

retrograde	12100 Jan 08 04:04	15° <u>♂</u> 58'11		conjunction	12106 Oct 10 09:10	29° <u>♂</u> 11'10	-0°26'18
min. Earth dist.	12100 Mar 28 09:11	14° <u>♂</u> 34'12	28.76704 AU	minimum elong	12106 Oct 10 09:10	29° <u>♂</u> 11'10	0°25'58
opposition	12100 Mar 29 00:48	14° <u>♂</u> 33'06	-0°37'07	max. Earth dist.	12106 Oct 11 01:19	29° <u>♂</u> 12'41	30.78551 AU
direct	12100 Jun 15 03:07	13° <u>♂</u> 09'18		morning rise	12106 Oct 26 08:37	29° <u>♂</u> 47'07	
evening set	12100 Sep 10 08:26	15° <u>♂</u> 03'30			12106 Nov 01 06:12	0° <u>♂</u>	
				retrograde	12107 Jan 25 01:53	1° <u>♂</u> 45'32	
conjunction	12100 Sep 26 03:21	15° <u>♂</u> 39'06	-0°34'10	opposition	12107 Apr 14 16:14	0° <u>♂</u> 20'34	-0°27'18
minimum elong	12100 Sep 26 03:21	15° <u>♂</u> 39'06	0°34'01	min. Earth dist.	12107 Apr 14 01:03	0° <u>♂</u> 21'38	28.78756 AU
max. Earth dist.	12100 Sep 26 20:07	15° <u>♂</u> 40'41	30.76650 AU		12107 Apr 27 00:50	30° <u>♂</u>	
morning rise	12100 Oct 12 00:36	16° <u>♂</u> 14'56		direct	12107 Jul 01 16:10	28° <u>♂</u> 56'50	
retrograde	12101 Jan 10 15:03	18° <u>♂</u> 13'27			12107 Sep 02 05:09	0° <u>♂</u>	
opposition	12101 Mar 31 13:28	16° <u>♂</u> 48'21	-0°35'53	evening set	12107 Sep 27 01:09	0° <u>♂</u> 51'04	
min. Earth dist.	12101 Mar 30 22:05	16° <u>♂</u> 49'26	28.76687 AU				
direct	12101 Jun 17 15:12	15° <u>♂</u> 24'32		conjunction	12107 Oct 12 22:37	1° <u>♂</u> 26'48	-0°24'51
evening set	12101 Sep 12 20:53	17° <u>♂</u> 18'43		minimum elong	12107 Oct 12 22:37	1° <u>♂</u> 26'48	0°24'28
				max. Earth dist.	12107 Oct 13 15:23	1° <u>♂</u> 28'23	30.78889 AU
conjunction	12101 Sep 28 16:07	17° <u>♂</u> 54'19	-0°32'59	morning rise	12107 Oct 28 22:13	2° <u>♂</u> 02'47	
minimum elong	12101 Sep 28 16:07	17° <u>♂</u> 54'19	0°32'48	retrograde	12108 Jan 27 14:21	4° <u>♂</u> 01'08	
max. Earth dist.	12101 Sep 29 08:37	17° <u>♂</u> 55'52	30.76718 AU	opposition	12108 Apr 16 04:40	2° <u>♂</u> 36'12	-0°25'43
morning rise	12101 Oct 14 13:48	18° <u>♂</u> 30'10		min. Earth dist.	12108 Apr 15 13:42	2° <u>♂</u> 37'15	28.79036 AU
retrograde	12102 Jan 13 05:07	20° <u>♂</u> 28'40		direct	12108 Jul 03 05:22	1° <u>♂</u> 12'27	
min. Earth dist.	12102 Apr 02 09:32	19° <u>♂</u> 04'42	28.76828 AU	evening set	12108 Sep 28 14:05	3° <u>♂</u> 06'41	
opposition	12102 Apr 03 01:55	19° <u>♂</u> 03'33	-0°34'35				
direct	12102 Jun 20 03:11	17° <u>♂</u> 39'43		conjunction	12108 Oct 14 11:45	3° <u>♂</u> 42'26	-0°23'20
evening set	12102 Sep 15 09:21	19° <u>♂</u> 33'54		minimum elong	12108 Oct 14 11:46	3° <u>♂</u> 42'26	0°22'57
				max. Earth dist.	12108 Oct 15 03:01	3° <u>♂</u> 43'52	30.79131 AU
conjunction	12102 Oct 01 04:57	20° <u>♂</u> 09'32	-0°31'44	morning rise	12108 Oct 30 11:50	4° <u>♂</u> 18'25	
minimum elong	12102 Oct 01 04:57	20° <u>♂</u> 09'32	0°31'32	retrograde	12109 Jan 29 04:26	6° <u>♂</u> 16'44	
max. Earth dist.	12102 Oct 01 21:57	20° <u>♂</u> 11'08	30.76919 AU	opposition	12109 Apr 18 17:03	4° <u>♂</u> 51'47	-0°24'05
morning rise	12102 Oct 17 03:00	20° <u>♂</u> 45'24		min. Earth dist.	12109 Apr 18 02:14	4° <u>♂</u> 52'49	28.79242 AU
retrograde	12103 Jan 15 17:35	22° <u>♂</u> 43'53		direct	12109 Jul 05 16:30	3° <u>♂</u> 28'00	
opposition	12103 Apr 05 14:31	21° <u>♂</u> 18'47	-0°33'13	evening set	12109 Oct 01 03:01	5° <u>♂</u> 22'12	
min. Earth dist.	12103 Apr 04 22:57	21° <u>♂</u> 19'52	28.77096 AU				
direct	12103 Jun 22 14:09	19° <u>♂</u> 54'57		conjunction	12109 Oct 17 01:09	5° <u>♂</u> 57'58	-0°21'49
evening set	12103 Sep 17 21:51	21° <u>♂</u> 49'08		minimum elong	12109 Oct 17 01:09	5° <u>♂</u> 57'58	0°21'23
				max. Earth dist.	12109 Oct 17 16:58	5° <u>♂</u> 59'27	30.79305 AU
conjunction	12103 Oct 03 17:52	22° <u>♂</u> 24'47	-0°30'27	morning rise	12109 Nov 02 01:26	6° <u>♂</u> 33'58	
minimum elong	12103 Oct 03 17:52	22° <u>♂</u> 24'47	0°30'12	retrograde	12110 Jan 31 15:02	8° <u>♂</u> 32'12	
max. Earth dist.	12103 Oct 04 11:08	22° <u>♂</u> 26'24	30.77254 AU	opposition	12110 Apr 21 05:15	7° <u>♂</u> 07'14	-0°22'26
morning rise	12103 Oct 19 16:13	23° <u>♂</u> 00'40		min. Earth dist.	12110 Apr 20 15:15	7° <u>♂</u> 08'13	28.79399 AU
retrograde	12104 Jan 18 08:07	24° <u>♂</u> 59'08		direct	12110 Jul 08 04:50	5° <u>♂</u> 43'25	
min. Earth dist.	12104 Apr 06 10:12	23° <u>♂</u> 35'13	28.77473 AU	evening set	12110 Oct 03 15:58	7° <u>♂</u> 37'37	
opposition	12104 Apr 07 02:52	23° <u>♂</u> 34'03	-0°31'49				
direct	12104 Jun 24 03:21	22° <u>♂</u> 10'15		conjunction	12110 Oct 19 14:25	8° <u>♂</u> 13'23	-0°20'15
evening set	12104 Sep 19 10:34	24° <u>♂</u> 04'27		minimum elong	12110 Oct 19 14:25	8° <u>♂</u> 13'23	0°19'47
				max. Earth dist.	12110 Oct 20 05:19	8° <u>♂</u> 14'47	30.79473 AU
conjunction	12104 Oct 05 06:49	24° <u>♂</u> 40'07	-0°29'07	morning rise	12110 Nov 04 15:07	8° <u>♂</u> 49'23	
minimum elong	12104 Oct 05 06:49	24° <u>♂</u> 40'07	0°28'50	retrograde	12111 Feb 03 04:17	10° <u>♂</u> 47'32	
max. Earth dist.	12104 Oct 05 23:36	24° <u>♂</u> 41'42	30.77670 AU	opposition	12111 Apr 23 17:18	9° <u>♂</u> 22'34	-0°20'44
morning rise	12104 Oct 21 05:34	25° <u>♂</u> 16'02		min. Earth dist.	12111 Apr 23 02:48	9° <u>♂</u> 23'35	28.79577 AU
retrograde	12105 Jan 19 22:26	27° <u>♂</u> 14'29		direct	12111 Jul 10 16:35	7° <u>♂</u> 58'41	
opposition	12105 Apr 09 15:26	25° <u>♂</u> 49'27	-0°30'21	evening set	12111 Oct 06 04:52	9° <u>♂</u> 52'52	
min. Earth dist.	12105 Apr 08 23:45	25° <u>♂</u> 50'33	28.77922 AU				
direct	12105 Jun 26 15:15	24° <u>♂</u> 25'41		conjunction	12111 Oct 22 03:38	10° <u>♂</u> 28'39	-0°18'39
evening set	12105 Sep 21 23:09	26° <u>♂</u> 19'53		minimum elong	12111 Oct 22 03:38	10° <u>♂</u> 28'39	0°18'10
				max. Earth dist.	12111 Oct 22 18:46	10° <u>♂</u> 30'04	30.79665 AU
conjunction	12105 Oct 07 19:54	26° <u>♂</u> 55'35	-0°27'44	morning rise	12111 Nov 07 04:33	11° <u>♂</u> 04'40	
minimum elong	12105 Oct 07 19:54	26° <u>♂</u> 55'35	0°27'25	retrograde	12112 Feb 05 15:46	13° <u>♂</u> 02'44	
max. Earth dist.	12105 Oct 08 13:24	26° <u>♂</u> 57'14	30.78132 AU	opposition	12112 Apr 25 05:22	11° <u>♂</u> 37'45	-0°19'01
morning rise	12105 Oct 23 18:53	27° <u>♂</u> 31'31		min. Earth dist.	12112 Apr 24 15:56	11° <u>♂</u> 38'42	28.79811 AU
retrograde	12106 Jan 22 12:16	29° <u>♂</u> 29'57		direct	12112 Jul 12 03:02	10° <u>♂</u> 13'50	
min. Earth dist.	12106 Apr 11 11:41	28° <u>♂</u> 06'05	28.78367 AU	evening set	12112 Oct 07 17:42	12° <u>♂</u> 08'00	
opposition	12106 Apr 12 03:51	28° <u>♂</u> 04'58	-0°28'51				
direct	12106 Jun 29 05:02	26° <u>♂</u> 41'13		conjunction	12112 Oct 23 16:51	12° <u>♂</u> 43'47	-0°17'02
evening set	12106 Sep 24 12:13	28° <u>♂</u> 35'27		minimum elong	12112 Oct 23 16:51	12° <u>♂</u> 43'47	0°16'32

max. Earth dist.	12112 Oct 24 07:59	12° ℓ 45'12	30.79959 AU	retrograde	12118 Feb 19 00:19	26° ℓ 32'17	
morning rise	12112 Nov 08 18:02	13° ℓ 19'48		opposition	12118 May 09 04:04	25° ℓ 07'30	-0°08'12
	12113 Jan 05 08:39	15° ℓ		min. Earth dist.	12118 May 08 14:44	25° ℓ 08'26	28.83835 AU
retrograde	12113 Feb 07 05:21	15° ℓ 17'48		direct	12118 Jul 26 05:53	23° ℓ 43'34	
	12113 Mar 12 15:29	15° ℓ		evening set	12118 Oct 21 23:33	25° ℓ 37'47	
opposition	12113 Apr 27 17:14	13° ℓ 52'49	-0°17'16				
min. Earth dist.	12113 Apr 27 02:48	13° ℓ 53'49	28.80160 AU	conjunction	12118 Nov 07 00:33	26° ℓ 13'39	-0°06'55
direct	12113 Jul 14 16:24	12° ℓ 28'51		minimum elong	12118 Nov 07 00:33	26° ℓ 13'39	0°06'15
evening set	12113 Oct 10 06:34	14° ℓ 23'01		behind sun begin	12118 Nov 06 18:21	26° ℓ 13'06	
				behind sun end	12118 Nov 07 06:45	26° ℓ 14'13	
conjunction	12113 Oct 26 05:57	14° ℓ 58'49	-0°15'24	max. Earth dist.	12118 Nov 07 14:58	26° ℓ 15'00	30.84280 AU
minimum elong	12113 Oct 26 05:57	14° ℓ 58'49	0°14'51	morning rise	12118 Nov 23 03:11	26° ℓ 49'43	
behind sun begin	12113 Oct 26 03:32	14° ℓ 58'36		retrograde	12119 Feb 21 11:24	28° ℓ 47'15	
behind sun end	12113 Oct 26 08:22	14° ℓ 59'02		opposition	12119 May 11 15:48	27° ℓ 22'31	-0°06'20
	12113 Oct 26 18:36	15° ℓ		min. Earth dist.	12119 May 11 03:29	27° ℓ 23'23	28.84733 AU
max. Earth dist.	12113 Oct 26 20:38	15° ℓ 00'12	30.80367 AU	direct	12119 Jul 28 18:04	25° ℓ 58'35	
morning rise	12113 Nov 11 07:30	15° ℓ 34'51		evening set	12119 Oct 24 12:48	27° ℓ 52'49	
retrograde	12114 Feb 09 18:35	17° ℓ 32'46					
opposition	12114 Apr 30 05:12	16° ℓ 07'46	-0°15'30	conjunction	12119 Nov 09 13:57	28° ℓ 28'42	-0°05'11
min. Earth dist.	12114 Apr 29 15:43	16° ℓ 08'43	28.80642 AU	minimum elong	12119 Nov 09 13:57	28° ℓ 28'42	0°04'30
	12114 Jun 15 22:13	15° ℓ		behind sun begin	12119 Nov 09 07:31	28° ℓ 28'07	
direct	12114 Jul 17 04:21	14° ℓ 43'48		behind sun end	12119 Nov 09 20:22	28° ℓ 29'16	
	12114 Aug 17 01:05	15° ℓ		max. Earth dist.	12119 Nov 10 02:57	28° ℓ 29'54	30.85151 AU
evening set	12114 Oct 12 19:27	16° ℓ 37'57		morning rise	12119 Nov 25 16:52	29° ℓ 04'45	
					12119 Dec 22 20:27	0° ♊	
conjunction	12114 Oct 28 19:17	17° ℓ 13'47	-0°13'44	retrograde	12120 Feb 24 00:49	1° ♊ 02'11	
minimum elong	12114 Oct 28 19:17	17° ℓ 13'47	0°13'10		12120 Apr 29 15:27	30° ♈	
behind sun begin	12114 Oct 28 15:30	17° ℓ 13'26		opposition	12120 May 13 03:26	29° ℓ 37'30	-0°04'28
behind sun end	12114 Oct 28 23:05	17° ℓ 14'07		min. Earth dist.	12120 May 12 14:58	29° ℓ 38'23	28.85563 AU
max. Earth dist.	12114 Oct 29 10:36	17° ℓ 15'13	30.80923 AU	direct	12120 Jul 30 05:30	28° ℓ 13'33	
morning rise	12114 Nov 13 20:59	17° ℓ 49'48			12120 Oct 22 12:09	0° ♊	
retrograde	12115 Feb 12 07:37	19° ℓ 47'38		evening set	12120 Oct 26 02:04	0° ♊ 07'47	
opposition	12115 May 02 16:50	18° ℓ 22'41	-0°13'42				
min. Earth dist.	12115 May 02 02:36	18° ℓ 23'41	28.81263 AU	conjunction	12120 Nov 11 03:32	0° ♊ 43'40	-0°03'26
direct	12115 Jul 19 17:52	16° ℓ 58'42		minimum elong	12120 Nov 11 03:31	0° ♊ 43'40	0°02'43
evening set	12115 Oct 15 08:28	18° ℓ 52'52		behind sun begin	12120 Nov 10 20:58	0° ♊ 43'05	
				behind sun end	12120 Nov 11 10:03	0° ♊ 44'15	
conjunction	12115 Oct 31 08:27	19° ℓ 28'42	-0°12'03	max. Earth dist.	12120 Nov 11 16:18	0° ♊ 44'51	30.85930 AU
minimum elong	12115 Oct 31 08:27	19° ℓ 28'42	0°11'28	morning rise	12120 Nov 27 06:34	1° ♊ 19'43	
behind sun begin	12115 Oct 31 03:46	19° ℓ 28'17		retrograde	12121 Feb 25 11:57	3° ♊ 17'03	
behind sun end	12115 Oct 31 13:09	19° ℓ 29'07		opposition	12121 May 15 15:07	1° ♊ 52'24	-0°02'36
max. Earth dist.	12115 Oct 31 22:48	19° ℓ 30'02	30.81619 AU	min. Earth dist.	12121 May 15 04:14	1° ♊ 53'10	28.86302 AU
morning rise	12115 Nov 16 10:33	20° ℓ 04'44		direct	12121 Aug 01 16:01	0° ♊ 28'24	
retrograde	12116 Feb 14 21:22	22° ℓ 02'30		evening set	12121 Oct 28 15:15	2° ♊ 22'37	
opposition	12116 May 04 04:41	20° ℓ 37'35	-0°11'53				
min. Earth dist.	12116 May 03 15:05	20° ℓ 38'32	28.82033 AU	conjunction	12121 Nov 13 17:01	2° ♊ 58'30	-0°01'38
direct	12116 Jul 21 04:50	19° ℓ 13'37		minimum elong	12121 Nov 13 17:01	2° ♊ 58'30	0°00'55
evening set	12116 Oct 16 21:13	21° ℓ 07'47		behind sun begin	12121 Nov 13 10:28	2° ♊ 57'54	
				behind sun end	12121 Nov 13 23:34	2° ♊ 59'05	
conjunction	12116 Nov 01 21:40	21° ℓ 43'38	-0°10'21	max. Earth dist.	12121 Nov 14 05:04	2° ♊ 59'37	30.86643 AU
minimum elong	12116 Nov 01 21:40	21° ℓ 43'38	0°09'45	morning rise	12121 Nov 29 20:18	3° ♊ 34'33	
behind sun begin	12116 Nov 01 16:19	21° ℓ 43'09		retrograde	12122 Feb 28 00:13	5° ♊ 31'45	
behind sun end	12116 Nov 02 03:01	21° ℓ 44'07		opposition	12122 May 18 02:34	4° ♊ 07'06	-0°00'43
max. Earth dist.	12116 Nov 02 13:04	21° ℓ 45'05	30.82448 AU	min. Earth dist.	12122 May 17 15:15	4° ♊ 07'54	28.86978 AU
morning rise	12116 Nov 17 23:51	22° ℓ 19'41		direct	12122 Aug 04 05:18	2° ♊ 43'03	
retrograde	12117 Feb 16 10:45	24° ℓ 17'22		asc. node	12122 Oct 13 16:43	4° ♊ 00'37	
opposition	12117 May 06 16:27	22° ℓ 52'31	-0°10'03	evening set	12122 Oct 31 04:33	4° ♊ 37'15	
min. Earth dist.	12117 May 06 02:51	22° ℓ 53'28	28.82902 AU				
direct	12117 Jul 23 18:37	21° ℓ 28'34		conjunction	12122 Nov 16 06:29	5° ♊ 13'08	0°00'11
evening set	12117 Oct 19 10:23	23° ℓ 22'46		minimum elong	12122 Nov 16 06:28	5° ♊ 13'08	0°00'55
				behind sun begin	12122 Nov 15 23:55	5° ♊ 12'33	
conjunction	12117 Nov 04 10:58	23° ℓ 58'37	-0°08'39	behind sun end	12122 Nov 16 13:01	5° ♊ 13'43	
minimum elong	12117 Nov 04 10:58	23° ℓ 58'37	0°08'01	max. Earth dist.	12122 Nov 16 17:35	5° ♊ 14'09	30.87295 AU
behind sun begin	12117 Nov 04 05:08	23° ℓ 58'06		morning rise	12122 Dec 02 09:57	5° ♊ 49'10	
behind sun end	12117 Nov 04 16:48	23° ℓ 59'09		retrograde	12123 Mar 02 11:50	7° ♊ 46'14	
max. Earth dist.	12117 Nov 05 00:59	23° ℓ 59'56	30.83360 AU	opposition	12123 May 20 13:56	6° ♊ 21'36	0°01'09
morning rise	12117 Nov 20 13:33	24° ℓ 34'40		min. Earth dist.	12123 May 20 04:04	6° ♊ 22'17	28.87631 AU

direct	12123 Aug 06 16:28	4°♊57'30		max. Earth dist.	12128 Nov 29 23:11	18°♊38'23	30.92657 AU
evening set	12123 Nov 02 17:39	6°♊51'41		morning rise	12128 Dec 15 18:17	19°♊13'32	
				retrograde	12129 Mar 15 15:22	21°♊09'54	
conjunction	12123 Nov 18 19:55	7°♊27'33	0°01'58	opposition	12129 Jun 02 08:42	19°♊45'31	0°12'14
minimum elong	12123 Nov 18 19:56	7°♊27'33	0°02'43	min. Earth dist.	12129 Jun 01 23:34	19°♊46'10	28.93306 AU
behind sun begin	12123 Nov 18 13:23	7°♊26'58		direct	12129 Aug 19 17:19	18°♊21'20	
behind sun end	12123 Nov 19 02:28	7°♊28'09		evening set	12129 Nov 16 00:01	20°♊15'36	
max. Earth dist.	12123 Nov 19 07:13	7°♊28'36	30.87960 AU				
morning rise	12123 Dec 04 23:28	8°♊03'35		conjunction	12129 Dec 02 03:24	20°♊51'29	0°12'15
retrograde	12124 Mar 04 00:14	10°♊00'31		minimum elong	12129 Dec 02 03:23	20°♊51'29	0°13'05
opposition	12124 May 22 01:12	8°♊35'53	0°03'01	behind sun begin	12129 Dec 01 23:33	20°♊51'09	
min. Earth dist.	12124 May 21 14:53	8°♊36'37	28.88307 AU	behind sun end	12129 Dec 02 07:13	20°♊51'50	
direct	12124 Aug 08 05:42	7°♊11'44		max. Earth dist.	12129 Dec 02 12:41	20°♊52'21	30.93963 AU
evening set	12124 Nov 04 06:42	9°♊05'55		morning rise	12129 Dec 18 07:36	21°♊27'29	
				retrograde	12130 Mar 18 02:13	23°♊23'46	
conjunction	12124 Nov 20 09:03	9°♊41'47	0°03'43	opposition	12130 Jun 04 19:47	21°♊59'30	0°14'02
minimum elong	12124 Nov 20 09:03	9°♊41'47	0°04'29	min. Earth dist.	12130 Jun 04 12:08	22°♊00'02	28.94640 AU
behind sun begin	12124 Nov 20 02:36	9°♊41'12		direct	12130 Aug 22 03:13	20°♊35'21	
behind sun end	12124 Nov 20 15:29	9°♊42'21		evening set	12130 Nov 18 13:15	22°♊29'40	
max. Earth dist.	12124 Nov 20 19:08	9°♊42'43	30.88668 AU				
morning rise	12124 Dec 06 12:52	10°♊17'48		conjunction	12130 Dec 04 16:45	23°♊05'32	0°13'55
retrograde	12125 Mar 06 13:15	12°♊14'37		minimum elong	12130 Dec 04 16:45	23°♊05'32	0°14'46
opposition	12125 May 24 12:31	10°♊50'00	0°04'53	behind sun begin	12130 Dec 04 14:18	23°♊05'19	
min. Earth dist.	12125 May 24 03:04	10°♊50'39	28.89064 AU	behind sun end	12130 Dec 04 19:12	23°♊05'45	
direct	12125 Aug 10 17:02	9°♊25'48		max. Earth dist.	12130 Dec 05 01:16	23°♊06'19	30.95312 AU
evening set	12125 Nov 06 19:44	11°♊19'58		morning rise	12130 Dec 20 21:02	23°♊41'31	
				retrograde	12131 Mar 20 13:56	25°♊37'43	
conjunction	12125 Nov 22 22:27	11°♊55'51	0°05'27	opposition	12131 Jun 07 06:38	24°♊13'34	0°15'48
minimum elong	12125 Nov 22 22:28	11°♊55'51	0°06'13	min. Earth dist.	12131 Jun 06 22:39	24°♊14'07	28.95976 AU
behind sun begin	12125 Nov 22 16:15	11°♊55'17		direct	12131 Aug 24 15:36	22°♊49'26	
behind sun end	12125 Nov 23 04:40	11°♊56'24		evening set	12131 Nov 21 02:35	24°♊43'48	
max. Earth dist.	12125 Nov 23 09:21	11°♊56'51	30.89470 AU				
morning rise	12125 Dec 09 02:16	12°♊31'51		conjunction	12131 Dec 07 06:08	25°♊19'41	0°15'34
retrograde	12126 Mar 09 01:47	14°♊28'32		minimum elong	12131 Dec 07 06:07	25°♊19'40	0°16'25
opposition	12126 May 26 23:32	13°♊03'57	0°06'44	max. Earth dist.	12131 Dec 07 13:39	25°♊20'22	30.96616 AU
min. Earth dist.	12126 May 26 14:11	13°♊04'36	28.89917 AU	morning rise	12131 Dec 23 10:27	25°♊55'38	
direct	12126 Aug 13 06:50	11°♊39'43		retrograde	12132 Mar 22 01:19	27°♊51'45	
evening set	12126 Nov 09 08:55	13°♊33'54		opposition	12132 Jun 08 17:46	26°♊27'41	0°17'33
				min. Earth dist.	12132 Jun 08 11:24	26°♊28'08	28.97252 AU
conjunction	12126 Nov 25 11:41	14°♊09'47	0°07'10	direct	12132 Aug 26 01:28	25°♊03'33	
minimum elong	12126 Nov 25 11:40	14°♊09'47	0°07'58	evening set	12132 Nov 22 15:42	26°♊57'57	
behind sun begin	12126 Nov 25 05:49	14°♊09'16					
behind sun end	12126 Nov 25 17:32	14°♊10'18		conjunction	12132 Dec 08 19:29	27°♊33'49	0°17'12
max. Earth dist.	12126 Nov 25 21:09	14°♊10'39	30.90391 AU	minimum elong	12132 Dec 08 19:29	27°♊33'49	0°18'03
morning rise	12126 Dec 11 15:45	14°♊45'47		max. Earth dist.	12132 Dec 09 02:40	27°♊34'29	30.97845 AU
retrograde	12127 Mar 11 14:43	16°♊42'21		morning rise	12132 Dec 24 23:46	28°♊09'46	
opposition	12127 May 29 10:38	15°♊17'49	0°08'35		12133 Mar 06 01:13	0°♊	
min. Earth dist.	12127 May 29 01:19	15°♊18'28	28.90913 AU	retrograde	12133 Mar 24 13:23	0°♊05'47	
direct	12127 Aug 15 18:13	13°♊53'35			12133 Apr 12 07:13	30°♊♊	
evening set	12127 Nov 11 21:49	15°♊47'47		opposition	12133 Jun 11 04:43	28°♊41'46	0°19'16
				min. Earth dist.	12133 Jun 10 22:21	28°♊42'13	28.98416 AU
conjunction	12127 Nov 28 00:53	16°♊23'39	0°08'52	direct	12133 Aug 28 13:51	27°♊17'38	
minimum elong	12127 Nov 28 00:52	16°♊23'39	0°09'41	evening set	12133 Nov 25 05:07	29°♊12'03	
behind sun begin	12127 Nov 27 19:30	16°♊23'10					
behind sun end	12127 Nov 28 06:15	16°♊24'08		conjunction	12133 Dec 11 08:52	29°♊47'54	0°18'47
max. Earth dist.	12127 Nov 28 11:08	16°♊24'36	30.91449 AU	minimum elong	12133 Dec 11 08:52	29°♊47'54	0°19'38
morning rise	12127 Dec 14 04:52	16°♊59'39		max. Earth dist.	12133 Dec 11 14:16	29°♊48'23	30.98953 AU
retrograde	12128 Mar 13 01:45	18°♊56'07			12133 Dec 16 18:36	0°♊	
opposition	12128 May 30 21:46	17°♊31'39	0°10'25	morning rise	12133 Dec 27 13:17	0°♊23'50	
min. Earth dist.	12128 May 30 13:04	17°♊32'16	28.92040 AU	retrograde	12134 Mar 27 01:48	2°♊19'42	
direct	12128 Aug 17 06:21	16°♊07'26		opposition	12134 Jun 13 15:36	0°♊55'44	0°20'58
evening set	12128 Nov 13 10:55	18°♊01'40		min. Earth dist.	12134 Jun 13 10:35	0°♊56'05	28.99481 AU
					12134 Jul 19 19:05	30°♊♊	
conjunction	12128 Nov 29 14:04	18°♊37'32	0°10'34	direct	12134 Aug 31 01:19	29°♊31'34	
minimum elong	12128 Nov 29 14:03	18°♊37'32	0°11'24		12134 Oct 11 16:15	0°♊	
behind sun begin	12128 Nov 29 09:20	18°♊37'07		evening set	12134 Nov 27 18:17	1°♊25'59	
behind sun end	12128 Nov 29 18:47	18°♊37'58					

conjunction	12134 Dec 13 22:18	2°30'15"0	0°20'21"	direct	12141 Sep 15 12:42	15°30'31"5	
minimum elong	12134 Dec 13 22:18	2°30'15"0	0°21'13"	evening set	12141 Dec 13 13:01	16°30'57"38	
max. Earth dist.	12134 Dec 14 03:56	2°30'22"1	30.99972 AU				
morning rise	12134 Dec 30 02:34	2°33'7"44		conjunction	12141 Dec 29 17:16	17°33'23"	0°30'16"
retrograde	12135 Mar 29 13:44	4°33'32"8		minimum elong	12141 Dec 29 17:16	17°33'23"	0°31'06"
opposition	12135 Jun 16 02:26	3°30'9"31	0°22'37"	max. Earth dist.	12141 Dec 29 19:06	17°33'33"	31.07528 AU
min. Earth dist.	12135 Jun 15 21:58	3°30'9"50	29.00455 AU	morning rise	12142 Jan 14 21:10	18°30'9"08	
direct	12135 Sep 02 15:22	1°34'51"9		retrograde	12142 Apr 13 20:50	20°30'3"54	
evening set	12135 Nov 30 07:24	3°33'9"43		opposition	12142 Jul 01 04:20	18°34'0"17	0°33'04"
				min. Earth dist.	12142 Jul 01 02:35	18°34'0"24	29.08220 AU
conjunction	12135 Dec 16 11:19	4°31'5"33	0°21'53"	direct	12142 Sep 18 00:25	17°31'5"53	
minimum elong	12135 Dec 16 11:19	4°31'5"33	0°22'44"	evening set	12142 Dec 16 02:03	19°31'0"19	
max. Earth dist.	12135 Dec 16 15:10	4°31'5"54	31.00926 AU				
morning rise	12136 Jan 01 15:43	4°35'1"26		conjunction	12143 Jan 01 06:07	19°34'6"03	0°31'31"
retrograde	12136 Mar 31 02:05	6°34'7"01		minimum elong	12143 Jan 01 06:07	19°34'6"03	0°32'22"
opposition	12136 Jun 17 13:14	5°32'3"05	0°24'14"	max. Earth dist.	12143 Jan 01 06:33	19°34'6"06	31.08909 AU
min. Earth dist.	12136 Jun 17 09:10	5°32'3"23	29.01400 AU	morning rise	12143 Jan 17 10:00	20°32'1"47	
direct	12136 Sep 04 02:53	3°35'8"49		retrograde	12143 Apr 16 08:27	22°31'6"28	
evening set	12136 Dec 01 20:24	5°35'3"13		opposition	12143 Jul 03 14:53	20°35'2"56	0°34'23"
				min. Earth dist.	12143 Jul 03 14:15	20°35'2"59	29.09610 AU
conjunction	12136 Dec 18 00:32	6°32'9"02	0°23'23"	direct	12143 Sep 20 10:47	19°32'8"34	
minimum elong	12136 Dec 18 00:32	6°32'9"02	0°24'15"	evening set	12143 Dec 18 14:47	21°32'3"03	
max. Earth dist.	12136 Dec 18 04:48	6°32'9"25	31.01859 AU				
morning rise	12137 Jan 03 04:45	7°30'4"53		conjunction	12144 Jan 03 18:58	21°35'8"46	0°32'44"
retrograde	12137 Apr 02 13:18	9°30'0"19		minimum elong	12144 Jan 03 18:58	21°35'8"46	0°33'33"
opposition	12137 Jun 19 23:51	7°36'2"5	0°25'49"	max. Earth dist.	12144 Jan 03 19:46	21°35'8"51	31.10274 AU
min. Earth dist.	12137 Jun 19 20:49	7°36'3"7	29.02339 AU	morning rise	12144 Jan 19 22:34	22°33'4"28	
direct	12137 Sep 06 15:52	6°31'2"05		retrograde	12144 Apr 17 19:39	24°32'9"04	
evening set	12137 Dec 04 09:28	8°30'6"27		opposition	12144 Jul 05 01:25	23°30'5"38	0°35'38"
				min. Earth dist.	12144 Jul 05 01:24	23°30'5"38	29.10932 AU
conjunction	12137 Dec 20 13:33	8°34'2"16	0°24'50"	direct	12144 Sep 21 23:34	21°34'1"17	
minimum elong	12137 Dec 20 13:33	8°34'2"16	0°25'42"	evening set	12144 Dec 20 03:52	23°33'5"49	
max. Earth dist.	12137 Dec 20 16:20	8°34'2"31	31.02822 AU				
morning rise	12138 Jan 05 17:54	9°31'8"06		conjunction	12145 Jan 05 07:50	24°31'1"31	0°33'53"
retrograde	12138 Apr 05 02:25	11°31'3"22		minimum elong	12145 Jan 05 07:50	24°31'1"31	0°34'42"
opposition	12138 Jun 22 10:24	9°34'9"29	0°27'21"	max. Earth dist.	12145 Jan 05 06:38	24°31'1"25	31.11550 AU
min. Earth dist.	12138 Jun 22 07:03	9°34'9"43	29.03327 AU	morning rise	12145 Jan 21 11:28	24°34'7"12	
direct	12138 Sep 09 04:15	8°32'5"06		retrograde	12145 Apr 20 08:11	26°34'1"42	
evening set	12138 Dec 06 22:26	10°31'9"28		opposition	12145 Jul 07 11:48	25°31'8"21	0°36'50"
				min. Earth dist.	12145 Jul 07 12:25	25°31'8"18	29.12158 AU
conjunction	12138 Dec 23 02:35	10°35'5"16	0°26'15"	direct	12145 Sep 24 10:20	23°35'3"59	
minimum elong	12138 Dec 23 02:35	10°35'5"16	0°27'07"	evening set	12145 Dec 22 16:48	25°34'8"34	
max. Earth dist.	12138 Dec 23 05:33	10°35'5"32	31.03833 AU				
morning rise	12139 Jan 08 06:43	11°33'1"05		conjunction	12146 Jan 07 20:53	26°32'4"15	0°34'59"
retrograde	12139 Apr 07 12:03	13°32'6"12		minimum elong	12146 Jan 07 20:53	26°32'4"15	0°35'47"
opposition	12139 Jun 24 20:59	12°30'2"21	0°28'51"	max. Earth dist.	12146 Jan 07 19:43	26°32'4"09	31.12702 AU
min. Earth dist.	12139 Jun 24 18:58	12°30'2"29	29.04388 AU	morning rise	12146 Jan 24 00:12	26°35'9"54	
direct	12139 Sep 11 15:18	10°33'7"56		retrograde	12146 Apr 22 19:29	28°35'4"18	
evening set	12139 Dec 09 11:19	12°33'2"18		opposition	12146 Jul 09 22:21	27°33'1"00	0°37'59"
				min. Earth dist.	12146 Jul 10 00:18	27°33'0"52	29.13242 AU
conjunction	12139 Dec 25 15:29	13°30'8"04	0°27'38"	direct	12146 Sep 26 23:19	26°30'6"38	
minimum elong	12139 Dec 25 15:29	13°30'8"04	0°28'29"	evening set	12146 Dec 25 05:44	28°30'1"14	
max. Earth dist.	12139 Dec 25 17:51	13°30'8"17	31.04956 AU				
morning rise	12140 Jan 10 19:35	13°34'3"52		conjunction	12147 Jan 10 09:36	28°36'5"4	0°36'02"
retrograde	12140 Apr 08 23:12	15°38'5"0		minimum elong	12147 Jan 10 09:36	28°36'5"4	0°36'50"
opposition	12140 Jun 26 07:26	14°31'5"03	0°30'18"	max. Earth dist.	12147 Jan 10 06:35	28°36'3"7	31.13729 AU
min. Earth dist.	12140 Jun 26 04:41	14°31'5"14	29.05567 AU	morning rise	12147 Jan 26 12:52	29°31'2"31	
direct	12140 Sep 13 03:16	12°35'0"37			12147 Feb 18 20:18	0°36'48"	
evening set	12140 Dec 11 00:08	14°34'4"59		retrograde	12147 Apr 25 08:31	1°30'6"48	
					12147 Jul 02 11:50	30°31'3	
conjunction	12140 Dec 27 04:17	15°32'0"45	0°28'59"	opposition	12147 Jul 12 08:42	29°34'3"32	0°39'05"
minimum elong	12140 Dec 27 04:17	15°32'0"45	0°29'50"	min. Earth dist.	12147 Jul 12 10:36	29°34'3"24	29.14213 AU
max. Earth dist.	12140 Dec 27 06:08	15°32'0"55	31.06187 AU	direct	12147 Sep 29 11:53	28°31'9"09	
morning rise	12141 Jan 12 08:20	15°35'6"31			12147 Dec 21 08:06	0°36'45"	
retrograde	12141 Apr 11 09:52	17°35'1"23		evening set	12147 Dec 27 18:30	0°36'13'45	
opposition	12141 Jun 28 18:02	16°32'7"40	0°31'43"				
min. Earth dist.	12141 Jun 28 16:32	16°32'7"46	29.06857 AU	conjunction	12148 Jan 12 22:22	0°36'49'24	0°37'01"

minimum elong	12148 Jan 12 22:22	0°49'25	0°37'48			12154 Jul 31 05:15	15°48'	
max. Earth dist.	12148 Jan 12 19:11	0°49'07	31.14646 AU	direct		12154 Oct 14 16:25	13°41'56	
morning rise	12148 Jan 29 01:21	1°25'00				12154 Dec 25 17:01	15°48'	
retrograde	12148 Apr 26 18:09	3°19'09		evening set		12155 Jan 12 09:27	15°36'34	
opposition	12148 Jul 13 19:07	1°55'56	0°40'06					
min. Earth dist.	12148 Jul 13 22:42	1°55'41	29.15095 AU	conjunction		12155 Jan 28 12:28	16°12'04	0°42'23
direct	12148 Sep 30 23:11	0°31'31		minimum elong		12155 Jan 28 12:28	16°12'04	0°43'03
evening set	12148 Dec 29 07:09	2°26'06		max. Earth dist.		12155 Jan 28 06:30	16°11'31	31.21384 AU
				morning rise		12155 Feb 13 13:57	16°47'28	
conjunction	12149 Jan 14 10:56	3°01'44	0°37'57	retrograde		12155 May 12 18:47	18°40'52	
minimum elong	12149 Jan 14 10:56	3°01'44	0°38'44	opposition		12155 Jul 29 18:18	17°17'57	0°45'36
max. Earth dist.	12149 Jan 14 06:47	3°01'21	31.15505 AU	min. Earth dist.		12155 Jul 30 00:27	17°17'31	29.22012 AU
morning rise	12149 Jan 30 13:50	3°37'19		direct		12155 Oct 17 05:06	15°53'26	
retrograde	12149 Apr 29 05:01	5°31'19		evening set		12156 Jan 14 21:49	17°48'06	
opposition	12149 Jul 16 05:19	4°08'08	0°41'05					
min. Earth dist.	12149 Jul 16 08:34	4°07'54	29.15925 AU	conjunction		12156 Jan 31 00:31	18°23'34	0°42'54
direct	12149 Oct 03 11:30	2°43'40		minimum elong		12156 Jan 31 00:31	18°23'34	0°43'32
evening set	12149 Dec 31 19:49	4°38'15		max. Earth dist.		12156 Jan 30 17:05	18°22'53	31.22608 AU
				morning rise		12156 Feb 16 01:54	18°58'56	
conjunction	12150 Jan 16 23:28	5°13'52	0°38'50	retrograde		12156 May 14 07:24	20°52'16	
minimum elong	12150 Jan 16 23:28	5°13'52	0°39'35	opposition		12156 Jul 31 04:20	19°29'26	0°46'08
max. Earth dist.	12150 Jan 16 18:34	5°13'25	31.16316 AU	min. Earth dist.		12156 Jul 31 10:14	19°29'01	29.23222 AU
morning rise	12150 Feb 02 02:10	5°49'25		direct		12156 Oct 18 17:18	18°04'56	
retrograde	12150 May 01 15:13	7°43'18		evening set		12157 Jan 16 10:05	19°59'38	
opposition	12150 Jul 18 15:31	6°20'08	0°41'59					
min. Earth dist.	12150 Jul 18 20:11	6°19'48	29.16748 AU	conjunction		12157 Feb 01 12:42	20°35'05	0°43'22
direct	12150 Oct 05 20:57	4°55'37		minimum elong		12157 Feb 01 12:42	20°35'05	0°43'59
evening set	12151 Jan 03 08:17	6°50'12		max. Earth dist.		12157 Feb 01 05:12	20°34'24	31.23773 AU
				morning rise		12157 Feb 17 13:43	21°10'26	
conjunction	12151 Jan 19 11:53	7°25'48	0°39'40	retrograde		12157 May 16 17:21	23°03'41	
minimum elong	12151 Jan 19 11:53	7°25'48	0°40'24	opposition		12157 Aug 02 14:38	21°40'54	0°46'35
max. Earth dist.	12151 Jan 19 06:59	7°25'21	31.17157 AU	min. Earth dist.		12157 Aug 02 22:16	21°40'23	29.24344 AU
morning rise	12151 Feb 04 14:19	8°01'18		direct		12157 Oct 21 04:27	20°16'26	
retrograde	12151 May 04 00:41	9°55'04		evening set		12158 Jan 18 22:28	22°11'09	
opposition	12151 Jul 21 01:41	8°31'56	0°42'50					
min. Earth dist.	12151 Jul 21 05:56	8°31'38	29.17610 AU	conjunction		12158 Feb 04 00:50	22°46'35	0°43'46
direct	12151 Oct 08 08:48	7°07'23		minimum elong		12158 Feb 04 00:50	22°46'35	0°44'20
evening set	12152 Jan 05 20:35	9°01'57		max. Earth dist.		12158 Feb 03 16:17	22°45'47	31.24841 AU
				morning rise		12158 Feb 20 01:38	23°21'53	
conjunction	12152 Jan 21 23:55	9°37'31	0°40'26	retrograde		12158 May 19 04:47	25°15'03	
minimum elong	12152 Jan 21 23:55	9°37'31	0°41'08	opposition		12158 Aug 05 00:45	23°52'20	0°46'58
max. Earth dist.	12152 Jan 21 17:56	9°36'58	31.18056 AU	min. Earth dist.		12158 Aug 05 08:06	23°51'49	29.25345 AU
morning rise	12152 Feb 07 02:15	10°13'00		direct		12158 Oct 23 16:58	22°27'51	
retrograde	12152 May 05 10:37	12°06'40		evening set		12159 Jan 21 10:46	24°22'34	
opposition	12152 Jul 22 11:54	10°43'33	0°43'37					
min. Earth dist.	12152 Jul 22 16:50	10°43'12	29.18569 AU	conjunction		12159 Feb 06 12:54	24°57'59	0°44'06
direct	12152 Oct 09 18:56	9°18'59		minimum elong		12159 Feb 06 12:54	24°57'59	0°44'40
evening set	12153 Jan 07 08:52	11°13'33		max. Earth dist.		12159 Feb 06 03:27	24°57'07	31.25773 AU
				morning rise		12159 Feb 22 13:25	25°33'16	
conjunction	12153 Jan 23 12:13	11°49'06	0°41'08	retrograde		12159 May 21 15:20	27°26'20	
minimum elong	12153 Jan 23 12:13	11°49'06	0°41'51	opposition		12159 Aug 07 11:05	26°03'39	0°47'18
max. Earth dist.	12153 Jan 23 06:58	11°48'37	31.19066 AU	min. Earth dist.		12159 Aug 07 19:55	26°03'02	29.26225 AU
morning rise	12153 Feb 08 14:12	12°24'33		direct		12159 Oct 26 03:07	24°39'09	
retrograde	12153 May 07 20:17	14°18'06		evening set		12160 Jan 23 22:46	26°33'52	
opposition	12153 Jul 24 21:58	12°55'02	0°44'21					
min. Earth dist.	12153 Jul 25 03:08	12°54'41	29.19628 AU	conjunction		12160 Feb 09 00:48	27°09'15	0°44'23
direct	12153 Oct 12 06:35	11°30'28		minimum elong		12160 Feb 09 00:48	27°09'15	0°44'54
evening set	12154 Jan 09 21:18	13°25'04		max. Earth dist.		12160 Feb 08 15:06	27°08'22	31.26594 AU
				morning rise		12160 Feb 25 01:00	27°44'30	
conjunction	12154 Jan 26 00:21	14°00'35	0°41'47	retrograde		12160 May 23 00:28	29°37'29	
minimum elong	12154 Jan 26 00:21	14°00'35	0°42'28	opposition		12160 Aug 08 21:16	28°14'49	0°47'33
max. Earth dist.	12154 Jan 25 17:41	13°59'58	31.20186 AU	min. Earth dist.		12160 Aug 09 06:04	28°14'13	29.26978 AU
morning rise	12154 Feb 11 02:16	14°36'01		direct		12160 Oct 27 15:26	26°50'18	
	12154 Feb 22 11:07	15°48'		evening set		12161 Jan 25 10:58	28°45'00	
retrograde	12154 May 10 08:09	16°29'29						
opposition	12154 Jul 27 08:06	15°06'29	0°45'00	conjunction		12161 Feb 10 12:40	29°20'22	0°44'35
min. Earth dist.	12154 Jul 27 13:14	15°06'08	29.20799 AU	minimum elong		12161 Feb 10 12:40	29°20'22	0°45'06

max. Earth dist.	12161 Feb 10 01:27	29° 19 '20	31.27298 AU	min. Earth dist.	12167 Aug 25 06:37	13° 28 '23	29.31996 AU
morning rise	12161 Feb 26 12:42	29° 55 '35		direct	12167 Nov 12 22:06	12° 04 '37	
	12161 Feb 28 13:52	0° 00 '		evening set	12168 Feb 10 20:56	13° 59 '22	
retrograde	12161 May 25 10:09	1° 48 '28					
opposition	12161 Aug 11 07:20	0° 25 '49	0°47'44	conjunction	12168 Feb 26 20:57	14° 34 '35	0°44'16
min. Earth dist.	12161 Aug 11 17:08	0° 25 '09	29.27647 AU	minimum elong	12168 Feb 26 20:57	14° 34 '35	0°44'34
	12161 Aug 27 00:53	30° 00 '		max. Earth dist.	12168 Feb 26 08:18	14° 33 '25	31.32432 AU
direct	12161 Oct 30 01:16	29° 01 '16		morning rise	12168 Mar 13 18:52	15° 09 '37	
	12161 Dec 30 20:01	0° 00 '		retrograde	12168 Jun 09 11:45	17° 02 '06	
evening set	12162 Jan 27 22:57	0° 55 '57		opposition	12168 Aug 26 06:20	15° 39 '45	0°47'09
				min. Earth dist.	12168 Aug 26 18:04	15° 38 '56	29.32913 AU
conjunction	12162 Feb 13 00:35	1° 31 '18	0°44'44	direct	12168 Nov 14 08:07	14° 15 '17	
minimum elong	12162 Feb 13 00:35	1° 31 '18	0°45'13	evening set	12169 Feb 12 08:31	16° 10 '05	
max. Earth dist.	12162 Feb 12 13:51	1° 30 '19	31.27931 AU				
morning rise	12162 Mar 01 00:11	2° 06 '29		conjunction	12169 Feb 28 08:20	16° 45 '17	0°43'58
retrograde	12162 May 27 19:03	3° 59 '16		minimum elong	12169 Feb 28 08:20	16° 45 '17	0°44'15
opposition	12162 Aug 13 17:31	2° 36 '39	0°47'52	max. Earth dist.	12169 Feb 27 19:45	16° 44 '07	31.33324 AU
min. Earth dist.	12162 Aug 14 03:49	2° 35 '56	29.28250 AU	morning rise	12169 Mar 16 05:53	17° 20 '18	
direct	12162 Nov 01 12:47	1° 12 '04		retrograde	12169 Jun 11 20:37	19° 12 '45	
evening set	12163 Jan 30 10:49	3° 06 '44		opposition	12169 Aug 28 16:27	17° 50 '29	0°46'47
				min. Earth dist.	12169 Aug 29 04:07	17° 49 '40	29.33755 AU
conjunction	12163 Feb 15 12:01	3° 42 '03	0°44'49	direct	12169 Nov 16 20:09	16° 26 '04	
minimum elong	12163 Feb 15 12:01	3° 42 '03	0°45'17	evening set	12170 Feb 14 20:14	18° 20 '54	
max. Earth dist.	12163 Feb 14 23:53	3° 40 '55	31.28528 AU				
morning rise	12163 Mar 03 11:30	4° 17 '13		conjunction	12170 Mar 02 19:38	18° 56 '04	0°43'36
retrograde	12163 May 30 06:04	6° 09 '55		minimum elong	12170 Mar 02 19:38	18° 56 '04	0°43'50
opposition	12163 Aug 16 03:37	4° 47 '17	0°47'55	max. Earth dist.	12170 Mar 02 05:38	18° 54 '47	31.34113 AU
min. Earth dist.	12163 Aug 16 13:49	4° 46 '35	29.28859 AU	morning rise	12170 Mar 18 16:57	19° 31 '04	
direct	12163 Nov 03 22:47	3° 22 '40		retrograde	12170 Jun 14 06:27	21° 23 '30	
evening set	12164 Feb 01 22:29	5° 17 '21		opposition	12170 Aug 31 02:53	20° 01 '17	0°46'21
				min. Earth dist.	12170 Aug 31 15:18	20° 00 '26	29.34493 AU
conjunction	12164 Feb 17 23:37	5° 52 '38	0°44'50	direct	12170 Nov 19 05:35	18° 36 '54	
minimum elong	12164 Feb 17 23:38	5° 52 '38	0°45'15	evening set	12171 Feb 17 07:38	20° 31 '44	
max. Earth dist.	12164 Feb 17 12:18	5° 51 '35	31.29147 AU				
morning rise	12164 Mar 04 22:38	6° 27 '46		conjunction	12171 Mar 05 06:53	21° 06 '54	0°43'10
retrograde	12164 May 31 15:44	8° 20 '23		minimum elong	12171 Mar 05 06:53	21° 06 '54	0°43'24
opposition	12164 Aug 17 13:42	6° 57 '47	0°47'54	max. Earth dist.	12171 Mar 04 17:27	21° 05 '39	31.34776 AU
min. Earth dist.	12164 Aug 18 00:45	6° 57 '01	29.29509 AU	morning rise	12171 Mar 21 03:43	21° 41 '52	
direct	12164 Nov 05 11:07	5° 33 '10		retrograde	12171 Jun 16 15:14	23° 34 '17	
evening set	12165 Feb 03 10:14	7° 27 '50		opposition	12171 Sep 02 13:20	22° 12 '06	0°45'51
				min. Earth dist.	12171 Sep 03 02:24	22° 11 '11	29.35076 AU
conjunction	12165 Feb 19 11:00	8° 03 '06	0°44'47	direct	12171 Nov 21 16:23	20° 47 '44	
minimum elong	12165 Feb 19 11:01	8° 03 '06	0°45'12	evening set	12172 Feb 19 19:16	22° 42 '34	
max. Earth dist.	12165 Feb 18 22:35	8° 01 '57	31.29844 AU				
morning rise	12165 Mar 07 09:54	8° 38 '12		conjunction	12172 Mar 06 18:03	23° 17 '41	0°42'40
retrograde	12165 Jun 03 03:38	10° 30 '46		minimum elong	12172 Mar 06 18:04	23° 17 '41	0°42'51
opposition	12165 Aug 19 23:46	9° 08 '12	0°47'49	max. Earth dist.	12172 Mar 06 02:59	23° 16 '18	31.35289 AU
min. Earth dist.	12165 Aug 20 10:00	9° 07 '29	29.30252 AU	morning rise	12172 Mar 22 14:45	23° 52 '39	
direct	12165 Nov 07 23:07	7° 43 '35		retrograde	12172 Jun 18 02:06	25° 45 '01	
evening set	12166 Feb 05 21:52	9° 38 '17		opposition	12172 Sep 03 23:35	24° 22 '51	0°45'18
				min. Earth dist.	12172 Sep 04 12:43	24° 21 '56	29.35520 AU
conjunction	12166 Feb 21 22:27	10° 13 '32	0°44'41	direct	12172 Nov 23 02:19	22° 58 '28	
minimum elong	12166 Feb 21 22:27	10° 13 '32	0°45'02	evening set	12173 Feb 21 06:42	24° 53 '18	
max. Earth dist.	12166 Feb 21 10:30	10° 12 '25	31.30628 AU				
morning rise	12166 Mar 09 20:53	10° 48 '36		conjunction	12173 Mar 09 05:23	25° 28 '24	0°42'07
retrograde	12166 Jun 05 13:16	12° 41 '08		minimum elong	12173 Mar 09 05:23	25° 28 '24	0°42'17
opposition	12166 Aug 22 09:57	11° 18 '37	0°47'40	max. Earth dist.	12173 Mar 08 14:44	25° 27 '03	31.35652 AU
min. Earth dist.	12166 Aug 22 21:19	11° 17 '50	29.31088 AU	morning rise	12173 Mar 25 01:36	26° 03 '20	
direct	12166 Nov 10 09:49	9° 54 '03		retrograde	12173 Jun 20 11:10	27° 55 '40	
evening set	12167 Feb 08 09:27	11° 48 '47		opposition	12173 Sep 06 10:05	26° 33 '29	0°44'40
				min. Earth dist.	12173 Sep 07 00:25	26° 32 '30	29.35810 AU
conjunction	12167 Feb 24 09:45	12° 24 '00	0°44'30	direct	12173 Nov 25 14:30	25° 09 '05	
minimum elong	12167 Feb 24 09:45	12° 24 '00	0°44'52	evening set	12174 Feb 23 18:08	27° 03 '54	
max. Earth dist.	12167 Feb 23 21:28	12° 22 '52	31.31516 AU				
morning rise	12167 Mar 12 07:57	12° 59 '03		conjunction	12174 Mar 11 16:23	27° 38 '58	0°41'31
retrograde	12167 Jun 08 00:41	14° 51 '33		minimum elong	12174 Mar 11 16:23	27° 38 '58	0°41'37
opposition	12167 Aug 24 20:02	13° 29 '07	0°47'26	max. Earth dist.	12174 Mar 11 00:27	27° 37 '30	31.35887 AU

morning rise	12174 Mar 27 12:25	28° $\mathbf{\text{H}}$ 13'52		opposition	12180 Sep 21 11:00	11° $\mathbf{\text{P}}$ 43'53	0°38'38
	12174 Jun 03 21:46	0° $\mathbf{\text{P}}$		min. Earth dist.	12180 Sep 22 01:37	11° $\mathbf{\text{P}}$ 42'52	29.37171 AU
retrograde	12174 Jun 22 22:19	0° $\mathbf{\text{P}}$ 06'09		direct	12180 Dec 10 22:18	10° $\mathbf{\text{P}}$ 19'29	
	12174 Jul 12 03:32	30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$		evening set	12181 Mar 10 23:17	12° $\mathbf{\text{P}}$ 14'13	
opposition	12174 Sep 08 20:23	28° $\mathbf{\text{H}}$ 43'57	0°43'59				
min. Earth dist.	12174 Sep 09 10:08	28° $\mathbf{\text{H}}$ 43'00	29.35989 AU	conjunction	12181 Mar 26 19:24	12° $\mathbf{\text{P}}$ 49'10	0°35'40
direct	12174 Nov 28 02:14	27° $\mathbf{\text{H}}$ 19'31		minimum elong	12181 Mar 26 19:24	12° $\mathbf{\text{P}}$ 49'10	0°35'35
evening set	12175 Feb 26 05:22	29° $\mathbf{\text{H}}$ 14'18		max. Earth dist.	12181 Mar 26 03:11	12° $\mathbf{\text{P}}$ 47'40	31.37303 AU
max. Earth dist.	12175 Mar 13 11:42	29° $\mathbf{\text{H}}$ 47'55	31.36020 AU	morning rise	12181 Apr 11 13:18	13° $\mathbf{\text{P}}$ 23'56	
				retrograde	12181 Jul 07 19:37	15° $\mathbf{\text{P}}$ 16'06	
conjunction	12175 Mar 14 03:24	29° $\mathbf{\text{H}}$ 49'21	0°40'51	opposition	12181 Sep 23 21:33	13° $\mathbf{\text{P}}$ 53'58	0°37'32
minimum elong	12175 Mar 14 03:24	29° $\mathbf{\text{H}}$ 49'21	0°40'57	min. Earth dist.	12181 Sep 24 11:46	13° $\mathbf{\text{P}}$ 52'59	29.37460 AU
	12175 Mar 18 22:20	0° $\mathbf{\text{P}}$		direct	12181 Dec 13 08:01	12° $\mathbf{\text{P}}$ 29'37	
morning rise	12175 Mar 29 23:01	0° $\mathbf{\text{P}}$ 24'14		evening set	12182 Mar 13 10:05	14° $\mathbf{\text{P}}$ 24'23	
retrograde	12175 Jun 25 07:49	2° $\mathbf{\text{P}}$ 16'28					
opposition	12175 Sep 11 06:51	0° $\mathbf{\text{P}}$ 54'14	0°43'15	conjunction	12182 Mar 29 06:01	14° $\mathbf{\text{P}}$ 59'19	0°34'37
min. Earth dist.	12175 Sep 11 21:53	0° $\mathbf{\text{P}}$ 53'12	29.36101 AU	minimum elong	12182 Mar 29 06:01	14° $\mathbf{\text{P}}$ 59'19	0°34'28
	12175 Oct 16 21:50	30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$		max. Earth dist.	12182 Mar 28 14:37	14° $\mathbf{\text{P}}$ 57'53	31.37544 AU
direct	12175 Nov 30 13:11	29° $\mathbf{\text{H}}$ 29'46		morning rise	12182 Apr 13 23:25	15° $\mathbf{\text{P}}$ 34'03	
	12176 Jan 13 06:53	0° $\mathbf{\text{P}}$		retrograde	12182 Jul 10 04:47	17° $\mathbf{\text{P}}$ 26'16	
evening set	12176 Feb 28 16:25	1° $\mathbf{\text{P}}$ 24'31		opposition	12182 Sep 26 08:21	16° $\mathbf{\text{P}}$ 04'10	0°36'23
				min. Earth dist.	12182 Sep 26 23:33	16° $\mathbf{\text{P}}$ 03'08	29.37652 AU
conjunction	12176 Mar 15 14:09	1° $\mathbf{\text{P}}$ 59'32	0°40'07	direct	12182 Dec 15 19:08	14° $\mathbf{\text{P}}$ 39'53	
minimum elong	12176 Mar 15 14:09	1° $\mathbf{\text{P}}$ 59'32	0°40'10	evening set	12183 Mar 15 21:03	16° $\mathbf{\text{P}}$ 34'40	
max. Earth dist.	12176 Mar 14 22:16	1° $\mathbf{\text{P}}$ 58'04	31.36125 AU				
morning rise	12176 Mar 31 09:33	2° $\mathbf{\text{P}}$ 34'23		conjunction	12183 Mar 31 16:32	17° $\mathbf{\text{P}}$ 09'34	0°33'31
retrograde	12176 Jun 26 18:49	4° $\mathbf{\text{P}}$ 26'33		minimum elong	12183 Mar 31 16:33	17° $\mathbf{\text{P}}$ 09'34	0°33'22
opposition	12176 Sep 12 17:10	3° $\mathbf{\text{P}}$ 04'18	0°42'26	max. Earth dist.	12183 Mar 31 00:08	17° $\mathbf{\text{P}}$ 08'03	31.37686 AU
min. Earth dist.	12176 Sep 13 07:21	3° $\mathbf{\text{P}}$ 03'20	29.36197 AU	morning rise	12183 Apr 16 09:47	17° $\mathbf{\text{P}}$ 44'18	
direct	12176 Dec 02 02:39	1° $\mathbf{\text{P}}$ 39'49		retrograde	12183 Jul 12 16:15	19° $\mathbf{\text{P}}$ 36'33	
evening set	12177 Mar 02 03:33	3° $\mathbf{\text{P}}$ 34'32		opposition	12183 Sep 28 18:59	18° $\mathbf{\text{P}}$ 14'29	0°35'11
max. Earth dist.	12177 Mar 17 08:47	4° $\mathbf{\text{P}}$ 08'03	31.36229 AU	min. Earth dist.	12183 Sep 29 09:28	18° $\mathbf{\text{P}}$ 13'29	29.37729 AU
				direct	12183 Dec 18 06:00	16° $\mathbf{\text{P}}$ 50'12	
conjunction	12177 Mar 18 00:56	4° $\mathbf{\text{P}}$ 09'32	0°39'20	evening set	12184 Mar 17 07:51	18° $\mathbf{\text{P}}$ 45'01	
minimum elong	12177 Mar 18 00:56	4° $\mathbf{\text{P}}$ 09'32	0°39'22	max. Earth dist.	12184 Apr 01 10:50	19° $\mathbf{\text{P}}$ 18'25	31.37683 AU
morning rise	12177 Apr 02 19:59	4° $\mathbf{\text{P}}$ 44'21					
retrograde	12177 Jun 29 05:19	6° $\mathbf{\text{P}}$ 36'29		conjunction	12184 Apr 02 03:08	19° $\mathbf{\text{P}}$ 19'55	0°32'23
opposition	12177 Sep 15 03:34	5° $\mathbf{\text{P}}$ 14'13	0°41'34	minimum elong	12184 Apr 02 03:08	19° $\mathbf{\text{P}}$ 19'55	0°32'10
min. Earth dist.	12177 Sep 15 18:27	5° $\mathbf{\text{P}}$ 13'12	29.36341 AU	morning rise	12184 Apr 17 19:59	19° $\mathbf{\text{P}}$ 54'38	
direct	12177 Dec 04 13:38	3° $\mathbf{\text{P}}$ 49'43		retrograde	12184 Jul 14 02:19	21° $\mathbf{\text{P}}$ 46'55	
evening set	12178 Mar 04 14:32	5° $\mathbf{\text{P}}$ 44'25		opposition	12184 Sep 30 05:52	20° $\mathbf{\text{P}}$ 24'51	0°33'56
				min. Earth dist.	12184 Sep 30 21:41	20° $\mathbf{\text{P}}$ 23'46	29.37654 AU
conjunction	12178 Mar 20 11:41	6° $\mathbf{\text{P}}$ 19'24	0°38'30	direct	12184 Dec 19 16:35	19° $\mathbf{\text{P}}$ 00'36	
minimum elong	12178 Mar 20 11:41	6° $\mathbf{\text{P}}$ 19'25	0°38'29	evening set	12185 Mar 19 18:44	20° $\mathbf{\text{P}}$ 55'25	
max. Earth dist.	12178 Mar 19 20:14	6° $\mathbf{\text{P}}$ 17'59	31.36413 AU				
morning rise	12178 Apr 05 06:22	6° $\mathbf{\text{P}}$ 54'12		conjunction	12185 Apr 04 13:41	21° $\mathbf{\text{P}}$ 30'18	0°31'11
retrograde	12178 Jul 01 13:58	8° $\mathbf{\text{P}}$ 46'19		minimum elong	12185 Apr 04 13:41	21° $\mathbf{\text{P}}$ 30'18	0°30'57
opposition	12178 Sep 17 14:03	7° $\mathbf{\text{P}}$ 24'04	0°40'39	max. Earth dist.	12185 Apr 03 21:06	21° $\mathbf{\text{P}}$ 28'46	31.37536 AU
min. Earth dist.	12178 Sep 18 04:14	7° $\mathbf{\text{P}}$ 23'05	29.36557 AU	morning rise	12185 Apr 20 06:16	22° $\mathbf{\text{P}}$ 05'00	
direct	12178 Dec 07 01:57	5° $\mathbf{\text{P}}$ 59'35		retrograde	12185 Jul 16 13:44	23° $\mathbf{\text{P}}$ 57'18	
evening set	12179 Mar 07 01:24	7° $\mathbf{\text{P}}$ 54'17		opposition	12185 Oct 02 16:37	22° $\mathbf{\text{P}}$ 35'14	0°32'38
				min. Earth dist.	12185 Oct 03 07:46	22° $\mathbf{\text{P}}$ 34'12	29.37422 AU
conjunction	12179 Mar 22 22:07	8° $\mathbf{\text{P}}$ 29'15	0°37'37	direct	12185 Dec 22 06:08	21° $\mathbf{\text{P}}$ 10'59	
minimum elong	12179 Mar 22 22:08	8° $\mathbf{\text{P}}$ 29'15	0°37'35	evening set	12186 Mar 22 05:35	23° $\mathbf{\text{P}}$ 05'48	
max. Earth dist.	12179 Mar 22 05:55	8° $\mathbf{\text{P}}$ 27'45	31.36673 AU	max. Earth dist.	12186 Apr 06 07:02	23° $\mathbf{\text{P}}$ 39'05	31.37234 AU
morning rise	12179 Apr 07 16:36	9° $\mathbf{\text{P}}$ 04'02					
retrograde	12179 Jul 03 23:58	10° $\mathbf{\text{P}}$ 56'09		conjunction	12186 Apr 07 00:10	23° $\mathbf{\text{P}}$ 40'40	0°29'57
opposition	12179 Sep 20 00:34	9° $\mathbf{\text{P}}$ 33'56	0°39'40	minimum elong	12186 Apr 07 00:11	23° $\mathbf{\text{P}}$ 40'40	0°29'41
min. Earth dist.	12179 Sep 20 14:49	9° $\mathbf{\text{P}}$ 32'57	29.36856 AU	morning rise	12186 Apr 22 16:29	24° $\mathbf{\text{P}}$ 15'22	
direct	12179 Dec 09 11:35	8° $\mathbf{\text{P}}$ 09'29		retrograde	12186 Jul 19 01:01	26° $\mathbf{\text{P}}$ 07'41	
evening set	12180 Mar 08 12:14	10° $\mathbf{\text{P}}$ 04'11		opposition	12186 Oct 05 03:35	24° $\mathbf{\text{P}}$ 45'35	0°31'18
				min. Earth dist.	12186 Oct 05 19:34	24° $\mathbf{\text{P}}$ 44'30	29.37065 AU
conjunction	12180 Mar 24 08:49	10° $\mathbf{\text{P}}$ 39'09	0°36'40	direct	12186 Dec 24 17:30	23° $\mathbf{\text{P}}$ 21'20	
minimum elong	12180 Mar 24 08:49	10° $\mathbf{\text{P}}$ 39'09	0°36'36	evening set	12187 Mar 24 16:05	25° $\mathbf{\text{P}}$ 16'07	
max. Earth dist.	12180 Mar 23 17:46	10° $\mathbf{\text{P}}$ 37'46	31.36992 AU				
morning rise	12180 Apr 09 02:52	11° $\mathbf{\text{P}}$ 13'55		conjunction	12187 Apr 09 10:29	25° $\mathbf{\text{P}}$ 50'58	0°28'41
retrograde	12180 Jul 05 08:39	13° $\mathbf{\text{P}}$ 06'03		minimum elong	12187 Apr 09 10:29	25° $\mathbf{\text{P}}$ 50'58	0°28'24

max. Earth dist.	12187 Apr 08 17:59	25° Υ 49'27	31.36824 AU	retrograde	12193 Aug 02 19:42	11° \mathcal{B} 18'19	
morning rise	12187 Apr 25 02:28	26° Υ 25'39		opposition	12193 Oct 20 08:12	9° \mathcal{B} 56'05	0°20'49
retrograde	12187 Jul 21 09:31	28° Υ 17'58		min. Earth dist.	12193 Oct 20 22:41	9° \mathcal{B} 55'06	29.34483 AU
opposition	12187 Oct 07 14:27	26° Υ 55'51	0°29'55	direct	12194 Jan 08 21:30	8° \mathcal{B} 31'52	
min. Earth dist.	12187 Oct 08 06:02	26° Υ 54'47	29.36599 AU	evening set	12194 Apr 08 17:01	10° \mathcal{B} 26'35	
direct	12187 Dec 27 06:18	25° Υ 31'34					
evening set	12188 Mar 26 02:45	27° Υ 26'19		conjunction	12194 Apr 24 09:16	11° \mathcal{B} 01'21	0°18'47
				minimum elong	12194 Apr 24 09:16	11° \mathcal{B} 01'21	0°18'16
conjunction	12188 Apr 10 20:43	28° Υ 01'10	0°27'22	max. Earth dist.	12194 Apr 23 18:39	11° \mathcal{B} 00'00	31.34358 AU
minimum elong	12188 Apr 10 20:43	28° Υ 01'10	0°27'02	morning rise	12194 May 09 23:25	11° \mathcal{B} 35'58	
max. Earth dist.	12188 Apr 10 03:18	27° Υ 59'33	31.36332 AU	retrograde	12194 Aug 05 07:20	13° \mathcal{B} 28'35	
morning rise	12188 Apr 26 12:34	28° Υ 35'50		opposition	12194 Oct 22 19:23	12° \mathcal{B} 06'21	0°19'11
	12188 Jun 11 14:04	0° \mathcal{B}		min. Earth dist.	12194 Oct 23 08:49	12° \mathcal{B} 05'26	29.34238 AU
retrograde	12188 Jul 22 19:28	0° \mathcal{B} 28'09		direct	12195 Jan 11 10:23	10° \mathcal{B} 42'11	
	12188 Sep 03 04:04	30° $\mathcal{R}\Upsilon$		evening set	12195 Apr 11 03:20	12° \mathcal{B} 36'54	
opposition	12188 Oct 09 01:11	29° Υ 05'59	0°28'30				
min. Earth dist.	12188 Oct 09 16:49	29° Υ 04'54	29.36102 AU	conjunction	12195 Apr 26 19:14	13° \mathcal{B} 11'40	0°17'14
direct	12188 Dec 28 17:00	27° Υ 41'40		minimum elong	12195 Apr 26 19:14	13° \mathcal{B} 11'40	0°16'42
evening set	12189 Mar 28 13:12	29° Υ 36'23		max. Earth dist.	12195 Apr 26 04:19	13° \mathcal{B} 10'17	31.34076 AU
	12189 Apr 08 06:23	0° \mathcal{B}		morning rise	12195 May 12 09:13	13° \mathcal{B} 46'17	
					12195 Jun 19 22:50	15° \mathcal{B}	
conjunction	12189 Apr 13 07:01	0° \mathcal{B} 11'14	0°26'02	retrograde	12195 Aug 07 19:03	15° \mathcal{B} 38'58	
minimum elong	12189 Apr 13 07:02	0° \mathcal{B} 11'14	0°25'41		12195 Sep 27 10:56	15° $\mathcal{R}\mathcal{B}$	
max. Earth dist.	12189 Apr 12 14:58	0° \mathcal{B} 09'44	31.35834 AU	opposition	12195 Oct 25 06:45	14° \mathcal{B} 16'44	0°17'31
morning rise	12189 Apr 28 22:25	0° \mathcal{B} 45'53		min. Earth dist.	12195 Oct 25 20:46	14° \mathcal{B} 15'47	29.33921 AU
retrograde	12189 Jul 25 03:58	2° \mathcal{B} 38'12		direct	12196 Jan 13 21:08	12° \mathcal{B} 52'36	
opposition	12189 Oct 11 12:11	1° \mathcal{B} 16'00	0°27'02	evening set	12196 Apr 12 13:44	14° \mathcal{B} 47'20	
min. Earth dist.	12189 Oct 12 03:50	1° \mathcal{B} 14'55	29.35619 AU		12196 Apr 18 08:06	15° \mathcal{B}	
	12189 Dec 08 04:03	30° $\mathcal{R}\Upsilon$					
direct	12189 Dec 31 04:41	29° Υ 51'40		conjunction	12196 Apr 28 05:28	15° \mathcal{B} 22'05	0°15'40
	12190 Jan 22 19:34	0° \mathcal{B}		minimum elong	12196 Apr 28 05:28	15° \mathcal{B} 22'05	0°15'06
evening set	12190 Mar 30 23:38	1° \mathcal{B} 46'22		behind sun begin	12196 Apr 28 03:09	15° \mathcal{B} 21'53	
				behind sun end	12196 Apr 28 07:47	15° \mathcal{B} 22'18	
conjunction	12190 Apr 15 16:57	2° \mathcal{B} 21'11	0°24'39	max. Earth dist.	12196 Apr 27 15:19	15° \mathcal{B} 20'47	31.33703 AU
minimum elong	12190 Apr 15 16:58	2° \mathcal{B} 21'11	0°24'15	morning rise	12196 May 13 19:06	15° \mathcal{B} 56'42	
max. Earth dist.	12190 Apr 15 00:19	2° \mathcal{B} 19'38	31.35391 AU	retrograde	12196 Aug 09 04:34	17° \mathcal{B} 49'27	
morning rise	12190 May 01 08:14	2° \mathcal{B} 55'50		opposition	12196 Oct 26 18:00	16° \mathcal{B} 27'13	0°15'49
retrograde	12190 Jul 27 14:06	4° \mathcal{B} 48'11		min. Earth dist.	12196 Oct 27 07:39	16° \mathcal{B} 26'17	29.33477 AU
opposition	12190 Oct 13 23:07	3° \mathcal{B} 25'57	0°25'32	direct	12197 Jan 15 09:48	15° \mathcal{B} 03'06	
min. Earth dist.	12190 Oct 14 13:38	3° \mathcal{B} 24'57	29.35227 AU	evening set	12197 Apr 15 00:18	16° \mathcal{B} 57'50	
direct	12191 Jan 02 15:00	2° \mathcal{B} 01'37					
evening set	12191 Apr 02 09:56	3° \mathcal{B} 56'18		conjunction	12197 Apr 30 15:35	17° \mathcal{B} 32'35	0°14'04
max. Earth dist.	12191 Apr 17 11:48	4° \mathcal{B} 29'41	31.35043 AU	minimum elong	12197 Apr 30 15:35	17° \mathcal{B} 32'35	0°13'30
				behind sun begin	12197 Apr 30 11:57	17° \mathcal{B} 32'16	
conjunction	12191 Apr 18 03:07	4° \mathcal{B} 31'07	0°23'14	behind sun end	12197 Apr 30 19:14	17° \mathcal{B} 32'55	
minimum elong	12191 Apr 18 03:07	4° \mathcal{B} 31'07	0°22'49	max. Earth dist.	12197 Apr 30 00:25	17° \mathcal{B} 31'11	31.33197 AU
morning rise	12191 May 03 17:58	5° \mathcal{B} 05'45		morning rise	12197 May 16 05:07	18° \mathcal{B} 07'12	
retrograde	12191 Jul 29 22:24	6° \mathcal{B} 58'09		retrograde	12197 Aug 11 16:00	20° \mathcal{B} 00'00	
opposition	12191 Oct 16 10:05	5° \mathcal{B} 35'54	0°24'00	opposition	12197 Oct 29 05:30	18° \mathcal{B} 37'45	0°14'07
min. Earth dist.	12191 Oct 17 01:03	5° \mathcal{B} 34'53	29.34926 AU	min. Earth dist.	12197 Oct 29 19:09	18° \mathcal{B} 36'49	29.32909 AU
direct	12192 Jan 05 01:21	4° \mathcal{B} 11'37		direct	12198 Jan 17 21:04	17° \mathcal{B} 13'39	
evening set	12192 Apr 03 20:18	6° \mathcal{B} 06'17		evening set	12198 Apr 17 10:33	19° \mathcal{B} 08'22	
				max. Earth dist.	12198 May 02 11:44	19° \mathcal{B} 41'49	31.32553 AU
conjunction	12192 Apr 19 13:06	6° \mathcal{B} 41'05	0°21'47				
minimum elong	12192 Apr 19 13:06	6° \mathcal{B} 41'05	0°21'19	conjunction	12198 May 03 01:44	19° \mathcal{B} 43'07	0°12'28
max. Earth dist.	12192 Apr 18 21:29	6° \mathcal{B} 39'38	31.34793 AU	minimum elong	12198 May 03 01:44	19° \mathcal{B} 43'07	0°11'52
morning rise	12192 May 05 03:51	7° \mathcal{B} 15'43		behind sun begin	12198 May 02 21:13	19° \mathcal{B} 42'43	
retrograde	12192 Jul 31 09:29	9° \mathcal{B} 08'11		behind sun end	12198 May 03 06:15	19° \mathcal{B} 43'31	
opposition	12192 Oct 17 21:02	7° \mathcal{B} 45'56	0°22'26	morning rise	12198 May 18 14:52	20° \mathcal{B} 17'43	
min. Earth dist.	12192 Oct 18 10:40	7° \mathcal{B} 45'00	29.34696 AU	retrograde	12198 Aug 14 01:14	22° \mathcal{B} 10'36	
direct	12193 Jan 06 11:20	6° \mathcal{B} 21'40		opposition	12198 Oct 31 17:06	20° \mathcal{B} 48'19	0°12'23
evening set	12193 Apr 06 06:38	8° \mathcal{B} 16'22		min. Earth dist.	12198 Nov 01 07:03	20° \mathcal{B} 47'22	29.32191 AU
				direct	12199 Jan 20 09:28	19° \mathcal{B} 24'13	
conjunction	12193 Apr 21 23:11	8° \mathcal{B} 51'09	0°20'17	evening set	12199 Apr 19 20:59	21° \mathcal{B} 18'54	
minimum elong	12193 Apr 21 23:11	8° \mathcal{B} 51'09	0°19'49				
max. Earth dist.	12193 Apr 21 08:11	8° \mathcal{B} 49'46	31.34573 AU	conjunction	12199 May 05 11:45	21° \mathcal{B} 53'38	0°10'51
morning rise	12193 May 07 13:34	9° \mathcal{B} 25'47		minimum elong	12199 May 05 11:45	21° \mathcal{B} 53'38	0°10'14

behind sun begin	12199 May 05 06:36	21° 8 53'11		retrograde	12204 Aug 27 17:24	5° II 13'50	
behind sun end	12199 May 05 16:54	21° 8 54'06		opposition	12204 Nov 14 14:37	3° II 51'18	0°01'42
max. Earth dist.	12199 May 04 20:52	21° 8 52'16	31.31781 AU	min. Earth dist.	12204 Nov 15 01:49	3° II 50'32	29.27265 AU
morning rise	12199 May 21 00:52	22° 8 28'15		direct	12205 Feb 03 02:51	2° II 27'14	
retrograde	12199 Aug 16 11:51	24° 8 21'10		evening set	12205 May 03 09:48	4° II 21'53	
opposition	12199 Nov 03 04:27	22° 8 58'51	0°10'38				
min. Earth dist.	12199 Nov 03 17:37	22° 8 57'57	29.31365 AU	conjunction	12205 May 18 23:14	4° II 56'36	0°00'47
direct	12200 Jan 22 20:18	21° 8 34'44		minimum elong	12205 May 18 23:15	4° II 56'36	0°00'03
evening set	12200 Apr 22 07:12	23° 8 29'23		behind sun begin	12205 May 18 17:33	4° II 56'06	
				behind sun end	12205 May 19 04:58	4° II 57'06	
conjunction	12200 May 07 21:52	24° 8 04'08	0°09'12	max. Earth dist.	12205 May 18 12:26	4° II 55'36	31.26945 AU
minimum elong	12200 May 07 21:52	24° 8 04'08	0°08'33	morning rise	12205 Jun 03 11:08	5° II 31'13	
behind sun begin	12200 May 07 16:14	24° 8 03'37		retrograde	12205 Aug 30 03:36	7° II 24'40	
behind sun end	12200 May 08 03:31	24° 8 04'38		desc. node	12205 Oct 27 09:20	6° II 35'02	
max. Earth dist.	12200 May 07 08:00	24° 8 02'50	31.30904 AU	opposition	12205 Nov 17 02:28	6° II 02'09	-0°00'07
morning rise	12200 May 23 10:40	24° 8 38'44		min. Earth dist.	12205 Nov 17 12:46	6° II 01'27	29.26640 AU
retrograde	12200 Aug 18 20:27	26° 8 31'43		direct	12206 Feb 05 15:14	4° II 38'08	
opposition	12200 Nov 05 16:05	25° 8 09'20	0°08'52	evening set	12206 May 05 19:55	6° II 32'49	
min. Earth dist.	12200 Nov 06 05:53	25° 8 08'23	29.30455 AU				
direct	12201 Jan 25 07:18	23° 8 45'12		conjunction	12206 May 21 08:59	7° II 07'32	-0°00'58
evening set	12201 Apr 24 17:24	25° 8 39'49		minimum elong	12206 May 21 08:59	7° II 07'32	0°01'44
				behind sun begin	12206 May 21 02:33	7° II 06'57	
conjunction	12201 May 10 07:43	26° 8 14'33	0°07'34	behind sun end	12206 May 21 15:25	7° II 08'06	
minimum elong	12201 May 10 07:43	26° 8 14'33	0°06'53	max. Earth dist.	12206 May 20 21:41	7° II 06'29	31.26334 AU
behind sun begin	12201 May 10 01:43	26° 8 14'01		morning rise	12206 Jun 05 20:52	7° II 42'09	
behind sun end	12201 May 10 13:42	26° 8 15'05		retrograde	12206 Sep 01 16:15	9° II 35'43	
max. Earth dist.	12201 May 09 17:43	26° 8 13'15	31.29988 AU	opposition	12206 Nov 19 14:23	8° II 13'12	-0°01'55
morning rise	12201 May 25 20:24	26° 8 49'09		min. Earth dist.	12206 Nov 20 00:13	8° II 12'32	29.26033 AU
retrograde	12201 Aug 21 07:18	28° 8 42'12		direct	12207 Feb 08 02:47	6° II 49'15	
opposition	12201 Nov 08 03:35	27° 8 19'45	0°07'05	evening set	12207 May 08 06:02	8° II 43'57	
min. Earth dist.	12201 Nov 08 15:53	27° 8 18'55	29.29541 AU				
direct	12202 Jan 27 17:48	25° 8 55'36		conjunction	12207 May 23 19:03	9° II 18'41	-0°02'40
evening set	12202 Apr 27 03:32	27° 8 50'13		minimum elong	12207 May 23 19:04	9° II 18'41	0°03'27
				behind sun begin	12207 May 23 12:40	9° II 18'06	
conjunction	12202 May 12 17:36	28° 8 24'56	0°05'54	behind sun end	12207 May 24 01:27	9° II 19'15	
minimum elong	12202 May 12 17:37	28° 8 24'56	0°05'12	max. Earth dist.	12207 May 23 09:16	9° II 17'47	31.25705 AU
behind sun begin	12202 May 12 11:22	28° 8 24'23		morning rise	12207 Jun 08 06:39	9° II 53'19	
behind sun end	12202 May 12 23:52	28° 8 25'30		retrograde	12207 Sep 04 02:37	11° II 47'00	
max. Earth dist.	12202 May 12 04:23	28° 8 23'43	31.29092 AU	opposition	12207 Nov 22 02:18	10° II 24'29	-0°03'44
morning rise	12202 May 28 06:03	28° 8 59'33		min. Earth dist.	12207 Nov 22 12:18	10° II 23'48	29.25370 AU
	12202 Jun 27 13:13	0° II		direct	12208 Feb 10 15:17	9° II 00'35	
retrograde	12202 Aug 23 17:38	0° II 52'40		evening set	12208 May 09 16:25	10° II 55'18	
	12202 Oct 22 23:20	30° 8					
opposition	12202 Nov 10 15:20	29° 8 30'11	0°05'18	conjunction	12208 May 25 05:05	11° II 30'02	-0°04'22
min. Earth dist.	12202 Nov 11 04:02	29° 8 29'19	29.28693 AU	minimum elong	12208 May 25 05:05	11° II 30'01	0°05'10
direct	12203 Jan 30 04:06	28° 8 06'02		behind sun begin	12208 May 24 22:50	11° II 29'28	
evening set	12203 Apr 29 13:32	0° II 00'39		behind sun end	12208 May 25 11:19	11° II 30'35	
	12203 Apr 29 06:27	0° II		max. Earth dist.	12208 May 24 18:38	11° II 29'03	31.25009 AU
conjunction	12203 May 15 03:26	0° II 35'21	0°04'14	morning rise	12208 Jun 09 16:41	12° II 04'40	
minimum elong	12203 May 15 03:25	0° II 35'21	0°03'31	retrograde	12208 Sep 05 13:54	13° II 58'28	
behind sun begin	12203 May 14 21:01	0° II 34'47		opposition	12208 Nov 23 14:21	12° II 35'57	-0°05'32
behind sun end	12203 May 15 09:48	0° II 35'56		min. Earth dist.	12208 Nov 23 23:23	12° II 35'20	29.24627 AU
max. Earth dist.	12203 May 14 15:08	0° II 34'13	31.28295 AU	direct	12209 Feb 12 02:20	11° II 12'05	
morning rise	12203 May 30 15:41	1° II 09'58		evening set	12209 May 12 02:39	13° II 06'48	
retrograde	12203 Aug 26 05:16	3° II 03'11					
opposition	12203 Nov 13 02:57	1° II 40'40	0°03'30	conjunction	12209 May 27 15:12	13° II 41'32	-0°06'02
min. Earth dist.	12203 Nov 13 14:06	1° II 39'54	29.27933 AU	minimum elong	12209 May 27 15:12	13° II 41'32	0°06'51
direct	12204 Feb 01 16:40	0° II 16'33		behind sun begin	12209 May 27 09:12	13° II 41'00	
evening set	12204 Apr 30 23:43	2° II 11'11		behind sun end	12209 May 27 21:12	13° II 42'05	
				max. Earth dist.	12209 May 27 05:44	13° II 40'40	31.24196 AU
conjunction	12204 May 16 13:17	2° II 45'53	0°02'32	morning rise	12209 Jun 12 02:31	14° II 16'11	
minimum elong	12204 May 16 13:17	2° II 45'53	0°01'48	retrograde	12209 Sep 07 23:03	16° II 10'06	
behind sun begin	12204 May 16 06:50	2° II 45'19		opposition	12209 Nov 26 02:41	14° II 47'34	-0°07'20
behind sun end	12204 May 16 19:43	2° II 46'28		min. Earth dist.	12209 Nov 26 12:21	14° II 46'54	29.23752 AU
max. Earth dist.	12204 May 16 01:01	2° II 44'45	31.27579 AU	direct	12210 Feb 14 13:42	13° II 23'43	
morning rise	12204 Jun 01 01:26	3° II 20'30		evening set	12210 May 14 13:03	15° II 18'26	

conjunction	12210 May 30 01:21	15°II53'10	-0°07'42	direct	12216 Feb 28 10:54	26°II33'01	
minimum elong	12210 May 30 01:20	15°II53'10	0°08'32	evening set	12216 May 27 02:23	28°II27'34	
behind sun begin	12210 May 29 19:42	15°II52'39					
behind sun end	12210 May 30 06:58	15°II53'40		conjunction	12216 Jun 11 13:52	29°II02'19	-0°17'24
max. Earth dist.	12210 May 29 15:37	15°II52'16	31.23261 AU	minimum elong	12216 Jun 11 13:52	29°II02'19	0°18'16
morning rise	12210 Jun 14 12:38	16°II27'49		max. Earth dist.	12216 Jun 11 07:57	29°II01'46	31.15936 AU
retrograde	12210 Sep 10 10:47	18°II21'50		morning rise	12216 Jun 27 00:38	29°II37'01	
opposition	12210 Nov 28 14:51	16°II59'15	-0°09'07		12216 Jul 07 16:50	0°☾	
min. Earth dist.	12210 Nov 28 23:15	16°II58'41	29.22741 AU	retrograde	12216 Sep 23 06:37	1°☾31'33	
direct	12211 Feb 17 00:40	15°II35'24		opposition	12216 Dec 11 16:48	0°☾08'30	-0°19'27
evening set	12211 May 16 23:21	17°II30'06		min. Earth dist.	12216 Dec 11 22:42	0°☾08'06	29.15400 AU
					12216 Dec 16 21:52	30°RII	
conjunction	12211 Jun 01 11:30	18°II04'49	-0°09'22	direct	12217 Mar 01 23:34	28°II44'33	
minimum elong	12211 Jun 01 11:30	18°II04'49	0°10'11		12217 May 10 21:33	0°☾	
behind sun begin	12211 Jun 01 06:20	18°II04'22		evening set	12217 May 29 12:32	0°☾39'06	
behind sun end	12211 Jun 01 16:40	18°II05'17					
max. Earth dist.	12211 Jun 01 02:00	18°II03'57	31.22171 AU	conjunction	12217 Jun 13 23:45	1°☾13'50	-0°18'57
morning rise	12211 Jun 16 22:41	18°II39'30		minimum elong	12217 Jun 13 23:45	1°☾13'50	0°19'49
retrograde	12211 Sep 12 21:07	20°II33'36		max. Earth dist.	12217 Jun 13 17:47	1°☾13'17	31.14881 AU
opposition	12211 Dec 01 03:14	19°II10'57	-0°10'54	morning rise	12217 Jun 29 10:38	1°☾48'33	
min. Earth dist.	12211 Dec 01 12:27	19°II10'19	29.21584 AU	retrograde	12217 Sep 25 18:46	3°☾43'13	
direct	12212 Feb 19 11:31	17°II47'05		opposition	12217 Dec 14 05:15	2°☾20'09	-0°21'06
evening set	12212 May 18 09:40	19°II41'44		min. Earth dist.	12217 Dec 14 09:40	2°☾19'51	29.14386 AU
				direct	12218 Mar 04 10:52	0°☾56'13	
conjunction	12212 Jun 02 21:42	20°II16'28	-0°11'00	evening set	12218 May 31 22:42	2°☾50'47	
minimum elong	12212 Jun 02 21:42	20°II16'28	0°11'51				
behind sun begin	12212 Jun 02 17:10	20°II16'03		conjunction	12218 Jun 16 09:55	3°☾25'33	-0°20'28
behind sun end	12212 Jun 03 02:13	20°II16'52		minimum elong	12218 Jun 16 09:55	3°☾25'33	0°21'21
max. Earth dist.	12212 Jun 02 12:51	20°II15'39	31.20956 AU	max. Earth dist.	12218 Jun 16 05:20	3°☾25'07	31.13892 AU
morning rise	12212 Jun 18 08:45	20°II51'08		morning rise	12218 Jul 01 20:40	4°☾00'17	
retrograde	12212 Sep 14 08:16	22°II45'19		retrograde	12218 Sep 28 05:00	5°☾55'05	
opposition	12212 Dec 02 15:23	21°II22'35	-0°12'39	opposition	12218 Dec 16 17:49	4°☾32'00	-0°22'43
min. Earth dist.	12212 Dec 02 23:27	21°II22'02	29.20309 AU	min. Earth dist.	12218 Dec 16 22:27	4°☾31'41	29.13424 AU
direct	12213 Feb 20 23:59	19°II58'40		direct	12219 Mar 06 22:24	3°☾08'07	
evening set	12213 May 20 20:00	21°II53'18		evening set	12219 Jun 03 08:56	5°☾02'42	
conjunction	12213 Jun 05 07:46	22°II28'01	-0°12'38	conjunction	12219 Jun 18 20:02	5°☾37'28	-0°21'58
minimum elong	12213 Jun 05 07:46	22°II28'01	0°13'29	minimum elong	12219 Jun 18 20:02	5°☾37'28	0°22'50
behind sun begin	12213 Jun 05 04:05	22°II27'41		max. Earth dist.	12219 Jun 18 15:43	5°☾37'04	31.12950 AU
behind sun end	12213 Jun 05 11:26	22°II28'21		morning rise	12219 Jul 04 06:51	6°☾12'13	
max. Earth dist.	12213 Jun 04 22:43	22°II27'11	31.19650 AU	retrograde	12219 Sep 30 17:26	8°☾07'10	
morning rise	12213 Jun 20 18:50	23°II02'42		opposition	12219 Dec 19 06:20	6°☾44'05	-0°24'18
retrograde	12213 Sep 16 20:18	24°II56'58		min. Earth dist.	12219 Dec 19 09:22	6°☾43'52	29.12474 AU
opposition	12213 Dec 05 03:48	23°II34'07	-0°14'23	direct	12220 Mar 08 09:39	5°☾20'14	
min. Earth dist.	12213 Dec 05 11:57	23°II33'34	29.18999 AU	evening set	12220 Jun 04 19:19	7°☾14'51	
direct	12214 Feb 23 10:06	22°II10'10					
evening set	12214 May 23 05:59	24°II04'45		conjunction	12220 Jun 20 06:16	7°☾49'37	-0°23'25
				minimum elong	12220 Jun 20 06:16	7°☾49'37	0°24'18
conjunction	12214 Jun 07 17:44	24°II39'29	-0°14'15	max. Earth dist.	12220 Jun 20 02:26	7°☾49'16	31.11980 AU
minimum elong	12214 Jun 07 17:45	24°II39'29	0°15'06	morning rise	12220 Jul 05 17:03	8°☾24'24	
behind sun begin	12214 Jun 07 15:22	24°II39'16		retrograde	12220 Oct 02 04:21	10°☾19'31	
behind sun end	12214 Jun 07 20:07	24°II39'42		opposition	12220 Dec 20 19:05	8°☾56'24	-0°25'50
max. Earth dist.	12214 Jun 07 10:19	24°II38'48	31.18343 AU	min. Earth dist.	12220 Dec 20 22:43	8°☾56'09	29.11492 AU
morning rise	12214 Jun 23 04:38	25°II14'10		direct	12221 Mar 10 20:06	7°☾32'37	
retrograde	12214 Sep 19 06:55	27°II08'30		evening set	12221 Jun 07 05:44	9°☾27'14	
opposition	12214 Dec 07 16:09	25°II45'35	-0°16'06				
min. Earth dist.	12214 Dec 07 23:13	25°II45'06	29.17708 AU	conjunction	12221 Jun 22 16:40	10°☾02'02	-0°24'51
direct	12215 Feb 25 23:22	24°II21'36		minimum elong	12221 Jun 22 16:40	10°☾02'02	0°25'43
evening set	12215 May 25 16:16	26°II16'10		max. Earth dist.	12221 Jun 22 13:46	10°☾01'45	31.10973 AU
				morning rise	12221 Jul 08 03:23	10°☾36'49	
conjunction	12215 Jun 10 03:44	26°II50'53	-0°15'50	retrograde	12221 Oct 04 16:17	12°☾32'05	
minimum elong	12215 Jun 10 03:43	26°II50'53	0°16'41	opposition	12221 Dec 23 07:51	11°☾08'57	-0°27'21
max. Earth dist.	12215 Jun 09 19:58	26°II50'10	31.17091 AU	min. Earth dist.	12221 Dec 23 10:11	11°☾08'47	29.10439 AU
morning rise	12215 Jun 25 14:43	27°II25'35		direct	12222 Mar 13 07:49	9°☾45'12	
retrograde	12215 Sep 21 20:02	29°II20'00		evening set	12222 Jun 09 16:12	11°☾39'50	
opposition	12215 Dec 10 04:21	27°II57'00	-0°17'47				
min. Earth dist.	12215 Dec 10 10:38	27°II56'35	29.16511 AU	conjunction	12222 Jun 25 02:57	12°☾14'38	-0°26'15

minimum elong	12222 Jun 25 02:57	12°☾14'38	0°27'07	evening set	12229 Jun 24 17:41	27°☾09'25	
max. Earth dist.	12222 Jun 24 23:43	12°☾14'20	31.09869 AU				
morning rise	12222 Jul 10 13:50	12°☾49'27		conjunction	12229 Jul 10 04:22	27°☾44'18	-0°34'48
retrograde	12222 Oct 07 05:10	14°☾44'52		minimum elong	12229 Jul 10 04:22	27°☾44'18	0°35'37
opposition	12222 Dec 25 20:46	13°☾21'41	-0°28'49	max. Earth dist.	12229 Jul 10 05:42	27°☾44'25	31.00626 AU
min. Earth dist.	12222 Dec 25 23:25	13°☾21'31	29.09289 AU	morning rise	12229 Jul 25 15:40	28°☾19'15	
direct	12223 Mar 15 17:17	11°☾57'57			12229 Sep 22 05:28	0°♈	
evening set	12223 Jun 12 02:43	13°☾52'36		retrograde	12229 Oct 22 17:29	0°♈15'23	
					12229 Nov 22 22:32	30°♋☾	
conjunction	12223 Jun 27 13:35	14°☾27'25	-0°27'36	opposition	12230 Jan 10 14:54	28°☾51'40	-0°37'48
minimum elong	12223 Jun 27 13:35	14°☾27'25	0°28'27	min. Earth dist.	12230 Jan 10 13:10	28°☾51'47	29.00117 AU
max. Earth dist.	12223 Jun 27 11:31	14°☾27'13	31.08653 AU	direct	12230 Mar 31 07:34	27°☾27'49	
morning rise	12223 Jul 13 00:20	15°☾02'15		evening set	12230 Jun 27 04:05	29°☾22'20	
retrograde	12223 Oct 09 16:52	16°☾57'47					
opposition	12223 Dec 28 09:29	15°☾34'33	-0°30'15	conjunction	12230 Jul 12 14:54	29°☾57'13	-0°35'50
min. Earth dist.	12223 Dec 28 11:28	15°☾34'25	29.08002 AU	minimum elong	12230 Jul 12 14:54	29°☾57'13	0°36'38
direct	12224 Mar 17 06:34	14°☾10'48		max. Earth dist.	12230 Jul 12 17:38	29°☾57'29	30.99607 AU
evening set	12224 Jun 13 13:25	16°☾05'27			12230 Jul 13 20:12	0°♈	
				morning rise	12230 Jul 28 02:17	0°♈32'11	
conjunction	12224 Jun 29 00:04	16°☾40'16	-0°28'54	retrograde	12230 Oct 25 04:56	2°♈28'27	
minimum elong	12224 Jun 29 00:04	16°☾40'16	0°29'46	opposition	12231 Jan 13 03:45	1°♈04'42	-0°38'53
max. Earth dist.	12224 Jun 28 21:15	16°☾40'00	31.07315 AU	min. Earth dist.	12231 Jan 13 00:22	1°♈04'56	28.99141 AU
morning rise	12224 Jul 14 11:02	17°☾15'07			12231 Feb 27 00:41	30°♋☾	
retrograde	12224 Oct 11 07:18	19°☾10'46		direct	12231 Apr 02 19:21	29°☾40'52	
opposition	12224 Dec 29 22:25	17°☾47'27	-0°31'37		12231 May 06 14:26	0°♈	
min. Earth dist.	12224 Dec 29 23:59	17°☾47'20	29.06619 AU	evening set	12231 Jun 29 14:46	1°♈35'24	
direct	12225 Mar 19 18:25	16°☾23'40					
evening set	12225 Jun 15 23:46	18°☾18'18		conjunction	12231 Jul 15 01:29	2°♈10'18	-0°36'49
				minimum elong	12231 Jul 15 01:29	2°♈10'18	0°37'36
conjunction	12225 Jul 01 10:33	18°☾53'08	-0°30'11	max. Earth dist.	12231 Jul 15 04:10	2°♈10'33	30.98672 AU
minimum elong	12225 Jul 01 10:33	18°☾53'08	0°31'02	morning rise	12231 Jul 30 13:07	2°♈45'17	
max. Earth dist.	12225 Jul 01 09:19	18°☾53'01	31.05890 AU	retrograde	12231 Oct 27 17:49	4°♈41'41	
morning rise	12225 Jul 16 21:25	19°☾28'00		opposition	12232 Jan 15 16:40	3°♈17'54	-0°39'55
retrograde	12225 Oct 13 18:20	21°☾23'44		min. Earth dist.	12232 Jan 15 13:19	3°♈18'08	28.98248 AU
opposition	12226 Jan 01 11:24	20°☾00'19	-0°32'58	direct	12232 Apr 04 04:40	1°♈54'06	
min. Earth dist.	12226 Jan 01 12:48	20°☾00'14	29.05171 AU	evening set	12232 Jul 01 01:24	3°♈48'38	
direct	12226 Mar 22 07:20	18°☾36'31					
evening set	12226 Jun 18 10:18	20°☾31'07		conjunction	12232 Jul 16 12:20	4°♈23'33	-0°37'45
				minimum elong	12232 Jul 16 12:21	4°♈23'33	0°38'31
conjunction	12226 Jul 03 20:57	21°☾05'57	-0°31'24	max. Earth dist.	12232 Jul 16 16:39	4°♈23'58	30.97803 AU
minimum elong	12226 Jul 03 20:57	21°☾05'57	0°32'15	morning rise	12232 Jul 31 23:57	4°♈58'34	
max. Earth dist.	12226 Jul 03 19:35	21°☾05'49	31.04451 AU	retrograde	12232 Oct 29 05:46	6°♈55'06	
morning rise	12226 Jul 19 08:03	21°☾40'50		opposition	12233 Jan 17 05:45	5°♈31'17	-0°40'53
retrograde	12226 Oct 16 07:12	23°☾36'39		min. Earth dist.	12233 Jan 17 01:23	5°♈31'35	28.97385 AU
opposition	12227 Jan 04 00:08	22°☾13'09	-0°34'15	direct	12233 Apr 06 17:33	4°♈07'32	
min. Earth dist.	12227 Jan 04 00:11	22°☾13'09	29.03756 AU	evening set	12233 Jul 03 12:10	6°♈02'05	
direct	12227 Mar 24 19:26	20°☾49'18					
evening set	12227 Jun 20 20:43	22°☾43'52		conjunction	12233 Jul 18 23:00	6°♈37'00	-0°38'38
				minimum elong	12233 Jul 18 23:00	6°♈37'00	0°39'23
conjunction	12227 Jul 06 07:27	23°☾18'43	-0°32'35	max. Earth dist.	12233 Jul 19 02:50	6°♈37'22	30.96947 AU
minimum elong	12227 Jul 06 07:27	23°☾18'43	0°33'25	morning rise	12233 Aug 03 10:56	7°♈12'03	
max. Earth dist.	12227 Jul 06 07:27	23°☾18'43	31.03058 AU	retrograde	12233 Oct 31 20:21	9°♈08'43	
morning rise	12227 Jul 21 18:32	23°☾53'37		opposition	12234 Jan 19 18:56	7°♈44'53	-0°41'47
retrograde	12227 Oct 18 18:19	25°☾49'32		min. Earth dist.	12234 Jan 19 14:05	7°♈45'13	28.96528 AU
opposition	12228 Jan 06 13:05	24°☾25'56	-0°35'29	direct	12234 Apr 09 04:03	6°♈21'09	
min. Earth dist.	12228 Jan 06 13:10	24°☾25'56	29.02415 AU	evening set	12234 Jul 05 23:01	8°♈15'43	
direct	12228 Mar 26 08:27	23°☾02'05					
evening set	12228 Jun 22 07:10	24°☾56'37		conjunction	12234 Jul 21 10:05	8°♈50'40	-0°39'27
				minimum elong	12234 Jul 21 10:05	8°♈50'40	0°40'11
conjunction	12228 Jul 07 17:52	25°☾31'29	-0°33'43	max. Earth dist.	12234 Jul 21 15:24	8°♈51'10	30.96059 AU
minimum elong	12228 Jul 07 17:52	25°☾31'29	0°34'33	morning rise	12234 Aug 05 22:02	9°♈25'43	
max. Earth dist.	12228 Jul 07 18:26	25°☾31'32	31.01781 AU	retrograde	12234 Nov 03 08:16	11°♈22'31	
morning rise	12228 Jul 23 05:03	26°☾06'24		opposition	12235 Jan 22 08:04	9°♈58'39	-0°42'37
retrograde	12228 Oct 20 07:09	28°☾02'25		min. Earth dist.	12235 Jan 22 03:16	9°♈58'59	28.95605 AU
opposition	12229 Jan 08 01:52	26°☾38'45	-0°36'40	direct	12235 Apr 11 16:11	8°♈34'57	
min. Earth dist.	12229 Jan 07 23:59	26°☾38'53	29.01199 AU	evening set	12235 Jul 08 10:07	10°♈29'31	
direct	12229 Mar 28 20:52	25°☾14'54					

conjunction	12235 Jul 23 21:11	11°Ω04'29	-0°40'12	retrograde	12241 Nov 19 00:42	27°Ω01'03	
minimum elong	12235 Jul 23 21:11	11°Ω04'29	0°40'55	opposition	12242 Feb 07 04:34	25°Ω36'44	-0°46'40
max. Earth dist.	12235 Jul 24 01:57	11°Ω04'56	30.95099 AU	min. Earth dist.	12242 Feb 06 19:34	25°Ω37'21	28.87998 AU
morning rise	12235 Aug 08 09:25	11°Ω39'34		direct	12242 Apr 27 05:44	24°Ω12'58	
retrograde	12235 Nov 05 22:55	13°Ω36'29		evening set	12242 Jul 23 15:28	26°Ω07'25	
opposition	12236 Jan 24 21:18	12°Ω12'34	-0°43'24				
min. Earth dist.	12236 Jan 24 15:33	12°Ω12'58	28.94596 AU	conjunction	12242 Aug 08 03:31	26°Ω42'30	-0°43'46
direct	12236 Apr 13 04:26	10°Ω48'52		minimum elong	12242 Aug 08 03:32	26°Ω42'30	0°44'19
evening set	12236 Jul 09 21:07	12°Ω43'26		max. Earth dist.	12242 Aug 08 12:12	26°Ω43'20	30.87578 AU
				morning rise	12242 Aug 23 17:22	27°Ω17'46	
conjunction	12236 Jul 25 08:20	13°Ω18'25	-0°40'54	retrograde	12242 Nov 21 14:52	29°Ω15'21	
minimum elong	12236 Jul 25 08:20	13°Ω18'25	0°41'36	opposition	12243 Feb 09 17:36	27°Ω50'59	-0°46'58
max. Earth dist.	12236 Jul 25 13:57	13°Ω18'57	30.94023 AU	min. Earth dist.	12243 Feb 09 08:00	27°Ω51'39	28.87233 AU
morning rise	12236 Aug 09 20:40	13°Ω53'32		direct	12243 Apr 29 15:28	26°Ω27'15	
	12236 Sep 12 02:00	15°Ω		evening set	12243 Jul 26 02:37	28°Ω21'43	
retrograde	12236 Nov 07 11:30	15°Ω50'33					
	12237 Jan 05 13:17	15°RΩ		conjunction	12243 Aug 10 15:01	28°Ω56'50	-0°44'01
opposition	12237 Jan 26 10:41	14°Ω26'34	-0°44'06	minimum elong	12243 Aug 10 15:01	28°Ω56'50	0°44'33
min. Earth dist.	12237 Jan 26 05:27	14°Ω26'55	28.93470 AU	max. Earth dist.	12243 Aug 11 01:24	28°Ω57'49	30.86862 AU
direct	12237 Apr 15 17:40	13°Ω02'52		morning rise	12243 Aug 26 04:57	29°Ω32'07	
evening set	12237 Jul 12 08:12	14°Ω57'24			12243 Sep 08 03:05	0°Rη	
	12237 Jul 13 12:14	15°Ω		retrograde	12243 Nov 24 02:55	1°η29'49	
conjunction	12237 Jul 27 19:32	15°Ω32'24	-0°41'32	opposition	12244 Feb 12 06:49	0°η05'26	-0°47'12
minimum elong	12237 Jul 27 19:33	15°Ω32'24	0°42'13	min. Earth dist.	12244 Feb 11 20:52	0°η06'07	28.86564 AU
max. Earth dist.	12237 Jul 28 01:16	15°Ω32'57	30.92868 AU		12244 Feb 15 13:34	30°RΩ	
morning rise	12237 Aug 12 08:07	16°Ω07'32		direct	12244 May 01 02:55	28°Ω41'44	
retrograde	12237 Nov 10 01:13	18°Ω04'38			12244 Jul 10 13:33	0°η	
opposition	12238 Jan 28 23:51	16°Ω40'35	-0°44'45	evening set	12244 Jul 27 13:51	0°η36'13	
min. Earth dist.	12238 Jan 28 17:10	16°Ω41'02	28.92281 AU				
direct	12238 Apr 18 06:41	15°Ω16'51		conjunction	12244 Aug 12 02:20	1°η11'21	-0°44'12
evening set	12238 Jul 14 19:12	17°Ω11'22		minimum elong	12244 Aug 12 02:20	1°η11'21	0°44'42
				max. Earth dist.	12244 Aug 12 12:34	1°η12'19	30.86246 AU
conjunction	12238 Jul 30 06:39	17°Ω46'23	-0°42'06	morning rise	12244 Aug 27 16:40	1°η46'39	
minimum elong	12238 Jul 30 06:39	17°Ω46'23	0°42'46	retrograde	12244 Nov 25 18:14	3°η44'28	
max. Earth dist.	12238 Jul 30 12:45	17°Ω46'57	30.91658 AU	opposition	12245 Feb 13 20:03	2°η20'04	-0°47'21
morning rise	12238 Aug 14 19:30	18°Ω21'32		min. Earth dist.	12245 Feb 13 08:58	2°η20'50	28.85983 AU
retrograde	12238 Nov 12 12:21	20°Ω18'44		direct	12245 May 03 15:00	0°η56'24	
opposition	12239 Jan 31 13:09	18°Ω54'35	-0°45'20	evening set	12245 Jul 30 01:13	2°η50'54	
min. Earth dist.	12239 Jan 31 06:59	18°Ω55'00	28.91080 AU				
direct	12239 Apr 20 18:17	17°Ω30'49		conjunction	12245 Aug 14 13:59	3°η26'04	-0°44'19
evening set	12239 Jul 17 06:12	19°Ω25'18		minimum elong	12245 Aug 14 13:59	3°η26'04	0°44'47
				max. Earth dist.	12245 Aug 15 01:20	3°η27'08	30.85680 AU
conjunction	12239 Aug 01 17:53	20°Ω00'20	-0°42'37	morning rise	12245 Aug 30 04:30	4°η01'25	
minimum elong	12239 Aug 01 17:53	20°Ω00'20	0°43'14	retrograde	12245 Nov 28 07:51	5°η59'19	
max. Earth dist.	12239 Aug 02 01:10	20°Ω01'02	30.90479 AU	opposition	12246 Feb 16 09:19	4°η34'55	-0°47'26
morning rise	12239 Aug 17 06:51	20°Ω35'31		min. Earth dist.	12246 Feb 15 22:42	4°η35'39	28.85433 AU
retrograde	12239 Nov 15 00:17	22°Ω32'47		direct	12246 May 06 03:45	3°η11'18	
opposition	12240 Feb 03 02:08	21°Ω08'34	-0°45'51	evening set	12246 Aug 01 12:42	5°η05'48	
min. Earth dist.	12240 Feb 02 18:26	21°Ω09'06	28.89932 AU				
direct	12240 Apr 22 06:54	19°Ω44'48		conjunction	12246 Aug 17 01:41	5°η40'59	-0°44'22
evening set	12240 Jul 18 17:20	21°Ω39'15		minimum elong	12246 Aug 17 01:42	5°η40'59	0°44'48
				max. Earth dist.	12246 Aug 17 13:07	5°η42'04	30.85136 AU
conjunction	12240 Aug 03 05:02	22°Ω14'19	-0°43'04	morning rise	12246 Sep 01 16:33	6°η16'22	
minimum elong	12240 Aug 03 05:02	22°Ω14'19	0°43'40	retrograde	12246 Nov 30 22:21	8°η14'22	
max. Earth dist.	12240 Aug 03 12:17	22°Ω15'00	30.89379 AU	opposition	12247 Feb 18 22:30	6°η49'57	-0°47'27
morning rise	12240 Aug 18 18:21	22°Ω49'31		min. Earth dist.	12247 Feb 18 10:38	6°η50'47	28.84867 AU
retrograde	12240 Nov 16 13:08	24°Ω46'53		direct	12247 May 08 16:24	5°η26'21	
opposition	12241 Feb 04 15:25	23°Ω22'36	-0°46'17	evening set	12247 Aug 04 00:25	7°η20'53	
min. Earth dist.	12241 Feb 04 07:40	23°Ω23'08	28.88904 AU				
direct	12241 Apr 24 16:49	21°Ω58'50		conjunction	12247 Aug 19 13:34	7°η56'05	-0°44'20
evening set	12241 Jul 21 04:14	23°Ω53'17		minimum elong	12247 Aug 19 13:34	7°η56'05	0°44'44
				max. Earth dist.	12247 Aug 20 01:00	7°η57'10	30.84527 AU
conjunction	12241 Aug 05 16:15	24°Ω28'21	-0°43'27	morning rise	12247 Sep 04 04:42	8°η31'29	
minimum elong	12241 Aug 05 16:16	24°Ω28'21	0°44'01	retrograde	12247 Dec 03 11:10	10°η29'35	
max. Earth dist.	12241 Aug 06 01:17	24°Ω29'12	30.88413 AU	opposition	12248 Feb 21 11:50	9°η05'08	-0°47'23
morning rise	12241 Aug 21 05:40	25°Ω03'35		min. Earth dist.	12248 Feb 21 00:52	9°η05'53	28.84225 AU
				direct	12248 May 10 04:35	7°η41'33	

evening set	12248 Aug 05 12:07	9° <u>0</u> 36'03	opposition	12255 Mar 09 07:52	24° <u>0</u> 50'11	-0°44'58
			min. Earth dist.	12255 Mar 08 18:30	24° <u>0</u> 51'07	28.78974 AU
conjunction	12248 Aug 21 01:37	10° <u>0</u> 11'17 -0°44'15	direct	12255 May 26 17:33	23° <u>0</u> 26'23	
minimum elong	12248 Aug 21 01:37	10° <u>0</u> 11'17 0°44'37	evening set	12255 Aug 21 22:24	25° <u>0</u> 20'41	
max. Earth dist.	12248 Aug 21 13:41	10° <u>0</u> 12'26 30.83842 AU				
morning rise	12248 Sep 05 16:58	10° <u>0</u> 46'43	conjunction	12255 Sep 06 13:54	25° <u>0</u> 56'03	-0°41'46
retrograde	12248 Dec 05 01:18	12° <u>0</u> 44'51	minimum elong	12255 Sep 06 13:54	25° <u>0</u> 56'03	0°41'55
opposition	12249 Feb 23 01:07	11° <u>0</u> 20'22 -0°47'15	max. Earth dist.	12255 Sep 07 04:24	25° <u>0</u> 57'25	30.78747 AU
min. Earth dist.	12249 Feb 22 13:04	11° <u>0</u> 21'12 28.83481 AU	morning rise	12255 Sep 22 07:39	26° <u>0</u> 31'38	
direct	12249 May 12 18:27	9° <u>0</u> 56'46	retrograde	12255 Dec 21 19:33	28° <u>0</u> 30'02	
evening set	12249 Aug 07 23:53	11° <u>0</u> 51'14	opposition	12256 Mar 10 20:44	27° <u>0</u> 05'06	-0°44'21
			min. Earth dist.	12256 Mar 10 05:52	27° <u>0</u> 06'08	28.78604 AU
conjunction	12249 Aug 23 13:32	12° <u>0</u> 26'30 -0°44'05	direct	12256 May 28 05:46	25° <u>0</u> 41'19	
minimum elong	12249 Aug 23 13:32	12° <u>0</u> 26'30 0°44'26	evening set	12256 Aug 23 10:20	27° <u>0</u> 35'37	
max. Earth dist.	12249 Aug 24 00:57	12° <u>0</u> 27'35 30.83047 AU				
morning rise	12249 Sep 08 05:21	13° <u>0</u> 01'57	conjunction	12256 Sep 08 02:05	28° <u>0</u> 11'00	-0°41'10
retrograde	12249 Dec 07 13:56	15° <u>0</u> 00'09	minimum elong	12256 Sep 08 02:05	28° <u>0</u> 11'01	0°41'16
opposition	12250 Feb 25 14:31	13° <u>0</u> 35'34 -0°47'03	max. Earth dist.	12256 Sep 08 16:59	28° <u>0</u> 12'25	30.78438 AU
min. Earth dist.	12250 Feb 25 03:09	13° <u>0</u> 36'21 28.82648 AU	morning rise	12256 Sep 23 20:13	28° <u>0</u> 46'38	
direct	12250 May 15 05:45	12° <u>0</u> 11'56		12256 Oct 31 03:39	0° <u>0</u>	
evening set	12250 Aug 10 11:36	14° <u>0</u> 06'21	retrograde	12256 Dec 23 09:10	0° <u>0</u> 45'05	
				12257 Feb 16 12:54	30° <u>0</u> 8'00	
conjunction	12250 Aug 26 01:42	14° <u>0</u> 41'38 -0°43'52	opposition	12257 Mar 13 09:49	29° <u>0</u> 20'09	-0°43'39
minimum elong	12250 Aug 26 01:43	14° <u>0</u> 41'38 0°44'11	min. Earth dist.	12257 Mar 12 19:32	29° <u>0</u> 21'08	28.78361 AU
max. Earth dist.	12250 Aug 26 14:17	14° <u>0</u> 42'49 30.82184 AU	direct	12257 May 30 17:52	27° <u>0</u> 56'24	
morning rise	12250 Sep 10 17:42	15° <u>0</u> 17'07	evening set	12257 Aug 25 22:11	29° <u>0</u> 50'42	
retrograde	12250 Dec 10 01:07	17° <u>0</u> 15'19		12257 Aug 30 02:07	0° <u>0</u>	
opposition	12251 Feb 28 03:32	15° <u>0</u> 50'40 -0°46'46				
min. Earth dist.	12251 Feb 27 15:27	15° <u>0</u> 51'30 28.81760 AU	conjunction	12257 Sep 10 14:23	0° <u>0</u> 26'08	-0°40'29
direct	12251 May 17 19:05	14° <u>0</u> 26'59	minimum elong	12257 Sep 10 14:24	0° <u>0</u> 26'08	0°40'34
evening set	12251 Aug 12 23:27	16° <u>0</u> 21'22	max. Earth dist.	12257 Sep 11 06:12	0° <u>0</u> 27'38	30.78253 AU
			morning rise	12257 Sep 26 08:49	1° <u>0</u> 01'47	
conjunction	12251 Aug 28 13:40	16° <u>0</u> 56'39 -0°43'35	retrograde	12257 Dec 26 00:09	3° <u>0</u> 00'17	
minimum elong	12251 Aug 28 13:40	16° <u>0</u> 56'39 0°43'52	opposition	12258 Mar 15 22:43	1° <u>0</u> 35'22	-0°42'54
max. Earth dist.	12251 Aug 29 01:30	16° <u>0</u> 57'46 30.81304 AU	min. Earth dist.	12258 Mar 15 07:14	1° <u>0</u> 36'26	28.78206 AU
morning rise	12251 Sep 13 06:10	17° <u>0</u> 32'09	direct	12258 Jun 02 07:32	0° <u>0</u> 11'39	
retrograde	12251 Dec 12 14:27	19° <u>0</u> 30'23	evening set	12258 Aug 28 10:25	2° <u>0</u> 05'59	
opposition	12252 Mar 01 16:44	18° <u>0</u> 05'39 -0°46'26				
min. Earth dist.	12252 Mar 01 04:25	18° <u>0</u> 06'30 28.80908 AU	conjunction	12258 Sep 13 02:48	2° <u>0</u> 41'26	-0°39'44
direct	12252 May 19 05:32	16° <u>0</u> 41'54	minimum elong	12258 Sep 13 02:48	2° <u>0</u> 41'26	0°39'47
evening set	12252 Aug 14 11:01	18° <u>0</u> 36'14	max. Earth dist.	12258 Sep 13 18:06	2° <u>0</u> 42'53	30.78123 AU
			morning rise	12258 Sep 28 21:42	3° <u>0</u> 17'07	
conjunction	12252 Aug 30 01:39	19° <u>0</u> 11'33 -0°43'13	retrograde	12258 Dec 28 13:11	5° <u>0</u> 15'41	
minimum elong	12252 Aug 30 01:40	19° <u>0</u> 11'33 0°43'28	opposition	12259 Mar 18 11:38	3° <u>0</u> 50'47	-0°42'04
max. Earth dist.	12252 Aug 30 15:05	19° <u>0</u> 12'49 30.80479 AU	min. Earth dist.	12259 Mar 17 20:56	3° <u>0</u> 51'48	28.78097 AU
morning rise	12252 Sep 14 18:19	19° <u>0</u> 47'04	direct	12259 Jun 04 18:30	2° <u>0</u> 27'06	
retrograde	12252 Dec 14 02:08	21° <u>0</u> 45'20	evening set	12259 Aug 30 22:37	4° <u>0</u> 21'28	
opposition	12253 Mar 04 05:52	20° <u>0</u> 20'31 -0°46'01				
min. Earth dist.	12253 Mar 03 17:13	20° <u>0</u> 21'24 28.80129 AU	conjunction	12259 Sep 15 15:29	4° <u>0</u> 56'56	-0°38'56
direct	12253 May 21 17:51	18° <u>0</u> 56'45	minimum elong	12259 Sep 15 15:29	4° <u>0</u> 56'56	0°38'57
evening set	12253 Aug 16 22:51	20° <u>0</u> 51'03	max. Earth dist.	12259 Sep 16 07:49	4° <u>0</u> 58'29	30.78011 AU
			morning rise	12259 Oct 01 10:33	5° <u>0</u> 32'39	
conjunction	12253 Sep 01 13:40	21° <u>0</u> 26'22 -0°42'48	retrograde	12259 Dec 31 01:43	7° <u>0</u> 31'15	
minimum elong	12253 Sep 01 13:40	21° <u>0</u> 26'22 0°43'02	min. Earth dist.	12260 Mar 19 09:19	6° <u>0</u> 07'26	28.77962 AU
max. Earth dist.	12253 Sep 02 02:49	21° <u>0</u> 27'37 30.79767 AU	opposition	12260 Mar 20 00:35	6° <u>0</u> 06'22	-0°41'10
morning rise	12253 Sep 17 06:48	22° <u>0</u> 01'55	direct	12260 Jun 06 07:40	4° <u>0</u> 42'44	
retrograde	12253 Dec 16 16:23	24° <u>0</u> 00'13	evening set	12260 Sep 01 10:58	6° <u>0</u> 37'05	
opposition	12254 Mar 06 18:49	22° <u>0</u> 35'21 -0°45'32				
min. Earth dist.	12254 Mar 06 05:11	22° <u>0</u> 36'18 28.79488 AU	conjunction	12260 Sep 17 03:59	7° <u>0</u> 12'35	-0°38'05
direct	12254 May 24 05:27	21° <u>0</u> 11'33	minimum elong	12260 Sep 17 03:59	7° <u>0</u> 12'35	0°38'03
evening set	12254 Aug 19 10:36	23° <u>0</u> 05'51	max. Earth dist.	12260 Sep 17 19:10	7° <u>0</u> 14'02	30.77851 AU
			morning rise	12260 Oct 02 23:34	7° <u>0</u> 48'20	
conjunction	12254 Sep 04 01:48	23° <u>0</u> 41'11 -0°42'19	retrograde	12261 Jan 01 15:52	9° <u>0</u> 46'58	
minimum elong	12254 Sep 04 01:49	23° <u>0</u> 41'11 0°42'30	opposition	12261 Mar 22 13:39	8° <u>0</u> 22'05	-0°40'13
max. Earth dist.	12254 Sep 04 16:06	23° <u>0</u> 42'32 30.79182 AU	min. Earth dist.	12261 Mar 21 22:41	8° <u>0</u> 23'08	28.77772 AU
morning rise	12254 Sep 19 19:12	24° <u>0</u> 16'45	direct	12261 Jun 08 18:08	6° <u>0</u> 58'26	
retrograde	12254 Dec 19 05:02	26° <u>0</u> 15'06	evening set	12261 Sep 03 23:21	8° <u>0</u> 52'48	

conjunction	12261 Sep 19 16:53	9° <u>♂</u> 28'19	-0°37'09	direct	12268 Jun 24 07:37	22° <u>♂</u> 46'11	
minimum elong	12261 Sep 19 16:53	9° <u>♂</u> 28'19	0°37'07	evening set	12268 Sep 19 14:03	24° <u>♂</u> 40'22	
max. Earth dist.	12261 Sep 20 08:58	9° <u>♂</u> 29'51	30.77612 AU				
morning rise	12261 Oct 05 12:40	10° <u>♂</u> 04'06		conjunction	12268 Oct 05 10:06	25° <u>♂</u> 16'00	-0°29'16
retrograde	12262 Jan 04 03:35	12° <u>♂</u> 02'44		minimum elong	12268 Oct 05 10:06	25° <u>♂</u> 16'00	0°28'58
min. Earth dist.	12262 Mar 24 11:47	10° <u>♂</u> 38'51	28.77487 AU	max. Earth dist.	12268 Oct 06 03:26	25° <u>♂</u> 17'39	30.76645 AU
opposition	12262 Mar 25 02:30	10° <u>♂</u> 37'49	-0°39'12	morning rise	12268 Oct 21 08:22	25° <u>♂</u> 51'54	
direct	12262 Jun 11 06:43	9° <u>♂</u> 14'10		retrograde	12269 Jan 20 00:39	27° <u>♂</u> 50'19	
evening set	12262 Sep 06 11:51	11° <u>♂</u> 08'29		opposition	12269 Apr 09 18:34	26° <u>♂</u> 25'11	-0°30'33
				min. Earth dist.	12269 Apr 09 02:25	26° <u>♂</u> 26'19	28.76831 AU
conjunction	12262 Sep 22 05:38	11° <u>♂</u> 44'02	-0°36'11	direct	12269 Jun 26 21:22	25° <u>♂</u> 01'19	
minimum elong	12262 Sep 22 05:38	11° <u>♂</u> 44'02	0°36'05	evening set	12269 Sep 22 02:42	26° <u>♂</u> 55'30	
max. Earth dist.	12262 Sep 22 20:42	11° <u>♂</u> 45'27	30.77305 AU				
morning rise	12262 Oct 08 01:56	12° <u>♂</u> 19'49		conjunction	12269 Oct 07 22:57	27° <u>♂</u> 31'10	-0°27'56
retrograde	12263 Jan 06 16:57	14° <u>♂</u> 18'27		minimum elong	12269 Oct 07 22:58	27° <u>♂</u> 31'10	0°27'37
opposition	12263 Mar 27 15:17	12° <u>♂</u> 53'30	-0°38'07	max. Earth dist.	12269 Oct 08 15:22	27° <u>♂</u> 32'43	30.77016 AU
min. Earth dist.	12263 Mar 27 00:15	12° <u>♂</u> 54'33	28.77157 AU	morning rise	12269 Oct 23 21:45	28° <u>♂</u> 07'05	
direct	12263 Jun 13 18:14	11° <u>♂</u> 29'47			12270 Jan 04 09:22	0° <u>♂</u>	
evening set	12263 Sep 09 00:08	13° <u>♂</u> 24'05		retrograde	12270 Jan 22 14:59	0° <u>♂</u> 05'28	
					12270 Feb 09 20:12	30° <u>♂</u>	
conjunction	12263 Sep 24 18:20	13° <u>♂</u> 59'39	-0°35'09	opposition	12270 Apr 12 06:54	28° <u>♂</u> 40'22	-0°29'06
minimum elong	12263 Sep 24 18:20	13° <u>♂</u> 59'39	0°35'02	min. Earth dist.	12270 Apr 11 14:58	28° <u>♂</u> 41'29	28.77270 AU
max. Earth dist.	12263 Sep 25 10:10	14° <u>♂</u> 01'08	30.76957 AU	direct	12270 Jun 29 08:28	27° <u>♂</u> 16'31	
morning rise	12263 Oct 10 14:52	14° <u>♂</u> 35'27		evening set	12270 Sep 24 15:18	29° <u>♂</u> 10'42	
retrograde	12264 Jan 09 04:38	16° <u>♂</u> 34'03					
opposition	12264 Mar 29 04:04	15° <u>♂</u> 09'02	-0°37'00	conjunction	12270 Oct 10 12:04	29° <u>♂</u> 46'24	-0°26'34
min. Earth dist.	12264 Mar 28 13:41	15° <u>♂</u> 10'03	28.76818 AU	minimum elong	12270 Oct 10 12:04	29° <u>♂</u> 46'24	0°26'12
direct	12264 Jun 15 05:52	13° <u>♂</u> 45'17		max. Earth dist.	12270 Oct 11 05:35	29° <u>♂</u> 48'03	30.77500 AU
evening set	12264 Sep 10 12:31	15° <u>♂</u> 39'33			12270 Oct 16 11:58	0° <u>♂</u>	
				morning rise	12270 Oct 26 11:01	0° <u>♂</u> 22'20	
conjunction	12264 Sep 26 07:04	16° <u>♂</u> 15'07	-0°34'04	retrograde	12271 Jan 25 02:29	2° <u>♂</u> 20'42	
minimum elong	12264 Sep 26 07:04	16° <u>♂</u> 15'07	0°33'54	opposition	12271 Apr 14 19:16	0° <u>♂</u> 55'38	-0°27'37
max. Earth dist.	12264 Sep 26 22:41	16° <u>♂</u> 16'36	30.76658 AU	min. Earth dist.	12271 Apr 14 03:26	0° <u>♂</u> 56'45	28.77782 AU
morning rise	12264 Oct 12 04:01	16° <u>♂</u> 50'57			12271 May 20 22:57	30° <u>♂</u>	
retrograde	12265 Jan 10 18:49	18° <u>♂</u> 49'31		direct	12271 Jul 01 21:02	29° <u>♂</u> 31'50	
opposition	12265 Mar 31 16:38	17° <u>♂</u> 24'27	-0°35'49	evening set	12271 Aug 11 16:04	0° <u>♂</u>	
min. Earth dist.	12265 Mar 31 01:09	17° <u>♂</u> 25'32	28.76558 AU		12271 Sep 27 04:01	1° <u>♂</u> 26'01	
direct	12265 Jun 17 17:51	16° <u>♂</u> 00'38		conjunction	12271 Oct 13 00:59	2° <u>♂</u> 01'44	-0°25'10
evening set	12265 Sep 13 00:53	17° <u>♂</u> 54'53		minimum elong	12271 Oct 13 00:59	2° <u>♂</u> 01'44	0°24'46
				max. Earth dist.	12271 Oct 13 17:29	2° <u>♂</u> 03'17	30.78042 AU
conjunction	12265 Sep 28 19:45	18° <u>♂</u> 30'28	-0°32'57	morning rise	12271 Oct 29 00:23	2° <u>♂</u> 37'41	
minimum elong	12265 Sep 28 19:45	18° <u>♂</u> 30'28	0°32'45	retrograde	12272 Jan 27 16:03	4° <u>♂</u> 36'02	
max. Earth dist.	12265 Sep 29 11:35	18° <u>♂</u> 31'58	30.76439 AU	opposition	12272 Apr 16 07:39	3° <u>♂</u> 11'02	-0°26'05
morning rise	12265 Oct 14 17:05	19° <u>♂</u> 06'19		min. Earth dist.	12272 Apr 15 15:40	3° <u>♂</u> 12'09	28.78331 AU
retrograde	12266 Jan 13 07:56	21° <u>♂</u> 04'50		direct	12272 Jul 03 07:57	1° <u>♂</u> 47'14	
opposition	12266 Apr 03 05:17	19° <u>♂</u> 39'44	-0°34'34	evening set	12272 Sep 28 16:54	3° <u>♂</u> 41'27	
min. Earth dist.	12266 Apr 02 14:34	19° <u>♂</u> 40'46	28.76403 AU				
direct	12266 Jun 20 06:40	18° <u>♂</u> 15'53		conjunction	12272 Oct 14 14:16	4° <u>♂</u> 17'11	-0°23'43
evening set	12266 Sep 15 13:17	20° <u>♂</u> 10'06		minimum elong	12272 Oct 14 14:16	4° <u>♂</u> 17'11	0°23'17
				max. Earth dist.	12272 Oct 15 07:18	4° <u>♂</u> 18'47	30.78568 AU
conjunction	12266 Oct 01 08:35	20° <u>♂</u> 45'43	-0°31'46	morning rise	12272 Oct 30 13:52	4° <u>♂</u> 53'09	
minimum elong	12266 Oct 01 08:35	20° <u>♂</u> 45'43	0°31'31	retrograde	12273 Jan 29 04:04	6° <u>♂</u> 51'29	
max. Earth dist.	12266 Oct 02 01:02	20° <u>♂</u> 47'16	30.76356 AU	opposition	12273 Apr 18 20:04	5° <u>♂</u> 26'30	-0°24'30
morning rise	12266 Oct 17 06:11	21° <u>♂</u> 21'34		min. Earth dist.	12273 Apr 18 05:09	5° <u>♂</u> 27'33	28.78833 AU
retrograde	12267 Jan 15 22:10	23° <u>♂</u> 20'03		direct	12273 Jul 05 19:03	4° <u>♂</u> 02'44	
opposition	12267 Apr 05 17:35	21° <u>♂</u> 54'55	-0°33'17	evening set	12273 Oct 01 05:52	5° <u>♂</u> 56'57	
min. Earth dist.	12267 Apr 05 01:40	21° <u>♂</u> 56'02	28.76387 AU				
direct	12267 Jun 22 20:28	20° <u>♂</u> 31'03		conjunction	12273 Oct 17 03:35	6° <u>♂</u> 32'41	-0°22'13
evening set	12267 Sep 18 01:48	22° <u>♂</u> 25'15		minimum elong	12273 Oct 17 03:35	6° <u>♂</u> 32'41	0°21'47
				max. Earth dist.	12273 Oct 17 19:39	6° <u>♂</u> 34'12	30.79040 AU
conjunction	12267 Oct 03 21:19	23° <u>♂</u> 00'52	-0°30'32	morning rise	12273 Nov 02 03:35	7° <u>♂</u> 08'40	
minimum elong	12267 Oct 03 21:19	23° <u>♂</u> 00'53	0°30'17	retrograde	12274 Jan 31 18:02	9° <u>♂</u> 06'57	
max. Earth dist.	12267 Oct 04 13:23	23° <u>♂</u> 02'23	30.76416 AU	opposition	12274 Apr 21 08:22	7° <u>♂</u> 42'00	-0°22'54
morning rise	12267 Oct 19 19:22	23° <u>♂</u> 36'45		min. Earth dist.	12274 Apr 20 16:58	7° <u>♂</u> 43'05	28.79255 AU
retrograde	12268 Jan 18 11:11	25° <u>♂</u> 35'12		direct	12274 Jul 08 07:02	6° <u>♂</u> 18'13	
opposition	12268 Apr 07 06:10	24° <u>♂</u> 10'03	-0°31'56	evening set	12274 Oct 03 18:55	8° <u>♂</u> 12'26	
min. Earth dist.	12268 Apr 06 14:50	24° <u>♂</u> 11'08	28.76535 AU				

conjunction	12274 Oct 19 16:57	8° ℓ 48'11	-0°20'42	evening set	12280 Oct 17 00:22	21° ℓ 43'14	
minimum elong	12274 Oct 19 16:57	8° ℓ 48'11	0°20'13				
max. Earth dist.	12274 Oct 20 08:34	8° ℓ 49'39	30.79408 AU	conjunction	12280 Nov 02 00:18	22° ℓ 19'04	-0°11'05
morning rise	12274 Nov 04 17:14	9° ℓ 24'11		minimum elong	12280 Nov 02 00:18	22° ℓ 19'04	0°10'26
retrograde	12275 Feb 03 06:21	11° ℓ 22'24		behind sun begin	12280 Nov 01 19:12	22° ℓ 18'36	
opposition	12275 Apr 23 20:40	9° ℓ 57'27	-0°21'15	behind sun end	12280 Nov 02 05:25	22° ℓ 19'31	
min. Earth dist.	12275 Apr 23 06:38	9° ℓ 58'26	28.79587 AU	max. Earth dist.	12280 Nov 02 14:32	22° ℓ 20'23	30.81916 AU
direct	12275 Jul 10 19:17	8° ℓ 33'38		morning rise	12280 Nov 18 02:19	22° ℓ 55'06	
evening set	12275 Oct 06 07:51	10° ℓ 27'51		retrograde	12281 Feb 16 13:22	24° ℓ 52'49	
				opposition	12281 May 06 20:12	23° ℓ 27'55	-0°10'51
conjunction	12275 Oct 22 06:18	11° ℓ 03'37	-0°19'10	min. Earth dist.	12281 May 06 06:19	23° ℓ 28'54	28.82309 AU
minimum elong	12275 Oct 22 06:18	11° ℓ 03'37	0°18'39	direct	12281 Jul 23 22:05	22° ℓ 03'57	
max. Earth dist.	12275 Oct 22 21:50	11° ℓ 05'04	30.79725 AU	evening set	12281 Oct 19 13:18	23° ℓ 58'07	
morning rise	12275 Nov 07 06:50	11° ℓ 39'37					
retrograde	12276 Feb 05 20:08	13° ℓ 37'45		conjunction	12281 Nov 04 13:40	24° ℓ 33'58	-0°09'24
opposition	12276 Apr 25 08:47	12° ℓ 12'48	-0°19'35	minimum elong	12281 Nov 04 13:40	24° ℓ 33'58	0°08'45
min. Earth dist.	12276 Apr 24 18:04	12° ℓ 13'50	28.79880 AU	behind sun begin	12281 Nov 04 08:01	24° ℓ 33'27	
direct	12276 Jul 12 08:46	10° ℓ 48'57		behind sun end	12281 Nov 04 19:19	24° ℓ 34'28	
evening set	12276 Oct 07 20:45	12° ℓ 43'08		max. Earth dist.	12281 Nov 05 04:40	24° ℓ 35'22	30.82704 AU
				morning rise	12281 Nov 20 15:49	25° ℓ 10'00	
conjunction	12276 Oct 23 19:25	13° ℓ 18'55	-0°17'35	retrograde	12282 Feb 19 01:09	27° ℓ 07'39	
minimum elong	12276 Oct 23 19:25	13° ℓ 18'55	0°17'02	opposition	12282 May 09 07:59	25° ℓ 42'49	-0°09'03
max. Earth dist.	12276 Oct 24 10:10	13° ℓ 20'18	30.80015 AU	min. Earth dist.	12282 May 08 18:55	25° ℓ 43'44	28.83156 AU
morning rise	12276 Nov 08 20:23	13° ℓ 54'56		direct	12282 Jul 26 08:58	24° ℓ 18'52	
	12276 Dec 11 10:02	15° ℓ		evening set	12282 Oct 22 02:20	26° ℓ 13'03	
retrograde	12277 Feb 07 09:11	15° ℓ 53'00					
	12277 Apr 08 09:35	15° κ ℓ		conjunction	12282 Nov 07 02:56	26° ℓ 48'54	-0°07'43
opposition	12277 Apr 27 20:59	14° ℓ 28'02	-0°17'53	minimum elong	12282 Nov 07 02:55	26° ℓ 48'54	0°07'01
min. Earth dist.	12277 Apr 27 07:24	14° ℓ 28'59	28.80186 AU	behind sun begin	12282 Nov 06 20:52	26° ℓ 48'21	
direct	12277 Jul 14 20:07	13° ℓ 04'08		behind sun end	12282 Nov 07 08:58	26° ℓ 49'26	
evening set	12277 Oct 10 09:38	14° ℓ 58'19		max. Earth dist.	12282 Nov 07 17:10	26° ℓ 50'14	30.83617 AU
	12277 Oct 11 04:02	15° ℓ		morning rise	12282 Nov 23 05:21	27° ℓ 24'57	
conjunction	12277 Oct 26 08:48	15° ℓ 34'06	-0°15'59	retrograde	12283 Feb 21 13:47	29° ℓ 22'31	
minimum elong	12277 Oct 26 08:48	15° ℓ 34'06	0°15'26	opposition	12283 May 11 19:35	27° ℓ 57'45	-0°07'13
behind sun begin	12277 Oct 26 07:10	15° ℓ 33'58		min. Earth dist.	12283 May 11 05:52	27° ℓ 58'43	28.84110 AU
behind sun end	12277 Oct 26 10:26	15° ℓ 34'15		direct	12283 Jul 28 20:28	26° ℓ 33'49	
max. Earth dist.	12277 Oct 27 00:16	15° ℓ 35'33	30.80345 AU	evening set	12283 Oct 24 15:27	28° ℓ 28'02	
morning rise	12277 Nov 11 09:54	16° ℓ 10'07					
retrograde	12278 Feb 09 22:50	18° ℓ 08'05		conjunction	12283 Nov 09 16:17	29° ℓ 03'54	-0°06'01
opposition	12278 Apr 30 08:44	16° ℓ 43'07	-0°16'09	minimum elong	12283 Nov 09 16:17	29° ℓ 03'54	0°05'19
min. Earth dist.	12278 Apr 29 18:44	16° ℓ 44'06	28.80542 AU	behind sun begin	12283 Nov 09 09:57	29° ℓ 03'20	
direct	12278 Jul 17 10:20	15° ℓ 19'12		behind sun end	12283 Nov 09 22:37	29° ℓ 04'28	
evening set	12278 Oct 12 22:39	17° ℓ 13'22		max. Earth dist.	12283 Nov 10 06:26	29° ℓ 05'13	30.84597 AU
				morning rise	12283 Nov 25 18:54	29° ℓ 39'57	
conjunction	12278 Oct 28 21:58	17° ℓ 49'10	-0°14'22		12283 Dec 05 02:21	0° ♂	
minimum elong	12278 Oct 28 21:58	17° ℓ 49'10	0°13'46	retrograde	12284 Feb 24 01:06	1° ♂ 37'28	
behind sun begin	12278 Oct 28 18:35	17° ℓ 48'52		opposition	12284 May 13 07:21	0° ♂ 12'46	-0°05'23
behind sun end	12278 Oct 29 01:21	17° ℓ 49'29		min. Earth dist.	12284 May 12 18:59	0° ♂ 13'39	28.85109 AU
max. Earth dist.	12278 Oct 29 12:13	17° ℓ 50'30	30.80746 AU		12284 May 20 21:46	30° κ ℓ	
morning rise	12278 Nov 13 23:30	18° ℓ 25'11		direct	12284 Jul 30 07:26	28° ℓ 48'52	
retrograde	12279 Feb 12 12:47	20° ℓ 23'05			12284 Oct 05 10:21	0° ♂	
opposition	12279 May 02 20:40	18° ℓ 58'07	-0°14'24	evening set	12284 Oct 26 04:32	0° ♂ 43'06	
min. Earth dist.	12279 May 02 07:04	18° ℓ 59'04	28.81005 AU				
direct	12279 Jul 19 22:08	17° ℓ 34'10		conjunction	12284 Nov 11 05:44	1° ♂ 18'58	-0°04'19
evening set	12279 Oct 15 11:23	19° ℓ 28'19		minimum elong	12284 Nov 11 05:43	1° ♂ 18'58	0°03'34
				behind sun begin	12284 Nov 10 23:14	1° ♂ 18'23	
conjunction	12279 Oct 31 11:09	20° ℓ 04'09	-0°12'44	behind sun end	12284 Nov 11 12:13	1° ♂ 19'33	
minimum elong	12279 Oct 31 11:09	20° ℓ 04'09	0°12'08	max. Earth dist.	12284 Nov 11 19:32	1° ♂ 20'15	30.85599 AU
behind sun begin	12279 Oct 31 06:46	20° ℓ 03'45		morning rise	12284 Nov 27 08:32	1° ♂ 55'01	
behind sun end	12279 Oct 31 15:32	20° ℓ 04'32		retrograde	12285 Feb 25 14:32	3° ♂ 52'28	
max. Earth dist.	12279 Nov 01 02:28	20° ℓ 05'35	30.81261 AU	opposition	12285 May 15 18:58	2° ♂ 27'51	-0°03'33
morning rise	12279 Nov 16 12:45	20° ℓ 40'10		min. Earth dist.	12285 May 15 06:12	2° ♂ 28'44	28.86081 AU
retrograde	12280 Feb 14 23:57	22° ℓ 37'58		direct	12285 Aug 01 19:29	1° ♂ 03'56	
opposition	12280 May 04 08:31	21° ℓ 13'02	-0°12'38	evening set	12285 Oct 28 17:59	2° ♂ 58'12	
min. Earth dist.	12280 May 03 18:53	21° ℓ 14'00	28.81580 AU				
direct	12280 Jul 21 11:02	19° ℓ 49'05		conjunction	12285 Nov 13 19:18	3° ♂ 34'04	-0°02'34
				minimum elong	12285 Nov 13 19:18	3° ♂ 34'04	0°01'50

behind sun begin	12285 Nov 13 12:45	3°♏33'29		min. Earth dist.	12291 May 29 07:07	15°♏56'12	28.90406 AU
behind sun end	12285 Nov 14 01:52	3°♏34'40		direct	12291 Aug 15 22:33	14°♏31'25	
max. Earth dist.	12285 Nov 14 07:52	3°♏35'14	30.86525 AU	evening set	12291 Nov 12 01:09	16°♏25'36	
morning rise	12285 Nov 29 22:22	4°♏10'07					
retrograde	12286 Feb 28 03:11	6°♏07'29		conjunction	12291 Nov 28 03:53	17°♏01'28	0°07'47
opposition	12286 May 18 06:36	4°♏42'54	-0°01'43	minimum elong	12291 Nov 28 03:52	17°♏01'28	0°08'37
min. Earth dist.	12286 May 17 19:28	4°♏43'41	28.86967 AU	behind sun begin	12291 Nov 27 22:11	17°♏00'58	
direct	12286 Aug 04 06:38	3°♏18'58		behind sun end	12291 Nov 28 09:33	17°♏01'59	
evening set	12286 Oct 31 07:16	5°♏13'15		max. Earth dist.	12291 Nov 28 13:10	17°♏02'20	30.90784 AU
				morning rise	12291 Dec 14 07:48	17°♏37'29	
conjunction	12286 Nov 16 09:00	5°♏49'07	-0°00'48	retrograde	12292 Mar 13 06:03	19°♏34'02	
minimum elong	12286 Nov 16 08:59	5°♏49'07	0°00'02	opposition	12292 May 31 02:41	18°♏09'31	0°09'14
behind sun begin	12286 Nov 16 03:58	5°♏48'41		min. Earth dist.	12292 May 30 17:34	18°♏10'09	28.91196 AU
behind sun end	12286 Nov 16 14:00	5°♏49'33		direct	12292 Aug 17 10:21	16°♏45'17	
max. Earth dist.	12286 Nov 16 21:37	5°♏50'17	30.87359 AU	evening set	12292 Nov 13 14:08	18°♏39'28	
morning rise	12286 Dec 02 12:06	6°♏25'10					
retrograde	12287 Mar 02 16:28	8°♏22'24		conjunction	12292 Nov 29 17:04	19°♏15'20	0°09'27
asc. node	12287 Apr 26 03:40	7°♏37'39		minimum elong	12292 Nov 29 17:04	19°♏15'20	0°10'19
opposition	12287 May 20 18:11	6°♏57'51	0°00'08	behind sun begin	12292 Nov 29 11:55	19°♏14'53	
min. Earth dist.	12287 May 20 07:02	6°♏58'38	28.87738 AU	behind sun end	12292 Nov 29 22:14	19°♏15'48	
direct	12287 Aug 06 20:59	5°♏33'53		max. Earth dist.	12292 Nov 30 02:23	19°♏16'12	30.91622 AU
evening set	12287 Nov 02 20:30	7°♏28'09		morning rise	12292 Dec 15 21:04	19°♏51'20	
				retrograde	12293 Mar 15 16:26	21°♏47'46	
conjunction	12287 Nov 18 22:17	8°♏04'02	0°00'59	opposition	12293 Jun 02 13:51	20°♏23'18	0°11'01
minimum elong	12287 Nov 18 22:18	8°♏04'02	0°01'45	min. Earth dist.	12293 Jun 02 05:54	20°♏23'51	28.92100 AU
behind sun begin	12287 Nov 18 15:45	8°♏03'26		direct	12293 Aug 19 20:59	18°♏59'03	
behind sun end	12287 Nov 19 04:52	8°♏04'37		evening set	12293 Nov 16 03:12	20°♏53'14	
max. Earth dist.	12287 Nov 19 09:12	8°♏05'02	30.88086 AU				
morning rise	12287 Dec 05 01:45	8°♏40'04		conjunction	12293 Dec 02 06:22	21°♏29'07	0°11'06
retrograde	12288 Mar 04 05:45	10°♏37'11		minimum elong	12293 Dec 02 06:21	21°♏29'06	0°11'57
opposition	12288 May 22 05:47	9°♏12'38	0°01'58	behind sun begin	12293 Dec 02 01:54	21°♏28'43	
min. Earth dist.	12288 May 21 19:34	9°♏13'21	28.88432 AU	behind sun end	12293 Dec 02 10:49	21°♏29'30	
direct	12288 Aug 08 09:06	7°♏48'36		max. Earth dist.	12293 Dec 02 15:23	21°♏29'56	30.92598 AU
evening set	12288 Nov 04 09:41	9°♏42'51		morning rise	12293 Dec 18 10:25	22°♏05'05	
				retrograde	12294 Mar 18 04:49	24°♏01'25	
conjunction	12288 Nov 20 11:54	10°♏18'44	0°02'43	opposition	12294 Jun 05 00:42	22°♏37'00	0°12'47
minimum elong	12288 Nov 20 11:54	10°♏18'44	0°03'31	min. Earth dist.	12294 Jun 04 16:01	22°♏37'37	28.93136 AU
behind sun begin	12288 Nov 20 05:23	10°♏18'09		direct	12294 Aug 22 08:19	21°♏12'45	
behind sun end	12288 Nov 20 18:25	10°♏19'19		evening set	12294 Nov 18 16:19	23°♏06'59	
max. Earth dist.	12288 Nov 20 23:15	10°♏19'47	30.88749 AU				
morning rise	12288 Dec 06 15:20	10°♏54'45		conjunction	12294 Dec 04 19:31	23°♏42'50	0°12'44
retrograde	12289 Mar 06 17:24	12°♏51'44		minimum elong	12294 Dec 04 19:31	23°♏42'51	0°13'37
opposition	12289 May 24 17:06	11°♏27'11	0°03'48	behind sun begin	12294 Dec 04 16:03	23°♏42'32	
min. Earth dist.	12289 May 24 07:25	11°♏27'52	28.89070 AU	behind sun end	12294 Dec 04 22:59	23°♏43'09	
direct	12289 Aug 10 22:18	10°♏03'06		max. Earth dist.	12294 Dec 05 03:51	23°♏43'36	30.93698 AU
evening set	12289 Nov 06 22:59	11°♏57'20		morning rise	12294 Dec 20 23:42	24°♏18'49	
				retrograde	12295 Mar 20 16:19	26°♏15'03	
conjunction	12289 Nov 23 01:18	12°♏33'12	0°04'25	opposition	12295 Jun 07 11:47	24°♏50'43	0°14'31
minimum elong	12289 Nov 23 01:17	12°♏33'12	0°05'14	min. Earth dist.	12295 Jun 07 04:15	24°♏51'15	28.94305 AU
behind sun begin	12289 Nov 22 18:56	12°♏32'38		direct	12295 Aug 24 18:42	23°♏26'29	
behind sun end	12289 Nov 23 07:38	12°♏33'46		evening set	12295 Nov 21 05:10	25°♏20'45	
max. Earth dist.	12289 Nov 23 11:00	12°♏34'06	30.89390 AU				
morning rise	12289 Dec 09 05:03	13°♏09'13		conjunction	12295 Dec 07 08:39	25°♏56'37	0°14'22
retrograde	12290 Mar 09 07:08	15°♏06'03		minimum elong	12295 Dec 07 08:39	25°♏56'37	0°15'14
opposition	12290 May 27 04:23	13°♏41'30	0°05'37	behind sun begin	12295 Dec 07 06:47	25°♏56'27	
min. Earth dist.	12290 May 26 18:52	13°♏42'10	28.89720 AU	behind sun end	12295 Dec 07 10:30	25°♏56'47	
direct	12290 Aug 13 10:33	12°♏17'22		max. Earth dist.	12295 Dec 07 17:27	25°♏57'26	30.94921 AU
evening set	12290 Nov 09 12:02	14°♏11'34		morning rise	12295 Dec 23 12:47	26°♏32'35	
				retrograde	12296 Mar 22 04:49	28°♏28'44	
conjunction	12290 Nov 25 14:38	14°♏47'27	0°06'06	opposition	12296 Jun 08 22:42	27°♏04'30	0°16'15
minimum elong	12290 Nov 25 14:38	14°♏47'27	0°06'57	min. Earth dist.	12296 Jun 08 14:59	27°♏05'03	28.95551 AU
behind sun begin	12290 Nov 25 08:33	14°♏46'54		direct	12296 Aug 26 07:53	25°♏40'18	
behind sun end	12290 Nov 25 20:43	14°♏47'59		evening set	12296 Nov 22 18:27	27°♏34'37	
max. Earth dist.	12290 Nov 26 00:54	14°♏48'23	30.90046 AU				
morning rise	12290 Dec 11 18:21	15°♏23'27		conjunction	12296 Dec 08 21:54	28°♏10'29	0°15'58
retrograde	12291 Mar 11 17:53	17°♏20'08		minimum elong	12296 Dec 08 21:54	28°♏10'29	0°16'51
opposition	12291 May 29 15:37	15°♏55'36	0°07'26	max. Earth dist.	12296 Dec 09 05:08	28°♏11'09	30.96186 AU

morning rise	12296 Dec 25 02:14	28° 7 46'26	direct	12303 Sep 12 18:46	11° 3 15'56		
	12297 Feb 01 06:54	0° 3	evening set	12303 Dec 10 14:18	13° 3 10'19		
retrograde	12297 Mar 24 17:51	0° 3 42'31					
	12297 May 16 13:10	30° 8 7	conjunction	12303 Dec 26 18:19	13° 3 46'07	0°26'19	
opposition	12297 Jun 11 09:34	29° 7 18'23	0°17'57	minimum elong	12303 Dec 26 18:19	13° 3 46'07	0°27'11
min. Earth dist.	12297 Jun 11 02:52	29° 7 18'51	28.96823 AU	max. Earth dist.	12303 Dec 26 20:34	13° 3 46'19	31.03351 AU
direct	12297 Aug 28 18:50	27° 7 54'11		morning rise	12304 Jan 11 22:29	14° 3 21'57	
evening set	12297 Nov 25 07:39	29° 7 48'34		retrograde	12304 Apr 10 02:31	16° 3 17'06	
	12297 Nov 30 12:36	0° 3		opposition	12304 Jun 27 12:57	14° 3 53'16	0°28'53
				min. Earth dist.	12304 Jun 27 11:02	14° 3 53'24	29.03847 AU
conjunction	12297 Dec 11 11:23	0° 3 24'26	0°17'32	direct	12304 Sep 14 05:31	13° 3 28'51	
minimum elong	12297 Dec 11 11:23	0° 3 24'26	0°18'25	evening set	12304 Dec 12 03:09	15° 3 23'13	
max. Earth dist.	12297 Dec 11 18:53	0° 3 25'07	30.97430 AU				
morning rise	12297 Dec 27 15:33	1° 3 00'22		conjunction	12304 Dec 28 07:20	15° 3 59'00	0°27'39
retrograde	12298 Mar 27 05:56	2° 3 56'21		minimum elong	12304 Dec 28 07:20	15° 3 59'00	0°28'32
opposition	12298 Jun 13 20:31	1° 3 32'18	0°19'37	max. Earth dist.	12304 Dec 28 09:53	15° 3 59'14	31.04347 AU
min. Earth dist.	12298 Jun 13 14:32	1° 3 32'43	28.98027 AU	morning rise	12305 Jan 13 11:20	16° 3 34'47	
direct	12298 Aug 31 07:29	0° 3 08'08		retrograde	12305 Apr 12 12:58	18° 3 29'48	
evening set	12298 Nov 27 20:56	2° 3 02'33		opposition	12305 Jun 29 23:17	17° 3 06'00	0°30'18
				min. Earth dist.	12305 Jun 29 21:09	17° 3 06'09	29.04884 AU
conjunction	12298 Dec 14 00:35	2° 3 38'24	0°19'05	direct	12305 Sep 16 17:53	15° 3 41'32	
minimum elong	12298 Dec 14 00:34	2° 3 38'24	0°19'59	evening set	12305 Dec 14 16:08	17° 3 35'55	
max. Earth dist.	12298 Dec 14 06:06	2° 3 38'54	30.98591 AU				
morning rise	12298 Dec 30 04:54	3° 3 14'19		conjunction	12305 Dec 30 20:09	18° 3 11'41	0°28'57
retrograde	12299 Mar 29 20:15	5° 3 10'12		minimum elong	12305 Dec 30 20:09	18° 3 11'41	0°29'48
opposition	12299 Jun 16 07:27	3° 3 46'13	0°21'15	max. Earth dist.	12305 Dec 30 21:21	18° 3 11'47	31.05439 AU
min. Earth dist.	12299 Jun 16 01:51	3° 3 46'36	28.99143 AU	morning rise	12306 Jan 16 00:11	18° 3 47'27	
direct	12299 Sep 02 20:04	2° 3 22'02		retrograde	12306 Apr 15 00:48	20° 3 42'20	
evening set	12299 Nov 30 10:07	4° 3 16'28		opposition	12306 Jul 02 09:48	19° 3 18'34	0°31'39
				min. Earth dist.	12306 Jul 02 08:13	19° 3 18'40	29.06049 AU
conjunction	12299 Dec 16 13:59	4° 3 52'19	0°20'36	direct	12306 Sep 19 04:02	17° 3 54'05	
minimum elong	12299 Dec 16 13:59	4° 3 52'19	0°21'29	evening set	12306 Dec 17 04:44	19° 3 48'29	
max. Earth dist.	12299 Dec 16 19:38	4° 3 52'50	30.99650 AU				
morning rise	12300 Jan 01 18:09	5° 3 28'13		conjunction	12307 Jan 02 08:54	20° 3 24'13	0°30'12
retrograde	12300 Apr 01 06:57	7° 3 23'58		minimum elong	12307 Jan 02 08:54	20° 3 24'13	0°31'04
opposition	12300 Jun 18 18:21	6° 3 00'01	0°22'51	max. Earth dist.	12307 Jan 02 10:52	20° 3 24'24	31.06663 AU
min. Earth dist.	12300 Jun 18 14:11	6° 3 00'19	29.00154 AU	morning rise	12307 Jan 18 12:40	20° 3 59'57	
direct	12300 Sep 05 08:24	4° 3 35'49		retrograde	12307 Apr 17 11:43	22° 3 54'44	
evening set	12300 Dec 02 23:18	6° 3 30'15		opposition	12307 Jul 04 20:18	21° 3 31'02	0°32'58
				min. Earth dist.	12307 Jul 04 18:57	21° 3 31'07	29.07329 AU
conjunction	12300 Dec 19 03:12	7° 3 06'05	0°22'05	direct	12307 Sep 21 16:34	20° 3 06'33	
minimum elong	12300 Dec 19 03:12	7° 3 06'05	0°22'59	evening set	12307 Dec 19 17:36	22° 3 00'59	
max. Earth dist.	12300 Dec 19 07:18	7° 3 06'28	31.00630 AU				
morning rise	12301 Jan 04 07:30	7° 3 41'58		conjunction	12308 Jan 04 21:35	22° 3 36'42	0°31'24
retrograde	12301 Apr 03 19:09	9° 3 37'34		minimum elong	12308 Jan 04 21:35	22° 3 36'42	0°32'15
opposition	12301 Jun 21 05:04	8° 3 13'40	0°24'25	max. Earth dist.	12308 Jan 04 22:04	22° 3 36'45	31.08011 AU
min. Earth dist.	12301 Jun 21 00:45	8° 3 13'58	29.01094 AU	morning rise	12308 Jan 21 01:26	23° 3 12'25	
direct	12301 Sep 07 20:37	6° 3 49'25		retrograde	12308 Apr 19 01:11	25° 3 07'05	
evening set	12301 Dec 05 12:27	8° 3 43'50		opposition	12308 Jul 06 06:37	23° 3 43'28	0°34'14
				min. Earth dist.	12308 Jul 06 05:19	23° 3 43'34	29.08726 AU
conjunction	12301 Dec 21 16:26	9° 3 19'40	0°23'32	direct	12308 Sep 23 04:28	22° 3 19'01	
minimum elong	12301 Dec 21 16:26	9° 3 19'40	0°24'25	evening set	12308 Dec 21 06:22	24° 3 13'29	
max. Earth dist.	12301 Dec 21 20:09	9° 3 20'00	31.01534 AU				
morning rise	12302 Jan 06 20:37	9° 3 55'32		conjunction	12309 Jan 06 10:29	24° 3 49'12	0°32'33
retrograde	12302 Apr 06 05:23	11° 3 50'59		minimum elong	12309 Jan 06 10:29	24° 3 49'12	0°33'25
opposition	12302 Jun 23 15:46	10° 3 27'06	0°25'57	max. Earth dist.	12309 Jan 06 11:27	24° 3 49'17	31.09429 AU
min. Earth dist.	12302 Jun 23 13:03	10° 3 27'17	29.01988 AU	morning rise	12309 Jan 22 14:04	25° 3 24'54	
direct	12302 Sep 10 07:22	9° 3 02'48		retrograde	12309 Apr 21 11:41	27° 3 19'28	
evening set	12302 Dec 08 01:27	10° 3 57'12		opposition	12309 Jul 08 17:07	25° 3 55'57	0°35'26
				min. Earth dist.	12309 Jul 08 17:09	25° 3 55'57	29.10149 AU
conjunction	12302 Dec 24 05:30	11° 3 33'01	0°24'56	direct	12309 Sep 25 16:19	24° 3 31'32	
minimum elong	12302 Dec 24 05:30	11° 3 33'01	0°25'50	evening set	12309 Dec 23 19:17	26° 3 26'03	
max. Earth dist.	12302 Dec 24 08:34	11° 3 33'18	31.02434 AU				
morning rise	12303 Jan 09 09:40	12° 3 08'51		conjunction	12310 Jan 08 23:14	27° 3 01'45	0°33'40
retrograde	12303 Apr 08 17:01	14° 3 04'09		minimum elong	12310 Jan 08 23:14	27° 3 01'45	0°34'30
opposition	12303 Jun 26 02:19	12° 3 40'18	0°27'26	max. Earth dist.	12310 Jan 08 22:45	27° 3 01'42	31.10846 AU
min. Earth dist.	12303 Jun 25 23:05	12° 3 40'32	29.02891 AU	morning rise	12310 Jan 25 02:47	27° 3 37'25	

retrograde	12310 Apr 24 00:25	29° $\overline{3}$ 31'54		evening set	12317 Jan 08 12:22	11° \approx 52'26	
opposition	12310 Jul 11 03:26	28° $\overline{3}$ 08'29	0°36'36				
min. Earth dist.	12310 Jul 11 03:18	28° $\overline{3}$ 08'29	29.11539 AU	conjunction	12317 Jan 24 15:39	12° \approx 28'00	0°39'56
direct	12310 Sep 28 04:12	26° $\overline{3}$ 44'05		minimum elong	12317 Jan 24 15:39	12° \approx 28'00	0°40'39
evening set	12310 Dec 26 08:10	28° $\overline{3}$ 38'38		max. Earth dist.	12317 Jan 24 09:30	12° \approx 27'26	31.18189 AU
				morning rise	12317 Feb 09 17:59	13° \approx 03'29	
conjunction	12311 Jan 11 12:05	29° $\overline{3}$ 14'20	0°34'44	retrograde	12317 May 09 04:16	14° \approx 57'12	
minimum elong	12311 Jan 11 12:05	29° $\overline{3}$ 14'20	0°35'33	opposition	12317 Jul 26 03:49	13° \approx 34'06	0°43'04
max. Earth dist.	12311 Jan 11 11:11	29° $\overline{3}$ 14'15	31.12184 AU	min. Earth dist.	12317 Jul 26 08:29	13° \approx 33'47	29.18658 AU
morning rise	12311 Jan 27 15:22	29° $\overline{3}$ 49'59		direct	12317 Oct 13 11:33	12° \approx 09'34	
	12311 Feb 01 07:23	0° \approx		evening set	12318 Jan 11 00:42	14° \approx 04'11	
retrograde	12311 Apr 26 11:17	1° \approx 44'22					
opposition	12311 Jul 13 14:00	0° \approx 21'02	0°37'42	conjunction	12318 Jan 27 03:57	14° \approx 39'44	0°40'36
min. Earth dist.	12311 Jul 13 15:35	0° \approx 20'55	29.12834 AU	minimum elong	12318 Jan 27 03:57	14° \approx 39'44	0°41'17
	12311 Jul 26 05:38	30° \overline{R} $\overline{3}$		max. Earth dist.	12318 Jan 26 22:26	14° \approx 39'13	31.19102 AU
direct	12311 Sep 30 14:55	28° $\overline{3}$ 56'39			12318 Feb 05 07:13	15° \approx	
	12311 Dec 03 11:45	0° \approx		morning rise	12318 Feb 12 05:52	15° \approx 15'11	
evening set	12311 Dec 28 20:55	0° \approx 51'13		retrograde	12318 May 11 13:44	17° \approx 08'47	
				opposition	12318 Jul 28 14:04	15° \approx 45'44	0°43'45
conjunction	12312 Jan 14 00:48	1° \approx 26'54	0°35'44	min. Earth dist.	12318 Jul 28 19:46	15° \approx 45'20	29.19612 AU
minimum elong	12312 Jan 14 00:48	1° \approx 26'54	0°36'32		12318 Aug 26 10:21	15° \overline{R} \approx	
max. Earth dist.	12312 Jan 13 22:54	1° \approx 26'43	31.13425 AU	direct	12318 Oct 15 23:16	14° \approx 21'11	
morning rise	12312 Jan 30 03:59	2° \approx 02'31			12318 Dec 04 08:11	15° \approx	
retrograde	12312 Apr 27 22:52	3° \approx 56'48		evening set	12319 Jan 13 13:04	16° \approx 15'49	
opposition	12312 Jul 15 00:24	2° \approx 33'32	0°38'44				
min. Earth dist.	12312 Jul 15 01:47	2° \approx 33'26	29.14004 AU	conjunction	12319 Jan 29 16:04	16° \approx 51'20	0°41'13
direct	12312 Oct 02 02:37	1° \approx 09'09		minimum elong	12319 Jan 29 16:04	16° \approx 51'20	0°41'53
evening set	12312 Dec 30 09:52	3° \approx 03'45		max. Earth dist.	12319 Jan 29 09:31	16° \approx 50'43	31.20113 AU
				morning rise	12319 Feb 14 17:53	17° \approx 26'45	
conjunction	12313 Jan 15 13:36	3° \approx 39'24	0°36'41	retrograde	12319 May 14 02:10	19° \approx 20'15	
minimum elong	12313 Jan 15 13:36	3° \approx 39'24	0°37'28	opposition	12319 Jul 31 00:10	17° \approx 57'15	0°44'22
max. Earth dist.	12313 Jan 15 10:25	3° \approx 39'06	31.14527 AU	min. Earth dist.	12319 Jul 31 05:09	17° \approx 56'54	29.20675 AU
morning rise	12313 Jan 31 16:38	4° \approx 15'00		direct	12319 Oct 18 11:24	16° \approx 32'43	
retrograde	12313 Apr 30 08:23	6° \approx 09'10		evening set	12320 Jan 16 01:15	18° \approx 27'22	
opposition	12313 Jul 17 10:47	4° \approx 45'58	0°39'44				
min. Earth dist.	12313 Jul 17 13:51	4° \approx 45'45	29.15056 AU	conjunction	12320 Feb 01 04:11	19° \approx 02'52	0°41'45
direct	12313 Oct 04 13:00	3° \approx 21'33		minimum elong	12320 Feb 01 04:11	19° \approx 02'52	0°42'24
evening set	12314 Jan 01 22:38	5° \approx 16'09		max. Earth dist.	12320 Jan 31 21:46	19° \approx 02'16	31.21218 AU
				morning rise	12320 Feb 17 05:42	19° \approx 38'15	
conjunction	12314 Jan 18 02:23	5° \approx 51'47	0°37'35	retrograde	12320 May 15 13:08	21° \approx 31'41	
minimum elong	12314 Jan 18 02:23	5° \approx 51'47	0°38'21	opposition	12320 Aug 01 10:26	20° \approx 08'45	0°44'55
max. Earth dist.	12314 Jan 17 23:04	5° \approx 51'29	31.15528 AU	min. Earth dist.	12320 Aug 01 16:42	20° \approx 08'19	29.21823 AU
morning rise	12314 Feb 03 05:09	6° \approx 27'22		direct	12320 Oct 19 22:35	18° \approx 44'15	
retrograde	12314 May 02 18:25	8° \approx 21'25		evening set	12321 Jan 17 13:34	20° \approx 38'55	
opposition	12314 Jul 19 21:08	6° \approx 58'15	0°40'39				
min. Earth dist.	12314 Jul 20 00:21	6° \approx 58'02	29.16002 AU	conjunction	12321 Feb 02 16:19	21° \approx 14'24	0°42'15
direct	12314 Oct 07 00:58	5° \approx 33'49		minimum elong	12321 Feb 02 16:19	21° \approx 14'24	0°42'52
evening set	12315 Jan 04 11:15	7° \approx 28'25		max. Earth dist.	12321 Feb 02 09:23	21° \approx 13'45	31.22404 AU
				morning rise	12321 Feb 18 17:38	21° \approx 49'46	
conjunction	12315 Jan 20 14:45	8° \approx 04'02	0°38'25	retrograde	12321 May 18 00:09	23° \approx 43'07	
minimum elong	12315 Jan 20 14:45	8° \approx 04'02	0°39'11	opposition	12321 Aug 03 20:27	22° \approx 20'16	0°45'24
max. Earth dist.	12315 Jan 20 09:50	8° \approx 03'35	31.16440 AU	min. Earth dist.	12321 Aug 04 02:14	22° \approx 19'52	29.23014 AU
morning rise	12315 Feb 05 17:27	8° \approx 39'35		direct	12321 Oct 22 10:32	20° \approx 55'48	
retrograde	12315 May 05 05:37	10° \approx 33'31		evening set	12322 Jan 20 01:56	22° \approx 50'30	
opposition	12315 Jul 22 07:29	9° \approx 10'23	0°41'31				
min. Earth dist.	12315 Jul 22 11:32	9° \approx 10'06	29.16897 AU	conjunction	12322 Feb 05 04:26	23° \approx 25'58	0°42'40
direct	12315 Oct 09 10:45	7° \approx 45'55		minimum elong	12322 Feb 05 04:26	23° \approx 25'58	0°43'16
evening set	12316 Jan 06 23:46	9° \approx 40'31		max. Earth dist.	12322 Feb 04 20:38	23° \approx 25'15	31.23588 AU
				morning rise	12322 Feb 21 05:30	24° \approx 01'19	
conjunction	12316 Jan 23 03:19	10° \approx 16'06	0°39'12	retrograde	12322 May 20 09:34	25° \approx 54'36	
minimum elong	12316 Jan 23 03:19	10° \approx 16'06	0°39'56	opposition	12322 Aug 06 06:46	24° \approx 31'50	0°45'49
max. Earth dist.	12316 Jan 22 22:50	10° \approx 15'41	31.17314 AU	min. Earth dist.	12322 Aug 06 13:56	24° \approx 31'20	29.24188 AU
morning rise	12316 Feb 08 05:41	10° \approx 51'37		direct	12322 Oct 24 20:19	23° \approx 07'23	
retrograde	12316 May 06 15:38	12° \approx 45'27		evening set	12323 Jan 22 14:01	25° \approx 02'07	
opposition	12316 Jul 23 17:38	11° \approx 22'20	0°42'20				
min. Earth dist.	12316 Jul 23 22:20	11° \approx 22'00	29.17761 AU	conjunction	12323 Feb 07 16:26	25° \approx 37'34	0°43'02
direct	12316 Oct 10 23:18	9° \approx 57'50		minimum elong	12323 Feb 07 16:26	25° \approx 37'34	0°43'36


























































































































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morning rise	12323 Feb 23 17:10	26° \approx 12'53		opposition	12329 Aug 21 06:19	9° \mathbf{H} 50'11	0°46'51
retrograde	12323 May 22 19:20	28° \approx 06'06		min. Earth dist.	12329 Aug 21 17:50	9° \mathbf{H} 49'23	29.29237 AU
opposition	12323 Aug 08 17:02	26° \approx 43'24	0°46'10	direct	12329 Nov 09 04:36	8° \mathbf{H} 25'35	
min. Earth dist.	12323 Aug 09 00:23	26° \approx 42'54	29.25266 AU	evening set	12330 Feb 07 02:25	10° \mathbf{H} 20'17	
direct	12323 Oct 27 07:42	25° \approx 18'59					
evening set	12324 Jan 25 02:26	27° \approx 13'43		conjunction	12330 Feb 23 03:13	10° \mathbf{H} 55'33	0°43'48
				minimum elong	12330 Feb 23 03:14	10° \mathbf{H} 55'33	0°44'10
conjunction	12324 Feb 10 04:30	27° \approx 49'08	0°43'20	max. Earth dist.	12330 Feb 22 14:53	10° \mathbf{H} 54'24	31.29460 AU
minimum elong	12324 Feb 10 04:30	27° \approx 49'08	0°43'53	morning rise	12330 Mar 11 02:02	11° \mathbf{H} 30'39	
max. Earth dist.	12324 Feb 09 19:04	27° \approx 48'16	31.25740 AU	retrograde	12330 Jun 06 20:29	13° \mathbf{H} 23'15	
morning rise	12324 Feb 26 05:05	28° \approx 24'26		opposition	12330 Aug 23 16:27	12° \mathbf{H} 00'39	0°46'44
	12324 Apr 21 20:27	0° \mathbf{H}		min. Earth dist.	12330 Aug 24 03:08	11° \mathbf{H} 59'55	29.29742 AU
retrograde	12324 May 24 06:13	0° \mathbf{H} 17'34		direct	12330 Nov 11 17:10	10° \mathbf{H} 36'02	
	12324 Jun 26 04:15	30° \mathbf{R} \approx		evening set	12331 Feb 09 13:58	12° \mathbf{H} 30'43	
opposition	12324 Aug 10 03:14	28° \approx 54'56	0°46'27				
min. Earth dist.	12324 Aug 10 11:29	28° \approx 54'21	29.26226 AU	conjunction	12331 Feb 25 14:27	13° \mathbf{H} 05'58	0°43'40
direct	12324 Oct 28 17:02	27° \approx 30'29		minimum elong	12331 Feb 25 14:28	13° \mathbf{H} 05'58	0°44'00
evening set	12325 Jan 26 14:39	29° \approx 25'15		max. Earth dist.	12331 Feb 25 01:39	13° \mathbf{H} 04'47	31.29997 AU
				morning rise	12331 Mar 13 13:00	13° \mathbf{H} 41'03	
conjunction	12325 Feb 11 16:41	0° \mathbf{H} 00'38	0°43'34	retrograde	12331 Jun 09 05:42	15° \mathbf{H} 33'35	
minimum elong	12325 Feb 11 16:41	0° \mathbf{H} 00'38	0°44'05	opposition	12331 Aug 26 02:42	14° \mathbf{H} 11'01	0°46'34
max. Earth dist.	12325 Feb 11 07:27	29° \approx 59'47	31.26622 AU	min. Earth dist.	12331 Aug 26 14:12	14° \mathbf{H} 10'13	29.30336 AU
	12325 Feb 11 09:44	0° \mathbf{H}		direct	12331 Nov 14 03:06	12° \mathbf{H} 46'24	
morning rise	12325 Feb 27 16:50	0° \mathbf{H} 35'54		evening set	12332 Feb 12 01:31	14° \mathbf{H} 41'05	
retrograde	12325 May 26 15:16	2° \mathbf{H} 28'57					
opposition	12325 Aug 12 13:34	1° \mathbf{H} 06'21	0°46'40	conjunction	12332 Feb 28 01:52	15° \mathbf{H} 16'19	0°43'28
min. Earth dist.	12325 Aug 12 22:41	1° \mathbf{H} 05'43	29.27029 AU	minimum elong	12332 Feb 28 01:53	15° \mathbf{H} 16'19	0°43'47
	12325 Sep 27 08:49	30° \mathbf{R} \approx		max. Earth dist.	12332 Feb 27 13:42	15° \mathbf{H} 15'11	31.30642 AU
direct	12325 Oct 31 05:26	29° \approx 41'54		morning rise	12332 Mar 15 00:02	15° \mathbf{H} 51'22	
	12325 Dec 03 16:17	0° \mathbf{H}		retrograde	12332 Jun 10 14:47	17° \mathbf{H} 43'52	
evening set	12326 Jan 29 02:52	1° \mathbf{H} 36'38		opposition	12332 Aug 27 12:44	16° \mathbf{H} 21'21	0°46'19
				min. Earth dist.	12332 Aug 27 23:56	16° \mathbf{H} 20'34	29.31019 AU
conjunction	12326 Feb 14 04:29	2° \mathbf{H} 12'00	0°43'44	direct	12332 Nov 15 14:18	14° \mathbf{H} 56'46	
minimum elong	12326 Feb 14 04:30	2° \mathbf{H} 12'00	0°44'14	evening set	12333 Feb 13 13:12	16° \mathbf{H} 51'28	
max. Earth dist.	12326 Feb 13 17:24	2° \mathbf{H} 10'59	31.27359 AU				
morning rise	12326 Mar 02 04:31	2° \mathbf{H} 47'14		conjunction	12333 Mar 01 13:09	17° \mathbf{H} 26'41	0°43'12
retrograde	12326 May 29 02:53	4° \mathbf{H} 40'12		minimum elong	12333 Mar 01 13:09	17° \mathbf{H} 26'41	0°43'29
opposition	12326 Aug 14 23:48	3° \mathbf{H} 17'36	0°46'49	max. Earth dist.	12333 Feb 28 23:54	17° \mathbf{H} 25'27	31.31374 AU
min. Earth dist.	12326 Aug 15 09:01	3° \mathbf{H} 16'58	29.27706 AU	morning rise	12333 Mar 17 11:08	18° \mathbf{H} 01'43	
direct	12326 Nov 02 16:50	1° \mathbf{H} 53'07		retrograde	12333 Jun 13 01:30	19° \mathbf{H} 54'11	
evening set	12327 Jan 31 14:51	3° \mathbf{H} 47'51		opposition	12333 Aug 29 22:56	18° \mathbf{H} 31'44	0°46'00
				min. Earth dist.	12333 Aug 30 10:21	18° \mathbf{H} 30'57	29.31790 AU
conjunction	12327 Feb 16 16:25	4° \mathbf{H} 23'12	0°43'51	direct	12333 Nov 17 23:08	17° \mathbf{H} 07'12	
minimum elong	12327 Feb 16 16:25	4° \mathbf{H} 23'12	0°44'19	evening set	12334 Feb 16 00:34	19° \mathbf{H} 01'57	
max. Earth dist.	12327 Feb 16 05:39	4° \mathbf{H} 22'13	31.27973 AU				
morning rise	12327 Mar 04 16:00	4° \mathbf{H} 58'24		conjunction	12334 Mar 04 00:23	19° \mathbf{H} 37'08	0°42'53
retrograde	12327 May 31 12:06	6° \mathbf{H} 51'16		minimum elong	12334 Mar 04 00:24	19° \mathbf{H} 37'08	0°43'08
opposition	12327 Aug 17 10:03	5° \mathbf{H} 28'41	0°46'53	max. Earth dist.	12334 Mar 03 12:03	19° \mathbf{H} 36'00	31.32157 AU
min. Earth dist.	12327 Aug 17 20:40	5° \mathbf{H} 27'56	29.28271 AU	morning rise	12334 Mar 19 21:53	20° \mathbf{H} 12'09	
direct	12327 Nov 05 04:09	4° \mathbf{H} 04'09		retrograde	12334 Jun 15 10:10	22° \mathbf{H} 04'37	
evening set	12328 Feb 03 02:48	5° \mathbf{H} 58'52		opposition	12334 Sep 01 09:12	20° \mathbf{H} 42'14	0°45'37
				min. Earth dist.	12334 Sep 01 21:10	20° \mathbf{H} 41'25	29.32569 AU
conjunction	12328 Feb 19 04:03	6° \mathbf{H} 34'11	0°43'53	direct	12334 Nov 20 10:36	19° \mathbf{H} 17'45	
minimum elong	12328 Feb 19 04:03	6° \mathbf{H} 34'11	0°44'20	evening set	12335 Feb 18 12:10	21° \mathbf{H} 12'32	
max. Earth dist.	12328 Feb 18 16:02	6° \mathbf{H} 33'05	31.28506 AU				
morning rise	12328 Mar 06 03:32	7° \mathbf{H} 09'22		conjunction	12335 Mar 06 11:32	21° \mathbf{H} 47'43	0°42'30
retrograde	12328 Jun 01 23:58	9° \mathbf{H} 02'08		minimum elong	12335 Mar 06 11:33	21° \mathbf{H} 47'43	0°42'43
opposition	12328 Aug 18 20:09	7° \mathbf{H} 39'32	0°46'54	max. Earth dist.	12335 Mar 05 21:45	21° \mathbf{H} 46'26	31.32929 AU
min. Earth dist.	12328 Aug 19 06:19	7° \mathbf{H} 38'50	29.28767 AU	morning rise	12335 Mar 22 08:54	22° \mathbf{H} 22'43	
direct	12328 Nov 06 16:56	6° \mathbf{H} 14'58		retrograde	12335 Jun 17 21:46	24° \mathbf{H} 15'10	
evening set	12329 Feb 04 14:41	8° \mathbf{H} 09'40		opposition	12335 Sep 03 19:21	22° \mathbf{H} 52'51	0°45'10
				min. Earth dist.	12335 Sep 04 07:08	22° \mathbf{H} 52'02	29.33317 AU
conjunction	12329 Feb 20 15:45	8° \mathbf{H} 44'58	0°43'53	direct	12335 Nov 22 20:47	21° \mathbf{H} 28'24	
minimum elong	12329 Feb 20 15:45	8° \mathbf{H} 44'58	0°44'17	evening set	12336 Feb 20 23:37	23° \mathbf{H} 23'14	
max. Earth dist.	12329 Feb 20 03:42	8° \mathbf{H} 43'51	31.28974 AU				
morning rise	12329 Mar 08 14:49	9° \mathbf{H} 20'06		conjunction	12336 Mar 07 22:53	23° \mathbf{H} 58'23	0°42'03

minimum elong	12336 Mar 07 22:53	23° \mathbf{H} 58'23	0°42'14	opposition	12342 Sep 18 20:11	8° \mathbf{V} 06'21	0°40'18
max. Earth dist.	12336 Mar 07 09:33	23° \mathbf{H} 57'09	31.33623 AU	min. Earth dist.	12342 Sep 19 10:40	8° \mathbf{V} 05'21	29.35372 AU
morning rise	12336 Mar 23 19:47	24° \mathbf{H} 33'22		direct	12342 Dec 08 05:46	6° \mathbf{V} 41'52	
retrograde	12336 Jun 19 07:10	26° \mathbf{H} 25'49		evening set	12343 Mar 08 06:24	8° \mathbf{V} 36'35	
opposition	12336 Sep 05 05:47	25° \mathbf{H} 03'33	0°44'39				
min. Earth dist.	12336 Sep 05 18:57	25° \mathbf{H} 02'38	29.33956 AU	conjunction	12343 Mar 24 03:37	9° \mathbf{V} 11'35	0°37'19
direct	12336 Nov 24 07:03	23° \mathbf{H} 39'08		minimum elong	12343 Mar 24 03:38	9° \mathbf{V} 11'35	0°37'16
evening set	12337 Feb 22 11:13	25° \mathbf{H} 33'59		max. Earth dist.	12343 Mar 23 12:20	9° \mathbf{V} 10'10	31.35395 AU
				morning rise	12343 Apr 08 22:20	9° \mathbf{V} 46'24	
conjunction	12337 Mar 10 10:03	26° \mathbf{H} 09'07	0°41'32	retrograde	12343 Jul 05 04:26	11° \mathbf{V} 38'34	
minimum elong	12337 Mar 10 10:04	26° \mathbf{H} 09'07	0°41'41	opposition	12343 Sep 21 06:35	10° \mathbf{V} 16'17	0°39'22
max. Earth dist.	12337 Mar 09 19:33	26° \mathbf{H} 07'46	31.34204 AU	min. Earth dist.	12343 Sep 21 21:20	10° \mathbf{V} 15'16	29.35492 AU
morning rise	12337 Mar 26 06:45	26° \mathbf{H} 44'04		direct	12343 Dec 10 17:15	8° \mathbf{V} 51'46	
retrograde	12337 Jun 21 19:16	28° \mathbf{H} 36'30		evening set	12344 Mar 09 17:25	10° \mathbf{V} 46'28	
opposition	12337 Sep 07 16:04	27° \mathbf{H} 14'16	0°44'05				
min. Earth dist.	12337 Sep 08 04:44	27° \mathbf{H} 13'24	29.34467 AU	conjunction	12344 Mar 25 14:11	11° \mathbf{V} 21'27	0°36'25
direct	12337 Nov 26 19:53	25° \mathbf{H} 49'52		minimum elong	12344 Mar 25 14:11	11° \mathbf{V} 21'27	0°36'20
evening set	12338 Feb 24 22:41	27° \mathbf{H} 44'43		max. Earth dist.	12344 Mar 24 21:55	11° \mathbf{V} 19'57	31.35564 AU
				morning rise	12344 Apr 10 08:45	11° \mathbf{V} 56'15	
conjunction	12338 Mar 12 21:17	28° \mathbf{H} 19'50	0°40'58	retrograde	12344 Jul 06 15:06	13° \mathbf{V} 48'24	
minimum elong	12338 Mar 12 21:17	28° \mathbf{H} 19'50	0°41'06	opposition	12344 Sep 22 17:00	12° \mathbf{V} 26'07	0°38'23
max. Earth dist.	12338 Mar 12 06:36	28° \mathbf{H} 18'29	31.34641 AU	min. Earth dist.	12344 Sep 23 06:52	12° \mathbf{V} 25'10	29.35709 AU
morning rise	12338 Mar 28 17:33	28° \mathbf{H} 54'46		direct	12344 Dec 12 03:01	11° \mathbf{V} 01'37	
	12338 May 01 05:24	0° \mathbf{V}		evening set	12345 Mar 12 04:13	12° \mathbf{V} 56'19	
retrograde	12338 Jun 24 06:13	0° \mathbf{V} 47'10		max. Earth dist.	12345 Mar 27 09:37	13° \mathbf{V} 29'52	31.35820 AU
	12338 Aug 19 05:21	30° \mathbf{R} \mathbf{H}					
opposition	12338 Sep 10 02:37	29° \mathbf{H} 24'57	0°43'26	conjunction	12345 Mar 28 00:48	13° \mathbf{V} 31'17	0°35'28
min. Earth dist.	12338 Sep 10 16:39	29° \mathbf{H} 23'59	29.34844 AU	minimum elong	12345 Mar 28 00:48	13° \mathbf{V} 31'17	0°35'21
direct	12338 Nov 29 07:40	28° \mathbf{H} 00'33		morning rise	12345 Apr 12 18:53	14° \mathbf{V} 06'04	
evening set	12339 Feb 27 09:56	29° \mathbf{H} 55'24		retrograde	12345 Jul 09 00:04	15° \mathbf{V} 58'13	
	12339 Mar 01 12:52	0° \mathbf{V}		opposition	12345 Sep 25 03:35	14° \mathbf{V} 35'58	0°37'21
				min. Earth dist.	12345 Sep 25 18:16	14° \mathbf{V} 34'57	29.36003 AU
conjunction	12339 Mar 15 08:17	0° \mathbf{V} 30'30	0°40'21	direct	12345 Dec 14 12:54	13° \mathbf{V} 11'30	
minimum elong	12339 Mar 15 08:17	0° \mathbf{V} 30'30	0°40'26	evening set	12346 Mar 14 15:07	15° \mathbf{V} 06'13	
max. Earth dist.	12339 Mar 14 17:10	0° \mathbf{V} 29'06	31.34957 AU				
morning rise	12339 Mar 31 04:18	1° \mathbf{V} 05'24		conjunction	12346 Mar 30 11:17	15° \mathbf{V} 41'09	0°34'29
retrograde	12339 Jun 26 16:25	2° \mathbf{V} 57'46		minimum elong	12346 Mar 30 11:18	15° \mathbf{V} 41'09	0°34'20
opposition	12339 Sep 12 12:58	1° \mathbf{V} 35'33	0°42'44	max. Earth dist.	12346 Mar 29 19:41	15° \mathbf{V} 39'43	31.36157 AU
min. Earth dist.	12339 Sep 13 02:32	1° \mathbf{V} 34'37	29.35086 AU	morning rise	12346 Apr 15 05:12	16° \mathbf{V} 15'55	
direct	12339 Dec 01 20:40	0° \mathbf{V} 11'08		retrograde	12346 Jul 11 11:42	18° \mathbf{V} 08'07	
evening set	12340 Feb 29 21:19	2° \mathbf{V} 05'58		opposition	12346 Sep 27 14:04	16° \mathbf{V} 45'53	0°36'15
				min. Earth dist.	12346 Sep 28 03:42	16° \mathbf{V} 44'57	29.36352 AU
conjunction	12340 Mar 16 19:19	2° \mathbf{V} 41'02	0°39'40	direct	12346 Dec 17 00:57	15° \mathbf{V} 21'29	
minimum elong	12340 Mar 16 19:19	2° \mathbf{V} 41'02	0°39'43	evening set	12347 Mar 17 01:51	17° \mathbf{V} 16'13	
max. Earth dist.	12340 Mar 16 03:18	2° \mathbf{V} 39'33	31.35139 AU				
morning rise	12340 Apr 01 15:04	3° \mathbf{V} 15'55		conjunction	12347 Apr 01 21:47	17° \mathbf{V} 51'09	0°33'26
retrograde	12340 Jun 28 02:02	5° \mathbf{V} 08'13		minimum elong	12347 Apr 01 21:47	17° \mathbf{V} 51'09	0°33'14
opposition	12340 Sep 13 23:19	3° \mathbf{V} 46'00	0°41'59	max. Earth dist.	12347 Apr 01 06:27	17° \mathbf{V} 49'44	31.36501 AU
min. Earth dist.	12340 Sep 14 13:58	3° \mathbf{V} 44'59	29.35227 AU	morning rise	12347 Apr 17 15:20	18° \mathbf{V} 25'54	
direct	12340 Dec 03 07:14	2° \mathbf{V} 21'34		retrograde	12347 Jul 13 22:37	20° \mathbf{V} 18'08	
evening set	12341 Mar 03 08:30	4° \mathbf{V} 16'21		opposition	12347 Sep 30 00:48	18° \mathbf{V} 55'56	0°35'06
				min. Earth dist.	12347 Sep 30 15:30	18° \mathbf{V} 54'56	29.36684 AU
conjunction	12341 Mar 19 06:19	4° \mathbf{V} 51'25	0°38'56	direct	12347 Dec 19 11:47	17° \mathbf{V} 31'35	
minimum elong	12341 Mar 19 06:20	4° \mathbf{V} 51'25	0°38'57	evening set	12348 Mar 18 12:45	19° \mathbf{V} 26'21	
max. Earth dist.	12341 Mar 18 14:52	4° \mathbf{V} 49'59	31.35244 AU				
morning rise	12341 Apr 04 01:40	5° \mathbf{V} 26'16		conjunction	12348 Apr 03 08:23	20° \mathbf{V} 01'16	0°32'20
retrograde	12341 Jun 30 11:10	7° \mathbf{V} 18'31		minimum elong	12348 Apr 03 08:23	20° \mathbf{V} 01'16	0°32'07
opposition	12341 Sep 16 09:46	5° \mathbf{V} 56'16	0°41'10	max. Earth dist.	12348 Apr 02 17:00	19° \mathbf{V} 59'51	31.36803 AU
min. Earth dist.	12341 Sep 17 00:17	5° \mathbf{V} 55'16	29.35296 AU	morning rise	12348 Apr 19 01:38	20° \mathbf{V} 36'01	
direct	12341 Dec 05 19:48	4° \mathbf{V} 31'48		retrograde	12348 Jul 15 09:09	22° \mathbf{V} 28'16	
evening set	12342 Mar 05 19:32	6° \mathbf{V} 26'34		opposition	12348 Oct 01 11:23	21° \mathbf{V} 06'08	0°33'54
				min. Earth dist.	12348 Oct 02 01:28	21° \mathbf{V} 05'10	29.36932 AU
conjunction	12342 Mar 21 16:53	7° \mathbf{V} 01'35	0°38'09	direct	12348 Dec 21 00:19	19° \mathbf{V} 41'50	
minimum elong	12342 Mar 21 16:54	7° \mathbf{V} 01'35	0°38'08	evening set	12349 Mar 20 23:44	21° \mathbf{V} 36'37	
max. Earth dist.	12342 Mar 21 00:27	7° \mathbf{V} 00'04	31.35305 AU				
morning rise	12342 Apr 06 12:03	7° \mathbf{V} 36'26		conjunction	12349 Apr 05 18:58	22° \mathbf{V} 11'32	0°31'11
retrograde	12342 Jul 02 21:01	9° \mathbf{V} 28'38		minimum elong	12349 Apr 05 18:58	22° \mathbf{V} 11'32	0°30'56

max. Earth dist.	12349 Apr 05 02:50	22° Υ 10'02	31.36994 AU	min. Earth dist.	12355 Oct 18 06:30	6° \mathcal{B} 17'32	29.35170 AU
morning rise	12349 Apr 21 11:57	22° Υ 46'15		direct	12356 Jan 06 05:58	4° \mathcal{B} 54'15	
retrograde	12349 Jul 17 19:53	24° Υ 38'33		evening set	12356 Apr 05 02:26	6° \mathcal{B} 48'58	
opposition	12349 Oct 03 22:19	23° Υ 16'26	0°32'39				
min. Earth dist.	12349 Oct 04 13:13	23° Υ 15'25	29.37071 AU	conjunction	12356 Apr 20 19:36	7° \mathcal{B} 23'47	0°22'04
direct	12349 Dec 23 10:49	21° Υ 52'11		minimum elong	12356 Apr 20 19:36	7° \mathcal{B} 23'47	0°21'36
evening set	12350 Mar 23 10:26	23° Υ 46'59		max. Earth dist.	12356 Apr 20 03:38	7° \mathcal{B} 22'18	31.34923 AU
				morning rise	12356 May 06 10:35	7° \mathcal{B} 58'26	
conjunction	12350 Apr 08 05:28	24° Υ 21'53	0°30'00	retrograde	12356 Aug 01 17:27	9° \mathcal{B} 50'54	
minimum elong	12350 Apr 08 05:28	24° Υ 21'53	0°29'43	opposition	12356 Oct 19 02:57	8° \mathcal{B} 28'39	0°22'45
max. Earth dist.	12350 Apr 07 14:00	24° Υ 20'27	31.37062 AU	min. Earth dist.	12356 Oct 19 18:08	8° \mathcal{B} 27'37	29.34742 AU
morning rise	12350 Apr 23 22:03	24° Υ 56'36		direct	12357 Jan 07 16:30	7° \mathcal{B} 04'23	
retrograde	12350 Jul 20 05:31	26° Υ 48'55		evening set	12357 Apr 07 12:50	8° \mathcal{B} 59'06	
opposition	12350 Oct 06 09:14	25° Υ 26'50	0°31'22				
min. Earth dist.	12350 Oct 07 00:08	25° Υ 25'49	29.37055 AU	conjunction	12357 Apr 23 05:44	9° \mathcal{B} 33'54	0°20'38
direct	12350 Dec 25 23:30	24° Υ 02'36		minimum elong	12357 Apr 23 05:44	9° \mathcal{B} 33'54	0°20'07
evening set	12351 Mar 25 21:23	25° Υ 57'25		max. Earth dist.	12357 Apr 22 14:25	9° \mathcal{B} 32'29	31.34543 AU
				morning rise	12357 May 08 20:26	10° \mathcal{B} 08'32	
conjunction	12351 Apr 10 15:58	26° Υ 32'18	0°28'46	retrograde	12357 Aug 04 03:45	12° \mathcal{B} 01'03	
minimum elong	12351 Apr 10 15:58	26° Υ 32'18	0°28'27	opposition	12357 Oct 21 14:02	10° \mathcal{B} 38'48	0°21'12
max. Earth dist.	12351 Apr 09 23:14	26° Υ 30'45	31.36972 AU	min. Earth dist.	12357 Oct 22 03:55	10° \mathcal{B} 37'51	29.34392 AU
morning rise	12351 Apr 26 08:24	27° Υ 07'00		direct	12358 Jan 10 04:45	9° \mathcal{B} 14'33	
retrograde	12351 Jul 22 16:12	28° Υ 59'21		evening set	12358 Apr 09 23:06	11° \mathcal{B} 09'16	
opposition	12351 Oct 08 20:01	27° Υ 37'16	0°30'01				
min. Earth dist.	12351 Oct 09 11:03	27° Υ 36'14	29.36896 AU	conjunction	12358 Apr 25 15:38	11° \mathcal{B} 44'04	0°19'09
direct	12351 Dec 28 09:41	26° Υ 13'03		minimum elong	12358 Apr 25 15:38	11° \mathcal{B} 44'04	0°18'38
evening set	12352 Mar 27 08:09	28° Υ 07'51		max. Earth dist.	12358 Apr 25 00:09	11° \mathcal{B} 42'38	31.34231 AU
max. Earth dist.	12352 Apr 11 10:39	28° Υ 41'15	31.36732 AU	morning rise	12358 May 11 06:11	12° \mathcal{B} 18'42	
				retrograde	12358 Aug 06 15:11	14° \mathcal{B} 11'17	
conjunction	12352 Apr 12 02:36	28° Υ 42'43	0°27'30	opposition	12358 Oct 24 01:15	12° \mathcal{B} 49'02	0°19'37
minimum elong	12352 Apr 12 02:36	28° Υ 42'43	0°27'09	min. Earth dist.	12358 Oct 24 15:19	12° \mathcal{B} 48'04	29.34114 AU
morning rise	12352 Apr 27 18:36	29° Υ 17'25		direct	12359 Jan 12 15:40	11° \mathcal{B} 24'50	
	12352 May 18 11:00	0° \mathcal{B}		evening set	12359 Apr 12 09:23	13° \mathcal{B} 19'34	
retrograde	12352 Jul 24 00:01	1° \mathcal{B} 09'47		max. Earth dist.	12359 Apr 27 11:33	13° \mathcal{B} 53'02	31.33968 AU
	12352 Oct 02 18:27	30° \mathcal{R} Υ					
opposition	12352 Oct 10 07:02	29° Υ 47'42	0°28'39	conjunction	12359 Apr 28 01:47	13° \mathcal{B} 54'21	0°17'40
min. Earth dist.	12352 Oct 10 22:42	29° Υ 46'38	29.36576 AU	minimum elong	12359 Apr 28 01:47	13° \mathcal{B} 54'21	0°17'06
direct	12352 Dec 29 21:27	28° Υ 23'29		morning rise	12359 May 13 15:59	14° \mathcal{B} 28'59	
	12353 Mar 21 05:07	0° \mathcal{B}			12359 May 28 09:38	15° \mathcal{B}	
evening set	12353 Mar 29 18:55	0° \mathcal{B} 18'15		retrograde	12359 Aug 09 01:29	16° \mathcal{B} 21'37	
				opposition	12359 Oct 26 12:18	14° \mathcal{B} 59'23	0°18'00
conjunction	12353 Apr 14 12:54	0° \mathcal{B} 53'07	0°26'11		12359 Oct 26 03:21	15° \mathcal{R} \mathcal{B}	
minimum elong	12353 Apr 14 12:54	0° \mathcal{B} 53'07	0°25'48	min. Earth dist.	12359 Oct 27 02:03	14° \mathcal{B} 58'27	29.33840 AU
max. Earth dist.	12353 Apr 13 19:49	0° \mathcal{B} 51'32	31.36356 AU	direct	12360 Jan 15 04:51	13° \mathcal{B} 35'14	
morning rise	12353 Apr 30 04:46	1° \mathcal{B} 27'48			12360 Mar 30 14:00	15° \mathcal{B}	
retrograde	12353 Jul 26 10:40	3° \mathcal{B} 20'11		evening set	12360 Apr 13 19:54	15° \mathcal{B} 29'59	
opposition	12353 Oct 12 17:57	1° \mathcal{B} 58'04	0°27'13				
min. Earth dist.	12353 Oct 13 08:56	1° \mathcal{B} 57'03	29.36148 AU	conjunction	12360 Apr 29 11:50	16° \mathcal{B} 04'45	0°16'08
direct	12354 Jan 01 07:26	0° \mathcal{B} 33'50		minimum elong	12360 Apr 29 11:50	16° \mathcal{B} 04'45	0°15'34
evening set	12354 Apr 01 05:28	2° \mathcal{B} 28'35		behind sun begin	12360 Apr 29 10:08	16° \mathcal{B} 04'36	
				behind sun end	12360 Apr 29 13:32	16° \mathcal{B} 04'54	
conjunction	12354 Apr 16 23:17	3° \mathcal{B} 03'26	0°24'51	max. Earth dist.	12360 Apr 28 20:47	16° \mathcal{B} 03'22	31.33686 AU
minimum elong	12354 Apr 16 23:17	3° \mathcal{B} 03'26	0°24'27	morning rise	12360 May 15 01:56	16° \mathcal{B} 39'23	
max. Earth dist.	12354 Apr 16 07:05	3° \mathcal{B} 01'56	31.35885 AU	retrograde	12360 Aug 10 12:28	18° \mathcal{B} 32'06	
morning rise	12354 May 02 14:45	3° \mathcal{B} 38'06		opposition	12360 Oct 27 23:37	17° \mathcal{B} 09'53	0°16'21
retrograde	12354 Jul 28 19:30	5° \mathcal{B} 30'31		min. Earth dist.	12360 Oct 28 13:02	17° \mathcal{B} 08'58	29.33538 AU
opposition	12354 Oct 15 04:58	4° \mathcal{B} 08'21	0°25'46	direct	12361 Jan 16 15:12	15° \mathcal{B} 45'46	
min. Earth dist.	12354 Oct 15 20:52	4° \mathcal{B} 07'16	29.35657 AU	evening set	12361 Apr 16 06:11	17° \mathcal{B} 40'31	
direct	12355 Jan 03 17:21	2° \mathcal{B} 44'05					
evening set	12355 Apr 03 15:56	4° \mathcal{B} 38'49		conjunction	12361 May 01 21:58	18° \mathcal{B} 15'17	0°14'35
				minimum elong	12361 May 01 21:59	18° \mathcal{B} 15'17	0°13'58
conjunction	12355 Apr 19 09:24	5° \mathcal{B} 13'38	0°23'28	behind sun begin	12361 May 01 18:40	18° \mathcal{B} 14'59	
minimum elong	12355 Apr 19 09:24	5° \mathcal{B} 13'38	0°23'01	behind sun end	12361 May 02 01:18	18° \mathcal{B} 15'35	
max. Earth dist.	12355 Apr 18 16:59	5° \mathcal{B} 12'07	31.35395 AU	max. Earth dist.	12361 May 01 08:09	18° \mathcal{B} 14'00	31.33339 AU
morning rise	12355 May 05 00:43	5° \mathcal{B} 48'18		morning rise	12361 May 17 11:39	18° \mathcal{B} 49'55	
retrograde	12355 Jul 31 06:37	7° \mathcal{B} 40'44		retrograde	12361 Aug 12 20:45	20° \mathcal{B} 42'42	
opposition	12355 Oct 17 15:54	6° \mathcal{B} 18'32	0°24'17	opposition	12361 Oct 30 11:07	19° \mathcal{B} 20'29	0°14'41

min. Earth dist.	12361 Oct 31 00:56	19° 8 19'33	29.33141 AU	conjunction	12367 May 15 10:34	1° II 19'09	0°04'59
direct	12362 Jan 19 03:12	17° 8 56'24		minimum elong	12367 May 15 10:34	1° II 19'09	0°04'14
evening set	12362 Apr 18 16:42	19° 8 51'09		behind sun begin	12367 May 15 04:13	1° II 18'35	
				behind sun end	12367 May 15 16:54	1° II 19'43	
conjunction	12362 May 04 08:04	20° 8 25'55	0°13'01	max. Earth dist.	12367 May 14 20:32	1° II 17'51	31.28714 AU
minimum elong	12362 May 04 08:03	20° 8 25'55	0°12'24	morning rise	12367 May 30 23:10	1° II 53'46	
behind sun begin	12362 May 04 03:48	20° 8 25'32		retrograde	12367 Aug 26 13:04	3° II 46'55	
behind sun end	12362 May 04 12:19	20° 8 26'18		opposition	12367 Nov 13 08:31	2° II 24'25	0°04'20
max. Earth dist.	12362 May 03 17:19	20° 8 24'33	31.32895 AU	min. Earth dist.	12367 Nov 13 21:19	2° II 23'32	29.28212 AU
morning rise	12362 May 19 21:40	21° 8 00'32		direct	12368 Feb 01 22:20	1° II 00'15	
retrograde	12362 Aug 15 08:01	22° 8 53'24		evening set	12368 May 01 06:35	2° II 54'53	
opposition	12362 Nov 01 22:29	21° 8 31'10	0°12'59				
min. Earth dist.	12362 Nov 02 11:28	21° 8 30'17	29.32639 AU	conjunction	12368 May 16 20:34	3° II 29'36	0°03'20
direct	12363 Jan 21 13:31	20° 8 07'06		minimum elong	12368 May 16 20:35	3° II 29'36	0°02'35
evening set	12363 Apr 21 03:04	22° 8 01'50		behind sun begin	12368 May 16 14:09	3° II 29'02	
				behind sun end	12368 May 17 03:00	3° II 30'11	
conjunction	12363 May 06 18:18	22° 8 36'36	0°11'26	max. Earth dist.	12368 May 16 08:08	3° II 28'27	31.27703 AU
minimum elong	12363 May 06 18:18	22° 8 36'36	0°10'46	morning rise	12368 Jun 01 08:52	4° II 04'13	
behind sun begin	12363 May 06 13:20	22° 8 36'10		retrograde	12368 Aug 27 23:25	5° II 57'26	
behind sun end	12363 May 06 23:16	22° 8 37'03		opposition	12368 Nov 14 20:15	4° II 34'53	0°02'34
max. Earth dist.	12363 May 06 04:17	22° 8 35'18	31.32315 AU	min. Earth dist.	12368 Nov 15 08:18	4° II 34'03	29.27229 AU
morning rise	12363 May 22 07:34	23° 8 11'14		direct	12369 Feb 03 11:49	3° II 10'43	
retrograde	12363 Aug 17 17:14	25° 8 04'09		evening set	12369 May 03 16:43	5° II 05'20	
opposition	12363 Nov 04 10:08	23° 8 41'54	0°11'17				
min. Earth dist.	12363 Nov 05 00:08	23° 8 40'57	29.31985 AU	conjunction	12369 May 19 06:18	5° II 40'03	0°01'40
direct	12364 Jan 24 00:04	22° 8 17'50		minimum elong	12369 May 19 06:17	5° II 40'03	0°00'52
evening set	12364 Apr 22 13:34	24° 8 12'34		behind sun begin	12369 May 18 23:51	5° II 39'29	
				behind sun end	12369 May 19 12:43	5° II 40'38	
conjunction	12364 May 08 04:28	24° 8 47'19	0°09'50	max. Earth dist.	12369 May 18 17:31	5° II 38'52	31.26769 AU
minimum elong	12364 May 08 04:27	24° 8 47'19	0°09'10	morning rise	12369 Jun 03 18:32	6° II 14'40	
behind sun begin	12364 May 07 22:58	24° 8 46'49		retrograde	12369 Aug 30 10:46	8° II 07'59	
behind sun end	12364 May 08 09:56	24° 8 47'48		opposition	12369 Nov 17 08:00	6° II 45'23	0°00'49
max. Earth dist.	12364 May 07 14:05	24° 8 45'59	31.31593 AU	min. Earth dist.	12369 Nov 17 19:04	6° II 44'38	29.26354 AU
morning rise	12364 May 23 17:34	25° 8 21'56		direct	12370 Feb 05 22:21	5° II 21'15	
retrograde	12364 Aug 19 04:07	27° 8 14'55		evening set	12370 May 06 02:44	7° II 15'52	
opposition	12364 Nov 05 21:37	25° 8 52'37	0°09'33	desc. node	12370 May 16 04:28	7° II 38'14	
min. Earth dist.	12364 Nov 06 10:33	25° 8 51'45	29.31183 AU				
direct	12365 Jan 25 12:09	24° 8 28'33		conjunction	12370 May 21 16:15	7° II 50'35	-0°00'03
evening set	12365 Apr 25 00:00	26° 8 23'15		minimum elong	12370 May 21 16:15	7° II 50'35	0°00'50
				behind sun begin	12370 May 21 09:49	7° II 50'01	
conjunction	12365 May 10 14:38	26° 8 58'00	0°08'14	behind sun end	12370 May 21 22:41	7° II 51'10	
minimum elong	12365 May 10 14:38	26° 8 58'00	0°07'31	max. Earth dist.	12370 May 21 05:11	7° II 49'34	31.25942 AU
behind sun begin	12365 May 10 08:45	26° 8 57'28		morning rise	12370 Jun 06 04:11	8° II 25'13	
behind sun end	12365 May 10 20:31	26° 8 58'32		retrograde	12370 Sep 01 19:32	10° II 18'37	
max. Earth dist.	12365 May 10 00:20	26° 8 56'40	31.30720 AU	opposition	12370 Nov 19 19:43	8° II 56'01	-0°00'57
morning rise	12365 May 26 03:31	27° 8 32'37		min. Earth dist.	12370 Nov 20 06:41	8° II 55'16	29.25572 AU
retrograde	12365 Aug 21 14:59	29° 8 25'40		direct	12371 Feb 08 10:26	7° II 31'55	
opposition	12365 Nov 08 09:23	28° 8 03'18	0°07'49	evening set	12371 May 08 12:54	9° II 26'33	
min. Earth dist.	12365 Nov 08 23:06	28° 8 02'22	29.30257 AU				
direct	12366 Jan 27 22:23	26° 8 39'12		conjunction	12371 May 24 02:07	10° II 01'17	-0°01'44
evening set	12366 Apr 27 10:09	28° 8 33'53		minimum elong	12371 May 24 02:05	10° II 01'17	0°02'34
max. Earth dist.	12366 May 12 10:57	29° 8 07'21	31.29750 AU	behind sun begin	12371 May 23 19:40	10° II 00'42	
				behind sun end	12371 May 24 08:31	10° II 01'52	
conjunction	12366 May 13 00:37	29° 8 08'37	0°06'37	max. Earth dist.	12371 May 23 14:42	10° II 00'14	31.25209 AU
minimum elong	12366 May 13 00:37	29° 8 08'37	0°05'54	morning rise	12371 Jun 08 14:03	10° II 35'55	
behind sun begin	12366 May 12 18:27	29° 8 08'04		retrograde	12371 Sep 04 07:23	12° II 29'26	
behind sun end	12366 May 13 06:46	29° 8 09'10		opposition	12371 Nov 22 07:28	11° II 06'50	-0°02'43
morning rise	12366 May 28 13:19	29° 8 43'14		min. Earth dist.	12371 Nov 22 17:01	11° II 06'11	29.24863 AU
	12366 Jun 05 08:11	0° II		direct	12372 Feb 10 20:54	9° II 42'47	
retrograde	12366 Aug 24 01:26	1° II 36'20		evening set	12372 May 09 22:59	11° II 37'27	
opposition	12366 Nov 10 20:58	0° II 13'54	0°06'05				
min. Earth dist.	12366 Nov 11 09:38	0° II 13'02	29.29239 AU	conjunction	12372 May 25 12:02	12° II 12'11	-0°03'24
	12366 Nov 19 09:50	30° R 8		minimum elong	12372 May 25 12:02	12° II 12'11	0°04'13
direct	12367 Jan 30 11:05	28° 8 49'46		behind sun begin	12372 May 25 05:41	12° II 11'37	
	12367 Apr 08 07:24	0° II		behind sun end	12372 May 25 18:22	12° II 12'45	
evening set	12367 Apr 29 20:27	0° II 44'25		max. Earth dist.	12372 May 25 01:50	12° II 11'14	31.24509 AU
				morning rise	12372 Jun 09 23:42	12° II 46'50	

retrograde	12372 Sep 05 16:58	14°II40'29		minimum elong	12378 Jun 08 00:27	25°II21'17	0°13'59
opposition	12372 Nov 23 19:28	13°II17'53	-0°04'29	behind sun begin	12378 Jun 07 21:07	25°II20'59	
min. Earth dist.	12372 Nov 24 05:35	13°II17'12	29.24173 AU	behind sun end	12378 Jun 08 03:47	25°II21'35	
direct	12373 Feb 12 07:14	11°II53'53		max. Earth dist.	12378 Jun 07 15:33	25°II20'28	31.19098 AU
evening set	12373 May 12 09:12	13°II48'34		morning rise	12378 Jun 23 11:39	25°II55'59	
				retrograde	12378 Sep 19 15:18	27°II50'18	
conjunction	12373 May 27 21:59	14°II23'18	-0°05'02	opposition	12378 Dec 07 20:36	26°II27'29	-0°14'53
minimum elong	12373 May 27 22:00	14°II23'18	0°05'53	min. Earth dist.	12378 Dec 08 04:08	26°II26'58	29.18482 AU
behind sun begin	12373 May 27 15:51	14°II22'45		direct	12379 Feb 26 03:34	25°II03'34	
behind sun end	12373 May 28 04:08	14°II23'51		evening set	12379 May 25 22:49	26°II58'13	
max. Earth dist.	12373 May 27 12:05	14°II22'23	31.23825 AU				
morning rise	12373 Jun 12 09:36	14°II57'57		conjunction	12379 Jun 10 10:41	27°II32'58	-0°14'41
retrograde	12373 Sep 08 04:12	16°II51'44		minimum elong	12379 Jun 10 10:40	27°II32'58	0°15'35
opposition	12373 Nov 26 07:26	15°II29'09	-0°06'15	behind sun begin	12379 Jun 10 08:54	27°II32'48	
min. Earth dist.	12373 Nov 26 16:06	15°II28'33	29.23469 AU	behind sun end	12379 Jun 10 12:27	27°II33'07	
direct	12374 Feb 14 18:32	14°II05'12		max. Earth dist.	12379 Jun 10 03:11	27°II32'16	31.17842 AU
evening set	12374 May 14 19:20	15°II59'54		morning rise	12379 Jun 25 21:39	28°II07'40	
					12379 Sep 10 23:04	0°II	
conjunction	12374 May 30 07:55	16°II34'38	-0°06'41	retrograde	12379 Sep 22 01:11	0°II02'03	
minimum elong	12374 May 30 07:55	16°II34'38	0°07'31		12379 Oct 03 03:52	30°RII	
behind sun begin	12374 May 30 02:03	16°II34'07		opposition	12379 Dec 10 09:01	28°II39'09	-0°16'33
behind sun end	12374 May 30 13:47	16°II35'10		min. Earth dist.	12379 Dec 10 16:35	28°II38'38	29.17208 AU
max. Earth dist.	12374 May 29 22:17	16°II33'45	31.23087 AU	direct	12380 Feb 28 17:16	27°II15'11	
morning rise	12374 Jun 14 19:25	17°II09'18		evening set	12380 May 27 09:03	29°II09'48	
retrograde	12374 Sep 10 15:40	19°II03'13					
opposition	12374 Nov 28 19:36	17°II40'37	-0°08'00	conjunction	12380 Jun 11 20:36	29°II44'33	-0°16'14
min. Earth dist.	12374 Nov 29 04:55	17°II39'59	29.22701 AU	minimum elong	12380 Jun 11 20:36	29°II44'33	0°17'07
direct	12375 Feb 17 03:34	16°II16'42		max. Earth dist.	12380 Jun 11 12:58	29°II43'50	31.16581 AU
evening set	12375 May 17 05:36	18°II11'25			12380 Jun 18 16:43	0°II	
				morning rise	12380 Jun 27 07:38	0°II19'15	
conjunction	12375 Jun 01 18:04	18°II46'10	-0°08'18	retrograde	12380 Sep 23 13:35	2°II13'43	
minimum elong	12375 Jun 01 18:04	18°II46'10	0°09'10	opposition	12380 Dec 11 21:21	0°II50'43	-0°18'12
behind sun begin	12375 Jun 01 12:36	18°II45'40		min. Earth dist.	12380 Dec 12 03:19	0°II50'19	29.15973 AU
behind sun end	12375 Jun 01 23:32	18°II46'39			12381 Jan 14 03:57	30°RII	
max. Earth dist.	12375 Jun 01 09:09	18°II45'20	31.22274 AU	direct	12381 Mar 02 05:22	29°II26'44	
morning rise	12375 Jun 17 05:23	19°II20'50			12381 Apr 16 12:14	0°II	
retrograde	12375 Sep 13 02:55	21°II14'52		evening set	12381 May 29 19:13	1°II21'19	
opposition	12375 Dec 01 07:39	19°II52'15	-0°09'45				
min. Earth dist.	12375 Dec 01 15:56	19°II51'41	29.21824 AU	conjunction	12381 Jun 14 06:43	1°II56'04	-0°17'45
direct	12376 Feb 19 15:49	18°II28'21		minimum elong	12381 Jun 14 06:42	1°II56'04	0°18'40
evening set	12376 May 18 16:03	20°II23'05		max. Earth dist.	12381 Jun 14 00:25	1°II55'29	31.15376 AU
				morning rise	12381 Jun 29 17:35	2°II30'47	
conjunction	12376 Jun 03 04:12	20°II57'49	-0°09'55	retrograde	12381 Sep 25 23:02	4°II25'20	
minimum elong	12376 Jun 03 04:12	20°II57'49	0°10'47	opposition	12381 Dec 14 09:51	3°II02'17	-0°19'49
behind sun begin	12376 Jun 02 23:15	20°II57'22		min. Earth dist.	12381 Dec 14 16:00	3°II01'51	29.14827 AU
behind sun end	12376 Jun 03 09:09	20°II58'16		direct	12382 Mar 04 16:39	1°II38'17	
max. Earth dist.	12376 Jun 02 18:41	20°II56'56	31.21336 AU	evening set	12382 Jun 01 05:19	3°II32'51	
morning rise	12376 Jun 18 15:31	21°II32'30					
retrograde	12376 Sep 14 16:00	23°II26'39		conjunction	12382 Jun 16 16:42	4°II07'35	-0°19'16
opposition	12376 Dec 02 20:02	22°II03'59	-0°11'28	minimum elong	12382 Jun 16 16:42	4°II07'35	0°20'09
min. Earth dist.	12376 Dec 03 04:32	22°II03'24	29.20832 AU	max. Earth dist.	12382 Jun 16 11:07	4°II07'04	31.14292 AU
direct	12377 Feb 21 03:06	20°II40'06		morning rise	12382 Jul 02 03:37	4°II42'19	
evening set	12377 May 21 02:13	22°II34'49		retrograde	12382 Sep 28 09:56	6°II36'59	
				opposition	12382 Dec 16 22:11	5°II13'53	-0°21'25
conjunction	12377 Jun 05 14:21	23°II09'33	-0°11'31	min. Earth dist.	12382 Dec 17 02:30	5°II13'35	29.13789 AU
minimum elong	12377 Jun 05 14:21	23°II09'33	0°12'24	direct	12383 Mar 07 04:14	3°II49'54	
behind sun begin	12377 Jun 05 10:05	23°II09'10		evening set	12383 Jun 03 15:35	5°II44'27	
behind sun end	12377 Jun 05 18:37	23°II09'56					
max. Earth dist.	12377 Jun 05 06:10	23°II08'48	31.20277 AU	conjunction	12383 Jun 19 02:48	6°II19'13	-0°20'44
morning rise	12377 Jun 21 01:26	23°II44'14		minimum elong	12383 Jun 19 02:48	6°II19'13	0°21'39
retrograde	12377 Sep 17 03:23	25°II38'29		max. Earth dist.	12383 Jun 18 21:44	6°II18'45	31.13298 AU
opposition	12377 Dec 05 08:25	24°II15'45	-0°13'11	morning rise	12383 Jul 04 13:41	6°II53'58	
min. Earth dist.	12377 Dec 05 16:30	24°II15'12	29.19701 AU	retrograde	12383 Sep 30 21:15	8°II48'45	
direct	12378 Feb 23 16:42	22°II51'52		opposition	12383 Dec 19 10:40	7°II25'37	-0°22'59
evening set	12378 May 23 12:38	24°II46'33		min. Earth dist.	12383 Dec 19 15:10	7°II25'19	29.12847 AU
				direct	12384 Mar 08 13:31	6°II01'40	
conjunction	12378 Jun 08 00:27	25°II21'17	-0°13'07	evening set	12384 Jun 05 01:47	7°II56'14	

conjunction	12384 Jun 20 13:00	8°  31'00 -0°22'11	direct	12391 Mar 25 01:01	21°  29'56
minimum elong	12384 Jun 20 13:00	8°  31'00 0°23'05	evening set	12391 Jun 21 03:20	23°  24'34
max. Earth dist.	12384 Jun 20 09:15	8°  30'39 31.12398 AU			
morning rise	12384 Jul 05 23:48	9°  05'46	conjunction	12391 Jul 06 14:08	23°  59'25 -0°31'19
retrograde	12384 Oct 02 08:53	11°  00'42	minimum elong	12391 Jul 06 14:08	23°  59'25 0°32'11
opposition	12384 Dec 20 23:13	9°  37'33 -0°24'31	max. Earth dist.	12391 Jul 06 13:08	23°  59'20 31.05054 AU
min. Earth dist.	12384 Dec 21 02:13	9°  37'21 29.11965 AU	morning rise	12391 Jul 22 01:13	24°  34'19
direct	12385 Mar 11 01:40	8°  13'39	retrograde	12391 Oct 18 22:55	26°  30'10
evening set	12385 Jun 07 12:03	10°  08'14	opposition	12392 Jan 06 17:02	25°  06'45 -0°34'08
			min. Earth dist.	12392 Jan 06 17:02	25°  06'45 29.04358 AU
conjunction	12385 Jun 22 23:02	10°  43'00 -0°23'36	direct	12392 Mar 26 13:31	23°  42'59
minimum elong	12385 Jun 22 23:02	10°  43'00 0°24'31	evening set	12392 Jun 22 13:56	25°  37'35
max. Earth dist.	12385 Jun 22 19:08	10°  42'38 31.11535 AU			
morning rise	12385 Jul 08 09:58	11°  17'47	conjunction	12392 Jul 08 00:40	26°  12'27 -0°32'27
retrograde	12385 Oct 04 22:17	13°  12'52	minimum elong	12392 Jul 08 00:40	26°  12'27 0°33'18
opposition	12385 Dec 23 11:57	11°  49'42 -0°26'01	max. Earth dist.	12392 Jul 07 23:59	26°  12'23 31.03650 AU
min. Earth dist.	12385 Dec 23 14:50	11°  49'30 29.11117 AU	morning rise	12392 Jul 23 11:53	26°  47'22
direct	12386 Mar 13 11:56	10°  25'51	retrograde	12392 Oct 20 10:29	28°  43'19
evening set	12386 Jun 09 22:23	12°  20'28	opposition	12393 Jan 08 06:08	27°  19'48 -0°35'19
			min. Earth dist.	12393 Jan 08 06:25	27°  19'46 29.02972 AU
conjunction	12386 Jun 25 09:27	12°  55'15 -0°24'59	direct	12393 Mar 28 23:31	25°  56'00
minimum elong	12386 Jun 25 09:27	12°  55'15 0°25'52	evening set	12393 Jun 25 00:19	27°  50'34
max. Earth dist.	12386 Jun 25 07:10	12°  55'02 31.10676 AU			
morning rise	12386 Jul 10 20:14	13°  30'03	conjunction	12393 Jul 10 11:10	28°  25'26 -0°33'32
retrograde	12386 Oct 07 10:14	15°  25'16	minimum elong	12393 Jul 10 11:10	28°  25'26 0°34'23
opposition	12386 Dec 26 00:32	14°  02'06 -0°27'28	max. Earth dist.	12393 Jul 10 11:55	28°  25'30 31.02290 AU
min. Earth dist.	12386 Dec 26 02:55	14°  01'56 29.10233 AU	morning rise	12393 Jul 25 22:24	29°  00'22
direct	12387 Mar 16 00:27	12°  38'18		12393 Aug 24 07:37	0°  00'00
evening set	12387 Jun 12 08:59	14°  32'57	retrograde	12393 Oct 22 21:45	0°  56'25
				12393 Dec 24 22:09	30°  00'00
conjunction	12387 Jun 27 19:49	15°  07'44 -0°26'20	opposition	12394 Jan 10 19:02	29°  32'49 -0°36'28
minimum elong	12387 Jun 27 19:49	15°  07'44 0°27'14	min. Earth dist.	12394 Jan 10 17:41	29°  32'55 29.01644 AU
max. Earth dist.	12387 Jun 27 16:54	15°  07'28 31.09769 AU	direct	12394 Mar 31 12:24	28°  09'00
morning rise	12387 Jul 13 06:47	15°  42'33		12394 Jun 25 20:14	0°  00'00
retrograde	12387 Oct 09 23:43	17°  37'56	evening set	12394 Jun 27 10:59	0°  03'34
opposition	12387 Dec 28 13:21	16°  14'44 -0°28'54			
min. Earth dist.	12387 Dec 28 15:07	16°  14'37 29.09292 AU	conjunction	12394 Jul 12 21:42	0°  38'26 -0°34'35
direct	12388 Mar 17 11:02	14°  50'59	minimum elong	12394 Jul 12 21:42	0°  38'26 0°35'23
evening set	12388 Jun 13 19:27	16°  45'39	max. Earth dist.	12394 Jul 12 22:19	0°  38'30 31.01008 AU
			morning rise	12394 Jul 28 09:10	1°  13'23
conjunction	12388 Jun 29 06:20	17°  20'28 -0°27'39	retrograde	12394 Oct 25 10:33	3°  09'33
minimum elong	12388 Jun 29 06:20	17°  20'28 0°28'32	opposition	12395 Jan 13 07:53	1°  45'53 -0°37'32
max. Earth dist.	12388 Jun 29 04:45	17°  20'19 31.08766 AU	min. Earth dist.	12395 Jan 13 06:15	1°  45'59 29.00429 AU
morning rise	12388 Jul 14 17:09	17°  55'18	direct	12395 Apr 02 22:21	0°  22'03
retrograde	12388 Oct 11 11:22	19°  50'49	evening set	12395 Jun 29 21:31	2°  16'36
opposition	12388 Dec 30 02:21	18°  27'35 -0°30'16			
min. Earth dist.	12388 Dec 30 04:17	18°  27'27 29.08233 AU	conjunction	12395 Jul 15 08:26	2°  51'30 -0°35'34
direct	12389 Mar 20 00:40	17°  03'52	minimum elong	12395 Jul 15 08:26	2°  51'30 0°36'23
evening set	12389 Jun 16 06:08	18°  58'32	max. Earth dist.	12395 Jul 15 10:56	2°  51'44 30.99846 AU
			morning rise	12395 Jul 30 19:51	3°  26'28
conjunction	12389 Jul 01 16:53	19°  33'22 -0°28'55	retrograde	12395 Oct 27 22:16	5°  22'45
minimum elong	12389 Jul 01 16:53	19°  33'22 0°29'48	opposition	12396 Jan 15 20:52	3°  59'01 -0°38'34
max. Earth dist.	12389 Jul 01 14:47	19°  33'10 31.07653 AU	min. Earth dist.	12396 Jan 15 18:15	3°  59'12 28.99316 AU
morning rise	12389 Jul 17 03:52	20°  08'13	direct	12396 Apr 04 10:12	2°  35'12
retrograde	12389 Oct 14 01:24	22°  03'51	evening set	12396 Jul 01 08:07	4°  29'45
opposition	12390 Jan 01 15:11	20°  40'35 -0°31'37			
min. Earth dist.	12390 Jan 01 15:58	20°  40'32 29.07056 AU	conjunction	12396 Jul 16 18:54	5°  04'39 -0°36'30
direct	12390 Mar 22 13:01	19°  16'52	minimum elong	12396 Jul 16 18:55	5°  04'39 0°37'17
evening set	12390 Jun 18 16:43	21°  11'32	max. Earth dist.	12396 Jul 16 21:15	5°  04'52 30.98794 AU
			morning rise	12396 Aug 01 06:37	5°  39'39
conjunction	12390 Jul 04 03:32	21°  46'22 -0°30'08	retrograde	12396 Oct 29 12:12	7°  36'04
minimum elong	12390 Jul 04 03:32	21°  46'22 0°31'00	opposition	12397 Jan 17 09:56	6°  12'17 -0°39'33
max. Earth dist.	12390 Jul 04 02:10	21°  46'15 31.06403 AU	min. Earth dist.	12397 Jan 17 06:20	6°  12'32 28.98319 AU
morning rise	12390 Jul 19 14:32	22°  21'15	direct	12397 Apr 06 20:50	4°  48'29
retrograde	12390 Oct 16 11:40	24°  17'00	evening set	12397 Jul 03 18:44	6°  43'03
opposition	12391 Jan 04 04:14	22°  53'40 -0°32'54			
min. Earth dist.	12391 Jan 04 05:42	22°  53'34 29.05747 AU	conjunction	12397 Jul 19 05:44	7°  17'58 -0°37'23

minimum elong	12397 Jul 19 05:44	7°Ω17'58 0°38'10	opposition	12404 Feb 03 06:12	21°Ω49'15 -0°44'37
max. Earth dist.	12397 Jul 19 09:46	7°Ω18'21 30.97831 AU	min. Earth dist.	12404 Feb 02 23:59	21°Ω49'40 28.91206 AU
morning rise	12397 Aug 03 17:26	7°Ω52'59	direct	12404 Apr 22 09:58	20°Ω25'30
retrograde	12397 Nov 01 00:56	9°Ω49'31	evening set	12404 Jul 18 23:39	22°Ω20'00
opposition	12398 Jan 19 22:58	8°Ω25'42 -0°40'27			
min. Earth dist.	12398 Jan 19 19:12	8°Ω25'58 28.97388 AU	conjunction	12404 Aug 03 11:25	22°Ω55'02 -0°41'56
direct	12398 Apr 09 10:10	7°Ω01'56	minimum elong	12404 Aug 03 11:25	22°Ω55'02 0°42'32
evening set	12398 Jul 06 05:31	8°Ω56'30	max. Earth dist.	12404 Aug 03 18:33	22°Ω55'43 30.90560 AU
			morning rise	12404 Aug 19 00:25	23°Ω30'13
conjunction	12398 Jul 21 16:30	9°Ω31'26 -0°38'13	retrograde	12404 Nov 16 16:39	25°Ω27'29
minimum elong	12398 Jul 21 16:30	9°Ω31'26 0°38'58	opposition	12405 Feb 04 19:25	24°Ω03'17 -0°45'05
max. Earth dist.	12398 Jul 21 20:25	9°Ω31'49 30.96932 AU	min. Earth dist.	12405 Feb 04 12:27	24°Ω03'46 28.89950 AU
morning rise	12398 Aug 06 04:30	10°Ω06'29	direct	12405 Apr 24 22:15	22°Ω39'30
retrograde	12398 Nov 03 15:27	12°Ω03'08	evening set	12405 Jul 21 10:50	24°Ω33'58
opposition	12399 Jan 22 12:00	10°Ω39'18 -0°41'18			
min. Earth dist.	12399 Jan 22 06:51	10°Ω39'39 28.96499 AU	conjunction	12405 Aug 05 22:37	25°Ω09'01 -0°42'20
direct	12399 Apr 11 22:14	9°Ω15'33	minimum elong	12405 Aug 05 22:38	25°Ω09'01 0°42'56
evening set	12399 Jul 08 16:21	11°Ω10'08	max. Earth dist.	12405 Aug 06 05:22	25°Ω09'39 30.89330 AU
			morning rise	12405 Aug 21 12:02	25°Ω44'13
conjunction	12399 Jul 24 03:26	11°Ω45'06 -0°38'59	retrograde	12405 Nov 19 06:34	27°Ω41'34
minimum elong	12399 Jul 24 03:26	11°Ω45'06 0°39'43	opposition	12406 Feb 07 08:28	26°Ω17'16 -0°45'29
max. Earth dist.	12399 Jul 24 08:18	11°Ω45'33 30.96031 AU	min. Earth dist.	12406 Feb 07 00:48	26°Ω17'48 28.88766 AU
morning rise	12399 Aug 08 15:29	12°Ω20'09	direct	12406 Apr 27 09:07	24°Ω53'27
retrograde	12399 Nov 06 03:00	14°Ω16'57	evening set	12406 Jul 23 21:52	26°Ω47'54
opposition	12400 Jan 25 01:14	12°Ω53'04 -0°42'06			
min. Earth dist.	12400 Jan 24 20:37	12°Ω53'23 28.95593 AU	conjunction	12406 Aug 08 09:57	27°Ω22'59 -0°42'41
direct	12400 Apr 13 10:14	11°Ω29'22	minimum elong	12406 Aug 08 09:57	27°Ω22'59 0°43'14
evening set	12400 Jul 10 03:20	13°Ω23'57	max. Earth dist.	12406 Aug 08 18:20	27°Ω23'46 30.88184 AU
			morning rise	12406 Aug 23 23:27	27°Ω58'12
conjunction	12400 Jul 25 14:30	13°Ω58'55 -0°39'41	retrograde	12406 Nov 21 19:11	29°Ω55'39
minimum elong	12400 Jul 25 14:30	13°Ω58'55 0°40'24	opposition	12407 Feb 09 21:36	28°Ω31'16 -0°45'49
max. Earth dist.	12400 Jul 25 19:50	13°Ω59'25 30.95113 AU	min. Earth dist.	12407 Feb 09 13:37	28°Ω31'49 28.87679 AU
morning rise	12400 Aug 10 02:44	14°Ω34'00	direct	12407 Apr 29 22:08	27°Ω07'27
	12400 Aug 22 03:24	15°Ω	evening set	12407 Jul 26 08:58	29°Ω01'53
retrograde	12400 Nov 07 16:17	16°Ω30'54			
opposition	12401 Jan 26 14:25	15°Ω07'00 -0°42'50	conjunction	12407 Aug 10 21:07	29°Ω36'59 -0°42'58
min. Earth dist.	12401 Jan 26 08:25	15°Ω07'25 28.94641 AU	minimum elong	12407 Aug 10 21:07	29°Ω36'59 0°43'30
	12401 Jan 30 20:41	15°κΩ	max. Earth dist.	12407 Aug 11 05:32	29°Ω37'47 30.87170 AU
direct	12401 Apr 15 23:19	13°Ω43'19		12407 Aug 20 23:54	0°η
	12401 Jun 24 17:26	15°Ω	morning rise	12407 Aug 26 10:57	0°η12'14
evening set	12401 Jul 12 14:22	15°Ω37'53	retrograde	12407 Nov 24 09:35	2°η09'46
			opposition	12408 Feb 12 10:40	0°η45'20 -0°46'05
conjunction	12401 Jul 28 01:36	16°Ω12'53 -0°40'20	min. Earth dist.	12408 Feb 12 01:07	0°η46'00 28.86739 AU
minimum elong	12401 Jul 28 01:36	16°Ω12'53 0°41'02		12408 Mar 12 08:19	30°κΩ
max. Earth dist.	12401 Jul 28 06:54	16°Ω13'23 30.94111 AU	direct	12408 May 01 09:51	29°Ω21'31
morning rise	12401 Aug 12 14:04	16°Ω48'00		12408 Jun 18 14:09	0°η
retrograde	12401 Nov 10 04:58	18°Ω45'01	evening set	12408 Jul 27 20:06	1°η15'58
opposition	12402 Jan 29 03:47	17°Ω21'03 -0°43'29			
min. Earth dist.	12402 Jan 28 22:30	17°Ω21'25 28.93596 AU	conjunction	12408 Aug 12 08:29	1°η51'05 -0°43'11
direct	12402 Apr 18 10:25	15°Ω57'22	minimum elong	12408 Aug 12 08:30	1°η51'05 0°43'40
evening set	12402 Jul 15 01:29	17°Ω51'55	max. Earth dist.	12408 Aug 12 18:05	1°η51'59 30.86296 AU
			morning rise	12408 Aug 27 22:31	2°η26'22
conjunction	12402 Jul 30 12:58	18°Ω26'56 -0°40'56	retrograde	12408 Nov 25 21:59	4°η24'00
minimum elong	12402 Jul 30 12:58	18°Ω26'56 0°41'35	opposition	12409 Feb 13 23:52	2°η59'32 -0°46'17
max. Earth dist.	12402 Jul 30 19:06	18°Ω27'31 30.93013 AU	min. Earth dist.	12409 Feb 13 14:31	3°η00'11 28.85942 AU
morning rise	12402 Aug 15 01:32	19°Ω02'04	direct	12409 May 03 21:51	1°η35'44
retrograde	12402 Nov 12 16:26	20°Ω59'11	evening set	12409 Jul 30 07:13	3°η30'11
opposition	12403 Jan 31 16:52	19°Ω35'09 -0°44'05			
min. Earth dist.	12403 Jan 31 10:27	19°Ω35'36 28.92436 AU	conjunction	12409 Aug 14 19:52	4°η05'20 -0°43'20
direct	12403 Apr 20 23:34	18°Ω11'27	minimum elong	12409 Aug 14 19:52	4°η05'20 0°43'49
evening set	12403 Jul 17 12:45	20°Ω05'59	max. Earth dist.	12409 Aug 15 06:12	4°η06'18 30.85575 AU
			morning rise	12409 Aug 30 10:12	4°η40'38
conjunction	12403 Aug 02 00:12	20°Ω41'00 -0°41'28	retrograde	12409 Nov 28 12:29	6°η38'22
minimum elong	12403 Aug 02 00:13	20°Ω41'00 0°42'07	opposition	12410 Feb 16 12:54	5°η13'54 -0°46'24
max. Earth dist.	12403 Aug 02 05:43	20°Ω41'31 30.91810 AU	min. Earth dist.	12410 Feb 16 01:55	5°η14'39 28.85275 AU
morning rise	12403 Aug 17 13:08	21°Ω16'10	direct	12410 May 06 11:13	3°η50'08
retrograde	12403 Nov 15 05:05	23°Ω13'22	evening set	12410 Aug 01 18:35	5°η44'36

conjunction	12410 Aug 17 07:21	6° <u>19</u> '46	-0°43'25	direct	12417 May 21 20:44	19° <u>19</u> '35'20	
minimum elong	12410 Aug 17 07:21	6° <u>19</u> '46	0°43'51	evening set	12417 Aug 17 04:09	21° <u>19</u> '29'43	
max. Earth dist.	12410 Aug 17 17:58	6° <u>19</u> '20'46	30.84955 AU				
morning rise	12410 Sep 01 22:01	6° <u>19</u> '55'06		conjunction	12417 Sep 01 18:48	22° <u>19</u> '05'02	-0°42'09
retrograde	12410 Dec 01 01:48	8° <u>19</u> '52'57		minimum elong	12417 Sep 01 18:48	22° <u>19</u> '05'02	0°42'23
opposition	12411 Feb 19 02:02	7° <u>19</u> '28'28	-0°46'28	max. Earth dist.	12417 Sep 02 07:46	22° <u>19</u> '06'15	30.80631 AU
min. Earth dist.	12411 Feb 18 15:32	7° <u>19</u> '29'11	28.84707 AU	morning rise	12417 Sep 17 11:34	22° <u>19</u> '40'33	
direct	12411 May 08 22:30	6° <u>19</u> '04'45		retrograde	12417 Dec 16 19:59	24° <u>19</u> '38'51	
evening set	12411 Aug 04 05:55	7° <u>19</u> '59'13		opposition	12418 Mar 06 22:31	23° <u>19</u> '14'04	-0°44'51
				min. Earth dist.	12418 Mar 06 10:17	23° <u>19</u> '14'55	28.80292 AU
conjunction	12411 Aug 19 19:02	8° <u>19</u> '34'25	-0°43'26	direct	12418 May 24 09:32	21° <u>19</u> '50'19	
minimum elong	12411 Aug 19 19:02	8° <u>19</u> '34'25	0°43'51	evening set	12418 Aug 19 15:56	23° <u>19</u> '44'40	
max. Earth dist.	12411 Aug 20 06:51	8° <u>19</u> '35'32	30.84427 AU				
morning rise	12411 Sep 04 09:52	9° <u>19</u> '09'47		conjunction	12418 Sep 04 06:53	24° <u>19</u> '20'00	-0°41'43
retrograde	12411 Dec 03 13:43	11° <u>19</u> '07'44		minimum elong	12418 Sep 04 06:53	24° <u>19</u> '20'00	0°41'53
opposition	12412 Feb 21 15:12	9° <u>19</u> '43'15	-0°46'27	max. Earth dist.	12418 Sep 04 20:16	24° <u>19</u> '21'16	30.79928 AU
min. Earth dist.	12412 Feb 21 03:21	9° <u>19</u> '44'04	28.84196 AU	morning rise	12418 Sep 19 23:58	24° <u>19</u> '55'32	
direct	12412 May 10 11:20	8° <u>19</u> '19'35		retrograde	12418 Dec 19 10:40	26° <u>19</u> '53'50	
evening set	12412 Aug 05 17:25	10° <u>19</u> '14'04		opposition	12419 Mar 09 11:23	25° <u>19</u> '29'00	-0°44'21
				min. Earth dist.	12419 Mar 08 21:44	25° <u>19</u> '29'56	28.79633 AU
conjunction	12412 Aug 21 06:36	10° <u>19</u> '49'16	-0°43'23	direct	12419 May 26 23:19	24° <u>19</u> '05'12	
minimum elong	12412 Aug 21 06:36	10° <u>19</u> '49'16	0°43'45	evening set	12419 Aug 22 03:48	25° <u>19</u> '59'32	
max. Earth dist.	12412 Aug 21 17:56	10° <u>19</u> '50'21	30.83927 AU				
morning rise	12412 Sep 05 21:52	11° <u>19</u> '24'41		conjunction	12419 Sep 06 18:57	26° <u>19</u> '34'53	-0°41'13
retrograde	12412 Dec 05 02:51	13° <u>19</u> '22'44		minimum elong	12419 Sep 06 18:57	26° <u>19</u> '34'53	0°41'22
opposition	12413 Feb 23 04:32	11° <u>19</u> '58'14	-0°46'21	max. Earth dist.	12419 Sep 07 08:35	26° <u>19</u> '36'10	30.79321 AU
min. Earth dist.	12413 Feb 22 17:00	11° <u>19</u> '59'02	28.83701 AU	morning rise	12419 Sep 22 12:25	27° <u>19</u> '10'27	
direct	12413 May 12 21:39	10° <u>19</u> '34'36		retrograde	12419 Dec 21 23:39	29° <u>19</u> '08'46	
evening set	12413 Aug 08 05:02	12° <u>19</u> '29'06		min. Earth dist.	12420 Mar 10 11:22	27° <u>19</u> '44'47	28.79102 AU
				opposition	12420 Mar 11 00:30	27° <u>19</u> '43'52	-0°43'46
conjunction	12413 Aug 23 18:38	13° <u>19</u> '04'20	-0°43'16	direct	12420 May 28 11:09	26° <u>19</u> '20'04	
minimum elong	12413 Aug 23 18:38	13° <u>19</u> '04'20	0°43'38	evening set	12420 Aug 23 15:29	28° <u>19</u> '14'21	
max. Earth dist.	12413 Aug 24 07:17	13° <u>19</u> '05'32	30.83409 AU				
morning rise	12413 Sep 08 10:02	13° <u>19</u> '39'46		conjunction	12420 Sep 08 07:05	28° <u>19</u> '49'43	-0°40'39
retrograde	12413 Dec 07 15:11	15° <u>19</u> '37'54		minimum elong	12420 Sep 08 07:05	28° <u>19</u> '49'43	0°40'45
opposition	12414 Feb 25 17:38	14° <u>19</u> '13'24	-0°46'11	max. Earth dist.	12420 Sep 08 21:53	28° <u>19</u> '51'08	30.78863 AU
min. Earth dist.	12414 Feb 25 05:42	14° <u>19</u> '14'13	28.83148 AU	morning rise	12420 Sep 24 00:47	29° <u>19</u> '25'19	
direct	12414 May 15 09:40	12° <u>19</u> '49'47			12420 Oct 10 06:38	0° <u>19</u> '	
evening set	12414 Aug 10 16:54	14° <u>19</u> '44'16		retrograde	12420 Dec 23 12:34	1° <u>19</u> '23'40	
					12421 Mar 12 19:08	30° <u>19</u> '	
conjunction	12414 Aug 26 06:37	15° <u>19</u> '19'31	-0°43'05	opposition	12421 Mar 13 13:23	29° <u>19</u> '58'44	-0°43'08
minimum elong	12414 Aug 26 06:37	15° <u>19</u> '19'32	0°43'24	min. Earth dist.	12421 Mar 12 22:49	29° <u>19</u> '59'45	28.78708 AU
max. Earth dist.	12414 Aug 26 18:18	15° <u>19</u> '20'38	30.82820 AU	direct	12421 May 31 00:30	28° <u>19</u> '34'56	
morning rise	12414 Sep 10 22:29	15° <u>19</u> '55'00			12421 Aug 12 12:59	0° <u>19</u> '	
retrograde	12414 Dec 10 04:57	17° <u>19</u> '53'12		evening set	12421 Aug 26 03:29	0° <u>19</u> '29'12	
opposition	12415 Feb 28 06:56	16° <u>19</u> '28'39	-0°45'58				
min. Earth dist.	12415 Feb 27 18:52	16° <u>19</u> '29'29	28.82519 AU	conjunction	12421 Sep 10 19:14	1° <u>19</u> '04'36	-0°40'01
direct	12415 May 17 20:52	15° <u>19</u> '05'01		minimum elong	12421 Sep 10 19:15	1° <u>19</u> '04'36	0°40'06
evening set	12415 Aug 13 04:35	16° <u>19</u> '59'29		max. Earth dist.	12421 Sep 11 09:36	1° <u>19</u> '05'58	30.78540 AU
				morning rise	12421 Sep 26 13:27	1° <u>19</u> '04'13	
conjunction	12415 Aug 28 18:41	17° <u>19</u> '34'46	-0°42'50	retrograde	12421 Dec 26 02:16	3° <u>19</u> '38'36	
minimum elong	12415 Aug 28 18:41	17° <u>19</u> '34'46	0°43'08	min. Earth dist.	12422 Mar 15 11:54	2° <u>19</u> '14'39	28.78463 AU
max. Earth dist.	12415 Aug 29 07:27	17° <u>19</u> '35'58	30.82135 AU	opposition	12422 Mar 16 02:14	2° <u>19</u> '13'39	-0°42'25
morning rise	12415 Sep 13 10:43	18° <u>19</u> '10'15		direct	12422 Jun 02 11:30	0° <u>19</u> '49'52	
retrograde	12415 Dec 12 16:58	20° <u>19</u> '08'30		evening set	12422 Aug 28 15:23	2° <u>19</u> '44'09	
opposition	12416 Mar 01 20:15	18° <u>19</u> '43'53	-0°45'39				
min. Earth dist.	12416 Mar 01 08:23	18° <u>19</u> '44'42	28.81790 AU	conjunction	12422 Sep 13 07:39	3° <u>19</u> '19'34	-0°39'20
direct	12416 May 19 09:22	17° <u>19</u> '20'14		minimum elong	12422 Sep 13 07:39	3° <u>19</u> '19'34	0°39'22
evening set	12416 Aug 14 16:25	19° <u>19</u> '14'39		max. Earth dist.	12422 Sep 13 23:30	3° <u>19</u> '21'04	30.78358 AU
				morning rise	12422 Sep 29 02:02	3° <u>19</u> '55'13	
conjunction	12416 Aug 30 06:43	19° <u>19</u> '49'57	-0°42'32	retrograde	12422 Dec 28 14:34	5° <u>19</u> '53'38	
minimum elong	12416 Aug 30 06:44	19° <u>19</u> '49'57	0°42'46	opposition	12423 Mar 18 15:08	4° <u>19</u> '28'42	-0°41'39
max. Earth dist.	12416 Aug 30 18:56	19° <u>19</u> '51'06	30.81393 AU	min. Earth dist.	12423 Mar 18 00:03	4° <u>19</u> '29'45	28.78332 AU
morning rise	12416 Sep 14 23:12	20° <u>19</u> '25'27		direct	12423 Jun 05 00:02	3° <u>19</u> '04'57	
retrograde	12416 Dec 14 07:17	22° <u>19</u> '23'44		evening set	12423 Aug 31 03:24	4° <u>19</u> '59'14	
opposition	12417 Mar 04 09:21	20° <u>19</u> '59'02	-0°45'17				
min. Earth dist.	12417 Mar 03 20:33	20° <u>19</u> '59'55	28.81034 AU	conjunction	12423 Sep 15 19:48	5° <u>19</u> '34'40	-0°38'34

minimum elong	12423 Sep 15 19:49	5° <u>♂</u> 34'40	0°38'35	evening set	12430 Sep 15 18:21	20° <u>♂</u> 48'24	
max. Earth dist.	12423 Sep 16 11:03	5° <u>♂</u> 36'07	30.78286 AU				
morning rise	12423 Oct 01 14:43	6° <u>♂</u> 10'21		conjunction	12430 Oct 01 13:10	21° <u>♂</u> 24'00	-0°31'43
retrograde	12423 Dec 31 04:05	8° <u>♂</u> 08'50		minimum elong	12430 Oct 01 13:10	21° <u>♂</u> 24'00	0°31'28
opposition	12424 Mar 20 04:08	6° <u>♂</u> 43'55	-0°40'48	max. Earth dist.	12430 Oct 02 04:12	21° <u>♂</u> 25'25	30.77361 AU
min. Earth dist.	12424 Mar 19 12:49	6° <u>♂</u> 44'59	28.78305 AU	morning rise	12430 Oct 17 10:33	21° <u>♂</u> 59'51	
direct	12424 Jun 06 10:42	5° <u>♂</u> 20'12		retrograde	12431 Jan 16 04:25	23° <u>♂</u> 58'22	
evening set	12424 Sep 01 15:31	7° <u>♂</u> 14'30		opposition	12431 Apr 05 22:01	22° <u>♂</u> 33'21	-0°33'15
				min. Earth dist.	12431 Apr 05 07:31	22° <u>♂</u> 34'22	28.77272 AU
conjunction	12424 Sep 17 08:23	7° <u>♂</u> 49'58	-0°37'46	direct	12431 Jun 23 01:13	21° <u>♂</u> 09'36	
minimum elong	12424 Sep 17 08:24	7° <u>♂</u> 49'58	0°37'44	evening set	12431 Sep 18 06:36	23° <u>♂</u> 03'50	
max. Earth dist.	12424 Sep 18 00:54	7° <u>♂</u> 51'32	30.78282 AU				
morning rise	12424 Oct 03 03:30	8° <u>♂</u> 25'41		conjunction	12431 Oct 04 01:56	23° <u>♂</u> 39'28	-0°30'32
retrograde	12425 Jan 01 16:05	10° <u>♂</u> 24'13		minimum elong	12431 Oct 04 01:56	23° <u>♂</u> 39'28	0°30'16
opposition	12425 Mar 22 17:02	8° <u>♂</u> 59'19	-0°39'54	max. Earth dist.	12431 Oct 04 18:14	23° <u>♂</u> 41'00	30.77161 AU
min. Earth dist.	12425 Mar 22 01:58	9° <u>♂</u> 00'22	28.78314 AU	morning rise	12431 Oct 19 23:29	24° <u>♂</u> 15'19	
direct	12425 Jun 08 22:16	7° <u>♂</u> 35'39		retrograde	12432 Jan 18 16:09	26° <u>♂</u> 13'49	
evening set	12425 Sep 04 03:52	9° <u>♂</u> 29'59		opposition	12432 Apr 07 10:35	24° <u>♂</u> 48'46	-0°31'57
				min. Earth dist.	12432 Apr 06 19:25	24° <u>♂</u> 49'49	28.77115 AU
conjunction	12425 Sep 19 20:59	10° <u>♂</u> 05'28	-0°36'53	direct	12432 Jun 24 14:47	23° <u>♂</u> 24'58	
minimum elong	12425 Sep 19 21:00	10° <u>♂</u> 05'28	0°36'50	evening set	12432 Sep 19 19:10	25° <u>♂</u> 19'11	
max. Earth dist.	12425 Sep 20 12:42	10° <u>♂</u> 06'57	30.78298 AU				
morning rise	12425 Oct 05 16:35	10° <u>♂</u> 41'12		conjunction	12432 Oct 05 14:42	25° <u>♂</u> 54'49	-0°29'18
retrograde	12426 Jan 04 06:58	12° <u>♂</u> 39'47		minimum elong	12432 Oct 05 14:43	25° <u>♂</u> 54'49	0°28'59
opposition	12426 Mar 25 05:56	11° <u>♂</u> 14'55	-0°38'56	max. Earth dist.	12432 Oct 06 06:10	25° <u>♂</u> 56'16	30.77068 AU
min. Earth dist.	12426 Mar 24 14:18	11° <u>♂</u> 16'00	28.78313 AU	morning rise	12432 Oct 21 12:47	26° <u>♂</u> 30'42	
direct	12426 Jun 11 08:55	9° <u>♂</u> 51'16		retrograde	12433 Jan 20 05:08	28° <u>♂</u> 29'08	
evening set	12426 Sep 06 16:18	11° <u>♂</u> 45'38		opposition	12433 Apr 09 23:02	27° <u>♂</u> 04'04	-0°30'37
				min. Earth dist.	12433 Apr 09 07:51	27° <u>♂</u> 05'07	28.77096 AU
conjunction	12426 Sep 22 09:46	12° <u>♂</u> 21'09	-0°35'57	direct	12433 Jun 27 01:54	25° <u>♂</u> 40'14	
minimum elong	12426 Sep 22 09:47	12° <u>♂</u> 21'09	0°35'50	evening set	12433 Sep 22 07:37	27° <u>♂</u> 34'25	
max. Earth dist.	12426 Sep 23 01:49	12° <u>♂</u> 22'40	30.78250 AU				
morning rise	12426 Oct 08 05:36	12° <u>♂</u> 56'54		conjunction	12433 Oct 08 03:39	28° <u>♂</u> 10'05	-0°28'02
retrograde	12427 Jan 06 19:47	14° <u>♂</u> 55'31		minimum elong	12433 Oct 08 03:40	28° <u>♂</u> 10'05	0°27'42
opposition	12427 Mar 27 18:55	13° <u>♂</u> 30'39	-0°37'54	max. Earth dist.	12433 Oct 08 20:22	28° <u>♂</u> 11'40	30.77109 AU
min. Earth dist.	12427 Mar 27 04:17	13° <u>♂</u> 31'41	28.78224 AU	morning rise	12433 Oct 24 01:55	28° <u>♂</u> 45'59	
direct	12427 Jun 13 21:23	12° <u>♂</u> 07'02			12433 Nov 30 22:17	0° <u>♂</u>	
evening set	12427 Sep 09 04:49	14° <u>♂</u> 01'23		retrograde	12434 Jan 22 16:33	0° <u>♂</u> 44'23	
					12434 Mar 18 04:35	30° <u>♂</u>	
conjunction	12427 Sep 24 22:39	14° <u>♂</u> 36'55	-0°34'58	opposition	12434 Apr 12 11:27	29° <u>♂</u> 19'18	-0°29'14
minimum elong	12427 Sep 24 22:39	14° <u>♂</u> 36'55	0°34'50	min. Earth dist.	12434 Apr 11 20:19	29° <u>♂</u> 20'21	28.77203 AU
max. Earth dist.	12427 Sep 25 14:22	14° <u>♂</u> 38'24	30.78126 AU	direct	12434 Jun 29 13:50	27° <u>♂</u> 55'28	
morning rise	12427 Oct 10 18:51	15° <u>♂</u> 12'42		evening set	12434 Sep 24 20:09	29° <u>♂</u> 49'38	
retrograde	12428 Jan 09 10:57	17° <u>♂</u> 11'20			12434 Sep 29 11:55	0° <u>♂</u>	
opposition	12428 Mar 29 07:48	15° <u>♂</u> 46'27	-0°36'49				
min. Earth dist.	12428 Mar 28 16:21	15° <u>♂</u> 47'31	28.78047 AU	conjunction	12434 Oct 10 16:25	0° <u>♂</u> 25'18	-0°26'43
direct	12428 Jun 15 10:56	14° <u>♂</u> 22'48		minimum elong	12434 Oct 10 16:25	0° <u>♂</u> 25'18	0°26'20
evening set	12428 Sep 10 17:17	16° <u>♂</u> 17'08		max. Earth dist.	12434 Oct 11 08:27	0° <u>♂</u> 26'49	30.77296 AU
				morning rise	12434 Oct 26 15:07	1° <u>♂</u> 01'13	
conjunction	12428 Sep 26 11:26	16° <u>♂</u> 52'42	-0°33'56	retrograde	12435 Jan 25 06:29	2° <u>♂</u> 59'36	
minimum elong	12428 Sep 26 11:26	16° <u>♂</u> 52'42	0°33'45	opposition	12435 Apr 14 23:49	1° <u>♂</u> 34'31	-0°27'48
max. Earth dist.	12428 Sep 27 02:49	16° <u>♂</u> 54'09	30.77901 AU	min. Earth dist.	12435 Apr 14 07:53	1° <u>♂</u> 35'38	28.77463 AU
morning rise	12428 Oct 12 08:04	17° <u>♂</u> 28'30		direct	12435 Jul 02 00:40	0° <u>♂</u> 10'40	
retrograde	12429 Jan 10 23:59	19° <u>♂</u> 27'07		evening set	12435 Sep 27 08:42	2° <u>♂</u> 04'50	
opposition	12429 Mar 31 20:46	18° <u>♂</u> 02'12	-0°35'41				
min. Earth dist.	12429 Mar 31 06:30	18° <u>♂</u> 03'11	28.77791 AU	conjunction	12435 Oct 13 05:22	2° <u>♂</u> 40'32	-0°25'22
direct	12429 Jun 17 22:51	16° <u>♂</u> 38'31		minimum elong	12435 Oct 13 05:23	2° <u>♂</u> 40'32	0°24'57
evening set	12429 Sep 13 05:46	18° <u>♂</u> 32'50		max. Earth dist.	12435 Oct 13 22:09	2° <u>♂</u> 42'06	30.77619 AU
				morning rise	12435 Oct 29 04:19	3° <u>♂</u> 16'27	
conjunction	12429 Sep 29 00:24	19° <u>♂</u> 08'25	-0°32'51	retrograde	12436 Jan 27 17:36	5° <u>♂</u> 14'48	
minimum elong	12429 Sep 29 00:24	19° <u>♂</u> 08'25	0°32'39	opposition	12436 Apr 16 12:14	3° <u>♂</u> 49'45	-0°26'19
max. Earth dist.	12429 Sep 29 16:15	19° <u>♂</u> 09'54	30.77632 AU	min. Earth dist.	12436 Apr 15 20:59	3° <u>♂</u> 50'49	28.77849 AU
morning rise	12429 Oct 14 21:18	19° <u>♂</u> 44'14		direct	12436 Jul 03 12:21	2° <u>♂</u> 25'55	
retrograde	12430 Jan 13 13:50	21° <u>♂</u> 42'48		evening set	12436 Sep 28 21:17	4° <u>♂</u> 20'05	
opposition	12430 Apr 03 09:17	20° <u>♂</u> 17'50	-0°34'29				
min. Earth dist.	12430 Apr 02 18:10	20° <u>♂</u> 18'54	28.77509 AU	conjunction	12436 Oct 14 18:20	4° <u>♂</u> 55'48	-0°23'58
direct	12430 Jun 20 12:54	18° <u>♂</u> 54'07		minimum elong	12436 Oct 14 18:20	4° <u>♂</u> 55'48	0°23'31

max. Earth dist.	12436 Oct 15 10:57	4° \mathcal{M} 57'21	30.78069 AU	max. Earth dist.	12442 Oct 29 17:10	18° \mathcal{M} 29'19	30.80412 AU
morning rise	12436 Oct 30 17:40	5° \mathcal{M} 31'44		morning rise	12442 Nov 14 03:02	19° \mathcal{M} 03'54	
retrograde	12437 Jan 29 07:44	7° \mathcal{M} 30'04		retrograde	12443 Feb 12 15:04	21° \mathcal{M} 01'51	
min. Earth dist.	12437 Apr 18 08:23	6° \mathcal{M} 06'10	28.78329 AU	opposition	12443 May 03 01:38	19° \mathcal{M} 36'53	-0°15'01
opposition	12437 Apr 19 00:29	6° \mathcal{M} 05'02	-0°24'48	min. Earth dist.	12443 May 02 12:21	19° \mathcal{M} 37'49	28.80563 AU
direct	12437 Jul 06 00:24	4° \mathcal{M} 41'13		direct	12443 Jul 20 03:29	18° \mathcal{M} 12'57	
evening set	12437 Oct 01 10:12	6° \mathcal{M} 35'25		evening set	12443 Oct 15 15:53	20° \mathcal{M} 07'06	
conjunction	12437 Oct 17 07:31	7° \mathcal{M} 11'08	-0°22'32	conjunction	12443 Oct 31 15:11	20° \mathcal{M} 42'54	-0°13'20
minimum elong	12437 Oct 17 07:31	7° \mathcal{M} 11'08	0°22'04	minimum elong	12443 Oct 31 15:11	20° \mathcal{M} 42'54	0°12'41
max. Earth dist.	12437 Oct 17 23:53	7° \mathcal{M} 12'41	30.78564 AU	behind sun begin	12443 Oct 31 11:06	20° \mathcal{M} 42'32	
morning rise	12437 Nov 02 07:10	7° \mathcal{M} 47'06		behind sun end	12443 Oct 31 19:16	20° \mathcal{M} 43'17	
retrograde	12438 Jan 31 20:31	9° \mathcal{M} 45'24		max. Earth dist.	12443 Nov 01 05:13	20° \mathcal{M} 44'13	30.80716 AU
opposition	12438 Apr 21 12:45	8° \mathcal{M} 20'24	-0°23'15	morning rise	12443 Nov 16 16:38	21° \mathcal{M} 18'56	
min. Earth dist.	12438 Apr 20 22:00	8° \mathcal{M} 21'26	28.78837 AU	retrograde	12444 Feb 15 04:20	23° \mathcal{M} 16'47	
direct	12438 Jul 08 11:12	6° \mathcal{M} 56'36		opposition	12444 May 04 13:28	21° \mathcal{M} 51'49	-0°13'18
evening set	12438 Oct 03 23:04	8° \mathcal{M} 50'49		min. Earth dist.	12444 May 03 23:48	21° \mathcal{M} 52'46	28.80908 AU
conjunction	12438 Oct 19 20:49	9° \mathcal{M} 26'34	-0°21'04	direct	12444 Jul 21 14:49	20° \mathcal{M} 27'50	
minimum elong	12438 Oct 19 20:49	9° \mathcal{M} 26'34	0°20'33	evening set	12444 Oct 17 04:45	22° \mathcal{M} 21'58	
max. Earth dist.	12438 Oct 20 13:22	9° \mathcal{M} 28'07	30.79067 AU	conjunction	12444 Nov 02 04:27	22° \mathcal{M} 57'47	-0°11'43
morning rise	12438 Nov 04 20:41	10° \mathcal{M} 02'32		minimum elong	12444 Nov 02 04:26	22° \mathcal{M} 57'47	0°11'03
retrograde	12439 Feb 03 10:51	12° \mathcal{M} 00'47		behind sun begin	12444 Nov 01 23:34	22° \mathcal{M} 57'21	
min. Earth dist.	12439 Apr 23 09:39	10° \mathcal{M} 36'54	28.79310 AU	behind sun end	12444 Nov 02 09:19	22° \mathcal{M} 58'13	
opposition	12439 Apr 24 01:00	10° \mathcal{M} 35'50	-0°21'40	max. Earth dist.	12444 Nov 02 19:01	22° \mathcal{M} 59'09	30.81096 AU
direct	12439 Jul 11 01:10	9° \mathcal{M} 12'02		morning rise	12444 Nov 18 06:03	23° \mathcal{M} 33'49	
evening set	12439 Oct 06 12:02	11° \mathcal{M} 06'15		retrograde	12445 Feb 16 14:38	25° \mathcal{M} 31'34	
conjunction	12439 Oct 22 09:58	11° \mathcal{M} 42'01	-0°19'34	opposition	12445 May 07 01:20	24° \mathcal{M} 06'37	-0°11'34
minimum elong	12439 Oct 22 09:58	11° \mathcal{M} 42'01	0°19'02	min. Earth dist.	12445 May 06 12:31	24° \mathcal{M} 07'31	28.81342 AU
max. Earth dist.	12439 Oct 23 01:17	11° \mathcal{M} 43'27	30.79503 AU	direct	12445 Jul 24 02:29	22° \mathcal{M} 42'36	
morning rise	12439 Nov 07 10:16	12° \mathcal{M} 18'00		evening set	12445 Oct 19 17:41	24° \mathcal{M} 36'44	
retrograde	12440 Feb 06 01:15	14° \mathcal{M} 16'12		conjunction	12445 Nov 04 17:39	25° \mathcal{M} 12'33	-0°10'06
opposition	12440 Apr 25 13:25	12° \mathcal{M} 51'15	-0°20'02	minimum elong	12445 Nov 04 17:39	25° \mathcal{M} 12'34	0°09'24
min. Earth dist.	12440 Apr 24 23:12	12° \mathcal{M} 52'15	28.79711 AU	behind sun begin	12445 Nov 04 12:12	25° \mathcal{M} 12'04	
direct	12440 Jul 12 13:22	11° \mathcal{M} 27'26		behind sun end	12445 Nov 04 23:06	25° \mathcal{M} 13'03	
evening set	12440 Oct 08 01:00	13° \mathcal{M} 21'39		max. Earth dist.	12445 Nov 05 07:45	25° \mathcal{M} 13'53	30.81600 AU
conjunction	12440 Oct 23 23:28	13° \mathcal{M} 57'26	-0°18'03	morning rise	12445 Nov 20 19:32	25° \mathcal{M} 48'35	
minimum elong	12440 Oct 23 23:28	13° \mathcal{M} 57'26	0°17'29	retrograde	12446 Feb 19 03:51	27° \mathcal{M} 46'16	
max. Earth dist.	12440 Oct 24 15:16	13° \mathcal{M} 58'55	30.79861 AU	opposition	12446 May 09 12:53	26° \mathcal{M} 21'20	-0°09'49
morning rise	12440 Nov 08 23:55	14° \mathcal{M} 33'25		min. Earth dist.	12446 May 08 23:12	26° \mathcal{M} 22'17	28.81912 AU
retrograde	12440 Nov 21 09:16	15° \mathcal{M}		direct	12446 Jul 26 13:50	24° \mathcal{M} 57'17	
min. Earth dist.	12441 Feb 07 13:38	16° \mathcal{M} 31'33		evening set	12446 Oct 22 06:37	26° \mathcal{M} 51'26	
opposition	12441 Apr 27 11:12	15° \mathcal{M} 07'36	28.80021 AU	conjunction	12446 Nov 07 06:50	27° \mathcal{M} 27'16	-0°08'28
direct	12441 Apr 28 01:29	15° \mathcal{M} 06'36	-0°18'23	minimum elong	12446 Nov 07 06:49	27° \mathcal{M} 27'16	0°07'44
evening set	12441 May 01 23:46	15° $\mathcal{R}\mathcal{M}$		behind sun begin	12446 Nov 07 00:55	27° \mathcal{M} 26'44	
conjunction	12441 Jul 15 03:04	13° \mathcal{M} 42'45		behind sun end	12446 Nov 07 12:43	27° \mathcal{M} 27'48	
minimum elong	12441 Sep 23 01:11	15° \mathcal{M}		max. Earth dist.	12446 Nov 07 20:55	27° \mathcal{M} 28'35	30.82238 AU
behind sun begin	12441 Oct 10 14:07	15° \mathcal{M} 36'57		morning rise	12446 Nov 23 08:57	28° \mathcal{M} 03'18	
behind sun end	12441 Oct 26 12:45	16° \mathcal{M} 12'44	-0°16'30	retrograde	12447 Feb 14 08:57	0° \mathcal{X}	
max. Earth dist.	12441 Oct 26 12:45	16° \mathcal{M} 12'44	0°15'54	opposition	12447 Feb 21 15:30	0° \mathcal{X} 00'54	
morning rise	12441 Oct 26 12:37	16° \mathcal{M} 12'43		minimum elong	12447 Mar 01 01:43	30° $\mathcal{R}\mathcal{M}$	
retrograde	12441 Oct 26 12:54	16° \mathcal{M} 12'45		opposition	12447 May 12 00:42	28° \mathcal{M} 36'00	-0°08'03
min. Earth dist.	12441 Oct 27 03:02	16° \mathcal{M} 14'04	30.80149 AU	min. Earth dist.	12447 May 11 12:02	28° \mathcal{M} 36'54	28.82634 AU
opposition	12441 Nov 11 13:41	16° \mathcal{M} 48'44		direct	12447 Jul 28 23:56	27° \mathcal{M} 11'58	
direct	12442 Feb 10 03:23	18° \mathcal{M} 46'46		evening set	12447 Oct 24 19:21	29° \mathcal{M} 06'07	
evening set	12442 Apr 30 13:37	17° \mathcal{M} 21'49	-0°16'43	conjunction	12447 Nov 09 19:57	29° \mathcal{M} 41'58	-0°06'49
min. Earth dist.	12442 Apr 29 23:54	17° \mathcal{M} 22'47	28.80295 AU	minimum elong	12447 Nov 09 19:58	29° \mathcal{M} 41'58	0°06'05
direct	12442 Jul 17 14:46	15° \mathcal{M} 57'56		behind sun begin	12447 Nov 09 13:45	29° \mathcal{M} 41'24	
evening set	12442 Oct 13 02:55	17° \mathcal{M} 52'06		behind sun end	12447 Nov 10 02:11	29° \mathcal{M} 42'31	
conjunction	12442 Oct 29 02:01	18° \mathcal{M} 27'54	-0°14'55	max. Earth dist.	12447 Nov 10 10:27	29° \mathcal{M} 43'19	30.83044 AU
minimum elong	12442 Oct 29 02:01	18° \mathcal{M} 27'54	0°14'18	morning rise	12447 Nov 17 19:53	0° \mathcal{X}	
behind sun begin	12442 Oct 28 23:03	18° \mathcal{M} 27'38		retrograde	12447 Nov 25 22:16	0° \mathcal{X} 18'00	
behind sun end	12442 Oct 29 04:59	18° \mathcal{M} 28'10		opposition	12448 Feb 24 04:56	2° \mathcal{X} 15'32	
					12448 May 13 12:18	0° \mathcal{X} 50'41	-0°06'16

min. Earth dist.	12448 May 12 22:46	0°♊51'38	28.83503 AU	conjunction	12453 Nov 23 04:26	13°♊11'06	0°03'25
	12448 Jun 14 17:43	30°♋♌		minimum elong	12453 Nov 23 04:25	13°♊11'06	0°04'15
direct	12448 Jul 30 13:36	29°♌26'40		behind sun begin	12453 Nov 22 21:58	13°♊10'31	
	12448 Sep 13 07:57	0°♊		behind sun end	12453 Nov 23 10:53	13°♊11'41	
evening set	12448 Oct 26 08:26	1°♊20'51		max. Earth dist.	12453 Nov 23 15:50	13°♊12'09	30.88900 AU
				morning rise	12453 Dec 09 07:47	13°♊47'08	
conjunction	12448 Nov 11 09:12	1°♊56'42	-0°05'09	retrograde	12454 Mar 09 09:56	15°♊44'07	
minimum elong	12448 Nov 11 09:12	1°♊56'42	0°04'24	opposition	12454 May 27 09:31	14°♊19'38	0°04'32
behind sun begin	12448 Nov 11 02:46	1°♊56'07		min. Earth dist.	12454 May 26 23:55	14°♊20'18	28.89301 AU
behind sun end	12448 Nov 11 15:38	1°♊57'16		direct	12454 Aug 13 14:43	12°♊55'36	
max. Earth dist.	12448 Nov 11 22:47	1°♊57'57	30.83979 AU	evening set	12454 Nov 09 15:36	14°♊49'51	
morning rise	12448 Nov 27 11:51	2°♊32'44					
retrograde	12449 Feb 25 18:33	4°♊30'12		conjunction	12454 Nov 25 17:51	15°♊25'44	0°05'05
opposition	12449 May 15 23:51	3°♊05'25	-0°04'28	minimum elong	12454 Nov 25 17:51	15°♊25'44	0°05'56
min. Earth dist.	12449 May 15 11:19	3°♊06'18	28.84500 AU	behind sun begin	12454 Nov 25 11:36	15°♊25'11	
direct	12449 Aug 02 00:56	1°♊41'25		behind sun end	12454 Nov 26 00:06	15°♊26'18	
evening set	12449 Oct 28 21:26	3°♊35'39		max. Earth dist.	12454 Nov 26 04:09	15°♊26'41	30.89684 AU
				morning rise	12454 Dec 11 21:26	16°♊01'45	
conjunction	12449 Nov 13 22:36	4°♊11'30	-0°03'28	retrograde	12455 Mar 11 23:14	17°♊58'36	
minimum elong	12449 Nov 13 22:37	4°♊11'30	0°02'42	opposition	12455 May 29 20:47	16°♊34'07	0°06'19
behind sun begin	12449 Nov 13 16:05	4°♊10'55		min. Earth dist.	12455 May 29 10:47	16°♊34'50	28.90064 AU
behind sun end	12449 Nov 14 05:10	4°♊12'06		direct	12455 Aug 16 02:21	15°♊10'02	
max. Earth dist.	12449 Nov 14 12:51	4°♊12'50	30.85019 AU	evening set	12455 Nov 12 04:42	17°♊04'16	
morning rise	12449 Nov 30 01:19	4°♊47'33					
retrograde	12450 Feb 28 07:12	6°♊44'56		conjunction	12455 Nov 28 07:09	17°♊40'09	0°06'44
opposition	12450 May 18 11:24	5°♊20'15	-0°02'40	minimum elong	12455 Nov 28 07:09	17°♊40'09	0°07'36
min. Earth dist.	12450 May 17 22:43	5°♊21'09	28.85555 AU	behind sun begin	12455 Nov 28 01:12	17°♊39'37	
direct	12450 Aug 04 13:47	3°♊56'17		behind sun end	12455 Nov 28 13:05	17°♊40'41	
evening set	12450 Oct 31 10:34	5°♊50'32		max. Earth dist.	12455 Nov 28 17:03	17°♊41'03	30.90433 AU
				morning rise	12455 Dec 14 10:52	18°♊16'09	
conjunction	12450 Nov 16 11:48	6°♊26'24	-0°01'45	retrograde	12456 Mar 13 09:21	20°♊12'52	
minimum elong	12450 Nov 16 11:48	6°♊26'24	0°00'57	opposition	12456 May 31 08:08	18°♊48'23	0°08'05
behind sun begin	12450 Nov 16 05:15	6°♊25'49		min. Earth dist.	12456 May 30 23:39	18°♊48'59	28.90820 AU
behind sun end	12450 Nov 16 18:21	6°♊26'59		direct	12456 Aug 17 12:57	17°♊24'15	
max. Earth dist.	12450 Nov 17 00:33	6°♊27'35	30.86084 AU	evening set	12456 Nov 13 17:50	19°♊18'28	
morning rise	12450 Dec 02 14:50	7°♊02'27					
retrograde	12451 Mar 02 21:53	8°♊59'46		conjunction	12456 Nov 29 20:34	19°♊54'20	0°08'22
opposition	12451 May 20 23:02	7°♊35'09	-0°00'52	minimum elong	12456 Nov 29 20:35	19°♊54'20	0°09'15
min. Earth dist.	12451 May 20 11:04	7°♊36'00	28.86618 AU	behind sun begin	12456 Nov 29 15:04	19°♊53'50	
direct	12451 Aug 07 01:38	6°♊11'12		behind sun end	12456 Nov 30 02:05	19°♊54'49	
evening set	12451 Nov 02 23:45	8°♊05'29		max. Earth dist.	12456 Nov 30 06:19	19°♊55'13	30.91209 AU
				morning rise	12456 Dec 16 00:22	20°♊30'20	
conjunction	12451 Nov 19 01:25	8°♊41'22	0°00'00	retrograde	12457 Mar 15 21:02	22°♊26'53	
minimum elong	12451 Nov 19 01:23	8°♊41'22	0°00'49	opposition	12457 Jun 02 19:05	21°♊02'26	0°09'51
behind sun begin	12451 Nov 18 18:50	8°♊40'47		min. Earth dist.	12457 Jun 02 10:08	21°♊03'04	28.91613 AU
behind sun end	12451 Nov 19 07:56	8°♊41'57		direct	12457 Aug 20 02:11	19°♊38'14	
max. Earth dist.	12451 Nov 19 14:37	8°♊42'35	30.87113 AU	evening set	12457 Nov 16 07:02	21°♊32'26	
asc. node	12451 Nov 25 05:30	8°♊55'15					
morning rise	12451 Dec 05 04:25	9°♊17'24		conjunction	12457 Dec 02 09:49	22°♊08'18	0°10'00
retrograde	12452 Mar 04 10:23	11°♊14'38		minimum elong	12457 Dec 02 09:49	22°♊08'18	0°10'53
opposition	12452 May 22 10:35	9°♊50'04	0°00'56	behind sun begin	12457 Dec 02 04:53	22°♊07'52	
min. Earth dist.	12452 May 21 23:28	9°♊50'51	28.87604 AU	behind sun end	12457 Dec 02 14:45	22°♊08'45	
direct	12452 Aug 08 14:56	8°♊26'07		max. Earth dist.	12457 Dec 02 18:31	22°♊09'06	30.92033 AU
evening set	12452 Nov 04 13:06	10°♊20'24		morning rise	12457 Dec 18 13:47	22°♊44'17	
				retrograde	12458 Mar 18 08:57	24°♊40'43	
conjunction	12452 Nov 20 14:53	10°♊56'17	0°01'44	opposition	12458 Jun 05 06:16	23°♊16'17	0°11'35
minimum elong	12452 Nov 20 14:53	10°♊56'17	0°02'34	min. Earth dist.	12458 Jun 04 22:20	23°♊16'50	28.92492 AU
behind sun begin	12452 Nov 20 08:20	10°♊55'42		direct	12458 Aug 22 12:51	21°♊52'02	
behind sun end	12452 Nov 20 21:25	10°♊56'52		evening set	12458 Nov 18 19:52	23°♊46'14	
max. Earth dist.	12452 Nov 21 02:19	10°♊57'21	30.88059 AU				
morning rise	12452 Dec 06 18:14	11°♊32'20		conjunction	12458 Dec 04 22:58	24°♊22'06	0°11'37
retrograde	12453 Mar 06 23:29	13°♊29'27		minimum elong	12458 Dec 04 22:58	24°♊22'06	0°12'31
opposition	12453 May 24 22:05	12°♊04'56	0°02'44	behind sun begin	12458 Dec 04 18:48	24°♊21'43	
min. Earth dist.	12453 May 24 11:07	12°♊05'42	28.88502 AU	behind sun end	12458 Dec 05 03:08	24°♊22'28	
direct	12453 Aug 11 02:51	10°♊40'56		max. Earth dist.	12458 Dec 05 08:16	24°♊22'57	30.92962 AU
evening set	12453 Nov 07 02:21	12°♊35'13		morning rise	12458 Dec 21 02:52	24°♊58'04	
				retrograde	12459 Mar 20 20:48	26°♊54'22	

opposition	12459 Jun 07 17:17	25° \mathring{A} 29'58	0°13'18	opposition	12465 Jun 20 10:53	8° \mathring{B} 52'21	0°23'06
min. Earth dist.	12459 Jun 07 09:02	25° \mathring{A} 30'33	28.93473 AU	min. Earth dist.	12465 Jun 20 06:37	8° \mathring{B} 52'39	29.00843 AU
direct	12459 Aug 25 01:41	24° \mathring{A} 05'43		direct	12465 Sep 06 22:40	7° \mathring{B} 28'11	
evening set	12459 Nov 21 09:01	25° \mathring{A} 59'56		evening set	12465 Dec 04 15:59	9° \mathring{B} 22'38	
conjunction	12459 Dec 07 12:06	26° \mathring{A} 35'47	0°13'13	conjunction	12465 Dec 20 19:50	9° \mathring{B} 58'27	0°22'17
minimum elong	12459 Dec 07 12:06	26° \mathring{A} 35'47	0°14'07	minimum elong	12465 Dec 20 19:51	9° \mathring{B} 58'27	0°23'12
behind sun begin	12459 Dec 07 09:01	26° \mathring{A} 35'30		max. Earth dist.	12465 Dec 21 00:38	9° \mathring{B} 58'54	31.01364 AU
behind sun end	12459 Dec 07 15:11	26° \mathring{A} 36'03		morning rise	12466 Jan 05 23:58	10° \mathring{B} 34'21	
max. Earth dist.	12459 Dec 07 20:03	26° \mathring{A} 36'30	30.94010 AU	retrograde	12466 Apr 05 09:35	12° \mathring{B} 29'57	
morning rise	12459 Dec 23 16:15	27° \mathring{A} 11'44		opposition	12466 Jun 22 21:42	11° \mathring{B} 06'08	0°24'38
retrograde	12460 Mar 22 10:29	29° \mathring{A} 07'56		min. Earth dist.	12466 Jun 22 17:17	11° \mathring{B} 06'27	29.01864 AU
opposition	12460 Jun 09 04:14	27° \mathring{A} 43'35	0°15'00	direct	12466 Sep 09 11:22	9° \mathring{B} 41'57	
min. Earth dist.	12460 Jun 08 20:27	27° \mathring{A} 44'08	28.94593 AU	evening set	12466 Dec 07 05:05	11° \mathring{B} 36'23	
direct	12460 Aug 26 13:15	26° \mathring{A} 19'19		conjunction	12466 Dec 23 08:54	12° \mathring{B} 12'13	0°23'42
evening set	12460 Nov 22 22:01	28° \mathring{A} 13'34		minimum elong	12466 Dec 23 08:54	12° \mathring{B} 12'13	0°24'36
conjunction	12460 Dec 09 01:26	28° \mathring{A} 49'25	0°14'47	max. Earth dist.	12466 Dec 23 12:18	12° \mathring{B} 12'31	31.02330 AU
minimum elong	12460 Dec 09 01:26	28° \mathring{A} 49'25	0°15'42	morning rise	12467 Jan 08 13:04	12° \mathring{B} 48'05	
behind sun begin	12460 Dec 09 00:33	28° \mathring{A} 49'20		retrograde	12467 Apr 07 20:49	14° \mathring{B} 43'35	
behind sun end	12460 Dec 09 02:19	28° \mathring{A} 49'30		opposition	12467 Jun 25 08:37	13° \mathring{B} 19'47	0°26'06
max. Earth dist.	12460 Dec 09 10:10	28° \mathring{A} 50'13	30.95186 AU	min. Earth dist.	12467 Jun 25 05:39	13° \mathring{B} 19'59	29.02793 AU
morning rise	12460 Dec 25 05:29	29° \mathring{A} 25'21		direct	12467 Sep 11 21:14	11° \mathring{B} 55'32	
	12461 Jan 10 17:56	0° \mathring{B}		evening set	12467 Dec 09 18:07	13° \mathring{B} 49'59	
retrograde	12461 Mar 24 22:19	1° \mathring{B} 21'27		conjunction	12467 Dec 25 22:09	14° \mathring{B} 25'48	0°25'04
	12461 Jun 09 23:16	30° \mathring{R} \mathring{A}		minimum elong	12467 Dec 25 22:09	14° \mathring{B} 25'48	0°25'58
opposition	12461 Jun 11 15:14	29° \mathring{A} 57'12	0°16'41	max. Earth dist.	12467 Dec 26 01:35	14° \mathring{B} 26'07	31.03223 AU
min. Earth dist.	12461 Jun 11 07:58	29° \mathring{A} 57'42	28.95816 AU	morning rise	12468 Jan 11 02:11	15° \mathring{B} 01'38	
direct	12461 Aug 29 02:14	28° \mathring{A} 32'57		retrograde	12468 Apr 09 07:48	16° \mathring{B} 56'59	
	12461 Nov 12 14:02	0° \mathring{B}		opposition	12468 Jun 26 19:09	15° \mathring{B} 33'13	0°27'33
evening set	12461 Nov 25 11:09	0° \mathring{B} 27'14		min. Earth dist.	12468 Jun 26 16:24	15° \mathring{B} 33'25	29.03651 AU
conjunction	12461 Dec 11 14:32	1° \mathring{B} 03'05	0°16'21	direct	12468 Sep 13 09:55	14° \mathring{B} 08'56	
minimum elong	12461 Dec 11 14:32	1° \mathring{B} 03'05	0°17'16	evening set	12468 Dec 11 07:16	16° \mathring{B} 03'23	
max. Earth dist.	12461 Dec 11 21:51	1° \mathring{B} 03'45	30.96463 AU	conjunction	12468 Dec 27 11:11	16° \mathring{B} 39'10	0°26'23
morning rise	12461 Dec 27 18:45	1° \mathring{B} 39'01		minimum elong	12468 Dec 27 11:11	16° \mathring{B} 39'10	0°27'17
retrograde	12462 Mar 27 11:32	3° \mathring{B} 35'02		max. Earth dist.	12468 Dec 27 12:50	16° \mathring{B} 39'19	31.04068 AU
opposition	12462 Jun 14 02:06	2° \mathring{B} 10'52	0°18'20	morning rise	12469 Jan 12 15:19	17° \mathring{B} 14'59	
min. Earth dist.	12462 Jun 13 18:46	2° \mathring{B} 11'23	28.97126 AU	retrograde	12469 Apr 11 20:29	19° \mathring{B} 10'12	
direct	12462 Aug 31 13:37	0° \mathring{B} 46'40		opposition	12469 Jun 29 05:48	17° \mathring{B} 46'26	0°28'56
evening set	12462 Nov 28 00:15	2° \mathring{B} 41'00		min. Earth dist.	12469 Jun 29 03:47	17° \mathring{B} 46'35	29.04498 AU
conjunction	12462 Dec 14 03:50	3° \mathring{B} 16'51	0°17'53	direct	12469 Sep 15 21:54	16° \mathring{B} 22'05	
minimum elong	12462 Dec 14 03:50	3° \mathring{B} 16'51	0°18'48	evening set	12469 Dec 13 20:05	18° \mathring{B} 16'32	
max. Earth dist.	12462 Dec 14 11:25	3° \mathring{B} 17'33	30.97781 AU	conjunction	12469 Dec 30 00:10	18° \mathring{B} 52'18	0°27'40
morning rise	12462 Dec 30 07:56	3° \mathring{B} 52'46		minimum elong	12469 Dec 30 00:10	18° \mathring{B} 52'18	0°28'35
retrograde	12463 Mar 29 22:45	5° \mathring{B} 48'42		max. Earth dist.	12469 Dec 30 02:26	18° \mathring{B} 52'31	31.04914 AU
opposition	12463 Jun 16 13:05	4° \mathring{B} 24'38	0°19'58	morning rise	12470 Jan 15 04:01	19° \mathring{B} 28'05	
min. Earth dist.	12463 Jun 16 07:07	4° \mathring{B} 25'04	28.98443 AU	retrograde	12470 Apr 14 06:59	21° \mathring{B} 23'10	
direct	12463 Sep 03 01:03	3° \mathring{B} 00'28		opposition	12470 Jul 01 16:21	19° \mathring{B} 59'25	0°30'17
evening set	12463 Nov 30 13:25	4° \mathring{B} 54'51		min. Earth dist.	12470 Jul 01 15:01	19° \mathring{B} 59'31	29.05359 AU
conjunction	12463 Dec 16 17:04	5° \mathring{B} 30'42	0°19'23	direct	12470 Sep 18 11:07	18° \mathring{B} 35'01	
minimum elong	12463 Dec 16 17:04	5° \mathring{B} 30'42	0°20'18	evening set	12470 Dec 16 09:00	20° \mathring{B} 29'27	
max. Earth dist.	12463 Dec 16 23:19	5° \mathring{B} 31'16	30.99082 AU	conjunction	12471 Jan 01 12:56	21° \mathring{B} 05'12	0°28'55
morning rise	12464 Jan 01 21:17	6° \mathring{B} 06'37		minimum elong	12471 Jan 01 12:56	21° \mathring{B} 05'12	0°29'48
retrograde	12464 Mar 31 12:29	8° \mathring{B} 02'27		max. Earth dist.	12471 Jan 01 13:45	21° \mathring{B} 05'17	31.05815 AU
opposition	12464 Jun 17 23:57	6° \mathring{B} 38'29	0°21'33	morning rise	12471 Jan 17 16:53	21° \mathring{B} 40'58	
min. Earth dist.	12464 Jun 17 17:49	6° \mathring{B} 38'55	28.99700 AU	retrograde	12471 Apr 16 19:35	23° \mathring{B} 35'54	
direct	12464 Sep 04 12:23	5° \mathring{B} 14'20		opposition	12471 Jul 04 02:46	22° \mathring{B} 12'10	0°31'36
evening set	12464 Dec 02 02:46	7° \mathring{B} 08'45		min. Earth dist.	12471 Jul 04 01:14	22° \mathring{B} 12'17	29.06308 AU
conjunction	12464 Dec 18 06:29	7° \mathring{B} 44'36	0°20'51	direct	12471 Sep 20 22:36	20° \mathring{B} 47'44	
minimum elong	12464 Dec 18 06:29	7° \mathring{B} 44'36	0°21'46	evening set	12471 Dec 18 21:44	22° \mathring{B} 42'10	
max. Earth dist.	12464 Dec 18 11:59	7° \mathring{B} 45'06	31.00276 AU	conjunction	12472 Jan 04 01:48	23° \mathring{B} 17'54	0°30'07
morning rise	12465 Jan 03 10:39	8° \mathring{B} 20'30		minimum elong	12472 Jan 04 01:48	23° \mathring{B} 17'54	0°31'00
retrograde	12465 Apr 02 22:19	10° \mathring{B} 16'14					

max. Earth dist.	12472 Jan 04 03:05	23° $\overline{3}$ 18'01	31.06802 AU	retrograde	12478 May 02 01:02	9° \approx 02'21	
morning rise	12472 Jan 20 05:32	23° $\overline{3}$ 53'38		opposition	12478 Jul 19 03:41	7° \approx 39'06	0°39'19
retrograde	12472 Apr 18 06:36	25° $\overline{3}$ 48'26		min. Earth dist.	12478 Jul 19 06:09	7° \approx 38'56	29.14694 AU
opposition	12472 Jul 05 13:18	24° $\overline{3}$ 24'44	0°32'51	direct	12478 Oct 06 05:30	6° \approx 14'40	
min. Earth dist.	12472 Jul 05 12:50	24° $\overline{3}$ 24'46	29.07351 AU	evening set	12479 Jan 03 15:11	8° \approx 09'16	
direct	12472 Sep 22 11:07	23° $\overline{3}$ 00'16					
evening set	12472 Dec 20 10:35	24° $\overline{3}$ 54'42		conjunction	12479 Jan 19 18:52	8° \approx 44'53	0°37'10
				minimum elong	12479 Jan 19 18:52	8° \approx 44'53	0°37'56
conjunction	12473 Jan 05 14:33	25° $\overline{3}$ 30'26	0°31'16	max. Earth dist.	12479 Jan 19 15:52	8° \approx 44'37	31.15177 AU
minimum elong	12473 Jan 05 14:33	25° $\overline{3}$ 30'26	0°32'07	morning rise	12479 Feb 04 21:32	9° \approx 20'27	
max. Earth dist.	12473 Jan 05 14:49	25° $\overline{3}$ 30'27	31.07912 AU	retrograde	12479 May 04 11:11	11° \approx 14'32	
morning rise	12473 Jan 21 18:16	26° $\overline{3}$ 06'08		opposition	12479 Jul 21 14:02	9° \approx 51'20	0°40'11
retrograde	12473 Apr 20 19:15	28° $\overline{3}$ 00'48		min. Earth dist.	12479 Jul 21 17:36	9° \approx 51'05	29.15665 AU
opposition	12473 Jul 07 23:34	26° $\overline{3}$ 37'10	0°34'04	direct	12479 Oct 08 17:53	8° \approx 26'53	
min. Earth dist.	12473 Jul 07 22:26	26° $\overline{3}$ 37'15	29.08518 AU	evening set	12480 Jan 06 03:57	10° \approx 21'29	
direct	12473 Sep 24 23:13	25° $\overline{3}$ 12'42					
evening set	12473 Dec 22 23:21	27° $\overline{3}$ 07'09		conjunction	12480 Jan 22 07:25	10° \approx 57'05	0°37'58
				minimum elong	12480 Jan 22 07:25	10° \approx 57'05	0°38'44
conjunction	12474 Jan 08 03:18	27° $\overline{3}$ 42'52	0°32'23	max. Earth dist.	12480 Jan 22 02:32	10° \approx 56'38	31.16104 AU
minimum elong	12474 Jan 08 03:18	27° $\overline{3}$ 42'52	0°33'14	morning rise	12480 Feb 07 10:05	11° \approx 32'38	
max. Earth dist.	12474 Jan 08 03:27	27° $\overline{3}$ 42'53	31.09130 AU	retrograde	12480 May 05 23:41	13° \approx 26'35	
morning rise	12474 Jan 24 06:50	28° $\overline{3}$ 18'33		opposition	12480 Jul 23 00:19	12° \approx 03'25	0°41'00
	12474 Mar 26 04:14	0° \approx		min. Earth dist.	12480 Jul 23 03:59	12° \approx 03'10	29.16549 AU
retrograde	12474 Apr 23 04:47	0° \approx 13'07		direct	12480 Oct 10 05:25	10° \approx 38'56	
	12474 May 21 11:43	30° \overline{R} $\overline{3}$		evening set	12481 Jan 07 16:31	12° \approx 33'33	
opposition	12474 Jul 10 10:05	28° $\overline{3}$ 49'34	0°35'13				
min. Earth dist.	12474 Jul 10 10:19	28° $\overline{3}$ 49'33	29.09788 AU	conjunction	12481 Jan 23 19:59	13° \approx 09'08	0°38'42
direct	12474 Sep 27 09:24	27° $\overline{3}$ 25'07		minimum elong	12481 Jan 23 19:59	13° \approx 09'08	0°39'26
evening set	12474 Dec 25 11:56	29° $\overline{3}$ 19'35		max. Earth dist.	12481 Jan 23 15:15	13° \approx 08'42	31.16942 AU
				morning rise	12481 Feb 08 22:17	13° \approx 44'38	
conjunction	12475 Jan 10 15:54	29° $\overline{3}$ 55'17	0°33'26		12481 Mar 20 18:05	15° \approx	
minimum elong	12475 Jan 10 15:54	29° $\overline{3}$ 55'17	0°34'16	retrograde	12481 May 08 10:19	15° \approx 38'29	
max. Earth dist.	12475 Jan 10 15:49	29° $\overline{3}$ 55'16	31.10441 AU		12481 Jun 27 06:56	15° \overline{R} \approx	
	12475 Jan 12 18:42	0° \approx		opposition	12481 Jul 25 10:36	14° \approx 15'20	0°41'46
morning rise	12475 Jan 26 19:19	0° \approx 30'57		min. Earth dist.	12481 Jul 25 15:42	14° \approx 14'59	29.17361 AU
retrograde	12475 Apr 25 15:54	2° \approx 25'24		direct	12481 Oct 12 18:04	12° \approx 50'50	
opposition	12475 Jul 12 20:25	1° \approx 01'57	0°36'20	evening set	12482 Jan 10 05:02	14° \approx 45'26	
min. Earth dist.	12475 Jul 12 20:20	1° \approx 01'58	29.11105 AU		12482 Jan 16 21:11	15° \approx	
	12475 Aug 23 06:02	30° \overline{R} $\overline{3}$					
direct	12475 Sep 29 21:13	29° $\overline{3}$ 37'31		conjunction	12482 Jan 26 08:18	15° \approx 21'00	0°39'23
	12475 Nov 05 21:10	0° \approx		minimum elong	12482 Jan 26 08:18	15° \approx 21'00	0°40'07
evening set	12475 Dec 28 00:51	1° \approx 32'02		max. Earth dist.	12482 Jan 26 02:20	15° \approx 20'27	31.17750 AU
				morning rise	12482 Feb 11 10:31	15° \approx 56'29	
conjunction	12476 Jan 13 04:40	2° \approx 07'43	0°34'27	retrograde	12482 May 10 22:31	17° \approx 50'12	
minimum elong	12476 Jan 13 04:40	2° \approx 07'43	0°35'17	opposition	12482 Jul 27 20:45	16° \approx 27'05	0°42'28
max. Earth dist.	12476 Jan 13 03:22	2° \approx 07'36	31.11749 AU	min. Earth dist.	12482 Jul 28 01:19	16° \approx 26'46	29.18165 AU
morning rise	12476 Jan 29 07:59	2° \approx 43'22		direct	12482 Oct 15 06:36	15° \approx 02'32	
retrograde	12476 Apr 27 02:52	4° \approx 37'44		evening set	12483 Jan 12 17:17	16° \approx 57'08	
opposition	12476 Jul 14 06:47	3° \approx 14'22	0°37'23				
min. Earth dist.	12476 Jul 14 08:08	3° \approx 14'16	29.12402 AU	conjunction	12483 Jan 28 20:26	17° \approx 32'41	0°40'01
direct	12476 Oct 01 06:16	1° \approx 49'56		minimum elong	12483 Jan 28 20:27	17° \approx 32'41	0°40'41
evening set	12476 Dec 29 13:41	3° \approx 44'30		max. Earth dist.	12483 Jan 28 14:19	17° \approx 32'07	31.18556 AU
				morning rise	12483 Feb 13 22:24	18° \approx 08'08	
conjunction	12477 Jan 14 17:33	4° \approx 20'10	0°35'25	retrograde	12483 May 13 07:35	20° \approx 01'45	
minimum elong	12477 Jan 14 17:33	4° \approx 20'10	0°36'13	opposition	12483 Jul 30 07:01	18° \approx 38'39	0°43'06
max. Earth dist.	12477 Jan 14 16:11	4° \approx 20'02	31.13005 AU	min. Earth dist.	12483 Jul 30 12:58	18° \approx 38'14	29.18998 AU
morning rise	12477 Jan 30 20:36	4° \approx 55'47		direct	12483 Oct 17 17:12	17° \approx 14'05	
retrograde	12477 Apr 29 13:11	6° \approx 50'03		evening set	12484 Jan 15 05:35	19° \approx 08'41	
opposition	12477 Jul 16 17:13	5° \approx 26'46	0°38'22				
min. Earth dist.	12477 Jul 16 18:53	5° \approx 26'39	29.13601 AU	conjunction	12484 Jan 31 08:38	19° \approx 44'12	0°40'35
direct	12477 Oct 03 18:38	4° \approx 02'21		minimum elong	12484 Jan 31 08:39	19° \approx 44'12	0°41'15
evening set	12478 Jan 01 02:30	5° \approx 56'55		max. Earth dist.	12484 Jan 31 02:19	19° \approx 43'37	31.19423 AU
				morning rise	12484 Feb 16 10:23	20° \approx 19'38	
conjunction	12478 Jan 17 06:06	6° \approx 32'34	0°36'19	retrograde	12484 May 14 17:58	22° \approx 13'08	
minimum elong	12478 Jan 17 06:06	6° \approx 32'34	0°37'07	opposition	12484 Jul 31 17:01	20° \approx 50'05	0°43'41
max. Earth dist.	12478 Jan 17 02:49	6° \approx 32'16	31.14147 AU	min. Earth dist.	12484 Jul 31 22:25	20° \approx 49'42	29.19901 AU
morning rise	12478 Feb 02 09:06	7° \approx 08'10		direct	12484 Oct 19 05:08	19° \approx 25'30	

evening set	12485 Jan 16 17:56	21° \approx 20'06		max. Earth dist.	12491 Feb 15 10:26	5° \mathbb{H} 03'16	31.26989 AU
				morning rise	12491 Mar 03 20:32	5° \mathbb{H} 39'27	
conjunction	12485 Feb 01 20:43	21° \approx 55'37	0°41'06	retrograde	12491 May 30 20:57	7° \mathbb{H} 32'28	
minimum elong	12485 Feb 01 20:43	21° \approx 55'37	0°41'43	opposition	12491 Aug 16 16:27	6° \mathbb{H} 09'53	0°45'53
max. Earth dist.	12485 Feb 01 13:36	21° \approx 54'57	31.20373 AU	min. Earth dist.	12491 Aug 17 00:58	6° \mathbb{H} 09'17	29.27426 AU
morning rise	12485 Feb 17 22:16	22° \approx 31'00		direct	12491 Nov 04 10:44	4° \mathbb{H} 45'26	
retrograde	12485 May 17 04:16	24° \approx 24'25		evening set	12492 Feb 02 07:03	6° \mathbb{H} 40'13	
opposition	12485 Aug 03 03:15	23° \approx 01'25	0°44'11				
min. Earth dist.	12485 Aug 03 09:28	23° \approx 00'59	29.20919 AU	conjunction	12492 Feb 18 08:32	7° \mathbb{H} 15'34	0°42'58
direct	12485 Oct 21 13:44	21° \approx 36'51		minimum elong	12492 Feb 18 08:32	7° \mathbb{H} 15'34	0°43'24
evening set	12486 Jan 19 05:54	23° \approx 31'28		max. Earth dist.	12492 Feb 17 21:50	7° \mathbb{H} 14'35	31.27783 AU
				morning rise	12492 Mar 05 08:10	7° \mathbb{H} 50'47	
conjunction	12486 Feb 04 08:39	24° \approx 06'57	0°41'33	retrograde	12492 Jun 01 06:40	9° \mathbb{H} 43'43	
minimum elong	12486 Feb 04 08:39	24° \approx 06'57	0°42'10	opposition	12492 Aug 18 02:43	8° \mathbb{H} 21'09	0°45'56
max. Earth dist.	12486 Feb 04 02:08	24° \approx 06'21	31.21448 AU	min. Earth dist.	12492 Aug 18 12:56	8° \mathbb{H} 20'27	29.28160 AU
morning rise	12486 Feb 20 09:51	24° \approx 42'20		direct	12492 Nov 05 21:38	6° \mathbb{H} 56'41	
retrograde	12486 May 19 13:17	26° \approx 35'40		evening set	12493 Feb 03 19:07	8° \mathbb{H} 51'27	
opposition	12486 Aug 05 13:24	25° \approx 12'45	0°44'38				
min. Earth dist.	12486 Aug 05 19:26	25° \approx 12'20	29.22037 AU	conjunction	12493 Feb 19 20:24	9° \mathbb{H} 26'47	0°42'59
direct	12486 Oct 24 01:47	23° \approx 48'12		minimum elong	12493 Feb 19 20:24	9° \mathbb{H} 26'47	0°43'23
evening set	12487 Jan 21 18:10	25° \approx 42'51		max. Earth dist.	12493 Feb 19 09:15	9° \mathbb{H} 25'45	31.28461 AU
				morning rise	12493 Mar 07 19:45	10° \mathbb{H} 01'58	
conjunction	12487 Feb 06 20:35	26° \approx 18'19	0°41'56	retrograde	12493 Jun 03 17:28	11° \mathbb{H} 54'48	
minimum elong	12487 Feb 06 20:35	26° \approx 18'19	0°42'31	opposition	12493 Aug 20 12:58	10° \mathbb{H} 32'15	0°45'55
max. Earth dist.	12487 Feb 06 12:42	26° \approx 17'35	31.22615 AU	min. Earth dist.	12493 Aug 20 22:55	10° \mathbb{H} 31'33	29.28775 AU
morning rise	12487 Feb 22 21:42	26° \approx 53'40		direct	12493 Nov 08 10:32	9° \mathbb{H} 07'45	
retrograde	12487 May 22 00:17	28° \approx 46'57		evening set	12494 Feb 06 06:59	11° \mathbb{H} 02'30	
opposition	12487 Aug 07 23:28	27° \approx 24'07	0°45'01				
min. Earth dist.	12487 Aug 08 05:54	27° \approx 23'40	29.23238 AU	conjunction	12494 Feb 22 07:56	11° \mathbb{H} 37'48	0°42'56
direct	12487 Oct 26 11:19	25° \approx 59'36		minimum elong	12494 Feb 22 07:56	11° \mathbb{H} 37'48	0°43'19
evening set	12488 Jan 24 06:18	27° \approx 54'18		max. Earth dist.	12494 Feb 21 19:44	11° \mathbb{H} 36'41	31.29028 AU
				morning rise	12494 Mar 10 07:04	12° \mathbb{H} 12'57	
conjunction	12488 Feb 09 08:43	28° \approx 29'45	0°42'16	retrograde	12494 Jun 06 03:25	14° \mathbb{H} 05'42	
minimum elong	12488 Feb 09 08:43	28° \approx 29'45	0°42'51	opposition	12494 Aug 22 23:16	12° \mathbb{H} 43'09	0°45'50
max. Earth dist.	12488 Feb 09 01:28	28° \approx 29'05	31.23819 AU	min. Earth dist.	12494 Aug 23 10:16	12° \mathbb{H} 42'23	29.29317 AU
morning rise	12488 Feb 25 09:24	29° \approx 05'04		direct	12494 Nov 10 20:26	11° \mathbb{H} 18'37	
	12488 Mar 23 20:54	0° \mathbb{H}		evening set	12495 Feb 08 18:44	13° \mathbb{H} 13'20	
retrograde	12488 May 23 10:03	0° \mathbb{H} 58'18					
	12488 Jul 25 12:37	30° \mathbb{R} \approx		conjunction	12495 Feb 24 19:36	13° \mathbb{H} 48'37	0°42'50
opposition	12488 Aug 09 09:42	29° \approx 35'33	0°45'20	minimum elong	12495 Feb 24 19:36	13° \mathbb{H} 48'37	0°43'10
min. Earth dist.	12488 Aug 09 17:05	29° \approx 35'02	29.24424 AU	max. Earth dist.	12495 Feb 24 07:48	13° \mathbb{H} 47'31	31.29545 AU
direct	12488 Oct 27 22:21	28° \approx 11'04		morning rise	12495 Mar 12 18:21	14° \mathbb{H} 23'44	
	12489 Jan 23 01:36	0° \mathbb{H}		retrograde	12495 Jun 08 11:40	16° \mathbb{H} 16'23	
evening set	12489 Jan 25 18:36	0° \mathbb{H} 05'49		opposition	12495 Aug 25 09:20	14° \mathbb{H} 53'50	0°45'41
				min. Earth dist.	12495 Aug 25 20:27	14° \mathbb{H} 53'04	29.29812 AU
conjunction	12489 Feb 10 20:38	0° \mathbb{H} 41'14	0°42'32	direct	12495 Nov 13 08:48	13° \mathbb{H} 29'17	
minimum elong	12489 Feb 10 20:38	0° \mathbb{H} 41'14	0°43'03	evening set	12496 Feb 11 06:35	15° \mathbb{H} 23'58	
max. Earth dist.	12489 Feb 10 11:45	0° \mathbb{H} 40'25	31.24981 AU				
morning rise	12489 Feb 26 21:11	1° \mathbb{H} 16'32		conjunction	12496 Feb 27 07:03	15° \mathbb{H} 59'13	0°42'40
retrograde	12489 May 25 22:18	3° \mathbb{H} 09'42		minimum elong	12496 Feb 27 07:03	15° \mathbb{H} 59'13	0°42'59
opposition	12489 Aug 11 19:51	1° \mathbb{H} 47'01	0°45'35	max. Earth dist.	12496 Feb 26 17:51	15° \mathbb{H} 58'00	31.30043 AU
min. Earth dist.	12489 Aug 12 03:12	1° \mathbb{H} 46'31	29.25549 AU	morning rise	12496 Mar 14 05:39	16° \mathbb{H} 34'19	
direct	12489 Oct 30 09:21	0° \mathbb{H} 22'34		retrograde	12496 Jun 09 21:48	18° \mathbb{H} 26'54	
evening set	12490 Jan 28 06:45	2° \mathbb{H} 17'21		opposition	12496 Aug 26 19:32	17° \mathbb{H} 04'21	0°45'29
				min. Earth dist.	12496 Aug 27 06:47	17° \mathbb{H} 03'34	29.30333 AU
conjunction	12490 Feb 13 08:42	2° \mathbb{H} 52'44	0°42'44	direct	12496 Nov 14 18:28	15° \mathbb{H} 39'45	
minimum elong	12490 Feb 13 08:42	2° \mathbb{H} 52'44	0°43'15	evening set	12497 Feb 12 18:07	17° \mathbb{H} 34'26	
max. Earth dist.	12490 Feb 12 23:58	2° \mathbb{H} 51'56	31.26043 AU				
morning rise	12490 Mar 01 08:49	3° \mathbb{H} 28'00		conjunction	12497 Feb 28 18:27	18° \mathbb{H} 09'40	0°42'26
retrograde	12490 May 28 09:04	5° \mathbb{H} 21'07		minimum elong	12497 Feb 28 18:27	18° \mathbb{H} 09'40	0°42'42
opposition	12490 Aug 14 06:13	3° \mathbb{H} 58'29	0°45'46	max. Earth dist.	12497 Feb 28 06:16	18° \mathbb{H} 08'33	31.30582 AU
min. Earth dist.	12490 Aug 14 15:04	3° \mathbb{H} 57'52	29.26556 AU	morning rise	12497 Mar 16 16:34	18° \mathbb{H} 44'44	
direct	12490 Nov 01 21:57	2° \mathbb{H} 34'03		retrograde	12497 Jun 12 06:33	20° \mathbb{H} 37'15	
evening set	12491 Jan 30 18:52	4° \mathbb{H} 28'50		opposition	12497 Aug 29 05:49	19° \mathbb{H} 14'43	0°45'12
				min. Earth dist.	12497 Aug 29 17:36	19° \mathbb{H} 13'54	29.30907 AU
conjunction	12491 Feb 15 20:32	5° \mathbb{H} 04'12	0°42'53	direct	12497 Nov 17 05:16	17° \mathbb{H} 50'08	
minimum elong	12491 Feb 15 20:32	5° \mathbb{H} 04'12	0°43'20	evening set	12498 Feb 15 05:44	19° \mathbb{H} 44'49	

conjunction	12498 Mar 03 05:39	20° $\mathbf{\text{H}}$ 20'01	0°42'09	retrograde	12504 Jun 28 08:05	5° $\mathbf{\text{Y}}$ 51'04	
minimum elong	12498 Mar 03 05:39	20° $\mathbf{\text{H}}$ 20'01	0°42'25	opposition	12504 Sep 14 06:14	4° $\mathbf{\text{Y}}$ 28'54	0°41'29
max. Earth dist.	12498 Mar 02 16:23	20° $\mathbf{\text{H}}$ 18'48	31.31208 AU	min. Earth dist.	12504 Sep 14 20:02	4° $\mathbf{\text{Y}}$ 27'57	29.35103 AU
morning rise	12498 Mar 19 03:37	20° $\mathbf{\text{H}}$ 55'04		direct	12504 Dec 03 13:27	3° $\mathbf{\text{Y}}$ 04'33	
retrograde	12498 Jun 14 18:01	22° $\mathbf{\text{H}}$ 47'33		evening set	12505 Mar 03 14:00	4° $\mathbf{\text{Y}}$ 59'24	
opposition	12498 Aug 31 15:57	21° $\mathbf{\text{H}}$ 25'04	0°44'52				
min. Earth dist.	12498 Sep 01 03:02	21° $\mathbf{\text{H}}$ 24'18	29.31582 AU	conjunction	12505 Mar 19 11:56	5° $\mathbf{\text{Y}}$ 34'29	0°38'29
direct	12498 Nov 19 15:54	20° $\mathbf{\text{H}}$ 00'30		minimum elong	12505 Mar 19 11:56	5° $\mathbf{\text{Y}}$ 34'30	0°38'29
evening set	12499 Feb 17 17:06	21° $\mathbf{\text{H}}$ 55'13		max. Earth dist.	12505 Mar 18 19:56	5° $\mathbf{\text{Y}}$ 33'01	31.35173 AU
				morning rise	12505 Apr 04 07:44	6° $\mathbf{\text{Y}}$ 09'24	
conjunction	12499 Mar 05 16:56	22° $\mathbf{\text{H}}$ 30'24	0°41'48	retrograde	12505 Jun 30 18:00	8° $\mathbf{\text{Y}}$ 01'46	
minimum elong	12499 Mar 05 16:56	22° $\mathbf{\text{H}}$ 30'24	0°42'01	opposition	12505 Sep 16 16:45	6° $\mathbf{\text{Y}}$ 39'36	0°40'42
max. Earth dist.	12499 Mar 05 04:24	22° $\mathbf{\text{H}}$ 29'15	31.31918 AU	min. Earth dist.	12505 Sep 17 06:45	6° $\mathbf{\text{Y}}$ 38'38	29.35262 AU
morning rise	12499 Mar 21 14:29	23° $\mathbf{\text{H}}$ 05'25		direct	12505 Dec 05 23:01	5° $\mathbf{\text{Y}}$ 15'15	
retrograde	12499 Jun 17 04:19	24° $\mathbf{\text{H}}$ 57'53		evening set	12506 Mar 06 01:13	7° $\mathbf{\text{Y}}$ 10'05	
opposition	12499 Sep 03 02:18	23° $\mathbf{\text{H}}$ 35'27	0°44'27				
min. Earth dist.	12499 Sep 03 14:26	23° $\mathbf{\text{H}}$ 34'37	29.32317 AU	conjunction	12506 Mar 21 23:02	7° $\mathbf{\text{Y}}$ 45'09	0°37'44
direct	12499 Nov 22 03:39	22° $\mathbf{\text{H}}$ 10'56		minimum elong	12506 Mar 21 23:02	7° $\mathbf{\text{Y}}$ 45'09	0°37'43
evening set	12500 Feb 20 04:40	24° $\mathbf{\text{H}}$ 05'42		max. Earth dist.	12506 Mar 21 07:45	7° $\mathbf{\text{Y}}$ 43'44	31.35263 AU
				morning rise	12506 Apr 06 18:22	8° $\mathbf{\text{Y}}$ 20'02	
conjunction	12500 Mar 08 04:07	24° $\mathbf{\text{H}}$ 40'52	0°41'24	retrograde	12506 Jul 03 02:36	10° $\mathbf{\text{Y}}$ 12'22	
minimum elong	12500 Mar 08 04:08	24° $\mathbf{\text{H}}$ 40'52	0°41'35	opposition	12506 Sep 19 03:14	8° $\mathbf{\text{Y}}$ 50'11	0°39'52
max. Earth dist.	12500 Mar 07 14:48	24° $\mathbf{\text{H}}$ 39'38	31.32675 AU	min. Earth dist.	12506 Sep 19 18:10	8° $\mathbf{\text{Y}}$ 49'09	29.35292 AU
morning rise	12500 Mar 24 01:29	25° $\mathbf{\text{H}}$ 15'52		direct	12506 Dec 08 09:34	7° $\mathbf{\text{Y}}$ 25'48	
retrograde	12500 Jun 19 16:02	27° $\mathbf{\text{H}}$ 08'19		evening set	12507 Mar 08 12:27	9° $\mathbf{\text{Y}}$ 20'36	
opposition	12500 Sep 05 12:25	25° $\mathbf{\text{H}}$ 45'57	0°43'59				
min. Earth dist.	12500 Sep 05 23:51	25° $\mathbf{\text{H}}$ 45'10	29.33065 AU	conjunction	12507 Mar 24 09:51	9° $\mathbf{\text{Y}}$ 55'39	0°36'56
direct	12500 Nov 24 15:43	24° $\mathbf{\text{H}}$ 21'30		minimum elong	12507 Mar 24 09:51	9° $\mathbf{\text{Y}}$ 55'39	0°36'51
evening set	12501 Feb 22 16:11	26° $\mathbf{\text{H}}$ 16'18		max. Earth dist.	12507 Mar 23 17:19	9° $\mathbf{\text{Y}}$ 54'07	31.35256 AU
				morning rise	12507 Apr 09 05:05	10° $\mathbf{\text{Y}}$ 30'31	
conjunction	12501 Mar 10 15:22	26° $\mathbf{\text{H}}$ 51'27	0°40'56	retrograde	12507 Jul 05 13:08	12° $\mathbf{\text{Y}}$ 22'49	
minimum elong	12501 Mar 10 15:23	26° $\mathbf{\text{H}}$ 51'27	0°41'04	opposition	12507 Sep 21 13:38	11° $\mathbf{\text{Y}}$ 00'36	0°38'59
max. Earth dist.	12501 Mar 10 01:52	26° $\mathbf{\text{H}}$ 50'12	31.33399 AU	min. Earth dist.	12507 Sep 22 04:01	10° $\mathbf{\text{Y}}$ 59'36	29.35247 AU
morning rise	12501 Mar 26 12:21	27° $\mathbf{\text{H}}$ 26'26		direct	12507 Dec 10 20:48	9° $\mathbf{\text{Y}}$ 36'10	
retrograde	12501 Jun 22 02:13	29° $\mathbf{\text{H}}$ 18'54		evening set	12508 Mar 09 23:30	11° $\mathbf{\text{Y}}$ 30'57	
opposition	12501 Sep 07 22:55	27° $\mathbf{\text{H}}$ 56'36	0°43'27				
min. Earth dist.	12501 Sep 08 11:42	27° $\mathbf{\text{H}}$ 55'43	29.33765 AU	conjunction	12508 Mar 25 20:43	12° $\mathbf{\text{Y}}$ 05'58	0°36'05
direct	12501 Nov 27 02:09	26° $\mathbf{\text{H}}$ 32'12		minimum elong	12508 Mar 25 20:43	12° $\mathbf{\text{Y}}$ 05'58	0°35'59
evening set	12502 Feb 25 03:32	28° $\mathbf{\text{H}}$ 27'01		max. Earth dist.	12508 Mar 25 04:50	12° $\mathbf{\text{Y}}$ 04'30	31.35181 AU
				morning rise	12508 Apr 10 15:28	12° $\mathbf{\text{Y}}$ 40'48	
conjunction	12502 Mar 13 02:28	29° $\mathbf{\text{H}}$ 02'09	0°40'24	retrograde	12508 Jul 06 22:25	14° $\mathbf{\text{Y}}$ 33'04	
minimum elong	12502 Mar 13 02:28	29° $\mathbf{\text{H}}$ 02'09	0°40'31	opposition	12508 Sep 23 00:10	13° $\mathbf{\text{Y}}$ 10'48	0°38'03
max. Earth dist.	12502 Mar 12 12:51	29° $\mathbf{\text{H}}$ 00'54	31.34054 AU	min. Earth dist.	12508 Sep 23 15:34	13° $\mathbf{\text{Y}}$ 09'45	29.35171 AU
morning rise	12502 Mar 28 23:08	29° $\mathbf{\text{H}}$ 37'07		direct	12508 Dec 12 08:24	11° $\mathbf{\text{Y}}$ 46'21	
	12502 Apr 08 18:58	0° $\mathbf{\text{Y}}$		evening set	12509 Mar 12 10:31	13° $\mathbf{\text{Y}}$ 41'06	
retrograde	12502 Jun 24 13:23	1° $\mathbf{\text{Y}}$ 29'34					
opposition	12502 Sep 10 09:18	0° $\mathbf{\text{Y}}$ 07'20	0°42'51	conjunction	12509 Mar 28 07:20	14° $\mathbf{\text{Y}}$ 16'05	0°35'11
min. Earth dist.	12502 Sep 10 21:48	0° $\mathbf{\text{Y}}$ 06'28	29.34353 AU	minimum elong	12509 Mar 28 07:20	14° $\mathbf{\text{Y}}$ 16'05	0°35'02
	12502 Sep 14 19:42	30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$		max. Earth dist.	12509 Mar 27 15:04	14° $\mathbf{\text{Y}}$ 14'35	31.35127 AU
direct	12502 Nov 29 15:02	28° $\mathbf{\text{H}}$ 42'58		morning rise	12509 Apr 13 01:53	14° $\mathbf{\text{Y}}$ 50'54	
	12503 Feb 09 07:23	0° $\mathbf{\text{Y}}$		retrograde	12509 Jul 09 09:14	16° $\mathbf{\text{Y}}$ 43'08	
evening set	12503 Feb 27 15:07	0° $\mathbf{\text{Y}}$ 37'49		opposition	12509 Sep 25 10:39	15° $\mathbf{\text{Y}}$ 20'51	0°37'04
				min. Earth dist.	12509 Sep 26 00:50	15° $\mathbf{\text{Y}}$ 19'52	29.35142 AU
conjunction	12503 Mar 15 13:40	1° $\mathbf{\text{Y}}$ 12'56	0°39'49	direct	12509 Dec 14 20:11	13° $\mathbf{\text{Y}}$ 56'22	
minimum elong	12503 Mar 15 13:40	1° $\mathbf{\text{Y}}$ 12'56	0°39'53	evening set	12510 Mar 14 21:17	15° $\mathbf{\text{Y}}$ 51'06	
max. Earth dist.	12503 Mar 14 22:56	1° $\mathbf{\text{Y}}$ 11'35	31.34573 AU				
morning rise	12503 Mar 31 10:05	1° $\mathbf{\text{Y}}$ 47'53		conjunction	12510 Mar 30 17:49	16° $\mathbf{\text{Y}}$ 26'04	0°34'14
retrograde	12503 Jun 26 23:51	3° $\mathbf{\text{Y}}$ 40'19		minimum elong	12510 Mar 30 17:50	16° $\mathbf{\text{Y}}$ 26'04	0°34'04
opposition	12503 Sep 12 19:42	2° $\mathbf{\text{Y}}$ 18'07	0°42'12	max. Earth dist.	12510 Mar 30 01:49	16° $\mathbf{\text{Y}}$ 24'35	31.35131 AU
min. Earth dist.	12503 Sep 13 09:13	2° $\mathbf{\text{Y}}$ 17'11	29.34811 AU	morning rise	12510 Apr 15 12:01	17° $\mathbf{\text{Y}}$ 00'52	
direct	12503 Dec 02 00:58	0° $\mathbf{\text{Y}}$ 53'46		retrograde	12510 Jul 11 19:19	18° $\mathbf{\text{Y}}$ 53'05	
evening set	12504 Mar 01 02:34	2° $\mathbf{\text{Y}}$ 48'38		opposition	12510 Sep 27 21:16	17° $\mathbf{\text{Y}}$ 30'47	0°36'01
max. Earth dist.	12504 Mar 16 10:31	3° $\mathbf{\text{Y}}$ 22'24	31.34952 AU	min. Earth dist.	12510 Sep 28 12:13	17° $\mathbf{\text{Y}}$ 29'45	29.35201 AU
				direct	12510 Dec 17 07:05	16° $\mathbf{\text{Y}}$ 06'18	
conjunction	12504 Mar 17 00:59	3° $\mathbf{\text{Y}}$ 23'44	0°39'11	evening set	12511 Mar 17 08:08	18° $\mathbf{\text{Y}}$ 01'01	
minimum elong	12504 Mar 17 00:59	3° $\mathbf{\text{Y}}$ 23'44	0°39'14				
morning rise	12504 Apr 01 20:57	3° $\mathbf{\text{Y}}$ 58'40		conjunction	12511 Apr 02 04:25	18° $\mathbf{\text{Y}}$ 35'58	0°33'14

minimum elong	12511 Apr 02 04:26	18° Υ 35'58	0°33'02	opposition	12517 Oct 13 00:30	2° δ 41'47	0°27'22
max. Earth dist.	12511 Apr 01 12:57	18° Υ 34'33	31.35242 AU	min. Earth dist.	12517 Oct 13 16:02	2° δ 40'44	29.35608 AU
morning rise	12511 Apr 17 22:19	19° Υ 10'45		direct	12518 Jan 01 12:36	1° δ 17'32	
retrograde	12511 Jul 14 06:15	21° Υ 02'58		evening set	12518 Apr 01 11:36	3° δ 12'19	
opposition	12511 Sep 30 07:40	19° Υ 40'41	0°34'56				
min. Earth dist.	12511 Sep 30 21:47	19° Υ 39'43	29.35341 AU	conjunction	12518 Apr 17 05:42	3° δ 47'11	0°25'00
direct	12511 Dec 19 20:18	18° Υ 16'14		minimum elong	12518 Apr 17 05:42	3° δ 47'11	0°24'35
evening set	12512 Mar 18 19:04	20° Υ 10'58		max. Earth dist.	12518 Apr 16 13:22	3° δ 45'40	31.35425 AU
				morning rise	12518 May 02 21:36	4° δ 21'53	
conjunction	12512 Apr 03 14:57	20° Υ 45'54	0°32'12	retrograde	12518 Jul 29 04:23	6° δ 14'19	
minimum elong	12512 Apr 03 14:57	20° Υ 45'54	0°31'58	opposition	12518 Oct 15 11:25	4° δ 52'09	0°25'58
max. Earth dist.	12512 Apr 02 22:57	20° Υ 44'25	31.35419 AU	min. Earth dist.	12518 Oct 16 02:03	4° δ 51'09	29.35242 AU
morning rise	12512 Apr 19 08:36	21° Υ 20'40		direct	12519 Jan 04 00:14	3° δ 27'53	
retrograde	12512 Jul 15 16:50	23° Υ 12'54		evening set	12519 Apr 03 22:20	5° δ 22'39	
opposition	12512 Oct 01 18:20	21° Υ 50'38	0°33'47				
min. Earth dist.	12512 Oct 02 08:48	21° Υ 49'39	29.35547 AU	conjunction	12519 Apr 19 16:08	5° δ 57'30	0°23'41
direct	12512 Dec 21 06:35	20° Υ 26'14		minimum elong	12519 Apr 19 16:08	5° δ 57'30	0°23'12
evening set	12513 Mar 21 05:42	22° Υ 20'58		max. Earth dist.	12519 Apr 18 23:36	5° δ 55'58	31.34996 AU
max. Earth dist.	12513 Apr 05 10:26	22° Υ 54'31	31.35629 AU	morning rise	12519 May 05 07:44	6° δ 32'12	
				retrograde	12519 Jul 31 14:48	8° δ 24'39	
conjunction	12513 Apr 06 01:24	22° Υ 55'54	0°31'06	opposition	12519 Oct 17 22:23	7° δ 02'27	0°24'31
minimum elong	12513 Apr 06 01:24	22° Υ 55'54	0°30'49	min. Earth dist.	12519 Oct 18 14:04	7° δ 01'23	29.34770 AU
morning rise	12513 Apr 21 18:38	23° Υ 30'39		direct	12520 Jan 06 11:21	5° δ 38'10	
retrograde	12513 Jul 18 01:24	25° Υ 22'55		evening set	12520 Apr 05 08:54	7° δ 32'56	
opposition	12513 Oct 04 05:03	24° Υ 00'42	0°32'35	max. Earth dist.	12520 Apr 20 10:30	8° δ 06'17	31.34495 AU
min. Earth dist.	12513 Oct 04 19:25	23° Υ 59'43	29.35740 AU				
direct	12513 Dec 23 18:41	22° Υ 36'20		conjunction	12520 Apr 21 02:28	8° δ 07'46	0°22'19
evening set	12514 Mar 23 16:36	24° Υ 31'05		minimum elong	12520 Apr 21 02:29	8° δ 07'46	0°21'50
				morning rise	12520 May 06 17:47	8° δ 42'26	
conjunction	12514 Apr 08 11:50	25° Υ 06'00	0°29'58	retrograde	12520 Aug 02 01:55	10° δ 34'55	
minimum elong	12514 Apr 08 11:50	25° Υ 06'00	0°29'40	opposition	12520 Oct 19 09:24	9° δ 12'40	0°23'03
max. Earth dist.	12514 Apr 07 19:42	25° Υ 04'31	31.35806 AU	min. Earth dist.	12520 Oct 20 00:18	9° δ 11'39	29.34237 AU
morning rise	12514 Apr 24 04:55	25° Υ 40'45		direct	12521 Jan 08 01:06	7° δ 48'23	
retrograde	12514 Jul 20 11:56	27° Υ 33'02		evening set	12521 Apr 07 19:20	9° δ 43'07	
opposition	12514 Oct 06 15:40	26° Υ 10'51	0°31'21				
min. Earth dist.	12514 Oct 07 05:56	26° Υ 09'53	29.35891 AU	conjunction	12521 Apr 23 12:29	10° δ 17'56	0°20'56
direct	12514 Dec 26 04:20	24° Υ 46'32		minimum elong	12521 Apr 23 12:29	10° δ 17'56	0°20'24
evening set	12515 Mar 26 03:19	26° Υ 41'18		max. Earth dist.	12521 Apr 22 20:06	10° δ 16'25	31.33960 AU
				morning rise	12521 May 09 03:36	10° δ 52'36	
conjunction	12515 Apr 10 22:26	27° Υ 16'13	0°28'47	retrograde	12521 Aug 04 12:33	12° δ 45'06	
minimum elong	12515 Apr 10 22:26	27° Υ 16'13	0°28'26	opposition	12521 Oct 21 20:30	11° δ 22'49	0°21'33
max. Earth dist.	12515 Apr 10 07:13	27° Υ 14'48	31.35903 AU	min. Earth dist.	12521 Oct 22 11:25	11° δ 21'48	29.33728 AU
morning rise	12515 Apr 26 15:04	27° Υ 50'56		direct	12522 Jan 10 11:57	9° δ 58'31	
retrograde	12515 Jul 22 20:52	29° Υ 43'16		evening set	12522 Apr 10 05:39	11° δ 53'14	
opposition	12515 Oct 09 02:34	28° Υ 21'07	0°30'04				
min. Earth dist.	12515 Oct 09 17:41	28° Υ 20'05	29.35927 AU	conjunction	12522 Apr 25 22:39	12° δ 28'03	0°19'30
direct	12515 Dec 28 15:00	26° Υ 56'49		minimum elong	12522 Apr 25 22:39	12° δ 28'03	0°18'58
evening set	12516 Mar 27 14:13	28° Υ 51'36		max. Earth dist.	12522 Apr 25 07:39	12° δ 26'40	31.33476 AU
				morning rise	12522 May 11 13:24	13° δ 02'42	
conjunction	12516 Apr 12 08:51	29° Υ 26'30	0°27'34	retrograde	12522 Aug 06 20:57	14° δ 55'14	
minimum elong	12516 Apr 12 08:51	29° Υ 26'30	0°27'12	opposition	12522 Oct 24 07:29	13° δ 32'56	0°20'01
max. Earth dist.	12516 Apr 11 16:32	29° Υ 24'59	31.35880 AU	min. Earth dist.	12522 Oct 24 21:56	13° δ 31'57	29.33279 AU
	12516 Apr 27 11:55	0° δ		direct	12523 Jan 13 00:23	12° δ 08'38	
morning rise	12516 Apr 28 01:20	0° δ 01'13		evening set	12523 Apr 12 16:08	14° δ 03'21	
retrograde	12516 Jul 24 07:38	1° δ 53'35					
opposition	12516 Oct 10 13:26	0° δ 31'26	0°28'44	conjunction	12523 Apr 28 08:42	14° δ 38'09	0°18'04
min. Earth dist.	12516 Oct 11 03:51	0° δ 30'27	29.35838 AU	minimum elong	12523 Apr 28 08:42	14° δ 38'09	0°17'28
	12516 Oct 30 03:46	30° κ Υ		max. Earth dist.	12523 Apr 27 17:00	14° δ 36'42	31.33080 AU
direct	12516 Dec 30 01:50	29° Υ 07'10			12523 May 08 03:38	15° δ	
	12517 Feb 26 14:11	0° δ		morning rise	12523 May 13 23:20	15° δ 12'48	
evening set	12517 Mar 30 00:58	1° δ 01'57		retrograde	12523 Aug 09 07:37	17° δ 05'23	
				opposition	12523 Oct 26 18:34	15° δ 43'05	0°18'27
conjunction	12517 Apr 14 19:24	1° δ 36'50	0°26'18	min. Earth dist.	12523 Oct 27 08:13	15° δ 42'09	29.32935 AU
minimum elong	12517 Apr 14 19:24	1° δ 36'50	0°25'53		12523 Nov 23 08:18	15° κ δ	
max. Earth dist.	12517 Apr 14 03:34	1° δ 35'22	31.35715 AU	direct	12524 Jan 15 10:47	14° δ 18'49	
morning rise	12517 Apr 30 11:28	2° δ 11'32			12524 Mar 06 14:17	15° δ	
retrograde	12517 Jul 26 17:21	4° δ 03'57		evening set	12524 Apr 14 02:22	16° δ 13'32	

conjunction	12524 Apr 29 18:47	16° 8 48'20	0°16'35	retrograde	12529 Aug 21 22:53	0° II 09'03	
minimum elong	12524 Apr 29 18:48	16° 8 48'20	0°15'59		12529 Sep 14 11:48	30° R 8	
behind sun begin	12524 Apr 29 18:03	16° 8 48'16		opposition	12529 Nov 08 15:03	28° 8 46'46	0°08'32
behind sun end	12524 Apr 29 19:32	16° 8 48'24		min. Earth dist.	12529 Nov 09 03:38	28° 8 45'55	29.30832 AU
max. Earth dist.	12524 Apr 29 04:37	16° 8 47'02	31.32774 AU	direct	12530 Jan 28 04:57	27° 8 22'44	
morning rise	12524 May 15 09:00	17° 8 22'59		evening set	12530 Apr 27 16:49	29° 8 17'30	
retrograde	12524 Aug 10 16:44	19° 8 15'38					
opposition	12524 Oct 28 05:50	17° 8 53'21	0°16'51	conjunction	12530 May 13 07:27	29° 8 52'15	0°07'18
min. Earth dist.	12524 Oct 28 19:46	17° 8 52'24	29.32659 AU	minimum elong	12530 May 13 07:27	29° 8 52'15	0°06'33
direct	12525 Jan 16 21:43	16° 8 29'08		behind sun begin	12530 May 13 01:23	29° 8 51'43	
evening set	12525 Apr 16 12:47	18° 8 23'52		behind sun end	12530 May 13 13:30	29° 8 52'48	
				max. Earth dist.	12530 May 12 17:24	29° 8 50'57	31.30478 AU
conjunction	12525 May 02 04:47	18° 8 58'39	0°15'05		12530 May 16 18:14	0° II	
minimum elong	12525 May 02 04:46	18° 8 58'39	0°14'26	morning rise	12530 May 28 20:29	0° II 26'53	
behind sun begin	12525 May 02 01:50	18° 8 58'23		retrograde	12530 Aug 24 10:15	2° II 20'00	
behind sun end	12525 May 02 07:43	18° 8 58'55		opposition	12530 Nov 11 02:36	0° II 57'41	0°06'50
max. Earth dist.	12525 May 01 14:12	18° 8 57'18	31.32534 AU	min. Earth dist.	12530 Nov 11 15:31	0° II 56'48	29.30111 AU
morning rise	12525 May 17 18:55	19° 8 33'18			12530 Dec 19 23:48	30° R 8	
retrograde	12525 Aug 13 03:05	21° 8 26'02		direct	12531 Jan 30 15:44	29° 8 33'38	
opposition	12525 Oct 30 17:00	20° 8 03'45	0°15'14		12531 Mar 12 05:32	0° II	
min. Earth dist.	12525 Oct 31 05:44	20° 8 02'53	29.32430 AU	evening set	12531 Apr 30 03:14	1° II 28'23	
direct	12526 Jan 19 08:07	18° 8 39'35					
evening set	12526 Apr 18 23:01	20° 8 34'20		conjunction	12531 May 15 17:46	2° II 03'08	0°05'42
				minimum elong	12531 May 15 17:46	2° II 03'08	0°04'55
conjunction	12526 May 04 14:51	21° 8 09'07	0°13'34	behind sun begin	12531 May 15 11:29	2° II 02'35	
minimum elong	12526 May 04 14:51	21° 8 09'07	0°12'54	behind sun end	12531 May 16 00:03	2° II 03'42	
behind sun begin	12526 May 04 10:51	21° 8 08'46		max. Earth dist.	12531 May 15 04:44	2° II 01'56	31.29681 AU
behind sun end	12526 May 04 18:51	21° 8 09'29		morning rise	12531 May 31 06:28	2° II 37'46	
max. Earth dist.	12526 May 04 01:09	21° 8 07'51	31.32295 AU	retrograde	12531 Aug 26 19:53	4° II 30'56	
morning rise	12526 May 20 04:40	21° 8 43'46		opposition	12531 Nov 13 14:21	3° II 08'34	0°05'07
retrograde	12526 Aug 15 12:45	23° 8 36'35		min. Earth dist.	12531 Nov 14 03:10	3° II 07'42	29.29236 AU
opposition	12526 Nov 02 04:27	22° 8 14'20	0°13'35	direct	12532 Feb 02 05:03	1° II 44'30	
min. Earth dist.	12526 Nov 02 17:59	22° 8 13'24	29.32175 AU	evening set	12532 May 01 13:36	3° II 39'13	
direct	12527 Jan 21 17:54	20° 8 50'13					
evening set	12527 Apr 21 09:28	22° 8 44'58		conjunction	12532 May 17 03:45	4° II 13'58	0°04'05
max. Earth dist.	12527 May 06 11:10	23° 8 18'28	31.32015 AU	minimum elong	12532 May 17 03:44	4° II 13'58	0°03'18
				behind sun begin	12532 May 16 21:19	4° II 13'24	
conjunction	12527 May 07 00:58	23° 8 19'45	0°12'01	behind sun end	12532 May 17 10:08	4° II 14'32	
minimum elong	12527 May 07 00:58	23° 8 19'45	0°11'19	max. Earth dist.	12532 May 16 13:48	4° II 12'40	31.28755 AU
behind sun begin	12527 May 06 20:14	23° 8 19'20		morning rise	12532 Jun 01 16:24	4° II 48'36	
behind sun end	12527 May 07 05:43	23° 8 20'10		retrograde	12532 Aug 28 07:20	6° II 41'49	
morning rise	12527 May 22 14:36	23° 8 54'24		opposition	12532 Nov 15 02:04	5° II 19'22	0°03'23
retrograde	12527 Aug 17 23:56	25° 8 47'18		min. Earth dist.	12532 Nov 15 14:15	5° II 18'32	29.28270 AU
opposition	12527 Nov 04 15:44	24° 8 25'03	0°11'55	direct	12533 Feb 03 16:46	3° II 55'17	
min. Earth dist.	12527 Nov 05 04:11	24° 8 24'12	29.31845 AU	evening set	12533 May 03 23:47	5° II 49'57	
direct	12528 Jan 24 04:37	23° 8 00'58					
evening set	12528 Apr 22 19:58	24° 8 55'44		conjunction	12533 May 19 13:50	6° II 24'42	0°02'27
				minimum elong	12533 May 19 13:50	6° II 24'42	0°01'38
conjunction	12528 May 08 11:10	25° 8 30'30	0°10'27	behind sun begin	12533 May 19 07:23	6° II 24'07	
minimum elong	12528 May 08 11:10	25° 8 30'30	0°09'45	behind sun end	12533 May 19 20:16	6° II 25'16	
behind sun begin	12528 May 08 05:51	25° 8 30'02		max. Earth dist.	12533 May 19 01:19	6° II 23'32	31.27757 AU
behind sun end	12528 May 08 16:28	25° 8 30'59		morning rise	12533 Jun 04 02:11	6° II 59'20	
max. Earth dist.	12528 May 07 21:16	25° 8 29'13	31.31630 AU	retrograde	12533 Aug 30 16:29	8° II 52'36	
morning rise	12528 May 24 00:33	26° 8 05'09		opposition	12533 Nov 17 13:52	7° II 30'05	0°01'40
retrograde	12528 Aug 19 11:16	27° 8 58'08		min. Earth dist.	12533 Nov 18 02:23	7° II 29'14	29.27262 AU
opposition	12528 Nov 06 03:26	26° 8 35'53	0°10'14	direct	12534 Feb 06 04:47	6° II 05'58	
min. Earth dist.	12528 Nov 06 16:42	26° 8 34'58	29.31411 AU	evening set	12534 May 06 09:59	8° II 00'37	
direct	12529 Jan 25 15:41	25° 8 11'50					
evening set	12529 Apr 25 06:17	27° 8 06'36		conjunction	12534 May 21 23:41	8° II 35'21	0°00'47
				minimum elong	12534 May 21 23:42	8° II 35'20	0°00'02
conjunction	12529 May 10 21:16	27° 8 41'21	0°08'53	behind sun begin	12534 May 21 18:16	8° II 34'52	
minimum elong	12529 May 10 21:17	27° 8 41'21	0°08'09	behind sun end	12534 May 22 05:07	8° II 35'49	
behind sun begin	12529 May 10 15:33	27° 8 40'51		max. Earth dist.	12534 May 21 11:00	8° II 34'10	31.26764 AU
behind sun end	12529 May 11 03:01	27° 8 41'52		morning rise	12534 Jun 06 12:03	9° II 09'59	
max. Earth dist.	12529 May 10 08:04	27° 8 40'08	31.31131 AU	retrograde	12534 Sep 02 02:51	11° II 03'18	
morning rise	12529 May 26 10:24	28° 8 16'00		desc. node	12534 Nov 06 03:15	10° II 03'14	
	12529 Jul 29 18:20	0° II		opposition	12534 Nov 20 01:35	9° II 40'44	-0°00'04

min. Earth dist.	12534 Nov 20 12:36	9°II39'59	29.26292 AU	behind sun end	12540 Jun 03 16:54	21°II41'49	
direct	12535 Feb 08 15:57	8°II16'37		max. Earth dist.	12540 Jun 03 03:09	21°II40'33	31.21967 AU
evening set	12535 May 08 20:10	10°II11'14		morning rise	12540 Jun 18 22:58	22°II16'01	
				retrograde	12540 Sep 14 22:30	24°II10'04	
conjunction	12535 May 24 09:42	10°II45'58	-0°00'53	opposition	12540 Dec 03 01:38	22°II47'26	-0°10'23
minimum elong	12535 May 24 09:41	10°II45'58	0°01'44	min. Earth dist.	12540 Dec 03 10:07	22°II46'51	29.21548 AU
behind sun begin	12535 May 24 03:15	10°II45'24		direct	12541 Feb 21 10:57	21°II23'33	
behind sun end	12535 May 24 16:08	10°II46'33		evening set	12541 May 21 09:31	23°II18'18	
max. Earth dist.	12535 May 23 22:04	10°II44'54	31.25818 AU				
morning rise	12535 Jun 08 21:45	11°II20'36		conjunction	12541 Jun 05 21:42	23°II53'02	-0°10'30
retrograde	12535 Sep 04 12:25	13°II14'02		minimum elong	12541 Jun 05 21:43	23°II53'03	0°11'25
opposition	12535 Nov 22 13:28	11°II51'25	-0°01'48	behind sun begin	12541 Jun 05 17:00	23°II52'37	
min. Earth dist.	12535 Nov 23 00:48	11°II50'39	29.25394 AU	behind sun end	12541 Jun 06 02:25	23°II53'28	
direct	12536 Feb 11 02:02	10°II27'18		max. Earth dist.	12541 Jun 05 12:27	23°II52'11	31.21101 AU
evening set	12536 May 10 06:21	12°II21'56		morning rise	12541 Jun 21 09:08	24°II27'44	
				retrograde	12541 Sep 17 11:39	26°II21'54	
conjunction	12536 May 25 19:38	12°II56'40	-0°02'31	opposition	12541 Dec 05 13:49	24°II59'14	-0°12'04
minimum elong	12536 May 25 19:38	12°II56'40	0°03'22	min. Earth dist.	12541 Dec 05 21:39	24°II58'42	29.20634 AU
behind sun begin	12536 May 25 13:15	12°II56'05		direct	12542 Feb 23 22:57	23°II35'23	
behind sun end	12536 May 26 02:02	12°II57'14		evening set	12542 May 23 19:50	25°II30'08	
max. Earth dist.	12536 May 25 08:34	12°II55'38	31.24976 AU				
morning rise	12536 Jun 10 07:35	13°II31'18		conjunction	12542 Jun 08 08:02	26°II04'54	-0°12'03
retrograde	12536 Sep 05 23:40	15°II24'50		minimum elong	12542 Jun 08 08:02	26°II04'54	0°12'58
opposition	12536 Nov 24 01:20	14°II02'13	-0°03'32	behind sun begin	12542 Jun 08 04:03	26°II04'33	
min. Earth dist.	12536 Nov 24 10:55	14°II01'33	29.24587 AU	behind sun end	12542 Jun 08 12:00	26°II05'15	
direct	12537 Feb 12 12:45	12°II38'08		max. Earth dist.	12542 Jun 07 23:55	26°II04'09	31.20114 AU
evening set	12537 May 12 16:25	14°II32'46		morning rise	12542 Jun 23 19:12	26°II39'36	
				retrograde	12542 Sep 19 21:53	28°II33'53	
conjunction	12537 May 28 05:28	15°II07'30	-0°04'08	opposition	12542 Dec 08 02:15	27°II11'11	-0°13'44
minimum elong	12537 May 28 05:28	15°II07'30	0°05'00	min. Earth dist.	12542 Dec 08 10:36	27°II10'37	29.19576 AU
behind sun begin	12537 May 27 23:12	15°II06'56		direct	12543 Feb 26 11:20	25°II47'20	
behind sun end	12537 May 28 11:44	15°II08'04		evening set	12543 May 26 06:18	27°II42'05	
max. Earth dist.	12537 May 27 18:46	15°II06'31	31.24203 AU				
morning rise	12537 Jun 12 17:18	15°II42'09		conjunction	12543 Jun 10 18:13	28°II16'50	-0°13'36
retrograde	12537 Sep 08 11:18	17°II35'49		minimum elong	12543 Jun 10 18:13	28°II16'50	0°14'32
opposition	12537 Nov 26 13:21	16°II13'11	-0°05'15	behind sun begin	12543 Jun 10 15:18	28°II16'35	
min. Earth dist.	12537 Nov 26 23:16	16°II12'30	29.23847 AU	behind sun end	12543 Jun 10 21:08	28°II17'06	
direct	12538 Feb 14 23:16	14°II49'09		max. Earth dist.	12543 Jun 10 09:40	28°II16'03	31.18993 AU
evening set	12538 May 15 02:34	16°II43'49		morning rise	12543 Jun 26 05:25	28°II51'33	
					12543 Jul 31 00:38	0°☾	
conjunction	12538 May 30 15:31	17°II18'33	-0°05'44	retrograde	12543 Sep 22 08:36	0°☾45'55	
minimum elong	12538 May 30 15:31	17°II18'33	0°06'36		12543 Nov 17 05:34	30°☾II	
behind sun begin	12538 May 30 09:29	17°II18'01		opposition	12543 Dec 10 14:34	29°II23'10	-0°15'23
behind sun end	12538 May 30 21:33	17°II19'06		min. Earth dist.	12543 Dec 10 21:45	29°II22'41	29.18384 AU
max. Earth dist.	12538 May 30 06:03	17°II17'41	31.23482 AU	direct	12544 Feb 28 23:16	27°II59'18	
morning rise	12538 Jun 15 03:09	17°II53'12		evening set	12544 May 27 16:42	29°II54'02	
retrograde	12538 Sep 10 23:21	19°II46'59			12544 May 30 09:24	0°☾	
opposition	12538 Nov 29 01:11	18°II24'22	-0°06'58				
min. Earth dist.	12538 Nov 29 10:06	18°II23'46	29.23118 AU	conjunction	12544 Jun 12 04:31	0°☾28'48	-0°15'08
direct	12539 Feb 17 11:39	17°II00'23		minimum elong	12544 Jun 12 04:31	0°☾28'48	0°16'03
evening set	12539 May 17 12:56	18°II55'06		behind sun begin	12544 Jun 12 03:43	0°☾28'44	
				behind sun end	12544 Jun 12 05:19	0°☾28'52	
conjunction	12539 Jun 02 01:32	19°II29'50	-0°07'20	max. Earth dist.	12544 Jun 11 20:37	0°☾28'04	31.17736 AU
minimum elong	12539 Jun 02 01:32	19°II29'50	0°08'14	morning rise	12544 Jun 27 15:35	1°☾03'31	
behind sun begin	12539 Jun 01 19:49	19°II29'19		retrograde	12544 Sep 23 18:38	2°☾57'59	
behind sun end	12539 Jun 02 07:14	19°II30'21		opposition	12544 Dec 12 03:07	1°☾35'08	-0°17'00
max. Earth dist.	12539 Jun 01 15:37	19°II28'55	31.22747 AU	min. Earth dist.	12544 Dec 12 10:56	1°☾34'36	29.17082 AU
morning rise	12539 Jun 17 13:10	20°II04'30		direct	12545 Mar 02 10:12	0°☾11'15	
retrograde	12539 Sep 13 11:38	21°II58'25		evening set	12545 May 30 02:53	2°☾05'55	
opposition	12539 Dec 01 13:21	20°II35'47	-0°08'41				
min. Earth dist.	12539 Dec 01 22:10	20°II35'11	29.22373 AU	conjunction	12545 Jun 14 14:36	2°☾40'41	-0°16'38
direct	12540 Feb 19 21:45	19°II11'52		minimum elong	12545 Jun 14 14:36	2°☾40'41	0°17'34
evening set	12540 May 18 23:04	21°II06'36		max. Earth dist.	12545 Jun 14 07:10	2°☾40'00	31.16405 AU
				morning rise	12545 Jun 30 01:39	3°☾15'25	
conjunction	12540 Jun 03 11:37	21°II41'20	-0°08'55	retrograde	12545 Sep 26 05:40	5°☾09'57	
minimum elong	12540 Jun 03 11:37	21°II41'20	0°09'49	opposition	12545 Dec 14 15:27	3°☾47'01	-0°18'36
behind sun begin	12540 Jun 03 06:20	21°II40'52		min. Earth dist.	12545 Dec 14 21:44	3°☾46'36	29.15723 AU

direct	12546 Mar 04 22:01	2°☾23'05	retrograde	12552 Oct 11 16:51	20°☾33'58
evening set	12546 Jun 01 13:12	4°☾17'43	opposition	12552 Dec 30 07:11	19°☾10'41 -0°28'56
			min. Earth dist.	12552 Dec 30 08:27	19°☾10'36 29.08211 AU
conjunction	12546 Jun 17 00:44	4°☾52'29 -0°18'07	direct	12553 Mar 20 07:24	17°☾46'50
minimum elong	12546 Jun 17 00:43	4°☾52'29 0°19'02	evening set	12553 Jun 16 13:06	19°☾41'28
max. Earth dist.	12546 Jun 16 17:30	4°☾51'48 31.15041 AU			
morning rise	12546 Jul 02 11:47	5°☾27'13	conjunction	12553 Jul 02 00:04	20°☾16'17 -0°27'39
retrograde	12546 Sep 28 16:33	7°☾21'50	minimum elong	12553 Jul 02 00:04	20°☾16'17 0°28'34
opposition	12546 Dec 17 03:48	5°☾58'48 -0°20'10	max. Earth dist.	12553 Jul 01 22:20	20°☾16'07 31.07734 AU
min. Earth dist.	12546 Dec 17 10:21	5°☾58'22 29.14388 AU	morning rise	12553 Jul 17 11:03	20°☾51'08
direct	12547 Mar 07 08:45	4°☾34'50	retrograde	12553 Oct 14 04:15	22°☾46'36
evening set	12547 Jun 03 23:23	6°☾29'26	opposition	12554 Jan 01 20:06	21°☾23'18 -0°30'16
			min. Earth dist.	12554 Jan 01 21:57	21°☾23'11 29.07262 AU
conjunction	12547 Jun 19 10:53	7°☾04'12 -0°19'34	direct	12554 Mar 22 18:34	19°☾59'30
minimum elong	12547 Jun 19 10:53	7°☾04'12 0°20'30	evening set	12554 Jun 18 23:41	21°☾54'08
max. Earth dist.	12547 Jun 19 05:12	7°☾03'40 31.13742 AU			
morning rise	12547 Jul 04 21:47	7°☾38'56	conjunction	12554 Jul 04 10:37	22°☾28'58 -0°28'52
retrograde	12547 Oct 01 03:48	9°☾33'39	minimum elong	12554 Jul 04 10:37	22°☾28'58 0°29'45
opposition	12547 Dec 19 16:14	8°☾10'32 -0°21'43	max. Earth dist.	12554 Jul 04 09:18	22°☾28'51 31.06751 AU
min. Earth dist.	12547 Dec 19 21:20	8°☾10'11 29.13130 AU	morning rise	12554 Jul 19 21:38	23°☾03'50
direct	12548 Mar 08 20:41	6°☾46'32	retrograde	12554 Oct 16 16:12	24°☾59'27
evening set	12548 Jun 05 09:35	8°☾41'07	opposition	12555 Jan 04 08:48	23°☾36'08 -0°31'33
			min. Earth dist.	12555 Jan 04 09:16	23°☾36'06 29.06226 AU
conjunction	12548 Jun 20 20:49	9°☾15'53 -0°20'59	direct	12555 Mar 25 06:35	22°☾12'20
minimum elong	12548 Jun 20 20:49	9°☾15'53 0°21'55	evening set	12555 Jun 21 10:25	24°☾07'00
max. Earth dist.	12548 Jun 20 15:05	9°☾15'21 31.12541 AU			
morning rise	12548 Jul 06 07:50	9°☾50'38	conjunction	12555 Jul 06 21:13	24°☾41'50 -0°30'03
retrograde	12548 Oct 02 16:16	11°☾45'28	minimum elong	12555 Jul 06 21:13	24°☾41'50 0°30'56
opposition	12548 Dec 21 04:47	10°☾22'17 -0°23'13	max. Earth dist.	12555 Jul 06 19:44	24°☾41'42 31.05657 AU
min. Earth dist.	12548 Dec 21 09:18	10°☾21'59 29.11998 AU	morning rise	12555 Jul 22 08:20	25°☾16'44
direct	12549 Mar 11 06:41	8°☾58'17	retrograde	12555 Oct 19 03:56	27°☾12'29
evening set	12549 Jun 07 19:43	10°☾52'52	opposition	12556 Jan 06 21:54	25°☾49'06 -0°32'47
			min. Earth dist.	12556 Jan 06 22:54	25°☾49'02 29.05084 AU
conjunction	12549 Jun 23 07:03	11°☾27'38 -0°22'23	direct	12556 Mar 26 17:08	24°☾25'20
minimum elong	12549 Jun 23 07:02	11°☾27'38 0°23'19	evening set	12556 Jun 22 20:55	26°☾19'59
max. Earth dist.	12549 Jun 23 03:10	11°☾27'17 31.11462 AU			
morning rise	12549 Jul 08 17:53	12°☾02'24	conjunction	12556 Jul 08 07:51	26°☾54'50 -0°31'11
retrograde	12549 Oct 05 03:43	13°☾57'20	minimum elong	12556 Jul 08 07:51	26°☾54'50 0°32'03
opposition	12549 Dec 23 17:11	12°☾34'07 -0°24'42	max. Earth dist.	12556 Jul 08 07:33	26°☾54'49 31.04460 AU
min. Earth dist.	12549 Dec 23 20:57	12°☾33'52 29.10965 AU	morning rise	12556 Jul 23 18:56	27°☾29'44
direct	12550 Mar 13 19:45	11°☾10'08	retrograde	12556 Oct 20 15:36	29°☾25'37
evening set	12550 Jun 10 06:03	13°☾04'44	opposition	12557 Jan 08 10:53	28°☾02'11 -0°33'58
			min. Earth dist.	12557 Jan 08 10:51	28°☾02'11 29.03826 AU
conjunction	12550 Jun 25 17:09	13°☾39'31 -0°23'45	direct	12557 Mar 29 05:03	26°☾38'23
minimum elong	12550 Jun 25 17:09	13°☾39'31 0°24'41	evening set	12557 Jun 25 07:40	28°☾33'01
max. Earth dist.	12550 Jun 25 12:57	13°☾39'07 31.10482 AU			
morning rise	12550 Jul 11 04:11	14°☾14'18	conjunction	12557 Jul 10 18:27	29°☾07'53 -0°32'17
retrograde	12550 Oct 07 17:35	16°☾09'21	minimum elong	12557 Jul 10 18:27	29°☾07'53 0°33'08
opposition	12550 Dec 26 05:45	14°☾46'06 -0°26'09	max. Earth dist.	12557 Jul 10 17:37	29°☾07'48 31.03164 AU
min. Earth dist.	12550 Dec 26 08:22	14°☾45'55 29.10022 AU	morning rise	12557 Jul 26 05:47	29°☾42'48
direct	12551 Mar 16 07:24	13°☾22'09		12557 Aug 03 02:58	0°♈
evening set	12551 Jun 12 16:17	15°☾16'46	retrograde	12557 Oct 23 04:35	1°♈38'47
			opposition	12558 Jan 10 23:44	0°♈15'16 -0°35'07
conjunction	12551 Jun 28 03:24	15°☾51'33 -0°25'05	min. Earth dist.	12558 Jan 10 23:39	0°♈15'16 29.02509 AU
minimum elong	12551 Jun 28 03:24	15°☾51'33 0°26'01		12558 Jan 20 08:08	30°♈☾
max. Earth dist.	12551 Jun 28 00:50	15°☾51'19 31.09554 AU	direct	12558 Mar 31 15:08	28°☾51'27
morning rise	12551 Jul 13 14:16	16°☾26'21		12558 Jun 05 15:47	0°♈
retrograde	12551 Oct 10 04:24	18°☾21'33	evening set	12558 Jun 27 18:12	0°♈46'04
opposition	12551 Dec 28 18:29	16°☾58'17 -0°27'34			
min. Earth dist.	12551 Dec 28 21:13	16°☾58'06 29.09110 AU	conjunction	12558 Jul 13 05:11	1°♈20'56 -0°33'19
direct	12552 Mar 17 19:27	15°☾34'23	minimum elong	12558 Jul 13 05:11	1°♈20'56 0°34'10
evening set	12552 Jun 14 02:43	17°☾29'00	max. Earth dist.	12558 Jul 13 05:57	1°♈21'00 31.01831 AU
			morning rise	12558 Jul 28 16:27	1°♈55'52
conjunction	12552 Jun 29 13:41	18°☾03'49 -0°26'23	retrograde	12558 Oct 25 16:37	3°♈51'57
minimum elong	12552 Jun 29 13:41	18°☾03'49 0°27'18	opposition	12559 Jan 13 12:41	2°♈28'20 -0°36'12
max. Earth dist.	12552 Jun 29 11:09	18°☾03'34 31.08659 AU	min. Earth dist.	12559 Jan 13 11:57	2°♈28'23 29.01178 AU
morning rise	12552 Jul 15 00:41	18°☾38'38	direct	12559 Apr 03 04:39	1°♈04'30

evening set	12559 Jun 30 04:49	2°Ω59'05		max. Earth dist.	12565 Jul 28 14:18	16°Ω54'50	30.94880 AU
				morning rise	12565 Aug 12 20:33	17°Ω29'21	
conjunction	12559 Jul 15 15:37	3°Ω33'58 -0°34'19		retrograde	12565 Nov 10 07:42	19°Ω26'15	
minimum elong	12559 Jul 15 15:37	3°Ω33'58 0°35'09		opposition	12566 Jan 29 07:45	18°Ω02'21 -0°42'15	
max. Earth dist.	12559 Jul 15 16:08	3°Ω34'01 31.00531 AU		min. Earth dist.	12566 Jan 29 01:40	18°Ω02'46 28.94501 AU	
morning rise	12559 Jul 31 03:08	4°Ω08'55		direct	12566 Apr 18 15:56	16°Ω38'40	
retrograde	12559 Oct 28 06:59	6°Ω05'06		evening set	12566 Jul 15 08:06	18°Ω33'15	
opposition	12560 Jan 16 01:39	4°Ω41'24 -0°37'14					
min. Earth dist.	12560 Jan 15 23:41	4°Ω41'33 28.99927 AU		conjunction	12566 Jul 30 19:23	19°Ω08'15 -0°39'47	
direct	12560 Apr 04 16:29	3°Ω17'33		minimum elong	12566 Jul 30 19:23	19°Ω08'15 0°40'28	
evening set	12560 Jul 01 15:22	5°Ω12'08		max. Earth dist.	12566 Jul 31 00:49	19°Ω08'46 30.94084 AU	
				morning rise	12566 Aug 15 07:59	19°Ω43'23	
conjunction	12560 Jul 17 02:19	5°Ω47'02 -0°35'15		retrograde	12566 Nov 12 21:23	21°Ω40'24	
minimum elong	12560 Jul 17 02:19	5°Ω47'02 0°36'04		opposition	12567 Jan 31 21:03	20°Ω16'28 -0°42'52	
max. Earth dist.	12560 Jul 17 04:33	5°Ω47'15 30.99324 AU		min. Earth dist.	12567 Jan 31 15:02	20°Ω16'53 28.93683 AU	
morning rise	12560 Aug 01 13:49	6°Ω22'00		direct	12567 Apr 21 02:16	18°Ω52'48	
retrograde	12560 Oct 29 18:08	8°Ω18'18		evening set	12567 Jul 17 19:05	20°Ω47'23	
opposition	12561 Jan 17 14:39	6°Ω54'32 -0°38'13					
min. Earth dist.	12561 Jan 17 12:32	6°Ω54'41 28.98785 AU		conjunction	12567 Aug 02 06:38	21°Ω22'24 -0°40'20	
direct	12561 Apr 07 04:22	5°Ω30'41		minimum elong	12567 Aug 02 06:38	21°Ω22'24 0°41'00	
evening set	12561 Jul 04 01:58	7°Ω25'15		max. Earth dist.	12567 Aug 02 13:27	21°Ω23'03 30.93216 AU	
				morning rise	12567 Aug 17 19:14	21°Ω57'33	
conjunction	12561 Jul 19 12:54	8°Ω00'10 -0°36'09		retrograde	12567 Nov 15 09:25	23°Ω54'41	
minimum elong	12561 Jul 19 12:55	8°Ω00'10 0°36'57		opposition	12568 Feb 03 10:25	22°Ω30'43 -0°43'26	
max. Earth dist.	12561 Jul 19 15:27	8°Ω00'24 30.98253 AU		min. Earth dist.	12568 Feb 03 04:01	22°Ω31'09 28.92760 AU	
morning rise	12561 Aug 04 00:39	8°Ω35'10		direct	12568 Apr 22 15:10	21°Ω07'03	
retrograde	12561 Nov 01 07:35	10°Ω31'33		evening set	12568 Jul 19 06:25	23°Ω01'38	
opposition	12562 Jan 20 03:31	9°Ω07'45 -0°39'09					
min. Earth dist.	12562 Jan 19 23:41	9°Ω08'01 28.97772 AU		conjunction	12568 Aug 03 17:57	23°Ω36'39 -0°40'49	
direct	12562 Apr 09 17:17	7°Ω43'55		minimum elong	12568 Aug 03 17:57	23°Ω36'39 0°41'27	
evening set	12562 Jul 06 12:37	9°Ω38'29		max. Earth dist.	12568 Aug 03 23:56	23°Ω37'13 30.92244 AU	
				morning rise	12568 Aug 19 06:56	24°Ω11'49	
conjunction	12562 Jul 21 23:37	10°Ω13'25 -0°36'59		retrograde	12568 Nov 16 23:58	26°Ω09'04	
minimum elong	12562 Jul 21 23:37	10°Ω13'25 0°37'45		opposition	12569 Feb 04 23:41	24°Ω45'01 -0°43'55	
max. Earth dist.	12562 Jul 22 03:11	10°Ω13'46 30.97287 AU		min. Earth dist.	12569 Feb 04 16:42	24°Ω45'29 28.91736 AU	
morning rise	12562 Aug 06 11:27	10°Ω48'26		direct	12569 Apr 25 02:19	23°Ω21'19	
retrograde	12562 Nov 03 20:07	12°Ω44'58		evening set	12569 Jul 21 17:35	25°Ω15'53	
opposition	12563 Jan 22 16:31	11°Ω21'07 -0°40'01					
min. Earth dist.	12563 Jan 22 12:57	11°Ω21'22 28.96865 AU		conjunction	12569 Aug 06 05:25	25°Ω50'56 -0°41'15	
direct	12563 Apr 12 05:15	9°Ω57'19		minimum elong	12569 Aug 06 05:25	25°Ω50'56 0°41'51	
evening set	12563 Jul 08 23:20	11°Ω51'54		max. Earth dist.	12569 Aug 06 12:28	25°Ω51'36 30.91158 AU	
				morning rise	12569 Aug 21 18:31	26°Ω26'07	
conjunction	12563 Jul 24 10:27	12°Ω26'51 -0°37'46		retrograde	12569 Nov 19 11:55	28°Ω23'26	
minimum elong	12563 Jul 24 10:27	12°Ω26'51 0°38'32		opposition	12570 Feb 07 13:01	26°Ω59'18 -0°44'20	
max. Earth dist.	12563 Jul 24 14:53	12°Ω27'16 30.96437 AU		min. Earth dist.	12570 Feb 07 06:23	26°Ω59'45 28.90602 AU	
morning rise	12563 Aug 08 22:25	13°Ω01'53		direct	12570 Apr 27 14:42	25°Ω35'35	
retrograde	12563 Nov 06 08:16	14°Ω58'32		evening set	12570 Jul 24 04:48	27°Ω30'06	
opposition	12564 Jan 25 05:32	13°Ω34'40 -0°40'49					
min. Earth dist.	12564 Jan 25 00:10	13°Ω35'02 28.96046 AU		conjunction	12570 Aug 08 16:43	28°Ω05'10 -0°41'37	
direct	12564 Apr 13 17:43	12°Ω10'55		minimum elong	12570 Aug 08 16:43	28°Ω05'10 0°42'11	
evening set	12564 Jul 10 10:04	14°Ω05'29		max. Earth dist.	12570 Aug 08 23:39	28°Ω05'49 30.90004 AU	
				morning rise	12570 Aug 24 06:07	28°Ω40'22	
conjunction	12564 Jul 25 21:11	14°Ω40'27 -0°38'30			12570 Oct 04 15:55	0°൬	
minimum elong	12564 Jul 25 21:11	14°Ω40'27 0°39'13		retrograde	12570 Nov 22 02:21	0°൬37'44	
max. Earth dist.	12564 Jul 26 01:49	14°Ω40'53 30.95643 AU			12571 Jan 11 06:04	30°᠙᠔	
	12564 Aug 03 11:27	15°Ω		opposition	12571 Feb 10 02:09	29°Ω13'31 -0°44'42	
morning rise	12564 Aug 10 09:24	15°Ω15'32		min. Earth dist.	12571 Feb 09 18:16	29°Ω14'03 28.89434 AU	
retrograde	12564 Nov 07 19:53	17°Ω12'18		direct	12571 Apr 30 04:08	27°Ω49'46	
opposition	12565 Jan 26 18:45	15°Ω48'25 -0°41'34		evening set	12571 Jul 26 16:00	29°Ω44'15	
min. Earth dist.	12565 Jan 26 13:43	15°Ω48'46 28.95278 AU			12571 Aug 02 16:26	0°൬	
	12565 Feb 27 02:25	15°᠙᠔					
direct	12565 Apr 16 04:11	14°Ω24'42		conjunction	12571 Aug 11 04:05	0°൬19'20 -0°41'55	
	12565 Jun 01 09:06	15°Ω		minimum elong	12571 Aug 11 04:05	0°൬19'20 0°42'28	
evening set	12565 Jul 12 20:56	16°Ω19'16		max. Earth dist.	12571 Aug 11 11:50	0°൬20'04 30.88837 AU	
				morning rise	12571 Aug 26 17:42	0°൬54'33	
conjunction	12565 Jul 28 08:17	16°Ω54'16 -0°39'10		retrograde	12571 Nov 24 15:14	2°൬52'00	
minimum elong	12565 Jul 28 08:17	16°Ω54'16 0°39'53		opposition	12572 Feb 12 15:29	1°൬27'41 -0°44'59	

min. Earth dist.	12572 Feb 12 07:59	1° \mathring{M} 28'12	28.88300 AU	morning rise	12578 Sep 11 04:19	16° \mathring{M} 35'50	
direct	12572 May 01 16:39	0° \mathring{M} 03'54		retrograde	12578 Dec 10 08:27	18° \mathring{M} 33'56	
evening set	12572 Jul 28 03:03	1° \mathring{M} 58'21		opposition	12579 Feb 28 11:28	17° \mathring{M} 09'26	-0°45'06
				min. Earth dist.	12579 Feb 27 23:55	17° \mathring{M} 10'14	28.83249 AU
conjunction	12572 Aug 12 15:23	2° \mathring{M} 33'27	-0°42'10	direct	12579 May 18 01:19	15° \mathring{M} 45'48	
minimum elong	12572 Aug 12 15:23	2° \mathring{M} 33'27	0°42'40	evening set	12579 Aug 13 10:59	17° \mathring{M} 40'18	
max. Earth dist.	12572 Aug 12 23:59	2° \mathring{M} 34'16	30.87748 AU				
morning rise	12572 Aug 28 05:14	3° \mathring{M} 08'42		conjunction	12579 Aug 29 00:47	18° \mathring{M} 15'33	-0°42'03
retrograde	12572 Nov 26 03:57	5° \mathring{M} 06'13		minimum elong	12579 Aug 29 00:47	18° \mathring{M} 15'33	0°42'20
opposition	12573 Feb 14 04:34	3° \mathring{M} 41'50	-0°45'12	max. Earth dist.	12579 Aug 29 12:52	18° \mathring{M} 16'42	30.82958 AU
min. Earth dist.	12573 Feb 13 19:20	3° \mathring{M} 42'28	28.87257 AU	morning rise	12579 Sep 13 16:38	18° \mathring{M} 51'01	
direct	12573 May 04 05:47	2° \mathring{M} 18'02		retrograde	12579 Dec 13 00:03	20° \mathring{M} 49'13	
evening set	12573 Jul 30 14:22	4° \mathring{M} 12'28		opposition	12580 Mar 02 00:40	19° \mathring{M} 24'40	-0°44'50
				min. Earth dist.	12580 Mar 01 12:10	19° \mathring{M} 25'32	28.82693 AU
conjunction	12573 Aug 15 02:47	4° \mathring{M} 47'35	-0°42'20	direct	12580 May 19 14:29	18° \mathring{M} 01'03	
minimum elong	12573 Aug 15 02:47	4° \mathring{M} 47'35	0°42'49	evening set	12580 Aug 14 22:46	19° \mathring{M} 55'34	
max. Earth dist.	12573 Aug 15 11:30	4° \mathring{M} 48'25	30.86755 AU				
morning rise	12573 Aug 30 16:58	5° \mathring{M} 22'53		conjunction	12580 Aug 30 12:52	20° \mathring{M} 30'51	-0°41'46
retrograde	12573 Nov 28 16:03	7° \mathring{M} 20'28		minimum elong	12580 Aug 30 12:52	20° \mathring{M} 30'51	0°42'01
opposition	12574 Feb 16 17:40	5° \mathring{M} 56'02	-0°45'22	max. Earth dist.	12580 Aug 31 01:18	20° \mathring{M} 32'01	30.82352 AU
min. Earth dist.	12574 Feb 16 08:41	5° \mathring{M} 56'39	28.86336 AU	morning rise	12580 Sep 15 05:01	21° \mathring{M} 06'20	
direct	12574 May 06 16:52	4° \mathring{M} 32'14		retrograde	12580 Dec 14 13:25	23° \mathring{M} 04'36	
evening set	12574 Aug 02 01:34	6° \mathring{M} 26'40		opposition	12581 Mar 04 14:01	21° \mathring{M} 40'01	-0°44'30
				min. Earth dist.	12581 Mar 04 02:26	21° \mathring{M} 40'49	28.82043 AU
conjunction	12574 Aug 17 14:20	7° \mathring{M} 01'49	-0°42'27	direct	12581 May 22 02:49	20° \mathring{M} 16'24	
minimum elong	12574 Aug 17 14:20	7° \mathring{M} 01'49	0°42'54	evening set	12581 Aug 17 10:40	22° \mathring{M} 10'53	
max. Earth dist.	12574 Aug 18 00:35	7° \mathring{M} 02'47	30.85901 AU				
morning rise	12574 Sep 02 04:38	7° \mathring{M} 37'07		conjunction	12581 Sep 02 01:06	22° \mathring{M} 46'11	-0°41'26
retrograde	12574 Dec 01 04:22	9° \mathring{M} 34'49		minimum elong	12581 Sep 02 01:06	22° \mathring{M} 46'11	0°41'38
opposition	12575 Feb 19 06:46	8° \mathring{M} 10'20	-0°45'27	max. Earth dist.	12581 Sep 02 13:38	22° \mathring{M} 47'22	30.81660 AU
min. Earth dist.	12575 Feb 18 20:22	8° \mathring{M} 11'03	28.85538 AU	morning rise	12581 Sep 17 17:32	23° \mathring{M} 21'42	
direct	12575 May 09 05:08	6° \mathring{M} 46'34		retrograde	12581 Dec 17 03:12	25° \mathring{M} 20'00	
evening set	12575 Aug 04 12:51	8° \mathring{M} 41'00		opposition	12582 Mar 07 03:01	23° \mathring{M} 55'22	-0°44'06
				min. Earth dist.	12582 Mar 06 14:20	23° \mathring{M} 56'14	28.81300 AU
conjunction	12575 Aug 20 01:39	9° \mathring{M} 16'10	-0°42'30	direct	12582 May 24 16:19	22° \mathring{M} 31'42	
minimum elong	12575 Aug 20 01:40	9° \mathring{M} 16'10	0°42'55	evening set	12582 Aug 19 22:36	24° \mathring{M} 26'09	
max. Earth dist.	12575 Aug 20 11:41	9° \mathring{M} 17'07	30.85168 AU				
morning rise	12575 Sep 04 16:24	9° \mathring{M} 51'30		conjunction	12582 Sep 04 13:13	25° \mathring{M} 01'29	-0°41'02
retrograde	12575 Dec 03 17:39	11° \mathring{M} 49'18		minimum elong	12582 Sep 04 13:14	25° \mathring{M} 01'29	0°41'12
opposition	12576 Feb 21 20:02	10° \mathring{M} 24'48	-0°45'28	max. Earth dist.	12582 Sep 05 01:23	25° \mathring{M} 02'38	30.80883 AU
min. Earth dist.	12576 Feb 21 09:27	10° \mathring{M} 25'32	28.84871 AU	morning rise	12582 Sep 20 06:04	25° \mathring{M} 37'01	
direct	12576 May 10 15:32	9° \mathring{M} 01'04		retrograde	12582 Dec 19 16:43	27° \mathring{M} 35'20	
evening set	12576 Aug 06 00:10	10° \mathring{M} 55'31		opposition	12583 Mar 09 16:18	26° \mathring{M} 10'37	-0°43'38
				min. Earth dist.	12583 Mar 09 04:21	26° \mathring{M} 11'26	28.80510 AU
conjunction	12576 Aug 21 13:22	11° \mathring{M} 30'42	-0°42'29	direct	12583 May 27 04:48	24° \mathring{M} 46'55	
minimum elong	12576 Aug 21 13:22	11° \mathring{M} 30'42	0°42'53	evening set	12583 Aug 22 10:15	26° \mathring{M} 41'18	
max. Earth dist.	12576 Aug 22 01:05	11° \mathring{M} 31'48	30.84548 AU				
morning rise	12576 Sep 06 04:14	12° \mathring{M} 06'04		conjunction	12583 Sep 07 01:19	27° \mathring{M} 16'39	-0°40'34
retrograde	12576 Dec 05 05:23	14° \mathring{M} 03'58		minimum elong	12583 Sep 07 01:19	27° \mathring{M} 16'39	0°40'43
opposition	12577 Feb 23 09:05	12° \mathring{M} 39'28	-0°45'25	max. Earth dist.	12583 Sep 07 14:40	27° \mathring{M} 17'55	30.80097 AU
min. Earth dist.	12577 Feb 22 21:53	12° \mathring{M} 40'15	28.84290 AU	morning rise	12583 Sep 22 18:23	27° \mathring{M} 52'13	
direct	12577 May 13 03:35	11° \mathring{M} 15'46		retrograde	12583 Dec 22 05:50	29° \mathring{M} 50'32	
evening set	12577 Aug 08 11:42	13° \mathring{M} 10'14		opposition	12584 Mar 11 05:21	28° \mathring{M} 25'44	-0°43'07
				min. Earth dist.	12584 Mar 10 16:17	28° \mathring{M} 26'38	28.79733 AU
conjunction	12577 Aug 24 01:00	13° \mathring{M} 45'26	-0°42'24	direct	12584 May 28 18:47	27° \mathring{M} 01'59	
minimum elong	12577 Aug 24 01:01	13° \mathring{M} 45'26	0°42'46	evening set	12584 Aug 23 22:12	28° \mathring{M} 56'20	
max. Earth dist.	12577 Aug 24 12:09	13° \mathring{M} 46'30	30.84007 AU				
morning rise	12577 Sep 08 16:21	14° \mathring{M} 20'50		conjunction	12584 Sep 08 13:24	29° \mathring{M} 31'41	-0°40'03
retrograde	12577 Dec 07 19:58	16° \mathring{M} 18'51		minimum elong	12584 Sep 08 13:24	29° \mathring{M} 31'41	0°40'09
opposition	12578 Feb 25 22:15	14° \mathring{M} 54'21	-0°45'17	max. Earth dist.	12584 Sep 09 02:14	29° \mathring{M} 32'54	30.79353 AU
min. Earth dist.	12578 Feb 25 10:23	14° \mathring{M} 55'10	28.83773 AU		12584 Sep 21 00:50	0° \mathring{A}	
direct	12578 May 15 13:38	13° \mathring{M} 30'40		morning rise	12584 Sep 24 06:59	0° \mathring{A} 07'17	
evening set	12578 Aug 10 23:14	15° \mathring{M} 25'10		retrograde	12584 Dec 23 18:03	2° \mathring{A} 05'36	
				opposition	12585 Mar 13 18:17	0° \mathring{A} 40'43	-0°42'31
conjunction	12578 Aug 26 12:51	16° \mathring{M} 00'24	-0°42'16	min. Earth dist.	12585 Mar 13 05:25	0° \mathring{A} 41'37	28.79046 AU
minimum elong	12578 Aug 26 12:51	16° \mathring{M} 00'24	0°42'34		12585 Apr 08 05:31	30° \mathring{R} \mathring{M}	
max. Earth dist.	12578 Aug 27 01:15	16° \mathring{M} 01'34	30.83487 AU	direct	12585 May 31 05:49	29° \mathring{M} 16'56	

	12585 Jul 21 03:34	0° <u>♏</u>	retrograde	12592 Jan 09 15:13	17° <u>♏</u> 50'59	
evening set	12585 Aug 26 10:00	1° <u>♏</u> 11'14	opposition	12592 Mar 29 12:24	16° <u>♏</u> 26'02	-0°36'36
			min. Earth dist.	12592 Mar 28 21:29	16° <u>♏</u> 27'04	28.77782 AU
conjunction	12585 Sep 11 01:40	1° <u>♏</u> 46'37 -0°39'28	direct	12592 Jun 15 16:53	15° <u>♏</u> 02'20	
minimum elong	12585 Sep 11 01:40	1° <u>♏</u> 46'37 0°39'32	evening set	12592 Sep 10 22:33	16° <u>♏</u> 56'39	
max. Earth dist.	12585 Sep 11 16:03	1° <u>♏</u> 47'59 30.78716 AU				
morning rise	12585 Sep 26 19:24	2° <u>♏</u> 22'13	conjunction	12592 Sep 26 16:30	17° <u>♏</u> 32'12	-0°33'46
retrograde	12585 Dec 26 05:08	4° <u>♏</u> 20'33	minimum elong	12592 Sep 26 16:30	17° <u>♏</u> 32'12	0°33'35
opposition	12586 Mar 16 07:11	2° <u>♏</u> 55'37 -0°41'52	max. Earth dist.	12592 Sep 27 08:58	17° <u>♏</u> 33'45	30.77775 AU
min. Earth dist.	12586 Mar 15 17:38	2° <u>♏</u> 56'34 28.78470 AU	morning rise	12592 Oct 12 12:39	18° <u>♏</u> 07'58	
direct	12586 Jun 02 18:32	1° <u>♏</u> 31'48	retrograde	12593 Jan 11 05:17	20° <u>♏</u> 06'32	
evening set	12586 Aug 28 21:52	3° <u>♏</u> 26'04	min. Earth dist.	12593 Mar 31 09:32	18° <u>♏</u> 42'41	28.77792 AU
			opposition	12593 Apr 01 01:05	18° <u>♏</u> 41'36	-0°35'31
conjunction	12586 Sep 13 13:40	4° <u>♏</u> 01'28 -0°38'50	direct	12593 Jun 18 06:44	17° <u>♏</u> 17'55	
minimum elong	12586 Sep 13 13:40	4° <u>♏</u> 01'28 0°38'52	evening set	12593 Sep 13 11:12	19° <u>♏</u> 12'15	
max. Earth dist.	12586 Sep 14 03:31	4° <u>♏</u> 02'47 30.78217 AU				
morning rise	12586 Sep 29 07:53	4° <u>♏</u> 37'06	conjunction	12593 Sep 29 05:19	19° <u>♏</u> 47'49	-0°32'43
retrograde	12586 Dec 28 19:06	6° <u>♏</u> 35'27	minimum elong	12593 Sep 29 05:20	19° <u>♏</u> 47'49	0°32'30
opposition	12587 Mar 18 20:06	5° <u>♏</u> 10'28 -0°41'09	max. Earth dist.	12593 Sep 29 20:38	19° <u>♏</u> 49'16	30.77744 AU
min. Earth dist.	12587 Mar 18 05:48	5° <u>♏</u> 11'28 28.78053 AU	morning rise	12593 Oct 15 01:59	20° <u>♏</u> 23'37	
direct	12587 Jun 05 04:54	3° <u>♏</u> 46'38	retrograde	12594 Jan 13 18:29	22° <u>♏</u> 22'11	
evening set	12587 Aug 31 09:43	5° <u>♏</u> 40'53	opposition	12594 Apr 03 13:59	20° <u>♏</u> 57'15	-0°34'23
			min. Earth dist.	12594 Apr 02 23:13	20° <u>♏</u> 58'17	28.77724 AU
conjunction	12587 Sep 16 01:58	6° <u>♏</u> 16'18 -0°38'08	direct	12594 Jun 20 17:57	19° <u>♏</u> 33'34	
minimum elong	12587 Sep 16 01:58	6° <u>♏</u> 16'19 0°38'07	evening set	12594 Sep 15 23:32	21° <u>♏</u> 27'52	
max. Earth dist.	12587 Sep 16 17:14	6° <u>♏</u> 17'45 30.77872 AU				
morning rise	12587 Oct 01 20:23	6° <u>♏</u> 51'58	conjunction	12594 Oct 01 18:10	22° <u>♏</u> 03'27	-0°31'38
retrograde	12587 Dec 31 06:39	8° <u>♏</u> 50'21	minimum elong	12594 Oct 01 18:10	22° <u>♏</u> 03'27	0°31'23
opposition	12588 Mar 20 08:59	7° <u>♏</u> 25'20 -0°40'22	max. Earth dist.	12594 Oct 02 10:25	22° <u>♏</u> 05'00	30.77634 AU
min. Earth dist.	12588 Mar 19 18:41	7° <u>♏</u> 26'20 28.77785 AU	morning rise	12594 Oct 17 14:59	22° <u>♏</u> 39'17	
direct	12588 Jun 06 16:48	6° <u>♏</u> 01'31	retrograde	12595 Jan 16 06:33	24° <u>♏</u> 37'50	
evening set	12588 Sep 01 21:40	7° <u>♏</u> 55'46	min. Earth dist.	12595 Apr 05 11:50	23° <u>♏</u> 13'55	28.77575 AU
			opposition	12595 Apr 06 02:44	23° <u>♏</u> 12'53	-0°33'11
conjunction	12588 Sep 17 14:12	8° <u>♏</u> 31'12 -0°37'22	direct	12595 Jun 23 07:17	21° <u>♏</u> 49'10	
minimum elong	12588 Sep 17 14:12	8° <u>♏</u> 31'12 0°37'20	evening set	12595 Sep 18 12:08	23° <u>♏</u> 43'27	
max. Earth dist.	12588 Sep 18 05:20	8° <u>♏</u> 32'38 30.77689 AU				
morning rise	12588 Oct 03 09:06	9° <u>♏</u> 06'52	conjunction	12595 Oct 04 06:59	24° <u>♏</u> 19'03	-0°30'30
retrograde	12589 Jan 01 21:13	11° <u>♏</u> 05'18	minimum elong	12595 Oct 04 06:59	24° <u>♏</u> 19'03	0°30'12
opposition	12589 Mar 22 21:47	9° <u>♏</u> 40'17 -0°39'31	max. Earth dist.	12595 Oct 04 22:04	24° <u>♏</u> 20'29	30.77480 AU
min. Earth dist.	12589 Mar 22 06:21	9° <u>♏</u> 41'21 28.77667 AU	morning rise	12595 Oct 20 04:20	24° <u>♏</u> 54'54	
direct	12589 Jun 09 04:40	8° <u>♏</u> 16'28	retrograde	12596 Jan 18 20:41	26° <u>♏</u> 53'25	
evening set	12589 Sep 04 09:45	10° <u>♏</u> 10'44	opposition	12596 Apr 07 15:21	25° <u>♏</u> 28'26	-0°31'57
			min. Earth dist.	12596 Apr 07 00:24	25° <u>♏</u> 29'28	28.77424 AU
conjunction	12589 Sep 20 02:36	10° <u>♏</u> 46'12 -0°36'33	direct	12596 Jun 24 18:05	24° <u>♏</u> 04'41	
minimum elong	12589 Sep 20 02:36	10° <u>♏</u> 46'12 0°36'28	evening set	12596 Sep 20 00:34	25° <u>♏</u> 58'56	
max. Earth dist.	12589 Sep 20 18:26	10° <u>♏</u> 47'42 30.77621 AU				
morning rise	12589 Oct 05 21:47	11° <u>♏</u> 21'54	conjunction	12596 Oct 05 19:54	26° <u>♏</u> 34'33	-0°29'19
retrograde	12590 Jan 04 09:55	13° <u>♏</u> 20'22	minimum elong	12596 Oct 05 19:54	26° <u>♏</u> 34'33	0°29'00
opposition	12590 Mar 25 10:36	11° <u>♏</u> 55'22 -0°38'36	max. Earth dist.	12596 Oct 06 11:57	26° <u>♏</u> 36'04	30.77332 AU
min. Earth dist.	12590 Mar 24 19:54	11° <u>♏</u> 56'23 28.77653 AU	morning rise	12596 Oct 21 17:29	27° <u>♏</u> 10'25	
direct	12590 Jun 11 15:50	10° <u>♏</u> 31'35	retrograde	12597 Jan 20 07:20	29° <u>♏</u> 08'54	
evening set	12590 Sep 06 21:53	12° <u>♏</u> 25'52	opposition	12597 Apr 10 03:55	27° <u>♏</u> 43'52	-0°30'40
			min. Earth dist.	12597 Apr 09 13:21	27° <u>♏</u> 44'54	28.77296 AU
conjunction	12590 Sep 22 15:07	13° <u>♏</u> 01'21 -0°35'41	direct	12597 Jun 27 06:33	26° <u>♏</u> 20'06	
minimum elong	12590 Sep 22 15:07	13° <u>♏</u> 01'21 0°35'34	evening set	12597 Sep 22 13:06	28° <u>♏</u> 14'19	
max. Earth dist.	12590 Sep 23 07:16	13° <u>♏</u> 02'53 30.77659 AU				
morning rise	12590 Oct 08 10:38	13° <u>♏</u> 37'04	conjunction	12597 Oct 08 08:42	28° <u>♏</u> 49'57	-0°28'06
retrograde	12591 Jan 07 00:46	15° <u>♏</u> 35'35	minimum elong	12597 Oct 08 08:42	28° <u>♏</u> 49'57	0°27'43
opposition	12591 Mar 27 23:25	14° <u>♏</u> 10'36 -0°37'38	max. Earth dist.	12597 Oct 09 00:10	28° <u>♏</u> 51'25	30.77250 AU
min. Earth dist.	12591 Mar 27 07:31	14° <u>♏</u> 11'43 28.77713 AU	morning rise	12597 Oct 24 06:41	29° <u>♏</u> 25'50	
direct	12591 Jun 14 04:47	12° <u>♏</u> 46'52		12597 Nov 09 07:27	0° <u>♏</u>	
evening set	12591 Sep 09 10:08	14° <u>♏</u> 41'10	retrograde	12598 Jan 22 20:40	1° <u>♏</u> 24'16	
			opposition	12598 Apr 12 16:18	29° <u>♏</u> 59'13	-0°29'20
conjunction	12591 Sep 25 03:36	15° <u>♏</u> 16'41 -0°34'45	min. Earth dist.	12598 Apr 12 00:55	0° <u>♏</u> 00'18	28.77264 AU
minimum elong	12591 Sep 25 03:36	15° <u>♏</u> 16'41 0°34'35		12598 Apr 12 05:09	30° <u>♏</u>	
max. Earth dist.	12591 Sep 25 19:26	15° <u>♏</u> 18'11 30.77725 AU	direct	12598 Jun 29 18:03	28° <u>♏</u> 35'24	
morning rise	12591 Oct 10 23:32	15° <u>♏</u> 52'26		12598 Sep 11 05:11	0° <u>♏</u>	

evening set	12598 Sep 25 01:37	0° <u>ℓ</u> 29'37	
conjunction	12598 Oct 10 21:34	1° <u>ℓ</u> 05'16	-0°26'50
minimum elong	12598 Oct 10 21:34	1° <u>ℓ</u> 05'16	0°26'26
max. Earth dist.	12598 Oct 11 13:41	1° <u>ℓ</u> 06'47	30.77268 AU
morning rise	12598 Oct 26 19:50	1° <u>ℓ</u> 41'09	
retrograde	12599 Jan 25 08:33	3° <u>ℓ</u> 39'34	
opposition	12599 Apr 15 04:50	2° <u>ℓ</u> 14'30	-0°27'57
min. Earth dist.	12599 Apr 14 14:10	2° <u>ℓ</u> 15'31	28.77354 AU
direct	12599 Jul 02 04:28	0° <u>ℓ</u> 50'39	
evening set	12599 Sep 27 14:01	2° <u>ℓ</u> 44'51	
conjunction	12599 Oct 13 10:23	3° <u>ℓ</u> 20'31	-0°25'32
minimum elong	12599 Oct 13 10:23	3° <u>ℓ</u> 20'31	0°25'06
max. Earth dist.	12599 Oct 14 02:42	3° <u>ℓ</u> 22'03	30.77437 AU
morning rise	12599 Oct 29 09:00	3° <u>ℓ</u> 56'25	
retrograde	12600 Jan 27 22:39	5° <u>ℓ</u> 54'47	
opposition	12600 Apr 17 17:09	4° <u>ℓ</u> 29'43	-0°26'32
min. Earth dist.	12600 Apr 17 01:17	4° <u>ℓ</u> 30'50	28.77589 AU
direct	12600 Jul 04 17:40	3° <u>ℓ</u> 05'52	
evening set	12600 Sep 30 02:42	5° <u>ℓ</u> 00'03	
conjunction	12600 Oct 15 23:19	5° <u>ℓ</u> 35'44	-0°24'11
minimum elong	12600 Oct 15 23:19	5° <u>ℓ</u> 35'44	0°23'44
max. Earth dist.	12600 Oct 16 15:24	5° <u>ℓ</u> 37'15	30.77739 AU
morning rise	12600 Oct 31 22:20	6° <u>ℓ</u> 11'39	
retrograde	12601 Jan 30 12:16	8° <u>ℓ</u> 09'59	
opposition	12601 Apr 20 05:27	6° <u>ℓ</u> 44'56	-0°25'04
min. Earth dist.	12601 Apr 19 14:25	6° <u>ℓ</u> 45'59	28.77969 AU
direct	12601 Jul 07 05:36	5° <u>ℓ</u> 21'05	
evening set	12601 Oct 02 15:16	7° <u>ℓ</u> 15'16	
conjunction	12601 Oct 18 12:22	7° <u>ℓ</u> 50'59	-0°22'48
minimum elong	12601 Oct 18 12:22	7° <u>ℓ</u> 50'59	0°22'18
max. Earth dist.	12601 Oct 19 05:15	7° <u>ℓ</u> 52'34	30.78192 AU
morning rise	12601 Nov 03 11:35	8° <u>ℓ</u> 26'54	