

retrograde	12100 Mar 16 04:03	23° \nearrow 41'00		min. Earth dist.	12106 Jun 16 06:23	1° \ominus 09'38	36.76980 AU
opposition	12100 Jun 05 02:52	22° \nearrow 32'47	3°36'20	direct	12106 Sep 02 16:12	0° \ominus 01'42	
min. Earth dist.	12100 Jun 07 03:18	22° \nearrow 30'06	38.27423 AU	evening set	12106 Nov 29 08:39	1° \ominus 31'23	
direct	12100 Aug 24 21:34	21° \nearrow 24'17		max. Earth dist.	12106 Dec 11 17:19	1° \ominus 52'59	38.63466 AU
evening set	12100 Nov 19 01:50	22° \nearrow 47'48					
max. Earth dist.	12100 Dec 02 09:29	23° \nearrow 09'58	40.14710 AU	conjunction	12106 Dec 14 02:35	1° \ominus 57'11	5°56'43
				minimum elong	12106 Dec 14 02:24	1° \ominus 57'11	5°57'34
conjunction	12100 Dec 04 14:37	23° \nearrow 13'41	3°36'56	morning rise	12106 Dec 28 20:33	2° \ominus 23'02	
minimum elong	12100 Dec 04 14:31	23° \nearrow 13'41	3°37'46	retrograde	12107 Mar 27 16:24	3° \ominus 54'25	
morning rise	12100 Dec 20 03:50	23° \nearrow 39'39		opposition	12107 Jun 15 22:13	2° \ominus 43'48	6°28'44
retrograde	12101 Mar 17 21:06	25° \nearrow 05'08		min. Earth dist.	12107 Jun 18 01:58	2° \ominus 40'48	36.51863 AU
opposition	12101 Jun 06 17:53	23° \nearrow 56'34	4°00'31	direct	12107 Sep 04 07:04	1° \ominus 32'37	
min. Earth dist.	12101 Jun 08 17:59	23° \nearrow 53'52	38.02431 AU	evening set	12107 Dec 01 08:58	3° \ominus 03'33	
direct	12101 Aug 26 10:44	22° \nearrow 47'39		max. Earth dist.	12107 Dec 13 13:41	3° \ominus 25'02	38.38154 AU
evening set	12101 Nov 20 21:01	24° \nearrow 12'04					
max. Earth dist.	12101 Dec 04 00:31	24° \nearrow 34'06	39.89568 AU	conjunction	12107 Dec 15 22:39	3° \ominus 29'15	6°20'19
				minimum elong	12107 Dec 15 22:27	3° \ominus 29'15	6°21'10
conjunction	12101 Dec 06 07:21	24° \nearrow 37'59	3°59'56	morning rise	12107 Dec 30 12:08	3° \ominus 54'59	
minimum elong	12101 Dec 06 07:13	24° \nearrow 37'58	4°00'45	retrograde	12108 Mar 28 14:11	5° \ominus 27'35	
morning rise	12101 Dec 21 18:14	25° \nearrow 03'58		opposition	12108 Jun 16 16:49	4° \ominus 16'38	6°53'48
retrograde	12102 Mar 19 16:00	26° \nearrow 30'18		min. Earth dist.	12108 Jun 18 20:13	4° \ominus 13'38	36.26651 AU
opposition	12102 Jun 08 09:20	25° \nearrow 21'22	4°24'52	direct	12108 Sep 04 23:22	3° \ominus 05'03	
min. Earth dist.	12102 Jun 10 11:00	25° \nearrow 18'34	37.77352 AU	evening set	12108 Dec 02 10:19	4° \ominus 37'17	
direct	12102 Aug 27 22:48	24° \nearrow 12'03		max. Earth dist.	12108 Dec 14 08:16	4° \ominus 58'28	38.12709 AU
evening set	12102 Nov 22 16:49	25° \nearrow 37'24					
max. Earth dist.	12102 Dec 05 18:18	25° \nearrow 59'28	39.64356 AU	conjunction	12108 Dec 16 19:11	5° \ominus 02'52	6°43'59
				minimum elong	12108 Dec 16 18:59	5° \ominus 02'51	6°44'51
conjunction	12102 Dec 08 00:40	26° \nearrow 03'20	4°23'04	morning rise	12108 Dec 31 04:03	5° \ominus 28'29	
minimum elong	12102 Dec 08 00:32	26° \nearrow 03'19	4°23'54	retrograde	12109 Mar 30 13:42	7° \ominus 02'18	
morning rise	12102 Dec 23 08:39	26° \nearrow 29'19		opposition	12109 Jun 18 12:08	5° \ominus 51'00	7°18'56
retrograde	12103 Mar 21 10:18	27° \nearrow 56'33		min. Earth dist.	12109 Jun 20 17:10	5° \ominus 47'54	36.01304 AU
opposition	12103 Jun 10 01:17	26° \nearrow 47'16	4°49'23	direct	12109 Sep 06 16:04	4° \ominus 39'01	
min. Earth dist.	12103 Jun 12 02:34	26° \nearrow 44'28	37.52233 AU	evening set	12109 Dec 04 12:40	6° \ominus 12'35	
direct	12103 Aug 29 15:23	25° \nearrow 37'34		max. Earth dist.	12109 Dec 16 05:44	6° \ominus 33'35	37.87107 AU
evening set	12103 Nov 24 13:27	27° \nearrow 03'54					
max. Earth dist.	12103 Dec 07 10:30	27° \nearrow 25'50	39.39126 AU	conjunction	12109 Dec 18 16:39	6° \ominus 38'01	7°07'42
				minimum elong	12109 Dec 18 16:26	6° \ominus 38'00	7°08'32
conjunction	12103 Dec 09 18:08	27° \nearrow 29'50	4°46'19	morning rise	12110 Jan 01 20:12	7° \ominus 03'29	
minimum elong	12103 Dec 09 18:00	27° \nearrow 29'49	4°47'10	retrograde	12110 Apr 01 12:38	8° \ominus 38'34	
morning rise	12103 Dec 24 23:15	27° \nearrow 55'48		opposition	12110 Jun 20 07:53	7° \ominus 26'53	7°44'08
retrograde	12104 Mar 22 06:44	29° \nearrow 23'59		min. Earth dist.	12110 Jun 22 13:12	7° \ominus 23'44	35.75810 AU
opposition	12104 Jun 10 17:46	28° \nearrow 14'21	5°14'03	direct	12110 Sep 08 13:05	6° \ominus 14'29	
min. Earth dist.	12104 Jun 12 19:36	28° \nearrow 11'31	37.27131 AU	evening set	12110 Dec 06 16:12	7° \ominus 49'26	
direct	12104 Aug 30 07:10	27° \nearrow 04'16		max. Earth dist.	12110 Dec 18 02:08	8° \ominus 10'06	37.61379 AU
evening set	12104 Nov 25 10:51	28° \nearrow 31'39					
max. Earth dist.	12104 Dec 08 04:50	28° \nearrow 53'33	39.13902 AU	conjunction	12110 Dec 20 14:33	8° \ominus 14'42	7°31'24
				minimum elong	12110 Dec 20 14:19	8° \ominus 14'41	7°32'16
conjunction	12104 Dec 10 12:25	28° \nearrow 57'34	5°09'42	morning rise	12111 Jan 03 12:43	8° \ominus 39'57	
minimum elong	12104 Dec 10 12:16	28° \nearrow 57'33	5°10'33	retrograde	12111 Apr 03 13:39	10° \ominus 16'21	
morning rise	12104 Dec 25 14:01	29° \nearrow 23'31		opposition	12111 Jun 22 04:16	9° \ominus 04'17	8°09'20
	12105 Jan 17 10:49	0° \ominus		min. Earth dist.	12111 Jun 24 10:11	9° \ominus 01'05	35.50227 AU
retrograde	12105 Mar 24 01:02	0° \ominus 52'42		direct	12111 Sep 10 09:10	7° \ominus 51'26	
	12105 May 30 17:21	30° \nwarrow		evening set	12111 Dec 08 20:25	9° \ominus 27'50	
opposition	12105 Jun 12 10:44	29° \nearrow 42'44	5°38'50	max. Earth dist.	12111 Dec 20 00:09	9° \ominus 48'12	37.35559 AU
min. Earth dist.	12105 Jun 14 13:07	29° \nearrow 39'51	37.02048 AU				
direct	12105 Sep 01 00:01	28° \nearrow 32'17		conjunction	12111 Dec 22 13:00	9° \ominus 52'52	7°55'06
	12105 Nov 26 22:11	0° \ominus		minimum elong	12111 Dec 22 12:46	9° \ominus 52'51	7°55'57
evening set	12105 Nov 27 09:15	0° \ominus 00'47		morning rise	12112 Jan 05 05:05	10° \ominus 17'55	
max. Earth dist.	12105 Dec 09 23:10	0° \ominus 22'34	38.88705 AU	retrograde	12112 Apr 04 11:04	11° \ominus 55'41	
				opposition	12112 Jun 23 01:22	10° \ominus 43'12	8°34'32
conjunction	12105 Dec 12 07:09	0° \ominus 26'39	5°33'10	min. Earth dist.	12112 Jun 25 08:12	10° \ominus 39'55	35.24593 AU
minimum elong	12105 Dec 12 06:59	0° \ominus 26'38	5°34'00	direct	12112 Sep 11 05:40	9° \ominus 29'53	
morning rise	12105 Dec 27 05:11	0° \ominus 52'33		evening set	12112 Dec 10 01:55	11° \ominus 07'46	
retrograde	12106 Mar 25 20:18	2° \ominus 22'49		max. Earth dist.	12112 Dec 20 23:09	11° \ominus 27'49	37.09734 AU
opposition	12106 Jun 14 04:10	1° \ominus 12'31	6°03'44				

conjunction	12112 Dec 23 12:07	11°33'33" 8°18'46"	evening set	12119 Dec 26 00:35	23°33'43"	
minimum elong	12112 Dec 23 11:52	11°33'32" 8°19'37"	max. Earth dist.	12120 Jan 03 11:31	23°35'12"	35.33635 AU
morning rise	12113 Jan 05 21:51	11°35'20"				
retrograde	12113 Apr 06 09:53	13°33'31"	conjunction	12120 Jan 06 00:58	23°35'29"	10°59'45"
opposition	12113 Jun 24 22:48	12°32'38" 8°59'41"	minimum elong	12120 Jan 06 00:41	23°35'28"	11°00'34"
min. Earth dist.	12113 Jun 27 05:16	12°32'02" 34.98999 AU	morning rise	12120 Jan 17 00:34	24°31'12"	
direct	12113 Sep 13 02:10	11°30'50"	retrograde	12120 Apr 19 09:59	26°30'20"	
evening set	12113 Dec 12 08:28	12°34'16"	opposition	12120 Jul 07 00:56	24°35'35"	11°50'49"
max. Earth dist.	12113 Dec 22 21:42	13°30'54" 36.83952 AU	min. Earth dist.	12120 Jul 09 07:32	24°35'08"	33.25399 AU
			direct	12120 Sep 24 18:28	23°36'33"	
conjunction	12113 Dec 25 11:53	13°31'46" 8°42'20"	evening set	12120 Dec 27 15:57	25°32'05"	
minimum elong	12113 Dec 25 11:38	13°31'45" 8°43'11"	max. Earth dist.	12121 Jan 04 15:35	25°34'59"	35.09408 AU
morning rise	12114 Jan 07 14:51	13°38'15"				
retrograde	12114 Apr 08 09:56	15°31'56"	conjunction	12121 Jan 07 05:58	25°35'11"	11°21'36"
opposition	12114 Jun 26 21:06	14°30'36" 9°24'45"	minimum elong	12121 Jan 07 05:40	25°35'10"	11°22'25"
min. Earth dist.	12114 Jun 29 04:47	14°30'14" 34.73497 AU	morning rise	12121 Jan 17 19:12	26°31'15"	
direct	12114 Sep 14 20:27	12°35'12"	retrograde	12121 Apr 21 15:08	28°30'24"	
evening set	12114 Dec 14 16:05	14°33'24"	opposition	12121 Jul 09 04:17	26°34'15"	12°14'02"
max. Earth dist.	12114 Dec 24 23:00	14°35'14" 36.58296 AU	min. Earth dist.	12121 Jul 11 12:08	26°34'41"	33.01539 AU
			direct	12121 Sep 26 18:19	25°30'46"	
conjunction	12114 Dec 27 12:19	14°35'33" 9°05'48"	evening set	12121 Dec 30 08:55	27°32'28"	
minimum elong	12114 Dec 27 12:04	14°35'32" 9°06'39"	max. Earth dist.	12122 Jan 06 22:15	27°34'40"	34.85371 AU
morning rise	12115 Jan 09 07:51	15°32'04"				
retrograde	12115 Apr 10 10:58	17°30'25"	conjunction	12122 Jan 09 11:53	27°34'51"	11°43'03"
opposition	12115 Jun 28 19:52	15°34'11" 9°49'41"	minimum elong	12122 Jan 09 11:36	27°34'50"	11°43'50"
min. Earth dist.	12115 Jul 01 02:38	15°34'50" 34.48161 AU	morning rise	12122 Jan 19 13:56	28°30'12"	
direct	12115 Sep 16 18:08	14°33'42"		12122 Apr 14 06:44	0°	
evening set	12115 Dec 17 00:55	16°31'11"	retrograde	12122 Apr 23 20:58	0°01'26"	
max. Earth dist.	12115 Dec 26 22:54	16°33'00" 36.32836 AU		12122 May 03 14:12	30°R	
			opposition	12122 Jul 11 08:23	28°34'45"	12°36'50"
conjunction	12115 Dec 29 13:18	16°34'05" 9°29'05"	min. Earth dist.	12122 Jul 13 15:22	28°34'20"	32.77864 AU
minimum elong	12115 Dec 29 13:02	16°34'05" 9°29'55"	direct	12122 Sep 28 22:04	27°32'54"	
morning rise	12116 Jan 11 01:12	17°30'43"	evening set	12123 Jan 02 03:12	29°32'52"	
retrograde	12116 Apr 11 15:02	18°34'35"	max. Earth dist.	12123 Jan 09 03:29	29°33'07"	34.61526 AU
opposition	12116 Jun 29 19:28	17°33'24" 10°14'27"				
min. Earth dist.	12116 Jul 02 02:49	17°33'05" 34.23070 AU	conjunction	12123 Jan 11 18:23	29°34'28"	12°04'02"
direct	12116 Sep 17 15:34	16°31'10"	minimum elong	12123 Jan 11 18:05	29°34'26"	12°04'49"
evening set	12116 Dec 18 10:44	18°30'34"		12123 Jan 19 21:10	0°	
max. Earth dist.	12116 Dec 28 01:41	18°32'08" 36.07627 AU	morning rise	12123 Jan 21 08:50	0°03'01"	
			retrograde	12123 Apr 26 05:02	2°00'24"	
conjunction	12116 Dec 30 15:05	18°32'04" 9°52'10"	opposition	12123 Jul 13 13:17	0°43'24"	12°59'07"
minimum elong	12116 Dec 30 14:48	18°32'02" 9°53'00"	min. Earth dist.	12123 Jul 15 21:04	0°39'48"	32.54415 AU
morning rise	12117 Jan 11 18:35	18°35'02"		12123 Aug 12 05:14	30°R	
retrograde	12117 Apr 13 18:39	20°33'57"	direct	12123 Oct 01 00:04	29°32'45"	
opposition	12117 Jul 01 19:47	19°32'21" 10°38'59"		12123 Nov 18 16:44	0°	
min. Earth dist.	12117 Jul 04 02:45	19°31'57" 33.98245 AU	evening set	12124 Jan 04 23:01	1°24'16"	
direct	12117 Sep 19 16:16	18°30'54"	max. Earth dist.	12124 Jan 11 12:07	1°37'41"	34.37932 AU
evening set	12117 Dec 20 22:08	19°35'20"				
max. Earth dist.	12117 Dec 30 03:37	20°30'56" 35.82706 AU	conjunction	12124 Jan 14 01:51	1°42'59"	12°24'30"
			minimum elong	12124 Jan 14 01:34	1°42'58"	12°25'16"
conjunction	12118 Jan 01 17:35	20°31'45" 10°15'00"	morning rise	12124 Jan 23 03:45	2°01'40"	
minimum elong	12118 Jan 01 17:19	20°31'45" 10°15'49"	retrograde	12124 Apr 27 12:42	4°01'16"	
morning rise	12118 Jan 13 12:27	20°33'48"	opposition	12124 Jul 14 18:58	2°43'50"	13°20'50"
retrograde	12118 Apr 15 23:50	22°32'09"	min. Earth dist.	12124 Jul 17 02:07	2°40'15"	32.31241 AU
opposition	12118 Jul 03 20:37	21°31'09" 11°03'15"	direct	12124 Oct 02 05:03	1°24'54"	
min. Earth dist.	12118 Jul 06 03:24	21°30'45" 33.73718 AU	evening set	12125 Jan 06 20:18	3°26'39"	
direct	12118 Sep 21 15:48	19°35'40"	max. Earth dist.	12125 Jan 12 19:31	3°39'01"	34.14657 AU
evening set	12118 Dec 23 10:40	21°34'24"				
max. Earth dist.	12119 Jan 01 07:10	21°35'41" 35.58047 AU	conjunction	12125 Jan 15 09:52	3°44'25"	12°44'23"
			minimum elong	12125 Jan 15 09:34	3°44'24"	12°45'09"
conjunction	12119 Jan 03 21:00	22°30'45" 10°37'32"	morning rise	12125 Jan 23 22:42	4°02'08"	
minimum elong	12119 Jan 03 20:43	22°30'43" 10°38'22"	retrograde	12125 Apr 29 23:39	6°04'04"	
morning rise	12119 Jan 15 06:29	22°32'03"	opposition	12125 Jul 17 01:22	4°46'12"	13°41'56"
retrograde	12119 Apr 18 03:37	24°31'15"	min. Earth dist.	12125 Jul 19 08:25	4°42'36"	32.08424 AU
opposition	12119 Jul 05 22:28	23°30'53" 11°27'13"	direct	12125 Oct 04 10:32	3°26'45"	
min. Earth dist.	12119 Jul 08 05:49	22°35'25" 33.49445 AU	evening set	12126 Jan 09 19:17	5°31'03"	
direct	12119 Sep 23 16:52	21°34'19"	max. Earth dist.	12126 Jan 15 05:28	5°42'24"	33.91755 AU

conjunction	12126 Jan 17 18:55	5°47'46"	13°03'38"	opposition	12132 Jul 31 20:56	19°58'11"	15°44'50"
minimum elong	12126 Jan 17 18:40	5°47'45"	13°04'22"	min. Earth dist.	12132 Aug 02 22:40	19°54'47"	30.64271 AU
morning rise	12126 Jan 25 17:43	6°04'26"		direct	12132 Oct 18 20:06	18°35'49"	
retrograde	12126 May 02 09:27	8°08'45"		evening set	12133 Jan 31 11:33	21°03'03"	
opposition	12126 Jul 19 08:34	6°50'28"	14°02'18"	max. Earth dist.	12133 Jan 31 01:11	21°02'05"	32.48064 AU
min. Earth dist.	12126 Jul 21 15:34	6°46'50"	31.86016 AU				
direct	12126 Oct 06 17:59	5°30'33"		conjunction	12133 Feb 02 07:30	21°07'08"	14°53'43"
evening set	12127 Jan 12 20:00	7°37'28"		minimum elong	12133 Feb 02 07:19	21°07'07"	14°54'20"
max. Earth dist.	12127 Jan 17 15:34	7°47'39"	33.69329 AU	morning rise	12133 Feb 04 03:05	21°11'12"	
				retrograde	12133 May 18 03:17	23°37'29"	
conjunction	12127 Jan 20 04:34	7°53'02"	13°22'09"	opposition	12133 Aug 03 09:58	22°16'44"	15°57'56"
minimum elong	12127 Jan 20 04:17	7°53'01"	13°22'53"	min. Earth dist.	12133 Aug 05 10:44	22°13'24"	30.46255 AU
morning rise	12127 Jan 27 12:26	8°08'32"		direct	12133 Oct 21 07:48	20°54'02"	
retrograde	12127 May 04 21:22	10°15'23"		max. Earth dist.	12134 Feb 02 16:38	23°21'39"	32.30169 AU
opposition	12127 Jul 21 16:32	8°56'40"	14°21'53"				
min. Earth dist.	12127 Jul 23 22:11	8°53'06"	31.64126 AU	conjunction	12134 Feb 04 22:50	23°26'43"	15°05'06"
direct	12127 Oct 09 01:45	7°36'17"		minimum elong	12134 Feb 04 22:42	23°26'43"	15°05'40"
evening set	12128 Jan 15 22:14	9°45'58"		retrograde	12134 May 20 20:36	25°58'17"	
max. Earth dist.	12128 Jan 20 02:34	9°54'53"	33.47445 AU	opposition	12134 Aug 05 23:40	24°37'15"	16°09'43"
				min. Earth dist.	12134 Aug 07 23:28	24°33'57"	30.28863 AU
conjunction	12128 Jan 22 14:54	10°00'15"	13°39'52"	direct	12134 Oct 23 20:59	23°14'11"	
minimum elong	12128 Jan 22 14:39	10°00'14"	13°40'34"	max. Earth dist.	12135 Feb 05 10:33	25°43'15"	32.12907 AU
morning rise	12128 Jan 29 06:52	10°14'29"					
retrograde	12128 May 06 07:34	12°23'57"		conjunction	12135 Feb 07 15:03	25°48'12"	15°15'13"
opposition	12128 Jul 23 01:29	11°04'50"	14°40'35"	minimum elong	12135 Feb 07 14:55	25°48'11"	15°15'47"
min. Earth dist.	12128 Jul 25 07:11	11°01'15"	31.42815 AU	retrograde	12135 May 23 12:43	28°20'55"	
direct	12128 Oct 10 08:34	9°44'00"		opposition	12135 Aug 08 14:22	26°59'34"	16°20'07"
evening set	12129 Jan 18 02:51	11°56'35"		min. Earth dist.	12135 Aug 10 13:41	26°56'18"	30.12095 AU
max. Earth dist.	12129 Jan 21 15:29	12°04'11"	33.26200 AU	direct	12135 Oct 26 11:56	25°36'11"	
				max. Earth dist.	12136 Feb 08 04:01	28°06'31"	31.96328 AU
conjunction	12129 Jan 24 02:11	12°09'28"	13°56'41"				
minimum elong	12129 Jan 24 01:56	12°09'26"	13°57'23"	conjunction	12136 Feb 10 07:40	28°11'26"	15°24'01"
morning rise	12129 Jan 30 00:51	12°22'16"		minimum elong	12136 Feb 10 07:35	28°11'25"	15°24'31"
retrograde	12129 May 08 20:31	14°34'30"			12136 Apr 02 21:21	0°	
opposition	12129 Jul 25 10:59	13°15'01"	14°58'18"	retrograde	12136 May 25 07:04	0°45'15"	
min. Earth dist.	12129 Jul 27 14:48	13°11'32"	31.22158 AU		12136 Jul 18 14:05	30°	
direct	12129 Oct 12 17:08	11°53'46"		opposition	12136 Aug 10 05:37	29°23'36"	16°29'04"
evening set	12130 Jan 21 09:47	14°09'26"		min. Earth dist.	12136 Aug 12 03:04	29°20'27"	29.96007 AU
max. Earth dist.	12130 Jan 24 03:46	14°15'24"	33.05632 AU	direct	12136 Oct 28 03:37	27°59'51"	
					12137 Jan 27 02:29	0°	
conjunction	12130 Jan 26 14:19	14°20'43"	14°12'33"	max. Earth dist.	12137 Feb 09 22:52	0°31'29"	31.80455 AU
minimum elong	12130 Jan 26 14:05	14°20'42"	14°13'13"				
morning rise	12130 Jan 31 18:18	14°31'57"		conjunction	12137 Feb 12 01:12	0°36'18"	15°31'24"
	12130 Feb 13 20:24	15°		minimum elong	12137 Feb 12 01:08	0°36'17"	15°31'54"
retrograde	12130 May 11 08:59	16°47'07"		retrograde	12137 May 28 00:32	3°11'07"	
opposition	12130 Jul 27 21:33	15°27'17"	15°14'57"	opposition	12137 Aug 12 21:32	1°49'11"	16°36'28"
min. Earth dist.	12130 Jul 30 01:23	15°23'47"	31.02188 AU	min. Earth dist.	12137 Aug 14 18:46	1°46'01"	29.80635 AU
	12130 Aug 14 01:21	15°		direct	12137 Oct 30 18:39	0°25'06"	
direct	12130 Oct 14 23:39	14°05'39"		max. Earth dist.	12138 Feb 12 18:45	2°57'58"	31.65371 AU
	12130 Dec 13 17:09	15°					
evening set	12131 Jan 24 19:49	16°24'37"		conjunction	12138 Feb 14 19:16	3°02'39"	15°37'18"
max. Earth dist.	12131 Jan 26 18:50	16°28'55"	32.85769 AU	minimum elong	12138 Feb 14 19:14	3°02'38"	15°37'46"
				retrograde	12138 May 30 20:11	5°38'25"	
conjunction	12131 Jan 29 03:12	16°34'04"	14°27'23"	opposition	12138 Aug 15 14:06	4°16'11"	16°42'16"
minimum elong	12131 Jan 29 02:58	16°34'03"	14°28'03"	min. Earth dist.	12138 Aug 17 08:57	4°13'11"	29.66053 AU
morning rise	12131 Feb 02 10:01	16°43'29"		direct	12138 Nov 02 12:21	2°51'47"	
retrograde	12131 May 13 21:34	19°01'48"		max. Earth dist.	12139 Feb 15 14:28	5°25'47"	31.51124 AU
opposition	12131 Jul 30 08:50	17°41'41"	15°30'30"				
min. Earth dist.	12131 Aug 01 10:56	17°38'16"	30.82895 AU	conjunction	12139 Feb 17 13:43	5°30'21"	15°41'41"
direct	12131 Oct 17 10:41	16°19'41"		minimum elong	12139 Feb 17 13:42	5°30'21"	15°42'07"
evening set	12132 Jan 28 10:25	18°42'19"		retrograde	12139 Jun 02 13:37	8°07'01"	
max. Earth dist.	12132 Jan 29 08:28	18°44'21"	32.66590 AU	opposition	12139 Aug 18 07:23	6°44'30"	16°46'22"
				min. Earth dist.	12139 Aug 20 01:40	6°41'32"	29.52337 AU
conjunction	12132 Jan 31 16:51	18°49'33"	14°41'08"	direct	12139 Nov 05 04:01	5°19'49"	
minimum elong	12132 Jan 31 16:40	18°49'32"	14°41'45"	max. Earth dist.	12140 Feb 18 12:21	7°54'59"	31.37820 AU
morning rise	12132 Feb 03 22:53	18°56'46"					
retrograde	12132 May 15 12:34	21°18'37"		conjunction	12140 Feb 20 08:45	7°59'19"	15°44'26"

minimum elong	12140 Feb 20 08:47	7° $\mathbf{\text{K}}$ 59'19	15°44'50			12148 Aug 31 19:48	30° $\mathbf{\text{R}}$ $\mathbf{\text{K}}$	
retrograde	12140 Jun 04 08:32	10° $\mathbf{\text{K}}$ 36'46		opposition		12148 Sep 09 14:53	29° $\mathbf{\text{K}}$ 45'05	15°59'06
opposition	12140 Aug 20 01:01	9° $\mathbf{\text{K}}$ 14'02	16°48'43	min. Earth dist.		12148 Sep 10 15:19	29° $\mathbf{\text{K}}$ 43'21	28.74767 AU
min. Earth dist.	12140 Aug 21 16:37	9° $\mathbf{\text{K}}$ 11'14	29.39566 AU	direct		12148 Nov 27 11:02	28° $\mathbf{\text{K}}$ 19'26	
direct	12140 Nov 06 22:37	7° $\mathbf{\text{K}}$ 49'04				12149 Feb 15 22:23	0° $\mathbf{\text{Y}}$	
max. Earth dist.	12141 Feb 20 08:56	10° $\mathbf{\text{K}}$ 25'13	31.25523 AU	evening set		12149 Mar 12 20:18	0° $\mathbf{\text{Y}}$ 58'04	
				max. Earth dist.		12149 Mar 14 03:15	1° $\mathbf{\text{Y}}$ 01'10	30.65687 AU
conjunction	12141 Feb 22 04:13	10° $\mathbf{\text{K}}$ 29'27	15°45'31					
minimum elong	12141 Feb 22 04:16	10° $\mathbf{\text{K}}$ 29'28	15°45'54	conjunction		12149 Mar 15 03:34	1° $\mathbf{\text{Y}}$ 03'36	14°50'33
retrograde	12141 Jun 07 04:11	13° $\mathbf{\text{K}}$ 07'39		minimum elong		12149 Mar 15 03:54	1° $\mathbf{\text{Y}}$ 03'38	14°50'37
opposition	12141 Aug 22 19:22	11° $\mathbf{\text{K}}$ 44'42	16°49'13	morning rise		12149 Mar 17 11:29	1° $\mathbf{\text{Y}}$ 09'11	
min. Earth dist.	12141 Aug 24 09:40	11° $\mathbf{\text{K}}$ 41'59	29.27819 AU	retrograde		12149 Jun 27 22:28	3° $\mathbf{\text{Y}}$ 44'41	
direct	12141 Nov 09 14:52	10° $\mathbf{\text{K}}$ 19'31		opposition		12149 Sep 12 11:40	2° $\mathbf{\text{Y}}$ 21'17	15°44'21
max. Earth dist.	12142 Feb 23 08:19	12° $\mathbf{\text{K}}$ 56'46	31.14307 AU	min. Earth dist.		12149 Sep 13 09:04	2° $\mathbf{\text{Y}}$ 19'45	28.71158 AU
				direct		12149 Nov 30 10:31	0° $\mathbf{\text{Y}}$ 55'38	
conjunction	12142 Feb 25 00:12	13° $\mathbf{\text{K}}$ 00'42	15°44'52	evening set		12150 Mar 14 08:22	3° $\mathbf{\text{Y}}$ 30'55	
minimum elong	12142 Feb 25 00:18	13° $\mathbf{\text{K}}$ 00'42	15°45'11	max. Earth dist.		12150 Mar 17 02:53	3° $\mathbf{\text{Y}}$ 37'33	30.62810 AU
retrograde	12142 Jun 09 22:32	15° $\mathbf{\text{K}}$ 39'33						
opposition	12142 Aug 25 14:09	14° $\mathbf{\text{K}}$ 16'27	16°47'50	conjunction		12150 Mar 18 00:56	3° $\mathbf{\text{Y}}$ 39'45	14°35'47
min. Earth dist.	12142 Aug 27 01:53	14° $\mathbf{\text{K}}$ 13'55	29.17129 AU	minimum elong		12150 Mar 18 01:16	3° $\mathbf{\text{Y}}$ 39'47	14°35'48
direct	12142 Nov 12 09:41	12° $\mathbf{\text{K}}$ 51'07		morning rise		12150 Mar 21 18:04	3° $\mathbf{\text{Y}}$ 48'40	
max. Earth dist.	12143 Feb 26 05:50	15° $\mathbf{\text{K}}$ 29'12	31.04205 AU	retrograde		12150 Jun 30 17:59	6° $\mathbf{\text{Y}}$ 20'44	
				opposition		12150 Sep 15 08:35	4° $\mathbf{\text{Y}}$ 57'20	15°27'44
conjunction	12143 Feb 27 20:25	15° $\mathbf{\text{K}}$ 33'01	15°42'27	min. Earth dist.		12150 Sep 16 04:42	4° $\mathbf{\text{Y}}$ 55'54	28.68566 AU
minimum elong	12143 Feb 27 20:33	15° $\mathbf{\text{K}}$ 33'02	15°42'46	direct		12150 Dec 03 07:57	3° $\mathbf{\text{Y}}$ 31'42	
retrograde	12143 Jun 12 18:37	18° $\mathbf{\text{K}}$ 12'29		evening set		12151 Mar 16 03:58	6° $\mathbf{\text{Y}}$ 04'15	
opposition	12143 Aug 28 09:25	16° $\mathbf{\text{K}}$ 49'16	16°44'31					
min. Earth dist.	12143 Aug 29 19:11	16° $\mathbf{\text{K}}$ 46'53	29.07538 AU	conjunction		12151 Mar 20 22:08	6° $\mathbf{\text{Y}}$ 15'40	14°19'19
direct	12143 Nov 15 03:56	15° $\mathbf{\text{K}}$ 23'49		minimum elong		12151 Mar 20 22:32	6° $\mathbf{\text{Y}}$ 15'42	14°19'19
max. Earth dist.	12144 Feb 29 06:01	18° $\mathbf{\text{K}}$ 02'54	30.95209 AU	max. Earth dist.		12151 Mar 20 03:01	6° $\mathbf{\text{Y}}$ 13'45	30.61006 AU
				morning rise		12151 Mar 25 16:52	6° $\mathbf{\text{Y}}$ 27'08	
conjunction	12144 Mar 01 17:02	18° $\mathbf{\text{K}}$ 06'22	15°38'15	retrograde		12151 Jul 03 14:12	8° $\mathbf{\text{Y}}$ 56'25	
minimum elong	12144 Mar 01 17:12	18° $\mathbf{\text{K}}$ 06'23	15°38'30	opposition		12151 Sep 18 05:17	7° $\mathbf{\text{Y}}$ 33'02	15°09'19
retrograde	12144 Jun 14 13:55	20° $\mathbf{\text{K}}$ 46'22		min. Earth dist.		12151 Sep 18 22:14	7° $\mathbf{\text{Y}}$ 31'50	28.67032 AU
opposition	12144 Aug 30 05:09	19° $\mathbf{\text{K}}$ 23'05	16°39'16	direct		12151 Dec 06 07:04	6° $\mathbf{\text{Y}}$ 07'26	
min. Earth dist.	12144 Aug 31 13:07	19° $\mathbf{\text{K}}$ 20'48	28.98991 AU	evening set		12152 Mar 17 02:21	8° $\mathbf{\text{Y}}$ 37'29	
direct	12144 Nov 16 23:32	17° $\mathbf{\text{K}}$ 57'33						
max. Earth dist.	12145 Mar 03 04:14	20° $\mathbf{\text{K}}$ 37'17	30.87280 AU	conjunction		12152 Mar 22 18:56	8° $\mathbf{\text{Y}}$ 51'07	14°01'12
				minimum elong		12152 Mar 22 19:19	8° $\mathbf{\text{Y}}$ 51'09	14°01'09
conjunction	12145 Mar 04 13:58	20° $\mathbf{\text{K}}$ 40'38	15°32'15	max. Earth dist.		12152 Mar 22 01:51	8° $\mathbf{\text{Y}}$ 49'25	30.60301 AU
minimum elong	12145 Mar 04 14:11	20° $\mathbf{\text{K}}$ 40'40	15°32'29	morning rise		12152 Mar 28 12:01	9° $\mathbf{\text{Y}}$ 04'47	
retrograde	12145 Jun 17 11:17	23° $\mathbf{\text{K}}$ 21'04		retrograde		12152 Jul 05 10:38	11° $\mathbf{\text{Y}}$ 31'33	
opposition	12145 Sep 02 01:02	21° $\mathbf{\text{K}}$ 57'44	16°32'06	opposition		12152 Sep 20 01:57	10° $\mathbf{\text{Y}}$ 08'11	14°49'07
min. Earth dist.	12145 Sep 03 06:38	21° $\mathbf{\text{K}}$ 55'38	28.91471 AU	min. Earth dist.		12152 Sep 20 16:58	10° $\mathbf{\text{Y}}$ 07'07	28.66620 AU
direct	12145 Nov 19 18:58	20° $\mathbf{\text{K}}$ 32'09		direct		12152 Dec 08 04:02	8° $\mathbf{\text{Y}}$ 42'39	
max. Earth dist.	12146 Mar 06 04:38	23° $\mathbf{\text{K}}$ 12'39	30.80372 AU	evening set		12153 Mar 19 02:53	11° $\mathbf{\text{Y}}$ 10'20	
conjunction	12146 Mar 07 11:19	23° $\mathbf{\text{K}}$ 15'42	15°24'28	conjunction		12153 Mar 25 15:37	11° $\mathbf{\text{Y}}$ 25'57	13°41'28
minimum elong	12146 Mar 07 11:33	23° $\mathbf{\text{K}}$ 15'43	15°24'39	minimum elong		12153 Mar 25 16:03	11° $\mathbf{\text{Y}}$ 26'00	13°41'22
retrograde	12146 Jun 20 06:54	25° $\mathbf{\text{K}}$ 56'28		max. Earth dist.		12153 Mar 25 02:12	11° $\mathbf{\text{Y}}$ 24'37	30.60764 AU
opposition	12146 Sep 04 21:33	24° $\mathbf{\text{K}}$ 33'06	16°23'00	morning rise		12153 Apr 01 04:45	11° $\mathbf{\text{Y}}$ 41'36	
min. Earth dist.	12146 Sep 06 01:52	24° $\mathbf{\text{K}}$ 31'05	28.84927 AU	retrograde		12153 Jul 08 04:48	14° $\mathbf{\text{Y}}$ 05'57	
direct	12146 Nov 22 16:15	23° $\mathbf{\text{K}}$ 07'29		opposition		12153 Sep 22 22:21	12° $\mathbf{\text{Y}}$ 42'40	14°27'11
max. Earth dist.	12147 Mar 09 03:26	25° $\mathbf{\text{K}}$ 48'27	30.74478 AU	min. Earth dist.		12153 Sep 23 10:27	12° $\mathbf{\text{Y}}$ 41'49	28.67370 AU
				direct		12153 Dec 11 02:35	11° $\mathbf{\text{Y}}$ 17'14	
conjunction	12147 Mar 10 08:31	25° $\mathbf{\text{K}}$ 51'21	15°14'55	evening set		12154 Mar 21 04:25	13° $\mathbf{\text{Y}}$ 42'37	
minimum elong	12147 Mar 10 08:48	25° $\mathbf{\text{K}}$ 51'23	15°15'04					
retrograde	12147 Jun 23 04:35	28° $\mathbf{\text{K}}$ 32'20		conjunction		12154 Mar 28 11:50	14° $\mathbf{\text{Y}}$ 00'03	13°20'09
opposition	12147 Sep 07 18:07	27° $\mathbf{\text{K}}$ 08'57	16°12'00	minimum elong		12154 Mar 28 12:15	14° $\mathbf{\text{Y}}$ 00'06	13°20'01
min. Earth dist.	12147 Sep 08 19:32	27° $\mathbf{\text{K}}$ 07'08	28.79362 AU	max. Earth dist.		12154 Mar 28 00:25	13° $\mathbf{\text{Y}}$ 58'55	30.62439 AU
direct	12147 Nov 25 14:29	25° $\mathbf{\text{K}}$ 43'18		morning rise		12154 Apr 04 19:40	14° $\mathbf{\text{Y}}$ 17'31	
max. Earth dist.	12148 Mar 11 03:37	28° $\mathbf{\text{K}}$ 24'45	30.69574 AU	retrograde		12154 Jul 10 23:20	16° $\mathbf{\text{Y}}$ 39'35	
				opposition		12154 Sep 25 18:39	15° $\mathbf{\text{Y}}$ 16'23	14°03'35
conjunction	12148 Mar 12 06:04	28° $\mathbf{\text{K}}$ 27'23	15°03'36	min. Earth dist.		12154 Sep 26 03:55	15° $\mathbf{\text{Y}}$ 15'44	28.69356 AU
minimum elong	12148 Mar 12 06:21	28° $\mathbf{\text{K}}$ 27'25	15°03'43	direct		12154 Dec 13 23:16	13° $\mathbf{\text{Y}}$ 51'05	
	12148 Apr 22 06:20	0° $\mathbf{\text{Y}}$		evening set		12155 Mar 23 06:45	16° $\mathbf{\text{Y}}$ 14'15	
retrograde	12148 Jun 25 00:29	1° $\mathbf{\text{Y}}$ 08'29						

conjunction	12155 Mar 31 07:40	16° Υ 33'21	12°57'19	retrograde	12161 Jul 27 19:37	4° \mathcal{B} 06'30	
minimum elong	12155 Mar 31 08:07	16° Υ 33'24	12°57'09	opposition	12161 Oct 13 06:37	2° \mathcal{B} 44'49	10°39'17
max. Earth dist.	12155 Mar 31 00:25	16° Υ 32'38	30.65367 AU	min. Earth dist.	12161 Oct 12 23:09	2° \mathcal{B} 45'19	29.14913 AU
morning rise	12155 Apr 08 08:47	16° Υ 52'29		direct	12161 Dec 31 20:43	1° \mathcal{B} 21'15	
retrograde	12155 Jul 13 16:34	19° Υ 12'19		evening set	12162 Apr 05 13:19	3° \mathcal{B} 29'55	
opposition	12155 Sep 28 14:41	17° Υ 49'17	13°38'22				
min. Earth dist.	12155 Sep 28 21:28	17° Υ 48'48	28.72562 AU	conjunction	12162 Apr 17 13:59	3° \mathcal{B} 57'36	9°42'44
direct	12155 Dec 16 20:25	16° Υ 24'10		minimum elong	12162 Apr 17 14:23	3° \mathcal{B} 57'38	9°42'20
evening set	12156 Mar 24 09:52	18° Υ 45'08		max. Earth dist.	12162 Apr 17 23:59	3° \mathcal{B} 58'34	31.17009 AU
				morning rise	12162 Apr 29 14:08	4° \mathcal{B} 25'14	
conjunction	12156 Apr 02 03:06	19° Υ 05'48	12°33'03	retrograde	12162 Jul 30 10:26	6° \mathcal{B} 30'52	
minimum elong	12156 Apr 02 03:32	19° Υ 05'50	12°32'52	opposition	12162 Oct 15 23:36	5° \mathcal{B} 09'25	10°05'49
max. Earth dist.	12156 Apr 01 21:39	19° Υ 05'15	30.69528 AU	min. Earth dist.	12162 Oct 15 13:15	5° \mathcal{B} 10'08	29.25337 AU
morning rise	12156 Apr 10 20:37	19° Υ 26'28		direct	12163 Jan 03 17:03	3° \mathcal{B} 46'09	
retrograde	12156 Jul 15 11:12	21° Υ 44'09		evening set	12163 Apr 07 18:31	5° \mathcal{B} 52'53	
opposition	12156 Sep 30 10:09	20° Υ 21'18	13°11'39				
min. Earth dist.	12156 Sep 30 13:40	20° Υ 21'03	28.76979 AU	conjunction	12163 Apr 20 05:31	6° \mathcal{B} 21'23	9°11'09
direct	12156 Dec 18 16:04	18° Υ 56'23		minimum elong	12163 Apr 20 05:55	6° \mathcal{B} 21'25	9°10'43
evening set	12157 Mar 26 13:32	21° Υ 15'14		max. Earth dist.	12163 Apr 20 17:28	6° \mathcal{B} 22'31	31.28213 AU
				morning rise	12163 May 02 16:03	6° \mathcal{B} 49'50	
conjunction	12157 Apr 04 22:19	21° Υ 37'20	12°07'26	retrograde	12163 Aug 02 00:57	8° \mathcal{B} 53'37	
minimum elong	12157 Apr 04 22:46	21° Υ 37'22	12°07'12	opposition	12163 Oct 18 16:01	7° \mathcal{B} 32'25	9°31'35
max. Earth dist.	12157 Apr 04 20:40	21° Υ 37'10	30.74865 AU	min. Earth dist.	12163 Oct 18 03:49	7° \mathcal{B} 33'15	29.36668 AU
morning rise	12157 Apr 14 07:04	21° Υ 59'26		direct	12164 Jan 06 10:46	6° \mathcal{B} 09'26	
retrograde	12157 Jul 18 02:32	24° Υ 14'59		evening set	12164 Apr 08 23:52	8° \mathcal{B} 14'18	
opposition	12157 Oct 03 05:33	22° Υ 52'21	12°43'32				
min. Earth dist.	12157 Oct 03 07:22	22° Υ 52'13	28.82525 AU	conjunction	12164 Apr 21 20:34	8° \mathcal{B} 43'31	8°38'54
direct	12157 Dec 21 12:53	21° Υ 27'42		minimum elong	12164 Apr 21 20:56	8° \mathcal{B} 43'33	8°38'26
evening set	12158 Mar 28 17:39	23° Υ 44'26		max. Earth dist.	12164 Apr 22 11:25	8° \mathcal{B} 44'56	31.40317 AU
				morning rise	12164 May 04 16:27	9° \mathcal{B} 12'40	
conjunction	12158 Apr 07 16:47	24° Υ 07'51	11°40'35	retrograde	12164 Aug 03 13:52	11° \mathcal{B} 14'39	
minimum elong	12158 Apr 07 17:13	24° Υ 07'53	11°40'19	opposition	12164 Oct 20 07:35	9° \mathcal{B} 53'42	8°56'42
max. Earth dist.	12158 Apr 07 16:49	24° Υ 07'51	30.81312 AU	min. Earth dist.	12164 Oct 19 17:12	9° \mathcal{B} 54'41	29.48900 AU
morning rise	12158 Apr 17 16:00	24° Υ 31'16		direct	12165 Jan 08 06:07	8° \mathcal{B} 31'01	
retrograde	12158 Jul 20 20:22	26° Υ 44'45		evening set	12165 Apr 11 05:20	10° \mathcal{B} 34'04	
opposition	12158 Oct 06 00:27	25° Υ 22'20	12°14'08				
min. Earth dist.	12158 Oct 05 22:53	25° Υ 22'27	28.89148 AU	conjunction	12165 Apr 24 10:43	11° \mathcal{B} 03'55	8°06'03
direct	12158 Dec 24 09:26	23° Υ 57'57		minimum elong	12165 Apr 24 11:04	11° \mathcal{B} 03'57	8°05'33
evening set	12159 Mar 30 22:05	26° Υ 12'37		max. Earth dist.	12165 Apr 25 03:09	11° \mathcal{B} 05'28	31.53326 AU
				morning rise	12165 May 07 15:29	11° \mathcal{B} 33'42	
conjunction	12159 Apr 10 10:59	26° Υ 37'15	11°12'36	retrograde	12165 Aug 06 02:13	13° \mathcal{B} 33'56	
minimum elong	12159 Apr 10 11:26	26° Υ 37'18	11°12'17	opposition	12165 Oct 22 22:40	12° \mathcal{B} 13'16	8°21'13
max. Earth dist.	12159 Apr 10 14:21	26° Υ 37'35	30.88797 AU	min. Earth dist.	12165 Oct 22 05:29	12° \mathcal{B} 14'25	29.62091 AU
morning rise	12159 Apr 20 23:39	27° Υ 01'53		direct	12166 Jan 10 22:24	10° \mathcal{B} 50'53	
retrograde	12159 Jul 23 11:39	29° Υ 13'21		evening set	12166 Apr 13 10:30	12° \mathcal{B} 52'09	
opposition	12159 Oct 08 19:02	27° Υ 51'10	11°43'33				
min. Earth dist.	12159 Oct 08 16:12	27° Υ 51'22	28.96788 AU	conjunction	12166 Apr 27 00:07	13° \mathcal{B} 22'33	7°32'43
direct	12159 Dec 27 04:10	26° Υ 27'02		minimum elong	12166 Apr 27 00:27	13° \mathcal{B} 22'35	7°32'12
evening set	12160 Apr 01 02:57	28° Υ 39'40		max. Earth dist.	12166 Apr 27 20:08	13° \mathcal{B} 24'26	31.67289 AU
				morning rise	12166 May 10 12:43	13° \mathcal{B} 52'54	
conjunction	12160 Apr 12 04:31	29° Υ 05'25	10°43'33		12166 Jun 12 23:29	15° \mathcal{B}	
minimum elong	12160 Apr 12 04:56	29° Υ 05'28	10°43'13	retrograde	12166 Aug 08 11:41	15° \mathcal{B} 51'27	
max. Earth dist.	12160 Apr 12 09:42	29° Υ 05'55	30.97280 AU		12166 Oct 07 03:34	15° \mathcal{B}	
morning rise	12160 Apr 23 05:52	29° Υ 31'09		opposition	12166 Oct 25 13:10	14° \mathcal{B} 31'04	7°45'16
	12160 May 06 00:39	0° \mathcal{B}		min. Earth dist.	12166 Oct 24 18:05	14° \mathcal{B} 32'21	29.76254 AU
retrograde	12160 Jul 25 04:27	1° \mathcal{B} 40'38		direct	12167 Jan 13 15:10	13° \mathcal{B} 09'03	
opposition	12160 Oct 10 13:02	0° \mathcal{B} 18'41	11°11'54		12167 Apr 11 17:13	15° \mathcal{B}	
min. Earth dist.	12160 Oct 10 06:57	0° \mathcal{B} 19'07	29.05387 AU	evening set	12167 Apr 15 15:54	15° \mathcal{B} 08'36	
	12160 Oct 21 22:23	30° \mathcal{B}					
direct	12160 Dec 29 01:38	28° Υ 54'51		conjunction	12167 Apr 29 12:43	15° \mathcal{B} 39'29	6°58'57
	12161 Mar 03 11:21	0° \mathcal{B}		minimum elong	12167 Apr 29 13:01	15° \mathcal{B} 39'30	6°58'24
evening set	12161 Apr 03 08:00	1° \mathcal{B} 05'29		max. Earth dist.	12167 Apr 30 10:07	15° \mathcal{B} 41'29	31.82227 AU
				morning rise	12167 May 13 08:45	16° \mathcal{B} 10'17	
conjunction	12161 Apr 14 21:34	1° \mathcal{B} 32'14	10°13'34	retrograde	12167 Aug 10 23:29	18° \mathcal{B} 07'15	
minimum elong	12161 Apr 14 22:00	1° \mathcal{B} 32'17	10°13'11	min. Earth dist.	12167 Oct 27 04:16	16° \mathcal{B} 48'41	29.91416 AU
max. Earth dist.	12161 Apr 15 05:20	1° \mathcal{B} 32'59	31.06685 AU	opposition	12167 Oct 28 02:45	16° \mathcal{B} 47'11	7°08'56
morning rise	12161 Apr 26 10:46	1° \mathcal{B} 58'58		direct	12168 Jan 16 05:13	15° \mathcal{B} 25'31	

evening set	12168 Apr 16 21:05	17° 8 23'27		max. Earth dist.	12174 May 15 20:48	0° II 55'17	33.09510 AU
				morning rise	12174 May 29 14:21	1° II 24'18	
conjunction	12168 May 01 00:46	17° 8 54'43	6°24'52	retrograde	12174 Aug 25 11:19	3° II 11'56	
minimum elong	12168 May 01 01:03	17° 8 54'45	6°24'18	min. Earth dist.	12174 Nov 10 21:12	1° II 56'36	31.19809 AU
max. Earth dist.	12168 May 02 01:33	17° 8 57'02	31.98126 AU	opposition	12174 Nov 12 08:44	1° II 54'20	2°51'34
morning rise	12168 May 15 03:17	18° 8 25'56		direct	12175 Jan 31 22:15	0° II 35'28	
retrograde	12168 Aug 12 07:58	20° 8 21'22		evening set	12175 May 01 09:09	2° II 23'42	
opposition	12168 Oct 29 15:53	19° 8 01'39	6°32'18				
min. Earth dist.	12168 Oct 28 16:08	19° 8 03'14	30.07524 AU	conjunction	12175 May 16 17:06	2° II 55'52	2°24'06
direct	12169 Jan 17 18:59	17° 8 40'23		minimum elong	12175 May 16 17:13	2° II 55'52	2°23'22
evening set	12169 Apr 19 02:25	19° 8 36'45		max. Earth dist.	12175 May 18 06:27	2° II 59'09	33.30043 AU
				morning rise	12175 May 31 23:40	3° II 27'56	
conjunction	12169 May 03 11:56	20° 8 08'21	5°50'32	retrograde	12175 Aug 27 14:56	5° II 14'26	
minimum elong	12169 May 03 12:12	20° 8 08'22	5°49'55	min. Earth dist.	12175 Nov 13 05:02	3° II 59'27	31.40464 AU
max. Earth dist.	12169 May 04 14:07	20° 8 10'46	32.14925 AU	opposition	12175 Nov 14 17:09	3° II 57'10	2°15'20
morning rise	12169 May 17 20:27	20° 8 39'52		direct	12176 Feb 03 10:13	2° II 38'39	
retrograde	12169 Aug 14 17:56	22° 8 33'52		evening set	12176 May 02 14:00	4° II 25'42	
min. Earth dist.	12169 Oct 31 01:13	21° 8 16'17	30.24511 AU				
opposition	12169 Nov 01 04:11	21° 8 14'30	5°55'29	conjunction	12176 May 17 23:30	4° II 57'46	1°50'15
direct	12170 Jan 20 09:19	19° 8 53'39		minimum elong	12176 May 17 23:34	4° II 57'46	1°49'30
evening set	12170 Apr 21 07:39	21° 8 48'31		max. Earth dist.	12176 May 19 13:03	5° II 01'03	33.51013 AU
				morning rise	12176 Jun 02 07:54	5° II 29'44	
conjunction	12170 May 05 22:31	22° 8 20'23	5°16'04	retrograde	12176 Aug 28 20:23	7° II 15'08	
minimum elong	12170 May 05 22:45	22° 8 20'24	5°15'26	min. Earth dist.	12176 Nov 14 10:20	6° II 00'37	31.61580 AU
max. Earth dist.	12170 May 07 03:30	22° 8 23'02	32.32536 AU	opposition	12176 Nov 16 00:52	5° II 58'11	1°39'26
morning rise	12170 May 20 12:14	22° 8 52'09		direct	12177 Feb 04 19:34	4° II 40'01	
retrograde	12170 Aug 17 02:52	24° 8 44'46		evening set	12177 May 04 18:28	6° II 25'55	
min. Earth dist.	12170 Nov 02 11:55	23° 8 27'37	30.42304 AU				
opposition	12170 Nov 03 16:07	23° 8 25'46	5°18'34	conjunction	12177 May 20 05:11	6° II 57'50	1°16'41
direct	12171 Jan 22 20:46	22° 8 05'19		minimum elong	12177 May 20 05:15	6° II 57'50	1°15'55
evening set	12171 Apr 23 12:46	23° 8 58'46		max. Earth dist.	12177 May 21 21:11	7° II 01'18	33.72421 AU
				morning rise	12177 Jun 04 14:35	7° II 29'39	
conjunction	12171 May 08 08:17	24° 8 30'48	4°41'31	retrograde	12177 Aug 30 22:26	9° II 14'02	
minimum elong	12171 May 08 08:30	24° 8 30'49	4°40'51	min. Earth dist.	12177 Nov 16 17:02	7° II 59'50	31.83175 AU
max. Earth dist.	12171 May 09 14:56	24° 8 33'35	32.50890 AU	opposition	12177 Nov 18 08:03	7° II 57'23	1°03'53
morning rise	12171 May 23 02:38	25° 8 02'45		direct	12178 Feb 07 04:08	6° II 39'34	
retrograde	12171 Aug 19 11:52	26° 8 54'03		evening set	12178 May 06 22:49	8° II 24'23	
min. Earth dist.	12171 Nov 04 20:32	25° 8 37'24	30.60799 AU				
opposition	12171 Nov 06 03:11	25° 8 35'25	4°41'38	conjunction	12178 May 22 10:06	8° II 56'06	0°43'28
direct	12172 Jan 25 10:22	24° 8 15'23		minimum elong	12178 May 22 10:07	8° II 56'06	0°42'42
evening set	12172 Apr 24 18:03	26° 8 07'27		max. Earth dist.	12178 May 24 02:55	8° II 59'37	33.94316 AU
				morning rise	12178 Jun 06 20:12	9° II 27'44	
conjunction	12172 May 09 17:30	26° 8 39'36	4°06'59	retrograde	12178 Sep 02 01:47	11° II 11'09	
minimum elong	12172 May 09 17:41	26° 8 39'37	4°06'19	min. Earth dist.	12178 Nov 18 20:49	9° II 57'24	32.05292 AU
max. Earth dist.	12172 May 11 01:43	26° 8 42'30	32.69876 AU	opposition	12178 Nov 20 14:24	9° II 54'48	0°28'46
morning rise	12172 May 24 15:52	27° 8 11'40		direct	12179 Feb 09 12:00	8° II 37'20	
retrograde	12172 Aug 20 21:11	29° 8 01'41		evening set	12179 May 09 02:51	10° II 21'08	
min. Earth dist.	12172 Nov 06 05:36	27° 8 45'29	30.79931 AU				
opposition	12172 Nov 07 13:37	27° 8 43'25	4°04'47	conjunction	12179 May 24 14:15	10° II 52'37	0°10'40
direct	12173 Jan 26 22:28	26° 8 23'47		minimum elong	12179 May 24 14:16	10° II 52'37	0°09'52
evening set	12173 Apr 26 23:12	28° 8 14'31		behind sun begin	12179 May 24 09:01	10° II 52'12	
				behind sun end	12179 May 24 19:31	10° II 53'03	
conjunction	12173 May 12 02:09	28° 8 46'44	3°32'32	max. Earth dist.	12179 May 26 09:11	10° II 56'17	34.16718 AU
minimum elong	12173 May 12 02:18	28° 8 46'45	3°31'50	morning rise	12179 Jun 09 00:31	11° II 24'01	
max. Earth dist.	12173 May 13 12:21	28° 8 49'48	32.89445 AU	retrograde	12179 Sep 04 05:22	13° II 06'33	
morning rise	12173 May 27 03:44	29° 8 18'52		desc. node	12179 Sep 21 02:38	13° II 02'17	
	12173 Jun 16 21:17	0° II		min. Earth dist.	12179 Nov 21 01:31	11° II 53'10	32.27953 AU
retrograde	12173 Aug 23 04:37	1° II 07'39		opposition	12179 Nov 22 20:14	11° II 50'31	-0°05'55
	12173 Nov 03 07:28	30° 8 8		direct	12180 Feb 11 17:11	10° II 33'26	
opposition	12173 Nov 09 23:31	29° 8 49'44	3°28'04	evening set	12180 May 10 06:46	12° II 16'17	
min. Earth dist.	12173 Nov 08 14:04	29° 8 51'53	30.99613 AU				
direct	12174 Jan 29 12:10	28° 8 30'30		conjunction	12180 May 25 17:54	12° II 47'31	-0°21'49
	12174 Apr 19 08:36	0° II		minimum elong	12180 May 25 17:53	12° II 47'30	0°22'36
evening set	12174 Apr 29 04:16	0° II 19'58		max. Earth dist.	12180 May 27 14:17	12° II 51'17	34.39644 AU
				morning rise	12180 Jun 10 03:46	13° II 18'39	
conjunction	12174 May 14 09:50	0° II 52'10	2°58'13	retrograde	12180 Sep 05 07:32	15° II 00'20	
minimum elong	12174 May 14 09:58	0° II 52'11	2°57'31	min. Earth dist.	12180 Nov 22 04:43	13° II 47'24	32.51122 AU

opposition	12180 Nov 24 01:10	13°II44'40	-0°40'05	morning rise	12187 Jun 22 22:35	26°II00'46	
direct	12181 Feb 13 00:29	12°II27'58		retrograde	12187 Sep 18 09:32	27°II38'02	
evening set	12181 May 12 10:37	14°II09'57		min. Earth dist.	12187 Dec 05 17:08	26°II27'52	34.22337 AU
				opposition	12187 Dec 07 20:31	26°II24'49	-4°22'57
conjunction	12181 May 27 20:49	14°II40'52	-0°53'45	direct	12188 Feb 27 04:02	25°II10'51	
minimum elong	12181 May 27 20:47	14°II40'52	0°54'34	evening set	12188 May 25 07:49	26°II47'59	
max. Earth dist.	12181 May 29 18:11	14°II44'42	34.63042 AU				
morning rise	12181 Jun 12 06:01	15°II11'43		conjunction	12188 Jun 09 01:24	27°II16'05	-4°22'25
retrograde	12181 Sep 07 11:10	16°II52'38		minimum elong	12188 Jun 09 01:16	27°II16'04	4°23'16
min. Earth dist.	12181 Nov 24 07:33	15°II40'09	32.74775 AU	max. Earth dist.	12188 Jun 11 04:47	27°II20'12	36.34376 AU
opposition	12181 Nov 26 05:43	15°II37'19	-1°13'44	morning rise	12188 Jun 23 18:19	27°II44'08	
direct	12182 Feb 15 05:50	14°II21'02		retrograde	12188 Sep 19 10:17	29°II20'53	
evening set	12182 May 14 13:58	16°II02'12		min. Earth dist.	12188 Dec 06 16:49	28°II11'01	34.47316 AU
				opposition	12188 Dec 08 20:58	28°II07'57	-4°52'14
conjunction	12182 May 29 23:06	16°II32'48	-1°25'13	direct	12189 Feb 28 04:06	26°II54'18	
minimum elong	12182 May 29 23:03	16°II32'48	1°26'01	evening set	12189 May 27 09:55	28°II30'53	
max. Earth dist.	12182 May 31 22:38	16°II36'47	34.86867 AU				
morning rise	12182 Jun 14 06:58	17°II03'19		conjunction	12189 Jun 10 23:56	28°II58'29	-4°49'53
retrograde	12182 Sep 09 11:57	18°II43'32		minimum elong	12189 Jun 10 23:47	28°II58'29	4°50'45
min. Earth dist.	12182 Nov 26 10:51	17°II31'26	32.98815 AU	max. Earth dist.	12189 Jun 13 04:38	29°II02'41	36.59254 AU
opposition	12182 Nov 28 09:39	17°II28'35	-1°46'48	morning rise	12189 Jun 25 13:00	29°II26'03	
direct	12183 Feb 17 12:55	16°II12'43			12189 Jul 14 16:34	0°☾	
evening set	12183 May 16 17:28	17°II53'07		retrograde	12189 Sep 21 06:47	1°☾02'19	
					12189 Dec 03 12:12	30°R II	
conjunction	12183 Jun 01 00:48	18°II23'21	-1°56'09	min. Earth dist.	12189 Dec 08 16:46	29°II52'43	34.72365 AU
minimum elong	12183 Jun 01 00:44	18°II23'21	1°56'59	opposition	12189 Dec 10 20:59	29°II49'40	-5°20'51
max. Earth dist.	12183 Jun 03 00:30	18°II27'19	35.11025 AU	direct	12190 Mar 02 06:22	28°II36'19	
morning rise	12183 Jun 16 07:15	18°II53'32			12190 May 22 17:17	0°☾	
retrograde	12183 Sep 11 13:33	20°II33'04		evening set	12190 May 29 11:45	0°☾12'21	
min. Earth dist.	12183 Nov 28 11:56	19°II21'27	33.23181 AU				
opposition	12183 Nov 30 12:46	19°II18'29	-2°19'17	conjunction	12190 Jun 12 21:34	0°☾39'27	-5°16'44
direct	12184 Feb 19 16:44	18°II03'01		minimum elong	12190 Jun 12 21:24	0°☾39'26	5°17'36
evening set	12184 May 17 20:40	19°II42'42		max. Earth dist.	12190 Jun 15 02:07	0°☾43'36	36.84216 AU
				morning rise	12190 Jun 27 06:49	1°☾06'31	
conjunction	12184 Jun 02 02:06	20°II12'34	-2°26'33	retrograde	12190 Sep 23 03:26	2°☾42'19	
minimum elong	12184 Jun 02 02:01	20°II12'34	2°27'23	min. Earth dist.	12190 Dec 10 14:19	1°☾33'05	34.97550 AU
max. Earth dist.	12184 Jun 04 03:46	20°II16'40	35.35442 AU	opposition	12190 Dec 12 20:20	1°☾29'56	-5°48'47
morning rise	12184 Jun 17 06:24	20°II42'22		direct	12191 Mar 04 07:41	0°☾16'54	
retrograde	12184 Sep 12 11:19	22°II21'17		evening set	12191 May 31 13:18	1°☾52'25	
min. Earth dist.	12184 Nov 29 14:54	21°II10'01	33.47778 AU				
opposition	12184 Dec 01 15:35	21°II07'04	-2°51'09	conjunction	12191 Jun 14 18:56	2°☾19'01	-5°42'58
direct	12185 Feb 20 21:28	19°II52'01		minimum elong	12191 Jun 14 18:45	2°☾19'00	5°43'50
evening set	12185 May 19 23:44	21°II31'00		max. Earth dist.	12191 Jun 17 01:25	2°☾23'17	37.09322 AU
				morning rise	12191 Jun 28 23:47	2°☾45'33	
conjunction	12185 Jun 04 02:40	22°II00'28	-2°56'24	retrograde	12191 Sep 24 21:25	4°☾20'57	
minimum elong	12185 Jun 04 02:33	22°II00'28	2°57'15	min. Earth dist.	12191 Dec 12 13:12	3°☾11'58	35.22902 AU
max. Earth dist.	12185 Jun 06 04:11	22°II04'32	35.60045 AU	opposition	12191 Dec 14 19:05	3°☾08'50	-6°16'01
morning rise	12185 Jun 19 04:40	22°II29'52		direct	12192 Mar 05 09:38	1°☾56'07	
retrograde	12185 Sep 14 10:55	24°II08'12		evening set	12192 Jun 01 14:44	3°☾31'11	
min. Earth dist.	12185 Dec 01 15:19	22°II57'21	33.72539 AU				
opposition	12185 Dec 03 17:45	22°II54'20	-3°22'24	conjunction	12192 Jun 15 15:42	3°☾57'14	-6°08'33
direct	12186 Feb 23 00:09	21°II39'39		minimum elong	12192 Jun 15 15:32	3°☾57'13	6°09'25
evening set	12186 May 22 02:40	23°II18'00		max. Earth dist.	12192 Jun 17 22:07	4°☾01'28	37.34606 AU
				morning rise	12192 Jun 29 16:04	4°☾23'14	
conjunction	12186 Jun 06 02:49	23°II47'02	-3°25'39	retrograde	12192 Sep 25 16:46	5°☾58'16	
minimum elong	12186 Jun 06 02:42	23°II47'02	3°26'30	min. Earth dist.	12192 Dec 13 09:36	4°☾49'40	35.48434 AU
max. Earth dist.	12186 Jun 08 05:37	23°II51'10	35.84761 AU	opposition	12192 Dec 15 17:20	4°☾46'26	-6°42'33
morning rise	12186 Jun 21 02:05	24°II16'00		direct	12193 Mar 07 09:16	3°☾34'02	
retrograde	12186 Sep 16 10:23	25°II53'48		evening set	12193 Jun 03 15:46	5°☾08'41	
min. Earth dist.	12186 Dec 03 17:02	24°II43'16	33.97414 AU				
opposition	12186 Dec 05 19:29	24°II40'16	-3°53'00	conjunction	12193 Jun 17 11:53	5°☾34'11	-6°33'29
direct	12187 Feb 25 00:55	23°II25'57		minimum elong	12193 Jun 17 11:42	5°☾34'11	6°34'21
evening set	12187 May 24 05:16	25°II03'41		max. Earth dist.	12193 Jun 19 19:36	5°☾38'30	37.60050 AU
				morning rise	12193 Jul 01 07:29	5°☾59'40	
conjunction	12187 Jun 08 02:25	25°II32'15	-3°54'20	retrograde	12193 Sep 27 12:25	7°☾34'22	
minimum elong	12187 Jun 08 02:17	25°II32'14	3°55'11	min. Earth dist.	12193 Dec 15 07:19	6°☾26'03	35.74132 AU
max. Earth dist.	12187 Jun 10 05:37	25°II36'23	36.09558 AU	opposition	12193 Dec 17 15:17	6°☾22'50	-7°08'23

direct	12194 Mar 09 06:55	5°☾10'47	retrograde	12200 Oct 08 20:15	18°☾17'26	
evening set	12194 Jun 05 16:37	6°☾45'02	min. Earth dist.	12200 Dec 27 01:32	17°☾11'09	37.53604 AU
			opposition	12200 Dec 29 11:29	17°☾07'56	-9°49'57
conjunction	12194 Jun 19 07:45	7°☾09'59 -6°57'46	direct	12201 Mar 21 07:25	15°☾58'07	
minimum elong	12194 Jun 19 07:34	7°☾09'59 6°58'38	evening set	12201 Jun 18 17:18	17°☾30'28	
max. Earth dist.	12194 Jun 21 16:12	7°☾14'20 37.85638 AU				
morning rise	12194 Jul 02 22:13	7°☾34'55	conjunction	12201 Jun 30 15:03	17°☾51'21 -9°30'04	
retrograde	12194 Sep 29 08:21	9°☾09'20	minimum elong	12201 Jun 30 14:52	17°☾51'20 9°30'55	
min. Earth dist.	12194 Dec 17 03:44	8°☾01'21 35.99934 AU	max. Earth dist.	12201 Jul 03 01:00	17°☾55'37 39.63389 AU	
opposition	12194 Dec 19 12:31	7°☾58'06 -7°33'30	morning rise	12201 Jul 12 12:24	18°☾12'14	
direct	12195 Mar 11 04:19	6°☾46'23	retrograde	12201 Oct 10 13:24	19°☾45'15	
evening set	12195 Jun 07 17:19	8°☾20'17	min. Earth dist.	12201 Dec 28 19:58	18°☾39'11 37.78619 AU	
			opposition	12201 Dec 31 05:51	18°☾35'59 -10°10'24	
conjunction	12195 Jun 21 03:02	8°☾44'41 -7°21'24	direct	12202 Mar 23 01:44	17°☾26'26	
minimum elong	12195 Jun 21 02:50	8°☾44'40 7°22'16	evening set	12202 Jun 20 16:33	18°☾58'36	
max. Earth dist.	12195 Jun 23 11:35	8°☾49'00 38.11292 AU				
morning rise	12195 Jul 04 12:25	9°☾09'03	conjunction	12202 Jul 02 07:31	19°☾18'52 -9°49'23	
retrograde	12195 Oct 01 05:34	10°☾43'12	minimum elong	12202 Jul 02 07:19	19°☾18'52 9°50'15	
min. Earth dist.	12195 Dec 18 23:42	9°☾35'33 36.25793 AU	max. Earth dist.	12202 Jul 04 16:55	19°☾23'04 39.88136 AU	
opposition	12195 Dec 21 09:25	9°☾32'17 -7°57'56	morning rise	12202 Jul 13 22:24	19°☾39'09	
direct	12196 Mar 11 23:30	8°☾20'54	retrograde	12202 Oct 12 07:01	21°☾12'02	
evening set	12196 Jun 08 17:44	9°☾54'30	min. Earth dist.	12202 Dec 30 12:55	20°☾06'14 38.03523 AU	
			opposition	12203 Jan 01 23:42	20°☾03'00 -10°30'12	
conjunction	12196 Jun 21 22:04	10°☾18'20 -7°44'24	direct	12203 Mar 24 18:40	18°☾53'43	
minimum elong	12196 Jun 21 21:53	10°☾18'19 7°45'16	evening set	12203 Jun 22 15:24	20°☾25'42	
max. Earth dist.	12196 Jun 24 07:53	10°☾22'43 38.36958 AU				
morning rise	12196 Jul 05 01:48	10°☾42'08	conjunction	12203 Jul 03 23:42	20°☾45'22 -10°08'06	
retrograde	12196 Oct 01 22:57	12°☾16'02	minimum elong	12203 Jul 03 23:31	20°☾45'22 10°08'56	
min. Earth dist.	12196 Dec 19 20:37	11°☾08'39 36.51621 AU	max. Earth dist.	12203 Jul 06 10:25	20°☾49'38 40.12792 AU	
opposition	12196 Dec 22 05:50	11°☾05'25 -8°21'40	morning rise	12203 Jul 15 07:42	21°☾05'02	
direct	12197 Mar 13 22:07	9°☾54'23	retrograde	12203 Oct 13 20:29	22°☾37'49	
evening set	12197 Jun 10 18:09	11°☾27'42	min. Earth dist.	12204 Jan 01 07:06	21°☾32'13 38.28347 AU	
			opposition	12204 Jan 03 17:14	21°☾29'01 -10°49'21	
conjunction	12197 Jun 23 16:35	11°☾50'57 -8°06'46	direct	12204 Mar 25 15:01	20°☾20'00	
minimum elong	12197 Jun 23 16:23	11°☾50'56 8°07'37	evening set	12204 Jun 23 14:10	21°☾51'51	
max. Earth dist.	12197 Jun 26 01:36	11°☾55'15 38.62566 AU				
morning rise	12197 Jul 06 14:45	12°☾14'11	conjunction	12204 Jul 04 15:21	22°☾10'55 -10°26'12	
retrograde	12197 Oct 03 17:02	13°☾47'52	minimum elong	12204 Jul 04 15:10	22°☾10'54 10°27'02	
min. Earth dist.	12197 Dec 21 15:25	12°☾40'51 36.77376 AU	max. Earth dist.	12204 Jul 07 01:22	22°☾15'06 40.37395 AU	
opposition	12197 Dec 24 01:53	12°☾37'33 -8°44'44	morning rise	12204 Jul 15 16:25	22°☾29'57	
direct	12198 Mar 15 19:31	11°☾26'50	retrograde	12204 Oct 14 10:33	24°☾02'40	
evening set	12198 Jun 12 18:08	12°☾59'54	min. Earth dist.	12205 Jan 01 22:45	22°☾57'22 38.53129 AU	
			opposition	12205 Jan 04 10:15	22°☾54'07 -11°07'51	
conjunction	12198 Jun 25 10:46	13°☾22'34 -8°28'30	direct	12205 Mar 27 09:54	21°☾45'23	
minimum elong	12198 Jun 25 10:35	13°☾22'33 8°29'22	evening set	12205 Jun 25 12:38	23°☾17'07	
max. Earth dist.	12198 Jun 27 20:57	13°☾26'56 38.88053 AU				
morning rise	12198 Jul 08 03:00	13°☾45'13	conjunction	12205 Jul 06 06:45	23°☾35'34 -10°43'41	
retrograde	12198 Oct 05 09:30	15°☾18'44	minimum elong	12205 Jul 06 06:35	23°☾35'33 10°44'31	
min. Earth dist.	12198 Dec 23 12:03	14°☾11'55 37.02985 AU	max. Earth dist.	12205 Jul 08 17:48	23°☾39'48 40.61959 AU	
opposition	12198 Dec 25 21:37	14°☾08'42 -9°07'08	morning rise	12205 Jul 17 00:45	23°☾53'59	
direct	12199 Mar 17 16:58	12°☾58'18	retrograde	12205 Oct 16 01:02	25°☾26'40	
evening set	12199 Jun 14 18:10	14°☾31'07	min. Earth dist.	12206 Jan 03 16:04	24°☾21'35 38.77877 AU	
			opposition	12206 Jan 06 03:08	24°☾18'23 -11°25'43	
conjunction	12199 Jun 27 04:38	14°☾53'11 -8°49'38	direct	12206 Mar 29 03:41	23°☾09'56	
minimum elong	12199 Jun 27 04:26	14°☾53'10 8°50'29	evening set	12206 Jun 27 10:52	24°☾41'35	
max. Earth dist.	12199 Jun 29 14:07	14°☾57'28 39.13373 AU				
morning rise	12199 Jul 09 14:45	15°☾15'15	conjunction	12206 Jul 07 21:44	24°☾59'24 -11°00'35	
retrograde	12199 Oct 07 02:03	16°☾48'35	minimum elong	12206 Jul 07 21:33	24°☾59'23 11°01'25	
min. Earth dist.	12199 Dec 25 06:15	15°☾42'05 37.28394 AU	max. Earth dist.	12206 Jul 10 08:56	25°☾03'37 40.86480 AU	
opposition	12199 Dec 27 16:36	15°☾38'50 -9°28'52	morning rise	12206 Jul 18 08:24	25°☾17'13	
direct	12200 Mar 19 13:20	14°☾28'43	retrograde	12206 Oct 17 15:36	26°☾49'52	
evening set	12200 Jun 16 17:57	16°☾01'18	min. Earth dist.	12207 Jan 05 07:45	25°☾45'05 39.02538 AU	
			opposition	12207 Jan 07 19:27	25°☾41'51 -11°42'56	
conjunction	12200 Jun 28 22:06	16°☾22'47 -9°10'09	direct	12207 Mar 30 20:47	24°☾33'41	
minimum elong	12200 Jun 28 21:54	16°☾22'46 9°11'01	evening set	12207 Jun 29 09:02	26°☾05'16	
max. Earth dist.	12200 Jul 01 07:37	16°☾27'03 39.38476 AU				
morning rise	12200 Jul 11 02:03	16°☾44'16	conjunction	12207 Jul 09 12:25	26°☾22'28 -11°16'54	

minimum elong	12207 Jul 09 12:15	26°☾22'27	11°17'42	min. Earth dist.	12214 Jan 14 19:58	5°♂08'29	40.68545 AU
max. Earth dist.	12207 Jul 11 23:19	26°☾26'39	41.10890 AU	opposition	12214 Jan 17 05:21	5°♂05'28	-13°27'16
morning rise	12207 Jul 19 15:51	26°☾39'41		direct	12214 Apr 09 08:43	3°♂59'06	
retrograde	12207 Oct 19 09:25	28°☾12'19		evening set	12214 Jul 10 16:29	5°♂30'34	
min. Earth dist.	12208 Jan 06 23:33	27°☾07'47	39.27082 AU				
opposition	12208 Jan 09 11:24	27°☾04'34	-11°59'33	conjunction	12214 Jul 18 11:42	5°♂43'20	-12°55'56
direct	12208 Mar 31 09:57	25°☾56'42		minimum elong	12214 Jul 18 11:34	5°♂43'20	12°56'41
evening set	12208 Jun 30 07:00	27°☾28'14		max. Earth dist.	12214 Jul 20 20:18	5°♂47'12	42.74547 AU
				morning rise	12214 Jul 26 06:59	5°♂56'07	
conjunction	12208 Jul 10 02:58	27°☾44'49	-11°32'38	retrograde	12214 Oct 28 07:36	7°♂29'00	
minimum elong	12208 Jul 10 02:47	27°☾44'48	11°33'27	min. Earth dist.	12215 Jan 16 09:25	6°♂25'49	40.90943 AU
max. Earth dist.	12208 Jul 12 14:40	27°☾49'02	41.35156 AU	opposition	12215 Jan 18 19:11	6°♂22'48	-13°40'01
morning rise	12208 Jul 19 22:43	28°☾01'24		direct	12215 Apr 10 20:20	5°♂16'37	
retrograde	12208 Oct 20 00:23	29°☾34'03		evening set	12215 Jul 12 13:37	6°♂48'08	
min. Earth dist.	12209 Jan 07 16:07	28°☾29'43	39.51434 AU				
opposition	12209 Jan 10 03:11	28°☾26'34	-12°15'34	conjunction	12215 Jul 20 00:12	7°♂00'15	-13°08'03
direct	12209 Apr 02 01:16	27°☾19'00		minimum elong	12215 Jul 20 00:06	7°♂00'14	13°08'48
evening set	12209 Jul 02 04:50	28°☾50'29		max. Earth dist.	12215 Jul 22 09:39	7°♂04'09	42.96640 AU
				morning rise	12215 Jul 27 10:45	7°♂12'22	
conjunction	12209 Jul 11 16:57	29°☾06'27	-11°47'49	retrograde	12215 Oct 29 18:54	8°♂45'21	
minimum elong	12209 Jul 11 16:47	29°☾06'26	11°48'37	min. Earth dist.	12216 Jan 18 00:05	7°♂42'16	41.13092 AU
max. Earth dist.	12209 Jul 14 03:35	29°☾10'34	41.59205 AU	opposition	12216 Jan 20 08:37	7°♂39'19	-13°52'15
morning rise	12209 Jul 21 05:05	29°☾22'25		direct	12216 Apr 11 10:43	6°♂33'20	
	12209 Aug 13 22:48	0°♂		evening set	12216 Jul 13 10:44	8°♂04'55	
retrograde	12209 Oct 21 14:51	0°♂55'05					
	12210 Jan 02 05:50	30°♂☾		conjunction	12216 Jul 20 12:17	8°♂16'22	-13°19'39
min. Earth dist.	12210 Jan 09 06:46	29°☾51'03	39.75547 AU	minimum elong	12216 Jul 20 12:10	8°♂16'22	13°20'23
opposition	12210 Jan 11 18:39	29°☾47'51	-12°31'00	max. Earth dist.	12216 Jul 22 20:49	8°♂20'12	43.18530 AU
direct	12210 Apr 03 16:23	28°☾40'34		morning rise	12216 Jul 27 13:50	8°♂27'49	
	12210 Jun 26 18:28	0°♂		retrograde	12216 Oct 30 04:43	10°♂00'55	
evening set	12210 Jul 04 02:32	0°♂12'02		min. Earth dist.	12217 Jan 18 12:14	8°♂58'04	41.35051 AU
				opposition	12217 Jan 20 21:48	8°♂55'05	-14°03'56
conjunction	12210 Jul 13 06:56	0°♂27'23	-12°02'27	direct	12217 Apr 13 01:32	7°♂49'19	
minimum elong	12210 Jul 13 06:46	0°♂27'22	12°03'15	evening set	12217 Jul 15 07:33	9°♂20'59	
max. Earth dist.	12210 Jul 15 18:15	0°♂31'31	41.82977 AU				
morning rise	12210 Jul 22 11:15	0°♂42'43		conjunction	12217 Jul 21 24:00	9°♂31'46	-13°30'46
retrograde	12210 Oct 23 02:10	2°♂15'25		minimum elong	12217 Jul 21 23:54	9°♂31'46	13°31'30
min. Earth dist.	12211 Jan 10 23:20	1°♂11'32	39.99353 AU	max. Earth dist.	12217 Jul 24 08:58	9°♂35'37	43.40235 AU
opposition	12211 Jan 13 09:47	1°♂08'25	-12°45'52	morning rise	12217 Jul 28 16:30	9°♂42'33	
direct	12211 Apr 05 10:15	0°♂01'23		retrograde	12217 Oct 31 15:47	11°♂15'49	
evening set	12211 Jul 06 00:20	1°♂32'52		min. Earth dist.	12218 Jan 20 02:06	10°♂13'07	41.56835 AU
				opposition	12218 Jan 22 10:54	10°♂10'10	-14°15'06
conjunction	12211 Jul 14 20:38	1°♂47'34	-12°16'35	direct	12218 Apr 14 15:57	9°♂04'38	
minimum elong	12211 Jul 14 20:30	1°♂47'34	12°17'22	evening set	12218 Jul 17 04:37	10°♂36'26	
max. Earth dist.	12211 Jul 17 06:49	1°♂51'37	42.06424 AU				
morning rise	12211 Jul 23 16:53	2°♂02'16		conjunction	12218 Jul 23 11:39	10°♂46'32	-13°41'23
retrograde	12211 Oct 24 13:57	3°♂35'01		minimum elong	12218 Jul 23 11:33	10°♂46'32	13°42'05
min. Earth dist.	12212 Jan 12 13:48	2°♂31'22	40.22791 AU	max. Earth dist.	12218 Jul 25 20:37	10°♂50'22	43.61774 AU
opposition	12212 Jan 15 00:33	2°♂28'15	-13°00'12	morning rise	12218 Jul 29 18:38	10°♂56'39	
direct	12212 Apr 06 02:59	1°♂21'27		retrograde	12218 Nov 02 03:02	12°♂30'05	
evening set	12212 Jul 06 21:49	2°♂52'56		min. Earth dist.	12219 Jan 21 14:32	11°♂27'35	41.78417 AU
				opposition	12219 Jan 23 23:24	11°♂24'39	-14°25'45
conjunction	12212 Jul 15 09:58	3°♂06'59	-12°30'12	direct	12219 Apr 16 05:23	10°♂19'21	
minimum elong	12212 Jul 15 09:49	3°♂06'58	12°30'58	evening set	12219 Jul 19 01:36	11°♂51'20	
max. Earth dist.	12212 Jul 17 19:41	3°♂10'58	42.29484 AU				
morning rise	12212 Jul 23 22:08	3°♂21'03		conjunction	12219 Jul 24 22:55	12°♂00'44	-13°51'31
retrograde	12212 Oct 25 03:46	4°♂53'51		minimum elong	12219 Jul 24 22:50	12°♂00'44	13°52'14
min. Earth dist.	12213 Jan 13 05:15	3°♂50'20	40.45852 AU	max. Earth dist.	12219 Jul 27 07:02	12°♂04'29	43.83100 AU
opposition	12213 Jan 15 15:10	3°♂47'17	-13°14'00	morning rise	12219 Jul 30 20:18	12°♂10'09	
direct	12213 Apr 07 17:51	2°♂40'42		retrograde	12219 Nov 03 16:47	13°♂43'49	
evening set	12213 Jul 08 19:18	4°♂12'10		min. Earth dist.	12220 Jan 23 02:58	12°♂41'31	41.99781 AU
				opposition	12220 Jan 25 11:51	12°♂38'36	-14°35'54
conjunction	12213 Jul 16 23:08	4°♂25'35	-12°43'19	direct	12220 Apr 16 15:47	11°♂33'33	
minimum elong	12213 Jul 16 23:01	4°♂25'34	12°44'05	evening set	12220 Jul 19 22:42	13°♂05'43	
max. Earth dist.	12213 Jul 19 08:58	4°♂29'34	42.52184 AU				
morning rise	12213 Jul 25 02:51	4°♂39'01		conjunction	12220 Jul 25 10:03	13°♂14'26	-14°01'10
retrograde	12213 Oct 26 16:44	6°♂11'51		minimum elong	12220 Jul 25 09:59	13°♂14'25	14°01'52

max. Earth dist.	12220 Jul 27 18:57	13°♍18'12	44.04184 AU	opposition	12227 Feb 02 20:16	21°♍02'14	-15°34'22
morning rise	12220 Jul 30 21:22	13°♍23'08		direct	12227 Apr 25 23:55	19°♍58'35	
retrograde	12220 Nov 04 04:06	14°♍57'02		evening set	12227 Aug 02 06:47	21°♍34'20	
min. Earth dist.	12221 Jan 23 16:16	13°♍54'55	42.20860 AU				
opposition	12221 Jan 26 00:05	13°♍52'03	-14°45'34	conjunction	12227 Aug 03 10:23	21°♍36'07	-14°56'55
direct	12221 Apr 18 03:16	12°♍47'14		minimum elong	12227 Aug 03 10:21	21°♍36'07	14°57'32
evening set	12221 Jul 21 20:10	14°♍19'40		morning rise	12227 Aug 04 13:57	21°♍37'53	
				max. Earth dist.	12227 Aug 05 14:52	21°♍39'29	45.41250 AU
conjunction	12221 Jul 26 20:56	14°♍27'39	-14°10'23	retrograde	12227 Nov 13 03:06	23°♍15'37	
minimum elong	12221 Jul 26 20:51	14°♍27'38	14°11'05	min. Earth dist.	12228 Feb 02 03:30	22°♍14'25	43.57424 AU
max. Earth dist.	12221 Jul 29 04:25	14°♍31'18	44.24977 AU	opposition	12228 Feb 04 06:52	22°♍11'51	-15°41'03
morning rise	12221 Jul 31 21:43	14°♍35'37		direct	12228 Apr 26 11:25	21°♍08'21	
	12221 Aug 16 15:14	15°♍					
retrograde	12221 Nov 05 15:40	16°♍09'48		conjunction	12228 Aug 03 19:42	22°♍45'26	-15°03'16
min. Earth dist.	12222 Jan 25 03:43	15°♍07'54	42.41624 AU	minimum elong	12228 Aug 03 19:42	22°♍45'26	15°03'52
opposition	12222 Jan 27 12:00	15°♍05'02	-14°54'46	max. Earth dist.	12228 Aug 05 23:32	22°♍48'45	45.59344 AU
	12222 Jan 31 14:52	15°♍		retrograde	12228 Nov 13 09:47	24°♍24'30	
direct	12222 Apr 19 13:47	14°♍00'27		min. Earth dist.	12229 Feb 02 13:10	23°♍23'28	43.75489 AU
	12222 Jul 01 23:50	15°♍		opposition	12229 Feb 04 17:06	23°♍20'52	-15°47'17
evening set	12222 Jul 23 17:50	15°♍33'10		direct	12229 Apr 27 23:11	22°♍17'32	
conjunction	12222 Jul 28 07:39	15°♍40'23	-14°19'09	conjunction	12229 Aug 05 04:51	23°♍54'10	-15°09'12
minimum elong	12222 Jul 28 07:36	15°♍40'23	14°19'49	minimum elong	12229 Aug 05 04:50	23°♍54'09	15°09'47
max. Earth dist.	12222 Jul 30 15:15	15°♍44'03	44.45414 AU	max. Earth dist.	12229 Aug 07 08:09	23°♍57'26	45.77196 AU
morning rise	12222 Aug 01 21:30	15°♍47'36		retrograde	12229 Nov 14 19:25	25°♍32'50	
retrograde	12222 Nov 07 00:39	17°♍22'07		min. Earth dist.	12230 Feb 03 23:57	24°♍31'54	43.93336 AU
min. Earth dist.	12223 Jan 26 17:12	16°♍20'20	42.62002 AU	opposition	12230 Feb 06 03:13	24°♍29'21	-15°53'06
opposition	12223 Jan 28 23:50	16°♍17'33	-15°03'32	direct	12230 Apr 29 10:34	23°♍26'11	
direct	12223 Apr 21 03:20	15°♍13'12					
evening set	12223 Jul 25 16:20	16°♍46'14		conjunction	12230 Aug 06 13:54	25°♍02'22	-15°14'44
				minimum elong	12230 Aug 06 13:55	25°♍02'22	15°15'19
conjunction	12223 Jul 29 18:19	16°♍52'39	-14°27'30	max. Earth dist.	12230 Aug 08 17:46	25°♍05'40	45.94836 AU
minimum elong	12223 Jul 29 18:16	16°♍52'39	14°28'09	retrograde	12230 Nov 16 05:03	26°♍40'40	
max. Earth dist.	12223 Aug 01 01:04	16°♍56'15	44.65450 AU	min. Earth dist.	12231 Feb 05 10:15	25°♍39'51	44.10935 AU
morning rise	12223 Aug 02 20:17	16°♍59'05		opposition	12231 Feb 07 13:01	25°♍37'19	-15°58'30
retrograde	12223 Nov 08 09:26	18°♍33'57		direct	12231 Apr 30 21:14	24°♍34'20	
min. Earth dist.	12224 Jan 28 04:43	17°♍32'21	42.81935 AU				
opposition	12224 Jan 30 11:10	17°♍29'35	-15°11'51	conjunction	12231 Aug 07 22:38	26°♍10'07	-15°19'52
direct	12224 Apr 21 17:29	16°♍25'26		minimum elong	12231 Aug 07 22:38	26°♍10'07	15°20'25
evening set	12224 Jul 26 15:34	17°♍58'52		max. Earth dist.	12231 Aug 10 01:03	26°♍13'18	46.12231 AU
				retrograde	12231 Nov 17 16:56	27°♍48'01	
conjunction	12224 Jul 30 04:41	18°♍04'25	-14°35'27	min. Earth dist.	12232 Feb 06 19:26	26°♍47'23	44.28284 AU
minimum elong	12224 Jul 30 04:39	18°♍04'25	14°36'05	opposition	12232 Feb 08 22:32	26°♍44'51	-16°03'30
max. Earth dist.	12224 Aug 01 10:11	18°♍07'55	44.85028 AU	direct	12232 May 01 03:43	25°♍42'02	
morning rise	12224 Aug 02 17:52	18°♍09'59					
retrograde	12224 Nov 08 22:34	19°♍45'16		conjunction	12232 Aug 08 07:22	27°♍17'26	-15°24'37
min. Earth dist.	12225 Jan 28 16:52	18°♍43'48	43.01416 AU	minimum elong	12232 Aug 08 07:24	27°♍17'26	15°25'11
opposition	12225 Jan 30 22:35	18°♍41'05	-15°19'46	max. Earth dist.	12232 Aug 10 10:19	27°♍20'38	46.29359 AU
direct	12225 Apr 23 03:44	17°♍37'07		retrograde	12232 Nov 18 01:13	28°♍54'58	
evening set	12225 Jul 28 16:13	19°♍11'02		min. Earth dist.	12233 Feb 07 06:36	27°♍54'25	44.45339 AU
				opposition	12233 Feb 09 08:08	27°♍51'58	-16°08'06
conjunction	12225 Jul 31 14:51	19°♍15'36	-14°43'00	direct	12233 May 02 13:01	26°♍49'21	
minimum elong	12225 Jul 31 14:48	19°♍15'36	14°43'38				
morning rise	12225 Aug 03 13:27	19°♍20'11		conjunction	12233 Aug 09 15:48	28°♍24'22	-15°29'00
max. Earth dist.	12225 Aug 02 20:30	19°♍19'05	45.04163 AU	minimum elong	12233 Aug 09 15:50	28°♍24'22	15°29'31
retrograde	12225 Nov 10 08:53	20°♍56'01		max. Earth dist.	12233 Aug 11 17:46	28°♍27'30	46.46183 AU
min. Earth dist.	12226 Jan 30 05:12	19°♍54'37	43.20444 AU		12233 Nov 07 14:44	0°♍	
opposition	12226 Feb 01 09:40	19°♍51'58	-15°27'17	retrograde	12233 Nov 19 07:26	0°♍01'33	
direct	12226 Apr 24 15:14	18°♍48'11			12233 Dec 01 03:02	30°♍	
evening set	12226 Jul 30 19:37	20°♍22'45		min. Earth dist.	12234 Feb 08 15:33	29°♍01'11	44.62049 AU
				opposition	12234 Feb 10 17:25	28°♍58'43	-16°12'19
conjunction	12226 Aug 02 00:42	20°♍26'11	-14°50'09	direct	12234 May 03 23:15	27°♍56'16	
minimum elong	12226 Aug 02 00:41	20°♍26'11	14°50'47				
morning rise	12226 Aug 04 05:49	20°♍29'37		conjunction	12234 Aug 11 00:13	29°♍30'56	-15°33'01
max. Earth dist.	12226 Aug 04 04:47	20°♍29'33	45.22882 AU	minimum elong	12234 Aug 11 00:15	29°♍30'56	15°33'33
retrograde	12226 Nov 11 19:26	22°♍06'08		max. Earth dist.	12234 Aug 13 01:26	29°♍34'01	46.62627 AU
min. Earth dist.	12227 Jan 31 15:32	21°♍04'52	43.39094 AU		12234 Aug 30 15:30	0°♍	

retrograde	12234 Nov 20 15:46	1° \mathring{M} 07'48		min. Earth dist.	12243 Feb 19 03:16	8° \mathring{M} 44'11	45.93184 AU
min. Earth dist.	12235 Feb 10 02:08	0° \mathring{M} 07'30	44.78362 AU	opposition	12243 Feb 20 21:43	8° \mathring{M} 42'09	-16°35'04
opposition	12235 Feb 12 02:32	0° \mathring{M} 05'07	-16°16'10	direct	12243 May 14 04:21	7° \mathring{M} 41'00	
	12235 Feb 16 10:48	30° \mathring{R} 02					
direct	12235 May 05 09:23	29° \mathring{O} 02'51		conjunction	12243 Aug 20 21:18	9° \mathring{M} 12'37	-15°54'33
	12235 Jul 17 21:06	0° \mathring{M}		minimum elong	12243 Aug 20 21:26	9° \mathring{M} 12'38	15°54'57
				max. Earth dist.	12243 Aug 22 16:20	9° \mathring{M} 15'14	47.91664 AU
conjunction	12235 Aug 12 08:41	0° \mathring{M} 37'09	-15°36'42	retrograde	12243 Nov 30 14:45	10° \mathring{M} 46'41	
minimum elong	12235 Aug 12 08:44	0° \mathring{M} 37'09	15°37'11	min. Earth dist.	12244 Feb 20 10:26	9° \mathring{M} 47'15	46.06054 AU
max. Earth dist.	12235 Aug 14 09:35	0° \mathring{M} 40'12	46.78650 AU	opposition	12244 Feb 22 05:20	9° \mathring{M} 45'11	-16°35'55
retrograde	12235 Nov 21 23:43	2° \mathring{M} 13'41		direct	12244 May 14 10:10	8° \mathring{M} 44'11	
min. Earth dist.	12236 Feb 11 12:00	1° \mathring{M} 13'30	44.94200 AU				
opposition	12236 Feb 13 11:33	1° \mathring{M} 11'10	-16°19'42	conjunction	12244 Aug 21 04:07	10° \mathring{M} 15'32	-15°55'18
direct	12236 May 05 19:50	0° \mathring{M} 09'04		minimum elong	12244 Aug 21 04:13	10° \mathring{M} 15'33	15°55'41
				max. Earth dist.	12244 Aug 22 22:45	10° \mathring{M} 18'07	48.04357 AU
conjunction	12236 Aug 12 16:44	1° \mathring{M} 43'00	-15°40'03	retrograde	12244 Nov 30 20:03	11° \mathring{M} 49'21	
minimum elong	12236 Aug 12 16:46	1° \mathring{M} 43'00	15°40'33	min. Earth dist.	12245 Feb 20 19:33	10° \mathring{M} 49'58	46.18600 AU
max. Earth dist.	12236 Aug 14 15:45	1° \mathring{M} 45'56	46.94185 AU	opposition	12245 Feb 22 13:02	10° \mathring{M} 47'58	-16°36'26
retrograde	12236 Nov 22 10:27	3° \mathring{M} 19'13		direct	12245 May 15 18:21	9° \mathring{M} 47'08	
min. Earth dist.	12237 Feb 11 21:23	2° \mathring{M} 19'08	45.09548 AU				
opposition	12237 Feb 13 20:29	2° \mathring{M} 16'50	-16°22'53	conjunction	12245 Aug 22 11:03	11° \mathring{M} 18'13	-15°55'45
direct	12237 May 07 02:48	1° \mathring{M} 14'53		minimum elong	12245 Aug 22 11:11	11° \mathring{M} 18'14	15°56'08
				max. Earth dist.	12245 Aug 24 05:28	11° \mathring{M} 20'47	48.16719 AU
conjunction	12237 Aug 14 00:52	2° \mathring{M} 48'28	-15°43'06	retrograde	12245 Dec 02 01:26	12° \mathring{M} 51'48	
minimum elong	12237 Aug 14 00:57	2° \mathring{M} 48'28	15°43'35	min. Earth dist.	12246 Feb 22 03:17	11° \mathring{M} 52'32	46.30769 AU
max. Earth dist.	12237 Aug 15 23:59	2° \mathring{M} 51'23	47.09229 AU	opposition	12246 Feb 23 20:21	11° \mathring{M} 50'33	-16°36'38
retrograde	12237 Nov 23 18:30	4° \mathring{M} 24'20		direct	12246 May 17 03:59	10° \mathring{M} 49'51	
min. Earth dist.	12238 Feb 13 07:53	3° \mathring{M} 24'17	45.24401 AU				
opposition	12238 Feb 15 05:13	3° \mathring{M} 22'05	-16°25'46	conjunction	12246 Aug 23 17:46	12° \mathring{M} 20'41	-15°55'55
direct	12238 May 08 10:39	2° \mathring{M} 20'16		minimum elong	12246 Aug 23 17:54	12° \mathring{M} 20'41	15°56'15
				max. Earth dist.	12246 Aug 25 10:27	12° \mathring{M} 23'08	48.28677 AU
conjunction	12238 Aug 15 08:40	3° \mathring{M} 53'29	-15°45'49	retrograde	12246 Dec 03 10:38	13° \mathring{M} 54'02	
minimum elong	12238 Aug 15 08:44	3° \mathring{M} 53'29	15°46'18	min. Earth dist.	12247 Feb 23 11:29	12° \mathring{M} 54'51	46.42511 AU
max. Earth dist.	12238 Aug 17 06:17	3° \mathring{M} 56'18	47.23815 AU	opposition	12247 Feb 25 03:41	12° \mathring{M} 52'55	-16°36'33
retrograde	12238 Nov 25 00:59	5° \mathring{M} 29'01		direct	12247 May 18 11:05	11° \mathring{M} 52'21	
min. Earth dist.	12239 Feb 14 16:03	4° \mathring{M} 29'06	45.38813 AU				
opposition	12239 Feb 16 13:36	4° \mathring{M} 26'53	-16°28'18	conjunction	12247 Aug 25 00:36	13° \mathring{M} 22'55	-15°55'48
direct	12239 May 09 18:14	3° \mathring{M} 25'11		minimum elong	12247 Aug 25 00:44	13° \mathring{M} 22'56	15°56'08
				max. Earth dist.	12247 Aug 26 17:18	13° \mathring{M} 25'22	48.40167 AU
conjunction	12239 Aug 16 16:16	4° \mathring{M} 58'04	-15°48'14	retrograde	12247 Dec 04 19:10	14° \mathring{M} 56'02	
minimum elong	12239 Aug 16 16:22	4° \mathring{M} 58'04	15°48'41	min. Earth dist.	12248 Feb 24 20:25	13° \mathring{M} 56'52	46.53744 AU
max. Earth dist.	12239 Aug 18 13:18	5° \mathring{M} 00'50	47.37984 AU	opposition	12248 Feb 26 10:52	13° \mathring{M} 55'02	-16°36'12
retrograde	12239 Nov 26 07:20	6° \mathring{M} 33'16		direct	12248 May 18 17:31	12° \mathring{M} 54'36	
min. Earth dist.	12240 Feb 16 01:49	5° \mathring{M} 33'23	45.52854 AU				
opposition	12240 Feb 17 21:54	5° \mathring{M} 31'15	-16°30'31	conjunction	12248 Aug 25 07:17	14° \mathring{M} 24'54	-15°55'26
direct	12240 May 10 04:45	4° \mathring{M} 29'41		minimum elong	12248 Aug 25 07:25	14° \mathring{M} 24'55	15°55'44
				max. Earth dist.	12248 Aug 26 22:01	14° \mathring{M} 27'13	48.51150 AU
conjunction	12240 Aug 16 23:49	6° \mathring{M} 02'13	-15°50'19	retrograde	12248 Dec 05 03:43	15° \mathring{M} 57'45	
minimum elong	12240 Aug 16 23:53	6° \mathring{M} 02'13	15°50'44	min. Earth dist.	12249 Feb 25 03:35	14° \mathring{M} 58'41	46.64450 AU
max. Earth dist.	12240 Aug 18 20:55	6° \mathring{M} 04'59	47.51828 AU	opposition	12249 Feb 26 17:59	14° \mathring{M} 56'51	-16°35'35
retrograde	12240 Nov 26 13:48	7° \mathring{M} 37'08		direct	12249 May 19 21:32	13° \mathring{M} 56'31	
min. Earth dist.	12241 Feb 16 10:04	6° \mathring{M} 37'21	45.66575 AU				
opposition	12241 Feb 18 06:00	6° \mathring{M} 35'13	-16°32'23	conjunction	12249 Aug 26 13:48	15° \mathring{M} 26'33	-15°54'48
direct	12241 May 11 15:27	5° \mathring{M} 33'47		minimum elong	12249 Aug 26 13:56	15° \mathring{M} 26'34	15°55'06
				max. Earth dist.	12249 Aug 28 03:40	15° \mathring{M} 28'49	48.61590 AU
conjunction	12241 Aug 18 06:57	7° \mathring{M} 06'00	-15°52'03	retrograde	12249 Dec 06 08:29	16° \mathring{M} 59'09	
minimum elong	12241 Aug 18 07:03	7° \mathring{M} 06'00	15°52'28	min. Earth dist.	12250 Feb 26 12:49	16° \mathring{M} 00'03	46.74620 AU
max. Earth dist.	12241 Aug 20 02:41	7° \mathring{M} 08'41	47.65378 AU	opposition	12250 Feb 28 01:06	15° \mathring{M} 58'20	-16°34'42
retrograde	12241 Nov 28 00:41	8° \mathring{M} 40'37		direct	12250 May 21 05:14	14° \mathring{M} 58'04	
min. Earth dist.	12242 Feb 17 18:11	7° \mathring{M} 40'57	45.80023 AU				
opposition	12242 Feb 19 14:00	7° \mathring{M} 38'50	-16°33'54	conjunction	12250 Aug 27 20:20	16° \mathring{M} 27'50	-15°53'55
direct	12242 May 12 21:12	6° \mathring{M} 37'33		minimum elong	12250 Aug 27 20:30	16° \mathring{M} 27'51	15°54'12
				max. Earth dist.	12250 Aug 29 09:38	16° \mathring{M} 30'04	48.71526 AU
conjunction	12242 Aug 19 14:15	8° \mathring{M} 09'27	-15°53'28	retrograde	12250 Dec 07 11:13	18° \mathring{M} 00'10	
minimum elong	12242 Aug 19 14:20	8° \mathring{M} 09'28	15°53'52	min. Earth dist.	12251 Feb 27 19:48	17° \mathring{M} 01'07	46.84295 AU
max. Earth dist.	12242 Aug 21 10:27	8° \mathring{M} 12'09	47.78658 AU	opposition	12251 Mar 01 07:42	16° \mathring{M} 59'24	-16°33'33
retrograde	12242 Nov 29 08:58	9° \mathring{M} 43'48		direct	12251 May 22 15:13	15° \mathring{M} 59'13	

conjunction	12251 Aug 29 02:33	17° $\mathring{\mu}$ 28'43	-15°52'46	retrograde	12259 Dec 16 21:26	26° $\mathring{\mu}$ 56'55	
minimum elong	12251 Aug 29 02:41	17° $\mathring{\mu}$ 28'43	15°53'03	min. Earth dist.	12260 Mar 08 11:41	25° $\mathring{\mu}$ 58'16	47.55616 AU
max. Earth dist.	12251 Aug 30 14:04	17° $\mathring{\mu}$ 30'50	48.81004 AU	opposition	12260 Mar 09 16:07	25° $\mathring{\mu}$ 56'56	-16°10'39
retrograde	12251 Dec 08 18:51	19° $\mathring{\mu}$ 00'48		direct	12260 May 30 18:42	24° $\mathring{\mu}$ 57'36	
min. Earth dist.	12252 Feb 29 03:21	18° $\mathring{\mu}$ 01'46	46.93562 AU				
opposition	12252 Mar 01 14:27	18° $\mathring{\mu}$ 00'06	-16°32'08	conjunction	12260 Sep 06 06:42	26° $\mathring{\mu}$ 25'22	-15°30'10
direct	12252 May 22 22:33	16° $\mathring{\mu}$ 59'58		minimum elong	12260 Sep 06 06:54	26° $\mathring{\mu}$ 25'23	15°30'19
				max. Earth dist.	12260 Sep 07 12:19	26° $\mathring{\mu}$ 27'06	49.51018 AU
conjunction	12252 Aug 29 08:38	18° $\mathring{\mu}$ 29'13	-15°51'21	retrograde	12260 Dec 16 23:27	27° $\mathring{\mu}$ 55'53	
minimum elong	12252 Aug 29 08:49	18° $\mathring{\mu}$ 29'13	15°51'36	opposition	12261 Mar 10 21:59	26° $\mathring{\mu}$ 55'58	-16°06'49
max. Earth dist.	12252 Aug 30 20:35	18° $\mathring{\mu}$ 31'21	48.90103 AU	min. Earth dist.	12261 Mar 09 17:52	26° $\mathring{\mu}$ 57'17	47.61486 AU
retrograde	12252 Dec 09 01:39	20° $\mathring{\mu}$ 01'04		direct	12261 Jun 01 03:19	25° $\mathring{\mu}$ 56'43	
min. Earth dist.	12253 Mar 01 11:10	19° $\mathring{\mu}$ 02'02	47.02464 AU				
opposition	12253 Mar 02 21:05	19° $\mathring{\mu}$ 00'25	-16°30'26	conjunction	12261 Sep 07 12:15	27° $\mathring{\mu}$ 24'20	-15°26'25
direct	12253 May 24 05:57	18° $\mathring{\mu}$ 00'23		minimum elong	12261 Sep 07 12:28	27° $\mathring{\mu}$ 24'20	15°26'33
				max. Earth dist.	12261 Sep 08 15:47	27° $\mathring{\mu}$ 25'56	49.56682 AU
conjunction	12253 Aug 30 14:37	19° $\mathring{\mu}$ 29'22	-15°49'39	retrograde	12261 Dec 18 05:32	28° $\mathring{\mu}$ 54'41	
minimum elong	12253 Aug 30 14:47	19° $\mathring{\mu}$ 29'23	15°49'54	min. Earth dist.	12262 Mar 11 01:02	27° $\mathring{\mu}$ 56'05	47.66833 AU
max. Earth dist.	12253 Sep 01 01:12	19° $\mathring{\mu}$ 31'25	48.98881 AU	opposition	12262 Mar 12 03:45	27° $\mathring{\mu}$ 54'50	-16°02'45
retrograde	12253 Dec 10 08:25	21° $\mathring{\mu}$ 01'00		direct	12262 Jun 02 10:39	26° $\mathring{\mu}$ 55'38	
min. Earth dist.	12254 Mar 02 17:10	20° $\mathring{\mu}$ 02'03	47.11063 AU				
opposition	12254 Mar 04 03:24	20° $\mathring{\mu}$ 00'26	-16°28'27	conjunction	12262 Sep 08 17:50	28° $\mathring{\mu}$ 23'05	-15°22'27
direct	12254 May 25 09:48	19° $\mathring{\mu}$ 00'28		minimum elong	12262 Sep 08 18:02	28° $\mathring{\mu}$ 23'06	15°22'34
				max. Earth dist.	12262 Sep 09 21:18	28° $\mathring{\mu}$ 24'41	49.61837 AU
conjunction	12254 Aug 31 20:32	20° $\mathring{\mu}$ 29'15	-15°47'40	retrograde	12262 Dec 19 11:55	29° $\mathring{\mu}$ 53'17	
minimum elong	12254 Aug 31 20:43	20° $\mathring{\mu}$ 29'16	15°47'54	min. Earth dist.	12263 Mar 12 08:05	28° $\mathring{\mu}$ 54'39	47.71678 AU
max. Earth dist.	12254 Sep 02 06:47	20° $\mathring{\mu}$ 31'16	49.07354 AU	opposition	12263 Mar 13 09:24	28° $\mathring{\mu}$ 53'28	-15°58'28
retrograde	12254 Dec 11 13:24	22° $\mathring{\mu}$ 00'40		direct	12263 Jun 03 17:45	27° $\mathring{\mu}$ 54'19	
min. Earth dist.	12255 Mar 04 01:05	21° $\mathring{\mu}$ 01'44	47.19359 AU				
opposition	12255 Mar 05 09:48	21° $\mathring{\mu}$ 00'11	-16°26'10	conjunction	12263 Sep 09 23:03	29° $\mathring{\mu}$ 21'35	-15°18'15
direct	12255 May 26 15:38	20° $\mathring{\mu}$ 00'19		minimum elong	12263 Sep 09 23:16	29° $\mathring{\mu}$ 21'36	15°18'21
				max. Earth dist.	12263 Sep 11 00:52	29° $\mathring{\mu}$ 23'05	49.66537 AU
conjunction	12255 Sep 02 02:22	21° $\mathring{\mu}$ 28'54	-15°45'24		12263 Oct 08 10:30	0° $\mathring{\mu}$	
minimum elong	12255 Sep 02 02:32	21° $\mathring{\mu}$ 28'55	15°45'36	retrograde	12263 Dec 20 19:11	0° $\mathring{\mu}$ 51'38	
max. Earth dist.	12255 Sep 03 12:19	21° $\mathring{\mu}$ 30'54	49.15541 AU		12264 Mar 06 07:50	30° $\mathring{\mu}$ $\mathring{\mu}$	
retrograde	12255 Dec 12 16:48	23° $\mathring{\mu}$ 00'08		opposition	12264 Mar 13 14:52	29° $\mathring{\mu}$ 51'51	-15°53'56
min. Earth dist.	12256 Mar 04 07:05	22° $\mathring{\mu}$ 01'18	47.27347 AU	min. Earth dist.	12264 Mar 12 13:34	29° $\mathring{\mu}$ 53'02	47.76108 AU
opposition	12256 Mar 05 15:55	21° $\mathring{\mu}$ 59'45	-16°23'36	direct	12264 Jun 03 20:57	28° $\mathring{\mu}$ 52'44	
direct	12256 May 26 23:16	20° $\mathring{\mu}$ 59'59			12264 Aug 26 18:47	0° $\mathring{\mu}$	
conjunction	12256 Sep 02 08:02	22° $\mathring{\mu}$ 28'23	-15°42'52	conjunction	12264 Sep 10 04:19	0° $\mathring{\mu}$ 19'51	-15°13'49
minimum elong	12256 Sep 02 08:13	22° $\mathring{\mu}$ 28'24	15°43'04	minimum elong	12264 Sep 10 04:30	0° $\mathring{\mu}$ 19'52	15°13'54
max. Earth dist.	12256 Sep 03 16:35	22° $\mathring{\mu}$ 30'18	49.23418 AU	max. Earth dist.	12264 Sep 11 05:37	0° $\mathring{\mu}$ 21'19	49.70846 AU
retrograde	12256 Dec 13 00:09	23° $\mathring{\mu}$ 59'28		retrograde	12264 Dec 21 00:08	1° $\mathring{\mu}$ 49'44	
opposition	12257 Mar 06 22:09	22° $\mathring{\mu}$ 59'11	-16°20'45	opposition	12265 Mar 14 20:27	0° $\mathring{\mu}$ 49'59	-15°49'10
min. Earth dist.	12257 Mar 05 14:12	23° $\mathring{\mu}$ 00'41	47.35025 AU	min. Earth dist.	12265 Mar 13 20:48	0° $\mathring{\mu}$ 51'05	47.80183 AU
direct	12257 May 28 05:40	21° $\mathring{\mu}$ 59'32			12265 May 06 19:13	30° $\mathring{\mu}$ $\mathring{\mu}$	
				direct	12265 Jun 05 00:43	29° $\mathring{\mu}$ 50'54	
conjunction	12257 Sep 03 13:44	23° $\mathring{\mu}$ 27'45	-15°40'03		12265 Jul 03 23:59	0° $\mathring{\mu}$	
minimum elong	12257 Sep 03 13:55	23° $\mathring{\mu}$ 27'46	15°40'14				
max. Earth dist.	12257 Sep 04 22:36	23° $\mathring{\mu}$ 29'41	49.30962 AU	conjunction	12265 Sep 11 09:28	1° $\mathring{\mu}$ 17'53	-15°09'08
retrograde	12257 Dec 14 07:27	24° $\mathring{\mu}$ 58'42		minimum elong	12265 Sep 11 09:42	1° $\mathring{\mu}$ 17'53	15°09'12
min. Earth dist.	12258 Mar 06 21:30	23° $\mathring{\mu}$ 59'58	47.42327 AU	max. Earth dist.	12265 Sep 12 10:31	1° $\mathring{\mu}$ 19'19	49.74840 AU
opposition	12258 Mar 08 04:15	23° $\mathring{\mu}$ 58'31	-16°17'38	retrograde	12265 Dec 22 02:02	2° $\mathring{\mu}$ 47'37	
direct	12258 May 29 11:59	22° $\mathring{\mu}$ 58'59		min. Earth dist.	12266 Mar 15 01:55	1° $\mathring{\mu}$ 49'01	47.83939 AU
				opposition	12266 Mar 16 01:46	1° $\mathring{\mu}$ 47'54	-15°44'07
conjunction	12258 Sep 04 19:25	24° $\mathring{\mu}$ 27'03	-15°37'00	direct	12266 Jun 06 06:15	0° $\mathring{\mu}$ 48'51	
minimum elong	12258 Sep 04 19:36	24° $\mathring{\mu}$ 27'03	15°37'10				
max. Earth dist.	12258 Sep 06 02:31	24° $\mathring{\mu}$ 28'52	49.38119 AU	conjunction	12266 Sep 12 14:34	2° $\mathring{\mu}$ 15'42	-15°04'11
retrograde	12258 Dec 15 16:00	25° $\mathring{\mu}$ 57'50		minimum elong	12266 Sep 12 14:46	2° $\mathring{\mu}$ 15'43	15°04'14
min. Earth dist.	12259 Mar 08 03:30	24° $\mathring{\mu}$ 59'11	47.49214 AU	max. Earth dist.	12266 Sep 13 14:06	2° $\mathring{\mu}$ 17'04	49.78526 AU
opposition	12259 Mar 09 10:03	24° $\mathring{\mu}$ 57'46	-16°14'15	retrograde	12266 Dec 23 07:16	3° $\mathring{\mu}$ 45'19	
direct	12259 May 30 14:03	23° $\mathring{\mu}$ 58'20		min. Earth dist.	12267 Mar 16 08:14	2° $\mathring{\mu}$ 46'42	47.87410 AU
				opposition	12267 Mar 17 07:01	2° $\mathring{\mu}$ 45'38	-15°38'49
conjunction	12259 Sep 06 01:07	25° $\mathring{\mu}$ 26'16	-15°33'42	direct	12267 Jun 07 12:44	1° $\mathring{\mu}$ 46'39	
minimum elong	12259 Sep 06 01:19	25° $\mathring{\mu}$ 26'16	15°33'50				
max. Earth dist.	12259 Sep 07 07:30	25° $\mathring{\mu}$ 28'02	49.44816 AU	conjunction	12267 Sep 13 19:44	3° $\mathring{\mu}$ 13'21	-14°59'00

minimum elong	12267 Sep 13 19:58	3° <u>♁</u> 13'22	14°59'03	direct	12274 Jun 14 00:14	8° <u>♁</u> 29'00	
evening set	12267 Sep 13 02:38	3° <u>♁</u> 12'22		evening set	12274 Sep 15 11:05	9° <u>♁</u> 48'31	
morning rise	12267 Sep 14 13:19	3° <u>♁</u> 14'22					
max. Earth dist.	12267 Sep 14 19:39	3° <u>♁</u> 14'44	49.81929 AU	conjunction	12274 Sep 20 07:00	9° <u>♁</u> 55'09	-14°16'11
retrograde	12267 Dec 24 12:18	4° <u>♁</u> 42'53		minimum elong	12274 Sep 20 07:15	9° <u>♁</u> 55'09	14°16'07
opposition	12268 Mar 17 12:20	3° <u>♁</u> 43'15	-15°33'16	max. Earth dist.	12274 Sep 20 23:16	9° <u>♁</u> 56'04	49.94943 AU
min. Earth dist.	12268 Mar 16 14:18	3° <u>♁</u> 44'17	47.90579 AU	morning rise	12274 Sep 25 03:40	10° <u>♁</u> 01'49	
direct	12268 Jun 07 20:29	2° <u>♁</u> 44'19		retrograde	12274 Dec 31 04:18	11° <u>♁</u> 24'09	
evening set	12268 Sep 12 03:57	4° <u>♁</u> 08'20		min. Earth dist.	12275 Mar 24 09:51	10° <u>♁</u> 25'29	48.01330 AU
				opposition	12275 Mar 25 00:25	10° <u>♁</u> 24'48	-14°47'50
conjunction	12268 Sep 14 00:35	4° <u>♁</u> 10'54	-14°53'33	direct	12275 Jun 15 03:51	9° <u>♁</u> 26'11	
minimum elong	12268 Sep 14 00:48	4° <u>♁</u> 10'55	14°53'35	evening set	12275 Sep 16 07:28	10° <u>♁</u> 45'07	
morning rise	12268 Sep 15 21:43	4° <u>♁</u> 13'30					
max. Earth dist.	12268 Sep 14 23:02	4° <u>♁</u> 12'12	49.85044 AU	conjunction	12275 Sep 21 12:00	10° <u>♁</u> 52'15	-14°09'14
retrograde	12268 Dec 24 20:42	5° <u>♁</u> 40'20		minimum elong	12275 Sep 21 12:14	10° <u>♁</u> 52'16	14°09'10
opposition	12269 Mar 18 17:36	4° <u>♁</u> 40'45	-15°27'27	max. Earth dist.	12275 Sep 22 03:38	10° <u>♁</u> 53'09	49.94842 AU
min. Earth dist.	12269 Mar 17 19:29	4° <u>♁</u> 41'47	47.93448 AU	morning rise	12275 Sep 26 17:15	10° <u>♁</u> 59'24	
direct	12269 Jun 08 23:04	3° <u>♁</u> 41'53		retrograde	12276 Jan 01 06:39	12° <u>♁</u> 21'10	
evening set	12269 Sep 12 16:22	5° <u>♁</u> 04'52		opposition	12276 Mar 25 05:21	11° <u>♁</u> 21'51	-14°40'30
				min. Earth dist.	12276 Mar 24 14:51	11° <u>♁</u> 22'31	48.00900 AU
conjunction	12269 Sep 15 05:39	5° <u>♁</u> 08'23	-14°47'52	direct	12276 Jun 15 08:40	10° <u>♁</u> 23'13	
minimum elong	12269 Sep 15 05:53	5° <u>♁</u> 08'24	14°47'54	evening set	12276 Sep 16 03:55	11° <u>♁</u> 41'39	
max. Earth dist.	12269 Sep 16 03:43	5° <u>♁</u> 09'39	49.87825 AU				
morning rise	12269 Sep 17 19:30	5° <u>♁</u> 11'56		conjunction	12276 Sep 21 16:42	11° <u>♁</u> 49'14	-14°02'04
retrograde	12269 Dec 26 03:29	6° <u>♁</u> 37'43		minimum elong	12276 Sep 21 16:57	11° <u>♁</u> 49'15	14°01'59
opposition	12270 Mar 19 22:47	5° <u>♁</u> 38'12	-15°21'23	max. Earth dist.	12276 Sep 22 06:42	11° <u>♁</u> 50'02	49.94316 AU
min. Earth dist.	12270 Mar 19 02:37	5° <u>♁</u> 39'09	47.95962 AU	morning rise	12276 Sep 27 06:20	11° <u>♁</u> 56'52	
direct	12270 Jun 10 01:55	4° <u>♁</u> 39'23		retrograde	12277 Jan 01 11:28	13° <u>♁</u> 18'07	
evening set	12270 Sep 13 07:59	6° <u>♁</u> 01'31		opposition	12277 Mar 26 10:23	12° <u>♁</u> 18'47	-14°32'56
				min. Earth dist.	12277 Mar 25 21:13	12° <u>♁</u> 19'24	48.00088 AU
conjunction	12270 Sep 16 10:45	6° <u>♁</u> 05'49	-14°41'57	direct	12277 Jun 16 14:25	11° <u>♁</u> 20'10	
minimum elong	12270 Sep 16 10:59	6° <u>♁</u> 05'50	14°41'56	evening set	12277 Sep 17 00:52	12° <u>♁</u> 38'06	
max. Earth dist.	12270 Sep 17 08:13	6° <u>♁</u> 07'03	49.90239 AU				
morning rise	12270 Sep 19 14:06	6° <u>♁</u> 10'09		conjunction	12277 Sep 22 21:40	12° <u>♁</u> 46'08	-13°54'41
retrograde	12270 Dec 27 05:49	7° <u>♁</u> 35'05		minimum elong	12277 Sep 22 21:54	12° <u>♁</u> 46'08	13°54'34
min. Earth dist.	12271 Mar 20 07:47	6° <u>♁</u> 36'33	47.98060 AU	max. Earth dist.	12277 Sep 23 11:51	12° <u>♁</u> 46'56	49.93432 AU
opposition	12271 Mar 21 03:53	6° <u>♁</u> 35'37	-15°15'06	morning rise	12277 Sep 28 19:15	12° <u>♁</u> 54'13	
direct	12271 Jun 11 07:48	5° <u>♁</u> 36'52		retrograde	12278 Jan 02 15:41	14° <u>♁</u> 14'59	
evening set	12271 Sep 14 01:13	6° <u>♁</u> 58'15		opposition	12278 Mar 27 15:09	13° <u>♁</u> 15'39	-14°25'07
				min. Earth dist.	12278 Mar 27 02:44	13° <u>♁</u> 16'14	47.98925 AU
conjunction	12271 Sep 17 15:41	7° <u>♁</u> 03'13	-14°35'49	direct	12278 Jun 17 21:51	12° <u>♁</u> 17'03	
minimum elong	12271 Sep 17 15:55	7° <u>♁</u> 03'14	14°35'48	evening set	12278 Sep 17 22:05	13° <u>♁</u> 34'31	
max. Earth dist.	12271 Sep 18 11:11	7° <u>♁</u> 04'21	49.92197 AU				
morning rise	12271 Sep 21 06:46	7° <u>♁</u> 08'14		conjunction	12278 Sep 24 02:28	13° <u>♁</u> 42'58	-13°47'03
retrograde	12271 Dec 28 10:19	8° <u>♁</u> 32'26		minimum elong	12278 Sep 24 02:44	13° <u>♁</u> 42'59	13°46'56
opposition	12272 Mar 21 09:06	7° <u>♁</u> 33'01	-15°08'35	max. Earth dist.	12278 Sep 24 15:07	13° <u>♁</u> 43'42	49.92229 AU
min. Earth dist.	12272 Mar 20 14:37	7° <u>♁</u> 33'53	47.99684 AU	morning rise	12278 Sep 30 07:46	13° <u>♁</u> 51'30	
direct	12272 Jun 11 13:53	6° <u>♁</u> 34'19		retrograde	12279 Jan 03 23:51	15° <u>♁</u> 11'48	
evening set	12272 Sep 13 19:50	7° <u>♁</u> 55'02		opposition	12279 Mar 28 19:57	14° <u>♁</u> 12'30	-14°17'05
				min. Earth dist.	12279 Mar 28 07:38	14° <u>♁</u> 13'04	47.97455 AU
conjunction	12272 Sep 17 20:53	8° <u>♁</u> 00'36	-14°29'28	direct	12279 Jun 19 00:21	13° <u>♁</u> 13'54	
minimum elong	12272 Sep 17 21:08	8° <u>♁</u> 00'37	14°29'26	evening set	12279 Sep 18 19:17	14° <u>♁</u> 30'56	
max. Earth dist.	12272 Sep 18 16:15	8° <u>♁</u> 01'43	49.93653 AU				
morning rise	12272 Sep 21 22:34	8° <u>♁</u> 06'13		conjunction	12279 Sep 25 07:14	14° <u>♁</u> 39'49	-13°39'12
retrograde	12272 Dec 28 15:38	9° <u>♁</u> 29'45		minimum elong	12279 Sep 25 07:28	14° <u>♁</u> 39'50	13°39'03
opposition	12273 Mar 22 14:18	8° <u>♁</u> 30'22	-15°01'52	max. Earth dist.	12279 Sep 25 19:26	14° <u>♁</u> 40'31	49.90707 AU
min. Earth dist.	12273 Mar 21 21:08	8° <u>♁</u> 31'10	48.00768 AU	morning rise	12279 Oct 01 20:05	14° <u>♁</u> 48'46	
direct	12273 Jun 12 20:49	7° <u>♁</u> 31'43		retrograde	12280 Jan 05 07:25	16° <u>♁</u> 08'37	
evening set	12273 Sep 14 15:10	8° <u>♁</u> 51'49		opposition	12280 Mar 29 00:53	15° <u>♁</u> 09'20	-14°08'48
				min. Earth dist.	12280 Mar 28 14:11	15° <u>♁</u> 09'50	47.95669 AU
conjunction	12273 Sep 19 01:54	8° <u>♁</u> 57'55	-14°22'56	direct	12280 Jun 19 02:01	14° <u>♁</u> 10'47	
minimum elong	12273 Sep 19 02:08	8° <u>♁</u> 57'56	14°22'53	evening set	12280 Sep 18 16:56	15° <u>♁</u> 27'23	
max. Earth dist.	12273 Sep 19 19:10	8° <u>♁</u> 58'55	49.94571 AU				
morning rise	12273 Sep 23 13:20	9° <u>♁</u> 04'05		conjunction	12280 Sep 25 12:05	15° <u>♁</u> 36'41	-13°31'07
retrograde	12273 Dec 29 23:06	10° <u>♁</u> 27'00		minimum elong	12280 Sep 25 12:20	15° <u>♁</u> 36'42	13°30'58
opposition	12274 Mar 23 19:24	9° <u>♁</u> 27'39	-14°54'57	max. Earth dist.	12280 Sep 25 23:56	15° <u>♁</u> 37'22	49.88891 AU
min. Earth dist.	12274 Mar 23 02:46	9° <u>♁</u> 28'25	48.01310 AU	morning rise	12280 Oct 02 08:09	15° <u>♁</u> 46'02	



























































































































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opposition	12281 Mar 30 05:38	16° <u>06</u> '14	-14°00'16	max. Earth dist.	12287 Oct 03 03:01	22° <u>01</u> '25	49.64066 AU
min. Earth dist.	12281 Mar 29 18:41	16° <u>06</u> '44	47.93568 AU	morning rise	12287 Oct 11 17:23	22° <u>02</u> '10	
direct	12281 Jun 20 06:40	15° <u>07</u> '41		retrograde	12288 Jan 12 18:56	23° <u>04</u> '06	
evening set	12281 Sep 19 14:37	16° <u>02</u> '54		opposition	12288 Apr 05 15:46	22° <u>04</u> '46	-12°54'37
				min. Earth dist.	12288 Apr 05 13:01	22° <u>04</u> '53	47.66203 AU
conjunction	12281 Sep 26 16:50	16° <u>03</u> '36	-13°22'48	direct	12288 Jun 26 19:15	21° <u>04</u> '07	
minimum elong	12281 Sep 26 17:05	16° <u>03</u> '37	13°22'37	evening set	12288 Sep 24 04:34	23° <u>00</u> '53	
max. Earth dist.	12281 Sep 27 02:59	16° <u>03</u> '11	49.86739 AU				
morning rise	12281 Oct 03 20:08	16° <u>04</u> '21		conjunction	12288 Oct 03 03:49	23° <u>01</u> '08	-12°18'50
retrograde	12282 Jan 06 13:14	18° <u>02</u> '25		minimum elong	12288 Oct 03 04:03	23° <u>01</u> '09	12°18'34
opposition	12282 Mar 31 10:33	17° <u>03</u> '11	-13°51'31	max. Earth dist.	12288 Oct 03 06:17	23° <u>01</u> '16	49.58581 AU
min. Earth dist.	12282 Mar 31 01:04	17° <u>03</u> '38	47.91116 AU	morning rise	12288 Oct 12 04:23	23° <u>02</u> '28	
direct	12282 Jun 21 12:45	16° <u>04</u> '41		retrograde	12289 Jan 13 01:46	24° <u>04</u> '03	
evening set	12282 Sep 20 12:38	17° <u>02</u> '31		opposition	12289 Apr 06 20:32	23° <u>04</u> '40	-12°44'24
				min. Earth dist.	12289 Apr 06 18:12	23° <u>04</u> '47	47.60404 AU
conjunction	12282 Sep 27 21:51	17° <u>03</u> '37	-13°14'15	direct	12289 Jun 27 23:50	22° <u>04</u> '58	
minimum elong	12282 Sep 27 22:06	17° <u>03</u> '37	13°14'05	evening set	12289 Sep 25 03:32	23° <u>05</u> '26	
max. Earth dist.	12282 Sep 28 08:07	17° <u>03</u> '12	49.84203 AU				
morning rise	12282 Oct 05 08:01	17° <u>04</u> '46		conjunction	12289 Oct 04 08:48	24° <u>01</u> '01	-12°08'53
retrograde	12283 Jan 07 17:35	18° <u>05</u> '27		minimum elong	12289 Oct 04 09:04	24° <u>01</u> '02	12°08'36
opposition	12283 Apr 01 15:17	18° <u>00</u> '14	-13°42'32	max. Earth dist.	12289 Oct 04 10:41	24° <u>01</u> '07	49.52724 AU
min. Earth dist.	12283 Apr 01 06:55	18° <u>00</u> '38	47.88240 AU	morning rise	12289 Oct 13 15:24	24° <u>02</u> '41	
direct	12283 Jun 22 20:14	17° <u>01</u> '45		retrograde	12290 Jan 14 09:21	25° <u>03</u> '58	
evening set	12283 Sep 21 10:58	18° <u>01</u> '14		opposition	12290 Apr 08 01:27	24° <u>03</u> '32	-12°33'57
				min. Earth dist.	12290 Apr 08 00:45	24° <u>03</u> '34	47.54256 AU
conjunction	12283 Sep 29 02:47	18° <u>02</u> '42	-13°05'31	direct	12290 Jun 29 02:55	23° <u>04</u> '47	
minimum elong	12283 Sep 29 03:02	18° <u>02</u> '43	13°05'18	evening set	12290 Sep 26 02:47	24° <u>05</u> '57	
max. Earth dist.	12283 Sep 29 11:06	18° <u>02</u> '11	49.81230 AU				
morning rise	12283 Oct 06 19:43	18° <u>03</u> '15		conjunction	12290 Oct 05 13:50	25° <u>06</u> '52	-11°58'41
retrograde	12284 Jan 09 01:36	19° <u>05</u> '34		minimum elong	12290 Oct 05 14:04	25° <u>06</u> '53	11°58'23
opposition	12284 Apr 01 20:11	18° <u>05</u> '23	-13°33'21	max. Earth dist.	12290 Oct 05 15:18	25° <u>06</u> '57	49.46557 AU
min. Earth dist.	12284 Apr 01 12:20	18° <u>05</u> '44	47.84899 AU	morning rise	12290 Oct 15 02:08	25° <u>01</u> '52	
direct	12284 Jun 22 23:40	17° <u>05</u> '53		retrograde	12291 Jan 15 13:17	26° <u>03</u> '52	
evening set	12284 Sep 21 09:15	19° <u>01</u> '41		opposition	12291 Apr 09 06:06	25° <u>03</u> '23	-12°23'16
				min. Earth dist.	12291 Apr 09 05:04	25° <u>03</u> '26	47.47804 AU
conjunction	12284 Sep 29 07:44	19° <u>02</u> '45	-12°56'34	direct	12291 Jun 30 06:28	24° <u>03</u> '36	
minimum elong	12284 Sep 29 07:58	19° <u>02</u> '45	12°56'22	evening set	12291 Sep 27 02:05	25° <u>05</u> '30	
max. Earth dist.	12284 Sep 29 15:01	19° <u>02</u> '51	49.77739 AU				
morning rise	12284 Oct 07 07:21	19° <u>03</u> '47		conjunction	12291 Oct 06 18:47	26° <u>03</u> '45	-11°48'17
retrograde	12285 Jan 09 08:13	20° <u>05</u> '45		minimum elong	12291 Oct 06 19:01	26° <u>03</u> '46	11°47'59
opposition	12285 Apr 03 01:14	19° <u>05</u> '43	-13°23'58	max. Earth dist.	12291 Oct 06 18:41	26° <u>03</u> '45	49.40092 AU
min. Earth dist.	12285 Apr 02 19:33	19° <u>05</u> '49	47.81016 AU	morning rise	12291 Oct 16 12:58	26° <u>01</u> '06	
direct	12285 Jun 24 02:49	18° <u>05</u> '03		retrograde	12292 Jan 16 17:21	27° <u>03</u> '24	
evening set	12285 Sep 22 08:02	20° <u>01</u> '49		opposition	12292 Apr 09 11:05	26° <u>03</u> '18	-12°12'20
				min. Earth dist.	12292 Apr 09 11:22	26° <u>03</u> '18	47.41073 AU
conjunction	12285 Sep 30 12:54	20° <u>02</u> '02	-12°47'26	direct	12292 Jun 30 11:45	25° <u>03</u> '40	
minimum elong	12285 Sep 30 13:10	20° <u>02</u> '03	12°47'12	evening set	12292 Sep 27 01:21	26° <u>04</u> '09	
max. Earth dist.	12285 Sep 30 19:18	20° <u>02</u> '24	49.73712 AU				
morning rise	12285 Oct 08 18:52	20° <u>03</u> '19		conjunction	12292 Oct 06 23:47	27° <u>00</u> '44	-11°37'38
retrograde	12286 Jan 10 12:12	21° <u>05</u> '55		minimum elong	12292 Oct 07 00:02	27° <u>00</u> '45	11°37'18
opposition	12286 Apr 04 05:58	20° <u>05</u> '14	-13°14'23	max. Earth dist.	12292 Oct 07 00:05	27° <u>00</u> '45	49.33349 AU
min. Earth dist.	12286 Apr 04 00:37	20° <u>05</u> '16	47.76580 AU	morning rise	12292 Oct 16 23:31	27° <u>01</u> '24	
direct	12286 Jun 25 06:11	19° <u>05</u> '09		retrograde	12293 Jan 16 20:53	28° <u>02</u> '54	
evening set	12286 Sep 23 06:49	21° <u>07</u> '35		opposition	12293 Apr 10 16:01	27° <u>03</u> '21	-12°01'10
				min. Earth dist.	12293 Apr 10 16:49	27° <u>03</u> '19	47.34044 AU
conjunction	12286 Oct 01 17:55	21° <u>01</u> '09	-12°38'06	direct	12293 Jul 01 19:08	26° <u>03</u> '31	
minimum elong	12286 Oct 01 18:10	21° <u>01</u> '10	12°37'52	evening set	12293 Sep 28 01:02	27° <u>04</u> '58	
max. Earth dist.	12286 Oct 01 22:05	21° <u>01</u> '24	49.69135 AU				
morning rise	12286 Oct 10 06:19	21° <u>03</u> '47		conjunction	12293 Oct 08 04:53	27° <u>05</u> '52	-11°26'45
retrograde	12287 Jan 11 16:24	22° <u>04</u> '03		minimum elong	12293 Oct 08 05:07	27° <u>05</u> '53	11°26'26
opposition	12287 Apr 05 10:54	21° <u>04</u> '46	-13°04'36	max. Earth dist.	12293 Oct 08 03:34	27° <u>05</u> '47	49.26310 AU
min. Earth dist.	12287 Apr 05 07:22	21° <u>04</u> '56	47.71626 AU	morning rise	12293 Oct 18 10:14	28° <u>01</u> '11	
direct	12287 Jun 26 11:12	20° <u>05</u> '11		retrograde	12294 Jan 18 04:41	29° <u>02</u> '08	
evening set	12287 Sep 24 05:33	22° <u>04</u> '17		opposition	12294 Apr 11 20:48	28° <u>02</u> '35	-11°49'46
				min. Earth dist.	12294 Apr 11 22:00	28° <u>02</u> '32	47.26707 AU
conjunction	12287 Oct 02 22:54	22° <u>01</u> '11	-12°28'34	direct	12294 Jul 02 22:33	27° <u>02</u> '44	

evening set	12294 Sep 29 00:47	28° <u>♁</u> 40'59	conjunction	12300 Oct 15 18:59	4° <u>♁</u> 43'23 -10°04'42
			minimum elong	12300 Oct 15 19:13	4° <u>♁</u> 43'24 10°04'17
conjunction	12294 Oct 09 10:08	28° <u>♁</u> 55'12 -11°15'39	max. Earth dist.	12300 Oct 15 10:24	4° <u>♁</u> 42'53 48.64795 AU
minimum elong	12294 Oct 09 10:22	28° <u>♁</u> 55'13 11°15'18	morning rise	12300 Oct 27 12:24	4° <u>♁</u> 59'34
max. Earth dist.	12294 Oct 09 08:06	28° <u>♁</u> 55'05 49.18920 AU	retrograde	12301 Jan 26 00:01	6° <u>♁</u> 13'34
morning rise	12294 Oct 19 20:58	29° <u>♁</u> 09'32	opposition	12301 Apr 19 08:49	5° <u>♁</u> 13'40 -10°23'53
	12294 Dec 01 01:21	0° <u>♁</u>	min. Earth dist.	12301 Apr 19 17:20	5° <u>♁</u> 13'16 46.62643 AU
retrograde	12295 Jan 19 11:51	0° <u>♁</u> 24'36	direct	12301 Jul 10 04:23	4° <u>♁</u> 14'24
	12295 Mar 10 17:52	30° <u>♁</u>	evening set	12301 Oct 05 04:08	5° <u>♁</u> 25'29
opposition	12295 Apr 13 01:50	29° <u>♁</u> 25'03 -11°38'08			
min. Earth dist.	12295 Apr 13 04:52	29° <u>♁</u> 24'54 47.18991 AU	conjunction	12301 Oct 17 00:37	5° <u>♁</u> 41'50 -9°52'09
direct	12295 Jul 04 01:42	28° <u>♁</u> 26'11	minimum elong	12301 Oct 17 00:50	5° <u>♁</u> 41'50 9°51'42
evening set	12295 Sep 30 00:41	29° <u>♁</u> 38'14	max. Earth dist.	12301 Oct 16 14:16	5° <u>♁</u> 41'14 48.54228 AU
			morning rise	12301 Oct 28 22:57	5° <u>♁</u> 58'18
conjunction	12295 Oct 10 15:20	29° <u>♁</u> 52'47 -11°04'20	retrograde	12302 Jan 27 04:30	7° <u>♁</u> 12'09
minimum elong	12295 Oct 10 15:34	29° <u>♁</u> 52'48 11°03'59	opposition	12302 Apr 20 14:04	6° <u>♁</u> 12'09 -10°10'43
max. Earth dist.	12295 Oct 10 12:46	29° <u>♁</u> 52'38 49.11134 AU	min. Earth dist.	12302 Apr 21 00:14	6° <u>♁</u> 11'40 46.51787 AU
	12295 Oct 15 21:15	0° <u>♁</u>	direct	12302 Jul 11 10:04	5° <u>♁</u> 12'48
morning rise	12295 Oct 21 07:25	0° <u>♁</u> 07'26	evening set	12302 Oct 06 05:08	6° <u>♁</u> 23'45
retrograde	12296 Jan 20 17:04	1° <u>♁</u> 22'19			
opposition	12296 Apr 13 06:49	0° <u>♁</u> 22'44 -11°26'18	conjunction	12302 Oct 18 06:25	6° <u>♁</u> 40'23 -9°39'21
min. Earth dist.	12296 Apr 13 10:02	0° <u>♁</u> 22'35 47.10836 AU	minimum elong	12302 Oct 18 06:39	6° <u>♁</u> 40'24 9°38'54
	12296 May 04 01:03	30° <u>♁</u>	max. Earth dist.	12302 Oct 17 20:19	6° <u>♁</u> 39'48 48.43347 AU
direct	12296 Jul 04 04:53	29° <u>♁</u> 23'51	morning rise	12302 Oct 30 09:17	6° <u>♁</u> 57'08
	12296 Sep 01 16:52	0° <u>♁</u>	retrograde	12303 Jan 28 06:29	8° <u>♁</u> 10'51
evening set	12296 Sep 30 00:57	0° <u>♁</u> 35'45	opposition	12303 Apr 21 19:26	7° <u>♁</u> 10'46 -9°57'19
			min. Earth dist.	12303 Apr 22 05:57	7° <u>♁</u> 10'16 46.40624 AU
conjunction	12296 Oct 10 20:45	0° <u>♁</u> 50'36 -10°52'49	direct	12303 Jul 12 18:38	6° <u>♁</u> 11'19
minimum elong	12296 Oct 10 20:59	0° <u>♁</u> 50'37 10°52'26	evening set	12303 Oct 07 06:18	7° <u>♁</u> 22'09
max. Earth dist.	12296 Oct 10 15:57	0° <u>♁</u> 50'20 49.02869 AU			
morning rise	12296 Oct 21 18:14	1° <u>♁</u> 05'33	conjunction	12303 Oct 19 12:00	7° <u>♁</u> 39'05 -9°26'19
retrograde	12297 Jan 20 22:07	2° <u>♁</u> 20'16	minimum elong	12303 Oct 19 12:12	7° <u>♁</u> 39'05 9°25'51
opposition	12297 Apr 14 11:59	1° <u>♁</u> 20'39 -11°14'14	max. Earth dist.	12303 Oct 19 00:22	7° <u>♁</u> 38'24 48.32185 AU
min. Earth dist.	12297 Apr 14 17:07	1° <u>♁</u> 20'25 47.02187 AU	morning rise	12303 Oct 31 19:32	7° <u>♁</u> 56'07
direct	12297 Jul 05 09:26	0° <u>♁</u> 21'43	retrograde	12304 Jan 29 13:27	9° <u>♁</u> 09'43
evening set	12297 Oct 01 01:17	1° <u>♁</u> 33'27	opposition	12304 Apr 22 00:54	8° <u>♁</u> 09'34 -9°43'41
			min. Earth dist.	12304 Apr 22 11:42	8° <u>♁</u> 09'03 46.29194 AU
conjunction	12297 Oct 12 02:22	1° <u>♁</u> 48'37 -10°41'06	direct	12304 Jul 12 23:56	7° <u>♁</u> 10'01
minimum elong	12297 Oct 12 02:36	1° <u>♁</u> 48'38 10°40'43	evening set	12304 Oct 07 07:38	8° <u>♁</u> 20'45
max. Earth dist.	12297 Oct 11 21:14	1° <u>♁</u> 48'19 48.94087 AU			
morning rise	12297 Oct 23 04:53	2° <u>♁</u> 03'52	conjunction	12304 Oct 19 17:54	8° <u>♁</u> 37'58 -9°13'03
retrograde	12298 Jan 22 01:38	3° <u>♁</u> 18'25	minimum elong	12304 Oct 19 18:07	8° <u>♁</u> 37'58 9°12'35
opposition	12298 Apr 15 17:10	2° <u>♁</u> 18'45 -11°01'58	max. Earth dist.	12304 Oct 19 05:48	8° <u>♁</u> 37'16 48.20743 AU
min. Earth dist.	12298 Apr 15 23:15	2° <u>♁</u> 18'28 46.92997 AU	morning rise	12304 Nov 01 05:56	8° <u>♁</u> 55'18
direct	12298 Jul 06 17:09	1° <u>♁</u> 19'45	retrograde	12305 Jan 29 21:16	10° <u>♁</u> 08'48
evening set	12298 Oct 02 01:55	2° <u>♁</u> 31'19	opposition	12305 Apr 23 06:28	9° <u>♁</u> 08'34 -9°29'47
			min. Earth dist.	12305 Apr 23 18:45	9° <u>♁</u> 07'59 46.17482 AU
conjunction	12298 Oct 13 07:53	2° <u>♁</u> 46'46 -10°29'11	direct	12305 Jul 14 04:51	8° <u>♁</u> 08'56
minimum elong	12298 Oct 13 08:07	2° <u>♁</u> 46'47 10°28'46	evening set	12305 Oct 08 09:15	9° <u>♁</u> 19'35
max. Earth dist.	12298 Oct 13 00:44	2° <u>♁</u> 46'21 48.84784 AU			
morning rise	12298 Oct 24 15:32	3° <u>♁</u> 02'20	conjunction	12305 Oct 20 23:55	9° <u>♁</u> 37'05 -8°59'33
retrograde	12299 Jan 23 08:45	4° <u>♁</u> 16'42	minimum elong	12305 Oct 21 00:08	9° <u>♁</u> 37'06 8°59'03
opposition	12299 Apr 16 22:16	3° <u>♁</u> 16'58 -10°49'30	max. Earth dist.	12305 Oct 20 11:27	9° <u>♁</u> 36'21 48.09027 AU
min. Earth dist.	12299 Apr 17 05:11	3° <u>♁</u> 16'39 46.83309 AU	morning rise	12305 Nov 02 16:18	9° <u>♁</u> 54'42
direct	12299 Jul 07 22:34	2° <u>♁</u> 17'53	retrograde	12306 Jan 31 04:50	11° <u>♁</u> 08'07
evening set	12299 Oct 03 02:29	3° <u>♁</u> 29'16	opposition	12306 Apr 24 12:02	10° <u>♁</u> 07'49 -9°15'39
			min. Earth dist.	12306 Apr 25 00:10	10° <u>♁</u> 07'14 46.05469 AU
conjunction	12299 Oct 14 13:28	3° <u>♁</u> 45'02 -10°17'03	direct	12306 Jul 15 07:58	9° <u>♁</u> 08'06
minimum elong	12299 Oct 14 13:41	3° <u>♁</u> 45'03 10°16'38	evening set	12306 Oct 09 11:07	10° <u>♁</u> 18'42
max. Earth dist.	12299 Oct 14 05:22	3° <u>♁</u> 44'34 48.74992 AU			
morning rise	12299 Oct 26 02:05	4° <u>♁</u> 00'55	conjunction	12306 Oct 22 05:58	10° <u>♁</u> 36'29 -8°45'50
retrograde	12300 Jan 24 17:28	5° <u>♁</u> 15'05	minimum elong	12306 Oct 22 06:10	10° <u>♁</u> 36'30 8°45'19
opposition	12300 Apr 18 03:37	4° <u>♁</u> 15'16 -10°36'48	max. Earth dist.	12306 Oct 21 15:37	10° <u>♁</u> 35'39 47.96971 AU
min. Earth dist.	12300 Apr 18 12:18	4° <u>♁</u> 14'52 46.73168 AU	morning rise	12306 Nov 04 02:48	10° <u>♁</u> 54'24
direct	12300 Jul 09 01:53	3° <u>♁</u> 16'07	retrograde	12307 Feb 01 12:04	12° <u>♁</u> 07'45
evening set	12300 Oct 04 03:09	4° <u>♁</u> 27'19	opposition	12307 Apr 25 17:46	11° <u>♁</u> 07'22 -9°01'16
			min. Earth dist.	12307 Apr 26 07:43	11° <u>♁</u> 06'42 45.93102 AU

direct	12307 Jul 16 11:29	10° ℳ 07'35		max. Earth dist.	12313 Oct 28 06:18	17° ℳ 39'08	46.99703 AU
evening set	12307 Oct 10 13:09	11° ℳ 18'09					
				conjunction	12313 Oct 29 04:44	17° ℳ 40'28	-7°03'37
conjunction	12307 Oct 23 12:20	11° ℳ 36'13	-8°31'52	minimum elong	12313 Oct 29 04:54	17° ℳ 40'29	7°03'01
minimum elong	12307 Oct 23 12:33	11° ℳ 36'13	8°31'20	morning rise	12313 Nov 12 04:52	18° ℳ 00'17	
max. Earth dist.	12307 Oct 22 21:59	11° ℳ 35'22	47.84529 AU	retrograde	12314 Feb 08 10:28	19° ℳ 13'29	
morning rise	12307 Nov 05 13:12	11° ℳ 54'24		opposition	12314 May 02 12:54	18° ℳ 12'17	-7°14'14
retrograde	12308 Feb 02 16:33	13° ℳ 07'42		min. Earth dist.	12314 May 03 09:50	18° ℳ 11'17	44.93381 AU
opposition	12308 Apr 25 23:38	12° ℳ 07'14	-8°46'39	direct	12314 Jul 23 07:37	17° ℳ 11'37	
min. Earth dist.	12308 Apr 26 14:13	12° ℳ 06'33	45.80304 AU	evening set	12314 Oct 16 10:11	18° ℳ 22'11	
direct	12308 Jul 16 19:02	11° ℳ 07'22					
evening set	12308 Oct 10 15:32	12° ℳ 17'55		conjunction	12314 Oct 30 11:51	18° ℳ 42'07	-6°48'07
				minimum elong	12314 Oct 30 12:01	18° ℳ 42'07	6°47'30
conjunction	12308 Oct 23 18:41	12° ℳ 36'15	-8°17'42	max. Earth dist.	12314 Oct 29 12:55	18° ℳ 40'45	46.84132 AU
minimum elong	12308 Oct 23 18:52	12° ℳ 36'15	8°17'10	morning rise	12314 Nov 13 15:23	19° ℳ 02'11	
max. Earth dist.	12308 Oct 23 02:18	12° ℳ 35'17	47.71629 AU	retrograde	12315 Feb 09 18:25	20° ℳ 15'26	
morning rise	12308 Nov 05 23:47	12° ℳ 54'43		opposition	12315 May 03 19:30	19° ℳ 14'06	-6°58'00
retrograde	12309 Feb 02 23:17	14° ℳ 07'59		min. Earth dist.	12315 May 04 17:44	19° ℳ 13'01	44.77553 AU
opposition	12309 Apr 27 05:40	13° ℳ 07'26	-8°31'50	direct	12315 Jul 24 14:13	18° ℳ 13'16	
min. Earth dist.	12309 Apr 27 21:23	13° ℳ 06'41	45.67022 AU	evening set	12315 Oct 17 14:03	19° ℳ 23'54	
direct	12309 Jul 18 01:21	12° ℳ 07'27					
evening set	12309 Oct 11 18:11	13° ℳ 17'58		conjunction	12315 Oct 31 19:06	19° ℳ 44'05	-6°32'23
max. Earth dist.	12309 Oct 24 07:48	13° ℳ 35'33	47.58199 AU	minimum elong	12315 Oct 31 19:16	19° ℳ 44'06	6°31'46
				max. Earth dist.	12315 Oct 30 19:44	19° ℳ 42'42	46.68295 AU
conjunction	12309 Oct 25 01:25	13° ℳ 36'35	-8°03'19	morning rise	12315 Nov 15 01:58	20° ℳ 04'25	
minimum elong	12309 Oct 25 01:36	13° ℳ 36'36	8°02'46	retrograde	12316 Feb 11 03:46	21° ℳ 17'43	
morning rise	12309 Nov 07 10:29	13° ℳ 55'19		opposition	12316 May 04 02:09	20° ℳ 16'16	-6°41'29
	12310 Jan 06 23:51	15° ℳ		min. Earth dist.	12316 May 05 00:07	20° ℳ 15'11	44.61472 AU
retrograde	12310 Feb 04 07:27	15° ℳ 08'34		direct	12316 Jul 24 18:14	19° ℳ 15'17	
	12310 Mar 04 20:45	15° ℳ		evening set	12316 Oct 17 18:08	20° ℳ 26'01	
opposition	12310 Apr 28 11:43	14° ℳ 07'55	-8°16'46	max. Earth dist.	12316 Oct 31 01:22	20° ℳ 44'58	46.52193 AU
min. Earth dist.	12310 Apr 29 05:21	14° ℳ 07'04	45.53200 AU				
direct	12310 Jul 19 06:59	13° ℳ 07'49		conjunction	12316 Nov 01 02:22	20° ℳ 46'27	-6°16'24
evening set	12310 Oct 12 21:02	14° ℳ 18'19		minimum elong	12316 Nov 01 02:31	20° ℳ 46'28	6°15'46
				morning rise	12316 Nov 15 12:39	21° ℳ 07'02	
conjunction	12310 Oct 26 08:10	14° ℳ 37'11	-7°48'44	retrograde	12317 Feb 11 13:48	22° ℳ 20'25	
minimum elong	12310 Oct 26 08:21	14° ℳ 37'12	7°48'11	opposition	12317 May 05 09:08	21° ℳ 18'50	-6°24'43
max. Earth dist.	12310 Oct 25 13:34	14° ℳ 36'06	47.44254 AU	min. Earth dist.	12317 May 06 08:40	21° ℳ 17'41	44.45135 AU
morning rise	12310 Nov 08 21:05	14° ℳ 56'12		direct	12317 Jul 25 22:03	20° ℳ 17'43	
	12310 Nov 11 15:20	15° ℳ		evening set	12317 Oct 18 22:31	21° ℳ 28'33	
retrograde	12311 Feb 05 16:14	16° ℳ 09'25		max. Earth dist.	12317 Nov 01 09:21	21° ℳ 47'46	46.35832 AU
opposition	12311 Apr 29 17:51	15° ℳ 08'38	-8°01'30				
min. Earth dist.	12311 Apr 30 11:39	15° ℳ 07'47	45.38871 AU	conjunction	12317 Nov 02 10:05	21° ℳ 49'15	-6°00'10
	12311 May 07 06:02	15° ℳ		minimum elong	12317 Nov 02 10:14	21° ℳ 49'16	5°59'32
direct	12311 Jul 20 10:32	14° ℳ 08'24		morning rise	12317 Nov 16 23:21	22° ℳ 10'06	
	12311 Sep 29 21:20	15° ℳ		retrograde	12318 Feb 12 20:05	23° ℳ 23'34	
evening set	12311 Oct 13 23:58	15° ℳ 18'54		opposition	12318 May 06 16:00	22° ℳ 21'51	-6°07'42
				min. Earth dist.	12318 May 07 15:40	22° ℳ 20'42	44.28522 AU
conjunction	12311 Oct 27 14:48	15° ℳ 38'02	-7°33'55	direct	12318 Jul 27 06:01	21° ℳ 20'37	
minimum elong	12311 Oct 27 14:59	15° ℳ 38'03	7°33'21	evening set	12318 Oct 20 03:21	22° ℳ 31'35	
max. Earth dist.	12311 Oct 26 18:13	15° ℳ 36'49	47.29810 AU				
morning rise	12311 Nov 10 07:39	15° ℳ 57'19		conjunction	12318 Nov 03 17:47	22° ℳ 52'32	-5°43'42
retrograde	12312 Feb 06 23:22	17° ℳ 10'31		minimum elong	12318 Nov 03 17:55	22° ℳ 52'33	5°43'02
opposition	12312 Apr 30 00:13	16° ℳ 09'36	-7°45'59	max. Earth dist.	12318 Nov 02 15:18	22° ℳ 50'56	46.19185 AU
min. Earth dist.	12312 Apr 30 20:00	16° ℳ 08'39	45.24086 AU	morning rise	12318 Nov 18 10:14	23° ℳ 13'38	
direct	12312 Jul 20 16:05	15° ℳ 09'13		retrograde	12319 Feb 14 03:20	24° ℳ 27'13	
evening set	12312 Oct 14 03:06	16° ℳ 19'43		opposition	12319 May 07 23:12	23° ℳ 25'24	-5°50'26
				min. Earth dist.	12319 May 08 23:55	23° ℳ 24'11	44.11608 AU
conjunction	12312 Oct 27 21:46	16° ℳ 39'08	-7°18'53	direct	12319 Jul 28 13:24	22° ℳ 24'00	
minimum elong	12312 Oct 27 21:57	16° ℳ 39'08	7°18'18	evening set	12319 Oct 21 08:14	23° ℳ 35'08	
max. Earth dist.	12312 Oct 27 01:09	16° ℳ 37'54	47.14940 AU	max. Earth dist.	12319 Nov 03 22:35	23° ℳ 54'41	46.02182 AU
morning rise	12312 Nov 10 18:10	16° ℳ 58'40					
retrograde	12313 Feb 07 03:08	18° ℳ 11'51		conjunction	12319 Nov 05 01:41	23° ℳ 56'20	-5°27'00
opposition	12313 May 01 06:28	17° ℳ 10'48	-7°30'14	minimum elong	12319 Nov 05 01:49	23° ℳ 56'20	5°26'21
min. Earth dist.	12313 May 02 02:40	17° ℳ 09'50	45.08900 AU	morning rise	12319 Nov 19 20:57	24° ℳ 17'40	
direct	12313 Jul 22 00:55	16° ℳ 10'16		retrograde	12320 Feb 15 11:05	25° ℳ 31'25	
evening set	12313 Oct 15 06:36	17° ℳ 20'48		opposition	12320 May 08 06:40	24° ℳ 29'27	-5°32'54

min. Earth dist.	12320 May 09 08:51	24° M 28'09	43.94306 AU	conjunction	12326 Nov 12 15:21	1° ♂ 35'24	-3°23'34
direct	12320 Jul 28 21:57	23° M 27'55		minimum elong	12326 Nov 12 15:27	1° ♂ 35'25	3°22'49
evening set	12320 Oct 21 13:44	24° M 39'12		morning rise	12326 Nov 28 03:28	1° ♂ 58'21	
max. Earth dist.	12320 Nov 04 05:52	24° M 58'56	45.84774 AU	retrograde	12327 Feb 23 06:33	3° ♂ 13'19	
				opposition	12327 May 16 15:06	2° ♂ 09'59	-3°23'16
conjunction	12320 Nov 05 09:57	25° M 00'38	-5°10'04	min. Earth dist.	12327 May 18 00:11	2° ♂ 08'18	42.61340 AU
minimum elong	12320 Nov 05 10:05	25° M 00'39	5°09'23	direct	12327 Aug 06 00:28	1° ♂ 06'55	
morning rise	12320 Nov 20 08:01	25° M 22'13		evening set	12327 Oct 29 12:33	2° ♂ 19'39	
retrograde	12321 Feb 15 22:28	26° M 36'07		max. Earth dist.	12327 Nov 12 13:43	2° ♂ 40'29	44.51107 AU
opposition	12321 May 09 14:06	25° M 34'00	-5°15'08				
min. Earth dist.	12321 May 10 16:35	25° M 32'42	43.76569 AU	conjunction	12327 Nov 14 00:49	2° ♂ 42'41	-3°04'58
direct	12321 Jul 30 02:38	24° M 32'18		minimum elong	12327 Nov 14 00:54	2° ♂ 42'41	3°04'13
evening set	12321 Oct 22 19:37	25° M 43'45		morning rise	12327 Nov 29 14:38	3° ♂ 05'50	
				retrograde	12328 Feb 24 16:48	4° ♂ 21'04	
conjunction	12321 Nov 06 18:27	26° M 05'26	-4°52'54	opposition	12328 May 16 23:54	3° ♂ 17'30	-3°03'43
minimum elong	12321 Nov 06 18:35	26° M 05'26	4°52'13	min. Earth dist.	12328 May 18 08:37	3° ♂ 15'51	42.41136 AU
max. Earth dist.	12321 Nov 05 12:13	26° M 03'35	45.66885 AU	direct	12328 Aug 06 08:29	2° ♂ 14'13	
morning rise	12321 Nov 21 19:16	26° M 27'15		evening set	12328 Oct 29 20:45	3° ♂ 27'15	
retrograde	12322 Feb 17 09:02	27° M 41'18		max. Earth dist.	12328 Nov 12 21:47	3° ♂ 48'11	44.30875 AU
opposition	12322 May 10 21:58	26° M 39'01	-4°57'07				
min. Earth dist.	12322 May 12 02:39	26° M 37'36	43.58346 AU	conjunction	12328 Nov 14 10:35	3° ♂ 50'30	-2°46'07
direct	12322 Jul 31 07:48	25° M 37'07		minimum elong	12328 Nov 14 10:40	3° ♂ 50'30	2°45'23
evening set	12322 Oct 24 01:37	26° M 48'44		morning rise	12328 Nov 30 02:16	4° ♂ 13'53	
max. Earth dist.	12322 Nov 06 20:37	27° M 08'47	45.48516 AU	retrograde	12329 Feb 25 03:24	5° ♂ 29'23	
				opposition	12329 May 18 08:54	4° ♂ 25'37	-2°43'54
conjunction	12322 Nov 08 03:09	27° M 10'39	-4°35'30	min. Earth dist.	12329 May 19 18:46	4° ♂ 23'54	42.20757 AU
minimum elong	12322 Nov 08 03:16	27° M 10'40	4°34'48	direct	12329 Aug 07 16:41	3° ♂ 22'07	
morning rise	12322 Nov 23 06:19	27° M 32'43		evening set	12329 Oct 31 05:12	4° ♂ 35'29	
retrograde	12323 Feb 18 16:41	28° M 46'54		max. Earth dist.	12329 Nov 14 07:53	4° ♂ 56'37	44.10449 AU
opposition	12323 May 12 05:49	27° M 44'25	-4°38'52				
min. Earth dist.	12323 May 13 10:50	27° M 42'59	43.39651 AU	conjunction	12329 Nov 15 20:47	4° ♂ 58'57	-2°27'02
direct	12323 Aug 01 16:53	26° M 42'18		minimum elong	12329 Nov 15 20:50	4° ♂ 58'57	2°26'16
evening set	12323 Oct 25 08:05	27° M 54'07		morning rise	12329 Dec 01 13:50	5° ♂ 22'32	
max. Earth dist.	12323 Nov 08 03:11	28° M 14'15	45.29703 AU	retrograde	12330 Feb 26 11:28	6° ♂ 38'22	
				opposition	12330 May 19 18:14	5° ♂ 34'25	-2°23'49
conjunction	12323 Nov 09 11:52	28° M 16'16	-4°17'52	min. Earth dist.	12330 May 21 04:46	5° ♂ 32'39	42.00176 AU
minimum elong	12323 Nov 09 11:59	28° M 16'16	4°17'10	direct	12330 Aug 09 03:50	4° ♂ 30'42	
morning rise	12323 Nov 24 17:38	28° M 38'33		evening set	12330 Nov 01 14:09	5° ♂ 44'27	
retrograde	12324 Feb 20 01:04	29° M 52'54		max. Earth dist.	12330 Nov 15 17:16	6° ♂ 05'43	43.89821 AU
opposition	12324 May 12 13:54	28° M 50'13	-4°20'21				
min. Earth dist.	12324 May 13 20:11	28° M 48'42	43.20554 AU	conjunction	12330 Nov 17 07:02	6° ♂ 08'06	-2°07'43
direct	12324 Aug 02 01:29	27° M 47'52		minimum elong	12330 Nov 17 07:05	6° ♂ 08'07	2°06'56
evening set	12324 Oct 25 14:37	28° M 59'52		morning rise	12330 Dec 03 01:33	6° ♂ 31'54	
max. Earth dist.	12324 Nov 08 11:44	29° M 20'12	45.10493 AU	retrograde	12331 Feb 27 23:12	7° ♂ 48'05	
				opposition	12331 May 21 03:44	6° ♂ 43'58	-2°03'28
conjunction	12324 Nov 09 20:51	29° M 22'15	-4°00'01	min. Earth dist.	12331 May 22 14:25	6° ♂ 42'11	41.79375 AU
minimum elong	12324 Nov 09 20:58	29° M 22'15	3°59'17	direct	12331 Aug 10 11:46	5° ♂ 40'02	
morning rise	12324 Nov 25 04:46	29° M 44'46		evening set	12331 Nov 02 23:38	6° ♂ 54'11	
	12324 Dec 06 00:37	0° ♂		max. Earth dist.	12331 Nov 17 02:37	7° ♂ 15'34	43.68920 AU
retrograde	12325 Feb 20 08:24	0° ♂ 59'18					
	12325 May 10 22:08	30° ♂ M		conjunction	12331 Nov 18 17:44	7° ♂ 18'03	-1°48'09
opposition	12325 May 13 22:11	29° M 56'23	-4°01'35	minimum elong	12331 Nov 18 17:47	7° ♂ 18'03	1°47'21
min. Earth dist.	12325 May 15 05:37	29° M 54'48	43.01089 AU	morning rise	12331 Dec 04 13:26	7° ♂ 42'03	
direct	12325 Aug 03 11:10	28° M 53'48		retrograde	12332 Feb 29 12:13	8° ♂ 58'38	
	12325 Oct 22 16:41	0° ♂		opposition	12332 May 21 13:40	7° ♂ 54'19	-1°42'52
evening set	12325 Oct 26 21:41	0° ♂ 06'01		min. Earth dist.	12332 May 23 02:14	7° ♂ 52'26	41.58283 AU
max. Earth dist.	12325 Nov 09 20:02	0° ♂ 26'30	44.90961 AU	direct	12332 Aug 10 18:36	6° ♂ 50'11	
				evening set	12332 Nov 03 09:32	8° ♂ 04'46	
conjunction	12325 Nov 11 06:02	0° ♂ 28'37	-3°41'54	max. Earth dist.	12332 Nov 17 13:28	8° ♂ 26'18	43.47695 AU
minimum elong	12325 Nov 11 06:08	0° ♂ 28'37	3°41'11				
morning rise	12325 Nov 26 16:08	0° ♂ 51'21		conjunction	12332 Nov 19 04:49	8° ♂ 28'49	-1°28'21
retrograde	12326 Feb 21 18:21	2° ♂ 06'05		minimum elong	12332 Nov 19 04:52	8° ♂ 28'49	1°27'33
opposition	12326 May 15 06:24	1° ♂ 02'57	-3°42'34	morning rise	12332 Dec 05 01:29	8° ♂ 53'01	
min. Earth dist.	12326 May 16 13:56	1° ♂ 01'22	42.81338 AU	retrograde	12333 Mar 02 01:12	10° ♂ 10'00	
direct	12326 Aug 04 18:41	0° ♂ 00'08		opposition	12333 May 22 23:46	9° ♂ 05'29	-1°22'01
evening set	12326 Oct 28 05:05	1° ♂ 12'36		min. Earth dist.	12333 May 24 12:29	9° ♂ 03'35	41.36826 AU
max. Earth dist.	12326 Nov 11 03:51	1° ♂ 33'12	44.71143 AU	direct	12333 Aug 12 03:48	8° ♂ 01'07	

evening set	12333 Nov 04 20:12	9°♂16'09		conjunction	12339 Nov 28 18:48	17°♂05'38	0°56'42
max. Earth dist.	12333 Nov 18 22:26	9°♂37'43	43.26068 AU	minimum elong	12339 Nov 28 18:46	17°♂05'38	0°57'33
				morning rise	12339 Dec 14 17:21	17°♂30'57	
conjunction	12333 Nov 20 16:13	9°♂40'24	-1°08'19	retrograde	12340 Mar 10 20:37	18°♂51'18	
minimum elong	12333 Nov 20 16:15	9°♂40'24	1°07'30	opposition	12340 May 31 06:53	17°♂44'55	1°10'58
morning rise	12333 Dec 06 13:52	10°♂04'47		min. Earth dist.	12340 Jun 02 01:42	17°♂42'37	39.77116 AU
retrograde	12334 Mar 03 15:06	11°♂22'11		direct	12340 Aug 20 06:11	16°♂38'29	
opposition	12334 May 24 10:11	10°♂17'27	-1°00'54	evening set	12340 Nov 13 11:17	17°♂57'14	
min. Earth dist.	12334 May 26 00:43	10°♂15'27	41.14967 AU	max. Earth dist.	12340 Nov 27 08:24	18°♂19'21	41.65449 AU
direct	12334 Aug 13 12:52	9°♂12'50					
evening set	12334 Nov 06 07:07	10°♂28'20		conjunction	12340 Nov 29 08:18	18°♂22'34	1°18'18
max. Earth dist.	12334 Nov 20 09:54	10°♂50'02	43.04024 AU	minimum elong	12340 Nov 29 08:16	18°♂22'34	1°19'09
				morning rise	12340 Dec 15 06:29	18°♂48'01	
conjunction	12334 Nov 22 04:02	10°♂52'46	-0°48'03	retrograde	12341 Mar 12 11:43	20°♂08'57	
minimum elong	12334 Nov 22 04:03	10°♂52'46	0°47'15	opposition	12341 Jun 01 19:29	19°♂02'17	1°33'48
morning rise	12334 Dec 08 02:10	11°♂17'19		min. Earth dist.	12341 Jun 03 14:49	18°♂59'57	39.53510 AU
retrograde	12335 Mar 05 01:50	12°♂35'09		direct	12341 Aug 21 18:42	17°♂55'32	
opposition	12335 May 25 20:59	11°♂30'10	-0°39'33	evening set	12341 Nov 15 02:00	19°♂14'57	
min. Earth dist.	12335 May 27 12:15	11°♂28'07	40.92698 AU	max. Earth dist.	12341 Nov 28 22:02	19°♂37'09	41.41744 AU
direct	12335 Aug 15 00:51	10°♂25'17					
evening set	12335 Nov 07 18:28	11°♂41'15		conjunction	12341 Nov 30 22:22	19°♂40'25	1°40'06
max. Earth dist.	12335 Nov 21 20:11	12°♂03'01	42.81599 AU	minimum elong	12341 Nov 30 22:19	19°♂40'24	1°40'58
				morning rise	12341 Dec 16 19:37	20°♂05'58	
conjunction	12335 Nov 23 15:49	12°♂05'51	-0°27'34	retrograde	12342 Mar 14 00:16	21°♂27'33	
minimum elong	12335 Nov 23 15:50	12°♂05'51	0°26'45	opposition	12342 Jun 03 08:25	20°♂20'36	1°56'51
morning rise	12335 Dec 09 14:36	12°♂30'35		min. Earth dist.	12342 Jun 05 04:45	20°♂18'12	39.29787 AU
retrograde	12336 Mar 05 12:54	13°♂48'52		direct	12342 Aug 23 07:41	19°♂13'32	
opposition	12336 May 26 07:59	12°♂43'38	-0°17'56	evening set	12342 Nov 16 17:20	20°♂33'40	
min. Earth dist.	12336 May 27 23:58	12°♂41'32	40.70080 AU	max. Earth dist.	12342 Nov 30 12:11	20°♂55'56	41.17933 AU
direct	12336 Aug 15 12:02	11°♂38'27					
evening set	12336 Nov 08 06:24	12°♂54'55		conjunction	12342 Dec 02 12:45	20°♂59'14	2°02'07
max. Earth dist.	12336 Nov 22 07:13	13°♂16'44	42.58821 AU	minimum elong	12342 Dec 02 12:42	20°♂59'14	2°02'59
				morning rise	12342 Dec 18 09:00	21°♂24'54	
conjunction	12336 Nov 24 04:10	13°♂19'41	-0°06'54	retrograde	12343 Mar 15 15:09	22°♂47'10	
minimum elong	12336 Nov 24 04:09	13°♂19'41	0°06'05	opposition	12343 Jun 04 21:43	21°♂39'57	2°20'08
behind sun begin	12336 Nov 23 22:00	13°♂19'18		min. Earth dist.	12343 Jun 06 17:51	21°♂37'33	39.05947 AU
behind sun end	12336 Nov 24 10:19	13°♂20'04		direct	12343 Aug 24 19:29	20°♂32'35	
morning rise	12336 Dec 10 03:10	13°♂44'34		evening set	12343 Nov 18 09:21	21°♂53'27	
retrograde	12337 Mar 07 01:20	15°♂03'20		max. Earth dist.	12343 Dec 02 01:13	22°♂15'41	40.93953 AU
asc. node	12337 Mar 23 17:06	15°♂00'02					
opposition	12337 May 27 19:14	13°♂57'49	0°03'55	conjunction	12343 Dec 04 03:28	22°♂19'07	2°24'19
min. Earth dist.	12337 May 29 12:51	13°♂55'37	40.47151 AU	minimum elong	12343 Dec 04 03:24	22°♂19'07	2°25'11
direct	12337 Aug 16 22:05	12°♂52'20		morning rise	12343 Dec 19 22:31	22°♂44'53	
evening set	12337 Nov 09 18:49	14°♂09'19		retrograde	12344 Mar 16 09:01	24°♂07'53	
max. Earth dist.	12337 Nov 23 19:41	14°♂31'16	42.35769 AU	opposition	12344 Jun 05 11:36	23°♂00'23	2°43'37
				min. Earth dist.	12344 Jun 07 09:31	22°♂57'52	38.81921 AU
conjunction	12337 Nov 25 16:47	14°♂34'14	0°14'09	direct	12344 Aug 25 05:18	21°♂52'42	
minimum elong	12337 Nov 25 16:47	14°♂34'14	0°15'00	evening set	12344 Nov 19 02:10	23°♂14'22	
behind sun begin	12337 Nov 25 14:37	14°♂34'06		max. Earth dist.	12344 Dec 02 16:49	23°♂36'40	40.69748 AU
behind sun end	12337 Nov 25 18:57	14°♂34'22					
morning rise	12337 Dec 11 15:52	14°♂59'17		conjunction	12344 Dec 04 18:58	23°♂40'08	2°46'43
retrograde	12338 Mar 08 16:02	16°♂18'32		minimum elong	12344 Dec 04 18:54	23°♂40'07	2°47'36
opposition	12338 May 29 06:44	15°♂12'44	0°26'02	morning rise	12344 Dec 20 12:21	24°♂05'58	
min. Earth dist.	12338 May 31 00:05	15°♂10'33	40.23979 AU	retrograde	12345 Mar 18 01:35	25°♂29'43	
direct	12338 Aug 18 06:41	14°♂06'56		opposition	12345 Jun 07 01:40	24°♂21'56	3°07'19
evening set	12338 Nov 11 07:46	15°♂24'29		min. Earth dist.	12345 Jun 08 23:40	24°♂19'24	38.57641 AU
max. Earth dist.	12338 Nov 25 06:40	15°♂46'27	42.12483 AU	direct	12345 Aug 26 18:39	23°♂13'55	
				evening set	12345 Nov 20 19:56	24°♂36'26	
conjunction	12338 Nov 27 05:31	15°♂49'33	0°35'18	max. Earth dist.	12345 Dec 04 06:34	24°♂58'37	40.45257 AU
minimum elong	12338 Nov 27 05:30	15°♂49'33	0°36'09				
morning rise	12338 Dec 13 04:34	16°♂14'44		conjunction	12345 Dec 06 10:51	25°♂02'15	3°09'18
retrograde	12339 Mar 10 07:05	17°♂34'31		minimum elong	12345 Dec 06 10:45	25°♂02'14	3°10'10
opposition	12339 May 30 18:42	16°♂28'26	0°48'23	morning rise	12345 Dec 22 02:34	25°♂28'09	
min. Earth dist.	12339 Jun 01 13:34	16°♂26'09	40.00619 AU	retrograde	12346 Mar 19 20:06	26°♂52'42	
direct	12339 Aug 19 16:39	15°♂22'18		opposition	12346 Jun 08 16:23	25°♂44'35	3°31'13
evening set	12339 Nov 12 21:10	16°♂40'26		min. Earth dist.	12346 Jun 10 15:54	25°♂41'58	38.33074 AU
max. Earth dist.	12339 Nov 26 20:16	17°♂02'32	41.89027 AU	direct	12346 Aug 28 08:12	24°♂36'13	

evening set	12346 Nov 22 14:08	25°  59'35		minimum elong	12352 Dec 16 14:39	5°  08'32	5°52'27
max. Earth dist.	12346 Dec 05 22:22	26°  21'46	40.20450 AU	morning rise	12352 Dec 31 09:40	5°  34'24	
				retrograde	12353 Mar 30 06:56	7°  05'33	
conjunction	12346 Dec 08 03:11	26°  25'28	3°32'03	opposition	12353 Jun 18 11:24	5°  54'56	6°23'15
minimum elong	12346 Dec 08 03:05	26°  25'28	3°32'56	min. Earth dist.	12353 Jun 20 14:50	5°  51'58	36.55847 AU
morning rise	12346 Dec 23 16:39	26°  51'25		direct	12353 Sep 06 21:53	4°  43'45	
retrograde	12347 Mar 21 11:42	28°  16'47		evening set	12353 Dec 03 20:09	6°  31'24	
opposition	12347 Jun 10 07:35	27°  08'21	3°55'19	max. Earth dist.	12353 Dec 16 00:59	6°  35'51	38.42056 AU
min. Earth dist.	12347 Jun 12 08:00	27°  05'39	38.08202 AU				
direct	12347 Aug 30 00:48	25°  59'36		conjunction	12353 Dec 18 10:41	6°  40'08	6°15'08
evening set	12347 Nov 24 09:14	27°  23'52		minimum elong	12353 Dec 18 10:30	6°  40'07	6°16'02
max. Earth dist.	12347 Dec 07 13:58	27°  45'58	39.95369 AU	morning rise	12354 Jan 02 01:05	7°  05'53	
				retrograde	12354 Apr 01 02:49	8°  38'12	
conjunction	12347 Dec 09 19:56	27°  49'47	3°54'58	opposition	12354 Jun 20 05:57	7°  27'13	6°48'18
minimum elong	12347 Dec 09 19:49	27°  49'47	3°55'51	min. Earth dist.	12354 Jun 22 10:04	7°  24'11	36.30458 AU
morning rise	12347 Dec 25 07:10	28°  15'46		direct	12354 Sep 08 16:00	6°  15'39	
retrograde	12348 Mar 22 05:31	29°  41'59		evening set	12354 Dec 05 20:59	7°  47'33	
opposition	12348 Jun 10 23:00	28°  33'12	4°19'36	max. Earth dist.	12354 Dec 17 21:13	8°  08'52	38.16554 AU
min. Earth dist.	12348 Jun 12 23:45	28°  30'28	37.83091 AU				
direct	12348 Aug 30 15:34	27°  24'04		conjunction	12354 Dec 20 06:52	8°  13'10	6°38'46
evening set	12348 Nov 25 05:03	28°  49'16		minimum elong	12354 Dec 20 06:40	8°  13'09	6°39'41
max. Earth dist.	12348 Dec 08 05:50	29°  11'16	39.70042 AU	morning rise	12355 Jan 03 16:38	8°  38'48	
				retrograde	12355 Apr 02 23:39	10°  31'20	
conjunction	12348 Dec 10 13:13	29°  15'12	4°18'02	opposition	12355 Jun 22 00:56	9°  01'01	7°13'23
minimum elong	12348 Dec 10 13:05	29°  15'11	4°18'56	min. Earth dist.	12355 Jun 24 04:29	8°  58'00	36.05154 AU
morning rise	12348 Dec 25 21:47	29°  41'12		direct	12355 Sep 10 09:26	7°  49'04	
	12349 Jan 06 12:01	0°  3		evening set	12355 Dec 07 22:57	9°  22'17	
retrograde	12349 Mar 23 22:20	1°  30'18		max. Earth dist.	12355 Dec 19 16:59	9°  43'20	37.91096 AU
opposition	12349 Jun 12 15:03	29°  45'10	4°44'03				
	12349 Jun 12 00:13	30°  R 		conjunction	12355 Dec 22 03:50	9°  47'46	7°02'25
min. Earth dist.	12349 Jun 14 17:24	29°  56'19	37.57772 AU	minimum elong	12355 Dec 22 03:38	9°  47'45	7°03'19
direct	12349 Sep 01 05:39	28°  49'38		morning rise	12356 Jan 05 08:37	10°  13'16	
	12349 Nov 17 10:09	0°  3		retrograde	12356 Apr 03 21:21	11°  48'05	
evening set	12349 Nov 27 01:37	0°  31'54		opposition	12356 Jun 22 20:34	10°  36'25	7°38'31
max. Earth dist.	12349 Dec 09 23:43	0°  37'46	39.44541 AU	min. Earth dist.	12356 Jun 25 01:32	10°  33'17	35.79891 AU
				direct	12356 Sep 11 01:34	9°  24'04	
conjunction	12349 Dec 12 06:58	0°  41'44	4°41'15	evening set	12356 Dec 09 01:57	10°  58'41	
minimum elong	12349 Dec 12 06:50	0°  41'43	4°42'08	max. Earth dist.	12356 Dec 20 15:15	11°  19'33	37.65645 AU
morning rise	12349 Dec 27 12:30	1°  30'43					
retrograde	12350 Mar 25 17:19	2°  35'46		conjunction	12356 Dec 23 01:35	11°  23'59	7°26'04
opposition	12350 Jun 14 07:18	1°  26'16	5°08'40	minimum elong	12356 Dec 23 01:22	11°  23'58	7°26'59
min. Earth dist.	12350 Jun 16 09:20	1°  23'25	37.32323 AU	morning rise	12357 Jan 06 00:49	11°  49'18	
direct	12350 Sep 02 20:32	0°  31'6'19		retrograde	12357 Apr 05 20:55	13°  25'27	
evening set	12350 Nov 28 23:03	1°  43'31		opposition	12357 Jun 24 16:46	12°  13'26	8°03'39
max. Earth dist.	12350 Dec 11 16:03	2°  05'19	39.18930 AU	min. Earth dist.	12357 Jun 26 21:25	12°  10'18	35.54606 AU
				direct	12357 Sep 12 19:40	11°  30'40	
conjunction	12350 Dec 14 01:03	2°  09'26	5°04'35	evening set	12357 Dec 11 06:12	12°  36'44	
minimum elong	12350 Dec 14 00:54	2°  09'25	5°05'29	max. Earth dist.	12357 Dec 22 11:43	12°  57'14	37.40138 AU
morning rise	12350 Dec 29 03:26	2°  35'24					
retrograde	12351 Mar 27 14:44	4°  30'46		conjunction	12357 Dec 24 23:53	13°  01'50	7°49'43
opposition	12351 Jun 16 00:14	2°  54'33	5°33'25	minimum elong	12357 Dec 24 23:40	13°  01'49	7°50'36
min. Earth dist.	12351 Jun 18 03:35	2°  51'37	37.06818 AU	morning rise	12358 Jan 07 17:23	13°  26'56	
direct	12351 Sep 04 10:18	1°  34'41'11		retrograde	12358 Apr 07 22:00	15°  04'29	
evening set	12351 Nov 30 21:01	3°  31'28		opposition	12358 Jun 26 13:39	13°  52'05	8°28'46
max. Earth dist.	12351 Dec 13 11:14	3°  34'14	38.93276 AU	min. Earth dist.	12358 Jun 28 19:36	13°  48'51	35.29269 AU
				direct	12358 Sep 14 13:33	12°  38'52	
conjunction	12351 Dec 15 19:40	3°  38'21	5°28'01	evening set	12358 Dec 13 11:22	14°  31'6'27	
minimum elong	12351 Dec 15 19:31	3°  38'20	5°28'54	max. Earth dist.	12358 Dec 24 10:56	14°  36'40	37.14559 AU
morning rise	12351 Dec 30 18:17	4°  30'41'16					
retrograde	12352 Mar 28 09:42	5°  34'20		conjunction	12358 Dec 26 23:01	14°  41'18	8°13'19
opposition	12352 Jun 16 17:38	4°  32'40'55'17		minimum elong	12358 Dec 26 22:46	14°  41'17	8°14'13
min. Earth dist.	12352 Jun 18 20:43	4°  32'10'36'1302 AU		morning rise	12359 Jan 09 10:05	15°  06'09	
direct	12352 Sep 05 03:54	3°  31'18		retrograde	12359 Apr 09 22:30	16°  34'50'7	
evening set	12352 Dec 01 20:11	4°  32'44		opposition	12359 Jun 28 11:14	15°  32'19	8°53'52
max. Earth dist.	12352 Dec 14 05:20	5°  30'42'20	38.67643 AU	min. Earth dist.	12359 Jun 30 17:25	15°  29'03	35.03869 AU
				direct	12359 Sep 16 12:00	14°  31'8'39	
conjunction	12352 Dec 16 14:49	5°  30'8'33	5°51'33	evening set	12359 Dec 15 17:41	15°  35'7'47	

max. Earth dist.	12359 Dec 26 09:26	16° $\overline{3}$ 17'35	36.88938 AU	min. Earth dist.	12366 Jul 12 19:10	27° $\overline{3}$ 55'40	33.29002 AU
				direct	12366 Sep 28 05:16	26° $\overline{3}$ 42'05	
conjunction	12359 Dec 28 22:33	16° $\overline{3}$ 22'21	8°36'51	evening set	12366 Dec 30 23:10	28° $\overline{3}$ 34'01	
minimum elong	12359 Dec 28 22:19	16° $\overline{3}$ 22'20	8°37'43	max. Earth dist.	12367 Jan 08 01:54	28° $\overline{3}$ 50'10	35.13081 AU
morning rise	12360 Jan 11 03:03	16° $\overline{3}$ 46'55					
retrograde	12360 Apr 11 01:17	18° $\overline{3}$ 27'20		conjunction	12367 Jan 10 15:33	28° $\overline{3}$ 55'18	11°16'25
opposition	12360 Jun 29 09:21	17° $\overline{3}$ 14'07	9°18'54	minimum elong	12367 Jan 10 15:16	28° $\overline{3}$ 55'16	11°17'15
min. Earth dist.	12360 Jul 01 15:47	17° $\overline{3}$ 10'49	34.78454 AU	morning rise	12367 Jan 21 07:17	29° $\overline{3}$ 16'31	
direct	12360 Sep 17 10:27	15° $\overline{3}$ 59'59			12367 Feb 13 08:33	0° \approx	
evening set	12360 Dec 17 01:09	17° $\overline{3}$ 40'43		retrograde	12367 Apr 25 01:31	1° \approx 09'10	
max. Earth dist.	12360 Dec 27 09:18	18° $\overline{3}$ 00'07	36.63296 AU		12367 Jul 08 00:33	30° \overline{R} $\overline{3}$	
				opposition	12367 Jul 12 15:20	29° $\overline{3}$ 52'58	12°08'31
conjunction	12360 Dec 29 23:02	18° $\overline{3}$ 04'58	9°00'17	min. Earth dist.	12367 Jul 14 21:38	29° $\overline{3}$ 49'31	33.05191 AU
minimum elong	12360 Dec 29 22:47	18° $\overline{3}$ 04'57	9°01'10	direct	12367 Sep 30 07:06	28° $\overline{3}$ 35'28	
morning rise	12361 Jan 11 20:19	18° $\overline{3}$ 29'12			12367 Dec 18 09:26	0° \approx	
retrograde	12361 Apr 13 01:30	20° $\overline{3}$ 11'09		evening set	12368 Jan 02 15:19	0° \approx 29'36	
opposition	12361 Jul 01 08:07	18° $\overline{3}$ 57'30	9°43'50	max. Earth dist.	12368 Jan 10 07:48	0° \approx 45'02	34.89176 AU
min. Earth dist.	12361 Jul 03 15:40	18° $\overline{3}$ 54'07	34.53059 AU				
direct	12361 Sep 19 08:29	17° $\overline{3}$ 42'53		conjunction	12368 Jan 12 21:00	0° \approx 50'11	11°37'53
evening set	12361 Dec 19 09:51	19° $\overline{3}$ 25'17		minimum elong	12368 Jan 12 20:44	0° \approx 50'09	11°38'42
max. Earth dist.	12361 Dec 29 10:30	19° $\overline{3}$ 44'15	36.37717 AU	morning rise	12368 Jan 23 01:51	1° \approx 10'42	
				retrograde	12368 Apr 26 07:35	3° \approx 05'27	
conjunction	12362 Jan 01 00:05	19° $\overline{3}$ 49'09	9°23'35	opposition	12368 Jul 13 19:17	1° \approx 48'52	12°31'19
minimum elong	12361 Dec 31 23:50	19° $\overline{3}$ 49'08	9°24'28	min. Earth dist.	12368 Jul 16 02:00	1° \approx 45'22	32.81732 AU
morning rise	12362 Jan 13 13:41	20° $\overline{3}$ 13'01		direct	12368 Oct 01 09:34	0° \approx 30'58	
retrograde	12362 Apr 15 02:10	21° $\overline{3}$ 56'33		evening set	12369 Jan 04 09:16	2° \approx 27'22	
opposition	12362 Jul 03 07:30	20° $\overline{3}$ 42'28	10°08'37	max. Earth dist.	12369 Jan 11 14:40	2° \approx 42'01	34.65620 AU
min. Earth dist.	12362 Jul 05 14:24	20° $\overline{3}$ 39'05	34.27770 AU				
direct	12362 Sep 21 07:14	19° $\overline{3}$ 27'20		conjunction	12369 Jan 14 03:22	2° \approx 47'11	11°58'52
evening set	12362 Dec 21 19:28	21° $\overline{3}$ 11'29		minimum elong	12369 Jan 14 03:04	2° \approx 47'09	11°59'40
max. Earth dist.	12362 Dec 31 10:56	21° $\overline{3}$ 29'55	36.12255 AU	morning rise	12369 Jan 23 20:41	3° \approx 06'56	
				retrograde	12369 Apr 28 16:04	5° \approx 03'50	
conjunction	12363 Jan 03 01:36	21° $\overline{3}$ 34'56	9°46'43	opposition	12369 Jul 15 23:48	3° \approx 46'54	12°53'36
minimum elong	12363 Jan 03 01:19	21° $\overline{3}$ 34'55	9°47'35	min. Earth dist.	12369 Jul 18 05:40	3° \approx 43'26	32.58601 AU
morning rise	12363 Jan 15 07:09	21° $\overline{3}$ 58'22		direct	12369 Oct 03 13:08	2° \approx 28'34	
retrograde	12363 Apr 17 03:58	23° $\overline{3}$ 43'35		evening set	12370 Jan 07 04:36	4° \approx 27'22	
opposition	12363 Jul 05 07:44	22° $\overline{3}$ 29'02	10°33'12	max. Earth dist.	12370 Jan 13 21:14	4° \approx 41'04	34.42353 AU
min. Earth dist.	12363 Jul 07 15:39	22° $\overline{3}$ 25'35	34.02650 AU				
direct	12363 Sep 23 04:06	21° $\overline{3}$ 13'25		conjunction	12370 Jan 16 10:36	4° \approx 46'20	12°19'21
evening set	12363 Dec 24 06:27	22° $\overline{3}$ 59'23		minimum elong	12370 Jan 16 10:20	4° \approx 46'18	12°20'08
max. Earth dist.	12364 Jan 02 14:31	23° $\overline{3}$ 17'23	35.86998 AU	morning rise	12370 Jan 25 15:50	5° \approx 05'14	
				retrograde	12370 May 01 00:13	7° \approx 04'24	
conjunction	12364 Jan 05 04:02	23° $\overline{3}$ 22'22	10°09'37	opposition	12370 Jul 18 05:28	5° \approx 47'06	13°15'19
minimum elong	12364 Jan 05 03:47	23° $\overline{3}$ 22'21	10°10'28	min. Earth dist.	12370 Jul 20 12:18	5° \approx 43'32	32.35756 AU
morning rise	12364 Jan 17 00:49	23° $\overline{3}$ 45'19		direct	12370 Oct 05 14:44	4° \approx 28'20	
retrograde	12364 Apr 18 06:48	25° $\overline{3}$ 32'16		evening set	12371 Jan 10 01:28	6° \approx 29'34	
opposition	12364 Jul 06 08:25	24° $\overline{3}$ 17'17	10°57'33	max. Earth dist.	12371 Jan 16 06:14	6° \approx 42'23	34.19376 AU
min. Earth dist.	12364 Jul 08 15:20	24° $\overline{3}$ 13'52	33.77774 AU				
direct	12364 Sep 24 03:33	23° $\overline{3}$ 01'10		conjunction	12371 Jan 18 18:33	6° \approx 47'36	12°39'15
evening set	12364 Dec 25 18:45	24° $\overline{3}$ 49'02		minimum elong	12371 Jan 18 18:16	6° \approx 47'34	12°40'01
max. Earth dist.	12365 Jan 03 16:36	25° $\overline{3}$ 06'24	35.62014 AU	morning rise	12371 Jan 27 10:47	7° \approx 05'35	
				retrograde	12371 May 03 08:18	9° \approx 07'05	
conjunction	12365 Jan 06 07:06	25° $\overline{3}$ 11'30	10°32'14	opposition	12371 Jul 20 11:51	7° \approx 49'24	13°36'25
minimum elong	12365 Jan 06 06:49	25° $\overline{3}$ 11'29	10°33'05	min. Earth dist.	12371 Jul 22 17:36	7° \approx 45'53	32.13190 AU
morning rise	12365 Jan 17 18:53	25° $\overline{3}$ 33'56		direct	12371 Oct 07 20:35	6° \approx 30'11	
retrograde	12365 Apr 20 12:22	27° $\overline{3}$ 22'42		evening set	12372 Jan 13 00:03	8° \approx 33'57	
opposition	12365 Jul 08 10:00	26° $\overline{3}$ 07'17	11°21'35	max. Earth dist.	12372 Jan 18 14:05	8° \approx 45'36	33.96686 AU
min. Earth dist.	12365 Jul 10 17:23	26° $\overline{3}$ 03'49	33.53213 AU				
direct	12365 Sep 26 02:45	24° $\overline{3}$ 50'41		conjunction	12372 Jan 21 03:25	8° \approx 50'58	12°58'31
evening set	12365 Dec 28 08:13	26° $\overline{3}$ 40'32		minimum elong	12372 Jan 21 03:09	8° \approx 50'56	12°59'17
max. Earth dist.	12366 Jan 05 21:39	26° $\overline{3}$ 57'23	35.37354 AU	morning rise	12372 Jan 29 06:07	9° \approx 07'56	
				retrograde	12372 May 04 18:14	11° \approx 11'50	
conjunction	12366 Jan 08 11:01	27° $\overline{3}$ 02'26	10°54'31	opposition	12372 Jul 21 18:59	9° \approx 53'45	13°56'51
minimum elong	12366 Jan 08 10:45	27° $\overline{3}$ 02'25	10°55'21	min. Earth dist.	12372 Jul 24 01:22	9° \approx 50'10	31.90934 AU
morning rise	12366 Jan 19 12:54	27° $\overline{3}$ 24'18		direct	12372 Oct 09 00:42	8° \approx 34'05	
retrograde	12366 Apr 22 17:44	29° $\overline{3}$ 14'58		evening set	12373 Jan 15 00:25	10° \approx 40'28	
opposition	12366 Jul 10 12:19	27° $\overline{3}$ 59'08	11°45'16	max. Earth dist.	12373 Jan 20 01:14	10° \approx 51'04	33.74326 AU

conjunction	12373 Jan 22 13:16	10° \approx 56'22	13°17'07	morning rise	12379 Feb 07 23:22	24° \approx 14'28	
minimum elong	12373 Jan 22 13:00	10° \approx 56'20	13°17'52	retrograde	12379 May 21 14:38	26° \approx 39'19	
morning rise	12373 Jan 30 01:17	11° \approx 12'13		opposition	12379 Aug 06 19:40	25° \approx 18'30	15°54'06
retrograde	12373 May 07 04:10	13° \approx 18'36		min. Earth dist.	12379 Aug 08 20:52	25° \approx 15'08	30.48993 AU
opposition	12373 Jul 24 03:02	12° \approx 00'07	14°16'32	direct	12379 Oct 24 19:25	23° \approx 55'47	
min. Earth dist.	12373 Jul 26 08:42	11° \approx 56'34	31.69020 AU	max. Earth dist.	12380 Feb 06 01:28	26° \approx 23'06	32.32893 AU
direct	12373 Oct 11 07:53	10° \approx 39'59					
evening set	12374 Jan 18 02:26	12° \approx 49'05		conjunction	12380 Feb 08 06:33	26° \approx 28'04	15°01'40
max. Earth dist.	12374 Jan 22 11:07	12° \approx 58'22	33.52353 AU	minimum elong	12380 Feb 08 06:25	26° \approx 28'03	15°02'14
				retrograde	12380 May 23 05:24	28° \approx 59'19	
conjunction	12374 Jan 24 23:36	13° \approx 03'45	13°34'57	opposition	12380 Aug 08 09:05	27° \approx 38'14	16°06'08
minimum elong	12374 Jan 24 23:21	13° \approx 03'43	13°35'40	min. Earth dist.	12380 Aug 10 08:13	27° \approx 34'59	30.31490 AU
morning rise	12374 Jan 31 20:09	13° \approx 18'22		direct	12380 Oct 26 08:54	26° \approx 15'11	
	12374 Mar 29 02:08	15° \approx		max. Earth dist.	12381 Feb 07 17:34	28° \approx 43'49	32.15598 AU
retrograde	12374 May 09 16:54	15° \approx 27'21					
	12374 Jun 21 05:49	15° \approx		conjunction	12381 Feb 09 22:25	28° \approx 48'48	15°12'00
opposition	12374 Jul 26 11:46	14° \approx 08'26	14°35'23	minimum elong	12381 Feb 09 22:17	28° \approx 48'47	15°12'33
min. Earth dist.	12374 Jul 28 17:09	14° \approx 04'53	31.47532 AU		12381 Mar 14 14:28	0° \approx	
direct	12374 Oct 13 15:00	12° \approx 47'50		retrograde	12381 May 25 21:59	1° \approx 21'15	
evening set	12375 Jan 21 06:26	14° \approx 59'47		opposition	12381 Aug 10 23:28	29° \approx 59'53	16°16'45
	12375 Jan 21 08:56	15° \approx			12381 Aug 10 21:44	30° \approx	
max. Earth dist.	12375 Jan 24 23:38	15° \approx 07'46	33.30834 AU	min. Earth dist.	12381 Aug 12 22:11	29° \approx 56'39	30.14750 AU
				direct	12381 Oct 28 20:23	28° \approx 36'30	
conjunction	12375 Jan 27 10:54	15° \approx 13'05	13°51'58		12382 Jan 11 00:57	0° \approx	
minimum elong	12375 Jan 27 10:39	15° \approx 13'03	13°52'40	max. Earth dist.	12382 Feb 10 12:44	1° \approx 06'39	31.99062 AU
morning rise	12375 Feb 02 14:40	15° \approx 26'20					
retrograde	12375 May 12 05:06	17° \approx 38'00		conjunction	12382 Feb 12 15:02	1° \approx 11'26	15°20'59
opposition	12375 Jul 28 21:22	16° \approx 18'41	14°53'19	minimum elong	12382 Feb 12 14:57	1° \approx 11'25	15°21'30
min. Earth dist.	12375 Jul 31 02:26	16° \approx 15'07	31.26529 AU	retrograde	12382 May 28 14:19	3° \approx 45'01	
	12375 Oct 03 19:43	15° \approx		opposition	12382 Aug 13 14:38	2° \approx 23'23	16°25'54
direct	12375 Oct 16 01:22	14° \approx 57'37		min. Earth dist.	12382 Aug 15 11:50	2° \approx 20'15	29.98725 AU
	12375 Oct 28 05:30	15° \approx		direct	12382 Oct 31 10:31	0° \approx 59'43	
evening set	12376 Jan 24 12:44	17° \approx 12'32		max. Earth dist.	12383 Feb 13 06:15	3° \approx 31'04	31.83267 AU
max. Earth dist.	12376 Jan 27 12:05	17° \approx 19'00	33.09867 AU				
				conjunction	12383 Feb 15 08:18	3° \approx 35'51	15°28'34
conjunction	12376 Jan 29 22:49	17° \approx 24'18	14°08'03	minimum elong	12383 Feb 15 08:13	3° \approx 35'50	15°29'04
minimum elong	12376 Jan 29 22:37	17° \approx 24'17	14°08'44	retrograde	12383 May 31 08:22	6° \approx 10'31	
morning rise	12376 Feb 04 08:24	17° \approx 36'02		opposition	12383 Aug 16 06:26	4° \approx 48'38	16°33'31
retrograde	12376 May 13 19:14	19° \approx 50'32		min. Earth dist.	12383 Aug 18 02:38	4° \approx 45'33	29.83428 AU
opposition	12376 Jul 30 07:39	18° \approx 30'48	15°10'15	direct	12383 Nov 03 00:58	3° \approx 24'39	
min. Earth dist.	12376 Aug 01 11:18	18° \approx 27'20	31.06103 AU	max. Earth dist.	12384 Feb 16 02:38	5° \approx 57'22	31.68209 AU
direct	12376 Oct 17 11:58	17° \approx 09'18					
evening set	12377 Jan 26 21:46	19° \approx 27'23		conjunction	12384 Feb 18 02:25	6° \approx 01'58	15°34'43
max. Earth dist.	12377 Jan 29 01:52	19° \approx 32'09	32.89503 AU	minimum elong	12384 Feb 18 02:24	6° \approx 01'58	15°35'09
				retrograde	12384 Jun 02 01:32	8° \approx 37'38	
conjunction	12377 Jan 31 11:40	19° \approx 37'25	14°23'10	opposition	12384 Aug 17 23:04	7° \approx 15'29	16°39'34
minimum elong	12377 Jan 31 11:27	19° \approx 37'24	14°23'48	min. Earth dist.	12384 Aug 19 18:21	7° \approx 12'28	29.68838 AU
morning rise	12377 Feb 05 01:02	19° \approx 47'23		direct	12384 Nov 04 17:57	5° \approx 51'14	
retrograde	12377 May 16 08:06	22° \approx 04'56		max. Earth dist.	12385 Feb 17 21:50	8° \approx 25'03	31.53913 AU
opposition	12377 Aug 01 18:50	20° \approx 44'49	15°26'05				
min. Earth dist.	12377 Aug 03 22:24	20° \approx 41'19	30.86321 AU	conjunction	12385 Feb 19 20:58	8° \approx 29'37	15°39'21
direct	12377 Oct 19 21:41	19° \approx 22'52		minimum elong	12385 Feb 19 20:57	8° \approx 29'36	15°39'46
evening set	12378 Jan 30 10:52	21° \approx 44'27		retrograde	12385 Jun 04 21:18	11° \approx 06'13	
max. Earth dist.	12378 Jan 31 17:09	21° \approx 47'14	32.69856 AU	opposition	12385 Aug 20 16:09	9° \approx 43'49	16°43'59
				min. Earth dist.	12385 Aug 22 09:34	9° \approx 40'55	29.55008 AU
conjunction	12378 Feb 03 01:13	21° \approx 52'24	14°37'11	direct	12385 Nov 07 11:14	8° \approx 19'17	
minimum elong	12378 Feb 03 01:02	21° \approx 52'23	14°37'48	max. Earth dist.	12386 Feb 20 19:06	10° \approx 54'17	31.40412 AU
morning rise	12378 Feb 06 15:10	22° \approx 00'19					
retrograde	12378 May 18 23:53	24° \approx 21'11		conjunction	12386 Feb 22 16:11	10° \approx 58'40	15°42'25
opposition	12378 Aug 04 06:48	23° \approx 00'42	15°40'44	minimum elong	12386 Feb 22 16:13	10° \approx 58'40	15°42'47
min. Earth dist.	12378 Aug 06 08:11	22° \approx 57'20	30.67270 AU	retrograde	12386 Jun 07 15:46	13° \approx 36'06	
direct	12378 Oct 22 09:38	21° \approx 38'21		opposition	12386 Aug 23 10:01	12° \approx 13'29	16°46'41
evening set	12379 Feb 03 07:01	24° \approx 04'03		min. Earth dist.	12386 Aug 25 02:44	12° \approx 10'37	29.41975 AU
max. Earth dist.	12379 Feb 03 07:57	24° \approx 04'08	32.50971 AU	direct	12386 Nov 10 04:37	10° \approx 48'41	
				max. Earth dist.	12387 Feb 23 16:10	13° \approx 24'43	31.27782 AU
conjunction	12379 Feb 05 15:23	24° \approx 09'16	14°50'03				
minimum elong	12379 Feb 05 15:12	24° \approx 09'15	14°50'39	conjunction	12387 Feb 25 11:35	13° \approx 28'57	15°43'51

minimum elong	12387 Feb 25 11:39	13° $\mathbf{\text{X}}$ 28'58	15°44'12	conjunction	12395 Mar 18 09:57	4° $\mathbf{\text{Y}}$ 01'19	14°52'06
retrograde	12387 Jun 10 12:41	16° $\mathbf{\text{X}}$ 07'10		minimum elong	12395 Mar 18 10:18	4° $\mathbf{\text{Y}}$ 01'21	14°52'08
opposition	12387 Aug 26 04:13	14° $\mathbf{\text{X}}$ 44'18	16°47'36	morning rise	12395 Mar 20 13:17	4° $\mathbf{\text{Y}}$ 06'27	
min. Earth dist.	12387 Aug 27 18:27	14° $\mathbf{\text{X}}$ 41'37	29.29808 AU	retrograde	12395 Jul 01 03:53	6° $\mathbf{\text{Y}}$ 42'28	
direct	12387 Nov 13 00:27	13° $\mathbf{\text{X}}$ 19'16		opposition	12395 Sep 15 19:29	5° $\mathbf{\text{Y}}$ 18'59	15°46'09
max. Earth dist.	12388 Feb 26 14:06	15° $\mathbf{\text{X}}$ 56'17	31.16060 AU	min. Earth dist.	12395 Sep 16 17:07	5° $\mathbf{\text{Y}}$ 17'26	28.70531 AU
				direct	12395 Dec 03 15:13	3° $\mathbf{\text{Y}}$ 53'18	
conjunction	12388 Feb 28 07:38	16° $\mathbf{\text{X}}$ 00'22	15°43'38	evening set	12396 Mar 16 18:00	6° $\mathbf{\text{Y}}$ 28'53	
minimum elong	12388 Feb 28 07:44	16° $\mathbf{\text{X}}$ 00'22	15°43'56	max. Earth dist.	12396 Mar 19 09:26	6° $\mathbf{\text{Y}}$ 35'14	30.62210 AU
retrograde	12388 Jun 12 07:23	18° $\mathbf{\text{X}}$ 39'14					
opposition	12388 Aug 27 22:56	17° $\mathbf{\text{X}}$ 16'11	16°46'42	conjunction	12396 Mar 20 07:18	6° $\mathbf{\text{Y}}$ 37'25	14°37'36
min. Earth dist.	12388 Aug 29 12:27	17° $\mathbf{\text{X}}$ 13'31	29.18567 AU	minimum elong	12396 Mar 20 07:39	6° $\mathbf{\text{Y}}$ 37'27	14°37'34
direct	12388 Nov 14 18:34	15° $\mathbf{\text{X}}$ 50'55		morning rise	12396 Mar 23 21:13	6° $\mathbf{\text{Y}}$ 46'01	
max. Earth dist.	12389 Feb 28 13:01	18° $\mathbf{\text{X}}$ 28'53	31.05346 AU	retrograde	12396 Jul 03 01:20	9° $\mathbf{\text{Y}}$ 18'29	
				opposition	12396 Sep 17 16:10	7° $\mathbf{\text{Y}}$ 55'03	15°29'49
conjunction	12389 Mar 02 03:56	18° $\mathbf{\text{X}}$ 32'44	15°41'41	min. Earth dist.	12396 Sep 18 10:55	7° $\mathbf{\text{Y}}$ 53'43	28.68033 AU
minimum elong	12389 Mar 02 04:04	18° $\mathbf{\text{X}}$ 32'44	15°41'57	direct	12396 Dec 05 12:43	6° $\mathbf{\text{Y}}$ 29'24	
retrograde	12389 Jun 15 04:10	21° $\mathbf{\text{X}}$ 12'10		evening set	12397 Mar 18 13:15	9° $\mathbf{\text{Y}}$ 02'17	
opposition	12389 Aug 30 18:03	19° $\mathbf{\text{X}}$ 48'57	16°43'55	max. Earth dist.	12397 Mar 22 10:05	9° $\mathbf{\text{Y}}$ 11'33	30.60469 AU
min. Earth dist.	12389 Sep 01 04:35	19° $\mathbf{\text{X}}$ 46'30	29.08333 AU				
direct	12389 Nov 17 15:05	18° $\mathbf{\text{X}}$ 23'30		conjunction	12397 Mar 23 04:43	9° $\mathbf{\text{Y}}$ 13'25	14°21'24
max. Earth dist.	12390 Mar 03 11:14	21° $\mathbf{\text{X}}$ 02'15	30.95699 AU	minimum elong	12397 Mar 23 05:06	9° $\mathbf{\text{Y}}$ 13'28	14°21'21
				morning rise	12397 Mar 27 20:44	9° $\mathbf{\text{Y}}$ 24'38	
conjunction	12390 Mar 05 00:19	21° $\mathbf{\text{X}}$ 05'56	15°37'57	retrograde	12397 Jul 05 19:46	11° $\mathbf{\text{Y}}$ 54'19	
minimum elong	12390 Mar 05 00:30	21° $\mathbf{\text{X}}$ 05'57	15°38'11	opposition	12397 Sep 20 13:09	10° $\mathbf{\text{Y}}$ 30'56	15°11'41
retrograde	12390 Jun 18 00:52	23° $\mathbf{\text{X}}$ 45'53		min. Earth dist.	12397 Sep 21 06:38	10° $\mathbf{\text{Y}}$ 29'41	28.66549 AU
opposition	12390 Sep 02 13:43	22° $\mathbf{\text{X}}$ 22'30	16°39'12	direct	12397 Dec 08 09:36	9° $\mathbf{\text{Y}}$ 05'21	
min. Earth dist.	12390 Sep 03 22:47	22° $\mathbf{\text{X}}$ 20'09	28.99191 AU	evening set	12398 Mar 20 11:43	11° $\mathbf{\text{Y}}$ 35'45	
direct	12390 Nov 20 09:21	20° $\mathbf{\text{X}}$ 56'55		max. Earth dist.	12398 Mar 25 08:51	11° $\mathbf{\text{Y}}$ 47'27	30.59777 AU
max. Earth dist.	12391 Mar 06 11:29	23° $\mathbf{\text{X}}$ 36'31	30.87213 AU				
				conjunction	12398 Mar 26 01:39	11° $\mathbf{\text{Y}}$ 49'07	14°03'33
conjunction	12391 Mar 07 21:09	23° $\mathbf{\text{X}}$ 39'52	15°32'25	minimum elong	12398 Mar 26 02:02	11° $\mathbf{\text{Y}}$ 49'10	14°03'27
minimum elong	12391 Mar 07 21:22	23° $\mathbf{\text{X}}$ 39'53	15°32'37	morning rise	12398 Mar 31 16:07	12° $\mathbf{\text{Y}}$ 02'34	
retrograde	12391 Jun 20 20:17	26° $\mathbf{\text{X}}$ 20'14		retrograde	12398 Jul 08 16:20	14° $\mathbf{\text{Y}}$ 29'44	
opposition	12391 Sep 05 09:29	24° $\mathbf{\text{X}}$ 56'46	16°32'30	opposition	12398 Sep 23 09:50	13° $\mathbf{\text{Y}}$ 06'24	14°51'47
min. Earth dist.	12391 Sep 06 15:33	24° $\mathbf{\text{X}}$ 54'37	28.91188 AU	min. Earth dist.	12398 Sep 24 00:05	13° $\mathbf{\text{Y}}$ 05'23	28.66088 AU
direct	12391 Nov 23 05:59	23° $\mathbf{\text{X}}$ 31'05		direct	12398 Dec 11 09:27	11° $\mathbf{\text{Y}}$ 40'54	
max. Earth dist.	12392 Mar 08 10:05	26° $\mathbf{\text{X}}$ 11'17	30.79914 AU	evening set	12399 Mar 22 12:13	14° $\mathbf{\text{Y}}$ 08'57	
conjunction	12392 Mar 09 18:08	26° $\mathbf{\text{X}}$ 14'28	15°25'03	conjunction	12399 Mar 28 22:35	14° $\mathbf{\text{Y}}$ 24'19	13°44'07
minimum elong	12392 Mar 09 18:22	26° $\mathbf{\text{X}}$ 14'30	15°25'12	minimum elong	12399 Mar 28 23:01	14° $\mathbf{\text{Y}}$ 24'22	13°43'59
retrograde	12392 Jun 22 16:40	28° $\mathbf{\text{X}}$ 55'11		max. Earth dist.	12399 Mar 28 08:41	14° $\mathbf{\text{Y}}$ 22'56	30.60119 AU
opposition	12392 Sep 07 05:40	27° $\mathbf{\text{X}}$ 31'39	16°23'50	morning rise	12399 Apr 04 09:23	14° $\mathbf{\text{Y}}$ 39'45	
min. Earth dist.	12392 Sep 08 09:48	27° $\mathbf{\text{X}}$ 29'39	28.84354 AU	retrograde	12399 Jul 11 10:34	17° $\mathbf{\text{Y}}$ 04'33	
direct	12392 Nov 25 01:14	26° $\mathbf{\text{X}}$ 05'56		opposition	12399 Sep 26 06:22	15° $\mathbf{\text{Y}}$ 41'16	14°30'12
max. Earth dist.	12393 Mar 11 11:06	28° $\mathbf{\text{X}}$ 46'51	30.73802 AU	min. Earth dist.	12399 Sep 26 19:26	15° $\mathbf{\text{Y}}$ 40'21	28.66660 AU
				direct	12399 Dec 14 06:59	14° $\mathbf{\text{Y}}$ 15'51	
conjunction	12393 Mar 12 15:22	28° $\mathbf{\text{X}}$ 49'40	15°15'52	evening set	12400 Mar 23 14:06	16° $\mathbf{\text{Y}}$ 41'38	
minimum elong	12393 Mar 12 15:39	28° $\mathbf{\text{X}}$ 49'42	15°15'59				
	12393 Apr 11 23:19	0° $\mathbf{\text{Y}}$		conjunction	12400 Mar 30 19:09	16° $\mathbf{\text{Y}}$ 58'49	13°23'07
retrograde	12393 Jun 25 12:41	1° $\mathbf{\text{Y}}$ 30'37		minimum elong	12400 Mar 30 19:34	16° $\mathbf{\text{Y}}$ 58'52	13°22'57
opposition	12393 Sep 10 02:05	0° $\mathbf{\text{Y}}$ 07'06	16°13'12	max. Earth dist.	12400 Mar 30 07:36	16° $\mathbf{\text{Y}}$ 57'40	30.61532 AU
min. Earth dist.	12393 Sep 11 03:52	0° $\mathbf{\text{Y}}$ 05'15	28.78651 AU	morning rise	12400 Apr 07 00:34	17° $\mathbf{\text{Y}}$ 16'04	
	12393 Sep 14 05:39	30° $\mathbf{\text{R}}$ $\mathbf{\text{X}}$		retrograde	12400 Jul 13 06:24	19° $\mathbf{\text{Y}}$ 38'33	
direct	12393 Nov 27 21:38	28° $\mathbf{\text{X}}$ 41'22		opposition	12400 Sep 28 02:38	18° $\mathbf{\text{Y}}$ 15'21	14°06'58
	12394 Feb 06 01:52	0° $\mathbf{\text{Y}}$		min. Earth dist.	12400 Sep 28 12:19	18° $\mathbf{\text{Y}}$ 14'40	28.68286 AU
max. Earth dist.	12394 Mar 14 09:48	1° $\mathbf{\text{Y}}$ 22'40	30.68843 AU	direct	12400 Dec 16 06:08	16° $\mathbf{\text{Y}}$ 50'03	
				evening set	12401 Mar 25 16:35	19° $\mathbf{\text{Y}}$ 13'34	
conjunction	12394 Mar 15 12:34	1° $\mathbf{\text{Y}}$ 25'20	15°04'52				
minimum elong	12394 Mar 15 12:52	1° $\mathbf{\text{Y}}$ 25'22	15°04'56	conjunction	12401 Apr 02 15:13	19° $\mathbf{\text{Y}}$ 32'27	13°00'39
retrograde	12394 Jun 28 09:21	4° $\mathbf{\text{Y}}$ 06'26		minimum elong	12401 Apr 02 15:40	19° $\mathbf{\text{Y}}$ 32'30	13°00'26
opposition	12394 Sep 12 22:39	2° $\mathbf{\text{Y}}$ 42'56	16°00'37	max. Earth dist.	12401 Apr 02 06:12	19° $\mathbf{\text{Y}}$ 31'34	30.64023 AU
min. Earth dist.	12394 Sep 13 21:59	2° $\mathbf{\text{Y}}$ 41'16	28.74067 AU	morning rise	12401 Apr 10 14:10	19° $\mathbf{\text{Y}}$ 51'23	
direct	12394 Nov 30 17:13	1° $\mathbf{\text{Y}}$ 17'12		retrograde	12401 Jul 16 01:04	22° $\mathbf{\text{Y}}$ 11'37	
evening set	12395 Mar 16 07:16	3° $\mathbf{\text{Y}}$ 56'15		opposition	12401 Sep 30 22:45	20° $\mathbf{\text{Y}}$ 48'30	13°42'09
max. Earth dist.	12395 Mar 17 10:45	3° $\mathbf{\text{Y}}$ 59'00	30.64992 AU	min. Earth dist.	12401 Oct 01 06:43	20° $\mathbf{\text{Y}}$ 47'57	28.71018 AU
				direct	12401 Dec 19 03:30	19° $\mathbf{\text{Y}}$ 23'19	

evening set	12402 Mar 27 19:50	21° Υ 44'38		max. Earth dist.	12408 Apr 20 08:46	6° \mathcal{S} 58'13	31.14088 AU
				morning rise	12408 May 01 20:31	7° \mathcal{S} 24'41	
conjunction	12402 Apr 05 10:52	22° Υ 05'05	12°36'45	retrograde	12408 Aug 01 18:07	9° \mathcal{S} 30'43	
minimum elong	12402 Apr 05 11:18	22° Υ 05'08	12°36'29	opposition	12408 Oct 18 07:54	8° \mathcal{S} 09'15	10°11'16
max. Earth dist.	12402 Apr 05 05:05	22° Υ 04'31	30.67665 AU	min. Earth dist.	12408 Oct 17 22:00	8° \mathcal{S} 09'56	29.22557 AU
morning rise	12402 Apr 14 02:02	22° Υ 25'33		direct	12409 Jan 05 21:04	6° \mathcal{S} 45'58	
retrograde	12402 Jul 18 19:06	24° Υ 43'35		evening set	12409 Apr 10 04:06	8° \mathcal{S} 53'07	
opposition	12402 Oct 03 18:24	23° Υ 20'36	13°15'49				
min. Earth dist.	12402 Oct 03 23:05	23° Υ 20'17	28.74902 AU	conjunction	12409 Apr 22 13:37	9° \mathcal{S} 21'31	9°16'17
direct	12402 Dec 22 02:24	21° Υ 55'35		minimum elong	12409 Apr 22 14:01	9° \mathcal{S} 21'33	9°15'47
evening set	12403 Mar 29 23:24	24° Υ 14'43		max. Earth dist.	12409 Apr 23 02:00	9° \mathcal{S} 22'42	31.25472 AU
				morning rise	12409 May 04 22:41	9° \mathcal{S} 49'52	
conjunction	12403 Apr 08 05:56	24° Υ 36'37	12°11'29	retrograde	12409 Aug 04 08:43	11° \mathcal{S} 54'05	
minimum elong	12403 Apr 08 06:24	24° Υ 36'40	12°11'11	min. Earth dist.	12409 Oct 20 11:17	10° \mathcal{S} 33'48	29.34052 AU
max. Earth dist.	12403 Apr 08 02:27	24° Υ 36'17	30.72488 AU	opposition	12409 Oct 21 00:25	10° \mathcal{S} 32'55	9°37'08
morning rise	12403 Apr 17 12:40	24° Υ 58'32		direct	12410 Jan 08 16:23	9° \mathcal{S} 09'58	
retrograde	12403 Jul 21 12:36	27° Υ 14'25		evening set	12410 Apr 12 09:34	11° \mathcal{S} 15'16	
opposition	12403 Oct 06 13:46	25° Υ 51'36	12°48'03				
min. Earth dist.	12403 Oct 06 16:02	25° Υ 51'27	28.79992 AU	conjunction	12410 Apr 25 04:54	11° \mathcal{S} 44'25	8°44'07
direct	12403 Dec 24 22:14	24° Υ 26'47		minimum elong	12410 Apr 25 05:17	11° \mathcal{S} 44'27	8°43'35
evening set	12404 Mar 31 03:31	26° Υ 43'49		max. Earth dist.	12410 Apr 25 20:03	11° \mathcal{S} 45'51	31.37715 AU
				morning rise	12410 May 07 23:32	12° \mathcal{S} 13'30	
conjunction	12404 Apr 10 00:41	27° Υ 07'02	11°44'55	retrograde	12410 Aug 06 21:40	14° \mathcal{S} 15'57	
minimum elong	12404 Apr 10 01:07	27° Υ 07'05	11°44'35	opposition	12410 Oct 23 16:24	12° \mathcal{S} 55'04	9°02'20
max. Earth dist.	12404 Apr 10 00:58	27° Υ 07'04	30.78530 AU	min. Earth dist.	12410 Oct 23 02:07	12° \mathcal{S} 56'02	29.46404 AU
morning rise	12404 Apr 19 21:43	27° Υ 30'16		direct	12411 Jan 11 09:29	11° \mathcal{S} 32'27	
retrograde	12404 Jul 23 05:15	29° Υ 44'04		evening set	12411 Apr 14 15:13	13° \mathcal{S} 35'57	
opposition	12404 Oct 08 08:40	28° Υ 21'28	12°18'56				
min. Earth dist.	12404 Oct 08 08:08	28° Υ 21'31	28.86276 AU	conjunction	12411 Apr 27 19:28	14° \mathcal{S} 05'44	8°11'22
direct	12404 Dec 26 19:29	26° Υ 56'55		minimum elong	12411 Apr 27 19:50	14° \mathcal{S} 05'47	8°10'48
evening set	12405 Apr 02 07:58	29° Υ 11'52		max. Earth dist.	12411 Apr 28 12:17	14° \mathcal{S} 07'20	31.50788 AU
				morning rise	12411 May 10 22:58	14° \mathcal{S} 35'29	
conjunction	12405 Apr 12 18:46	29° Υ 36'20	11°17'10		12411 May 22 04:15	15° \mathcal{S}	
minimum elong	12405 Apr 12 19:13	29° Υ 36'23	11°16'48	retrograde	12411 Aug 09 10:57	16° \mathcal{S} 36'11	
max. Earth dist.	12405 Apr 12 20:58	29° Υ 36'33	30.85771 AU	opposition	12411 Oct 26 07:41	15° \mathcal{S} 15'36	8°26'58
	12405 Apr 22 21:26	0° \mathcal{S}		min. Earth dist.	12411 Oct 25 14:36	15° \mathcal{S} 16'45	29.59559 AU
morning rise	12405 Apr 23 05:35	0° \mathcal{S} 00'47			12411 Nov 05 00:40	15° \mathcal{R} \mathcal{S}	
retrograde	12405 Jul 25 22:29	2° \mathcal{S} 12'34		direct	12412 Jan 14 03:37	13° \mathcal{S} 53'19	
opposition	12405 Oct 11 03:13	0° \mathcal{S} 50'13	11°48'35		12412 Mar 20 05:56	15° \mathcal{S}	
min. Earth dist.	12405 Oct 10 23:35	0° \mathcal{S} 50'28	28.93755 AU	evening set	12412 Apr 15 20:52	15° \mathcal{S} 55'02	
	12405 Nov 12 10:49	30° \mathcal{R} Υ					
direct	12405 Dec 29 14:08	29° Υ 25'57		conjunction	12412 Apr 29 09:19	16° \mathcal{S} 25'24	7°38'08
	12406 Feb 13 05:03	0° \mathcal{S}		minimum elong	12412 Apr 29 09:39	16° \mathcal{S} 25'26	7°37'32
evening set	12406 Apr 04 12:28	1° \mathcal{S} 38'54		max. Earth dist.	12412 Apr 30 04:04	16° \mathcal{S} 27'10	31.64629 AU
				morning rise	12412 May 12 20:58	16° \mathcal{S} 55'42	
conjunction	12406 Apr 15 12:18	2° \mathcal{S} 04'29	10°48'19	retrograde	12412 Aug 10 23:34	18° \mathcal{S} 54'44	
minimum elong	12406 Apr 15 12:44	2° \mathcal{S} 04'32	10°47'55	opposition	12412 Oct 27 22:24	17° \mathcal{S} 34'25	7°51'08
max. Earth dist.	12406 Apr 15 18:21	2° \mathcal{S} 05'04	30.94166 AU	min. Earth dist.	12412 Oct 27 03:51	17° \mathcal{S} 35'39	29.73512 AU
morning rise	12406 Apr 26 11:46	2° \mathcal{S} 30'04		direct	12413 Jan 15 19:58	16° \mathcal{S} 12'27	
retrograde	12406 Jul 28 12:34	4° \mathcal{S} 39'53		evening set	12413 Apr 18 02:28	18° \mathcal{S} 12'27	
opposition	12406 Oct 13 21:19	3° \mathcal{S} 17'49	11°17'07				
min. Earth dist.	12406 Oct 13 15:47	3° \mathcal{S} 18'12	29.02338 AU	conjunction	12413 May 01 22:28	18° \mathcal{S} 43'18	7°04'29
direct	12407 Jan 01 09:54	1° \mathcal{S} 53'52		minimum elong	12413 May 01 22:47	18° \mathcal{S} 43'20	7°03'52
evening set	12407 Apr 06 17:31	4° \mathcal{S} 04'50		max. Earth dist.	12413 May 02 19:39	18° \mathcal{S} 45'17	31.79259 AU
				morning rise	12413 May 15 17:25	19° \mathcal{S} 14'04	
conjunction	12407 Apr 18 05:17	4° \mathcal{S} 31'27	10°18'29	retrograde	12413 Aug 13 11:41	21° \mathcal{S} 11'27	
minimum elong	12407 Apr 18 05:43	4° \mathcal{S} 31'30	10°18'03	opposition	12413 Oct 30 12:25	19° \mathcal{S} 51'25	7°14'55
max. Earth dist.	12407 Apr 18 12:47	4° \mathcal{S} 32'11	31.03632 AU	min. Earth dist.	12413 Oct 29 15:37	19° \mathcal{S} 52'48	29.88257 AU
morning rise	12407 Apr 29 16:52	4° \mathcal{S} 58'03		direct	12414 Jan 18 14:27	18° \mathcal{S} 29'47	
retrograde	12407 Jul 31 04:32	7° \mathcal{S} 05'57		evening set	12414 Apr 20 07:55	20° \mathcal{S} 28'06	
opposition	12407 Oct 16 14:42	5° \mathcal{S} 44'11	10°44'38				
min. Earth dist.	12407 Oct 16 06:02	5° \mathcal{S} 44'47	29.11967 AU	conjunction	12414 May 04 10:35	20° \mathcal{S} 59'21	6°30'31
direct	12408 Jan 04 04:03	4° \mathcal{S} 20'33		minimum elong	12414 May 04 10:52	20° \mathcal{S} 59'22	6°29'53
evening set	12408 Apr 07 22:41	6° \mathcal{S} 29'36		max. Earth dist.	12414 May 05 09:19	21° \mathcal{S} 01'27	31.94670 AU
				morning rise	12414 May 18 12:24	21° \mathcal{S} 30'31	
conjunction	12408 Apr 19 21:53	6° \mathcal{S} 57'10	9°47'46	retrograde	12414 Aug 15 22:10	23° \mathcal{S} 26'19	
minimum elong	12408 Apr 19 22:17	6° \mathcal{S} 57'12	9°47'18	min. Earth dist.	12414 Nov 01 02:31	22° \mathcal{S} 08'06	30.03836 AU

opposition	12414 Nov 02 01:42	22° 8 06'33	6°38'25	conjunction	12421 May 19 03:56	6° II 01'39	2°30'01
direct	12415 Jan 21 05:04	20° 8 45'14		minimum elong	12421 May 19 04:03	6° II 01'40	2°29'13
evening set	12415 Apr 22 13:18	22° 8 41'56		max. Earth dist.	12421 May 20 16:49	6° II 04'54	33.24790 AU
				morning rise	12421 Jun 03 10:28	6° II 33'46	
conjunction	12415 May 06 22:11	23° 8 13'31	5°56'19	retrograde	12421 Aug 30 02:27	8° II 20'29	
minimum elong	12415 May 06 22:27	23° 8 13'32	5°55'38	min. Earth dist.	12421 Nov 15 14:58	7° II 05'26	31.35299 AU
max. Earth dist.	12415 May 08 00:03	23° 8 15'54	32.10907 AU	opposition	12421 Nov 17 03:37	7° II 03'07	2°21'37
morning rise	12415 May 21 05:51	23° 8 45'00		direct	12422 Feb 05 17:09	5° II 44'30	
retrograde	12415 Aug 18 06:22	25° 8 39'17		evening set	12422 May 06 00:57	7° II 31'48	
opposition	12415 Nov 04 14:13	24° 8 19'49	6°01'43				
min. Earth dist.	12415 Nov 03 13:21	24° 8 21'28	30.20260 AU	conjunction	12422 May 21 10:31	8° II 03'55	1°56'07
direct	12416 Jan 23 20:59	22° 8 58'50		minimum elong	12422 May 21 10:36	8° II 03'55	1°55'19
evening set	12416 Apr 23 18:48	24° 8 54'00		max. Earth dist.	12422 May 23 01:08	8° II 07'18	33.45902 AU
				morning rise	12422 Jun 05 18:42	8° II 35'56	
conjunction	12416 May 08 08:54	25° 8 25'50	5°21'55	retrograde	12422 Sep 01 08:15	10° II 21'36	
minimum elong	12416 May 08 09:08	25° 8 25'51	5°21'14	min. Earth dist.	12422 Nov 17 21:40	9° II 06'59	31.56536 AU
max. Earth dist.	12416 May 09 11:54	25° 8 28'18	32.27988 AU	opposition	12422 Nov 19 11:35	9° II 04'35	1°45'40
morning rise	12416 May 22 22:04	25° 8 57'34		direct	12423 Feb 08 04:34	7° II 46'22	
retrograde	12416 Aug 19 16:12	27° 8 50'25		evening set	12423 May 08 05:49	9° II 32'35	
min. Earth dist.	12416 Nov 04 22:08	26° 8 33'06	30.37564 AU				
opposition	12416 Nov 06 02:07	26° 8 31'16	5°24'52	conjunction	12423 May 23 16:26	10° II 04'34	1°22'31
direct	12417 Jan 25 10:18	25° 8 10'38		minimum elong	12423 May 23 16:30	10° II 04'34	1°21'42
evening set	12417 Apr 25 23:54	27° 8 04'19		max. Earth dist.	12423 May 25 07:35	10° II 07'58	33.67409 AU
				morning rise	12423 Jun 08 01:59	10° II 36'27	
conjunction	12417 May 10 18:54	27° 8 36'21	4°47'26	retrograde	12423 Sep 03 13:38	12° II 21'06	
minimum elong	12417 May 10 19:07	27° 8 36'22	4°46'43	min. Earth dist.	12423 Nov 20 03:05	11° II 06'56	31.78184 AU
max. Earth dist.	12417 May 12 01:11	27° 8 39'06	32.45915 AU	opposition	12423 Nov 21 18:47	11° II 04'27	1°10'04
morning rise	12417 May 25 12:36	28° 8 08'17		direct	12424 Feb 10 12:43	9° II 46'36	
retrograde	12417 Aug 21 22:45	29° 8 59'46		evening set	12424 May 09 10:22	11° II 31'46	
min. Earth dist.	12417 Nov 07 08:17	28° 8 42'51	30.55709 AU				
opposition	12417 Nov 08 13:27	28° 8 40'57	4°47'59	conjunction	12424 May 24 21:51	12° II 03'34	0°49'16
direct	12418 Jan 27 23:05	27° 8 20'43		minimum elong	12424 May 24 21:53	12° II 03'34	0°48'26
evening set	12418 Apr 28 05:09	29° 8 12'59		max. Earth dist.	12424 May 26 15:05	12° II 07'07	33.89281 AU
				morning rise	12424 Jun 09 07:56	12° II 35'16	
conjunction	12418 May 13 04:09	29° 8 45'09	4°12'56	retrograde	12424 Sep 04 15:41	14° II 18'58	
minimum elong	12418 May 13 04:20	29° 8 45'10	4°12'12	min. Earth dist.	12424 Nov 21 09:24	13° II 05'09	32.00185 AU
max. Earth dist.	12418 May 14 11:32	29° 8 47'59	32.64644 AU	opposition	12424 Nov 23 01:32	13° II 02'39	0°34'53
	12418 May 20 00:53	0° II		direct	12425 Feb 11 22:46	11° II 45'11	
morning rise	12418 May 28 02:03	0° II 17'13		evening set	12425 May 11 14:43	13° II 29'19	
retrograde	12418 Aug 24 06:05	2° II 07'24					
opposition	12418 Nov 10 23:47	0° II 48'57	4°11'09	conjunction	12425 May 27 02:16	14° II 00'54	0°16'24
min. Earth dist.	12418 Nov 09 15:36	0° II 51'02	30.74641 AU	minimum elong	12425 May 27 02:16	14° II 00'54	0°15'33
	12418 Dec 14 20:25	30° 8		behind sun begin	12425 May 27 00:29	14° II 00'45	
direct	12419 Jan 30 10:48	29° 8 29'06		behind sun end	12425 May 27 04:04	14° II 01'03	
	12419 Mar 16 10:48	0° II		max. Earth dist.	12425 May 28 19:35	14° II 04'26	34.11485 AU
evening set	12419 Apr 30 10:13	1° II 20'03		morning rise	12425 Jun 11 12:44	14° II 32'23	
				retrograde	12425 Sep 06 19:00	16° II 15'11	
conjunction	12419 May 15 12:48	1° II 52'17	3°38'29	min. Earth dist.	12425 Nov 23 13:07	15° II 01'48	32.22544 AU
minimum elong	12419 May 15 12:58	1° II 52'18	3°37'43	opposition	12425 Nov 25 07:29	14° II 59'10	0°00'10
max. Earth dist.	12419 May 16 22:52	1° II 55'20	32.84087 AU	desc. node	12425 Nov 27 00:18	14° II 56'38	
morning rise	12419 May 30 14:07	2° II 24'25		direct	12426 Feb 14 06:21	13° II 42'03	
retrograde	12419 Aug 26 12:32	4° II 13'23		evening set	12426 May 13 18:47	15° II 25'13	
min. Earth dist.	12419 Nov 12 00:38	2° II 57'25	30.94273 AU				
opposition	12419 Nov 13 09:46	2° II 55'17	3°34'25	conjunction	12426 May 29 06:12	15° II 56'33	-0°16'08
direct	12420 Feb 01 20:34	1° II 35'52		minimum elong	12426 May 29 06:11	15° II 56'33	0°16'59
evening set	12420 May 01 15:16	3° II 25'32		max. Earth dist.	12426 May 31 01:45	16° II 00'15	34.34026 AU
				morning rise	12426 Jun 13 16:20	16° II 27'46	
conjunction	12420 May 16 20:42	3° II 57'46	3°04'09	retrograde	12426 Sep 08 19:47	18° II 09'42	
minimum elong	12420 May 16 20:50	3° II 57'47	3°03'23	min. Earth dist.	12426 Nov 25 18:09	16° II 56'38	32.45275 AU
max. Earth dist.	12420 May 18 08:00	4° II 00'55	33.04168 AU	opposition	12426 Nov 27 12:42	16° II 54'00	-0°34'05
morning rise	12420 Jun 01 00:53	4° II 29'55		direct	12427 Feb 16 12:55	15° II 37'14	
retrograde	12420 Aug 27 19:26	6° II 17'44		evening set	12427 May 15 22:41	17° II 19'29	
min. Earth dist.	12420 Nov 13 07:28	5° II 02'17	31.14511 AU				
opposition	12420 Nov 14 18:56	5° II 00'00	2°57'54	conjunction	12427 May 31 09:21	17° II 50'30	-0°48'08
direct	12421 Feb 03 07:33	3° II 40'59		minimum elong	12427 May 31 09:19	17° II 50'30	0°49'00
evening set	12421 May 03 20:16	5° II 29'27		max. Earth dist.	12427 Jun 02 05:26	17° II 54'14	34.56946 AU
				morning rise	12427 Jun 15 18:52	18° II 21'26	

retrograde	12427 Sep 10 21:18	20°II02'33			12434 May 29 15:20	0°☿	
min. Earth dist.	12427 Nov 27 20:22	18°II49'55	32.68415 AU				
opposition	12427 Nov 29 17:15	18°II47'10	-1°07'48	conjunction	12434 Jun 12 14:09	0°☿26'41	-4°17'22
direct	12428 Feb 18 18:59	17°II30'44		minimum elong	12434 Jun 12 14:01	0°☿26'40	4°18'16
evening set	12428 May 17 02:18	19°II12'08		max. Earth dist.	12434 Jun 14 18:06	0°☿30'51	36.27778 AU
				morning rise	12434 Jun 27 07:46	0°☿54'50	
conjunction	12428 Jun 01 11:45	19°II42'49	-1°19'40	retrograde	12434 Sep 22 19:23	2°☿31'41	
minimum elong	12428 Jun 01 11:42	19°II42'49	1°20'32	min. Earth dist.	12434 Dec 10 03:59	1°☿21'47	34.40867 AU
max. Earth dist.	12428 Jun 03 09:44	19°II46'41	34.80266 AU	opposition	12434 Dec 12 08:46	1°☿18'40	-4°46'57
morning rise	12428 Jun 16 20:07	20°II13'26		direct	12435 Mar 03 19:18	0°☿04'54	
retrograde	12428 Sep 11 23:31	21°II53'48		evening set	12435 May 30 22:04	1°☿41'39	
min. Earth dist.	12428 Nov 28 23:28	20°II41'31	32.92007 AU				
opposition	12428 Nov 30 21:21	20°II38'43	-1°40'58	conjunction	12435 Jun 14 12:49	2°☿09'23	-4°44'54
direct	12429 Feb 19 22:05	19°II22'40		minimum elong	12435 Jun 14 12:40	2°☿09'22	4°45'48
evening set	12429 May 19 05:41	21°II03'15		max. Earth dist.	12435 Jun 16 17:47	2°☿13'36	36.53013 AU
				morning rise	12435 Jun 29 02:48	2°☿37'03	
conjunction	12429 Jun 03 13:38	21°II33'35	-1°50'41	retrograde	12435 Sep 24 17:31	4°☿13'27	
minimum elong	12429 Jun 03 13:34	21°II33'35	1°51'34	min. Earth dist.	12435 Dec 12 04:08	3°☿03'51	34.66267 AU
max. Earth dist.	12429 Jun 05 12:59	21°II37'32	35.04036 AU	opposition	12435 Dec 14 08:56	3°☿00'45	-5°15'38
morning rise	12429 Jun 18 20:23	22°II03'50		direct	12436 Mar 04 18:28	1°☿47'21	
retrograde	12429 Sep 14 00:18	23°II43'31		evening set	12436 Jun 01 00:04	3°☿23'34	
min. Earth dist.	12429 Dec 01 01:11	22°II31'39	33.16037 AU				
opposition	12429 Dec 03 00:40	22°II28'46	-2°13'33	conjunction	12436 Jun 15 10:54	3°☿50'47	-5°11'50
direct	12430 Feb 22 02:39	21°II13'06		minimum elong	12436 Jun 15 10:44	3°☿50'46	5°12'45
evening set	12430 May 21 08:52	22°II52'56		max. Earth dist.	12436 Jun 17 16:18	3°☿55'01	36.78272 AU
				morning rise	12436 Jun 29 20:50	4°☿17'57	
conjunction	12430 Jun 05 14:44	23°II22'53	-2°21'10	retrograde	12436 Sep 25 14:37	5°☿53'55	
minimum elong	12430 Jun 05 14:39	23°II22'53	2°22'04	min. Earth dist.	12436 Dec 13 03:02	4°☿44'38	34.91657 AU
max. Earth dist.	12430 Jun 07 14:57	23°II26'52	35.28211 AU	opposition	12436 Dec 15 08:30	4°☿41'31	-5°43'39
morning rise	12430 Jun 20 19:44	23°II52'46		direct	12437 Mar 06 20:00	3°☿28'26	
retrograde	12430 Sep 16 02:13	25°II31'48		evening set	12437 Jun 03 02:01	5°☿04'09	
min. Earth dist.	12430 Dec 03 02:20	24°II20'22	33.40481 AU				
opposition	12430 Dec 05 03:26	24°II17'24	-2°45'31	conjunction	12437 Jun 17 08:27	5°☿30'51	-5°38'08
direct	12431 Feb 24 06:10	23°II02'07		minimum elong	12437 Jun 17 08:17	5°☿30'51	5°39'02
evening set	12431 May 23 11:48	24°II41'15		max. Earth dist.	12437 Jun 19 13:44	5°☿35'03	37.03502 AU
				morning rise	12437 Jul 01 14:20	5°☿57'31	
conjunction	12431 Jun 07 15:29	25°II10'49	-2°51'06	retrograde	12437 Sep 27 13:42	7°☿33'04	
minimum elong	12431 Jun 07 15:23	25°II10'48	2°52'00	min. Earth dist.	12437 Dec 15 01:17	6°☿24'05	35.17046 AU
max. Earth dist.	12431 Jun 09 17:41	25°II14'55	35.52748 AU	opposition	12437 Dec 17 07:31	6°☿20'56	-6°11'00
morning rise	12431 Jun 22 18:00	25°II40'17		direct	12438 Mar 08 18:28	5°☿08'10	
retrograde	12431 Sep 18 01:30	27°II18'43		evening set	12438 Jun 05 03:26	6°☿43'24	
min. Earth dist.	12431 Dec 05 04:00	26°II07'38	33.65250 AU				
opposition	12431 Dec 07 05:33	26°II04'40	-3°16'52	conjunction	12438 Jun 19 05:32	7°☿09'35	-6°03'49
direct	12432 Feb 26 11:47	24°II49'46		minimum elong	12438 Jun 19 05:22	7°☿09'34	6°04'44
evening set	12432 May 24 14:43	26°II28'16		max. Earth dist.	12438 Jun 21 12:07	7°☿13'50	37.28723 AU
				morning rise	12438 Jul 03 06:48	7°☿35'42	
conjunction	12432 Jun 08 15:32	26°II57'24	-3°20'27	retrograde	12438 Sep 29 09:19	9°☿10'51	
minimum elong	12432 Jun 08 15:25	26°II57'23	3°21'21	min. Earth dist.	12438 Dec 17 00:04	8°☿02'07	35.42423 AU
max. Earth dist.	12432 Jun 10 17:46	27°II01'29	35.77568 AU	opposition	12438 Dec 19 06:00	7°☿58'59	-6°37'39
morning rise	12432 Jun 23 15:32	27°II26'27		direct	12439 Mar 10 19:18	6°☿46'31	
retrograde	12432 Sep 19 02:08	29°II04'19		evening set	12439 Jun 07 04:47	8°☿21'19	
min. Earth dist.	12432 Dec 06 03:38	27°II53'42	33.90293 AU				
opposition	12432 Dec 08 07:12	27°II50'37	-3°47'33	conjunction	12439 Jun 21 01:56	8°☿46'57	-6°28'51
direct	12433 Feb 27 14:15	26°II36'07		minimum elong	12439 Jun 21 01:44	8°☿46'56	6°29'46
evening set	12433 May 26 17:11	28°II14'00		max. Earth dist.	12439 Jun 23 08:04	8°☿51'08	37.53950 AU
				morning rise	12439 Jul 04 22:35	9°☿12'32	
conjunction	12433 Jun 10 15:04	28°II42'41	-3°49'12	retrograde	12439 Oct 01 04:51	10°☿47'18	
minimum elong	12433 Jun 10 14:56	28°II42'40	3°50'06	min. Earth dist.	12439 Dec 18 20:13	9°☿38'55	35.67852 AU
max. Earth dist.	12433 Jun 12 19:14	28°II46'54	36.02601 AU	opposition	12439 Dec 21 03:52	9°☿35'43	-7°03'36
morning rise	12433 Jun 25 11:57	29°II11'18		direct	12440 Mar 11 18:23	8°☿23'32	
	12433 Jul 23 12:18	0°☿		evening set	12440 Jun 08 05:44	9°☿57'55	
retrograde	12433 Sep 20 21:58	0°☿48'38					
	12433 Nov 22 16:01	30°RII		conjunction	12440 Jun 21 21:57	10°☿23'00	-6°53'16
min. Earth dist.	12433 Dec 08 05:06	29°II38'20	34.15524 AU	minimum elong	12440 Jun 21 21:46	10°☿22'59	6°54'11
opposition	12433 Dec 10 08:24	29°II35'17	-4°17'35	max. Earth dist.	12440 Jun 24 05:50	10°☿27'18	37.79245 AU
direct	12434 Mar 01 17:36	28°II21'10		morning rise	12440 Jul 05 13:31	10°☿48'02	
evening set	12434 May 28 19:43	29°II58'28		retrograde	12440 Oct 01 21:50	12°☿22'29	

min. Earth dist.	12440 Dec 19 18:03	11°☾14'20	35.93384 AU	max. Earth dist.	12447 Jul 05 16:10	21°☾10'03	39.57738 AU
opposition	12440 Dec 22 01:29	11°☾11'09	-7°28'52	morning rise	12447 Jul 15 04:22	21°☾26'44	
direct	12441 Mar 13 18:34	9°☾59'17		retrograde	12447 Oct 13 02:29	22°☾59'53	
evening set	12441 Jun 10 06:25	11°☾33'18		min. Earth dist.	12447 Dec 31 09:08	21°☾53'53	37.73113 AU
				opposition	12448 Jan 02 19:16	21°☾50'40	-10°06'19
conjunction	12441 Jun 23 17:19	11°☾57'49	-7°17'02	direct	12448 Mar 24 16:33	20°☾41'08	
minimum elong	12441 Jun 23 17:07	11°☾57'48	7°17'55	evening set	12448 Jun 22 05:55	22°☾13'30	
max. Earth dist.	12441 Jun 26 01:10	12°☾02'06	38.04657 AU				
morning rise	12441 Jul 07 03:41	12°☾22'18		conjunction	12448 Jul 03 22:23	22°☾33'55	-9°45'29
retrograde	12441 Oct 03 16:01	13°☾56'28		minimum elong	12448 Jul 03 22:12	22°☾33'54	9°46'22
min. Earth dist.	12441 Dec 21 13:25	12°☾48'41	36.19028 AU	max. Earth dist.	12448 Jul 06 08:25	22°☾38'10	39.82816 AU
opposition	12441 Dec 23 22:24	12°☾45'26	-7°53'25	morning rise	12448 Jul 15 14:33	22°☾54'19	
direct	12442 Mar 15 16:35	11°☾33'53		retrograde	12448 Oct 13 18:23	24°☾27'21	
evening set	12442 Jun 12 06:57	13°☾07'34		min. Earth dist.	12449 Jan 01 02:49	23°☾21'37	37.98255 AU
				opposition	12449 Jan 03 13:22	23°☾18'24	-10°26'11
conjunction	12442 Jun 25 12:21	13°☾31'31	-7°40'08	direct	12449 Mar 26 11:43	22°☾09'09	
minimum elong	12442 Jun 25 12:10	13°☾31'30	7°41'03	evening set	12449 Jun 24 05:03	23°☾41'20	
max. Earth dist.	12442 Jun 27 21:09	13°☾35'50	38.30169 AU				
morning rise	12442 Jul 08 17:22	13°☾55'26		conjunction	12449 Jul 05 14:42	24°☾01'09	-10°04'16
retrograde	12442 Oct 05 11:21	15°☾29'22		minimum elong	12449 Jul 05 14:31	24°☾01'08	10°05'07
min. Earth dist.	12442 Dec 23 09:39	14°☾21'52	36.44782 AU	max. Earth dist.	12449 Jul 08 00:22	24°☾05'21	40.07619 AU
opposition	12442 Dec 25 18:50	14°☾18'38	-8°17'17	morning rise	12449 Jul 17 00:16	24°☾20'57	
direct	12443 Mar 17 12:12	13°☾07'25		retrograde	12449 Oct 15 12:05	25°☾53'53	
evening set	12443 Jun 14 07:15	14°☾40'49		min. Earth dist.	12450 Jan 02 20:52	24°☾48'22	38.23132 AU
				opposition	12450 Jan 05 07:10	24°☾45'11	-10°45'25
conjunction	12443 Jun 27 07:03	15°☾04'11	-8°02'36	direct	12450 Mar 28 04:27	23°☾36'12	
minimum elong	12443 Jun 27 06:52	15°☾04'11	8°03'29	evening set	12450 Jun 26 04:00	25°☾08'13	
max. Earth dist.	12443 Jun 29 16:39	15°☾08'32	38.55769 AU				
morning rise	12443 Jul 10 06:17	15°☾27'32		conjunction	12450 Jul 07 06:52	25°☾27'25	-10°22'27
retrograde	12443 Oct 07 06:06	17°☾01'16		minimum elong	12450 Jul 07 06:40	25°☾27'24	10°23'19
min. Earth dist.	12443 Dec 25 05:12	15°☾54'05	36.70579 AU	max. Earth dist.	12450 Jul 09 17:00	25°☾31'37	40.32160 AU
opposition	12443 Dec 27 14:54	15°☾50'50	-8°40'26	morning rise	12450 Jul 18 09:23	25°☾46'37	
direct	12444 Mar 18 08:45	14°☾39'58		retrograde	12450 Oct 17 04:27	27°☾19'25	
evening set	12444 Jun 15 07:19	16°☾13'07		min. Earth dist.	12451 Jan 04 14:38	26°☾14'05	38.47739 AU
				opposition	12451 Jan 07 00:19	26°☾10'56	-11°04'02
conjunction	12444 Jun 28 01:04	16°☾35'55	-8°24'25	direct	12451 Mar 29 21:38	25°☾02'12	
minimum elong	12444 Jun 28 00:53	16°☾35'54	8°25'20	evening set	12451 Jun 28 02:48	26°☾34'04	
max. Earth dist.	12444 Jun 30 10:29	16°☾40'13	38.81382 AU				
morning rise	12444 Jul 10 18:37	16°☾58'41		conjunction	12451 Jul 08 22:24	26°☾52'40	-10°40'04
retrograde	12444 Oct 08 02:39	18°☾32'14		minimum elong	12451 Jul 08 22:14	26°☾52'39	10°40'55
min. Earth dist.	12444 Dec 25 23:56	17°☾25'24	36.96386 AU	max. Earth dist.	12451 Jul 11 07:34	26°☾56'46	40.56463 AU
opposition	12444 Dec 28 10:38	17°☾22'07	-9°02'55	morning rise	12451 Jul 19 17:59	27°☾11'14	
direct	12445 Mar 20 02:52	16°☾11'36		retrograde	12451 Oct 18 21:41	28°☾43'57	
evening set	12445 Jun 17 07:09	17°☾44'31		min. Earth dist.	12452 Jan 06 06:36	27°☾38'51	38.72153 AU
				opposition	12452 Jan 08 17:12	27°☾35'41	-11°22'02
conjunction	12445 Jun 29 19:00	18°☾06'44	-8°45'37	direct	12452 Mar 30 13:21	26°☾27'11	
minimum elong	12445 Jun 29 18:48	18°☾06'43	8°46'30	evening set	12452 Jun 29 01:04	27°☾58'55	
max. Earth dist.	12445 Jul 02 05:40	18°☾11'06	39.06965 AU				
morning rise	12445 Jul 12 06:22	18°☾28'55		conjunction	12452 Jul 09 13:35	28°☾16'53	-10°57'06
retrograde	12445 Oct 09 19:24	20°☾02'18		minimum elong	12452 Jul 09 13:23	28°☾16'52	10°57'57
min. Earth dist.	12445 Dec 27 19:56	18°☾55'44	37.22120 AU	max. Earth dist.	12452 Jul 11 23:54	28°☾21'03	40.80596 AU
opposition	12445 Dec 30 05:53	18°☾52'30	-9°24'42	morning rise	12452 Jul 20 01:52	28°☾34'50	
direct	12446 Mar 21 23:17	17°☾42'20			12452 Sep 25 04:18	0°♂	
evening set	12446 Jun 19 06:56	19°☾15'03		retrograde	12452 Oct 19 09:53	0°♂07'29	
					12452 Nov 12 22:59	30°♂☾	
conjunction	12446 Jul 01 12:24	19°☾36'40	-9°06'10	min. Earth dist.	12453 Jan 07 00:07	29°☾02'32	38.96425 AU
minimum elong	12446 Jul 01 12:12	19°☾36'39	9°07'04	opposition	12453 Jan 09 09:50	28°☾59'25	-11°39'25
max. Earth dist.	12446 Jul 03 22:11	19°☾40'57	39.32443 AU	direct	12453 Apr 01 08:28	27°☾51'09	
morning rise	12446 Jul 13 17:39	19°☾58'16		evening set	12453 Jun 30 23:24	29°☾22'47	
retrograde	12446 Oct 11 11:13	21°☾31'31					
min. Earth dist.	12446 Dec 29 13:38	20°☾25'18	37.47717 AU	conjunction	12453 Jul 11 04:24	29°☾40'07	-11°13'33
opposition	12447 Jan 01 00:41	20°☾22'01	-9°45'50	minimum elong	12453 Jul 11 04:14	29°☾40'07	11°14'23
direct	12447 Mar 23 20:08	19°☾12'10		max. Earth dist.	12453 Jul 13 14:07	29°☾44'13	41.04625 AU
evening set	12447 Jun 21 06:27	20°☾44'43		morning rise	12453 Jul 21 09:18	29°☾57'27	
					12453 Jul 22 21:39	0°♂	
conjunction	12447 Jul 03 05:33	21°☾05'44	-9°26'08	retrograde	12453 Oct 20 22:04	1°♂30'03	
minimum elong	12447 Jul 03 05:21	21°☾05'43	9°27'00	min. Earth dist.	12454 Jan 08 14:56	0°♂25'23	39.20600 AU

opposition	12454 Jan 11 01:47	0°Ω22'12 -11°56'10	minimum elong	12460 Jul 20 03:32	9°Ω00'30 12°53'49
	12454 Jan 28 13:00	30°RΩ	max. Earth dist.	12460 Jul 22 13:05	9°Ω04'27 42.68653 AU
direct	12454 Apr 03 03:07	29°Ω14'11	morning rise	12460 Jul 28 00:50	9°Ω13'26
	12454 Jun 03 12:36	0°Ω	retrograde	12460 Oct 29 19:52	10°Ω46'21
evening set	12454 Jul 02 21:21	0°Ω45'44	min. Earth dist.	12461 Jan 18 00:14	9°Ω43'10 40.85120 AU
			opposition	12461 Jan 20 09:47	9°Ω40'09 -13°37'06
conjunction	12454 Jul 12 18:53	1°Ω02'27 -11°29'25	direct	12461 Apr 12 14:09	8°Ω33'56
minimum elong	12454 Jul 12 18:42	1°Ω02'26 11°30'15	evening set	12461 Jul 14 03:39	10°Ω05'33
max. Earth dist.	12454 Jul 15 05:10	1°Ω06'34 41.28558 AU			
morning rise	12454 Jul 22 16:22	1°Ω19'09	conjunction	12461 Jul 21 16:15	10°Ω17'49 -13°05'13
retrograde	12454 Oct 22 12:11	2°Ω51'44	minimum elong	12461 Jul 21 16:09	10°Ω17'48 13°05'59
min. Earth dist.	12455 Jan 10 07:09	1°Ω47'15 39.44687 AU	max. Earth dist.	12461 Jul 24 00:50	10°Ω21'40 42.90940 AU
opposition	12455 Jan 12 17:38	1°Ω44'07 -12°12'19	morning rise	12461 Jul 29 04:56	10°Ω30'06
direct	12455 Apr 04 19:41	0°Ω36'21	retrograde	12461 Oct 31 10:16	12°Ω03'07
evening set	12455 Jul 04 19:11	2°Ω07'50	min. Earth dist.	12462 Jan 19 14:27	11°Ω00'05 41.07390 AU
			opposition	12462 Jan 21 23:25	10°Ω57'07 -13°49'22
conjunction	12455 Jul 14 09:03	2°Ω23'55 -11°44'43	direct	12462 Apr 14 02:25	9°Ω51'08
minimum elong	12455 Jul 14 08:54	2°Ω23'55 11°45'32	evening set	12462 Jul 16 00:51	11°Ω22'48
max. Earth dist.	12455 Jul 16 19:40	2°Ω28'03 41.52401 AU			
morning rise	12455 Jul 23 22:44	2°Ω40'01	conjunction	12462 Jul 23 04:42	11°Ω34'25 -13°16'54
retrograde	12455 Oct 24 01:34	4°Ω12'36	minimum elong	12462 Jul 23 04:35	11°Ω34'25 13°17'38
min. Earth dist.	12456 Jan 11 22:19	3°Ω08'21 39.68647 AU	max. Earth dist.	12462 Jul 25 13:29	11°Ω38'16 43.12847 AU
opposition	12456 Jan 14 09:01	3°Ω05'13 -12°27'51	morning rise	12462 Jul 30 08:28	11°Ω46'03
direct	12456 Apr 05 12:01	1°Ω57'43	retrograde	12462 Nov 01 22:18	13°Ω19'11
evening set	12456 Jul 05 16:52	3°Ω29'10	min. Earth dist.	12463 Jan 21 04:49	12°Ω16'16 41.29264 AU
			opposition	12463 Jan 23 12:47	12°Ω13'22 -14°01'09
conjunction	12456 Jul 14 22:50	3°Ω44'37 -11°59'27	direct	12463 Apr 15 16:29	11°Ω07'35
minimum elong	12456 Jul 14 22:40	3°Ω44'37 12°00'16	evening set	12463 Jul 17 21:54	12°Ω39'20
max. Earth dist.	12456 Jul 17 08:47	3°Ω48'40 41.76109 AU			
morning rise	12456 Jul 24 04:51	4°Ω00'05	conjunction	12463 Jul 24 16:32	12°Ω50'17 -13°28'07
retrograde	12456 Oct 24 18:00	5°Ω32'42	minimum elong	12463 Jul 24 16:26	12°Ω50'17 13°28'51
min. Earth dist.	12457 Jan 12 13:03	4°Ω28'42 39.92471 AU	max. Earth dist.	12463 Jul 26 23:54	12°Ω54'01 43.34392 AU
opposition	12457 Jan 15 00:12	4°Ω25'33 -12°42'49	morning rise	12463 Jul 31 11:15	13°Ω01'15
direct	12457 Apr 07 00:53	3°Ω18'20	retrograde	12463 Nov 03 10:56	14°Ω34'30
evening set	12457 Jul 07 14:16	4°Ω49'46	min. Earth dist.	12464 Jan 22 17:20	13°Ω31'47 41.50819 AU
			opposition	12464 Jan 25 01:48	13°Ω28'52 -14°12'26
conjunction	12457 Jul 16 12:25	5°Ω04'36 -12°13'38	direct	12464 Apr 16 04:04	12°Ω23'17
minimum elong	12457 Jul 16 12:17	5°Ω04'36 12°14'26	evening set	12464 Jul 18 18:51	13°Ω55'09
max. Earth dist.	12457 Jul 18 23:25	5°Ω08'42 41.99651 AU			
morning rise	12457 Jul 25 10:27	5°Ω19'27	conjunction	12464 Jul 25 04:16	14°Ω05'26 -13°38'51
retrograde	12457 Oct 26 07:43	6°Ω52'06	minimum elong	12464 Jul 25 04:10	14°Ω05'25 13°39'34
min. Earth dist.	12458 Jan 14 04:57	5°Ω48'17 40.16082 AU	max. Earth dist.	12464 Jul 27 12:24	14°Ω09'11 43.55651 AU
opposition	12458 Jan 16 15:04	5°Ω45'12 -12°57'11	morning rise	12464 Jul 31 13:40	14°Ω15'42
direct	12458 Apr 08 15:46	4°Ω38'14		12464 Aug 29 21:16	15°Ω
evening set	12458 Jul 09 11:48	6°Ω09'42	retrograde	12464 Nov 03 21:16	15°Ω49'07
				12465 Jan 12 06:47	15°RΩ
conjunction	12458 Jul 18 01:43	6°Ω23'54 -12°27'17	min. Earth dist.	12465 Jan 23 07:21	14°Ω46'30 41.72120 AU
minimum elong	12458 Jul 18 01:34	6°Ω23'53 12°28'04	opposition	12465 Jan 25 14:39	14°Ω43'39 -14°23'13
max. Earth dist.	12458 Jul 20 11:29	6°Ω27'53 42.22959 AU	direct	12465 Apr 17 17:37	13°Ω38'16
morning rise	12458 Jul 26 15:39	6°Ω38'06		12465 Jul 14 04:17	15°Ω
retrograde	12458 Oct 27 21:03	8°Ω10'49	evening set	12465 Jul 20 15:53	15°Ω10'16
min. Earth dist.	12459 Jan 15 18:32	7°Ω07'16 40.39431 AU			
opposition	12459 Jan 18 05:24	7°Ω04'10 -13°11'01	conjunction	12465 Jul 26 15:36	15°Ω19'51 -13°49'06
direct	12459 Apr 10 05:48	5°Ω57'28	minimum elong	12465 Jul 26 15:30	15°Ω19'51 13°49'49
evening set	12459 Jul 11 09:07	7°Ω28'58	max. Earth dist.	12465 Jul 28 23:07	15°Ω23'34 43.76697 AU
			morning rise	12465 Aug 01 15:18	15°Ω29'26
conjunction	12459 Jul 19 14:51	7°Ω42'32 -12°40'25	retrograde	12465 Nov 05 06:07	17°Ω03'02
minimum elong	12459 Jul 19 14:44	7°Ω42'31 12°41'12	min. Earth dist.	12466 Jan 24 18:56	16°Ω00'39 41.93211 AU
max. Earth dist.	12459 Jul 22 00:59	7°Ω46'32 42.45973 AU	opposition	12466 Jan 27 03:00	15°Ω57'45 -14°33'30
morning rise	12459 Jul 27 20:36	7°Ω56'06		12466 Mar 25 07:13	15°RΩ
retrograde	12459 Oct 29 08:07	9°Ω28'55	direct	12466 Apr 19 08:18	14°Ω52'35
min. Earth dist.	12460 Jan 17 10:20	8°Ω25'30 40.62464 AU		12466 May 13 23:02	15°Ω
opposition	12460 Jan 19 19:48	8°Ω22'29 -13°24'19	evening set	12466 Jul 22 12:55	16°Ω24'45
direct	12460 Apr 10 22:29	7°Ω16'03			
evening set	12460 Jul 12 06:24	8°Ω47'35	conjunction	12466 Jul 28 02:42	16°Ω33'38 -13°58'52
			minimum elong	12466 Jul 28 02:38	16°Ω33'37 13°59'33
conjunction	12460 Jul 20 03:39	9°Ω00'30 -12°53'04	max. Earth dist.	12466 Jul 30 10:01	16°Ω37'19 43.97547 AU

morning rise	12466 Aug 02 16:34	16° Ω 42'31	conjunction	12473 Aug 05 02:52	24° Ω 55'24 -14°54'42
retrograde	12466 Nov 06 17:31	18° Ω 16'20	minimum elong	12473 Aug 05 02:51	24° Ω 55'24 14°55'18
min. Earth dist.	12467 Jan 26 07:37	17° Ω 14'06 42.14125 AU	morning rise	12473 Aug 06 16:51	24° Ω 57'51
opposition	12467 Jan 28 15:08	17° Ω 11'15 -14°43'17	max. Earth dist.	12473 Aug 07 06:50	24° Ω 58'45 45.36570 AU
direct	12467 Apr 20 21:38	16° Ω 06'17	retrograde	12473 Nov 14 20:04	26° Ω 35'03
evening set	12467 Jul 24 10:14	17° Ω 38'40	min. Earth dist.	12474 Feb 03 17:44	25° Ω 33'56 43.52844 AU
			opposition	12474 Feb 05 22:06	25° Ω 31'18 -15°38'47
conjunction	12467 Jul 29 13:42	17° Ω 46'49 -14°08'10	direct	12474 Apr 29 03:49	24° Ω 27'48
minimum elong	12467 Jul 29 13:37	17° Ω 46'49 14°08'51			
max. Earth dist.	12467 Jul 31 21:29	17° Ω 50'31 44.18230 AU	conjunction	12474 Aug 06 12:36	26° Ω 05'04 -15°01'04
morning rise	12467 Aug 03 17:07	17° Ω 54'59	minimum elong	12474 Aug 06 12:37	26° Ω 05'04 15°01'40
retrograde	12467 Nov 08 05:30	19° Ω 29'03	max. Earth dist.	12474 Aug 08 16:48	26° Ω 08'24 45.54879 AU
min. Earth dist.	12468 Jan 27 19:51	18° Ω 27'00 42.34841 AU	retrograde	12474 Nov 16 06:29	27° Ω 44'17
opposition	12468 Jan 30 03:04	18° Ω 24'10 -14°52'34	min. Earth dist.	12475 Feb 05 05:49	26° Ω 43'12 43.71020 AU
direct	12468 Apr 21 09:19	17° Ω 19'26	opposition	12475 Feb 07 08:29	26° Ω 40'40 -15°45'03
evening set	12468 Jul 25 07:34	18° Ω 52'04	direct	12475 Apr 30 13:49	25° Ω 37'19
conjunction	12468 Jul 30 00:09	18° Ω 59'28 -14°17'00	conjunction	12475 Aug 07 21:57	27° Ω 14'07 -15°07'04
minimum elong	12468 Jul 30 00:06	18° Ω 59'28 14°17'40	minimum elong	12475 Aug 07 21:57	27° Ω 14'07 15°07'38
max. Earth dist.	12468 Aug 01 06:56	19° Ω 03'04 44.38714 AU	max. Earth dist.	12475 Aug 10 00:36	27° Ω 17'21 45.72752 AU
morning rise	12468 Aug 03 16:49	19° Ω 06'53	retrograde	12475 Nov 17 15:02	28° Ω 52'54
retrograde	12468 Nov 08 18:44	20° Ω 41'15	min. Earth dist.	12476 Feb 06 15:31	27° Ω 51'58 43.88788 AU
min. Earth dist.	12469 Jan 28 07:03	19° Ω 39'24 42.55351 AU	opposition	12476 Feb 08 18:40	27° Ω 49'25 -15°50'57
opposition	12469 Jan 30 14:47	19° Ω 36'34 -15°01'22	direct	12476 Apr 30 23:20	26° Ω 46'13
direct	12469 Apr 22 18:36	18° Ω 32'04			
evening set	12469 Jul 27 05:31	20° Ω 04'59	conjunction	12476 Aug 08 06:58	28° Ω 22'34 -15°12'41
			minimum elong	12476 Aug 08 06:59	28° Ω 22'34 15°13'15
conjunction	12469 Jul 31 10:43	20° Ω 11'37 -14°25'23	max. Earth dist.	12476 Aug 10 09:35	28° Ω 25'47 45.90241 AU
minimum elong	12469 Jul 31 10:40	20° Ω 11'37 14°26'02		12476 Nov 08 22:38	0° Υ
max. Earth dist.	12469 Aug 02 18:13	20° Ω 15'15 44.58966 AU	retrograde	12476 Nov 17 21:58	0° Υ 00'56
morning rise	12469 Aug 04 15:55	20° Ω 18'14		12476 Nov 26 23:24	30° \Re Ω
retrograde	12469 Nov 10 04:18	21° Ω 52'57	min. Earth dist.	12477 Feb 07 03:02	29° Ω 00'03 44.06211 AU
min. Earth dist.	12470 Jan 29 19:53	20° Ω 51'14 42.75594 AU	opposition	12477 Feb 09 04:46	28° Ω 57'34 -15°56'27
opposition	12470 Feb 01 02:11	20° Ω 48'29 -15°09'42	direct	12477 May 02 11:22	27° Ω 54'31
direct	12470 Apr 24 05:54	19° Ω 44'12			
evening set	12470 Jul 29 04:16	21° Ω 17'29	conjunction	12477 Aug 09 15:59	29° Ω 30'26 -15°17'55
			minimum elong	12477 Aug 09 16:00	29° Ω 30'26 15°18'27
conjunction	12470 Aug 01 21:01	21° Ω 23'17 -14°33'19	max. Earth dist.	12477 Aug 11 18:20	29° Ω 33'37 46.07430 AU
minimum elong	12470 Aug 01 21:00	21° Ω 23'17 14°33'58		12477 Aug 29 09:45	0° Υ
max. Earth dist.	12470 Aug 04 03:18	21° Ω 26'50 44.78941 AU	retrograde	12477 Nov 19 05:03	1° Υ 08'24
morning rise	12470 Aug 05 13:49	21° Ω 29'05	min. Earth dist.	12478 Feb 08 12:32	0° Υ 07'39 44.23337 AU
retrograde	12470 Nov 11 13:02	23° Ω 04'11	opposition	12478 Feb 10 14:18	0° Υ 05'11 -16°01'33
min. Earth dist.	12471 Jan 31 06:40	22° Ω 02'41 42.95519 AU		12478 Feb 14 22:37	30° \Re Ω
opposition	12471 Feb 02 13:22	21° Ω 59'55 -15°17'35	direct	12478 May 03 23:17	29° Ω 02'17
direct	12471 Apr 25 17:29	20° Ω 55'51		12478 Jul 16 09:43	0° Υ
evening set	12471 Jul 31 03:56	22° Ω 29'36			
			conjunction	12478 Aug 11 00:39	0° Υ 37'47 -15°22'45
conjunction	12471 Aug 03 07:03	22° Ω 34'29 -14°40'51	minimum elong	12478 Aug 11 00:41	0° Υ 37'47 15°23'18
minimum elong	12471 Aug 03 07:00	22° Ω 34'29 14°41'28	max. Earth dist.	12478 Aug 13 01:59	0° Υ 40'54 46.24343 AU
morning rise	12471 Aug 06 10:10	22° Ω 39'22	retrograde	12478 Nov 20 15:38	2° Υ 15'23
max. Earth dist.	12471 Aug 05 13:04	22° Ω 38'00 44.98561 AU	min. Earth dist.	12479 Feb 09 22:23	1° Υ 14'46 44.40210 AU
retrograde	12471 Nov 12 22:31	24° Ω 14'58	opposition	12479 Feb 11 23:54	1° Υ 12'19 -16°06'14
min. Earth dist.	12472 Feb 01 19:11	23° Ω 13'35 43.15073 AU	direct	12479 May 05 07:58	0° Υ 09'35
opposition	12472 Feb 04 00:34	23° Ω 10'53 -15°25'03			
direct	12472 Apr 26 05:42	22° Ω 07'02	conjunction	12479 Aug 12 09:12	1° Υ 44'41 -15°27'13
evening set	12472 Aug 01 06:06	23° Ω 41'22	minimum elong	12479 Aug 12 09:14	1° Υ 44'41 15°27'43
			max. Earth dist.	12479 Aug 14 11:10	1° Υ 47'50 46.41009 AU
conjunction	12472 Aug 03 17:08	23° Ω 45'12 -14°47'58	retrograde	12479 Nov 22 00:49	3° Υ 21'56
minimum elong	12472 Aug 03 17:08	23° Ω 45'12 14°48'35	min. Earth dist.	12480 Feb 11 08:42	2° Υ 21'25 44.56815 AU
morning rise	12472 Aug 06 04:12	23° Ω 49'02	opposition	12480 Feb 13 09:18	2° Υ 19'01 -16°10'32
max. Earth dist.	12472 Aug 05 22:50	23° Ω 48'41 45.17793 AU	direct	12480 May 05 17:03	1° Υ 16'29
retrograde	12472 Nov 13 07:25	25° Ω 25'17			
min. Earth dist.	12473 Feb 02 06:34	24° Ω 24'01 43.34190 AU	conjunction	12480 Aug 12 17:32	2° Υ 51'13 -15°31'17
opposition	12473 Feb 04 11:24	24° Ω 21'22 -15°32'07	minimum elong	12480 Aug 12 17:34	2° Υ 51'13 15°31'48
direct	12473 Apr 27 18:44	23° Ω 17'41	max. Earth dist.	12480 Aug 14 18:07	2° Υ 54'15 46.57421 AU
evening set	12473 Aug 03 12:53	24° Ω 52'57	retrograde	12480 Nov 22 10:14	4° Υ 28'07
			min. Earth dist.	12481 Feb 11 17:22	3° Υ 27'47 44.73154 AU

opposition	12481 Feb 13 18:25	3° \mathring{M} 25'23 -16°14'27	conjunction	12489 Aug 22 15:16	12° \mathring{M} 35'26 -15°53'05
direct	12481 May 06 23:28	2° \mathring{M} 23'01	minimum elong	12489 Aug 22 15:23	12° \mathring{M} 35'26 15°53'28
			max. Earth dist.	12489 Aug 24 09:55	12° \mathring{M} 38'02 47.87255 AU
conjunction	12481 Aug 14 01:46	3° \mathring{M} 57'25 -15°35'00	retrograde	12489 Dec 02 05:18	14° \mathring{M} 09'34
minimum elong	12481 Aug 14 01:50	3° \mathring{M} 57'25 15°35'29	min. Earth dist.	12490 Feb 22 04:55	13° \mathring{M} 09'59 46.01445 AU
max. Earth dist.	12481 Aug 16 02:32	4° \mathring{M} 00'27 46.73542 AU	opposition	12490 Feb 23 21:53	13° \mathring{M} 08'00 -16°34'30
retrograde	12481 Nov 23 17:46	5° \mathring{M} 34'00	direct	12490 May 17 07:55	12° \mathring{M} 06'55
min. Earth dist.	12482 Feb 13 04:02	4° \mathring{M} 33'45 44.89177 AU			
opposition	12482 Feb 15 03:30	4° \mathring{M} 31'26 -16°17'59	conjunction	12490 Aug 23 22:09	13° \mathring{M} 38'20 -15°53'58
direct	12482 May 08 08:04	3° \mathring{M} 29'15	minimum elong	12490 Aug 23 22:16	13° \mathring{M} 38'20 15°54'18
			max. Earth dist.	12490 Aug 25 15:12	13° \mathring{M} 40'49 47.99606 AU
conjunction	12482 Aug 15 09:55	5° \mathring{M} 03'19 -15°38'22	retrograde	12490 Dec 03 15:06	15° \mathring{M} 12'10
minimum elong	12482 Aug 15 09:58	5° \mathring{M} 03'19 15°38'50	min. Earth dist.	12491 Feb 23 12:09	14° \mathring{M} 12'41 46.13671 AU
max. Earth dist.	12482 Aug 17 10:03	5° \mathring{M} 06'19 46.89338 AU	opposition	12491 Feb 25 05:21	14° \mathring{M} 10'42 -16°35'08
retrograde	12482 Nov 24 23:39	6° \mathring{M} 39'36	direct	12491 May 18 12:45	13° \mathring{M} 09'43
min. Earth dist.	12483 Feb 14 12:43	5° \mathring{M} 39'32 45.04831 AU			
opposition	12483 Feb 16 12:11	5° \mathring{M} 37'12 -16°21'10	conjunction	12491 Aug 25 05:02	14° \mathring{M} 40'50 -15°54'31
direct	12483 May 09 19:30	4° \mathring{M} 35'13	minimum elong	12491 Aug 25 05:09	14° \mathring{M} 40'51 15°54'52
			max. Earth dist.	12491 Aug 26 22:25	14° \mathring{M} 43'20 48.11677 AU
conjunction	12483 Aug 16 17:52	6° \mathring{M} 08'57 -15°41'23	retrograde	12491 Dec 04 23:12	16° \mathring{M} 14'24
minimum elong	12483 Aug 16 17:57	6° \mathring{M} 08'57 15°41'50	min. Earth dist.	12492 Feb 24 21:10	15° \mathring{M} 14'56 46.25617 AU
max. Earth dist.	12483 Aug 18 16:39	6° \mathring{M} 11'51 47.04740 AU	opposition	12492 Feb 26 12:54	15° \mathring{M} 13'02 -16°35'26
retrograde	12483 Nov 26 09:33	7° \mathring{M} 44'56	direct	12492 May 18 18:28	14° \mathring{M} 12'11
min. Earth dist.	12484 Feb 15 22:33	6° \mathring{M} 44'59 45.20080 AU			
opposition	12484 Feb 17 21:00	6° \mathring{M} 42'43 -16°24'00	conjunction	12492 Aug 25 11:40	15° \mathring{M} 43'00 -15°54'46
direct	12484 May 10 04:42	5° \mathring{M} 40'54	minimum elong	12492 Aug 25 11:49	15° \mathring{M} 43'01 15°55'04
			max. Earth dist.	12492 Aug 27 04:23	15° \mathring{M} 45'27 48.23485 AU
conjunction	12484 Aug 17 01:49	7° \mathring{M} 14'18 -15°44'05	retrograde	12492 Dec 05 03:11	17° \mathring{M} 16'18
minimum elong	12484 Aug 17 01:53	7° \mathring{M} 14'19 15°44'32	min. Earth dist.	12493 Feb 25 03:56	16° \mathring{M} 16'58 46.37275 AU
max. Earth dist.	12484 Aug 19 00:42	7° \mathring{M} 17'13 47.19706 AU	opposition	12493 Feb 26 20:08	16° \mathring{M} 15'02 -16°35'25
retrograde	12484 Nov 26 19:14	8° \mathring{M} 50'00	direct	12493 May 20 02:19	15° \mathring{M} 14'18
min. Earth dist.	12485 Feb 16 08:36	7° \mathring{M} 50'07 45.34841 AU			
opposition	12485 Feb 18 05:37	7° \mathring{M} 47'56 -16°26'31	conjunction	12493 Aug 26 18:16	16° \mathring{M} 44'52 -15°54'41
direct	12485 May 11 12:58	6° \mathring{M} 46'17	minimum elong	12493 Aug 26 18:24	16° \mathring{M} 44'53 15°55'00
			max. Earth dist.	12493 Aug 28 09:56	16° \mathring{M} 47'15 48.34989 AU
conjunction	12485 Aug 18 09:39	8° \mathring{M} 19'22 -15°46'29	retrograde	12493 Dec 06 08:50	18° \mathring{M} 17'55
minimum elong	12485 Aug 18 09:45	8° \mathring{M} 19'22 15°46'55	min. Earth dist.	12494 Feb 26 12:18	17° \mathring{M} 18'38 46.48626 AU
max. Earth dist.	12485 Aug 20 06:32	8° \mathring{M} 22'07 47.34174 AU	opposition	12494 Feb 28 03:14	17° \mathring{M} 16'46 -16°35'05
retrograde	12485 Nov 28 05:08	9° \mathring{M} 54'45	direct	12494 May 21 10:54	16° \mathring{M} 16'10
min. Earth dist.	12486 Feb 17 17:02	8° \mathring{M} 54'59 45.49090 AU			
opposition	12486 Feb 19 13:52	8° \mathring{M} 52'49 -16°28'44	conjunction	12494 Aug 28 00:54	17° \mathring{M} 46'29 -15°54'19
direct	12486 May 12 18:52	7° \mathring{M} 51'18	minimum elong	12494 Aug 28 01:04	17° \mathring{M} 46'30 15°54'36
			max. Earth dist.	12494 Aug 29 16:50	17° \mathring{M} 48'53 48.46173 AU
conjunction	12486 Aug 19 17:25	9° \mathring{M} 24'03 -15°48'35	retrograde	12494 Dec 07 15:22	19° \mathring{M} 19'18
minimum elong	12486 Aug 19 17:29	9° \mathring{M} 24'03 15°49'00	min. Earth dist.	12495 Feb 27 20:10	18° \mathring{M} 20'06 46.59611 AU
max. Earth dist.	12486 Aug 21 13:51	9° \mathring{M} 26'47 47.48117 AU	opposition	12495 Mar 01 10:17	18° \mathring{M} 18'17 -16°34'28
retrograde	12486 Nov 29 10:56	10° \mathring{M} 59'07	direct	12495 May 22 19:45	17° \mathring{M} 17'49
min. Earth dist.	12487 Feb 19 03:24	9° \mathring{M} 59'22 45.62815 AU			
opposition	12487 Feb 20 22:14	9° \mathring{M} 57'17 -16°30'39	conjunction	12495 Aug 29 07:10	18° \mathring{M} 47'53 -15°53'40
direct	12487 May 14 03:15	8° \mathring{M} 55'54	minimum elong	12495 Aug 29 07:19	18° \mathring{M} 47'53 15°53'57
			max. Earth dist.	12495 Aug 30 21:21	18° \mathring{M} 50'10 48.56977 AU
conjunction	12487 Aug 21 00:50	10° \mathring{M} 28'19 -15°50'23	retrograde	12495 Dec 09 00:36	20° \mathring{M} 20'29
minimum elong	12487 Aug 21 00:57	10° \mathring{M} 28'19 15°50'48	min. Earth dist.	12496 Feb 29 03:25	19° \mathring{M} 21'23 46.70199 AU
max. Earth dist.	12487 Aug 22 20:19	10° \mathring{M} 30'58 47.61574 AU	opposition	12496 Mar 01 17:17	19° \mathring{M} 19'35 -16°33'32
retrograde	12487 Nov 30 14:58	12° \mathring{M} 03'03	direct	12496 May 23 00:50	18° \mathring{M} 19'15
min. Earth dist.	12488 Feb 20 11:29	11° \mathring{M} 03'23 45.76066 AU			
opposition	12488 Feb 22 06:17	11° \mathring{M} 01'19 -16°32'15	conjunction	12496 Aug 29 13:40	19° \mathring{M} 49'05 -15°52'45
direct	12488 May 14 12:50	10° \mathring{M} 00'02	minimum elong	12496 Aug 29 13:51	19° \mathring{M} 49'05 15°53'00
			max. Earth dist.	12496 Aug 31 03:41	19° \mathring{M} 51'21 48.67343 AU
conjunction	12488 Aug 21 08:04	11° \mathring{M} 32'06 -15°51'54	retrograde	12496 Dec 09 07:19	21° \mathring{M} 21'28
minimum elong	12488 Aug 21 08:10	11° \mathring{M} 32'07 15°52'16	min. Earth dist.	12497 Mar 01 12:18	20° \mathring{M} 22'24 46.80312 AU
max. Earth dist.	12488 Aug 23 02:23	11° \mathring{M} 34'41 47.74590 AU	opposition	12497 Mar 03 00:11	20° \mathring{M} 20'41 -16°32'21
retrograde	12488 Nov 30 22:27	13° \mathring{M} 06'32	direct	12497 May 24 06:34	19° \mathring{M} 20'28
min. Earth dist.	12489 Feb 20 20:28	12° \mathring{M} 06'54 45.88930 AU			
opposition	12489 Feb 22 14:12	12° \mathring{M} 04'53 -16°33'32	conjunction	12497 Aug 30 20:06	20° \mathring{M} 50'05 -15°51'34
direct	12489 May 15 22:02	11° \mathring{M} 03'42	minimum elong	12497 Aug 30 20:15	20° \mathring{M} 50'05 15°51'48
			max. Earth dist.	12497 Sep 01 08:41	20° \mathring{M} 52'16 48.77226 AU

retrograde	12497 Dec 10 11:59	22° <u>17</u> 22'15		min. Earth dist.	12506 Mar 12 02:50	29° <u>17</u> 20'49	47.51884 AU
min. Earth dist.	12498 Mar 02 19:10	21° <u>17</u> 23'16	46.89907 AU	opposition	12506 Mar 13 08:37	29° <u>17</u> 19'25	-16°09'48
opposition	12498 Mar 04 06:52	21° <u>17</u> 21'34	-16°30'55	direct	12506 Jun 03 16:45	28° <u>17</u> 20'00	
direct	12498 May 25 12:45	20° <u>17</u> 21'27					
				conjunction	12506 Sep 10 00:19	29° <u>17</u> 47'48	-15°29'19
conjunction	12498 Sep 01 02:19	21° <u>17</u> 50'50	-15°50'08	minimum elong	12506 Sep 10 00:31	29° <u>17</u> 47'49	15°29'25
minimum elong	12498 Sep 01 02:30	21° <u>17</u> 50'51	15°50'22	max. Earth dist.	12506 Sep 11 06:29	29° <u>17</u> 49'34	49.47474 AU
max. Earth dist.	12498 Sep 02 13:28	21° <u>17</u> 52'56	48.86574 AU		12506 Sep 18 17:43	0° <u>17</u>	
retrograde	12498 Dec 11 17:41	23° <u>17</u> 22'48		retrograde	12506 Dec 20 19:07	1° <u>17</u> 18'19	
min. Earth dist.	12499 Mar 04 03:35	22° <u>17</u> 23'48	46.98979 AU	min. Earth dist.	12507 Mar 13 10:22	0° <u>17</u> 19'41	47.58146 AU
opposition	12499 Mar 05 13:34	22° <u>17</u> 22'12	-16°29'13	opposition	12507 Mar 14 14:29	0° <u>17</u> 18'21	-16°05'56
direct	12499 May 26 20:19	21° <u>17</u> 22'10			12507 Mar 31 03:59	30° <u>17</u>	
				direct	12507 Jun 04 21:33	29° <u>17</u> 19'03	
conjunction	12499 Sep 02 08:34	22° <u>17</u> 51'19	-15°48'28		12507 Aug 07 01:23	0° <u>17</u>	
minimum elong	12499 Sep 02 08:43	22° <u>17</u> 51'20	15°48'40				
max. Earth dist.	12499 Sep 03 19:30	22° <u>17</u> 53'24	48.95429 AU	conjunction	12507 Sep 11 05:48	0° <u>17</u> 46'42	-15°25'31
retrograde	12499 Dec 12 22:38	24° <u>17</u> 23'04		minimum elong	12507 Sep 11 06:01	0° <u>17</u> 46'43	15°25'36
min. Earth dist.	12500 Mar 05 10:49	23° <u>17</u> 24'07	47.07566 AU	max. Earth dist.	12507 Sep 12 10:51	0° <u>17</u> 48'23	49.53611 AU
opposition	12500 Mar 06 20:04	23° <u>17</u> 22'32	-16°27'17	retrograde	12507 Dec 22 00:43	2° <u>17</u> 17'05	
direct	12500 May 28 05:30	22° <u>17</u> 22'36		opposition	12508 Mar 14 20:12	1° <u>17</u> 17'12	-16°01'49
				min. Earth dist.	12508 Mar 13 16:05	1° <u>17</u> 18'31	47.64004 AU
conjunction	12500 Sep 03 14:23	23° <u>17</u> 51'30	-15°46'32	direct	12508 Jun 05 00:27	0° <u>17</u> 17'59	
minimum elong	12500 Sep 03 14:35	23° <u>17</u> 51'31	15°46'44				
max. Earth dist.	12500 Sep 04 23:32	23° <u>17</u> 53'28	49.03839 AU	conjunction	12508 Sep 11 11:11	1° <u>17</u> 45'30	-15°21'30
retrograde	12500 Dec 14 07:36	25° <u>17</u> 23'03		minimum elong	12508 Sep 11 11:23	1° <u>17</u> 45'31	15°21'34
min. Earth dist.	12501 Mar 06 17:35	24° <u>17</u> 24'08	47.15748 AU	max. Earth dist.	12508 Sep 12 14:55	1° <u>17</u> 47'07	49.59296 AU
opposition	12501 Mar 08 02:25	24° <u>17</u> 22'35	-16°25'04	retrograde	12508 Dec 22 05:24	3° <u>17</u> 15'45	
direct	12501 May 29 10:21	23° <u>17</u> 22'43		min. Earth dist.	12509 Mar 14 23:52	2° <u>17</u> 17'10	47.69385 AU
				opposition	12509 Mar 16 02:03	2° <u>17</u> 15'57	-15°57'28
conjunction	12501 Sep 04 20:22	24° <u>17</u> 51'25	-15°44'21	direct	12509 Jun 06 05:20	1° <u>17</u> 16'48	
minimum elong	12501 Sep 04 20:33	24° <u>17</u> 51'25	15°44'31				
max. Earth dist.	12501 Sep 06 05:39	24° <u>17</u> 53'22	49.11865 AU	conjunction	12509 Sep 12 16:50	2° <u>17</u> 44'11	-15°17'15
retrograde	12501 Dec 15 15:23	26° <u>17</u> 22'44		minimum elong	12509 Sep 12 17:03	2° <u>17</u> 44'12	15°17'18
min. Earth dist.	12502 Mar 08 01:21	25° <u>17</u> 23'49	47.23571 AU	max. Earth dist.	12509 Sep 13 20:06	2° <u>17</u> 45'46	49.64480 AU
opposition	12502 Mar 09 08:35	25° <u>17</u> 22'21	-16°22'35	retrograde	12509 Dec 23 08:30	4° <u>17</u> 14'18	
direct	12502 May 30 14:39	24° <u>17</u> 22'34		min. Earth dist.	12510 Mar 16 06:14	3° <u>17</u> 15'44	47.74219 AU
				opposition	12510 Mar 17 07:35	3° <u>17</u> 14'33	-15°52'54
conjunction	12502 Sep 06 02:09	25° <u>17</u> 51'03	-15°41'53	direct	12510 Jun 07 14:08	2° <u>17</u> 15'28	
minimum elong	12502 Sep 06 02:21	25° <u>17</u> 51'04	15°42'03				
max. Earth dist.	12502 Sep 07 10:30	25° <u>17</u> 52'57	49.19576 AU	conjunction	12510 Sep 13 22:14	3° <u>17</u> 42'41	-15°12'47
retrograde	12502 Dec 16 19:31	27° <u>17</u> 22'11		minimum elong	12510 Sep 13 22:26	3° <u>17</u> 42'42	15°12'49
min. Earth dist.	12503 Mar 09 06:57	26° <u>17</u> 23'22	47.31087 AU	max. Earth dist.	12510 Sep 14 23:13	3° <u>17</u> 44'08	49.69116 AU
opposition	12503 Mar 10 14:40	26° <u>17</u> 21'52	-16°19'48	retrograde	12510 Dec 24 15:34	5° <u>17</u> 12'40	
direct	12503 May 31 19:23	25° <u>17</u> 22'10		opposition	12511 Mar 18 13:15	4° <u>17</u> 12'58	-15°48'06
				min. Earth dist.	12511 Mar 17 12:51	4° <u>17</u> 14'06	47.78514 AU
conjunction	12503 Sep 07 07:39	26° <u>17</u> 50'29	-15°39'09	direct	12511 Jun 08 20:27	3° <u>17</u> 13'55	
minimum elong	12503 Sep 07 07:51	26° <u>17</u> 50'29	15°39'17				
max. Earth dist.	12503 Sep 08 15:06	26° <u>17</u> 52'19	49.26988 AU	conjunction	12511 Sep 15 03:32	4° <u>17</u> 40'59	-15°08'07
retrograde	12503 Dec 17 23:10	28° <u>17</u> 21'26		minimum elong	12511 Sep 15 03:46	4° <u>17</u> 41'00	15°08'09
opposition	12504 Mar 10 20:52	27° <u>17</u> 21'12	-16°16'45	max. Earth dist.	12511 Sep 16 04:20	4° <u>17</u> 42'25	49.73214 AU
min. Earth dist.	12504 Mar 09 14:25	27° <u>17</u> 22'38	47.38320 AU	retrograde	12511 Dec 25 22:55	6° <u>17</u> 10'49	
direct	12504 Jun 01 03:14	26° <u>17</u> 21'35		opposition	12512 Mar 18 18:54	5° <u>17</u> 11'08	-15°43'06
				min. Earth dist.	12512 Mar 17 20:19	5° <u>17</u> 12'11	47.82283 AU
conjunction	12504 Sep 07 13:22	27° <u>17</u> 49'43	-15°36'08	direct	12512 Jun 09 01:40	4° <u>17</u> 12'07	
minimum elong	12504 Sep 07 13:33	27° <u>17</u> 49'44	15°36'17				
max. Earth dist.	12504 Sep 08 21:08	27° <u>17</u> 51'35	49.34127 AU	conjunction	12512 Sep 15 08:48	5° <u>17</u> 39'01	-15°03'14
retrograde	12504 Dec 18 03:30	29° <u>17</u> 20'31		minimum elong	12512 Sep 15 09:01	5° <u>17</u> 39'02	15°03'14
min. Earth dist.	12505 Mar 10 20:42	28° <u>17</u> 21'47	47.45255 AU	max. Earth dist.	12512 Sep 16 08:13	5° <u>17</u> 40'23	49.76837 AU
opposition	12505 Mar 12 02:44	28° <u>17</u> 20'22	-16°13'25	retrograde	12512 Dec 26 04:32	7° <u>17</u> 08'42	
direct	12505 Jun 02 12:03	27° <u>17</u> 20'51		min. Earth dist.	12513 Mar 19 01:29	6° <u>17</u> 10'06	47.85607 AU
				opposition	12513 Mar 20 00:10	6° <u>17</u> 09'03	-15°37'52
conjunction	12505 Sep 08 18:50	28° <u>17</u> 48'49	-15°32'51	direct	12513 Jun 10 04:52	5° <u>17</u> 10'03	
minimum elong	12505 Sep 08 19:02	28° <u>17</u> 48'50	15°32'58	evening set	12513 Sep 15 13:48	6° <u>17</u> 35'25	
max. Earth dist.	12505 Sep 10 00:55	28° <u>17</u> 50'35	49.40968 AU				
	12505 Nov 06 02:52	0° <u>17</u>		conjunction	12513 Sep 16 13:56	6° <u>17</u> 36'49	-14°58'07
retrograde	12505 Dec 19 12:04	0° <u>17</u> 19'28		minimum elong	12513 Sep 16 14:10	6° <u>17</u> 36'50	14°58'07
	12506 Feb 01 18:05	30° <u>17</u>		morning rise	12513 Sep 17 14:34	6° <u>17</u> 38'14	

max. Earth dist.	12513 Sep 17 12:11	6° <u>♁</u> 38'06	49.80031 AU	conjunction	12520 Sep 23 00:48	13° <u>♁</u> 18'13	-14°15'36
retrograde	12513 Dec 27 08:03	8° <u>♁</u> 06'21		minimum elong	12520 Sep 23 01:04	13° <u>♁</u> 18'13	14°15'28
min. Earth dist.	12514 Mar 20 08:38	7° <u>♁</u> 07'42	47.88539 AU	max. Earth dist.	12520 Sep 23 17:24	13° <u>♁</u> 19'10	49.93007 AU
opposition	12514 Mar 21 05:35	7° <u>♁</u> 06'43	-15°32'24	morning rise	12520 Sep 27 22:13	13° <u>♁</u> 24'57	
direct	12514 Jun 11 10:45	6° <u>♁</u> 07'45		retrograde	12521 Jan 02 19:21	14° <u>♁</u> 47'17	
evening set	12514 Sep 15 19:30	7° <u>♁</u> 31'39		opposition	12521 Mar 27 17:26	13° <u>♁</u> 47'59	-14°47'13
				min. Earth dist.	12521 Mar 27 01:39	13° <u>♁</u> 48'43	47.99573 AU
conjunction	12514 Sep 17 19:01	7° <u>♁</u> 34'23	-14°52'45	direct	12521 Jun 17 23:15	12° <u>♁</u> 49'24	
minimum elong	12514 Sep 17 19:15	7° <u>♁</u> 34'24	14°52'43	evening set	12521 Sep 19 00:37	14° <u>♁</u> 08'25	
morning rise	12514 Sep 19 19:04	7° <u>♁</u> 37'10					
max. Earth dist.	12514 Sep 18 17:26	7° <u>♁</u> 35'41	49.82869 AU	conjunction	12521 Sep 24 05:58	14° <u>♁</u> 15'35	-14°08'37
retrograde	12514 Dec 28 10:12	9° <u>♁</u> 03'49		minimum elong	12521 Sep 24 06:12	14° <u>♁</u> 15'35	14°08'29
opposition	12515 Mar 22 10:47	8° <u>♁</u> 04'12	-15°26'41	max. Earth dist.	12521 Sep 24 22:05	14° <u>♁</u> 16'30	49.93247 AU
min. Earth dist.	12515 Mar 21 14:02	8° <u>♁</u> 05'10	47.91120 AU	morning rise	12521 Sep 29 12:01	14° <u>♁</u> 22'48	
direct	12515 Jun 12 18:38	7° <u>♁</u> 05'16		retrograde	12522 Jan 04 02:59	15° <u>♁</u> 44'37	
evening set	12515 Sep 16 08:48	8° <u>♁</u> 28'10		opposition	12522 Mar 28 22:34	14° <u>♁</u> 45'22	-14°39'52
				min. Earth dist.	12522 Mar 28 08:37	14° <u>♁</u> 46'00	47.99434 AU
conjunction	12515 Sep 18 23:58	8° <u>♁</u> 31'48	-14°47'09	direct	12522 Jun 19 03:51	13° <u>♁</u> 46'48	
minimum elong	12515 Sep 19 00:11	8° <u>♁</u> 31'49	14°47'07	evening set	12522 Sep 19 21:30	15° <u>♁</u> 05'18	
max. Earth dist.	12515 Sep 19 20:38	8° <u>♁</u> 32'59	49.85386 AU				
morning rise	12515 Sep 21 15:41	8° <u>♁</u> 35'28		conjunction	12522 Sep 25 10:56	15° <u>♁</u> 12'56	-14°01'27
retrograde	12515 Dec 29 17:14	10° <u>♁</u> 01'08		minimum elong	12522 Sep 25 11:11	15° <u>♁</u> 12'57	14°01'18
opposition	12516 Mar 22 16:00	9° <u>♁</u> 01'33	-15°20'42	max. Earth dist.	12522 Sep 26 01:26	15° <u>♁</u> 13'46	49.92947 AU
min. Earth dist.	12516 Mar 21 19:42	9° <u>♁</u> 02'30	47.93402 AU	morning rise	12522 Oct 01 01:10	15° <u>♁</u> 20'37	
direct	12516 Jun 12 23:27	8° <u>♁</u> 02'40		retrograde	12523 Jan 05 10:23	16° <u>♁</u> 41'55	
evening set	12516 Sep 16 00:47	9° <u>♁</u> 24'43		opposition	12523 Mar 30 03:33	15° <u>♁</u> 42'41	-14°32'19
				min. Earth dist.	12523 Mar 29 13:47	15° <u>♁</u> 43'19	47.98748 AU
conjunction	12516 Sep 19 04:59	9° <u>♁</u> 29'06	-14°41'19	direct	12523 Jun 20 05:27	14° <u>♁</u> 44'07	
minimum elong	12516 Sep 19 05:14	9° <u>♁</u> 29'07	14°41'15	evening set	12523 Sep 20 18:32	16° <u>♁</u> 02'08	
max. Earth dist.	12516 Sep 20 01:48	9° <u>♁</u> 30'18	49.87597 AU				
morning rise	12516 Sep 22 09:46	9° <u>♁</u> 33'31		conjunction	12523 Sep 26 15:54	16° <u>♁</u> 10'13	-13°54'06
retrograde	12516 Dec 29 23:39	10° <u>♁</u> 58'21		minimum elong	12523 Sep 26 16:08	16° <u>♁</u> 10'13	13°53'56
opposition	12517 Mar 23 21:13	9° <u>♁</u> 58'49	-15°14'29	max. Earth dist.	12523 Sep 27 04:51	16° <u>♁</u> 10'57	49.92102 AU
min. Earth dist.	12517 Mar 23 02:16	9° <u>♁</u> 59'42	47.95364 AU	morning rise	12523 Oct 02 14:08	16° <u>♁</u> 18'20	
direct	12517 Jun 14 04:34	9° <u>♁</u> 00'00		retrograde	12524 Jan 06 13:52	17° <u>♁</u> 39'09	
evening set	12517 Sep 16 18:27	10° <u>♁</u> 21'19		opposition	12524 Mar 30 08:38	16° <u>♁</u> 39'54	-14°24'33
				min. Earth dist.	12524 Mar 29 20:56	16° <u>♁</u> 40'26	47.97546 AU
conjunction	12517 Sep 20 09:59	10° <u>♁</u> 26'21	-14°35'14	direct	12524 Jun 20 10:18	15° <u>♁</u> 41'20	
minimum elong	12517 Sep 20 10:13	10° <u>♁</u> 26'22	14°35'10	evening set	12524 Sep 20 15:53	16° <u>♁</u> 58'51	
max. Earth dist.	12517 Sep 21 05:46	10° <u>♁</u> 27'29	49.89503 AU				
morning rise	12517 Sep 24 02:06	10° <u>♁</u> 31'25		conjunction	12524 Sep 26 20:52	17° <u>♁</u> 07'22	-13°46'32
retrograde	12517 Dec 31 05:05	11° <u>♁</u> 55'32		minimum elong	12524 Sep 26 21:07	17° <u>♁</u> 07'23	13°46'21
min. Earth dist.	12518 Mar 24 07:03	10° <u>♁</u> 56'57	47.97006 AU	max. Earth dist.	12524 Sep 27 09:42	17° <u>♁</u> 08'06	49.90777 AU
opposition	12518 Mar 25 02:08	10° <u>♁</u> 56'04	-15°08'01	morning rise	12524 Oct 03 02:39	17° <u>♁</u> 15'55	
direct	12518 Jun 15 06:41	9° <u>♁</u> 57'18		retrograde	12525 Jan 06 14:29	18° <u>♁</u> 36'14	
evening set	12518 Sep 17 12:58	11° <u>♁</u> 17'59		opposition	12525 Mar 31 13:30	17° <u>♁</u> 36'58	-14°16'35
				min. Earth dist.	12525 Mar 31 02:13	17° <u>♁</u> 37'30	47.95880 AU
conjunction	12518 Sep 21 14:55	11° <u>♁</u> 23'36	-14°28'55	direct	12525 Jun 21 18:10	16° <u>♁</u> 38'24	
minimum elong	12518 Sep 21 15:10	11° <u>♁</u> 23'37	14°28'49	evening set	12525 Sep 21 13:25	17° <u>♁</u> 55'27	
max. Earth dist.	12518 Sep 22 09:36	11° <u>♁</u> 24'40	49.91066 AU				
morning rise	12518 Sep 25 17:34	11° <u>♁</u> 29'15		conjunction	12525 Sep 28 01:41	18° <u>♁</u> 04'22	-13°38'45
retrograde	12519 Jan 01 09:35	12° <u>♁</u> 52'44		minimum elong	12525 Sep 28 01:55	18° <u>♁</u> 04'23	13°38'33
opposition	12519 Mar 26 07:22	11° <u>♁</u> 53'19	-15°01'18	max. Earth dist.	12525 Sep 28 12:29	18° <u>♁</u> 04'59	49.89024 AU
min. Earth dist.	12519 Mar 25 13:57	11° <u>♁</u> 54'08	47.98294 AU	morning rise	12525 Oct 04 14:55	18° <u>♁</u> 13'21	
direct	12519 Jun 16 10:17	10° <u>♁</u> 54'37		retrograde	12526 Jan 07 20:02	19° <u>♁</u> 33'12	
evening set	12519 Sep 18 08:13	12° <u>♁</u> 14'43		opposition	12526 Apr 01 18:15	18° <u>♁</u> 33'55	-14°08'23
				min. Earth dist.	12526 Apr 01 07:46	18° <u>♁</u> 34'24	47.93832 AU
conjunction	12519 Sep 22 19:50	12° <u>♁</u> 20'53	-14°22'21	direct	12526 Jun 23 00:05	17° <u>♁</u> 35'19	
minimum elong	12519 Sep 22 20:04	12° <u>♁</u> 20'54	14°22'16	evening set	12526 Sep 22 11:04	18° <u>♁</u> 51'56	
max. Earth dist.	12519 Sep 23 14:28	12° <u>♁</u> 21'57	49.92259 AU				
morning rise	12519 Sep 27 08:06	12° <u>♁</u> 27'05		conjunction	12526 Sep 29 06:34	19° <u>♁</u> 01'15	-13°30'45
retrograde	12520 Jan 02 12:36	13° <u>♁</u> 49'59		minimum elong	12526 Sep 29 06:49	19° <u>♁</u> 01'16	13°30'33
opposition	12520 Mar 26 12:27	12° <u>♁</u> 50'38	-14°54'22	max. Earth dist.	12526 Sep 29 17:27	19° <u>♁</u> 01'52	49.86908 AU
min. Earth dist.	12520 Mar 25 19:30	12° <u>♁</u> 51'25	47.99165 AU	morning rise	12526 Oct 06 03:00	19° <u>♁</u> 10'38	
direct	12520 Jun 16 17:38	11° <u>♁</u> 51'59		retrograde	12527 Jan 09 02:00	20° <u>♁</u> 30'03	
evening set	12520 Sep 18 04:10	13° <u>♁</u> 11'32		opposition	12527 Apr 02 23:10	19° <u>♁</u> 30'44	-13°59'58
				min. Earth dist.	12527 Apr 02 13:57	19° <u>♁</u> 31'10	47.91439 AU

direct	12527 Jun 24 06:03	18° <u>♂</u> 32'08	retrograde	12534 Jan 15 16:27	27° <u>♂</u> 07'41
evening set	12527 Sep 23 08:50	19° <u>♂</u> 48'19	opposition	12534 Apr 09 08:51	26° <u>♂</u> 08'22 -12°54'22
conjunction	12527 Sep 30 11:15	19° <u>♂</u> 58'01 -13°22'32	min. Earth dist.	12534 Apr 09 05:45	26° <u>♂</u> 08'31 47.65583 AU
minimum elong	12527 Sep 30 11:30	19° <u>♂</u> 58'02 13°22'17	direct	12534 Jun 30 09:07	25° <u>♂</u> 09'45
max. Earth dist.	12527 Sep 30 21:14	19° <u>♂</u> 58'35 49.84490 AU	evening set	12534 Sep 27 22:19	26° <u>♂</u> 23'34
morning rise	12527 Oct 07 14:38	20° <u>♂</u> 07'48	conjunction	12534 Oct 06 21:46	26° <u>♂</u> 35'50 -12°18'35
retrograde	12528 Jan 10 08:18	21° <u>♂</u> 26'48	minimum elong	12534 Oct 06 22:00	26° <u>♂</u> 35'51 12°18'15
opposition	12528 Apr 03 03:57	20° <u>♂</u> 27'28 -13°51'17	max. Earth dist.	12534 Oct 07 01:36	26° <u>♂</u> 36'03 49.58144 AU
min. Earth dist.	12528 Apr 02 18:26	20° <u>♂</u> 27'55 47.88753 AU	morning rise	12534 Oct 15 22:19	26° <u>♂</u> 48'10
direct	12528 Jun 24 08:12	19° <u>♂</u> 28'51	retrograde	12535 Jan 16 18:25	28° <u>♂</u> 04'48
evening set	12528 Sep 23 06:46	20° <u>♂</u> 44'38	opposition	12535 Apr 10 13:46	27° <u>♂</u> 05'28 -12°44'08
conjunction	12528 Sep 30 16:03	20° <u>♂</u> 54'44 -13°14'04	min. Earth dist.	12535 Apr 10 11:07	27° <u>♂</u> 05'35 47.60113 AU
minimum elong	12528 Sep 30 16:17	20° <u>♂</u> 54'45 13°13'50	direct	12535 Jul 01 16:02	26° <u>♂</u> 06'49
max. Earth dist.	12528 Oct 01 00:56	20° <u>♂</u> 55'14 49.81771 AU	evening set	12535 Sep 28 21:28	27° <u>♂</u> 20'21
morning rise	12528 Oct 08 02:25	21° <u>♂</u> 04'53	conjunction	12535 Oct 08 02:41	27° <u>♂</u> 32'57 -12°08'38
retrograde	12529 Jan 10 13:41	22° <u>♂</u> 23'29	minimum elong	12535 Oct 08 02:57	27° <u>♂</u> 32'58 12°08'18
opposition	12529 Apr 04 08:44	21° <u>♂</u> 24'09 -13°42'23	max. Earth dist.	12535 Oct 08 04:16	27° <u>♂</u> 33'02 49.52548 AU
min. Earth dist.	12529 Apr 04 00:50	21° <u>♂</u> 24'31 47.85779 AU	morning rise	12535 Oct 17 09:20	27° <u>♂</u> 45'38
direct	12529 Jun 25 10:27	20° <u>♂</u> 25'32	retrograde	12536 Jan 17 23:51	29° <u>♂</u> 01'58
evening set	12529 Sep 24 04:57	21° <u>♂</u> 40'56	opposition	12536 Apr 10 18:45	28° <u>♂</u> 02'36 -12°33'42
conjunction	12529 Oct 01 20:57	21° <u>♂</u> 51'25 -13°05'22	min. Earth dist.	12536 Apr 10 17:22	28° <u>♂</u> 02'40 47.54135 AU
minimum elong	12529 Oct 01 21:13	21° <u>♂</u> 51'26 13°05'06	direct	12536 Jul 01 21:51	27° <u>♂</u> 03'55
max. Earth dist.	12529 Oct 02 05:59	21° <u>♂</u> 51'56 49.78773 AU	evening set	12536 Sep 28 20:44	28° <u>♂</u> 17'10
morning rise	12529 Oct 09 13:57	22° <u>♂</u> 01'57	conjunction	12536 Oct 08 07:54	28° <u>♂</u> 30'05 -11°58'28
retrograde	12530 Jan 11 15:54	23° <u>♂</u> 20'10	minimum elong	12536 Oct 08 08:08	28° <u>♂</u> 30'06 11°58'07
opposition	12530 Apr 05 13:29	22° <u>♂</u> 20'50 -13°33'14	max. Earth dist.	12536 Oct 08 09:10	28° <u>♂</u> 30'10 49.46457 AU
min. Earth dist.	12530 Apr 05 05:35	22° <u>♂</u> 21'12 47.82500 AU	morning rise	12536 Oct 17 20:19	28° <u>♂</u> 43'06
direct	12530 Jun 26 16:31	21° <u>♂</u> 22'13	retrograde	12537 Jan 18 05:46	29° <u>♂</u> 59'10
evening set	12530 Sep 25 03:07	22° <u>♂</u> 37'16	opposition	12537 Apr 11 23:35	28° <u>♂</u> 59'45 -12°23'03
conjunction	12530 Oct 03 01:35	22° <u>♂</u> 48'07 -12°56'26	min. Earth dist.	12537 Apr 11 23:42	28° <u>♂</u> 59'45 47.47687 AU
minimum elong	12530 Oct 03 01:49	22° <u>♂</u> 48'08 12°56'10	direct	12537 Jul 03 03:51	28° <u>♂</u> 01'02
max. Earth dist.	12530 Oct 03 08:55	22° <u>♂</u> 48'32 49.75466 AU	evening set	12537 Sep 29 20:15	29° <u>♂</u> 13'59
morning rise	12530 Oct 11 01:13	22° <u>♂</u> 59'01	conjunction	12537 Oct 09 12:59	29° <u>♂</u> 27'15 -11°48'06
retrograde	12531 Jan 12 20:58	24° <u>♂</u> 16'54	minimum elong	12537 Oct 09 13:14	29° <u>♂</u> 27'16 11°47'45
opposition	12531 Apr 06 18:20	23° <u>♂</u> 17'35 -13°23'50	max. Earth dist.	12537 Oct 09 13:03	29° <u>♂</u> 27'15 49.39943 AU
min. Earth dist.	12531 Apr 06 11:20	23° <u>♂</u> 17'54 47.78906 AU	morning rise	12537 Oct 19 07:05	29° <u>♂</u> 40'36
direct	12531 Jun 27 22:03	22° <u>♂</u> 18'58	retrograde	12537 Nov 02 22:46	0° <u>♂</u>
evening set	12531 Sep 26 01:33	23° <u>♂</u> 33'41	opposition	12538 Jan 19 12:31	0° <u>♂</u> 56'23
conjunction	12531 Oct 04 06:32	23° <u>♂</u> 44'53 -12°47'17	minimum elong	12538 Apr 10 10:28	30° <u>♂</u>
minimum elong	12531 Oct 04 06:48	23° <u>♂</u> 44'54 12°47'00	max. Earth dist.	12538 Apr 13 04:24	29° <u>♂</u> 56'56 -12°12'11
max. Earth dist.	12531 Oct 04 13:49	23° <u>♂</u> 45'18 49.71811 AU	min. Earth dist.	12538 Apr 13 04:34	29° <u>♂</u> 56'55 47.40846 AU
morning rise	12531 Oct 12 12:38	23° <u>♂</u> 56'10	direct	12538 Jul 04 06:16	28° <u>♂</u> 58'09
retrograde	12532 Jan 14 03:07	25° <u>♂</u> 13'43	evening set	12538 Sep 22 16:47	0° <u>♂</u>
opposition	12532 Apr 06 23:10	24° <u>♂</u> 14'24 -13°14'14	conjunction	12538 Sep 30 19:36	0° <u>♂</u> 10'52
min. Earth dist.	12532 Apr 06 17:36	24° <u>♂</u> 14'40 47.74930 AU	minimum elong	12538 Oct 10 17:55	0° <u>♂</u> 24'27 -11°37'31
direct	12532 Jun 28 03:50	23° <u>♂</u> 15'48	max. Earth dist.	12538 Oct 10 18:09	0° <u>♂</u> 24'28 11°37'07
evening set	12532 Sep 26 00:16	24° <u>♂</u> 30'12	morning rise	12538 Oct 10 16:43	0° <u>♂</u> 24'23 49.33046 AU
conjunction	12532 Oct 04 11:28	24° <u>♂</u> 41'46 -12°37'55	retrograde	12538 Oct 20 17:44	0° <u>♂</u> 38'08
minimum elong	12532 Oct 04 11:42	24° <u>♂</u> 41'47 12°37'37	opposition	12539 Jan 20 18:25	1° <u>♂</u> 53'39
max. Earth dist.	12532 Oct 04 17:23	24° <u>♂</u> 42'06 49.67758 AU	min. Earth dist.	12539 Apr 14 09:26	0° <u>♂</u> 54'09 -12°01'06
morning rise	12532 Oct 12 23:49	24° <u>♂</u> 53'25	direct	12539 Apr 14 11:13	0° <u>♂</u> 54'04 47.33657 AU
retrograde	12533 Jan 14 11:00	26° <u>♂</u> 10'38	evening set	12539 Jun 14 14:15	30° <u>♂</u>
opposition	12533 Apr 08 03:56	25° <u>♂</u> 11'20 -13°04'24	conjunction	12539 Jul 05 08:52	29° <u>♂</u> 55'20
min. Earth dist.	12533 Apr 07 22:35	25° <u>♂</u> 11'35 47.70514 AU	minimum elong	12539 Jul 26 03:50	0° <u>♂</u>
direct	12533 Jun 29 05:46	24° <u>♂</u> 12'44	max. Earth dist.	12539 Oct 01 19:12	1° <u>♂</u> 07'49
evening set	12533 Sep 26 23:12	25° <u>♂</u> 26'50	morning rise	12539 Oct 11 23:06	1° <u>♂</u> 21'43 -11°26'43
conjunction	12533 Oct 05 16:33	25° <u>♂</u> 38'45 -12°28'21	retrograde	12539 Oct 11 23:20	1° <u>♂</u> 21'44 11°26'19
minimum elong	12533 Oct 05 16:49	25° <u>♂</u> 38'46 12°28'02	opposition	12539 Oct 11 22:05	1° <u>♂</u> 21'40 49.25834 AU
max. Earth dist.	12533 Oct 05 20:52	25° <u>♂</u> 39'00 49.63210 AU	morning rise	12539 Oct 22 04:17	1° <u>♂</u> 35'43
morning rise	12533 Oct 14 11:13	25° <u>♂</u> 50'45	retrograde	12540 Jan 21 20:46	2° <u>♂</u> 51'00
			opposition	12540 Apr 14 14:17	1° <u>♂</u> 51'27 -11°49'46

min. Earth dist.	12540 Apr 14 16:02	1°M.51'23	47.26158 AU	morning rise	12546 Oct 30 06:08	8°M.23'24	
direct	12540 Jul 05 14:34	0°M.52'36		retrograde	12547 Jan 28 13:08	9°M.37'27	
evening set	12540 Oct 01 19:00	2°M.04'52		opposition	12547 Apr 22 02:28	8°M.37'37	-10°23'56
				min. Earth dist.	12547 Apr 22 11:32	8°M.37'11	46.63856 AU
conjunction	12540 Oct 12 04:10	2°M.19'05	-11°15'40	direct	12547 Jul 13 02:53	7°M.38'25	
minimum elong	12540 Oct 12 04:24	2°M.19'06	11°15'15	evening set	12547 Oct 07 22:15	8°M.49'32	
max. Earth dist.	12540 Oct 12 01:24	2°M.18'56	49.18326 AU				
morning rise	12540 Oct 22 14:56	2°M.33'24		conjunction	12547 Oct 19 18:37	9°M.05'53	-9°52'13
retrograde	12541 Jan 22 02:04	3°M.48'28		minimum elong	12547 Oct 19 18:50	9°M.05'54	9°51'42
opposition	12541 Apr 15 19:17	2°M.48'54	-11°38'11	max. Earth dist.	12547 Oct 19 08:53	9°M.05'19	48.55495 AU
min. Earth dist.	12541 Apr 15 21:57	2°M.48'46	47.18373 AU	morning rise	12547 Oct 31 16:40	9°M.22'21	
direct	12541 Jul 06 20:06	1°M.50'00		retrograde	12548 Jan 29 20:49	10°M.36'15	
evening set	12541 Oct 02 18:50	3°M.02'04		opposition	12548 Apr 22 07:46	9°M.36'19	-10°10'48
				min. Earth dist.	12548 Apr 22 17:16	9°M.35'52	46.53055 AU
conjunction	12541 Oct 13 09:26	3°M.16'36	-11°04'24	direct	12548 Jul 13 07:06	8°M.37'01	
minimum elong	12541 Oct 13 09:40	3°M.16'36	11°03'59	evening set	12548 Oct 07 23:25	9°M.47'59	
max. Earth dist.	12541 Oct 13 06:38	3°M.16'26	49.10516 AU				
morning rise	12541 Oct 24 01:27	3°M.31'14		conjunction	12548 Oct 20 00:27	10°M.04'38	-9°39'28
retrograde	12542 Jan 23 07:43	4°M.46'06		minimum elong	12548 Oct 20 00:41	10°M.04'38	9°38'57
opposition	12542 Apr 17 00:16	3°M.46'30	-11°26'22	max. Earth dist.	12548 Oct 19 13:02	10°M.03'58	48.44576 AU
min. Earth dist.	12542 Apr 17 04:00	3°M.46'19	47.10278 AU	morning rise	12548 Nov 01 03:17	10°M.21'23	
direct	12542 Jul 08 03:06	2°M.47'34		retrograde	12549 Jan 30 04:38	11°M.35'07	
evening set	12542 Oct 03 18:58	3°M.59'26		opposition	12549 Apr 23 13:18	10°M.35'05	-9°57'28
				min. Earth dist.	12549 Apr 24 00:49	10°M.34'33	46.41771 AU
conjunction	12542 Oct 14 14:41	4°M.14'17	-10°52'54	direct	12549 Jul 14 10:27	9°M.35'41	
minimum elong	12542 Oct 14 14:56	4°M.14'18	10°52'27	evening set	12549 Oct 09 00:43	10°M.46'31	
max. Earth dist.	12542 Oct 14 10:53	4°M.14'04	49.02416 AU				
morning rise	12542 Oct 25 11:56	4°M.29'14		conjunction	12549 Oct 21 06:22	11°M.03'26	-9°26'30
retrograde	12543 Jan 24 16:56	5°M.43'55		minimum elong	12549 Oct 21 06:35	11°M.03'27	9°25'57
opposition	12543 Apr 18 05:20	4°M.44'18	-11°14'20	max. Earth dist.	12549 Oct 20 18:51	11°M.02'46	48.33213 AU
min. Earth dist.	12543 Apr 18 08:58	4°M.44'07	47.01874 AU	morning rise	12549 Nov 02 13:36	11°M.20'29	
direct	12543 Jul 09 04:57	3°M.45'20		retrograde	12550 Jan 31 08:54	12°M.34'04	
evening set	12543 Oct 04 19:04	4°M.57'02		opposition	12550 Apr 24 18:39	11°M.33'56	-9°43'54
				min. Earth dist.	12550 Apr 25 06:16	11°M.33'23	46.30070 AU
conjunction	12543 Oct 15 19:56	5°M.12'12	-10°41'11	direct	12550 Jul 15 15:41	10°M.34'24	
minimum elong	12543 Oct 15 20:09	5°M.12'13	10°40'44	evening set	12550 Oct 10 02:15	11°M.45'08	
max. Earth dist.	12543 Oct 15 14:53	5°M.11'55	48.93963 AU				
morning rise	12543 Oct 26 22:27	5°M.27'28		conjunction	12550 Oct 22 12:12	12°M.02'20	-9°13'19
retrograde	12544 Jan 26 00:37	6°M.41'59		minimum elong	12550 Oct 22 12:25	12°M.02'21	9°12'46
opposition	12544 Apr 18 10:36	5°M.42'19	-11°02'03	max. Earth dist.	12550 Oct 21 22:45	12°M.01'33	48.21465 AU
min. Earth dist.	12544 Apr 18 16:16	5°M.42'03	46.93096 AU	morning rise	12550 Nov 04 00:04	12°M.19'39	
direct	12544 Jul 09 06:44	4°M.43'19		retrograde	12551 Feb 01 14:47	13°M.33'07	
evening set	12544 Oct 04 19:35	5°M.54'53		opposition	12551 Apr 26 00:15	12°M.32'52	-9°30'06
				min. Earth dist.	12551 Apr 26 13:05	12°M.32'16	46.18027 AU
conjunction	12544 Oct 16 01:33	6°M.10'20	-10°29'15	direct	12551 Jul 16 21:15	11°M.33'14	
minimum elong	12544 Oct 16 01:47	6°M.10'21	10°28'47	evening set	12551 Oct 11 03:42	12°M.43'52	
max. Earth dist.	12544 Oct 15 20:17	6°M.10'02	48.85111 AU				
morning rise	12544 Oct 27 08:59	6°M.25'55		conjunction	12551 Oct 23 18:10	13°M.01'20	-8°59'54
retrograde	12545 Jan 26 03:25	7°M.40'15		minimum elong	12551 Oct 23 18:23	13°M.01'21	8°59'20
opposition	12545 Apr 19 15:38	6°M.40'34	-10°49'33	max. Earth dist.	12551 Oct 23 04:42	13°M.00'33	48.09385 AU
min. Earth dist.	12545 Apr 19 21:41	6°M.40'17	46.83871 AU	morning rise	12551 Nov 05 10:19	13°M.18'57	
direct	12545 Jul 10 13:16	5°M.41'31		retrograde	12552 Feb 02 19:05	14°M.32'19	
evening set	12545 Oct 05 20:24	6°M.52'56		opposition	12552 Apr 26 05:56	13°M.31'58	-9°16'03
				min. Earth dist.	12552 Apr 26 19:35	13°M.31'19	46.05663 AU
conjunction	12545 Oct 17 07:09	7°M.08'42	-10°17'06	direct	12552 Jul 17 05:25	12°M.32'13	
minimum elong	12545 Oct 17 07:22	7°M.08'43	10°16'37	evening set	12552 Oct 11 05:37	13°M.42'46	
max. Earth dist.	12545 Oct 16 23:30	7°M.08'15	48.75775 AU	max. Earth dist.	12552 Oct 23 09:45	13°M.59'41	47.97017 AU
morning rise	12545 Oct 28 19:40	7°M.24'34					
retrograde	12546 Jan 27 07:53	8°M.38'46		conjunction	12552 Oct 24 00:16	14°M.00'32	-8°46'15
opposition	12546 Apr 20 21:00	7°M.39'01	-10°36'51	minimum elong	12552 Oct 24 00:28	14°M.00'32	8°45'41
min. Earth dist.	12546 Apr 21 04:33	7°M.38'39	46.74142 AU	morning rise	12552 Nov 05 20:44	14°M.18'25	
direct	12546 Jul 11 19:35	6°M.39'54			12552 Dec 09 05:24	15°M.	
evening set	12546 Oct 06 21:08	7°M.51'10		retrograde	12553 Feb 03 03:28	15°M.31'43	
					12553 Apr 01 06:29	15°R.M.	
conjunction	12546 Oct 18 12:51	8°M.07'14	-10°04'45	opposition	12553 Apr 27 11:27	14°M.31'16	-9°01'45
minimum elong	12546 Oct 18 13:05	8°M.07'15	10°04'16	min. Earth dist.	12553 Apr 28 01:08	14°M.30'37	45.93023 AU
max. Earth dist.	12546 Oct 18 04:42	8°M.06'46	48.65900 AU	direct	12553 Jul 18 09:18	13°M.31'24	

evening set	12553 Oct 12 07:37	14° \mathbb{M} .41'55		max. Earth dist.	12559 Oct 31 01:14	21° \mathbb{M} .02'50	47.00971 AU
				morning rise	12559 Nov 14 22:10	21° \mathbb{M} .23'54	
conjunction	12553 Oct 25 06:26	14° \mathbb{M} .59'57	-8°32'23	retrograde	12560 Feb 11 07:37	22° \mathbb{M} .37'10	
minimum elong	12553 Oct 25 06:39	14° \mathbb{M} .59'58	8°31'47	opposition	12560 May 04 06:40	21° \mathbb{M} .36'04	-7°14'56
max. Earth dist.	12553 Oct 24 14:48	14° \mathbb{M} .59'03	47.84360 AU	min. Earth dist.	12560 May 05 03:15	21° \mathbb{M} .35'04	44.94692 AU
	12553 Oct 25 07:12	15° \mathbb{M} .		direct	12560 Jul 24 21:50	20° \mathbb{M} .35'28	
morning rise	12553 Nov 07 07:10	15° \mathbb{M} .18'07		evening set	12560 Oct 18 04:23	21° \mathbb{M} .46'06	
retrograde	12554 Feb 04 12:37	16° \mathbb{M} .31'22		max. Earth dist.	12560 Oct 31 06:05	22° \mathbb{M} .04'37	46.85455 AU
opposition	12554 Apr 28 17:22	15° \mathbb{M} .30'50	-8°47'13				
min. Earth dist.	12554 Apr 29 08:42	15° \mathbb{M} .30'06	45.80104 AU	conjunction	12560 Nov 01 05:39	22° \mathbb{M} .06'01	-6°48'49
	12554 May 26 22:44	15° \mathbb{K} \mathbb{M} .		minimum elong	12560 Nov 01 05:49	22° \mathbb{M} .06'02	6°48'08
direct	12554 Jul 19 11:49	14° \mathbb{M} .30'53		morning rise	12560 Nov 15 08:59	22° \mathbb{M} .26'05	
	12554 Sep 10 00:22	15° \mathbb{M} .		retrograde	12561 Feb 11 15:14	23° \mathbb{M} .39'22	
evening set	12554 Oct 13 09:38	15° \mathbb{M} .41'22		opposition	12561 May 05 13:13	22° \mathbb{M} .38'07	-6°58'44
				min. Earth dist.	12561 May 06 11:30	22° \mathbb{M} .37'02	44.78847 AU
conjunction	12554 Oct 26 12:38	15° \mathbb{M} .59'41	-8°18'15	direct	12561 Jul 26 03:55	21° \mathbb{M} .37'21	
minimum elong	12554 Oct 26 12:50	15° \mathbb{M} .59'42	8°17'40	evening set	12561 Oct 19 08:13	22° \mathbb{M} .48'01	
max. Earth dist.	12554 Oct 25 21:06	15° \mathbb{M} .58'46	47.71432 AU				
morning rise	12554 Nov 08 17:19	16° \mathbb{M} .18'08		conjunction	12561 Nov 02 13:01	23° \mathbb{M} .08'12	-6°33'08
retrograde	12555 Feb 05 17:35	17° \mathbb{M} .31'20		minimum elong	12561 Nov 02 13:11	23° \mathbb{M} .08'13	6°32'27
opposition	12555 Apr 29 23:15	16° \mathbb{M} .30'44	-8°32'25	max. Earth dist.	12561 Nov 01 13:15	23° \mathbb{M} .06'47	46.69518 AU
min. Earth dist.	12555 Apr 30 14:24	16° \mathbb{M} .30'00	45.66894 AU	morning rise	12561 Nov 16 19:34	23° \mathbb{M} .28'31	
direct	12555 Jul 20 18:05	15° \mathbb{M} .30'42		retrograde	12562 Feb 12 18:53	24° \mathbb{M} .41'50	
evening set	12555 Oct 14 12:09	16° \mathbb{M} .41'11		opposition	12562 May 06 19:57	23° \mathbb{M} .40'25	-6°42'18
				min. Earth dist.	12562 May 07 19:00	23° \mathbb{M} .39'18	44.62610 AU
conjunction	12555 Oct 27 18:59	16° \mathbb{M} .59'46	-8°03'54	direct	12562 Jul 27 13:47	22° \mathbb{M} .39'29	
minimum elong	12555 Oct 27 19:11	16° \mathbb{M} .59'47	8°03'18	evening set	12562 Oct 20 12:16	23° \mathbb{M} .50'13	
max. Earth dist.	12555 Oct 27 01:35	16° \mathbb{M} .58'45	47.58196 AU				
morning rise	12555 Nov 10 03:51	17° \mathbb{M} .18'30		conjunction	12562 Nov 03 20:12	24° \mathbb{M} .10'39	-6°17'13
retrograde	12556 Feb 06 23:30	18° \mathbb{M} .31'42		minimum elong	12562 Nov 03 20:21	24° \mathbb{M} .10'39	6°16'31
opposition	12556 Apr 30 05:15	17° \mathbb{M} .31'01	-8°17'23	max. Earth dist.	12562 Nov 02 19:16	24° \mathbb{M} .09'09	46.53234 AU
min. Earth dist.	12556 Apr 30 21:47	17° \mathbb{M} .30'13	45.53362 AU	morning rise	12562 Nov 18 06:05	24° \mathbb{M} .31'13	
direct	12556 Jul 21 00:12	16° \mathbb{M} .30'54		retrograde	12563 Feb 14 02:59	25° \mathbb{M} .44'35	
evening set	12556 Oct 14 14:48	17° \mathbb{M} .41'24		opposition	12563 May 08 02:46	24° \mathbb{M} .43'00	-6°25'37
max. Earth dist.	12556 Oct 27 08:05	17° \mathbb{M} .59'14	47.44589 AU	min. Earth dist.	12563 May 09 02:03	24° \mathbb{M} .41'52	44.46061 AU
				direct	12563 Jul 28 20:47	23° \mathbb{M} .41'53	
conjunction	12556 Oct 28 01:42	18° \mathbb{M} .00'16	-7°49'20	evening set	12563 Oct 21 16:39	24° \mathbb{M} .52'42	
minimum elong	12556 Oct 28 01:53	18° \mathbb{M} .00'17	7°48'42	max. Earth dist.	12563 Nov 04 01:45	25° \mathbb{M} .11'49	46.36640 AU
morning rise	12556 Nov 10 14:21	18° \mathbb{M} .19'16					
retrograde	12557 Feb 07 05:18	19° \mathbb{M} .32'29		conjunction	12563 Nov 05 03:45	25° \mathbb{M} .13'22	-6°01'03
opposition	12557 May 01 11:25	18° \mathbb{M} .31'43	-8°02'07	minimum elong	12563 Nov 05 03:54	25° \mathbb{M} .13'23	6°00'22
min. Earth dist.	12557 May 02 05:11	18° \mathbb{M} .30'52	45.39416 AU	morning rise	12563 Nov 19 16:48	25° \mathbb{M} .34'11	
direct	12557 Jul 22 08:09	17° \mathbb{M} .31'31		retrograde	12564 Feb 15 13:36	26° \mathbb{M} .47'38	
evening set	12557 Oct 15 17:53	18° \mathbb{M} .42'02		opposition	12564 May 08 09:44	25° \mathbb{M} .45'54	-6°08'40
				min. Earth dist.	12564 May 09 10:39	25° \mathbb{M} .44'40	44.29234 AU
conjunction	12557 Oct 29 08:26	19° \mathbb{M} .01'10	-7°34'32	direct	12564 Jul 29 01:15	24° \mathbb{M} .44'36	
minimum elong	12557 Oct 29 08:38	19° \mathbb{M} .01'11	7°33'53	evening set	12564 Oct 21 21:15	25° \mathbb{M} .55'30	
max. Earth dist.	12557 Oct 28 13:15	19° \mathbb{M} .00'02	47.30548 AU	max. Earth dist.	12564 Nov 04 09:29	26° \mathbb{M} .14'51	46.19797 AU
morning rise	12557 Nov 12 00:54	19° \mathbb{M} .20'26					
retrograde	12558 Feb 08 14:13	20° \mathbb{M} .33'41		conjunction	12564 Nov 05 11:30	26° \mathbb{M} .16'25	-5°44'39
opposition	12558 May 02 17:37	19° \mathbb{M} .32'50	-7°46'37	minimum elong	12564 Nov 05 11:38	26° \mathbb{M} .16'26	5°43'56
min. Earth dist.	12558 May 03 11:55	19° \mathbb{M} .31'57	45.25011 AU	morning rise	12564 Nov 20 03:28	26° \mathbb{M} .37'29	
direct	12558 Jul 23 13:03	18° \mathbb{M} .32'30		retrograde	12565 Feb 15 21:38	27° \mathbb{M} .51'01	
evening set	12558 Oct 16 21:10	19° \mathbb{M} .43'04		opposition	12565 May 09 16:46	26° \mathbb{M} .49'07	-5°51'27
				min. Earth dist.	12565 May 10 17:17	26° \mathbb{M} .47'55	44.12162 AU
conjunction	12558 Oct 30 15:24	20° \mathbb{M} .02'28	-7°19'31	direct	12565 Jul 30 07:09	25° \mathbb{M} .47'39	
minimum elong	12558 Oct 30 15:35	20° \mathbb{M} .02'28	7°18'51	evening set	12565 Oct 23 02:14	26° \mathbb{M} .58'41	
max. Earth dist.	12558 Oct 29 18:31	20° \mathbb{M} .01'14	47.16006 AU				
morning rise	12558 Nov 13 11:36	20° \mathbb{M} .22'00		conjunction	12565 Nov 06 19:13	27° \mathbb{M} .19'50	-5°28'01
retrograde	12559 Feb 09 23:51	21° \mathbb{M} .35'16		minimum elong	12565 Nov 06 19:22	27° \mathbb{M} .19'51	5°27'17
opposition	12559 May 04 00:11	20° \mathbb{M} .34'18	-7°30'54	max. Earth dist.	12565 Nov 05 15:29	27° \mathbb{M} .18'10	46.02709 AU
min. Earth dist.	12559 May 04 20:32	20° \mathbb{M} .33'19	45.10099 AU	morning rise	12565 Nov 21 14:15	27° \mathbb{M} .41'09	
direct	12559 Jul 24 16:55	19° \mathbb{M} .33'51		retrograde	12566 Feb 17 06:22	28° \mathbb{M} .54'47	
evening set	12559 Oct 18 00:32	20° \mathbb{M} .44'26		opposition	12566 May 11 00:05	27° \mathbb{M} .52'43	-5°33'59
				min. Earth dist.	12566 May 12 01:55	27° \mathbb{M} .51'27	43.94865 AU
conjunction	12559 Oct 31 22:29	21° \mathbb{M} .04'06	-7°04'16	direct	12566 Jul 31 13:12	26° \mathbb{M} .51'05	
minimum elong	12559 Oct 31 22:40	21° \mathbb{M} .04'07	7°03'37	evening set	12566 Oct 24 07:23	28° \mathbb{M} .02'16	

max. Earth dist.	12566 Nov 06 23:52	28° \mathbb{M} 22'00	45.85392 AU	morning rise	12572 Nov 29 20:29	5° \mathbb{A} 20'46	
				retrograde	12573 Feb 24 22:08	6° \mathbb{A} 35'45	
conjunction	12566 Nov 08 03:20	28° \mathbb{M} 23'41	-5°11'07	opposition	12573 May 18 08:37	5° \mathbb{A} 32'32	-3°24'34
minimum elong	12566 Nov 08 03:29	28° \mathbb{M} 23'41	5°10'22	min. Earth dist.	12573 May 19 16:58	5° \mathbb{A} 30'54	42.64327 AU
morning rise	12566 Nov 23 01:00	28° \mathbb{M} 45'13		direct	12573 Aug 07 19:50	4° \mathbb{A} 29'35	
retrograde	12567 Feb 18 12:18	29° \mathbb{M} 59'00		evening set	12573 Oct 31 06:23	5° \mathbb{A} 42'21	
opposition	12567 May 12 07:35	28° \mathbb{M} 56'47	-5°16'15	max. Earth dist.	12573 Nov 14 06:18	6° \mathbb{A} 03'07	44.54061 AU
min. Earth dist.	12567 May 13 09:52	28° \mathbb{M} 55'29	43.77327 AU				
direct	12567 Aug 01 22:38	27° \mathbb{M} 54'59		conjunction	12573 Nov 15 18:17	6° \mathbb{A} 05'22	-3°06'14
evening set	12567 Oct 25 12:57	29° \mathbb{M} 06'20		minimum elong	12573 Nov 15 18:21	6° \mathbb{A} 05'23	3°05'25
max. Earth dist.	12567 Nov 08 06:40	29° \mathbb{M} 26'14	45.67830 AU	morning rise	12573 Dec 01 07:52	6° \mathbb{A} 28'31	
				retrograde	12574 Feb 26 08:20	7° \mathbb{A} 43'47	
conjunction	12567 Nov 09 11:29	29° \mathbb{M} 27'59	-4°53'59	opposition	12574 May 19 17:33	6° \mathbb{A} 40'20	-3°05'04
minimum elong	12567 Nov 09 11:37	29° \mathbb{M} 28'00	4°53'14	min. Earth dist.	12574 May 21 03:30	6° \mathbb{A} 38'37	42.44033 AU
morning rise	12567 Nov 24 11:58	29° \mathbb{M} 49'47		direct	12574 Aug 09 04:00	5° \mathbb{A} 37'10	
	12567 Dec 01 18:36	0° \mathbb{A}		evening set	12574 Nov 01 14:28	6° \mathbb{A} 50'13	
retrograde	12568 Feb 19 21:19	1° \mathbb{A} 03'43		max. Earth dist.	12574 Nov 15 15:46	7° \mathbb{A} 11'10	44.33682 AU
opposition	12568 May 12 15:13	0° \mathbb{A} 01'22	-4°58'16				
	12568 May 13 18:43	30° \mathbb{R} \mathbb{M}		conjunction	12574 Nov 17 04:09	7° \mathbb{A} 13'27	-2°47'28
min. Earth dist.	12568 May 13 17:59	0° \mathbb{A} 00'02	43.59521 AU	minimum elong	12574 Nov 17 04:13	7° \mathbb{A} 13'27	2°46'38
direct	12568 Aug 02 05:35	28° \mathbb{M} 59'25		morning rise	12574 Dec 02 19:24	7° \mathbb{A} 36'49	
	12568 Oct 17 23:31	0° \mathbb{A}		retrograde	12575 Feb 27 19:47	8° \mathbb{A} 52'21	
evening set	12568 Oct 25 18:58	0° \mathbb{A} 10'57		opposition	12575 May 21 02:33	7° \mathbb{A} 48'41	-2°45'19
				min. Earth dist.	12575 May 22 12:17	7° \mathbb{A} 46'58	42.23446 AU
conjunction	12568 Nov 09 20:05	0° \mathbb{A} 32'51	-4°36'36	direct	12575 Aug 10 11:01	6° \mathbb{A} 45'16	
minimum elong	12568 Nov 09 20:13	0° \mathbb{A} 32'51	4°35'51	evening set	12575 Nov 02 23:00	7° \mathbb{A} 58'39	
max. Earth dist.	12568 Nov 08 14:07	0° \mathbb{A} 31'01	45.49939 AU	max. Earth dist.	12575 Nov 16 24:00	8° \mathbb{A} 19'41	44.13013 AU
morning rise	12568 Nov 24 23:04	0° \mathbb{A} 54'53					
retrograde	12569 Feb 20 07:14	2° \mathbb{A} 09'00		conjunction	12575 Nov 18 14:08	8° \mathbb{A} 22'05	-2°28'26
opposition	12569 May 13 23:02	1° \mathbb{A} 06'30	-4°40'01	minimum elong	12575 Nov 18 14:12	8° \mathbb{A} 22'05	2°27'36
min. Earth dist.	12569 May 15 03:38	1° \mathbb{A} 05'05	43.41359 AU	morning rise	12575 Dec 04 07:04	8° \mathbb{A} 45'39	
direct	12569 Aug 03 12:26	0° \mathbb{A} 04'23		retrograde	12576 Feb 29 08:34	10° \mathbb{A} 01'29	
evening set	12569 Oct 27 01:21	1° \mathbb{A} 16'09		opposition	12576 May 21 11:57	8° \mathbb{A} 57'36	-2°25'18
max. Earth dist.	12569 Nov 09 22:32	1° \mathbb{A} 36'24	45.31669 AU	min. Earth dist.	12576 May 22 23:17	8° \mathbb{A} 55'48	42.02604 AU
				direct	12576 Aug 10 18:10	7° \mathbb{A} 53'57	
conjunction	12569 Nov 11 04:57	1° \mathbb{A} 38'16	-4°19'00	evening set	12576 Nov 03 07:52	9° \mathbb{A} 07'41	
minimum elong	12569 Nov 11 05:03	1° \mathbb{A} 38'16	4°18'13	max. Earth dist.	12576 Nov 17 10:45	9° \mathbb{A} 28'55	43.92103 AU
morning rise	12569 Nov 26 10:15	2° \mathbb{A} 00'32					
retrograde	12570 Feb 21 18:29	3° \mathbb{A} 14'51		conjunction	12576 Nov 19 00:35	9° \mathbb{A} 31'19	-2°09'11
opposition	12570 May 15 07:05	2° \mathbb{A} 12'13	-4°21'32	minimum elong	12576 Nov 19 00:39	9° \mathbb{A} 31'19	2°08'21
min. Earth dist.	12570 May 16 11:51	2° \mathbb{A} 10'46	43.22784 AU	morning rise	12576 Dec 04 18:43	9° \mathbb{A} 55'05	
direct	12570 Aug 04 18:12	1° \mathbb{A} 09'54		retrograde	12577 Mar 01 18:18	11° \mathbb{A} 11'14	
evening set	12570 Oct 28 08:04	2° \mathbb{A} 21'54		opposition	12577 May 22 21:22	10° \mathbb{A} 07'09	-2°05'02
max. Earth dist.	12570 Nov 11 05:04	2° \mathbb{A} 42'14	45.12946 AU	min. Earth dist.	12577 May 24 08:45	10° \mathbb{A} 05'20	41.81540 AU
				direct	12577 Aug 12 04:44	9° \mathbb{A} 03'15	
conjunction	12570 Nov 12 13:48	2° \mathbb{A} 44'16	-4°01'09	evening set	12577 Nov 04 17:17	10° \mathbb{A} 17'21	
minimum elong	12570 Nov 12 13:55	2° \mathbb{A} 44'16	4°00'23	max. Earth dist.	12577 Nov 18 19:42	10° \mathbb{A} 38'41	43.70995 AU
morning rise	12570 Nov 27 21:31	3° \mathbb{A} 06'45					
retrograde	12571 Feb 23 05:54	4° \mathbb{A} 21'17		conjunction	12577 Nov 20 11:06	10° \mathbb{A} 41'12	-1°49'41
opposition	12571 May 16 15:31	3° \mathbb{A} 18'28	-4°02'48	minimum elong	12577 Nov 20 11:09	10° \mathbb{A} 41'12	1°48'49
min. Earth dist.	12571 May 17 22:17	3° \mathbb{A} 16'56	43.03748 AU	morning rise	12577 Dec 06 06:36	11° \mathbb{A} 05'10	
direct	12571 Aug 06 00:14	2° \mathbb{A} 15'58		retrograde	12578 Mar 03 05:57	12° \mathbb{A} 21'41	
evening set	12571 Oct 29 15:07	3° \mathbb{A} 28'12		opposition	12578 May 24 07:13	11° \mathbb{A} 17'22	-1°44'30
				min. Earth dist.	12578 May 25 19:14	11° \mathbb{A} 15'31	41.60300 AU
conjunction	12571 Nov 13 23:12	3° \mathbb{A} 50'47	-3°43'05	direct	12578 Aug 13 13:42	10° \mathbb{A} 13'14	
minimum elong	12571 Nov 13 23:18	3° \mathbb{A} 50'47	3°42'17	evening set	12578 Nov 06 02:54	11° \mathbb{A} 27'45	
max. Earth dist.	12571 Nov 12 14:06	3° \mathbb{A} 48'44	44.93751 AU	max. Earth dist.	12578 Nov 20 06:06	11° \mathbb{A} 49'14	43.49690 AU
morning rise	12571 Nov 29 08:53	4° \mathbb{A} 13'30					
retrograde	12572 Feb 24 13:05	5° \mathbb{A} 28'16		conjunction	12578 Nov 21 21:53	11° \mathbb{A} 51'47	-1°29'56
opposition	12572 May 16 23:57	4° \mathbb{A} 25'14	-3°43'48	minimum elong	12578 Nov 21 21:55	11° \mathbb{A} 51'47	1°29'06
min. Earth dist.	12572 May 18 07:23	4° \mathbb{A} 23'40	42.84244 AU	morning rise	12578 Dec 07 18:19	12° \mathbb{A} 15'57	
direct	12572 Aug 06 10:39	3° \mathbb{A} 22'32		retrograde	12579 Mar 04 14:53	13° \mathbb{A} 32'52	
evening set	12572 Oct 29 22:40	4° \mathbb{A} 35'01		opposition	12579 May 25 17:24	12° \mathbb{A} 28'20	-1°23'42
max. Earth dist.	12572 Nov 12 21:43	4° \mathbb{A} 55'39	44.74114 AU	min. Earth dist.	12579 May 27 06:25	12° \mathbb{A} 26'25	41.38864 AU
				direct	12579 Aug 15 00:50	11° \mathbb{A} 23'58	
conjunction	12572 Nov 14 08:39	4° \mathbb{A} 57'49	-3°24'47	evening set	12579 Nov 07 13:10	12° \mathbb{A} 38'55	
minimum elong	12572 Nov 14 08:45	4° \mathbb{A} 57'50	3°23'59	max. Earth dist.	12579 Nov 21 16:57	13° \mathbb{A} 00'33	43.28195 AU

conjunction	12579 Nov 23 09:06	13° \nearrow 03'08	-1°09'57	morning rise	12585 Dec 16 10:27	20° \nearrow 53'46	
minimum elong	12579 Nov 23 09:07	13° \nearrow 03'08	1°09'05	retrograde	12586 Mar 13 11:53	22° \nearrow 14'04	
morning rise	12579 Dec 09 06:27	13° \nearrow 27'29		opposition	12586 Jun 03 00:33	21° \nearrow 07'45	1°08'52
retrograde	12580 Mar 05 04:00	14° \nearrow 44'50		min. Earth dist.	12586 Jun 04 20:29	21° \nearrow 05'24	39.80215 AU
opposition	12580 May 26 03:35	13° \nearrow 40'06	-1°02'39	direct	12586 Aug 23 00:38	20° \nearrow 01'23	
min. Earth dist.	12580 May 27 16:34	13° \nearrow 38'11	41.17221 AU	evening set	12586 Nov 16 04:26	21° \nearrow 20'03	
direct	12580 Aug 15 08:55	12° \nearrow 35'30		max. Earth dist.	12586 Nov 30 01:51	21° \nearrow 42'11	41.68407 AU
evening set	12580 Nov 08 00:07	13° \nearrow 50'55					
max. Earth dist.	12580 Nov 22 02:42	14° \nearrow 12'37	43.06440 AU	conjunction	12586 Dec 02 01:27	21° \nearrow 45'22	1°16'16
				minimum elong	12586 Dec 02 01:25	21° \nearrow 45'22	1°17'10
conjunction	12580 Nov 23 20:41	14° \nearrow 15'20	-0°49'45	morning rise	12586 Dec 17 23:23	22° \nearrow 10'47	
minimum elong	12580 Nov 23 20:42	14° \nearrow 15'20	0°48'53	retrograde	12587 Mar 15 03:24	23° \nearrow 31'41	
morning rise	12580 Dec 09 18:46	14° \nearrow 39'51		opposition	12587 Jun 04 13:06	22° \nearrow 25'02	1°31'38
retrograde	12581 Mar 06 19:22	15° \nearrow 57'39		min. Earth dist.	12587 Jun 06 08:46	22° \nearrow 22'41	39.56284 AU
opposition	12581 May 27 14:20	14° \nearrow 52'43	-0°41'21	direct	12587 Aug 24 11:33	21° \nearrow 18'19	
min. Earth dist.	12581 May 29 05:18	14° \nearrow 50'41	40.95298 AU	evening set	12587 Nov 17 19:12	22° \nearrow 37'38	
direct	12581 Aug 16 14:54	13° \nearrow 47'52		max. Earth dist.	12587 Dec 01 13:54	22° \nearrow 59'44	41.44353 AU
evening set	12581 Nov 09 11:23	15° \nearrow 03'47					
max. Earth dist.	12581 Nov 23 14:35	15° \nearrow 25'38	42.84367 AU	conjunction	12587 Dec 03 15:22	23° \nearrow 03'04	1°38'01
				minimum elong	12587 Dec 03 15:19	23° \nearrow 03'04	1°38'56
conjunction	12581 Nov 25 08:37	15° \nearrow 28'22	-0°29'19	morning rise	12587 Dec 19 12:42	23° \nearrow 28'36	
minimum elong	12581 Nov 25 08:38	15° \nearrow 28'22	0°28'26	retrograde	12588 Mar 15 19:38	24° \nearrow 50'06	
morning rise	12581 Dec 11 07:02	15° \nearrow 53'04		opposition	12588 Jun 05 01:56	23° \nearrow 43'08	1°54'38
retrograde	12582 Mar 08 07:48	17° \nearrow 11'20		min. Earth dist.	12588 Jun 06 23:01	23° \nearrow 40'42	39.32191 AU
opposition	12582 May 29 01:18	16° \nearrow 06'09	-0°19'48	direct	12588 Aug 24 22:15	22° \nearrow 36'03	
min. Earth dist.	12582 May 30 16:26	16° \nearrow 04'06	40.73025 AU	evening set	12588 Nov 18 10:25	23° \nearrow 56'04	
direct	12582 Aug 18 02:22	15° \nearrow 01'03		max. Earth dist.	12588 Dec 02 04:29	24° \nearrow 18'15	41.20143 AU
evening set	12582 Nov 10 23:28	16° \nearrow 17'29					
max. Earth dist.	12582 Nov 25 00:40	16° \nearrow 39'20	42.61919 AU	conjunction	12588 Dec 04 05:49	24° \nearrow 21'36	1°59'59
				minimum elong	12588 Dec 04 05:46	24° \nearrow 21'36	2°00'54
conjunction	12582 Nov 26 20:52	16° \nearrow 42'14	-0°08'41	morning rise	12588 Dec 20 01:58	24° \nearrow 47'14	
minimum elong	12582 Nov 26 20:53	16° \nearrow 42'14	0°07'48	retrograde	12589 Mar 17 09:11	26° \nearrow 09'23	
behind sun begin	12582 Nov 26 15:04	16° \nearrow 41'53		opposition	12589 Jun 06 15:14	25° \nearrow 02'07	2°17'51
behind sun end	12582 Nov 27 02:42	16° \nearrow 42'35		min. Earth dist.	12589 Jun 08 12:29	24° \nearrow 59'39	39.07971 AU
morning rise	12582 Dec 12 19:46	17° \nearrow 07'06		direct	12589 Aug 26 13:01	23° \nearrow 54'41	
retrograde	12583 Mar 09 21:44	18° \nearrow 25'51		evening set	12589 Nov 20 02:17	25° \nearrow 15'25	
asc. node	12583 Apr 27 02:50	17° \nearrow 59'43		max. Earth dist.	12589 Dec 03 18:10	25° \nearrow 37'37	40.95839 AU
opposition	12583 May 30 12:40	17° \nearrow 20'25	0°02'00				
min. Earth dist.	12583 Jun 01 05:16	17° \nearrow 18'17	40.50375 AU	conjunction	12589 Dec 05 20:22	25° \nearrow 41'03	2°22'08
direct	12583 Aug 19 13:28	16° \nearrow 15'01		minimum elong	12589 Dec 05 20:18	25° \nearrow 41'03	2°23'03
evening set	12583 Nov 12 11:53	17° \nearrow 31'59		morning rise	12589 Dec 21 15:22	26° \nearrow 06'47	
max. Earth dist.	12583 Nov 26 12:42	17° \nearrow 53'56	42.39063 AU	retrograde	12590 Mar 19 00:22	27° \nearrow 29'38	
				opposition	12590 Jun 08 04:54	26° \nearrow 22'03	2°41'17
conjunction	12583 Nov 28 09:38	17° \nearrow 56'54	0°12'18	min. Earth dist.	12590 Jun 10 02:13	26° \nearrow 19'34	38.83688 AU
minimum elong	12583 Nov 28 09:37	17° \nearrow 56'54	0°13'12	direct	12590 Aug 28 02:32	25° \nearrow 14'17	
behind sun begin	12583 Nov 28 05:54	17° \nearrow 56'40		evening set	12590 Nov 21 18:50	26° \nearrow 35'48	
behind sun end	12583 Nov 28 13:21	17° \nearrow 57'08		max. Earth dist.	12590 Dec 05 08:37	26° \nearrow 58'01	40.71458 AU
morning rise	12583 Dec 14 08:30	18° \nearrow 21'55					
retrograde	12584 Mar 10 09:10	19° \nearrow 41'09		conjunction	12590 Dec 07 11:32	27° \nearrow 01'31	2°44'29
opposition	12584 May 31 00:24	18° \nearrow 35'27	0°24'03	minimum elong	12590 Dec 07 11:27	27° \nearrow 01'31	2°45'25
min. Earth dist.	12584 Jun 01 18:14	18° \nearrow 33'14	40.27319 AU	morning rise	12590 Dec 23 04:59	27° \nearrow 27'20	
direct	12584 Aug 20 02:46	17° \nearrow 29'45		retrograde	12591 Mar 20 15:29	28° \nearrow 50'56	
evening set	12584 Nov 13 00:59	18° \nearrow 47'15		opposition	12591 Jun 09 19:03	27° \nearrow 43'03	3°04'56
max. Earth dist.	12584 Nov 27 00:28	19° \nearrow 09'15	42.15829 AU	min. Earth dist.	12591 Jun 11 17:33	27° \nearrow 40'30	38.59347 AU
				direct	12591 Aug 29 14:57	26° \nearrow 34'58	
conjunction	12584 Nov 28 22:38	19° \nearrow 12'19	0°33'23	evening set	12591 Nov 23 12:03	27° \nearrow 57'18	
minimum elong	12584 Nov 28 22:37	19° \nearrow 12'18	0°34'17	max. Earth dist.	12591 Dec 07 00:21	28° \nearrow 19'34	40.47027 AU
morning rise	12584 Dec 14 21:28	19° \nearrow 37'29					
retrograde	12585 Mar 11 21:52	20° \nearrow 57'14		conjunction	12591 Dec 09 03:09	28° \nearrow 23'06	3°07'00
opposition	12585 Jun 01 12:11	19° \nearrow 51'14	0°46'20	minimum elong	12591 Dec 09 03:04	28° \nearrow 23'06	3°07'55
min. Earth dist.	12585 Jun 03 06:24	19° \nearrow 48'59	40.03916 AU	morning rise	12591 Dec 24 18:50	28° \nearrow 48'59	
direct	12585 Aug 21 14:19	18° \nearrow 45'11			12592 Feb 17 19:04	0° \nearrow	
evening set	12585 Nov 14 14:33	20° \nearrow 03'16		retrograde	12592 Mar 21 08:32	0° \nearrow 13'23	
max. Earth dist.	12585 Nov 28 12:07	20° \nearrow 25'16	41.92249 AU		12592 Apr 23 08:15	30° \nearrow	
				opposition	12592 Jun 10 09:30	29° \nearrow 05'14	3°28'46
conjunction	12585 Nov 30 11:55	20° \nearrow 28'28	0°54'43	min. Earth dist.	12592 Jun 12 07:34	29° \nearrow 02'40	38.34941 AU
minimum elong	12585 Nov 30 11:53	20° \nearrow 28'28	0°55'37	direct	12592 Aug 30 03:42	27° \nearrow 56'49	

evening set	12592 Nov 24 06:13	29° $\mathring{\text{A}}$ 20'02		minimum elong	12598 Dec 19 06:36	8° $\mathring{\text{B}}$ 29'18	5°49'45
max. Earth dist.	12592 Dec 07 14:41	29° $\mathring{\text{A}}$ 42'13	40.22485 AU	morning rise	12599 Jan 03 01:48	8° $\mathring{\text{B}}$ 55'11	
				retrograde	12599 Apr 01 20:32	10° $\mathring{\text{B}}$ 26'17	
conjunction	12592 Dec 09 19:13	29° $\mathring{\text{A}}$ 45'54	3°29'41	opposition	12599 Jun 21 04:18	9° $\mathring{\text{B}}$ 15'46	6°20'19
minimum elong	12592 Dec 09 19:07	29° $\mathring{\text{A}}$ 45'53	3°30'37	min. Earth dist.	12599 Jun 23 07:36	9° $\mathring{\text{B}}$ 12'48	36.59179 AU
	12592 Dec 18 05:09	0° $\mathring{\text{B}}$		direct	12599 Sep 09 13:42	8° $\mathring{\text{B}}$ 04'42	
morning rise	12592 Dec 25 08:57	0° $\mathring{\text{B}}$ 11'50		evening set	12599 Dec 06 11:41	9° $\mathring{\text{B}}$ 35'12	
retrograde	12593 Mar 23 04:24	1° $\mathring{\text{B}}$ 37'05		max. Earth dist.	12599 Dec 18 16:04	9° $\mathring{\text{B}}$ 56'37	38.45322 AU
opposition	12593 Jun 12 00:27	0° $\mathring{\text{B}}$ 28'38	3°52'47				
min. Earth dist.	12593 Jun 14 00:08	0° $\mathring{\text{B}}$ 25'59	38.10418 AU	conjunction	12599 Dec 21 02:27	10° $\mathring{\text{B}}$ 00'56	6°12'21
	12593 Jul 04 02:35	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$		minimum elong	12599 Dec 21 02:17	10° $\mathring{\text{B}}$ 00'55	6°13'17
direct	12593 Aug 31 15:05	29° $\mathring{\text{A}}$ 19'54		morning rise	12600 Jan 04 17:24	10° $\mathring{\text{B}}$ 26'42	
	12593 Oct 27 17:31	0° $\mathring{\text{B}}$		retrograde	12600 Apr 03 20:13	11° $\mathring{\text{B}}$ 58'55	
evening set	12593 Nov 26 01:01	0° $\mathring{\text{B}}$ 44'04		opposition	12600 Jun 22 22:43	10° $\mathring{\text{B}}$ 48'00	6°45'20
max. Earth dist.	12593 Dec 09 07:41	1° $\mathring{\text{B}}$ 06'17	39.97789 AU	min. Earth dist.	12600 Jun 25 03:07	10° $\mathring{\text{B}}$ 44'57	36.33580 AU
				direct	12600 Sep 11 05:25	9° $\mathring{\text{B}}$ 36'29	
conjunction	12593 Dec 11 11:55	1° $\mathring{\text{B}}$ 09'58	3°52'32	evening set	12600 Dec 08 12:26	11° $\mathring{\text{B}}$ 08'13	
minimum elong	12593 Dec 11 11:48	1° $\mathring{\text{B}}$ 09'57	3°53'27	max. Earth dist.	12600 Dec 20 12:55	11° $\mathring{\text{B}}$ 29'31	38.19562 AU
morning rise	12593 Dec 26 23:09	1° $\mathring{\text{B}}$ 35'56					
retrograde	12594 Mar 24 22:56	3° $\mathring{\text{B}}$ 02'05		conjunction	12600 Dec 22 22:49	11° $\mathring{\text{B}}$ 33'50	6°35'58
opposition	12594 Jun 13 15:53	1° $\mathring{\text{B}}$ 53'20	4°16'59	minimum elong	12600 Dec 22 22:37	11° $\mathring{\text{B}}$ 33'49	6°36'54
min. Earth dist.	12594 Jun 15 15:40	1° $\mathring{\text{B}}$ 50'40	37.85714 AU	morning rise	12601 Jan 06 08:57	11° $\mathring{\text{B}}$ 59'29	
direct	12594 Sep 02 06:10	0° $\mathring{\text{B}}$ 44'16		retrograde	12601 Apr 05 16:42	13° $\mathring{\text{B}}$ 32'52	
evening set	12594 Nov 27 20:41	2° $\mathring{\text{B}}$ 09'24		opposition	12601 Jun 24 17:37	12° $\mathring{\text{B}}$ 21'33	7°10'24
max. Earth dist.	12594 Dec 10 22:52	2° $\mathring{\text{B}}$ 31'29	39.72884 AU	min. Earth dist.	12601 Jun 26 21:56	12° $\mathring{\text{B}}$ 18'29	36.08016 AU
				direct	12601 Sep 13 00:08	11° $\mathring{\text{B}}$ 09'35	
conjunction	12594 Dec 13 04:53	2° $\mathring{\text{B}}$ 35'20	4°15'31	evening set	12601 Dec 10 14:16	12° $\mathring{\text{B}}$ 42'37	
minimum elong	12594 Dec 13 04:46	2° $\mathring{\text{B}}$ 35'19	4°16'28	max. Earth dist.	12601 Dec 22 08:58	13° $\mathring{\text{B}}$ 03'41	37.93878 AU
morning rise	12594 Dec 28 13:41	3° $\mathring{\text{B}}$ 01'19					
retrograde	12595 Mar 26 18:17	4° $\mathring{\text{B}}$ 28'23		conjunction	12601 Dec 24 19:34	13° $\mathring{\text{B}}$ 08'05	6°59'35
opposition	12595 Jun 15 07:51	3° $\mathring{\text{B}}$ 19'20	4°41'22	minimum elong	12601 Dec 24 19:22	13° $\mathring{\text{B}}$ 08'04	7°00'31
min. Earth dist.	12595 Jun 17 08:46	3° $\mathring{\text{B}}$ 16'35	37.60795 AU	morning rise	12602 Jan 08 00:51	13° $\mathring{\text{B}}$ 33'35	
direct	12595 Sep 03 20:40	2° $\mathring{\text{B}}$ 09'54					
evening set	12595 Nov 29 17:14	3° $\mathring{\text{B}}$ 36'02					
max. Earth dist.	12595 Dec 12 15:56	3° $\mathring{\text{B}}$ 58'02	39.47725 AU				
conjunction	12595 Dec 14 22:43	4° $\mathring{\text{B}}$ 01'58	4°38'40				
minimum elong	12595 Dec 14 22:35	4° $\mathring{\text{B}}$ 01'57	4°39'35				
morning rise	12595 Dec 30 04:28	4° $\mathring{\text{B}}$ 27'58					
retrograde	12596 Mar 27 10:31	5° $\mathring{\text{B}}$ 55'58					
opposition	12596 Jun 16 00:15	4° $\mathring{\text{B}}$ 46'35	5°05'54				
min. Earth dist.	12596 Jun 18 02:17	4° $\mathring{\text{B}}$ 43'45	37.35631 AU				
direct	12596 Sep 04 14:25	3° $\mathring{\text{B}}$ 36'46					
evening set	12596 Nov 30 14:39	5° $\mathring{\text{B}}$ 03'55					
max. Earth dist.	12596 Dec 13 09:24	5° $\mathring{\text{B}}$ 25'50	39.22346 AU				
conjunction	12596 Dec 15 16:56	5° $\mathring{\text{B}}$ 29'51	5°01'56				
minimum elong	12596 Dec 15 16:48	5° $\mathring{\text{B}}$ 29'50	5°02'53				
morning rise	12596 Dec 30 19:30	5° $\mathring{\text{B}}$ 55'50					
retrograde	12597 Mar 29 05:14	7° $\mathring{\text{B}}$ 24'49					
opposition	12597 Jun 17 17:04	6° $\mathring{\text{B}}$ 15'04	5°30'35				
min. Earth dist.	12597 Jun 19 19:09	6° $\mathring{\text{B}}$ 12'13	37.10273 AU				
direct	12597 Sep 06 06:20	5° $\mathring{\text{B}}$ 04'52					
evening set	12597 Dec 02 12:44	6° $\mathring{\text{B}}$ 33'05					
max. Earth dist.	12597 Dec 15 02:29	6° $\mathring{\text{B}}$ 54'49	38.96769 AU				
conjunction	12597 Dec 17 11:31	6° $\mathring{\text{B}}$ 58'58	5°25'19				
minimum elong	12597 Dec 17 11:21	6° $\mathring{\text{B}}$ 58'57	5°26'15				
morning rise	12598 Jan 01 10:32	7° $\mathring{\text{B}}$ 24'54					
retrograde	12598 Mar 31 00:11	8° $\mathring{\text{B}}$ 54'56					
opposition	12598 Jun 19 10:34	7° $\mathring{\text{B}}$ 44'48	5°55'24				
min. Earth dist.	12598 Jun 21 14:14	7° $\mathring{\text{B}}$ 41'50	36.84765 AU				
direct	12598 Sep 07 20:39	6° $\mathring{\text{B}}$ 34'10					
evening set	12598 Dec 04 11:42	8° $\mathring{\text{B}}$ 03'30					
max. Earth dist.	12598 Dec 16 22:04	8° $\mathring{\text{B}}$ 25'10	38.71075 AU				
conjunction	12598 Dec 19 06:46	8° $\mathring{\text{B}}$ 29'19	5°48'48				