set | 4426 Aug 17 09:59 | 10°00'55'51 | |
| minimum elong | 4419 Aug 22 13:16 | 1°00'28'24 | 2°27'24 | max. Earth dist. | 4426 Aug 29 17:28 | 11°00'16'56 | 39.07773 AU |
| morning rise | 4419 Sep 07 11:27 | 1°00'54'18 | | | | | |
| retrograde | 4419 Dec 03 08:10 | 3°00'16'42 | | conjunction | 4426 Sep 01 14:08 | 11°00'21'53 | 5°16'06 |
| opposition | 4420 Feb 21 10:20 | 2°00'09'25 | 2°47'20 | minimum elong | 4426 Sep 01 13:58 | 11°00'21'53 | 5°16'07 |
| min. Earth dist. | 4420 Feb 23 17:03 | 2°00'06'24 | 38.73760 AU | morning rise | 4426 Sep 16 17:05 | 11°00'47'53 | |
| direct | 4420 May 12 11:03 | 1°00'01'05 | | retrograde | 4426 Dec 13 12:31 | 13°00'16'32 | |
| evening set | 4420 Aug 07 07:59 | 2°00'23'38 | | opposition | 4427 Mar 02 21:55 | 12°00'06'54 | 5°46'07 |
| max. Earth dist. | 4420 Aug 20 15:29 | 2°00'45'22 | 40.61292 AU | min. Earth dist. | 4427 Mar 05 11:17 | 12°00'03'23 | 36.95551 AU |
| | | | | direct | 4427 May 22 18:56 | 10°00'55'49 | |
| conjunction | 4420 Aug 23 04:58 | 2°00'49'36 | 2°50'57 | evening set | 4427 Aug 19 09:13 | 12°00'25'27 | |
| minimum elong | 4420 Aug 23 04:53 | 2°00'49'36 | 2°50'56 | max. Earth dist. | 4427 Aug 31 12:48 | 12°00'46'26 | 38.81672 AU |
| morning rise | 4420 Sep 08 01:22 | 3°00'15'34 | | | | | |
| retrograde | 4420 Dec 04 00:11 | 4°00'38'45 | | conjunction | 4427 Sep 03 09:19 | 12°00'51'25 | 5°40'49 |
| opposition | 4421 Feb 22 00:16 | 3°00'31'12 | 3°12'15 | minimum elong | 4427 Sep 03 09:08 | 12°00'51'24 | 5°40'49 |
| min. Earth dist. | 4421 Feb 24 07:10 | 3°00'28'10 | 38.48997 AU | morning rise | 4427 Sep 18 08:08 | 13°00'17'20 | |

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|------------------|-------------------|---------------------|-------------|------------------|-------------------|---------------------|-------------|
| retrograde | 4427 Dec 15 06:35 | 14° <u>17</u> 47'02 | | conjunction | 4434 Sep 14 16:12 | 23° <u>17</u> 58'09 | 8°35'13 |
| opposition | 4428 Mar 03 15:11 | 13° <u>17</u> 37'02 | 6°12'21 | minimum elong | 4434 Sep 14 15:56 | 23° <u>17</u> 58'07 | 8°35'14 |
| min. Earth dist. | 4428 Mar 06 04:02 | 13° <u>17</u> 33'30 | 36.69606 AU | morning rise | 4434 Sep 27 22:17 | 24° <u>17</u> 22'40 | |
| direct | 4428 May 23 13:49 | 12° <u>17</u> 25'30 | | retrograde | 4434 Dec 26 18:33 | 26° <u>17</u> 01'37 | |
| evening set | 4428 Aug 20 09:15 | 13° <u>17</u> 56'19 | | opposition | 4435 Mar 15 09:02 | 24° <u>17</u> 48'58 | 9°17'38 |
| max. Earth dist. | 4428 Sep 01 06:46 | 14° <u>17</u> 17'03 | 38.55589 AU | min. Earth dist. | 4435 Mar 18 01:20 | 24° <u>17</u> 45'04 | 34.90019 AU |
| | | | | direct | 4435 Jun 04 00:49 | 23° <u>17</u> 34'25 | |
| conjunction | 4428 Sep 04 04:49 | 14° <u>17</u> 22'12 | 6°05'38 | evening set | 4435 Sep 03 16:25 | 25° <u>17</u> 15'37 | |
| minimum elong | 4428 Sep 04 04:38 | 14° <u>17</u> 22'11 | 6°05'37 | max. Earth dist. | 4435 Sep 13 14:24 | 25° <u>17</u> 34'05 | 36.74722 AU |
| morning rise | 4428 Sep 18 23:13 | 14° <u>17</u> 48'01 | | | | | |
| retrograde | 4428 Dec 16 01:54 | 16° <u>17</u> 18'51 | | conjunction | 4435 Sep 16 16:25 | 25° <u>17</u> 39'52 | 9°00'04 |
| opposition | 4429 Mar 05 09:07 | 15° <u>17</u> 08'27 | 6°38'41 | minimum elong | 4435 Sep 16 16:08 | 25° <u>17</u> 39'51 | 9°00'03 |
| min. Earth dist. | 4429 Mar 07 23:10 | 15° <u>17</u> 04'49 | 36.43727 AU | morning rise | 4435 Sep 29 14:54 | 26° <u>17</u> 04'02 | |
| direct | 4429 May 25 05:49 | 13° <u>17</u> 56'29 | | retrograde | 4435 Dec 28 19:31 | 27° <u>17</u> 44'35 | |
| evening set | 4429 Aug 22 10:20 | 15° <u>17</u> 28'34 | | opposition | 4436 Mar 16 07:26 | 26° <u>17</u> 31'31 | 9°44'04 |
| max. Earth dist. | 4429 Sep 03 03:50 | 15° <u>17</u> 49'11 | 38.29583 AU | min. Earth dist. | 4436 Mar 19 01:02 | 26° <u>17</u> 27'30 | 34.64444 AU |
| | | | | direct | 4436 Jun 04 20:22 | 25° <u>17</u> 16'29 | |
| conjunction | 4429 Sep 06 01:13 | 15° <u>17</u> 54'19 | 6°30'30 | evening set | 4436 Sep 05 01:24 | 26° <u>17</u> 59'26 | |
| minimum elong | 4429 Sep 06 01:00 | 15° <u>17</u> 54'18 | 6°30'30 | max. Earth dist. | 4436 Sep 14 15:48 | 27° <u>17</u> 17'28 | 36.48911 AU |
| morning rise | 4429 Sep 20 14:32 | 16° <u>17</u> 20'01 | | | | | |
| retrograde | 4429 Dec 17 21:12 | 17° <u>17</u> 52'02 | | conjunction | 4436 Sep 17 17:20 | 27° <u>17</u> 23'17 | 9°24'48 |
| opposition | 4430 Mar 07 03:28 | 16° <u>17</u> 41'15 | 7°05'06 | minimum elong | 4436 Sep 17 17:02 | 27° <u>17</u> 23'15 | 9°24'49 |
| min. Earth dist. | 4430 Mar 09 17:15 | 16° <u>17</u> 37'37 | 36.17945 AU | morning rise | 4436 Sep 30 07:24 | 27° <u>17</u> 47'02 | |
| direct | 4430 May 26 23:08 | 15° <u>17</u> 28'51 | | retrograde | 4436 Dec 29 19:10 | 29° <u>17</u> 29'14 | |
| evening set | 4430 Aug 24 12:37 | 17° <u>17</u> 02'17 | | opposition | 4437 Mar 18 06:29 | 28° <u>17</u> 15'44 | 10°10'24 |
| max. Earth dist. | 4430 Sep 04 23:26 | 17° <u>17</u> 22'36 | 38.03685 AU | min. Earth dist. | 4437 Mar 21 00:08 | 28° <u>17</u> 11'42 | 34.38904 AU |
| | | | | direct | 4437 Jun 06 18:51 | 27° <u>17</u> 00'13 | |
| conjunction | 4430 Sep 07 22:03 | 17° <u>17</u> 27'53 | 6°55'26 | evening set | 4437 Sep 07 11:59 | 28° <u>17</u> 44'59 | |
| minimum elong | 4430 Sep 07 21:50 | 17° <u>17</u> 27'52 | 6°55'26 | max. Earth dist. | 4437 Sep 16 16:10 | 29° <u>17</u> 02'25 | 36.23167 AU |
| morning rise | 4430 Sep 22 06:12 | 17° <u>17</u> 53'25 | | | | | |
| retrograde | 4430 Dec 19 19:58 | 19° <u>17</u> 26'41 | | conjunction | 4437 Sep 19 18:55 | 29° <u>17</u> 08'23 | 9°49'25 |
| opposition | 4431 Mar 08 22:29 | 18° <u>17</u> 15'32 | 7°31'34 | minimum elong | 4437 Sep 19 18:36 | 29° <u>17</u> 08'21 | 9°49'24 |
| min. Earth dist. | 4431 Mar 11 12:47 | 18° <u>17</u> 11'51 | 35.92286 AU | morning rise | 4437 Oct 02 00:17 | 29° <u>17</u> 31'40 | |
| direct | 4431 May 28 15:25 | 17° <u>17</u> 02'44 | | | 4437 Oct 17 11:31 | 0° <u>17</u> 00'00 | |
| evening set | 4431 Aug 26 15:41 | 18° <u>17</u> 37'34 | | retrograde | 4437 Dec 31 22:26 | 1° <u>17</u> 15'35 | |
| max. Earth dist. | 4431 Sep 06 20:56 | 18° <u>17</u> 57'40 | 37.77867 AU | opposition | 4438 Mar 20 06:02 | 0° <u>17</u> 01'39 | 10°36'34 |
| | | | | | 4438 Mar 21 08:47 | 30° <u>17</u> 00'00 | |
| conjunction | 4431 Sep 09 19:32 | 19° <u>17</u> 02'59 | 7°20'24 | min. Earth dist. | 4438 Mar 23 00:01 | 29° <u>17</u> 57'34 | 34.13478 AU |
| minimum elong | 4431 Sep 09 19:17 | 19° <u>17</u> 02'57 | 7°20'23 | direct | 4438 Jun 08 16:32 | 28° <u>17</u> 45'38 | |
| morning rise | 4431 Sep 23 21:45 | 19° <u>17</u> 28'19 | | | 4438 Aug 23 08:55 | 0° <u>17</u> 00'00 | |
| retrograde | 4431 Dec 21 18:41 | 21° <u>17</u> 02'56 | | evening set | 4438 Sep 09 23:41 | 0° <u>17</u> 32'19 | |
| opposition | 4432 Mar 09 18:12 | 19° <u>17</u> 51'25 | 7°58'05 | max. Earth dist. | 4438 Sep 18 18:44 | 0° <u>17</u> 49'12 | 35.97541 AU |
| min. Earth dist. | 4432 Mar 12 09:20 | 19° <u>17</u> 47'39 | 35.66700 AU | | | | |
| direct | 4432 May 29 10:08 | 18° <u>17</u> 38'11 | | conjunction | 4438 Sep 21 21:20 | 0° <u>17</u> 55'12 | 10°13'49 |
| evening set | 4432 Aug 27 20:05 | 20° <u>17</u> 14'30 | | minimum elong | 4438 Sep 21 21:01 | 0° <u>17</u> 55'11 | 10°13'50 |
| max. Earth dist. | 4432 Sep 07 18:32 | 20° <u>17</u> 34'17 | 37.52110 AU | morning rise | 4438 Oct 03 17:10 | 1° <u>17</u> 17'58 | |
| | | | | retrograde | 4439 Jan 03 00:52 | 3° <u>17</u> 03'41 | |
| conjunction | 4432 Sep 10 17:38 | 20° <u>17</u> 39'42 | 7°45'21 | opposition | 4439 Mar 22 06:34 | 1° <u>17</u> 49'18 | 11°02'32 |
| minimum elong | 4432 Sep 10 17:24 | 20° <u>17</u> 39'41 | 7°45'22 | min. Earth dist. | 4439 Mar 25 01:15 | 1° <u>17</u> 45'09 | 33.88220 AU |
| morning rise | 4432 Sep 24 13:43 | 21° <u>17</u> 04'48 | | direct | 4439 Jun 10 15:50 | 0° <u>17</u> 32'48 | |
| retrograde | 4432 Dec 22 19:30 | 22° <u>17</u> 40'48 | | evening set | 4439 Sep 12 12:43 | 2° <u>17</u> 21'29 | |
| opposition | 4433 Mar 11 14:20 | 21° <u>17</u> 28'55 | 8°24'37 | max. Earth dist. | 4439 Sep 20 21:37 | 2° <u>17</u> 37'43 | 35.72133 AU |
| min. Earth dist. | 4433 Mar 14 05:18 | 21° <u>17</u> 25'10 | 35.41159 AU | | | | |
| direct | 4433 May 31 06:01 | 20° <u>17</u> 15'16 | | conjunction | 4439 Sep 24 00:08 | 2° <u>17</u> 43'46 | 10°38'00 |
| evening set | 4433 Aug 30 01:37 | 21° <u>17</u> 53'09 | | minimum elong | 4439 Sep 23 23:47 | 2° <u>17</u> 43'45 | 10°37'59 |
| max. Earth dist. | 4433 Sep 09 16:11 | 22° <u>17</u> 12'32 | 37.26342 AU | morning rise | 4439 Oct 05 09:55 | 3° <u>17</u> 05'57 | |
| | | | | retrograde | 4440 Jan 05 05:56 | 4° <u>17</u> 53'33 | |
| conjunction | 4433 Sep 12 16:34 | 22° <u>17</u> 18'05 | 8°10'18 | opposition | 4440 Mar 23 07:40 | 3° <u>17</u> 38'44 | 11°28'14 |
| minimum elong | 4433 Sep 12 16:18 | 22° <u>17</u> 18'04 | 8°10'18 | min. Earth dist. | 4440 Mar 26 01:27 | 3° <u>17</u> 34'37 | 33.63226 AU |
| morning rise | 4433 Sep 26 05:56 | 22° <u>17</u> 42'55 | | direct | 4440 Jun 11 17:10 | 2° <u>17</u> 21'43 | |
| retrograde | 4433 Dec 24 18:52 | 24° <u>17</u> 20'23 | | evening set | 4440 Sep 14 03:04 | 4° <u>17</u> 12'30 | |
| opposition | 4434 Mar 13 11:27 | 23° <u>17</u> 08'07 | 8°51'09 | max. Earth dist. | 4440 Sep 22 00:53 | 4° <u>17</u> 28'00 | 35.47003 AU |
| min. Earth dist. | 4434 Mar 16 04:02 | 23° <u>17</u> 04'13 | 35.15602 AU | | | | |
| direct | 4434 Jun 02 02:19 | 21° <u>17</u> 54'01 | | conjunction | 4440 Sep 25 03:49 | 4° <u>17</u> 34'09 | 11°01'53 |
| evening set | 4434 Sep 01 08:25 | 23° <u>17</u> 33'31 | | minimum elong | 4440 Sep 25 03:28 | 4° <u>17</u> 34'07 | 11°01'53 |
| max. Earth dist. | 4434 Sep 11 16:02 | 23° <u>17</u> 52'33 | 37.00545 AU | morning rise | 4440 Oct 06 02:53 | 4° <u>17</u> 55'41 | |
| | | | | retrograde | 4441 Jan 06 10:56 | 6° <u>17</u> 45'15 | |

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|------------------|-------------------|--------------------|-------------|------------------|-------------------|--------------------|-------------|
| opposition | 4441 Mar 25 09:34 | 5° <u>♁</u> 30'00 | 11°53'37 | minimum elong | 4447 Oct 10 03:45 | 18° <u>♁</u> 23'43 | 13°36'05 |
| min. Earth dist. | 4441 Mar 28 04:10 | 5° <u>♁</u> 25'48 | 33.38564 AU | morning rise | 4447 Oct 16 23:42 | 18° <u>♁</u> 38'09 | |
| direct | 4441 Jun 13 18:37 | 4° <u>♁</u> 12'31 | | retrograde | 4448 Jan 21 16:02 | 20° <u>♁</u> 44'39 | |
| evening set | 4441 Sep 16 19:05 | 6° <u>♁</u> 05'29 | | opposition | 4448 Apr 07 22:33 | 19° <u>♁</u> 26'39 | 14°37'17 |
| max. Earth dist. | 4441 Sep 24 06:35 | 6° <u>♁</u> 20'18 | 35.22245 AU | min. Earth dist. | 4448 Apr 10 15:32 | 19° <u>♁</u> 22'22 | 31.76978 AU |
| | | | | direct | 4448 Jun 26 21:47 | 18° <u>♁</u> 06'03 | |
| conjunction | 4441 Sep 27 08:18 | 6° <u>♁</u> 26'25 | 11°25'24 | evening set | 4448 Oct 05 13:16 | 20° <u>♁</u> 17'50 | |
| minimum elong | 4441 Sep 27 07:57 | 6° <u>♁</u> 26'23 | 11°25'24 | max. Earth dist. | 4448 Oct 08 14:50 | 20° <u>♁</u> 24'21 | 33.59900 AU |
| morning rise | 4441 Oct 07 19:50 | 6° <u>♁</u> 47'13 | | | | | |
| retrograde | 4442 Jan 08 16:57 | 8° <u>♁</u> 38'51 | | conjunction | 4448 Oct 11 14:22 | 20° <u>♁</u> 30'43 | 13°55'38 |
| opposition | 4442 Mar 27 12:16 | 7° <u>♁</u> 23'12 | 12°18'37 | minimum elong | 4448 Oct 11 14:00 | 20° <u>♁</u> 30'41 | 13°55'38 |
| min. Earth dist. | 4442 Mar 30 05:34 | 7° <u>♁</u> 19'02 | 33.14294 AU | morning rise | 4448 Oct 17 14:23 | 20° <u>♁</u> 43'31 | |
| direct | 4442 Jun 15 21:59 | 6° <u>♁</u> 05'14 | | retrograde | 4449 Jan 23 03:52 | 22° <u>♁</u> 52'59 | |
| evening set | 4442 Sep 19 12:32 | 8° <u>♁</u> 00'32 | | opposition | 4449 Apr 10 07:08 | 21° <u>♁</u> 34'35 | 14°57'57 |
| max. Earth dist. | 4442 Sep 26 11:04 | 8° <u>♁</u> 14'25 | 34.97890 AU | min. Earth dist. | 4449 Apr 12 22:49 | 21° <u>♁</u> 30'21 | 31.55371 AU |
| | | | | direct | 4449 Jun 29 07:10 | 20° <u>♁</u> 13'30 | |
| conjunction | 4442 Sep 29 13:29 | 8° <u>♁</u> 20'39 | 11°48'31 | evening set | 4449 Oct 08 22:32 | 22° <u>♁</u> 28'40 | |
| minimum elong | 4442 Sep 29 13:07 | 8° <u>♁</u> 20'37 | 11°48'32 | max. Earth dist. | 4449 Oct 11 01:36 | 22° <u>♁</u> 33'14 | 33.38212 AU |
| morning rise | 4442 Oct 09 12:56 | 8° <u>♁</u> 40'39 | | | | | |
| retrograde | 4443 Jan 10 22:14 | 10° <u>♁</u> 34'29 | | conjunction | 4449 Oct 14 01:28 | 22° <u>♁</u> 39'41 | 14°14'21 |
| opposition | 4443 Mar 29 15:49 | 9° <u>♁</u> 18'25 | 12°43'10 | minimum elong | 4449 Oct 14 01:06 | 22° <u>♁</u> 39'39 | 14°14'21 |
| min. Earth dist. | 4443 Apr 01 09:37 | 9° <u>♁</u> 14'12 | 32.90455 AU | morning rise | 4449 Oct 19 03:25 | 22° <u>♁</u> 50'37 | |
| direct | 4443 Jun 17 22:56 | 8° <u>♁</u> 00'01 | | retrograde | 4450 Jan 25 16:21 | 25° <u>♁</u> 03'18 | |
| evening set | 4443 Sep 22 07:40 | 9° <u>♁</u> 57'44 | | opposition | 4450 Apr 12 16:49 | 23° <u>♁</u> 44'29 | 15°17'44 |
| max. Earth dist. | 4443 Sep 28 18:42 | 10° <u>♁</u> 10'47 | 34.73965 AU | min. Earth dist. | 4450 Apr 15 08:56 | 23° <u>♁</u> 40'12 | 31.34203 AU |
| | | | | direct | 4450 Jul 01 15:40 | 22° <u>♁</u> 22'57 | |
| conjunction | 4443 Oct 01 19:35 | 10° <u>♁</u> 16'58 | 12°11'10 | evening set | 4450 Oct 12 12:52 | 24° <u>♁</u> 41'52 | |
| minimum elong | 4443 Oct 01 19:13 | 10° <u>♁</u> 16'56 | 12°11'10 | max. Earth dist. | 4450 Oct 13 15:17 | 24° <u>♁</u> 44'16 | 33.17006 AU |
| morning rise | 4443 Oct 11 05:51 | 10° <u>♁</u> 36'04 | | | | | |
| retrograde | 4444 Jan 13 03:12 | 12° <u>♁</u> 32'11 | | conjunction | 4450 Oct 16 13:16 | 24° <u>♁</u> 50'36 | 14°32'10 |
| opposition | 4444 Mar 30 20:12 | 11° <u>♁</u> 15'46 | 13°07'13 | minimum elong | 4450 Oct 16 12:55 | 24° <u>♁</u> 50'34 | 14°32'11 |
| min. Earth dist. | 4444 Apr 02 13:14 | 11° <u>♁</u> 11'34 | 32.67033 AU | morning rise | 4450 Oct 20 12:48 | 24° <u>♁</u> 59'15 | |
| direct | 4444 Jun 19 02:01 | 9° <u>♁</u> 56'56 | | retrograde | 4451 Jan 28 04:59 | 27° <u>♁</u> 15'33 | |
| evening set | 4444 Sep 24 04:27 | 11° <u>♁</u> 57'11 | | opposition | 4451 Apr 15 03:17 | 25° <u>♁</u> 56'19 | 15°36'31 |
| max. Earth dist. | 4444 Sep 30 00:46 | 12° <u>♁</u> 09'08 | 34.50450 AU | min. Earth dist. | 4451 Apr 17 17:59 | 25° <u>♁</u> 52'06 | 31.13537 AU |
| | | | | direct | 4451 Jul 04 02:59 | 24° <u>♁</u> 34'19 | |
| conjunction | 4444 Oct 03 02:17 | 12° <u>♁</u> 15'25 | 12°33'18 | evening set | 4451 Oct 16 12:46 | 26° <u>♁</u> 57'51 | |
| minimum elong | 4444 Oct 03 01:55 | 12° <u>♁</u> 15'23 | 12°33'19 | max. Earth dist. | 4451 Oct 16 03:41 | 26° <u>♁</u> 57'01 | 32.96359 AU |
| morning rise | 4444 Oct 11 22:45 | 12° <u>♁</u> 33'32 | | | | | |
| retrograde | 4445 Jan 14 11:53 | 14° <u>♁</u> 32'04 | | conjunction | 4451 Oct 19 01:44 | 27° <u>♁</u> 03'25 | 14°49'01 |
| opposition | 4445 Apr 02 01:23 | 13° <u>♁</u> 15'16 | 13°30'43 | minimum elong | 4451 Oct 19 01:23 | 27° <u>♁</u> 03'24 | 14°49'01 |
| min. Earth dist. | 4445 Apr 04 18:18 | 13° <u>♁</u> 11'03 | 32.44006 AU | morning rise | 4451 Oct 21 13:57 | 27° <u>♁</u> 08'56 | |
| direct | 4445 Jun 21 03:47 | 11° <u>♁</u> 56'00 | | retrograde | 4452 Jan 30 17:47 | 29° <u>♁</u> 29'42 | |
| evening set | 4445 Sep 27 03:17 | 13° <u>♁</u> 58'56 | | opposition | 4452 Apr 16 14:33 | 28° <u>♁</u> 10'03 | 15°54'14 |
| max. Earth dist. | 4445 Oct 02 09:35 | 14° <u>♁</u> 09'47 | 34.27288 AU | min. Earth dist. | 4452 Apr 19 04:49 | 28° <u>♁</u> 05'50 | 30.93478 AU |
| | | | | direct | 4452 Jul 05 12:23 | 26° <u>♁</u> 47'36 | |
| conjunction | 4445 Oct 05 10:10 | 14° <u>♁</u> 16'03 | 12°54'52 | max. Earth dist. | 4452 Oct 17 19:17 | 29° <u>♁</u> 11'53 | 32.76359 AU |
| minimum elong | 4445 Oct 05 09:48 | 14° <u>♁</u> 16'01 | 12°54'52 | | | | |
| morning rise | 4445 Oct 13 15:34 | 14° <u>♁</u> 33'04 | | conjunction | 4452 Oct 20 14:59 | 29° <u>♁</u> 18'08 | 15°04'48 |
| retrograde | 4446 Jan 16 19:10 | 16° <u>♁</u> 34'08 | | minimum elong | 4452 Oct 20 14:40 | 29° <u>♁</u> 18'06 | 15°04'48 |
| opposition | 4446 Apr 04 07:30 | 15° <u>♁</u> 16'57 | 13°53'36 | | 4452 Nov 08 18:35 | 0° <u>♁</u> | |
| min. Earth dist. | 4446 Apr 07 00:40 | 15° <u>♁</u> 12'42 | 32.21317 AU | retrograde | 4453 Feb 01 05:59 | 1° <u>♁</u> 45'41 | |
| direct | 4446 Jun 23 07:30 | 13° <u>♁</u> 57'14 | | opposition | 4453 Apr 19 02:44 | 0° <u>♁</u> 25'39 | 16°10'46 |
| evening set | 4446 Sep 30 04:17 | 16° <u>♁</u> 02'58 | | min. Earth dist. | 4453 Apr 21 15:45 | 0° <u>♁</u> 21'30 | 30.74083 AU |
| max. Earth dist. | 4446 Oct 04 18:09 | 16° <u>♁</u> 12'31 | 34.04476 AU | | 4453 May 05 01:55 | 30° <u>♁</u> | |
| | | | | direct | 4453 Jul 07 23:59 | 29° <u>♁</u> 02'47 | |
| conjunction | 4446 Oct 07 18:46 | 16° <u>♁</u> 18'51 | 13°15'49 | | 4453 Sep 07 07:46 | 0° <u>♁</u> | |
| minimum elong | 4446 Oct 07 18:23 | 16° <u>♁</u> 18'49 | 13°15'50 | max. Earth dist. | 4453 Oct 20 09:44 | 1° <u>♁</u> 28'28 | 32.57095 AU |
| morning rise | 4446 Oct 15 08:00 | 16° <u>♁</u> 34'38 | | | | | |
| retrograde | 4447 Jan 19 06:00 | 18° <u>♁</u> 38'20 | | conjunction | 4453 Oct 23 04:56 | 1° <u>♁</u> 34'43 | 15°19'25 |
| opposition | 4447 Apr 06 14:31 | 17° <u>♁</u> 20'45 | 14°15'48 | minimum elong | 4453 Oct 23 04:37 | 1° <u>♁</u> 34'41 | 15°19'24 |
| min. Earth dist. | 4447 Apr 09 06:52 | 17° <u>♁</u> 16'32 | 31.98976 AU | retrograde | 4454 Feb 03 21:25 | 4° <u>♁</u> 03'33 | |
| direct | 4447 Jun 25 14:49 | 16° <u>♁</u> 00'36 | | opposition | 4454 Apr 21 15:37 | 2° <u>♁</u> 43'09 | 16°26'01 |
| evening set | 4447 Oct 03 07:17 | 18° <u>♁</u> 09'16 | | min. Earth dist. | 4454 Apr 24 03:01 | 2° <u>♁</u> 39'06 | 30.55457 AU |
| max. Earth dist. | 4447 Oct 07 03:42 | 18° <u>♁</u> 17'23 | 33.81997 AU | direct | 4454 Jul 10 10:51 | 1° <u>♁</u> 19'53 | |
| | | | | max. Earth dist. | 4454 Oct 23 02:57 | 3° <u>♁</u> 47'08 | 32.38633 AU |
| conjunction | 4447 Oct 10 04:07 | 18° <u>♁</u> 23'45 | 13°36'06 | | | | |

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|------------------|-------------------|------------|-------------|------------------|-------------------|------------|-------------|
| conjunction | 4454 Oct 25 19:46 | 3°M.53'13 | 15°32'47 | conjunction | 4462 Nov 14 17:23 | 23°M.26'57 | 16°26'53 |
| minimum elong | 4454 Oct 25 19:29 | 3°M.53'11 | 15°32'47 | minimum elong | 4462 Nov 14 17:20 | 23°M.26'57 | 16°26'54 |
| retrograde | 4455 Feb 06 11:05 | 6°M.23'18 | | retrograde | 4463 Feb 26 16:03 | 26°M.05'11 | |
| opposition | 4455 Apr 24 05:36 | 5°M.02'35 | 16°39'54 | opposition | 4463 May 13 23:48 | 24°M.42'33 | 17°33'20 |
| min. Earth dist. | 4455 Apr 26 16:04 | 4°M.58'34 | 30.37639 AU | min. Earth dist. | 4463 May 15 21:08 | 24°M.39'22 | 29.24249 AU |
| direct | 4455 Jul 12 22:35 | 3°M.38'58 | | direct | 4463 Aug 01 14:33 | 23°M.16'57 | |
| max. Earth dist. | 4455 Oct 25 19:40 | 6°M.07'39 | 32.21037 AU | max. Earth dist. | 4463 Nov 15 14:07 | 25°M.55'20 | 31.10177 AU |
| conjunction | 4455 Oct 28 11:01 | 6°M.13'39 | 15°44'49 | conjunction | 4463 Nov 17 13:15 | 26°M.00'02 | 16°26'13 |
| minimum elong | 4455 Oct 28 10:44 | 6°M.13'38 | 15°44'49 | minimum elong | 4463 Nov 17 13:14 | 26°M.00'01 | 16°26'13 |
| retrograde | 4456 Feb 09 03:56 | 8°M.44'59 | | retrograde | 4464 Feb 29 10:13 | 28°M.38'53 | |
| opposition | 4456 Apr 25 20:11 | 7°M.23'59 | 16°52'19 | opposition | 4464 May 15 19:53 | 27°M.16'03 | 17°31'55 |
| min. Earth dist. | 4456 Apr 28 04:22 | 7°M.20'06 | 30.20666 AU | min. Earth dist. | 4464 May 17 15:20 | 27°M.12'59 | 29.13886 AU |
| direct | 4456 Jul 14 13:18 | 6°M.00'03 | | direct | 4464 Aug 03 11:01 | 25°M.50'16 | |
| max. Earth dist. | 4456 Oct 27 13:47 | 8°M.30'13 | 32.04282 AU | max. Earth dist. | 4464 Nov 17 11:51 | 28°M.29'23 | 31.00363 AU |
| conjunction | 4456 Oct 30 03:16 | 8°M.36'04 | 15°55'28 | conjunction | 4464 Nov 19 09:19 | 28°M.33'56 | 16°23'43 |
| minimum elong | 4456 Oct 30 03:02 | 8°M.36'03 | 15°55'28 | minimum elong | 4464 Nov 19 09:21 | 28°M.33'56 | 16°23'43 |
| retrograde | 4457 Feb 10 19:58 | 11°M.08'36 | | | 4464 Dec 27 05:39 | 0°♂ | |
| opposition | 4457 Apr 28 11:35 | 9°M.47'20 | 17°03'14 | retrograde | 4465 Mar 03 07:01 | 1°♂13'18 | |
| min. Earth dist. | 4457 Apr 30 19:24 | 9°M.43'28 | 30.04508 AU | | 4465 May 12 22:36 | 30°R.M. | |
| direct | 4457 Jul 17 03:02 | 8°M.23'07 | | opposition | 4465 May 18 16:08 | 29°M.50'18 | 17°28'29 |
| max. Earth dist. | 4457 Oct 30 08:39 | 10°M.54'42 | 31.88367 AU | min. Earth dist. | 4465 May 20 08:41 | 29°M.47'26 | 29.04554 AU |
| conjunction | 4457 Nov 01 20:11 | 11°M.00'25 | 16°04'39 | direct | 4465 Aug 06 07:02 | 28°M.24'20 | |
| minimum elong | 4457 Nov 01 19:57 | 11°M.00'23 | 16°04'39 | | 4465 Oct 23 19:19 | 0°♂ | |
| retrograde | 4458 Feb 13 14:38 | 13°M.34'06 | | max. Earth dist. | 4465 Nov 20 12:00 | 1°♂04'18 | 30.91638 AU |
| opposition | 4458 May 01 03:50 | 12°M.12'35 | 17°12'33 | conjunction | 4465 Nov 22 05:46 | 1°♂08'29 | 16°19'21 |
| min. Earth dist. | 4458 May 03 09:09 | 12°M.08'53 | 29.89145 AU | minimum elong | 4465 Nov 22 05:49 | 1°♂08'30 | 16°19'21 |
| direct | 4458 Jul 19 19:33 | 10°M.48'07 | | retrograde | 4466 Mar 06 02:00 | 3°♂48'18 | |
| max. Earth dist. | 4458 Nov 02 03:22 | 13°M.20'59 | 31.73247 AU | opposition | 4466 May 21 13:07 | 2°♂25'09 | 17°23'02 |
| conjunction | 4458 Nov 04 13:40 | 13°M.26'37 | 16°12'20 | min. Earth dist. | 4466 May 23 03:50 | 2°♂22'24 | 28.96317 AU |
| minimum elong | 4458 Nov 04 13:30 | 13°M.26'36 | 16°12'21 | direct | 4466 Aug 09 02:33 | 0°♂59'04 | |
| | 4458 Dec 17 13:56 | 15°M. | | max. Earth dist. | 4466 Nov 23 10:53 | 3°♂39'39 | 30.84094 AU |
| retrograde | 4459 Feb 16 09:22 | 16°M.01'23 | | conjunction | 4466 Nov 25 02:04 | 3°♂43'35 | 16°13'05 |
| | 4459 Apr 21 13:32 | 15°R.M. | | minimum elong | 4466 Nov 25 02:11 | 3°♂43'36 | 16°13'05 |
| opposition | 4459 May 03 21:00 | 14°M.39'38 | 17°20'14 | retrograde | 4467 Mar 08 22:04 | 6°♂23'44 | |
| min. Earth dist. | 4459 May 06 01:48 | 14°M.35'57 | 29.74559 AU | opposition | 4467 May 24 10:14 | 5°♂00'29 | 17°15'30 |
| direct | 4459 Jul 22 11:38 | 13°M.14'55 | | min. Earth dist. | 4467 May 25 21:07 | 4°♂58'01 | 28.89253 AU |
| | 4459 Oct 14 11:35 | 15°M. | | direct | 4467 Aug 12 00:41 | 3°♂34'20 | |
| max. Earth dist. | 4459 Nov 05 00:11 | 15°M.49'07 | 31.58940 AU | max. Earth dist. | 4467 Nov 26 11:01 | 6°♂15'33 | 30.77764 AU |
| conjunction | 4459 Nov 07 07:52 | 15°M.54'32 | 16°18'27 | conjunction | 4467 Nov 27 22:43 | 6°♂19'08 | 16°04'54 |
| minimum elong | 4459 Nov 07 07:42 | 15°M.54'31 | 16°18'27 | minimum elong | 4467 Nov 27 22:50 | 6°♂19'09 | 16°04'54 |
| retrograde | 4460 Feb 19 04:34 | 18°M.30'18 | | retrograde | 4468 Mar 10 17:17 | 8°♂59'33 | |
| opposition | 4460 May 05 14:43 | 17°M.08'19 | 17°26'12 | opposition | 4468 May 26 07:37 | 7°♂36'15 | 17°05'54 |
| min. Earth dist. | 4460 May 07 17:07 | 17°M.04'48 | 29.60750 AU | min. Earth dist. | 4468 May 27 16:38 | 7°♂33'54 | 28.83386 AU |
| direct | 4460 Jul 24 06:44 | 15°M.43'22 | | direct | 4468 Aug 13 21:03 | 6°♂10'04 | |
| max. Earth dist. | 4460 Nov 06 19:46 | 18°M.18'39 | 31.45441 AU | max. Earth dist. | 4468 Nov 28 10:42 | 8°♂51'45 | 30.72675 AU |
| conjunction | 4460 Nov 09 02:32 | 18°M.24'01 | 16°22'57 | conjunction | 4468 Nov 29 19:21 | 8°♂55'03 | 15°54'47 |
| minimum elong | 4460 Nov 09 02:26 | 18°M.24'00 | 16°22'58 | minimum elong | 4468 Nov 29 19:32 | 8°♂55'04 | 15°54'47 |
| retrograde | 4461 Feb 20 23:52 | 21°M.00'42 | | retrograde | 4469 Mar 13 14:29 | 11°♂35'38 | |
| opposition | 4461 May 08 09:11 | 19°M.38'30 | 17°30'25 | opposition | 4469 May 29 05:09 | 10°♂12'19 | 16°54'14 |
| min. Earth dist. | 4461 May 10 10:38 | 19°M.35'02 | 29.47740 AU | min. Earth dist. | 4469 May 30 10:17 | 10°♂10'16 | 28.78699 AU |
| direct | 4461 Jul 26 23:45 | 18°M.13'19 | | direct | 4469 Aug 16 19:09 | 8°♂46'10 | |
| max. Earth dist. | 4461 Nov 09 18:09 | 20°M.49'48 | 31.32782 AU | max. Earth dist. | 4469 Dec 01 10:19 | 11°♂28'14 | 30.68768 AU |
| conjunction | 4461 Nov 11 21:50 | 20°M.54'53 | 16°25'47 | conjunction | 4469 Dec 02 16:02 | 11°♂31'14 | 15°42'47 |
| minimum elong | 4461 Nov 11 21:44 | 20°M.54'53 | 16°25'47 | minimum elong | 4469 Dec 02 16:13 | 11°♂31'15 | 15°42'48 |
| retrograde | 4462 Feb 23 19:39 | 23°M.32'23 | | retrograde | 4470 Mar 16 10:19 | 14°♂11'54 | |
| opposition | 4462 May 11 04:13 | 22°M.09'58 | 17°32'49 | opposition | 4470 Jun 01 02:59 | 12°♂48'36 | 16°40'32 |
| min. Earth dist. | 4462 May 13 03:32 | 22°M.06'39 | 29.35547 AU | min. Earth dist. | 4470 Jun 02 06:16 | 12°♂46'40 | 28.75163 AU |
| direct | 4462 Jul 29 19:50 | 20°M.44'34 | | direct | 4470 Aug 19 16:29 | 11°♂22'31 | |
| max. Earth dist. | 4462 Nov 12 14:46 | 23°M.21'57 | 31.21007 AU | max. Earth dist. | 4470 Dec 04 10:33 | 14°♂04'53 | 30.66031 AU |

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|------------------|-------------------|----------------------|-------------|------------------|-------------------|----------------------|-------------|
| conjunction | 4470 Dec 05 12:43 | 14° \nearrow 07'32 | 15°28'56 | evening set | 4477 Dec 15 14:16 | 1° \searrow 51'43 | |
| minimum elong | 4470 Dec 05 12:58 | 14° \nearrow 07'33 | 15°28'56 | | | | |
| retrograde | 4471 Mar 19 07:05 | 16° \nearrow 48'11 | | conjunction | 4477 Dec 23 06:30 | 2° \searrow 10'02 | 13°04'31 |
| opposition | 4471 Jun 04 00:51 | 15° \nearrow 24'55 | 16°24'51 | minimum elong | 4477 Dec 23 06:53 | 2° \searrow 10'05 | 13°04'32 |
| min. Earth dist. | 4471 Jun 05 00:39 | 15° \nearrow 23'14 | 28.72733 AU | max. Earth dist. | 4477 Dec 23 00:47 | 2° \searrow 09'28 | 30.77086 AU |
| direct | 4471 Aug 22 16:18 | 13° \nearrow 58'56 | | morning rise | 4477 Dec 30 22:56 | 2° \searrow 28'22 | |
| max. Earth dist. | 4471 Dec 07 09:22 | 16° \nearrow 41'23 | 30.64401 AU | retrograde | 4478 Apr 05 22:41 | 4° \searrow 47'44 | |
| | | | | opposition | 4478 Jun 22 06:18 | 3° \searrow 25'09 | 13°44'36 |
| conjunction | 4471 Dec 08 09:09 | 16° \nearrow 43'47 | 15°13'16 | min. Earth dist. | 4478 Jun 22 09:55 | 3° \searrow 24'54 | 28.85274 AU |
| minimum elong | 4471 Dec 08 09:24 | 16° \nearrow 43'49 | 15°13'16 | direct | 4478 Sep 10 05:16 | 2° \searrow 00'16 | |
| retrograde | 4472 Mar 21 03:42 | 19° \nearrow 24'20 | | evening set | 4478 Dec 17 13:52 | 4° \searrow 20'54 | |
| opposition | 4472 Jun 05 22:46 | 18° \nearrow 01'07 | 16°07'14 | | | | |
| min. Earth dist. | 4472 Jun 06 20:23 | 17° \nearrow 59'36 | 28.71384 AU | conjunction | 4478 Dec 26 00:26 | 4° \searrow 40'57 | 12°37'53 |
| direct | 4472 Aug 24 13:32 | 16° \nearrow 35'14 | | minimum elong | 4478 Dec 26 00:50 | 4° \searrow 40'59 | 12°37'53 |
| evening set | 4472 Dec 08 17:32 | 19° \nearrow 16'11 | | max. Earth dist. | 4478 Dec 25 22:50 | 4° \searrow 40'47 | 30.83074 AU |
| max. Earth dist. | 4472 Dec 09 09:38 | 19° \nearrow 17'48 | 30.63859 AU | morning rise | 4479 Jan 03 11:00 | 5° \searrow 00'59 | |
| | | | | retrograde | 4479 Apr 08 14:03 | 7° \searrow 17'53 | |
| conjunction | 4472 Dec 10 05:40 | 19° \nearrow 19'49 | 14°55'51 | opposition | 4479 Jun 25 02:24 | 5° \searrow 55'28 | 13°15'21 |
| minimum elong | 4472 Dec 10 05:58 | 19° \nearrow 19'51 | 14°55'51 | min. Earth dist. | 4479 Jun 25 03:42 | 5° \searrow 55'22 | 28.91489 AU |
| morning rise | 4472 Dec 11 18:24 | 19° \nearrow 23'31 | | direct | 4479 Sep 13 01:26 | 4° \searrow 30'51 | |
| retrograde | 4473 Mar 23 23:51 | 22° \nearrow 00'07 | | evening set | 4479 Dec 19 14:22 | 6° \searrow 48'58 | |
| opposition | 4473 Jun 08 20:32 | 20° \nearrow 36'59 | 15°47'45 | | | | |
| min. Earth dist. | 4473 Jun 09 15:12 | 20° \nearrow 35'41 | 28.71066 AU | conjunction | 4479 Dec 28 17:38 | 7° \searrow 10'34 | 12°09'56 |
| direct | 4473 Aug 27 13:31 | 19° \nearrow 11'15 | | minimum elong | 4479 Dec 28 18:01 | 7° \searrow 10'36 | 12°09'57 |
| evening set | 4473 Dec 09 12:29 | 21° \nearrow 46'51 | | max. Earth dist. | 4479 Dec 28 18:50 | 7° \searrow 10'41 | 30.90277 AU |
| max. Earth dist. | 4473 Dec 12 07:41 | 21° \nearrow 53'37 | 30.64370 AU | morning rise | 4480 Jan 06 20:53 | 7° \searrow 32'09 | |
| | | | | retrograde | 4480 Apr 10 07:27 | 9° \searrow 46'41 | |
| conjunction | 4473 Dec 13 01:50 | 21° \nearrow 55'26 | 14°36'44 | opposition | 4480 Jun 26 21:50 | 8° \searrow 24'29 | 12°44'45 |
| minimum elong | 4473 Dec 13 02:09 | 21° \nearrow 55'28 | 14°36'45 | min. Earth dist. | 4480 Jun 26 18:52 | 8° \searrow 24'41 | 28.98902 AU |
| morning rise | 4473 Dec 16 15:42 | 22° \nearrow 04'05 | | direct | 4480 Sep 14 21:31 | 7° \searrow 00'09 | |
| retrograde | 4474 Mar 26 21:01 | 24° \nearrow 35'25 | | evening set | 4480 Dec 20 15:29 | 9° \searrow 15'53 | |
| opposition | 4474 Jun 11 18:19 | 23° \nearrow 12'22 | 15°26'27 | | | | |
| min. Earth dist. | 4474 Jun 12 10:07 | 23° \nearrow 11'15 | 28.71794 AU | conjunction | 4480 Dec 30 10:23 | 9° \searrow 38'53 | 11°40'49 |
| direct | 4474 Aug 30 12:02 | 21° \nearrow 46'45 | | minimum elong | 4480 Dec 30 10:47 | 9° \searrow 38'55 | 11°40'48 |
| evening set | 4474 Dec 11 01:02 | 24° \nearrow 18'44 | | max. Earth dist. | 4480 Dec 30 15:07 | 9° \searrow 39'21 | 30.98663 AU |
| | | | | morning rise | 4481 Jan 09 05:09 | 10° \searrow 01'52 | |
| conjunction | 4474 Dec 15 21:41 | 24° \nearrow 30'27 | 14°15'58 | retrograde | 4481 Apr 12 21:58 | 12° \searrow 14'09 | |
| minimum elong | 4474 Dec 15 22:02 | 24° \nearrow 30'29 | 14°15'59 | opposition | 4481 Jun 29 16:51 | 10° \searrow 52'12 | 12°12'55 |
| max. Earth dist. | 4474 Dec 15 07:34 | 24° \nearrow 29'02 | 30.65938 AU | min. Earth dist. | 4481 Jun 29 11:34 | 10° \searrow 52'34 | 29.07495 AU |
| morning rise | 4474 Dec 20 18:44 | 24° \nearrow 42'12 | | direct | 4481 Sep 17 16:11 | 9° \searrow 28'12 | |
| retrograde | 4475 Mar 29 15:06 | 27° \nearrow 09'59 | | evening set | 4481 Dec 22 17:16 | 11° \searrow 41'36 | |
| opposition | 4475 Jun 14 15:55 | 25° \nearrow 47'02 | 15°03'25 | | | | |
| min. Earth dist. | 4475 Jun 15 05:16 | 25° \nearrow 46'06 | 28.73545 AU | conjunction | 4482 Jan 02 02:31 | 12° \searrow 05'52 | 11°10'35 |
| direct | 4475 Sep 02 11:14 | 24° \nearrow 21'36 | | minimum elong | 4482 Jan 02 02:55 | 12° \searrow 05'54 | 11°10'36 |
| evening set | 4475 Dec 12 19:00 | 26° \nearrow 50'26 | | max. Earth dist. | 4482 Jan 02 10:33 | 12° \searrow 06'39 | 31.08214 AU |
| | | | | morning rise | 4482 Jan 12 11:32 | 12° \searrow 30'08 | |
| conjunction | 4475 Dec 18 17:06 | 27° \nearrow 04'40 | 13°53'39 | retrograde | 4482 Apr 15 13:03 | 14° \searrow 40'15 | |
| minimum elong | 4475 Dec 18 17:27 | 27° \nearrow 04'42 | 13°53'40 | opposition | 4482 Jul 02 11:20 | 13° \searrow 18'34 | 11°39'58 |
| max. Earth dist. | 4475 Dec 18 04:52 | 27° \nearrow 03'27 | 30.68562 AU | min. Earth dist. | 4482 Jul 02 02:19 | 13° \searrow 19'11 | 29.17208 AU |
| morning rise | 4475 Dec 24 15:34 | 27° \nearrow 18'56 | | direct | 4482 Sep 20 12:28 | 11° \searrow 54'55 | |
| retrograde | 4476 Mar 31 11:14 | 29° \nearrow 43'40 | | evening set | 4482 Dec 24 19:16 | 14° \searrow 06'04 | |
| opposition | 4476 Jun 16 12:56 | 28° \nearrow 20'50 | 14°38'43 | | | | |
| min. Earth dist. | 4476 Jun 16 22:53 | 28° \nearrow 20'08 | 28.76357 AU | conjunction | 4483 Jan 04 17:52 | 14° \searrow 31'29 | 10°39'23 |
| direct | 4476 Sep 04 09:20 | 26° \nearrow 55'33 | | minimum elong | 4483 Jan 04 18:15 | 14° \searrow 31'31 | 10°39'23 |
| evening set | 4476 Dec 13 15:49 | 29° \nearrow 21'31 | | max. Earth dist. | 4483 Jan 05 04:40 | 14° \searrow 32'32 | 31.18839 AU |
| | | | | morning rise | 4483 Jan 15 16:17 | 14° \searrow 56'53 | |
| conjunction | 4476 Dec 20 12:12 | 29° \nearrow 37'55 | 13°29'48 | retrograde | 4483 Apr 18 04:23 | 17° \searrow 04'56 | |
| minimum elong | 4476 Dec 20 12:35 | 29° \nearrow 37'57 | 13°29'48 | opposition | 4483 Jul 05 05:23 | 15° \searrow 43'32 | 11°06'01 |
| max. Earth dist. | 4476 Dec 20 04:07 | 29° \nearrow 37'07 | 30.72264 AU | min. Earth dist. | 4483 Jul 04 17:43 | 15° \searrow 44'19 | 29.27983 AU |
| morning rise | 4476 Dec 27 08:46 | 29° \nearrow 54'20 | | direct | 4483 Sep 23 05:13 | 14° \searrow 20'15 | |
| | 4476 Dec 29 17:44 | 0° \searrow | | evening set | 4483 Dec 26 21:49 | 16° \searrow 29'13 | |
| retrograde | 4477 Apr 03 04:43 | 2° \searrow 16'18 | | | | | |
| opposition | 4477 Jun 19 09:53 | 0° \searrow 53'35 | 14°12'25 | conjunction | 4484 Jan 07 08:51 | 16° \searrow 55'40 | 10°07'19 |
| min. Earth dist. | 4477 Jun 19 17:42 | 0° \searrow 53'02 | 28.80244 AU | minimum elong | 4484 Jan 07 09:13 | 16° \searrow 55'42 | 10°07'20 |
| | 4477 Jul 24 02:43 | 30° \nearrow | | max. Earth dist. | 4484 Jan 07 23:07 | 16° \searrow 57'03 | 31.30479 AU |
| direct | 4477 Sep 07 07:23 | 29° \nearrow 28'30 | | morning rise | 4484 Jan 18 19:24 | 17° \searrow 22'06 | |
| | 4477 Oct 20 20:17 | 0° \searrow | | retrograde | 4484 Apr 19 18:18 | 19° \searrow 28'07 | |

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| opposition | 4484 Jul 06 22:37 | 18°30'07.01 | 10°31'13 | conjunction | 4491 Jan 22 21:40 | 2°57'40 | 6°07'07 |
| min. Earth dist. | 4484 Jul 06 08:15 | 18°30'07.59 | 29.39724 AU | minimum elong | 4491 Jan 22 21:55 | 2°57'42 | 6°07'07 |
| direct | 4484 Sep 25 00:41 | 16°34'40.7 | | max. Earth dist. | 4491 Jan 24 04:44 | 3°00'32 | 32.35043 AU |
| evening set | 4484 Dec 28 00:45 | 18°35'05.8 | | morning rise | 4491 Feb 05 22:11 | 3°28'26 | |
| | | | | retrograde | 4491 May 06 01:45 | 5°22'11 | |
| conjunction | 4485 Jan 08 23:05 | 19°31'8.20 | 9°34'30 | min. Earth dist. | 4491 Jul 22 21:39 | 4°05'09 | 30.44939 AU |
| minimum elong | 4485 Jan 08 23:26 | 19°31'8.22 | 9°34'30 | opposition | 4491 Jul 24 05:51 | 4°03'04 | 6°12'26 |
| max. Earth dist. | 4485 Jan 09 15:07 | 19°31'9.53 | 31.43038 AU | direct | 4491 Oct 12 19:00 | 2°42'42 | |
| morning rise | 4485 Jan 20 21:08 | 19°34'45.41 | | evening set | 4492 Jan 10 23:58 | 4°36'30 | |
| retrograde | 4485 Apr 22 09:56 | 21°34'49.46 | | | | | |
| opposition | 4485 Jul 09 15:26 | 20°32'8.57 | 9°55'39 | conjunction | 4492 Jan 25 06:46 | 5°07'36 | 5°31'37 |
| min. Earth dist. | 4485 Jul 08 22:07 | 20°33'07.7 | 29.52379 AU | minimum elong | 4492 Jan 25 06:59 | 5°07'37 | 5°31'38 |
| direct | 4485 Sep 27 18:23 | 19°30'6.26 | | max. Earth dist. | 4492 Jan 26 16:17 | 5°10'40 | 32.53063 AU |
| evening set | 4485 Dec 30 03:45 | 21°31'11.3 | | morning rise | 4492 Feb 08 13:07 | 5°38'39 | |
| | | | | retrograde | 4492 May 07 09:57 | 7°30'56 | |
| conjunction | 4486 Jan 11 12:43 | 21°33'9.24 | 9°01'01 | min. Earth dist. | 4492 Jul 24 07:09 | 6°14'20 | 30.63157 AU |
| minimum elong | 4486 Jan 11 13:04 | 21°33'9.26 | 9°01'02 | opposition | 4492 Jul 25 17:33 | 6°12'07 | 5°34'26 |
| max. Earth dist. | 4486 Jan 12 08:20 | 21°34'11.7 | 31.56459 AU | direct | 4492 Oct 14 05:38 | 4°52'09 | |
| morning rise | 4486 Jan 23 21:03 | 22°30'7.33 | | evening set | 4493 Jan 12 03:15 | 6°44'24 | |
| retrograde | 4486 Apr 24 21:56 | 24°30'9.45 | | | | | |
| opposition | 4486 Jul 12 07:44 | 22°34'9.14 | 9°19'27 | conjunction | 4493 Jan 26 15:13 | 7°15'42 | 4°56'03 |
| min. Earth dist. | 4486 Jul 11 12:32 | 22°35'03.0 | 29.65866 AU | minimum elong | 4493 Jan 26 15:25 | 7°15'43 | 4°56'03 |
| direct | 4486 Sep 30 12:33 | 21°32'7.05 | | max. Earth dist. | 4493 Jan 28 03:36 | 7°19'00 | 32.71900 AU |
| evening set | 4487 Jan 01 07:09 | 23°32'9.53 | | morning rise | 4493 Feb 10 02:32 | 7°46'57 | |
| | | | | retrograde | 4493 May 09 16:54 | 9°37'53 | |
| conjunction | 4487 Jan 14 01:35 | 23°35'8.46 | 8°26'59 | min. Earth dist. | 4493 Jul 26 15:40 | 8°21'46 | 30.82178 AU |
| minimum elong | 4487 Jan 14 01:55 | 23°35'8.48 | 8°26'59 | opposition | 4493 Jul 28 04:37 | 8°19'23 | 4°56'25 |
| max. Earth dist. | 4487 Jan 14 22:35 | 24°30'0.46 | 31.70679 AU | direct | 4493 Oct 16 18:46 | 6°59'51 | |
| morning rise | 4487 Jan 26 19:41 | 24°32'7.37 | | evening set | 4494 Jan 14 06:28 | 8°50'37 | |
| retrograde | 4487 Apr 27 11:35 | 26°32'8.00 | | | | | |
| opposition | 4487 Jul 14 23:08 | 25°30'7.46 | 8°42'44 | conjunction | 4494 Jan 28 22:41 | 9°22'04 | 4°20'30 |
| min. Earth dist. | 4487 Jul 14 00:35 | 25°30'9.16 | 29.80155 AU | minimum elong | 4494 Jan 28 22:52 | 9°22'05 | 4°20'31 |
| direct | 4487 Oct 03 05:06 | 23°34'5.59 | | max. Earth dist. | 4494 Jan 30 12:42 | 9°25'29 | 32.91498 AU |
| evening set | 4488 Jan 03 10:26 | 25°34'6.51 | | morning rise | 4494 Feb 12 14:35 | 9°53'28 | |
| | | | | retrograde | 4494 May 12 01:58 | 11°43'06 | |
| conjunction | 4488 Jan 16 13:52 | 26°31'6.21 | 7°52'30 | min. Earth dist. | 4494 Jul 28 23:14 | 10°27'30 | 31.01976 AU |
| minimum elong | 4488 Jan 16 14:10 | 26°31'6.23 | 7°52'30 | opposition | 4494 Jul 30 15:00 | 10°24'58 | 4°18'29 |
| max. Earth dist. | 4488 Jan 17 14:14 | 26°31'8.39 | 31.85656 AU | direct | 4494 Oct 19 04:13 | 9°05'51 | |
| morning rise | 4488 Jan 29 16:38 | 26°34'5.49 | | evening set | 4495 Jan 16 09:34 | 10°55'14 | |
| retrograde | 4488 Apr 28 22:25 | 28°34'4.26 | | | | | |
| opposition | 4488 Jul 16 13:59 | 27°32'4.28 | 8°05'35 | conjunction | 4495 Jan 31 05:43 | 11°26'46 | 3°45'02 |
| min. Earth dist. | 4488 Jul 15 14:04 | 27°32'6.03 | 29.95194 AU | minimum elong | 4495 Jan 31 05:52 | 11°26'47 | 3°45'02 |
| direct | 4488 Oct 04 22:30 | 26°30'3.03 | | max. Earth dist. | 4495 Feb 01 22:53 | 11°30'27 | 33.11811 AU |
| evening set | 4489 Jan 04 13:57 | 28°30'2.03 | | morning rise | 4495 Feb 15 01:15 | 11°58'16 | |
| | | | | retrograde | 4495 May 14 07:52 | 13°46'41 | |
| conjunction | 4489 Jan 18 01:15 | 28°33'2.04 | 7°17'38 | min. Earth dist. | 4495 Jul 31 07:27 | 12°31'30 | 31.22460 AU |
| minimum elong | 4489 Jan 18 01:32 | 28°33'2.05 | 7°17'37 | opposition | 4495 Aug 02 00:36 | 12°28'54 | 3°40'42 |
| max. Earth dist. | 4489 Jan 19 03:01 | 28°33'4.28 | 32.01366 AU | direct | 4495 Oct 21 14:39 | 11°10'15 | |
| morning rise | 4489 Jan 31 12:05 | 29°30'2.02 | | evening set | 4496 Jan 18 12:46 | 12°58'18 | |
| | 4489 Mar 01 01:26 | 0°58'58 | | | | | |
| retrograde | 4489 May 01 09:51 | 0°58'58 | | conjunction | 4496 Feb 02 11:55 | 13°29'52 | 3°09'43 |
| | 4489 Jul 05 20:51 | 30°31'8 | | minimum elong | 4496 Feb 02 12:02 | 13°29'52 | 3°09'44 |
| min. Earth dist. | 4489 Jul 18 00:32 | 29°34'1.04 | 30.10984 AU | max. Earth dist. | 4496 Feb 04 06:04 | 13°33'36 | 33.32749 AU |
| opposition | 4489 Jul 19 03:55 | 29°33'9.16 | 7°28'05 | morning rise | 4496 Feb 17 10:48 | 14°01'23 | |
| direct | 4489 Oct 07 14:40 | 28°31'8.12 | | | 4496 Mar 19 15:23 | 15° | |
| | 4489 Dec 30 13:37 | 0° | | retrograde | 4496 May 15 15:32 | 15°48'39 | |
| evening set | 4490 Jan 06 17:19 | 0°15'23 | | | 4496 Jul 14 22:26 | 15°31' | |
| | | | | min. Earth dist. | 4496 Aug 01 13:20 | 14°34'01 | 31.43556 AU |
| conjunction | 4490 Jan 20 11:56 | 0°45'51 | 6°42'29 | opposition | 4496 Aug 03 09:28 | 14°31'14 | 3°03'09 |
| minimum elong | 4490 Jan 20 12:12 | 0°45'52 | 6°42'30 | direct | 4496 Oct 23 00:12 | 13°13'02 | |
| max. Earth dist. | 4490 Jan 21 16:45 | 0°48'31 | 32.17812 AU | evening set | 4497 Jan 19 15:46 | 14°59'50 | |
| morning rise | 4490 Feb 03 05:58 | 1°16'15 | | | 4497 Jan 19 17:41 | 15° | |
| retrograde | 4490 May 03 17:39 | 3°11'33 | | | | | |
| opposition | 4490 Jul 21 17:21 | 1°52'08 | 6°50'20 | conjunction | 4497 Feb 03 17:32 | 15°31'22 | 2°34'36 |
| min. Earth dist. | 4490 Jul 20 12:27 | 1°54'02 | 30.27559 AU | minimum elong | 4497 Feb 03 17:38 | 15°31'23 | 2°34'36 |
| direct | 4490 Oct 10 04:43 | 0°31'25 | | max. Earth dist. | 4497 Feb 05 14:34 | 15°35'20 | 33.54223 AU |
| evening set | 4491 Jan 08 20:35 | 2°26'52 | | morning rise | 4497 Feb 18 18:51 | 16°02'53 | |

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|------------------|-------------------|---------------------|-------------|------------------|-------------------|---------------------|-------------|
| retrograde | 4497 May 17 20:32 | 17° \approx 49'03 | | evening set | 4504 Feb 03 10:11 | 28° \approx 26'11 | |
| min. Earth dist. | 4497 Aug 03 20:53 | 16° \approx 34'49 | 31.65173 AU | | | | |
| opposition | 4497 Aug 05 17:49 | 16° \approx 32'00 | 2°25'52 | conjunction | 4504 Feb 18 14:48 | 28° \approx 56'15 | -1°21'12 |
| direct | 4497 Oct 25 10:49 | 15° \approx 14'14 | | minimum elong | 4504 Feb 18 14:45 | 28° \approx 56'15 | 1°21'11 |
| evening set | 4498 Jan 21 18:52 | 16° \approx 59'51 | | max. Earth dist. | 4504 Feb 20 22:00 | 29° \approx 00'51 | 35.14789 AU |
| | | | | morning rise | 4504 Mar 04 19:20 | 29° \approx 26'20 | |
| conjunction | 4498 Feb 05 22:31 | 17° \approx 31'18 | 1°59'46 | | 4504 Mar 22 23:33 | 0° \approx | |
| minimum elong | 4498 Feb 05 22:36 | 17° \approx 31'19 | 1°59'47 | retrograde | 4504 May 31 13:32 | 1° \approx 06'13 | |
| max. Earth dist. | 4498 Feb 07 20:22 | 17° \approx 35'18 | 33.76168 AU | | 4504 Aug 14 08:37 | 30° \approx | |
| morning rise | 4498 Feb 21 01:54 | 18° \approx 02'44 | | min. Earth dist. | 4504 Aug 18 01:12 | 29° \approx 54'41 | 33.26836 AU |
| retrograde | 4498 May 20 02:05 | 19° \approx 47'52 | | opposition | 4504 Aug 20 08:41 | 29° \approx 51'20 | -1°43'02 |
| min. Earth dist. | 4498 Aug 06 01:50 | 18° \approx 34'09 | 31.87241 AU | direct | 4504 Nov 09 06:02 | 28° \approx 36'13 | |
| opposition | 4498 Aug 08 01:24 | 18° \approx 31'11 | 1°48'56 | | 4505 Jan 27 16:15 | 0° \approx | |
| direct | 4498 Oct 27 20:08 | 17° \approx 13'51 | | evening set | 4505 Feb 04 12:05 | 0° \approx 14'51 | |
| evening set | 4499 Jan 23 21:46 | 18° \approx 58'19 | | | | | |
| | | | | conjunction | 4505 Feb 19 15:06 | 0° \approx 44'33 | -1°53'01 |
| conjunction | 4499 Feb 08 02:49 | 19° \approx 29'39 | 1°25'15 | minimum elong | 4505 Feb 19 15:02 | 0° \approx 44'33 | 1°53'01 |
| minimum elong | 4499 Feb 08 02:53 | 19° \approx 29'39 | 1°25'14 | max. Earth dist. | 4505 Feb 21 22:59 | 0° \approx 49'10 | 35.39091 AU |
| max. Earth dist. | 4499 Feb 10 02:37 | 19° \approx 33'47 | 33.98492 AU | morning rise | 4505 Mar 06 18:17 | 1° \approx 14'17 | |
| morning rise | 4499 Feb 23 07:40 | 20° \approx 00'57 | | retrograde | 4505 Jun 02 13:48 | 2° \approx 53'28 | |
| retrograde | 4499 May 22 04:04 | 21° \approx 45'06 | | min. Earth dist. | 4505 Aug 20 01:16 | 1° \approx 42'23 | 33.51391 AU |
| min. Earth dist. | 4499 Aug 08 08:08 | 20° \approx 31'45 | 32.09692 AU | opposition | 4505 Aug 22 11:29 | 1° \approx 38'54 | -2°16'26 |
| opposition | 4499 Aug 10 08:27 | 20° \approx 28'45 | 1°12'24 | direct | 4505 Nov 11 10:13 | 0° \approx 24'09 | |
| direct | 4499 Oct 30 03:36 | 19° \approx 11'50 | | evening set | 4506 Feb 06 13:48 | 2° \approx 02'00 | |
| evening set | 4500 Jan 26 00:39 | 20° \approx 55'12 | | | | | |
| | | | | conjunction | 4506 Feb 21 14:57 | 2° \approx 31'20 | -2°24'17 |
| conjunction | 4500 Feb 10 06:39 | 21° \approx 26'21 | 0°51'06 | minimum elong | 4506 Feb 21 14:52 | 2° \approx 31'20 | 2°24'16 |
| minimum elong | 4500 Feb 10 06:41 | 21° \approx 26'22 | 0°51'07 | max. Earth dist. | 4506 Feb 24 00:58 | 2° \approx 36'05 | 35.63770 AU |
| max. Earth dist. | 4500 Feb 12 07:41 | 21° \approx 30'34 | 34.21152 AU | morning rise | 4506 Mar 08 16:18 | 3° \approx 00'41 | |
| morning rise | 4500 Feb 25 12:21 | 21° \approx 57'30 | | retrograde | 4506 Jun 04 12:29 | 4° \approx 39'14 | |
| retrograde | 4500 May 24 05:26 | 23° \approx 40'42 | | min. Earth dist. | 4506 Aug 22 02:55 | 3° \approx 28'29 | 33.76337 AU |
| min. Earth dist. | 4500 Aug 10 12:28 | 22° \approx 27'46 | 32.32453 AU | opposition | 4506 Aug 24 13:50 | 3° \approx 24'58 | -2°49'12 |
| opposition | 4500 Aug 12 14:31 | 22° \approx 24'41 | 0°36'17 | direct | 4506 Nov 13 14:15 | 2° \approx 10'37 | |
| direct | 4500 Nov 01 11:33 | 21° \approx 08'08 | | evening set | 4507 Feb 08 15:15 | 3° \approx 47'44 | |
| evening set | 4501 Jan 28 03:29 | 22° \approx 50'27 | | | | | |
| | | | | conjunction | 4507 Feb 23 14:12 | 4° \approx 16'41 | -2°54'59 |
| conjunction | 4501 Feb 12 09:43 | 23° \approx 21'24 | 0°17'21 | minimum elong | 4507 Feb 23 14:06 | 4° \approx 16'40 | 2°54'59 |
| minimum elong | 4501 Feb 12 09:43 | 23° \approx 21'24 | 0°17'21 | max. Earth dist. | 4507 Feb 26 01:20 | 4° \approx 21'29 | 35.88804 AU |
| max. Earth dist. | 4501 Feb 14 11:43 | 23° \approx 25'40 | 34.44090 AU | morning rise | 4507 Mar 10 13:18 | 4° \approx 45'38 | |
| morning rise | 4501 Feb 27 15:57 | 23° \approx 52'20 | | retrograde | 4507 Jun 06 10:12 | 6° \approx 23'35 | |
| retrograde | 4501 May 26 08:31 | 25° \approx 34'38 | | min. Earth dist. | 4507 Aug 24 02:43 | 5° \approx 13'16 | 34.01601 AU |
| min. Earth dist. | 4501 Aug 12 16:35 | 24° \approx 22'04 | 32.55532 AU | opposition | 4507 Aug 26 15:24 | 5° \approx 09'39 | -3°21'20 |
| opposition | 4501 Aug 14 20:11 | 24° \approx 18'55 | 0°00'40 | direct | 4507 Nov 15 17:55 | 3° \approx 55'41 | |
| desc. node | 4501 Aug 21 17:16 | 24° \approx 08'50 | | evening set | 4508 Feb 10 16:45 | 5° \approx 32'09 | |
| direct | 4501 Nov 03 15:51 | 23° \approx 02'44 | | | | | |
| evening set | 4502 Jan 30 05:48 | 24° \approx 44'03 | | conjunction | 4508 Feb 25 12:55 | 6° \approx 00'40 | -3°25'05 |
| | | | | minimum elong | 4508 Feb 25 12:48 | 6° \approx 00'39 | 3°25'05 |
| conjunction | 4502 Feb 14 12:04 | 25° \approx 14'44 | -0°16'01 | max. Earth dist. | 4508 Feb 28 00:59 | 6° \approx 05'31 | 36.14102 AU |
| minimum elong | 4502 Feb 14 12:04 | 25° \approx 14'44 | 0°16'00 | morning rise | 4508 Mar 11 09:31 | 6° \approx 29'12 | |
| behind sun begin | 4502 Feb 14 10:55 | 25° \approx 14'38 | | retrograde | 4508 Jun 07 08:56 | 8° \approx 06'37 | |
| behind sun end | 4502 Feb 14 13:12 | 25° \approx 14'49 | | min. Earth dist. | 4508 Aug 25 02:35 | 6° \approx 56'40 | 34.27134 AU |
| max. Earth dist. | 4502 Feb 16 16:13 | 25° \approx 19'08 | 34.67326 AU | opposition | 4508 Aug 27 16:25 | 6° \approx 53'02 | -3°52'48 |
| morning rise | 4502 Mar 01 18:06 | 25° \approx 45'25 | | direct | 4508 Nov 16 18:14 | 5° \approx 39'27 | |
| retrograde | 4502 May 28 09:22 | 27° \approx 26'52 | | evening set | 4509 Feb 11 17:58 | 7° \approx 15'18 | |
| min. Earth dist. | 4502 Aug 14 20:32 | 26° \approx 14'38 | 32.78922 AU | | | | |
| opposition | 4502 Aug 17 01:06 | 26° \approx 11'25 | -0°34'27 | conjunction | 4509 Feb 26 11:16 | 7° \approx 43'22 | -3°54'35 |
| direct | 4502 Nov 05 22:47 | 24° \approx 55'36 | | minimum elong | 4509 Feb 26 11:09 | 7° \approx 43'21 | 3°54'36 |
| evening set | 4503 Feb 01 08:10 | 26° \approx 35'57 | | max. Earth dist. | 4509 Mar 01 01:09 | 7° \approx 48'19 | 36.39622 AU |
| | | | | morning rise | 4509 Mar 13 04:44 | 8° \approx 11'27 | |
| conjunction | 4503 Feb 16 13:41 | 27° \approx 06'20 | -0°48'51 | retrograde | 4509 Jun 09 06:13 | 9° \approx 48'24 | |
| minimum elong | 4503 Feb 16 13:39 | 27° \approx 06'20 | 0°48'51 | min. Earth dist. | 4509 Aug 27 02:35 | 8° \approx 38'48 | 34.52847 AU |
| max. Earth dist. | 4503 Feb 18 18:19 | 27° \approx 10'45 | 34.90876 AU | opposition | 4509 Aug 29 17:00 | 8° \approx 35'08 | -4°23'36 |
| morning rise | 4503 Mar 03 19:22 | 27° \approx 36'44 | | direct | 4509 Nov 18 19:28 | 7° \approx 21'57 | |
| retrograde | 4503 May 30 12:52 | 29° \approx 17'22 | | evening set | 4510 Feb 13 19:07 | 8° \approx 57'13 | |
| min. Earth dist. | 4503 Aug 16 22:14 | 28° \approx 05'32 | 33.02685 AU | | | | |
| opposition | 4503 Aug 19 05:08 | 28° \approx 02'13 | -1°09'02 | conjunction | 4510 Feb 28 08:53 | 9° \approx 24'49 | -4°23'29 |
| direct | 4503 Nov 08 01:59 | 26° \approx 46'44 | | minimum elong | 4510 Feb 28 08:45 | 9° \approx 24'49 | 4°23'28 |

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|------------------|-------------------|------------------------|-------------|------------------|-------------------|---------------------------------|-------------|
| max. Earth dist. | 4510 Mar 02 22:43 | 9° ✕ 29'44 | 36.65273 AU | conjunction | 4517 Mar 11 04:12 | 20° ✕ 40'51 | -7°28'08 |
| morning rise | 4510 Mar 14 23:12 | 9° ✕ 52'27 | | minimum elong | 4517 Mar 11 03:59 | 20° ✕ 40'50 | 7°28'09 |
| retrograde | 4510 Jun 11 06:13 | 11° ✕ 28'57 | | max. Earth dist. | 4517 Mar 13 22:21 | 20° ✕ 45'51 | 38.44843 AU |
| min. Earth dist. | 4510 Aug 29 00:57 | 10° ✕ 19'45 | 34.78684 AU | morning rise | 4517 Mar 24 10:41 | 21° ✕ 04'48 | |
| opposition | 4510 Aug 31 17:03 | 10° ✕ 16'01 | -4°53'43 | retrograde | 4517 Jun 21 23:46 | 22° ✕ 38'55 | |
| direct | 4510 Nov 20 17:24 | 9° ✕ 03'13 | | min. Earth dist. | 4517 Sep 09 05:41 | 21° ✕ 31'48 | 36.59490 AU |
| evening set | 4511 Feb 15 20:08 | 10° ✕ 37'57 | | opposition | 4517 Sep 12 02:18 | 21° ✕ 27'57 | -8°05'18 |
| | | | | direct | 4517 Dec 02 05:49 | 20° ✕ 17'28 | |
| conjunction | 4511 Mar 02 06:21 | 11° ✕ 05'04 | -4°51'45 | evening set | 4518 Feb 27 21:54 | 21° ✕ 49'19 | |
| minimum elong | 4511 Mar 02 06:12 | 11° ✕ 05'04 | 4°51'45 | | | | |
| max. Earth dist. | 4511 Mar 04 21:52 | 11° ✕ 10'05 | 36.90988 AU | conjunction | 4518 Mar 12 22:10 | 22° ✕ 12'39 | -7°51'57 |
| morning rise | 4511 Mar 16 16:54 | 11° ✕ 32'14 | | minimum elong | 4518 Mar 12 21:58 | 22° ✕ 12'38 | 7°51'57 |
| retrograde | 4511 Jun 13 03:19 | 13° ✕ 08'18 | | max. Earth dist. | 4518 Mar 15 18:05 | 22° ✕ 17'45 | 38.70602 AU |
| min. Earth dist. | 4511 Aug 31 00:51 | 11° ✕ 59'22 | 35.04555 AU | morning rise | 4518 Mar 25 22:58 | 22° ✕ 36'02 | |
| opposition | 4511 Sep 02 16:28 | 11° ✕ 55'41 | -5°23'09 | retrograde | 4518 Jun 23 17:53 | 24° ✕ 09'57 | |
| direct | 4511 Nov 22 17:10 | 10° ✕ 43'15 | | min. Earth dist. | 4518 Sep 11 02:02 | 23° ✕ 03'04 | 36.85487 AU |
| evening set | 4512 Feb 17 21:06 | 12° ✕ 17'30 | | opposition | 4518 Sep 13 22:18 | 22° ✕ 59'15 | -8°29'53 |
| | | | | direct | 4518 Dec 04 02:07 | 21° ✕ 49'06 | |
| conjunction | 4512 Mar 03 03:15 | 12° ✕ 44'07 | -5°19'24 | evening set | 4519 Mar 01 21:27 | 23° ✕ 20'41 | |
| minimum elong | 4512 Mar 03 03:06 | 12° ✕ 44'06 | 5°19'23 | | | | |
| max. Earth dist. | 4512 Mar 05 18:22 | 12° ✕ 49'04 | 37.16704 AU | conjunction | 4519 Mar 14 15:48 | 23° ✕ 43'26 | -8°15'07 |
| morning rise | 4512 Mar 17 09:53 | 13° ✕ 10'47 | | minimum elong | 4519 Mar 14 15:35 | 23° ✕ 43'25 | 8°15'06 |
| retrograde | 4512 Jun 14 00:31 | 14° ✕ 46'27 | | max. Earth dist. | 4519 Mar 17 11:38 | 23° ✕ 48'30 | 38.96434 AU |
| min. Earth dist. | 4512 Aug 31 22:10 | 13° ✕ 37'54 | 35.30404 AU | morning rise | 4519 Mar 27 10:44 | 24° ✕ 06'14 | |
| opposition | 4512 Sep 03 15:22 | 13° ✕ 34'08 | -5°51'54 | retrograde | 4519 Jun 25 11:47 | 25° ✕ 39'57 | |
| direct | 4512 Nov 23 17:24 | 12° ✕ 22'04 | | min. Earth dist. | 4519 Sep 12 19:47 | 24° ✕ 33'26 | 37.11531 AU |
| evening set | 4513 Feb 18 21:47 | 13° ✕ 55'50 | | opposition | 4519 Sep 15 17:32 | 24° ✕ 29'33 | -8°53'45 |
| | | | | direct | 4519 Dec 05 22:06 | 23° ✕ 19'43 | |
| conjunction | 4513 Mar 04 23:37 | 14° ✕ 21'57 | -5°46'25 | evening set | 4520 Mar 02 20:47 | 24° ✕ 51'05 | |
| minimum elong | 4513 Mar 04 23:26 | 14° ✕ 21'56 | 5°46'25 | | | | |
| max. Earth dist. | 4513 Mar 07 15:49 | 14° ✕ 26'56 | 37.42360 AU | conjunction | 4520 Mar 15 09:00 | 25° ✕ 13'15 | -8°37'37 |
| morning rise | 4513 Mar 19 01:59 | 14° ✕ 48'05 | | minimum elong | 4520 Mar 15 08:48 | 25° ✕ 13'14 | 8°37'38 |
| retrograde | 4513 Jun 15 20:17 | 16° ✕ 23'24 | | max. Earth dist. | 4520 Mar 18 05:41 | 25° ✕ 18'20 | 39.22278 AU |
| min. Earth dist. | 4513 Sep 02 20:56 | 15° ✕ 15'06 | 35.56208 AU | morning rise | 4520 Mar 27 21:56 | 25° ✕ 35'27 | |
| opposition | 4513 Sep 05 13:56 | 15° ✕ 11'22 | -6°19'59 | retrograde | 4520 Jun 26 04:46 | 27° ✕ 09'01 | |
| direct | 4513 Nov 25 17:08 | 13° ✕ 59'38 | | min. Earth dist. | 4520 Sep 13 14:58 | 26° ✕ 02'46 | 37.37582 AU |
| evening set | 4514 Feb 20 22:14 | 15° ✕ 32'57 | | opposition | 4520 Sep 16 12:39 | 25° ✕ 58'54 | -9°16'56 |
| | | | | direct | 4520 Dec 06 17:29 | 24° ✕ 49'25 | |
| conjunction | 4514 Mar 06 19:35 | 15° ✕ 58'32 | -6°12'49 | evening set | 4521 Mar 04 19:52 | 26° ✕ 20'34 | |
| minimum elong | 4514 Mar 06 19:24 | 15° ✕ 58'31 | 6°12'49 | | | | |
| max. Earth dist. | 4514 Mar 09 12:12 | 16° ✕ 03'32 | 37.67976 AU | conjunction | 4521 Mar 17 01:50 | 26° ✕ 42'08 | -8°59'30 |
| morning rise | 4514 Mar 20 17:18 | 16° ✕ 24'09 | | minimum elong | 4521 Mar 17 01:37 | 26° ✕ 42'07 | 8°59'30 |
| retrograde | 4514 Jun 17 14:03 | 17° ✕ 59'06 | | max. Earth dist. | 4521 Mar 19 23:15 | 26° ✕ 47'15 | 39.48099 AU |
| min. Earth dist. | 4514 Sep 04 17:50 | 16° ✕ 51'07 | 35.81970 AU | morning rise | 4521 Mar 29 08:15 | 27° ✕ 03'44 | |
| opposition | 4514 Sep 07 11:44 | 16° ✕ 47'20 | -6°47'21 | retrograde | 4521 Jun 27 19:05 | 28° ✕ 37'11 | |
| direct | 4514 Nov 27 17:09 | 15° ✕ 35'55 | | min. Earth dist. | 4521 Sep 15 09:10 | 27° ✕ 31'14 | 37.63562 AU |
| evening set | 4515 Feb 22 22:30 | 17° ✕ 08'49 | | opposition | 4521 Sep 18 07:17 | 27° ✕ 27'21 | -9°39'26 |
| | | | | direct | 4521 Dec 08 14:24 | 26° ✕ 18'12 | |
| conjunction | 4515 Mar 08 14:51 | 17° ✕ 33'51 | -6°38'34 | evening set | 4522 Mar 06 19:02 | 27° ✕ 49'10 | |
| minimum elong | 4515 Mar 08 14:39 | 17° ✕ 33'50 | 6°38'34 | | | | |
| max. Earth dist. | 4515 Mar 11 07:39 | 17° ✕ 38'49 | 37.93557 AU | conjunction | 4522 Mar 18 18:18 | 28° ✕ 10'07 | -9°20'45 |
| morning rise | 4515 Mar 22 07:55 | 17° ✕ 58'56 | | minimum elong | 4522 Mar 18 18:06 | 28° ✕ 10'06 | 9°20'46 |
| retrograde | 4515 Jun 19 09:07 | 19° ✕ 33'34 | | max. Earth dist. | 4522 Mar 21 15:14 | 28° ✕ 15'11 | 39.73816 AU |
| min. Earth dist. | 4515 Sep 06 14:30 | 18° ✕ 25'51 | 36.07750 AU | morning rise | 4522 Mar 30 18:20 | 28° ✕ 31'07 | |
| opposition | 4515 Sep 09 09:09 | 18° ✕ 22'04 | -7°14'03 | | 4522 Jun 10 23:01 | 0° ° ° | |
| direct | 4515 Nov 29 14:25 | 17° ✕ 10'57 | | retrograde | 4522 Jun 29 12:27 | 0° ° °04'28 | |
| evening set | 4516 Feb 24 22:28 | 18° ✕ 43'28 | | | 4522 Jul 18 09:04 | 30° ° ° ✕ | |
| | | | | min. Earth dist. | 4522 Sep 17 02:52 | 28° ✕ 58'49 | 37.89429 AU |
| conjunction | 4516 Mar 09 09:49 | 19° ✕ 07'56 | -7°03'41 | opposition | 4522 Sep 20 01:31 | 28° ✕ 54'56 | -10°01'16 |
| minimum elong | 4516 Mar 09 09:38 | 19° ✕ 07'55 | 7°03'41 | direct | 4522 Dec 10 08:03 | 27° ✕ 46'05 | |
| max. Earth dist. | 4516 Mar 12 04:12 | 19° ✕ 13'00 | 38.19167 AU | evening set | 4523 Mar 08 17:57 | 29° ✕ 16'53 | |
| morning rise | 4516 Mar 22 21:34 | 19° ✕ 32'27 | | | | | |
| retrograde | 4516 Jun 20 03:24 | 21° ✕ 06'49 | | conjunction | 4523 Mar 20 10:37 | 29° ✕ 37'14 | -9°41'23 |
| min. Earth dist. | 4516 Sep 07 11:07 | 19° ✕ 59'22 | 36.33572 AU | minimum elong | 4523 Mar 20 10:24 | 29° ✕ 37'13 | 9°41'23 |
| opposition | 4516 Sep 10 05:54 | 19° ✕ 55'35 | -7°40'02 | max. Earth dist. | 4523 Mar 23 08:38 | 29° ✕ 42'20 | 39.99373 AU |
| direct | 4516 Nov 30 11:28 | 18° ✕ 44'46 | | morning rise | 4523 Apr 01 03:45 | 29° ✕ 57'37 | |
| evening set | 4517 Feb 25 22:24 | 20° ✕ 16'56 | | | 4523 Apr 02 13:06 | 0° ° ° | |

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|------------------|-------------------|-----------|-------------|------------------|-------------------|-----------|-------------|
| retrograde | 4523 Jul 01 04:52 | 1°♊30'54 | | conjunction | 4530 Mar 29 18:36 | 9°♊20'48 | -11°49'26 |
| min. Earth dist. | 4523 Sep 18 21:41 | 0°♊25'26 | 38.15086 AU | minimum elong | 4530 Mar 29 18:24 | 9°♊20'48 | 11°49'26 |
| opposition | 4523 Sep 21 19:25 | 0°♊21'37 | -10°22'27 | max. Earth dist. | 4530 Apr 01 16:35 | 9°♊25'42 | 41.71433 AU |
| | 4523 Oct 08 12:22 | 30°♋♋ | | morning rise | 4530 Apr 08 06:14 | 9°♊36'40 | |
| direct | 4523 Dec 12 01:54 | 29°♋13'04 | | retrograde | 4530 Jul 10 13:12 | 11°♊09'47 | |
| | 4524 Feb 11 05:36 | 0°♊ | | min. Earth dist. | 4530 Sep 28 15:51 | 10°♊05'44 | 39.87915 AU |
| evening set | 4524 Mar 09 16:59 | 0°♊43'44 | | opposition | 4530 Oct 01 13:26 | 10°♊02'02 | -12°33'19 |
| | | | | direct | 4530 Dec 21 20:50 | 8°♊55'15 | |
| conjunction | 4524 Mar 21 02:31 | 1°♊03'27 | -10°01'26 | evening set | 4531 Mar 22 05:28 | 10°♊25'28 | |
| minimum elong | 4524 Mar 21 02:18 | 1°♊03'26 | 10°01'26 | | | | |
| max. Earth dist. | 4524 Mar 23 23:27 | 1°♊08'27 | 40.24693 AU | conjunction | 4531 Mar 31 08:07 | 10°♊40'37 | -12°05'24 |
| morning rise | 4524 Apr 01 12:40 | 1°♊23'13 | | minimum elong | 4531 Mar 31 07:56 | 10°♊40'36 | 12°05'24 |
| retrograde | 4524 Jul 01 22:28 | 2°♊56'25 | | max. Earth dist. | 4531 Apr 03 05:36 | 10°♊45'26 | 41.95363 AU |
| min. Earth dist. | 4524 Sep 19 14:08 | 1°♊51'14 | 38.40484 AU | morning rise | 4531 Apr 09 11:09 | 10°♊55'48 | |
| opposition | 4524 Sep 22 12:48 | 1°♊47'23 | -10°43'00 | retrograde | 4531 Jul 12 02:32 | 12°♊29'00 | |
| direct | 4524 Dec 12 17:58 | 0°♊39'07 | | min. Earth dist. | 4531 Sep 30 05:28 | 11°♊25'14 | 40.11977 AU |
| evening set | 4525 Mar 11 15:46 | 2°♊09'40 | | opposition | 4531 Oct 03 04:09 | 11°♊21'29 | -12°49'33 |
| | | | | direct | 4531 Dec 23 11:19 | 10°♊14'57 | |
| conjunction | 4525 Mar 22 18:10 | 2°♊28'45 | -10°20'53 | evening set | 4532 Mar 23 03:19 | 11°♊45'14 | |
| minimum elong | 4525 Mar 22 17:57 | 2°♊28'44 | 10°20'52 | | | | |
| max. Earth dist. | 4525 Mar 25 15:38 | 2°♊33'45 | 40.49730 AU | conjunction | 4532 Mar 31 21:14 | 11°♊59'43 | -12°20'49 |
| morning rise | 4525 Apr 02 21:09 | 2°♊47'53 | | minimum elong | 4532 Mar 31 21:02 | 11°♊59'42 | 12°20'49 |
| retrograde | 4525 Jul 03 14:18 | 4°♊21'01 | | max. Earth dist. | 4532 Apr 03 18:57 | 12°♊04'32 | 42.19148 AU |
| min. Earth dist. | 4525 Sep 21 08:29 | 3°♊16'00 | 38.65597 AU | morning rise | 4532 Apr 09 15:37 | 12°♊14'13 | |
| opposition | 4525 Sep 24 06:04 | 3°♊12'13 | -11°02'56 | retrograde | 4532 Jul 12 15:13 | 13°♊47'32 | |
| direct | 4525 Dec 14 11:21 | 2°♊04'13 | | min. Earth dist. | 4532 Sep 30 20:36 | 12°♊43'58 | 40.35894 AU |
| evening set | 4526 Mar 13 14:22 | 3°♊34'38 | | opposition | 4532 Oct 03 18:43 | 12°♊40'16 | -13°05'12 |
| | | | | direct | 4532 Dec 24 02:11 | 11°♊34'01 | |
| conjunction | 4526 Mar 24 09:23 | 3°♊53'05 | -10°39'45 | evening set | 4533 Mar 25 01:17 | 13°♊04'24 | |
| minimum elong | 4526 Mar 24 09:11 | 3°♊53'04 | 10°39'45 | | | | |
| max. Earth dist. | 4526 Mar 27 06:28 | 3°♊58'02 | 40.74489 AU | conjunction | 4533 Apr 02 10:17 | 13°♊18'11 | -12°35'40 |
| morning rise | 4526 Apr 04 04:51 | 4°♊11'34 | | minimum elong | 4533 Apr 02 10:06 | 13°♊18'10 | 12°35'40 |
| retrograde | 4526 Jul 05 04:04 | 5°♊44'39 | | max. Earth dist. | 4533 Apr 05 08:23 | 13°♊23'00 | 42.42782 AU |
| min. Earth dist. | 4526 Sep 23 00:43 | 4°♊39'51 | 38.90420 AU | morning rise | 4533 Apr 10 19:30 | 13°♊31'59 | |
| opposition | 4526 Sep 25 22:42 | 4°♊36'04 | -11°22'15 | retrograde | 4533 Jul 14 02:11 | 15°♊05'27 | |
| direct | 4526 Dec 16 05:28 | 3°♊28'18 | | min. Earth dist. | 4533 Oct 02 10:53 | 14°♊02'07 | 40.59612 AU |
| evening set | 4527 Mar 15 12:54 | 4°♊58'38 | | opposition | 4533 Oct 05 08:55 | 13°♊58'26 | -13°20'16 |
| | | | | direct | 4533 Dec 25 18:28 | 12°♊52'27 | |
| conjunction | 4527 Mar 26 00:13 | 5°♊16'26 | -10°58'02 | evening set | 4534 Mar 26 23:12 | 14°♊22'57 | |
| minimum elong | 4527 Mar 26 00:00 | 5°♊16'25 | 10°58'02 | | | | |
| max. Earth dist. | 4527 Mar 28 20:57 | 5°♊21'19 | 40.98975 AU | conjunction | 4534 Apr 03 22:51 | 14°♊36'02 | -12°49'59 |
| morning rise | 4527 Apr 05 12:11 | 5°♊34'16 | | minimum elong | 4534 Apr 03 22:39 | 14°♊36'01 | 12°49'59 |
| retrograde | 4527 Jul 06 18:19 | 7°♊07'19 | | max. Earth dist. | 4534 Apr 06 20:02 | 14°♊40'46 | 42.66193 AU |
| min. Earth dist. | 4527 Sep 24 17:07 | 6°♊02'41 | 39.15019 AU | morning rise | 4534 Apr 11 22:51 | 14°♊49'08 | |
| opposition | 4527 Sep 27 14:54 | 5°♊58'56 | -11°40'56 | retrograde | 4534 Jul 15 15:57 | 16°♊22'47 | |
| direct | 4527 Dec 17 22:23 | 4°♊51'24 | | min. Earth dist. | 4534 Oct 04 00:41 | 15°♊19'41 | 40.83093 AU |
| evening set | 4528 Mar 16 11:12 | 6°♊21'39 | | opposition | 4534 Oct 06 22:53 | 15°♊16'00 | -13°34'47 |
| | | | | direct | 4534 Dec 27 07:56 | 14°♊10'18 | |
| conjunction | 4528 Mar 26 14:48 | 6°♊38'48 | -11°15'45 | evening set | 4535 Mar 28 21:19 | 15°♊40'56 | |
| minimum elong | 4528 Mar 26 14:35 | 6°♊38'47 | 11°15'46 | | | | |
| max. Earth dist. | 4528 Mar 29 12:25 | 6°♊43'43 | 41.23265 AU | conjunction | 4535 Apr 05 11:29 | 15°♊53'18 | -13°03'47 |
| morning rise | 4528 Apr 05 18:45 | 6°♊55'59 | | minimum elong | 4535 Apr 05 11:19 | 15°♊53'17 | 13°03'47 |
| retrograde | 4528 Jul 07 06:28 | 8°♊29'01 | | max. Earth dist. | 4535 Apr 08 09:25 | 15°♊58'04 | 42.89325 AU |
| min. Earth dist. | 4528 Sep 25 09:16 | 7°♊24'34 | 39.39433 AU | morning rise | 4535 Apr 13 01:51 | 16°♊05'42 | |
| opposition | 4528 Sep 28 06:45 | 7°♊20'50 | -11°59'01 | retrograde | 4535 Jul 17 05:18 | 17°♊39'32 | |
| direct | 4528 Dec 18 16:36 | 6°♊13'32 | | min. Earth dist. | 4535 Oct 05 15:34 | 16°♊36'35 | 41.06250 AU |
| evening set | 4529 Mar 18 09:21 | 7°♊43'44 | | opposition | 4535 Oct 08 12:24 | 16°♊32'59 | -13°48'45 |
| | | | | direct | 4535 Dec 28 21:33 | 15°♊27'32 | |
| conjunction | 4529 Mar 28 04:43 | 8°♊00'13 | -11°32'53 | evening set | 4536 Mar 29 19:40 | 16°♊58'21 | |
| minimum elong | 4529 Mar 28 04:31 | 8°♊00'13 | 11°32'52 | | | | |
| max. Earth dist. | 4529 Mar 31 01:30 | 8°♊05'04 | 41.47404 AU | conjunction | 4536 Apr 05 23:48 | 17°♊09'59 | -13°17'04 |
| morning rise | 4529 Apr 07 00:38 | 8°♊16'45 | | minimum elong | 4536 Apr 05 23:37 | 17°♊09'58 | 13°17'04 |
| retrograde | 4529 Jul 08 22:30 | 9°♊49'49 | | max. Earth dist. | 4536 Apr 08 20:14 | 17°♊14'37 | 43.12120 AU |
| min. Earth dist. | 4529 Sep 26 23:45 | 8°♊45'37 | 39.63729 AU | morning rise | 4536 Apr 13 04:08 | 17°♊21'39 | |
| opposition | 4529 Sep 29 22:17 | 8°♊41'50 | -12°16'29 | retrograde | 4536 Jul 17 20:44 | 18°♊55'42 | |
| direct | 4529 Dec 20 06:26 | 7°♊34'47 | | min. Earth dist. | 4536 Oct 06 04:26 | 17°♊52'59 | 41.29040 AU |
| evening set | 4530 Mar 20 07:23 | 9°♊04'59 | | opposition | 4536 Oct 09 01:44 | 17°♊49'22 | -14°02'12 |

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|------------------|-------------------|-----------------------|------------------|-------------------|-----------------------|-------------|
| direct | 4536 Dec 29 08:01 | 16°♈44'09 | retrograde | 4543 Jul 27 00:54 | 27°♈29'32 | |
| evening set | 4537 Mar 31 17:56 | 18°♈15'09 | min. Earth dist. | 4543 Oct 15 20:22 | 26°♈27'48 | 42.79173 AU |
| | | | opposition | 4543 Oct 18 14:52 | 26°♈24'25 | -15°22'20 |
| conjunction | 4537 Apr 07 11:47 | 18°♈26'03 -13°29'53 | direct | 4544 Jan 07 23:01 | 25°♈20'31 | |
| minimum elong | 4537 Apr 07 11:37 | 18°♈26'02 13°29'53 | evening set | 4544 Apr 12 23:33 | 26°♈54'26 | |
| max. Earth dist. | 4537 Apr 10 08:12 | 18°♈30'39 43.34519 AU | | | | |
| morning rise | 4537 Apr 14 05:50 | 18°♈36'57 | conjunction | 4544 Apr 15 16:45 | 26°♈58'41 -14°46'11 | |
| retrograde | 4537 Jul 19 08:43 | 20°♈11'14 | minimum elong | 4544 Apr 15 16:38 | 26°♈58'40 14°46'11 | |
| min. Earth dist. | 4537 Oct 07 19:13 | 19°♈08'37 41.51427 AU | morning rise | 4544 Apr 18 09:49 | 27°♈02'55 | |
| opposition | 4537 Oct 10 14:59 | 19°♈05'06 -14°15'09 | max. Earth dist. | 4544 Apr 18 10:44 | 27°♈02'58 44.82553 AU | |
| direct | 4537 Dec 30 20:39 | 18°♈00'06 | retrograde | 4544 Jul 27 10:20 | 28°♈40'21 | |
| evening set | 4538 Apr 02 16:40 | 19°♈31'18 | min. Earth dist. | 4544 Oct 16 08:08 | 27°♈38'45 42.99700 AU | |
| | | | opposition | 4544 Oct 19 02:03 | 27°♈35'24 -15°31'48 | |
| conjunction | 4538 Apr 08 23:42 | 19°♈41'26 -13°42'13 | direct | 4545 Jan 08 10:52 | 26°♈31'43 | |
| minimum elong | 4538 Apr 08 23:32 | 19°♈41'25 13°42'12 | evening set | 4545 Apr 15 12:16 | 28°♈06'55 | |
| max. Earth dist. | 4538 Apr 11 19:39 | 19°♈45'59 43.56529 AU | | | | |
| morning rise | 4538 Apr 15 06:47 | 19°♈51'32 | conjunction | 4545 Apr 17 02:49 | 28°♈09'25 -14°55'12 | |
| retrograde | 4538 Jul 20 17:32 | 21°♈26'04 | minimum elong | 4545 Apr 17 02:41 | 28°♈09'24 14°55'13 | |
| min. Earth dist. | 4538 Oct 09 07:54 | 20°♈23'37 41.73410 AU | morning rise | 4545 Apr 18 17:11 | 28°♈11'54 | |
| opposition | 4538 Oct 12 03:37 | 20°♈20'07 -14°27'36 | max. Earth dist. | 4545 Apr 19 21:29 | 28°♈13'44 45.02820 AU | |
| direct | 4539 Jan 01 11:51 | 19°♈15'18 | retrograde | 4545 Jul 28 17:39 | 29°♈50'39 | |
| evening set | 4539 Apr 04 15:35 | 20°♈46'46 | min. Earth dist. | 4545 Oct 17 19:40 | 28°♈49'13 43.19970 AU | |
| | | | opposition | 4545 Oct 20 12:57 | 28°♈45'55 -15°40'47 | |
| conjunction | 4539 Apr 10 11:10 | 20°♈56'04 -13°54'04 | direct | 4546 Jan 10 00:31 | 27°♈42'26 | |
| minimum elong | 4539 Apr 10 11:01 | 20°♈56'04 13°54'05 | | | | |
| max. Earth dist. | 4539 Apr 13 06:01 | 21°♈00'32 43.78155 AU | conjunction | 4546 Apr 18 12:41 | 29°♈19'41 -15°03'46 | |
| morning rise | 4539 Apr 16 06:54 | 21°♈05'23 | minimum elong | 4546 Apr 18 12:35 | 29°♈19'41 15°03'46 | |
| retrograde | 4539 Jul 22 03:49 | 22°♈40'11 | max. Earth dist. | 4546 Apr 21 05:53 | 29°♈23'54 45.22819 AU | |
| min. Earth dist. | 4539 Oct 10 20:49 | 21°♈37'52 41.95050 AU | | 4546 May 15 06:49 | 0°♈ | |
| opposition | 4539 Oct 13 16:06 | 21°♈34'23 -14°39'33 | retrograde | 4546 Jul 30 05:11 | 1°♈00'31 | |
| direct | 4540 Jan 03 01:43 | 20°♈29'45 | | 4546 Oct 18 15:36 | 30°♈ | |
| evening set | 4540 Apr 05 14:50 | 22°♈01'30 | min. Earth dist. | 4546 Oct 19 06:01 | 29°♈59'16 43.39954 AU | |
| | | | opposition | 4546 Oct 21 23:30 | 29°♈55'58 -15°49'19 | |
| conjunction | 4540 Apr 10 22:24 | 22°♈09'58 -14°05'27 | direct | 4547 Jan 11 10:22 | 28°♈52'42 | |
| minimum elong | 4540 Apr 10 22:14 | 22°♈09'57 14°05'27 | | 4547 Mar 31 12:05 | 0°♈ | |
| max. Earth dist. | 4540 Apr 13 17:53 | 22°♈14'27 43.99468 AU | | | | |
| morning rise | 4540 Apr 16 05:57 | 22°♈18'26 | conjunction | 4547 Apr 19 22:33 | 0°♈29'32 -15°11'55 | |
| retrograde | 4540 Jul 22 13:10 | 23°♈53'34 | minimum elong | 4547 Apr 19 22:26 | 0°♈29'31 15°11'56 | |
| min. Earth dist. | 4540 Oct 11 09:52 | 22°♈51'20 42.16393 AU | max. Earth dist. | 4547 Apr 22 16:01 | 0°♈33'44 45.42492 AU | |
| opposition | 4540 Oct 14 04:14 | 22°♈47'55 -14°51'00 | retrograde | 4547 Jul 31 16:12 | 2°♈09'57 | |
| direct | 4541 Jan 03 16:06 | 21°♈43'28 | min. Earth dist. | 4547 Oct 20 18:23 | 1°♈08'49 43.59570 AU | |
| evening set | 4541 Apr 07 14:51 | 23°♈15'34 | opposition | 4547 Oct 23 10:01 | 1°♈05'37 -15°57'25 | |
| | | | direct | 4548 Jan 12 20:37 | 0°♈02'34 | |
| conjunction | 4541 Apr 12 09:18 | 23°♈23'07 -14°16'21 | | | | |
| minimum elong | 4541 Apr 12 09:10 | 23°♈23'06 14°16'22 | conjunction | 4548 Apr 20 08:10 | 1°♈38'57 -15°19'39 | |
| max. Earth dist. | 4541 Apr 15 03:41 | 23°♈27'30 44.20534 AU | minimum elong | 4548 Apr 20 08:05 | 1°♈38'57 15°19'39 | |
| morning rise | 4541 Apr 17 03:46 | 23°♈30'41 | max. Earth dist. | 4548 Apr 23 00:30 | 1°♈43'05 45.61778 AU | |
| retrograde | 4541 Jul 24 01:53 | 25°♈06'13 | retrograde | 4548 Aug 01 02:29 | 3°♈18'59 | |
| min. Earth dist. | 4541 Oct 12 20:58 | 24°♈04'11 42.37520 AU | min. Earth dist. | 4548 Oct 21 04:28 | 2°♈18'02 43.78757 AU | |
| opposition | 4541 Oct 15 16:05 | 24°♈00'44 -15°01'57 | opposition | 4548 Oct 23 20:14 | 2°♈14'50 -16°05'06 | |
| direct | 4542 Jan 05 03:00 | 22°♈56'27 | direct | 4549 Jan 13 05:21 | 1°♈11'58 | |
| evening set | 4542 Apr 09 15:38 | 24°♈29'00 | | | | |
| | | | conjunction | 4549 Apr 21 17:40 | 2°♈47'58 -15°27'00 | |
| conjunction | 4542 Apr 13 19:59 | 24°♈35'35 -14°26'46 | minimum elong | 4549 Apr 21 17:34 | 2°♈47'58 15°27'00 | |
| minimum elong | 4542 Apr 13 19:50 | 24°♈35'35 14°26'46 | max. Earth dist. | 4549 Apr 24 08:58 | 2°♈52'00 45.80611 AU | |
| max. Earth dist. | 4542 Apr 16 15:00 | 24°♈39'59 44.41394 AU | retrograde | 4549 Aug 02 12:10 | 4°♈27'35 | |
| morning rise | 4542 Apr 18 00:16 | 24°♈42'11 | min. Earth dist. | 4549 Oct 22 16:08 | 3°♈26'43 43.97485 AU | |
| retrograde | 4542 Jul 25 14:33 | 26°♈18'11 | opposition | 4549 Oct 25 06:27 | 3°♈23'37 -16°12'24 | |
| min. Earth dist. | 4542 Oct 14 09:47 | 25°♈16'15 42.58446 AU | direct | 4550 Jan 14 14:31 | 2°♈20'56 | |
| opposition | 4542 Oct 17 03:46 | 25°♈12'53 -15°12'23 | | | | |
| direct | 4543 Jan 06 13:03 | 24°♈08'47 | conjunction | 4550 Apr 23 03:06 | 3°♈56'31 -15°33'58 | |
| evening set | 4543 Apr 11 18:17 | 25°♈41'55 | minimum elong | 4550 Apr 23 03:02 | 3°♈56'30 15°33'58 | |
| | | | max. Earth dist. | 4550 Apr 25 18:10 | 4°♈00'31 45.98986 AU | |
| conjunction | 4543 Apr 15 06:33 | 25°♈47'25 -14°36'43 | retrograde | 4550 Aug 03 19:01 | 5°♈35'44 | |
| minimum elong | 4543 Apr 15 06:25 | 25°♈47'25 14°36'43 | min. Earth dist. | 4550 Oct 24 02:53 | 4°♈34'58 44.15727 AU | |
| morning rise | 4543 Apr 18 18:43 | 25°♈52'56 | opposition | 4550 Oct 26 16:18 | 4°♈31'54 -16°19'18 | |
| max. Earth dist. | 4543 Apr 18 01:06 | 25°♈51'46 44.62075 AU | direct | 4551 Jan 16 02:47 | 3°♈29'23 | |

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| conjunction | 4551 Apr 24 12:11 | 5°04'33" -15°40'34" | | | 4559 Jun 23 00:26 | 15°08' |
| minimum elong | 4551 Apr 24 12:06 | 5°04'32" 15°40'34" | retrograde | | 4559 Aug 14 02:14 | 15°08'28'35" |
| max. Earth dist. | 4551 Apr 27 01:25 | 5°08'26" 46.16898 AU | | | 4559 Oct 06 08:20 | 15°08' |
| retrograde | 4551 Aug 05 03:57 | 6°04'32" 22" | min. Earth dist. | | 4559 Nov 03 16:14 | 14°08'28'49" 45.64915 AU |
| min. Earth dist. | 4551 Oct 25 12:44 | 5°04'24" 44.33542 AU | opposition | | 4559 Nov 05 23:37 | 14°08'26'07" -17°03'40" |
| opposition | 4551 Oct 28 01:49 | 5°03'41" -16°25'49" | direct | | 4560 Jan 26 08:24 | 13°08'25'00" |
| direct | 4552 Jan 17 13:18 | 4°03'37'19" | | | | |
| conjunction | 4552 Apr 24 21:07 | 6°08'12'04" -15°46'47" | conjunction | | 4560 May 03 14:19 | 14°08'56'58" -16°22'50" |
| minimum elong | 4552 Apr 24 21:04 | 6°08'12'04" 15°46'47" | minimum elong | | 4560 May 03 14:18 | 14°08'56'58" 16°22'50" |
| max. Earth dist. | 4552 Apr 27 10:47 | 6°08'15'58" 46.34411 AU | | | 4560 May 05 15:49 | 15°08' |
| retrograde | 4552 Aug 05 13:44 | 7°08'50'30" 30" | max. Earth dist. | | 4560 May 05 23:07 | 15°08'00'27" 47.63886 AU |
| min. Earth dist. | 4552 Oct 25 23:43 | 6°08'49'55" 44.50982 AU | retrograde | | 4560 Aug 14 08:39 | 16°08'32'41" |
| opposition | 4552 Oct 28 11:17 | 6°08'46'58" -16°31'56" | min. Earth dist. | | 4560 Nov 04 00:47 | 15°08'33'02" 45.79736 AU |
| direct | 4553 Jan 17 23:22 | 5°08'44'44" | opposition | | 4560 Nov 06 07:35 | 15°08'30'23" -17°06'46" |
| conjunction | 4553 Apr 26 05:41 | 7°08'19'05" -15°52'37" | direct | | 4560 Dec 03 12:11 | 15°08' |
| minimum elong | 4553 Apr 26 05:36 | 7°08'19'05" 15°52'36" | | | 4561 Jan 26 16:17 | 14°08'29'24" |
| max. Earth dist. | 4553 Apr 28 18:12 | 7°08'22'53" 46.51598 AU | conjunction | | 4561 Mar 20 08:13 | 15°08' |
| retrograde | 4553 Aug 07 00:51 | 8°08'57'08" 08" | minimum elong | | 4561 May 04 21:50 | 16°08'01'04" -16°25'46" |
| min. Earth dist. | 4553 Oct 27 08:20 | 7°08'56'42" 44.68113 AU | max. Earth dist. | | 4561 May 04 21:50 | 16°08'01'04" 16°25'46" |
| opposition | 4553 Oct 29 20:26 | 7°08'53'44" -16°37'38" | retrograde | | 4561 May 07 04:42 | 16°08'04'25" 47.78405 AU |
| direct | 4554 Jan 19 06:03 | 6°08'51'39" | min. Earth dist. | | 4561 Aug 15 14:56 | 17°08'36'28" |
| conjunction | 4554 Apr 27 14:11 | 8°08'25'37" -15°58'03" | opposition | | 4561 Nov 05 09:49 | 16°08'36'53" 45.94053 AU |
| minimum elong | 4554 Apr 27 14:08 | 8°08'25'37" 15°58'04" | direct | | 4561 Nov 07 15:33 | 16°08'34'17" -17°09'32" |
| max. Earth dist. | 4554 Apr 30 02:19 | 8°08'29'23" 46.68492 AU | | | 4562 Jan 28 01:19 | 15°08'33'26" |
| retrograde | 4554 Aug 08 09:05 | 10°08'03'18" 18" | conjunction | | 4562 May 06 05:33 | 17°08'04'46" -16°28'25" |
| min. Earth dist. | 4554 Oct 28 18:40 | 9°08'02'56" 44.84975 AU | minimum elong | | 4562 May 06 05:32 | 17°08'04'46" 16°28'25" |
| opposition | 4554 Oct 31 05:23 | 9°08'00'03" -16°42'57" | max. Earth dist. | | 4562 May 08 12:17 | 17°08'08'06" 47.92407 AU |
| direct | 4555 Jan 20 14:10 | 7°08'58'07" | retrograde | | 4562 Aug 16 20:05 | 18°08'39'52" |
| conjunction | 4555 Apr 28 22:38 | 9°08'31'43" -16°03'06" | min. Earth dist. | | 4562 Nov 06 19:14 | 17°08'40'18" 46.07835 AU |
| minimum elong | 4555 Apr 28 22:35 | 9°08'31'43" 16°03'06" | opposition | | 4562 Nov 08 23:10 | 17°08'37'47" -17°12'00" |
| max. Earth dist. | 4555 May 01 10:53 | 9°08'35'28" 46.85138 AU | direct | | 4563 Jan 29 12:23 | 16°08'37'02" |
| retrograde | 4555 Aug 09 14:02 | 11°08'09'02" 02" | conjunction | | 4563 May 07 12:57 | 18°08'08'03" -16°30'45" |
| min. Earth dist. | 4555 Oct 30 03:30 | 10°08'08'49" 45.01566 AU | minimum elong | | 4563 May 07 12:58 | 18°08'08'03" 16°30'45" |
| opposition | 4555 Nov 01 14:07 | 10°08'05'56" -16°47'51" | max. Earth dist. | | 4563 May 09 17:45 | 18°08'11'15" 48.05906 AU |
| direct | 4556 Jan 22 00:43 | 9°08'04'10" | retrograde | | 4563 Aug 18 04:54 | 19°08'42'49" |
| conjunction | 4556 Apr 29 06:37 | 10°08'37'26" -16°07'46" | min. Earth dist. | | 4563 Nov 08 02:45 | 18°08'43'20" 46.21134 AU |
| minimum elong | 4556 Apr 29 06:35 | 10°08'37'26" 16°07'47" | opposition | | 4563 Nov 10 06:39 | 18°08'40'50" -17°14'09" |
| max. Earth dist. | 4556 May 01 17:28 | 10°08'41'05" 47.01519 AU | direct | | 4564 Jan 30 19:36 | 17°08'40'11" |
| retrograde | 4556 Aug 09 21:42 | 12°08'14'24" 24" | conjunction | | 4564 May 07 20:01 | 19°08'10'52" -16°32'47" |
| min. Earth dist. | 4556 Oct 30 12:21 | 11°08'14'20" 45.17897 AU | minimum elong | | 4564 May 07 20:01 | 19°08'10'52" 16°32'48" |
| opposition | 4556 Nov 01 22:47 | 11°08'11'27" -16°52'22" | max. Earth dist. | | 4564 May 10 00:15 | 19°08'14'01" 48.18942 AU |
| direct | 4557 Jan 22 10:11 | 10°08'09'52" | retrograde | | 4564 Aug 18 13:06 | 20°08'45'19" |
| conjunction | 4557 Apr 30 14:44 | 11°08'42'47" -16°12'04" | min. Earth dist. | | 4564 Nov 08 12:05 | 19°08'45'50" 46.34009 AU |
| minimum elong | 4557 Apr 30 14:42 | 11°08'42'47" 16°12'04" | opposition | | 4564 Nov 10 14:07 | 19°08'43'25" -17°15'59" |
| max. Earth dist. | 4557 May 03 02:04 | 11°08'46'27" 47.17633 AU | direct | | 4565 Jan 31 02:08 | 18°08'42'52" |
| retrograde | 4557 Aug 11 05:19 | 13°08'19'27" 27" | conjunction | | 4565 May 09 03:08 | 20°08'13'14" -16°34'30" |
| min. Earth dist. | 4557 Oct 31 22:15 | 12°08'19'27" 45.33930 AU | minimum elong | | 4565 May 09 03:10 | 20°08'13'14" 16°34'31" |
| opposition | 4557 Nov 03 07:16 | 12°08'16'39" -16°56'30" | max. Earth dist. | | 4565 May 11 07:05 | 20°08'16'22" 48.31607 AU |
| direct | 4558 Jan 23 20:19 | 11°08'15'14" | retrograde | | 4565 Aug 19 18:50 | 21°08'47'23" |
| conjunction | 4558 May 01 22:38 | 12°08'47'48" -16°15'59" | min. Earth dist. | | 4565 Nov 09 19:14 | 20°08'47'59" 46.46526 AU |
| minimum elong | 4558 May 01 22:36 | 12°08'47'48" 16°16'01" | opposition | | 4565 Nov 11 21:11 | 20°08'45'34" -17°17'30" |
| max. Earth dist. | 4558 May 04 08:39 | 12°08'51'23" 47.33443 AU | direct | | 4566 Feb 01 09:02 | 19°08'45'06" |
| retrograde | 4558 Aug 12 15:34 | 14°08'24'09" 09" | conjunction | | 4566 May 10 09:57 | 21°08'15'12" -16°35'54" |
| min. Earth dist. | 4558 Nov 02 06:18 | 13°08'24'20" 45.49624 AU | minimum elong | | 4566 May 10 09:58 | 21°08'15'12" 16°35'55" |
| opposition | 4558 Nov 04 15:30 | 13°08'21'32" -17°00'16" | max. Earth dist. | | 4566 May 12 12:19 | 21°08'18'14" 48.43938 AU |
| direct | 4559 Jan 25 03:11 | 12°08'20'16" | retrograde | | 4566 Aug 21 00:54 | 22°08'49'03" |
| conjunction | 4559 May 03 06:28 | 13°08'52'32" -16°19'35" | min. Earth dist. | | 4566 Nov 11 03:01 | 21°08'49'43" 46.58738 AU |
| minimum elong | 4559 May 03 06:27 | 13°08'52'32" 16°19'34" | opposition | | 4566 Nov 13 04:15 | 21°08'47'21" -17°18'40" |
| max. Earth dist. | 4559 May 05 15:50 | 13°08'56'04" 47.48874 AU | direct | | 4567 Feb 02 15:57 | 20°08'46'59" |
| conjunction | | | conjunction | | 4567 May 11 16:48 | 22°08'16'48" -16°36'59" |

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|------------------|-------------------|-----------------------|-------------|------------------|-------------------|-----------------------|-------------|
| minimum elong | 4567 May 11 16:51 | 22° 8 16'49 | 16°37'00 | minimum elong | 4575 May 19 19:59 | 0° II 21'58 | 16°34'48 |
| max. Earth dist. | 4567 May 13 19:35 | 22° 8 19'51 | 48.55978 AU | max. Earth dist. | 4575 May 21 14:59 | 0° II 24'29 | 49.39887 AU |
| retrograde | 4567 Aug 22 05:33 | 23° 8 50'23 | | retrograde | 4575 Aug 30 12:19 | 1° II 53'46 | |
| min. Earth dist. | 4567 Nov 12 10:57 | 22° 8 51'06 | 46.70650 AU | min. Earth dist. | 4575 Nov 20 20:55 | 0° II 55'03 | 47.52847 AU |
| opposition | 4567 Nov 14 11:02 | 22° 8 48'48 | -17°19'31 | opposition | 4575 Nov 22 13:52 | 0° II 53'06 | -17°15'19 |
| direct | 4568 Feb 04 01:02 | 21° 8 48'32 | | | 4576 Jan 19 03:38 | 30° R 8 | |
| | | | | direct | 4576 Feb 12 02:12 | 29° 8 53'43 | |
| conjunction | 4568 May 11 23:24 | 23° 8 18'07 | -16°37'44 | | 4576 Mar 06 19:43 | 0° II | |
| minimum elong | 4568 May 11 23:26 | 23° 8 18'07 | 16°37'44 | | | | |
| max. Earth dist. | 4568 May 14 00:45 | 23° 8 21'04 | 48.67749 AU | conjunction | 4576 May 20 01:49 | 1° II 21'35 | -16°33'19 |
| retrograde | 4568 Aug 22 13:25 | 24° 8 51'27 | | minimum elong | 4576 May 20 01:55 | 1° II 21'36 | 16°33'20 |
| min. Earth dist. | 4568 Nov 12 17:22 | 23° 8 52'18 | 46.82293 AU | max. Earth dist. | 4576 May 21 19:04 | 1° II 24'00 | 49.48323 AU |
| opposition | 4568 Nov 14 17:46 | 23° 8 49'59 | -17°20'01 | retrograde | 4576 Aug 30 18:02 | 2° II 53'09 | |
| direct | 4569 Feb 04 07:47 | 22° 8 49'51 | | min. Earth dist. | 4576 Nov 21 04:07 | 1° II 54'26 | 47.61057 AU |
| | | | | opposition | 4576 Nov 22 19:46 | 1° II 52'34 | -17°13'34 |
| conjunction | 4569 May 13 05:50 | 24° 8 19'11 | -16°38'11 | direct | 4577 Feb 12 06:16 | 0° II 53'14 | |
| minimum elong | 4569 May 13 05:52 | 24° 8 19'11 | 16°38'11 | | | | |
| max. Earth dist. | 4569 May 15 06:57 | 24° 8 22'06 | 48.79234 AU | conjunction | 4577 May 21 07:43 | 2° II 20'54 | -16°31'34 |
| retrograde | 4569 Aug 23 22:45 | 25° 8 52'17 | | minimum elong | 4577 May 21 07:47 | 2° II 20'54 | 16°31'35 |
| min. Earth dist. | 4569 Nov 14 01:48 | 24° 8 53'11 | 46.93637 AU | max. Earth dist. | 4577 May 23 01:09 | 2° II 23'19 | 49.56368 AU |
| opposition | 4569 Nov 16 00:31 | 24° 8 50'57 | -17°20'13 | retrograde | 4577 Aug 31 20:51 | 3° II 52'14 | |
| direct | 4570 Feb 05 12:37 | 23° 8 50'57 | | min. Earth dist. | 4577 Nov 22 10:56 | 2° II 53'31 | 47.68885 AU |
| | | | | opposition | 4577 Nov 24 01:29 | 2° II 51'42 | -17°11'32 |
| conjunction | 4570 May 14 12:24 | 25° 8 20'04 | -16°38'18 | direct | 4578 Feb 13 14:23 | 1° II 52'25 | |
| minimum elong | 4570 May 14 12:27 | 25° 8 20'04 | 16°38'18 | | | | |
| max. Earth dist. | 4570 May 16 13:00 | 25° 8 22'57 | 48.90421 AU | conjunction | 4578 May 22 13:29 | 3° II 19'52 | -16°29'33 |
| retrograde | 4570 Aug 25 05:38 | 26° 8 52'57 | | minimum elong | 4578 May 22 13:35 | 3° II 19'53 | 16°29'34 |
| min. Earth dist. | 4570 Nov 15 08:13 | 25° 8 53'58 | 47.04642 AU | max. Earth dist. | 4578 May 24 05:18 | 3° II 22'12 | 49.64071 AU |
| opposition | 4570 Nov 17 06:49 | 25° 8 51'45 | -17°20'05 | retrograde | 4578 Sep 02 01:32 | 4° II 51'00 | |
| direct | 4571 Feb 06 16:46 | 24° 8 51'53 | | min. Earth dist. | 4578 Nov 23 16:26 | 3° II 52'21 | 47.76399 AU |
| | | | | opposition | 4578 Nov 25 06:54 | 3° II 50'32 | -17°09'14 |
| conjunction | 4571 May 15 18:45 | 26° 8 20'48 | -16°38'08 | direct | 4579 Feb 14 21:33 | 2° II 51'19 | |
| minimum elong | 4571 May 15 18:48 | 26° 8 20'48 | 16°38'09 | | | | |
| max. Earth dist. | 4571 May 17 17:43 | 26° 8 23'35 | 49.01242 AU | conjunction | 4579 May 23 19:12 | 4° II 18'34 | -16°27'16 |
| retrograde | 4571 Aug 26 11:42 | 27° 8 53'28 | | minimum elong | 4579 May 23 19:17 | 4° II 18'35 | 16°27'15 |
| min. Earth dist. | 4571 Nov 16 16:01 | 26° 8 54'33 | 47.15266 AU | max. Earth dist. | 4579 May 25 10:37 | 4° II 20'52 | 49.71464 AU |
| opposition | 4571 Nov 18 13:18 | 26° 8 52'24 | -17°19'40 | retrograde | 4579 Sep 03 08:44 | 5° II 49'31 | |
| direct | 4572 Feb 07 23:13 | 25° 8 52'40 | | min. Earth dist. | 4579 Nov 24 23:39 | 4° II 50'51 | 47.83611 AU |
| | | | | opposition | 4579 Nov 26 12:30 | 4° II 49'06 | -17°06'38 |
| conjunction | 4572 May 16 01:05 | 27° 8 21'23 | -16°37'41 | direct | 4580 Feb 16 03:56 | 3° II 49'57 | |
| minimum elong | 4572 May 16 01:10 | 27° 8 21'23 | 16°37'42 | | | | |
| max. Earth dist. | 4572 May 18 00:06 | 27° 8 24'10 | 49.11646 AU | conjunction | 4580 May 24 00:43 | 5° II 17'02 | -16°24'41 |
| retrograde | 4572 Aug 26 14:33 | 28° 8 53'51 | | minimum elong | 4580 May 24 00:50 | 5° II 17'02 | 16°24'42 |
| min. Earth dist. | 4572 Nov 16 23:45 | 27° 8 55'00 | 47.25423 AU | max. Earth dist. | 4580 May 25 15:43 | 5° II 19'18 | 49.78585 AU |
| opposition | 4572 Nov 18 19:40 | 27° 8 52'55 | -17°18'58 | retrograde | 4580 Sep 03 16:07 | 6° II 47'47 | |
| direct | 4573 Feb 08 08:59 | 26° 8 53'17 | | min. Earth dist. | 4580 Nov 25 04:51 | 5° II 49'12 | 47.90537 AU |
| | | | | opposition | 4580 Nov 26 17:54 | 5° II 47'28 | -17°03'44 |
| conjunction | 4573 May 17 07:26 | 28° 8 21'48 | -16°36'59 | direct | 4581 Feb 16 07:09 | 4° II 48'23 | |
| minimum elong | 4573 May 17 07:29 | 28° 8 21'48 | 16°37'00 | | | | |
| max. Earth dist. | 4573 May 19 04:17 | 28° 8 24'27 | 49.21576 AU | conjunction | 4581 May 25 06:13 | 6° II 15'18 | -16°21'49 |
| retrograde | 4573 Aug 27 22:01 | 29° 8 54'04 | | minimum elong | 4581 May 25 06:19 | 6° II 15'18 | 16°21'50 |
| min. Earth dist. | 4573 Nov 18 06:21 | 28° 8 55'18 | 47.35085 AU | max. Earth dist. | 4581 May 26 19:44 | 6° II 17'28 | 49.85416 AU |
| opposition | 4573 Nov 20 01:50 | 28° 8 53'14 | -17°18'00 | retrograde | 4581 Sep 04 22:26 | 7° II 45'53 | |
| direct | 4574 Feb 09 15:38 | 27° 8 53'43 | | min. Earth dist. | 4581 Nov 26 11:30 | 6° II 47'19 | 47.97174 AU |
| | | | | opposition | 4581 Nov 27 23:17 | 6° II 45'38 | -17°00'34 |
| conjunction | 4574 May 18 13:44 | 29° 8 22'01 | -16°36'01 | direct | 4582 Feb 17 10:56 | 5° II 46'39 | |
| minimum elong | 4574 May 18 13:49 | 29° 8 22'01 | 16°36'01 | | | | |
| max. Earth dist. | 4574 May 20 09:45 | 29° 8 24'36 | 49.30984 AU | conjunction | 4582 May 26 11:50 | 7° II 13'25 | -16°18'42 |
| | 4574 Jun 15 07:13 | 0° II | | minimum elong | 4582 May 26 11:57 | 7° II 13'25 | 16°18'43 |
| retrograde | 4574 Aug 29 06:13 | 0° II 54'04 | | max. Earth dist. | 4582 May 28 01:32 | 7° II 15'36 | 49.91942 AU |
| | 4574 Nov 15 10:51 | 30° R 8 | | retrograde | 4582 Sep 06 00:35 | 8° II 43'50 | |
| min. Earth dist. | 4574 Nov 19 14:49 | 29° 8 55'17 | 47.44216 AU | min. Earth dist. | 4582 Nov 27 17:47 | 7° II 45'20 | 48.03463 AU |
| opposition | 4574 Nov 21 08:03 | 29° 8 53'19 | -17°16'47 | opposition | 4582 Nov 29 04:33 | 7° II 43'42 | -16°57'07 |
| direct | 4575 Feb 10 21:41 | 28° 8 53'53 | | direct | 4583 Feb 18 18:15 | 6° II 44'47 | |
| | 4575 May 04 01:35 | 0° II | | | | | |
| conjunction | 4575 May 19 19:56 | 0° II 21'57 | -16°34'48 | conjunction | 4583 May 27 17:16 | 8° II 11'26 | -16°15'18 |
| | | | | minimum elong | 4583 May 27 17:23 | 8° II 11'26 | 16°15'18 |

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| max. Earth dist. | 4583 May 29 05:02 | 8°II13'30 | 49.98109 AU | opposition | 4591 Dec 08 01:08 | 16°II20'59 | -16°15'22 |
| retrograde | 4583 Sep 07 05:43 | 9°II41'43 | | direct | 4592 Feb 27 12:38 | 15°II22'31 | |
| min. Earth dist. | 4583 Nov 28 23:18 | 8°II43'17 | 48.09368 AU | | | | |
| opposition | 4583 Nov 30 09:41 | 8°II41'40 | -16°53'25 | conjunction | 4592 Jun 04 16:59 | 16°II48'10 | -15°34'23 |
| direct | 4584 Feb 20 00:11 | 7°II42'50 | | minimum elong | 4592 Jun 04 17:07 | 16°II48'10 | 15°34'23 |
| | | | | max. Earth dist. | 4592 Jun 05 19:38 | 16°II49'41 | 50.32570 AU |
| conjunction | 4584 May 27 22:46 | 9°II09'22 | -16°11'40 | retrograde | 4592 Sep 15 05:36 | 18°II17'18 | |
| minimum elong | 4584 May 27 22:53 | 9°II09'22 | 16°11'41 | min. Earth dist. | 4592 Dec 07 05:33 | 17°II18'54 | 48.41196 AU |
| max. Earth dist. | 4584 May 29 09:54 | 9°II11'23 | 50.03848 AU | opposition | 4592 Dec 08 05:43 | 17°II17'46 | -16°09'30 |
| retrograde | 4584 Sep 07 12:40 | 10°II39'32 | | direct | 4593 Feb 27 19:09 | 16°II19'20 | |
| min. Earth dist. | 4584 Nov 29 06:49 | 9°II41'05 | 48.14812 AU | | | | |
| opposition | 4584 Nov 30 14:57 | 9°II39'34 | -16°49'28 | conjunction | 4593 Jun 05 21:52 | 17°II44'55 | -15°28'38 |
| direct | 4585 Feb 20 05:56 | 8°II40'49 | | minimum elong | 4593 Jun 05 22:02 | 17°II44'56 | 15°28'39 |
| | | | | max. Earth dist. | 4593 Jun 06 22:49 | 17°II46'21 | 50.34504 AU |
| conjunction | 4585 May 29 04:17 | 10°II07'14 | -16°07'48 | retrograde | 4593 Sep 16 08:50 | 19°II13'59 | |
| minimum elong | 4585 May 29 04:25 | 10°II07'14 | 16°07'48 | min. Earth dist. | 4593 Dec 08 10:27 | 18°II15'37 | 48.42876 AU |
| max. Earth dist. | 4585 May 30 14:20 | 10°II09'11 | 50.09109 AU | opposition | 4593 Dec 09 10:17 | 18°II14'30 | -16°03'22 |
| retrograde | 4585 Sep 08 18:52 | 11°II37'15 | | direct | 4594 Mar 01 01:17 | 17°II16'06 | |
| opposition | 4585 Dec 01 20:03 | 10°II37'23 | -16°45'18 | | | | |
| min. Earth dist. | 4585 Nov 30 12:15 | 10°II38'52 | 48.19732 AU | conjunction | 4594 Jun 07 02:58 | 18°II41'38 | -15°22'38 |
| direct | 4586 Feb 21 09:52 | 9°II38'42 | | minimum elong | 4594 Jun 07 03:08 | 18°II41'39 | 15°22'38 |
| | | | | max. Earth dist. | 4594 Jun 08 03:24 | 18°II43'02 | 50.36107 AU |
| conjunction | 4586 May 30 09:46 | 11°II04'59 | -16°03'43 | retrograde | 4594 Sep 17 14:34 | 20°II10'38 | |
| minimum elong | 4586 May 30 09:53 | 11°II05'00 | 16°03'44 | opposition | 4594 Dec 10 14:47 | 19°II11'13 | -15°57'00 |
| max. Earth dist. | 4586 May 31 17:31 | 11°II06'49 | 50.13823 AU | min. Earth dist. | 4594 Dec 09 16:51 | 19°II12'14 | 48.44207 AU |
| retrograde | 4586 Sep 10 01:25 | 12°II34'52 | | direct | 4595 Mar 02 07:14 | 18°II12'52 | |
| min. Earth dist. | 4586 Dec 01 19:12 | 11°II36'28 | 48.24109 AU | | | | |
| opposition | 4586 Dec 03 01:06 | 11°II35'04 | -16°40'54 | conjunction | 4595 Jun 08 08:03 | 19°II38'21 | -15°16'24 |
| direct | 4587 Feb 22 12:41 | 10°II36'26 | | minimum elong | 4595 Jun 08 08:12 | 19°II38'22 | 15°16'25 |
| | | | | max. Earth dist. | 4595 Jun 09 07:40 | 19°II39'41 | 50.37360 AU |
| conjunction | 4587 May 31 15:17 | 12°II02'36 | -15°59'25 | retrograde | 4595 Sep 18 20:45 | 21°II07'17 | |
| minimum elong | 4587 May 31 15:26 | 12°II02'37 | 15°59'26 | opposition | 4595 Dec 11 19:13 | 20°II07'56 | -15°50'23 |
| max. Earth dist. | 4587 Jun 01 22:48 | 12°II04'25 | 50.18004 AU | min. Earth dist. | 4595 Dec 10 21:26 | 20°II08'57 | 48.45148 AU |
| retrograde | 4587 Sep 11 04:06 | 13°II32'20 | | direct | 4596 Mar 02 10:50 | 19°II09'37 | |
| min. Earth dist. | 4587 Dec 03 01:28 | 12°II33'55 | 48.27952 AU | | | | |
| opposition | 4587 Dec 04 06:05 | 12°II32'35 | -16°36'16 | conjunction | 4596 Jun 08 12:54 | 20°II35'04 | -15°09'57 |
| direct | 4588 Feb 23 19:26 | 11°II33'59 | | minimum elong | 4596 Jun 08 13:04 | 20°II35'04 | 15°09'57 |
| | | | | max. Earth dist. | 4596 Jun 09 10:34 | 20°II36'17 | 50.38183 AU |
| conjunction | 4588 May 31 20:24 | 13°II00'02 | -15°54'54 | retrograde | 4596 Sep 19 04:32 | 22°II03'56 | |
| minimum elong | 4588 May 31 20:31 | 13°II00'03 | 15°54'54 | opposition | 4596 Dec 11 23:51 | 21°II04'38 | -15°43'33 |
| max. Earth dist. | 4588 Jun 02 01:52 | 13°II01'44 | 50.21691 AU | min. Earth dist. | 4596 Dec 11 03:55 | 21°II05'33 | 48.45636 AU |
| retrograde | 4588 Sep 11 08:19 | 14°II29'39 | | direct | 4597 Mar 03 12:14 | 20°II06'21 | |
| min. Earth dist. | 4588 Dec 03 06:53 | 13°II31'15 | 48.31337 AU | | | | |
| opposition | 4588 Dec 04 11:00 | 13°II29'56 | -16°31'25 | conjunction | 4597 Jun 09 18:09 | 21°II31'46 | -15°03'16 |
| direct | 4589 Feb 24 01:20 | 12°II31'22 | | minimum elong | 4597 Jun 09 18:19 | 21°II31'46 | 15°03'17 |
| | | | | max. Earth dist. | 4597 Jun 10 15:31 | 21°II32'58 | 50.38520 AU |
| conjunction | 4589 Jun 02 01:39 | 13°II57'17 | -15°50'08 | retrograde | 4597 Sep 20 07:48 | 23°II00'34 | |
| minimum elong | 4589 Jun 02 01:48 | 13°II57'18 | 15°50'09 | min. Earth dist. | 4597 Dec 12 09:41 | 22°II02'09 | 48.45597 AU |
| max. Earth dist. | 4589 Jun 03 06:31 | 13°II58'56 | 50.24936 AU | opposition | 4597 Dec 13 04:16 | 22°II01'18 | -15°36'30 |
| retrograde | 4589 Sep 12 14:03 | 15°II26'47 | | direct | 4598 Mar 04 17:03 | 21°II03'02 | |
| opposition | 4589 Dec 05 15:49 | 14°II27'06 | -16°26'19 | evening set | 4598 Jun 09 13:16 | 22°II26'28 | |
| min. Earth dist. | 4589 Dec 04 13:36 | 14°II28'19 | 48.34309 AU | | | | |
| direct | 4590 Feb 25 07:59 | 13°II28'34 | | conjunction | 4598 Jun 10 23:17 | 22°II28'24 | -14°56'23 |
| | | | | minimum elong | 4598 Jun 10 23:27 | 22°II28'25 | 14°56'24 |
| conjunction | 4590 Jun 03 06:53 | 14°II54'23 | -15°45'08 | morning rise | 4598 Jun 12 09:43 | 22°II30'21 | |
| minimum elong | 4590 Jun 03 07:01 | 14°II54'23 | 15°45'08 | max. Earth dist. | 4598 Jun 11 18:14 | 22°II29'28 | 50.38324 AU |
| max. Earth dist. | 4590 Jun 04 10:59 | 14°II55'59 | 50.27813 AU | retrograde | 4598 Sep 21 11:44 | 23°II57'08 | |
| retrograde | 4590 Sep 13 21:32 | 16°II23'44 | | opposition | 4598 Dec 14 08:45 | 22°II57'52 | -15°29'14 |
| opposition | 4590 Dec 06 20:27 | 15°II24'06 | -16°20'58 | min. Earth dist. | 4598 Dec 13 14:59 | 22°II58'42 | 48.45016 AU |
| min. Earth dist. | 4590 Dec 05 18:11 | 15°II25'20 | 48.36922 AU | direct | 4599 Mar 05 21:53 | 21°II59'36 | |
| direct | 4591 Feb 26 10:36 | 14°II25'36 | | evening set | 4599 Jun 09 17:40 | 23°II21'36 | |
| | | | | | | | |
| conjunction | 4591 Jun 04 11:51 | 15°II51'20 | -15°39'53 | conjunction | 4599 Jun 12 04:19 | 23°II24'55 | -14°49'18 |
| minimum elong | 4591 Jun 04 12:00 | 15°II51'20 | 15°39'54 | minimum elong | 4599 Jun 12 04:28 | 23°II24'55 | 14°49'19 |
| max. Earth dist. | 4591 Jun 05 14:22 | 15°II52'50 | 50.30342 AU | max. Earth dist. | 4599 Jun 12 22:11 | 23°II25'56 | 50.37576 AU |
| retrograde | 4591 Sep 15 04:09 | 17°II20'34 | | morning rise | 4599 Jun 14 15:23 | 23°II28'16 | |
| min. Earth dist. | 4591 Dec 07 00:19 | 16°II22'09 | 48.39214 AU | retrograde | 4599 Sep 22 15:01 | 24°II53'35 | |

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| opposition | 4599 Dec 15 13:13 | 23°II54'19 -15°21'46 |
| min. Earth dist. | 4599 Dec 14 21:35 | 23°II55'03 48.43898 AU |
| direct | 4600 Mar 07 05:36 | 22°II56'02 |
| evening set | 4600 Jun 10 05:27 | 24°II17'00 |
| conjunction | 4600 Jun 13 09:21 | 24°II21'17 -14°42'01 |
| minimum elong | 4600 Jun 13 09:32 | 24°II21'18 14°42'01 |
| max. Earth dist. | 4600 Jun 14 02:19 | 24°II22'15 50.36342 AU |
| morning rise | 4600 Jun 16 13:45 | 24°II25'37 |
| retrograde | 4600 Sep 23 21:07 | 25°II49'52 |
| opposition | 4600 Dec 16 17:29 | 24°II50'36 -15°14'05 |
| min. Earth dist. | 4600 Dec 16 02:04 | 24°II51'19 48.42315 AU |
| direct | 4601 Mar 08 09:49 | 23°II52'18 |
| evening set | 4601 Jun 10 19:55 | 25°II12'24 |
| conjunction | 4601 Jun 14 14:12 | 25°II17'30 -14°34'30 |
| minimum elong | 4601 Jun 14 14:21 | 25°II17'31 14°34'30 |
| max. Earth dist. | 4601 Jun 15 05:12 | 25°II18'21 50.34662 AU |
| morning rise | 4601 Jun 18 09:01 | 25°II22'38 |
| retrograde | 4601 Sep 25 04:24 | 26°II46'01 |
| opposition | 4601 Dec 17 21:51 | 25°II46'44 -15°06'11 |
| min. Earth dist. | 4601 Dec 17 08:11 | 25°II47'22 48.40326 AU |