

opposition	12100 Feb 08 12:51	27°♏06'01	-1°49'06	max. Earth dist.	12105 Oct 16 10:25	5°♍01'55	10.58489 AU
min. Earth dist.	12100 Feb 08 02:56	27°♏07'55	8.68735 AU	morning rise	12105 Nov 02 15:57	7°♍07'52	
direct	12100 Apr 18 10:59	23°♏45'18		retrograde	12106 Feb 15 07:20	14°♍47'28	
	12100 Jul 19 03:36	0°♐		opposition	12106 Apr 25 12:33	11°♍22'22	0°49'44
evening set	12100 Jul 28 07:53	1°♐04'55		min. Earth dist.	12106 Apr 25 06:07	11°♍23'37	8.57001 AU
				direct	12106 Jul 02 09:47	8°♍00'11	
conjunction	12100 Aug 14 06:57	3°♐08'31	-1°21'02		12106 Oct 07 20:47	15°♍	
minimum elong	12100 Aug 14 06:59	3°♐08'31	1°21'29	evening set	12106 Oct 11 16:58	15°♍27'35	
max. Earth dist.	12100 Aug 14 18:55	3°♐12'10	10.68427 AU				
morning rise	12100 Aug 31 08:38	5°♐12'50		conjunction	12106 Oct 29 06:16	17°♍36'13	0°51'11
retrograde	12100 Dec 13 06:32	12°♐44'34		minimum elong	12106 Oct 29 06:14	17°♍36'13	0°51'44
opposition	12101 Feb 21 09:01	9°♐20'59	-1°29'07	max. Earth dist.	12106 Oct 29 13:20	17°♍38'24	10.55447 AU
min. Earth dist.	12101 Feb 20 22:25	9°♐23'01	8.68106 AU	morning rise	12106 Nov 15 22:02	19°♍45'38	
direct	12101 May 01 03:09	6°♐00'20		retrograde	12107 Feb 28 11:39	27°♍26'51	
evening set	12101 Aug 09 18:01	13°♐19'21		opposition	12107 May 08 10:10	24°♍01'39	1°16'24
				min. Earth dist.	12107 May 08 05:21	24°♍02'36	8.53921 AU
conjunction	12101 Aug 26 19:31	15°♐23'36	-1°03'04	direct	12107 Jul 15 06:30	20°♍38'51	
minimum elong	12101 Aug 26 19:33	15°♐23'36	1°03'22	evening set	12107 Oct 24 23:45	28°♍09'46	
max. Earth dist.	12101 Aug 27 08:45	15°♐27'38	10.67497 AU		12107 Nov 09 00:16	0°♌	
morning rise	12101 Sep 12 23:48	17°♐28'39					
retrograde	12101 Dec 26 04:38	25°♐01'41		conjunction	12107 Nov 11 14:33	0°♌19'13	1°11'27
opposition	12102 Mar 06 04:39	21°♐37'40	-1°05'01	minimum elong	12107 Nov 11 14:31	0°♌19'12	1°12'09
min. Earth dist.	12102 Mar 05 17:20	21°♐39'51	8.66832 AU	max. Earth dist.	12107 Nov 11 19:06	0°♌20'37	10.52306 AU
direct	12102 May 13 17:53	18°♐16'58		morning rise	12107 Nov 29 07:16	2°♌29'17	
evening set	12102 Aug 22 06:13	25°♐36'06		retrograde	12108 Mar 12 18:43	10°♌11'56	
				opposition	12108 May 20 09:11	6°♌46'42	1°39'31
conjunction	12102 Sep 08 10:19	27°♐41'09	-0°42'11	min. Earth dist.	12108 May 20 06:38	6°♌47'12	8.50794 AU
minimum elong	12102 Sep 08 10:21	27°♐41'09	0°42'18	direct	12108 Jul 27 04:09	3°♌23'11	
max. Earth dist.	12102 Sep 08 23:47	27°♐45'16	10.65946 AU	evening set	12108 Nov 06 10:14	10°♌57'54	
morning rise	12102 Sep 25 17:22	29°♐47'05					
	12102 Sep 27 12:43	0°♑		conjunction	12108 Nov 24 02:06	13°♌08'04	1°28'19
retrograde	12103 Jan 08 03:55	7°♑21'35		minimum elong	12108 Nov 24 02:04	13°♌08'03	1°29'06
opposition	12103 Mar 19 00:05	3°♑57'11	-0°37'50	max. Earth dist.	12108 Nov 24 02:49	13°♌08'17	10.49154 AU
min. Earth dist.	12103 Mar 18 13:05	3°♑59'19	8.64975 AU	morning rise	12108 Dec 11 19:26	15°♌18'44	
direct	12103 May 26 07:03	0°♑36'17		retrograde	12109 Mar 26 02:50	23°♌02'34	
evening set	12103 Sep 03 21:23	7°♑56'25		opposition	12109 Jun 02 09:39	19°♌37'24	1°57'52
				min. Earth dist.	12109 Jun 02 10:17	19°♌37'16	8.47695 AU
conjunction	12103 Sep 21 03:59	10°♑02'19	-0°19'16	direct	12109 Aug 09 04:46	16°♌13'07	
minimum elong	12103 Sep 21 04:00	10°♑02'19	0°19'12	evening set	12109 Nov 20 00:20	23°♌51'53	
max. Earth dist.	12103 Sep 21 16:14	10°♑06'03	10.63851 AU				
morning rise	12103 Oct 08 13:46	12°♑09'10		conjunction	12109 Dec 07 16:57	26°♌02'43	1°40'51
retrograde	12104 Jan 21 03:17	19°♑45'17		minimum elong	12109 Dec 07 16:56	26°♌02'42	1°41'42
opposition	12104 Mar 30 19:38	16°♑20'36	-0°08'47	max. Earth dist.	12109 Dec 07 13:37	26°♌01'41	10.46094 AU
min. Earth dist.	12104 Mar 30 10:03	16°♑22'28	8.62635 AU	morning rise	12109 Dec 25 10:32	28°♌13'51	
direct	12104 Jun 06 22:35	12°♑59'23			12110 Jan 09 08:49	0°♌	
asc. node	12104 Jul 19 23:37	14°♑34'10		retrograde	12110 Apr 08 10:11	5°♌58'34	
evening set	12104 Sep 15 15:58	20°♑21'16		opposition	12110 Jun 15 11:33	2°♌33'36	2°10'23
				min. Earth dist.	12110 Jun 15 15:08	2°♌32'53	8.44776 AU
conjunction	12104 Oct 03 00:59	22°♑28'06	0°04'46		12110 Jul 21 21:33	30°♌♌	
minimum elong	12104 Oct 03 00:58	22°♑28'05	0°05'00	direct	12110 Aug 22 09:48	29°♌08'36	
behind sun begin	12104 Oct 02 17:59	22°♑25'59			12110 Sep 22 16:22	0°♌	
behind sun end	12104 Oct 03 07:56	22°♑30'12		evening set	12110 Dec 03 17:20	6°♌51'20	
max. Earth dist.	12104 Oct 03 11:17	22°♑31'14	10.61326 AU				
morning rise	12104 Oct 20 13:16	24°♑35'52		conjunction	12110 Dec 21 10:29	9°♌02'45	1°48'20
	12104 Dec 11 14:42	0°♍		minimum elong	12110 Dec 21 10:28	9°♌02'44	1°49'12
retrograde	12105 Feb 02 04:41	2°♍13'43		max. Earth dist.	12110 Dec 21 03:56	9°♌00'42	10.43334 AU
	12105 Mar 28 02:41	30°♌♌		morning rise	12111 Jan 08 03:55	11°♌14'14	
opposition	12105 Apr 12 15:45	28°♌48'47	0°20'52	retrograde	12111 Apr 21 19:30	18°♌59'25	
min. Earth dist.	12105 Apr 12 07:53	28°♌50'19	8.59940 AU	opposition	12111 Jun 28 15:12	15°♌34'42	2°16'20
direct	12105 Jun 19 15:08	25°♌27'09		min. Earth dist.	12111 Jun 28 20:51	15°♌33'34	8.42270 AU
	12105 Sep 03 13:27	0°♍		direct	12111 Sep 04 16:34	12°♌09'03	
evening set	12105 Sep 28 14:17	2°♍51'28		evening set	12111 Dec 17 12:15	19°♌55'16	
conjunction	12105 Oct 16 01:36	4°♍59'13	0°28'33	conjunction	12112 Jan 04 05:42	22°♌07'07	1°50'17
minimum elong	12105 Oct 16 01:35	4°♍59'12	0°28'58	minimum elong	12112 Jan 04 05:43	22°♌07'07	1°51'07

max. Earth dist.	12112 Jan 03 21:16	22° S 04'29	10.41107 AU	minimum elong	12118 Mar 25 09:46	10° Y 38'14	0°18'13
morning rise	12112 Jan 21 22:35	24° S 18'51		max. Earth dist.	12118 Mar 24 22:30	10° Y 34'43	10.43824 AU
	12112 Mar 16 00:15	0° \approx		morning rise	12118 Apr 11 18:07	12° Y 47'43	
retrograde	12112 May 04 05:48	2° \approx 03'54		retrograde	12118 Jul 22 01:14	20° Y 22'37	
	12112 Jun 23 13:46	30° R 3		opposition	12118 Sep 27 20:32	17° Y 00'26	0°07'30
opposition	12112 Jul 10 20:25	28° S 39'28	2°15'16	min. Earth dist.	12118 Sep 28 04:30	16° Y 58'53	8.45196 AU
min. Earth dist.	12112 Jul 11 03:13	28° S 38'06	8.40376 AU	direct	12118 Dec 06 09:00	13° Y 34'10	
direct	12112 Sep 17 01:24	25° S 13'16		desc. node	12118 Dec 28 04:07	13° Y 58'33	
	12112 Dec 04 05:27	0° \approx		evening set	12119 Mar 21 07:16	21° Y 21'36	
evening set	12112 Dec 30 08:29	3° \approx 02'18					
				conjunction	12119 Apr 07 16:27	23° Y 31'03	-0°06'33
conjunction	12113 Jan 17 01:59	5° \approx 14'26	1°46'32	minimum elong	12119 Apr 07 16:27	23° Y 31'03	0°06'48
minimum elong	12113 Jan 17 02:00	5° \approx 14'26	1°47'17	behind sun begin	12119 Apr 07 09:47	23° Y 28'59	
max. Earth dist.	12113 Jan 16 16:04	5° \approx 11'20	10.39577 AU	behind sun end	12119 Apr 07 23:06	23° Y 33'06	
morning rise	12113 Feb 03 18:04	7° \approx 26'15		max. Earth dist.	12119 Apr 07 07:17	23° Y 28'12	10.46684 AU
	12113 May 03 17:32	15° \approx		morning rise	12119 Apr 24 22:21	25° Y 39'35	
retrograde	12113 May 17 15:44	15° \approx 10'32			12119 Jun 02 22:32	0° S	
	12113 May 31 14:33	15° R \approx		retrograde	12119 Aug 04 03:58	3° S 12'34	
opposition	12113 Jul 24 02:51	11° \approx 46'26	2°07'11		12119 Oct 09 04:48	30° R Y	
min. Earth dist.	12113 Jul 24 10:59	11° \approx 44'49	8.39222 AU	opposition	12119 Oct 11 04:24	29° Y 50'43	-0°23'04
direct	12113 Sep 30 12:40	8° \approx 19'48		min. Earth dist.	12119 Oct 11 11:03	29° Y 49'25	8.48278 AU
	12114 Jan 03 10:27	15° \approx		direct	12119 Dec 19 19:39	26° Y 25'02	
evening set	12114 Jan 13 04:58	16° \approx 10'49			12120 Feb 25 07:07	0° S	
				evening set	12120 Apr 02 12:45	4° S 09'47	
conjunction	12114 Jan 30 22:06	18° \approx 23'03	1°37'13				
minimum elong	12114 Jan 30 22:08	18° \approx 23'04	1°37'51	conjunction	12120 Apr 19 19:12	6° S 18'07	-0°30'48
max. Earth dist.	12114 Jan 30 10:33	18° \approx 19'26	10.38841 AU	minimum elong	12120 Apr 19 19:11	6° S 18'07	0°31'14
morning rise	12114 Feb 17 13:11	20° \approx 34'46		max. Earth dist.	12120 Apr 19 11:42	6° S 15'47	10.49942 AU
retrograde	12114 May 31 01:12	28° \approx 17'43		morning rise	12120 May 06 22:42	8° S 25'38	
opposition	12114 Aug 06 10:31	24° \approx 54'02	1°52'26		12120 Jul 14 04:09	15° S	
min. Earth dist.	12114 Aug 06 20:01	24° \approx 52'08	8.38873 AU	retrograde	12120 Aug 16 04:08	15° S 56'58	
direct	12114 Oct 14 01:11	21° \approx 27'05			12120 Sep 18 18:31	15° R S	
evening set	12115 Jan 27 00:32	29° \approx 19'07		opposition	12120 Oct 23 11:31	12° S 35'27	-0°52'16
	12115 Feb 01 12:57	0° K		min. Earth dist.	12120 Oct 23 16:56	12° S 34'23	8.51684 AU
conjunction	12115 Feb 13 16:49	1° K 31'14	1°22'50	direct	12121 Jan 01 05:33	9° S 10'27	
minimum elong	12115 Feb 13 16:52	1° K 31'15	1°23'19		12121 Mar 30 19:30	15° S	
max. Earth dist.	12115 Feb 13 03:54	1° K 27'11	10.38930 AU	evening set	12121 Apr 15 14:43	16° S 52'13	
morning rise	12115 Mar 03 06:43	3° K 42'40					
retrograde	12115 Jun 13 09:39	11° K 23'51		conjunction	12121 May 02 18:16	18° S 59'22	-0°53'25
opposition	12115 Aug 19 18:54	8° K 00'35	1°31'50	minimum elong	12121 May 02 18:14	18° S 59'22	0°53'59
min. Earth dist.	12115 Aug 20 05:25	7° K 58'29	8.39349 AU	max. Earth dist.	12121 May 02 12:29	18° S 57'34	10.53426 AU
direct	12115 Oct 27 14:58	4° K 33'32		morning rise	12121 May 19 19:26	21° S 05'50	
evening set	12116 Feb 09 18:23	12° K 25'37		retrograde	12121 Aug 29 03:18	28° S 35'51	
				opposition	12121 Nov 05 17:37	25° S 14'34	-1°18'41
conjunction	12116 Feb 27 09:29	14° K 37'23	1°04'11	min. Earth dist.	12121 Nov 05 21:05	25° S 13'54	8.55240 AU
minimum elong	12116 Feb 27 09:31	14° K 37'24	1°04'29	direct	12122 Jan 14 13:42	21° S 50'21	
max. Earth dist.	12116 Feb 26 19:49	14° K 33'06	10.39839 AU	evening set	12122 Apr 28 13:00	29° S 28'53	
morning rise	12116 Mar 15 21:56	16° K 48'23			12122 May 02 18:58	0° II	
retrograde	12116 Jun 25 15:49	24° K 27'30		conjunction	12122 May 15 13:54	1° II 34'54	-1°13'18
opposition	12116 Sep 01 03:29	21° K 04'36	1°06'32	minimum elong	12122 May 15 13:52	1° II 34'54	1°14'00
min. Earth dist.	12116 Sep 01 13:59	21° K 02'31	8.40621 AU	max. Earth dist.	12122 May 15 10:44	1° II 33'55	10.56970 AU
direct	12116 Nov 09 05:51	17° K 37'37		morning rise	12122 Jun 01 12:54	3° II 40'21	
evening set	12117 Feb 22 09:46	25° K 28'54		retrograde	12122 Sep 11 01:10	11° II 09'25	
				opposition	12122 Nov 18 22:38	7° II 48'16	-1°41'06
conjunction	12117 Mar 11 23:20	27° K 40'05	0°42'16	min. Earth dist.	12122 Nov 18 23:21	7° II 48'08	8.58777 AU
minimum elong	12117 Mar 11 23:22	27° K 40'06	0°42'23	direct	12123 Jan 27 19:04	4° II 24'52	
max. Earth dist.	12117 Mar 11 10:22	27° K 36'01	10.41505 AU	evening set	12123 May 11 07:41	12° II 00'03	
morning rise	12117 Mar 29 09:58	29° K 50'26					
	12117 Mar 30 17:12	0° Y		conjunction	12123 May 28 06:22	14° II 05'00	-1°29'34
retrograde	12117 Jul 08 20:14	7° Y 27'24		minimum elong	12123 May 28 06:20	14° II 04'59	1°30'21
opposition	12117 Sep 14 12:08	4° Y 04'52	0°37'54	max. Earth dist.	12123 May 28 06:44	14° II 05'07	10.60405 AU
min. Earth dist.	12117 Sep 14 21:36	4° Y 03'00	8.42604 AU	morning rise	12123 Jun 14 03:32	16° II 09'32	
direct	12117 Nov 22 20:56	0° Y 38'09		retrograde	12123 Sep 23 22:23	23° II 38'00	
evening set	12118 Mar 07 22:11	8° Y 27'49		opposition	12123 Dec 02 02:21	20° II 16'53	-1°58'33
				min. Earth dist.	12123 Dec 02 00:12	20° II 17'18	8.62122 AU
conjunction	12118 Mar 25 09:45	10° Y 38'14	0°18'19	direct	12124 Feb 09 22:12	16° II 54'17	

evening set	12124 May 22 23:28	24° Π 26'08	direct	12130 Apr 25 16:45	0° Π 39'45	
			evening set	12130 Aug 04 10:25	7° Π 58'08	
conjunction	12124 Jun 08 20:19	26° Π 30'10 -1°41'31				
minimum elong	12124 Jun 08 20:18	26° Π 30'10 1°42'22	conjunction	12130 Aug 21 10:34	10° Π 01'48 -1°11'36	
max. Earth dist.	12124 Jun 08 23:47	26° Π 31'15 10.63571 AU	minimum elong	12130 Aug 21 10:36	10° Π 01'49 1°11'58	
morning rise	12124 Jun 25 16:11	28° Π 33'58	max. Earth dist.	12130 Aug 21 22:08	10° Π 05'20 10.70182 AU	
	12124 Jul 07 19:01	0° \mathfrak{E}	morning rise	12130 Sep 07 13:30	12° Π 06'15	
retrograde	12124 Oct 05 19:47	6° \mathfrak{E} 02'04	retrograde	12130 Dec 20 16:30	19° Π 37'51	
opposition	12124 Dec 14 04:39	2° \mathfrak{E} 40'56 -2°10'21	opposition	12131 Feb 28 16:13	16° Π 14'41 -1°16'21	
min. Earth dist.	12124 Dec 14 00:31	2° \mathfrak{E} 41'43 8.65127 AU	min. Earth dist.	12131 Feb 28 06:36	16° Π 16'32 8.69466 AU	
	12125 Jan 24 01:14	30° $\mathfrak{R}\Pi$	direct	12131 May 08 06:33	12° Π 54'33	
direct	12125 Feb 21 21:53	29° Π 19'04	evening set	12131 Aug 16 21:20	20° Π 12'56	
	12125 Mar 22 08:56	0° \mathfrak{E}				
evening set	12125 Jun 04 12:35	6° \mathfrak{E} 47'42	conjunction	12131 Sep 02 23:58	22° Π 17'22 -0°52'00	
			minimum elong	12131 Sep 02 24:00	22° Π 17'23 0°52'12	
conjunction	12125 Jun 21 08:07	8° \mathfrak{E} 51'02 -1°48'42	max. Earth dist.	12131 Sep 03 11:00	22° Π 20'44 10.68478 AU	
minimum elong	12125 Jun 21 08:07	8° \mathfrak{E} 51'02 1°49'34	morning rise	12131 Sep 20 05:45	24° Π 22'42	
max. Earth dist.	12125 Jun 21 13:43	8° \mathfrak{E} 52'45 10.66341 AU		12131 Nov 14 13:44	0° \mathfrak{A}	
morning rise	12125 Jul 08 03:29	10° \mathfrak{E} 54'19	retrograde	12132 Jan 02 13:04	1° \mathfrak{A} 55'51	
retrograde	12125 Oct 18 15:05	18° \mathfrak{E} 22'18		12132 Feb 21 18:59	30° $\mathfrak{R}\Pi$	
opposition	12125 Dec 27 05:48	15° \mathfrak{E} 01'04 -2°16'04	opposition	12132 Mar 12 11:27	28° Π 32'09 -0°50'33	
min. Earth dist.	12125 Dec 27 00:05	15° \mathfrak{E} 02'09 8.67669 AU	min. Earth dist.	12132 Mar 12 02:16	28° Π 33'54 8.67385 AU	
direct	12126 Mar 06 19:03	11° \mathfrak{E} 39'50	direct	12132 May 19 20:49	25° Π 11'43	
evening set	12126 Jun 16 23:20	19° \mathfrak{E} 05'29		12132 Aug 06 11:35	0° \mathfrak{A}	
			evening set	12132 Aug 28 10:33	2° \mathfrak{A} 30'50	
conjunction	12126 Jul 03 18:19	21° \mathfrak{E} 08'20 -1°50'52				
minimum elong	12126 Jul 03 18:19	21° \mathfrak{E} 08'20 1°51'42	conjunction	12132 Sep 14 15:53	4° \mathfrak{A} 36'10 -0°29'57	
max. Earth dist.	12126 Jul 04 01:38	21° \mathfrak{E} 10'34 10.68599 AU	minimum elong	12132 Sep 14 15:54	4° \mathfrak{A} 36'11 0°29'58	
morning rise	12126 Jul 20 14:00	23° \mathfrak{E} 11'21	max. Earth dist.	12132 Sep 15 02:56	4° \mathfrak{A} 39'32 10.66104 AU	
	12126 Oct 03 09:00	0° \mathfrak{Q}	morning rise	12132 Oct 02 00:22	6° \mathfrak{A} 42'26	
retrograde	12126 Oct 31 09:08	0° \mathfrak{Q} 39'32	retrograde	12133 Jan 14 11:14	14° \mathfrak{A} 17'22	
	12126 Nov 28 19:56	30° $\mathfrak{R}\mathfrak{E}$	opposition	12133 Mar 25 06:39	10° \mathfrak{A} 53'05 -0°22'17	
opposition	12127 Jan 09 05:28	27° \mathfrak{E} 18'03 -2°15'31	min. Earth dist.	12133 Mar 24 21:41	10° \mathfrak{A} 54'49 8.64712 AU	
min. Earth dist.	12127 Jan 08 22:13	27° \mathfrak{E} 19'26 8.69629 AU	direct	12133 Jun 01 13:07	7° \mathfrak{A} 32'14	
direct	12127 Mar 19 16:04	23° \mathfrak{E} 57'20	evening set	12133 Sep 10 03:04	14° \mathfrak{A} 52'50	
	12127 Jun 17 23:20	0° \mathfrak{Q}				
evening set	12127 Jun 29 08:34	1° \mathfrak{Q} 20'20	conjunction	12133 Sep 27 11:02	16° \mathfrak{A} 59'09 -0°06'26	
			minimum elong	12133 Sep 27 11:02	16° \mathfrak{A} 59'09 0°06'17	
conjunction	12127 Jul 16 03:55	3° \mathfrak{Q} 22'59 -1°47'58	behind sun begin	12133 Sep 27 04:17	16° \mathfrak{A} 57'06	
minimum elong	12127 Jul 16 03:56	3° \mathfrak{Q} 23'00 1°48'44	behind sun end	12133 Sep 27 17:48	17° \mathfrak{A} 01'11	
max. Earth dist.	12127 Jul 16 13:20	3° \mathfrak{Q} 25'53 10.70225 AU	max. Earth dist.	12133 Sep 27 21:44	17° \mathfrak{A} 02'24 10.63200 AU	
morning rise	12127 Aug 02 00:30	5° \mathfrak{Q} 25'59	morning rise	12133 Oct 14 22:02	19° \mathfrak{A} 06'23	
retrograde	12127 Nov 13 04:25	12° \mathfrak{Q} 54'34	asc. node	12134 Jan 06 18:54	26° \mathfrak{A} 21'22	
opposition	12128 Jan 22 03:31	9° \mathfrak{Q} 32'45 -2°08'50	retrograde	12134 Jan 27 12:42	26° \mathfrak{A} 43'10	
min. Earth dist.	12128 Jan 21 18:27	9° \mathfrak{Q} 34'29 8.70882 AU	opposition	12134 Apr 07 02:04	23° \mathfrak{A} 18'22 0°07'12	
direct	12128 Mar 31 10:23	6° \mathfrak{Q} 12'26	min. Earth dist.	12134 Apr 06 17:47	23° \mathfrak{A} 19'59 8.61591 AU	
evening set	12128 Jul 10 16:56	13° \mathfrak{Q} 33'13	direct	12134 Jun 14 03:45	19° \mathfrak{A} 56'56	
	12128 Jul 22 15:41	15° \mathfrak{Q}	evening set	12134 Sep 22 23:19	27° \mathfrak{A} 19'48	
conjunction	12128 Jul 27 13:24	15° \mathfrak{Q} 35'58 -1°40'12				
minimum elong	12128 Jul 27 13:26	15° \mathfrak{Q} 35'59 1°40'51	conjunction	12134 Oct 10 09:38	29° \mathfrak{A} 27'05 0°17'38	
max. Earth dist.	12128 Jul 28 00:49	15° \mathfrak{Q} 39'28 10.71092 AU	minimum elong	12134 Oct 10 09:37	29° \mathfrak{A} 27'05 0°17'58	
morning rise	12128 Aug 13 11:29	17° \mathfrak{Q} 39'12	max. Earth dist.	12134 Oct 10 18:29	29° \mathfrak{A} 29'47 10.59904 AU	
retrograde	12128 Nov 24 23:55	25° \mathfrak{Q} 08'27		12134 Oct 14 21:03	0° \mathfrak{M}	
opposition	12129 Feb 03 00:33	21° \mathfrak{Q} 46'14 -1°56'21	morning rise	12134 Oct 27 22:55	1° \mathfrak{M} 35'18	
min. Earth dist.	12129 Feb 02 14:16	21° \mathfrak{Q} 48'11 8.71305 AU	retrograde	12135 Feb 09 15:06	9° \mathfrak{M} 13'57	
direct	12129 Apr 13 01:37	18° \mathfrak{Q} 26'10	opposition	12135 Apr 19 22:11	5° \mathfrak{M} 48'45 0°36'34	
evening set	12129 Jul 23 01:11	25° \mathfrak{Q} 45'21	min. Earth dist.	12135 Apr 19 15:45	5° \mathfrak{M} 50'01 8.58159 AU	
			direct	12135 Jun 26 20:00	2° \mathfrak{M} 26'37	
conjunction	12129 Aug 08 23:15	27° \mathfrak{Q} 48'25 -1°27'54	evening set	12135 Oct 05 23:36	9° \mathfrak{M} 52'27	
minimum elong	12129 Aug 08 23:18	27° \mathfrak{Q} 48'26 1°28'25				
max. Earth dist.	12129 Aug 09 11:29	27° \mathfrak{Q} 52'09 10.71086 AU	conjunction	12135 Oct 23 11:53	12° \mathfrak{M} 00'41 0°40'56	
morning rise	12129 Aug 25 23:29	29° \mathfrak{Q} 52'09	minimum elong	12135 Oct 23 11:52	12° \mathfrak{M} 00'41 0°41'26	
	12129 Aug 27 01:50	0° \mathfrak{M}	max. Earth dist.	12135 Oct 23 18:02	12° \mathfrak{M} 02'34 10.56359 AU	
retrograde	12129 Dec 07 19:38	7° \mathfrak{M} 22'26	morning rise	12135 Nov 10 03:02	14° \mathfrak{M} 09'47	
opposition	12130 Feb 15 20:45	3° \mathfrak{M} 59'45 -1°38'36		12135 Nov 17 03:51	15° \mathfrak{M}	
min. Earth dist.	12130 Feb 15 10:20	4° \mathfrak{M} 01'45 8.70817 AU	retrograde	12136 Feb 22 17:30	21° \mathfrak{M} 50'18	
			opposition	12136 May 01 19:16	18° \mathfrak{M} 24'48 1°04'25	

min. Earth dist.	12136 May 01 15:09	18° \mathbb{M} 25'37	8.54568 AU	min. Earth dist.	12142 Jul 18 15:47	5° \approx 55'19	8.38582 AU
direct	12136 Jul 08 16:02	15° \mathbb{M} 01'53		direct	12142 Sep 24 15:47	2° \approx 30'03	
evening set	12136 Oct 18 04:03	22° \mathbb{M} 31'14		evening set	12143 Jan 07 03:25	10° \approx 20'38	
conjunction	12136 Nov 04 18:03	24° \mathbb{M} 40'23	1°02'25	conjunction	12143 Jan 24 20:42	12° \approx 32'58	1°42'10
minimum elong	12136 Nov 04 18:01	24° \mathbb{M} 40'22	1°03'04	minimum elong	12143 Jan 24 20:44	12° \approx 32'58	1°42'51
max. Earth dist.	12136 Nov 04 21:32	24° \mathbb{M} 41'27	10.52729 AU	max. Earth dist.	12143 Jan 24 09:45	12° \approx 29'32	10.38150 AU
morning rise	12136 Nov 22 10:33	26° \mathbb{M} 50'16		morning rise	12143 Feb 11 12:31	14° \approx 44'52	
	12136 Dec 20 03:58	0° \mathbb{A}			12143 Feb 13 13:57	15° \approx	
retrograde	12137 Mar 06 22:38	4° \mathbb{A} 32'32		retrograde	12143 May 25 04:19	22° \approx 28'55	
opposition	12137 May 14 17:31	1° \mathbb{A} 06'50	1°29'21	opposition	12143 Jul 31 15:28	19° \approx 04'50	2°00'01
min. Earth dist.	12137 May 14 15:31	1° \mathbb{A} 07'14	8.50983 AU	min. Earth dist.	12143 Jul 31 23:55	19° \approx 03'09	8.38155 AU
	12137 May 29 01:26	30° \mathbb{R} \mathbb{M}		direct	12143 Oct 08 04:13	15° \approx 37'53	
direct	12137 Jul 21 13:27	27° \mathbb{M} 43'06		evening set	12144 Jan 20 23:41	23° \approx 29'55	
	12137 Sep 11 13:33	0° \mathbb{A}					
evening set	12137 Oct 31 12:32	5° \mathbb{A} 16'20		conjunction	12144 Feb 07 16:30	25° \approx 42'14	1°30'01
conjunction	12137 Nov 18 04:00	7° \mathbb{A} 26'19	1°20'59	minimum elong	12144 Feb 07 16:33	25° \approx 42'15	1°30'34
minimum elong	12137 Nov 18 03:58	7° \mathbb{A} 26'18	1°21'45	max. Earth dist.	12144 Feb 07 05:08	25° \approx 38'40	10.38168 AU
max. Earth dist.	12137 Nov 18 05:22	7° \mathbb{A} 26'44	10.49174 AU	morning rise	12144 Feb 25 07:09	27° \approx 53'57	
morning rise	12137 Dec 05 21:17	9° \mathbb{A} 36'53			12144 Mar 13 22:17	0° \mathbb{H}	
retrograde	12138 Mar 20 05:15	17° \mathbb{A} 20'38		retrograde	12144 Jun 06 14:42	5° \mathbb{H} 36'29	
opposition	12138 May 27 17:09	13° \mathbb{A} 54'51	1°50'04	opposition	12144 Aug 12 23:55	2° \mathbb{H} 12'58	1°41'57
min. Earth dist.	12138 May 27 16:44	13° \mathbb{A} 54'56	8.47553 AU	min. Earth dist.	12144 Aug 13 08:37	2° \mathbb{H} 11'14	8.38568 AU
direct	12138 Aug 03 13:34	10° \mathbb{A} 30'20			12144 Sep 12 07:07	30° \mathbb{R} \approx	
evening set	12138 Nov 14 00:59	18° \mathbb{A} 07'39		direct	12144 Oct 20 17:18	28° \approx 46'02	
					12144 Nov 27 18:14	0° \mathbb{H}	
conjunction	12138 Dec 01 17:29	20° \mathbb{A} 18'21	1°35'39	evening set	12145 Feb 02 19:03	6° \mathbb{H} 38'37	
minimum elong	12138 Dec 01 17:27	20° \mathbb{A} 18'20	1°36'29	conjunction	12145 Feb 20 10:59	8° \mathbb{H} 50'42	1°13'11
max. Earth dist.	12138 Dec 01 16:37	20° \mathbb{A} 18'05	10.45850 AU	minimum elong	12145 Feb 20 11:02	8° \mathbb{H} 50'42	1°13'34
morning rise	12138 Dec 19 10:59	22° \mathbb{A} 29'26		max. Earth dist.	12145 Feb 19 23:34	8° \mathbb{H} 47'06	10.39025 AU
	12139 Mar 17 03:15	0° \mathbb{B}		morning rise	12145 Mar 10 00:08	11° \mathbb{H} 02'00	
retrograde	12139 Apr 02 13:12	0° \mathbb{B} 14'19		retrograde	12145 Jun 19 23:12	18° \mathbb{H} 42'35	
	12139 Apr 19 00:19	30° \mathbb{R} \mathbb{A}		opposition	12145 Aug 26 08:57	15° \mathbb{H} 19'40	1°18'35
opposition	12139 Jun 09 18:19	26° \mathbb{A} 48'36	2°05'26	min. Earth dist.	12145 Aug 26 17:58	15° \mathbb{H} 17'53	8.39799 AU
min. Earth dist.	12139 Jun 09 19:44	26° \mathbb{A} 48'19	8.44440 AU	direct	12145 Nov 03 07:39	11° \mathbb{H} 52'55	
direct	12139 Aug 16 16:16	23° \mathbb{A} 23'20		evening set	12146 Feb 16 12:31	19° \mathbb{H} 45'06	
	12139 Nov 18 17:22	0° \mathbb{B}					
evening set	12139 Nov 27 16:40	1° \mathbb{B} 04'39		conjunction	12146 Mar 06 03:00	21° \mathbb{H} 56'40	0°52'36
conjunction	12139 Dec 15 09:46	3° \mathbb{B} 15'58	1°45'33	minimum elong	12146 Mar 06 03:02	21° \mathbb{H} 56'40	0°52'48
minimum elong	12139 Dec 15 09:45	3° \mathbb{B} 15'58	1°46'25	max. Earth dist.	12146 Mar 05 15:25	21° \mathbb{H} 53'02	10.40669 AU
max. Earth dist.	12139 Dec 15 06:06	3° \mathbb{B} 14'50	10.42938 AU	morning rise	12146 Mar 23 14:24	24° \mathbb{H} 07'23	
morning rise	12140 Jan 02 03:12	5° \mathbb{B} 27'28			12146 May 19 04:37	0° \mathbb{Y}	
retrograde	12140 Apr 14 23:26	13° \mathbb{B} 12'59		retrograde	12146 Jul 03 06:13	1° \mathbb{Y} 45'48	
opposition	12140 Jun 21 21:19	9° \mathbb{B} 47'30	2°14'30		12146 Aug 18 11:30	30° \mathbb{R} \mathbb{H}	
min. Earth dist.	12140 Jun 22 00:57	9° \mathbb{B} 46'46	8.41817 AU	opposition	12146 Sep 08 18:26	28° \mathbb{H} 23'26	0°51'15
direct	12140 Aug 28 20:23	6° \mathbb{B} 21'33		min. Earth dist.	12146 Sep 09 03:46	28° \mathbb{H} 21'36	8.41778 AU
evening set	12140 Dec 10 10:48	14° \mathbb{B} 06'33		direct	12146 Nov 16 22:18	24° \mathbb{H} 56'59	
					12147 Feb 06 05:28	0° \mathbb{Y}	
conjunction	12140 Dec 28 04:13	16° \mathbb{B} 18'22	1°50'06	evening set	12147 Mar 02 03:06	2° \mathbb{Y} 47'51	
minimum elong	12140 Dec 28 04:13	16° \mathbb{B} 18'22	1°50'57	conjunction	12147 Mar 19 15:36	4° \mathbb{Y} 58'41	0°29'23
max. Earth dist.	12140 Dec 27 21:27	16° \mathbb{B} 16'16	10.40606 AU	minimum elong	12147 Mar 19 15:37	4° \mathbb{Y} 58'41	0°29'24
morning rise	12141 Jan 14 21:24	18° \mathbb{B} 30'10		max. Earth dist.	12147 Mar 19 04:02	4° \mathbb{Y} 55'04	10.42998 AU
retrograde	12141 Apr 28 09:24	26° \mathbb{B} 15'45		morning rise	12147 Apr 06 01:02	7° \mathbb{Y} 08'38	
opposition	12141 Jul 05 01:59	22° \mathbb{B} 50'38	2°16'42	retrograde	12147 Jul 16 11:49	14° \mathbb{Y} 44'49	
min. Earth dist.	12141 Jul 05 08:03	22° \mathbb{B} 49'25	8.39827 AU	opposition	12147 Sep 22 03:41	11° \mathbb{Y} 22'56	0°21'26
direct	12141 Sep 11 04:32	19° \mathbb{B} 24'10		min. Earth dist.	12147 Sep 22 12:41	11° \mathbb{Y} 21'10	8.44374 AU
evening set	12141 Dec 24 06:46	27° \mathbb{B} 12'20		direct	12147 Nov 30 12:05	7° \mathbb{Y} 56'54	
				evening set	12148 Mar 14 14:29	15° \mathbb{Y} 45'43	
conjunction	12142 Jan 11 00:13	29° \mathbb{B} 24'29	1°48'58	conjunction	12148 Apr 01 00:41	17° \mathbb{Y} 55'38	0°04'51
minimum elong	12142 Jan 11 00:14	29° \mathbb{B} 24'29	1°49'46	minimum elong	12148 Apr 01 00:41	17° \mathbb{Y} 55'38	0°04'40
max. Earth dist.	12142 Jan 10 14:41	29° \mathbb{B} 21'30	10.38978 AU	behind sun begin	12148 Mar 31 17:41	17° \mathbb{Y} 53'28	
	12142 Jan 15 17:47	0° \approx		behind sun end	12148 Apr 01 07:41	17° \mathbb{Y} 57'48	
morning rise	12142 Jan 28 16:53	1° \approx 36'25		max. Earth dist.	12148 Mar 31 13:49	17° \mathbb{Y} 52'15	10.45836 AU
retrograde	12142 May 11 18:39	9° \approx 21'30		morning rise	12148 Apr 18 07:55	20° \mathbb{Y} 04'40	
opposition	12142 Jul 18 08:01	5° \approx 56'52	2°11'48				

desc. node	12148 Jun 13 20:41	25° Υ 55'02	max. Earth dist.	12154 Jun 16 08:39	3° \ominus 43'29	10.63320 AU
retrograde	12148 Jul 28 14:04	27° Υ 38'44	morning rise	12154 Jul 03 01:26	5° \ominus 46'21	
opposition	12148 Oct 04 12:13	24° Υ 17'13 -0°09'16	retrograde	12154 Oct 13 09:26	13° \ominus 15'30	
min. Earth dist.	12148 Oct 04 20:10	24° Υ 15'40 8.47371 AU	opposition	12154 Dec 21 21:28	9° \ominus 54'00 -2°14'19	
direct	12148 Dec 13 01:54	20° Υ 51'42	min. Earth dist.	12154 Dec 21 17:14	9° \ominus 54'48 8.64514 AU	
evening set	12149 Mar 27 22:18	28° Υ 38'02	direct	12155 Mar 01 12:59	6° \ominus 32'06	
	12149 Apr 07 23:45	0° δ	evening set	12155 Jun 11 22:01	14° \ominus 00'13	
conjunction	12149 Apr 14 05:59	0° δ 46'53 -0°19'55	conjunction	12155 Jun 28 17:29	16° \ominus 03'36 -1°50'30	
minimum elong	12149 Apr 14 05:58	0° δ 46'53 0°20'16	minimum elong	12155 Jun 28 17:29	16° \ominus 03'35 1°51'22	
max. Earth dist.	12149 Apr 13 20:41	0° δ 44'00 10.48932 AU	max. Earth dist.	12155 Jun 28 23:40	16° \ominus 05'30 10.65342 AU	
morning rise	12149 May 01 10:43	2° δ 54'54	morning rise	12155 Jul 15 13:00	18° \ominus 07'01	
retrograde	12149 Aug 10 15:55	10° δ 27'15	retrograde	12155 Oct 26 05:22	25° \ominus 36'18	
opposition	12149 Oct 17 20:09	7° δ 06'02 -0°39'17	opposition	12156 Jan 03 22:32	22° \ominus 14'24 -2°16'33	
min. Earth dist.	12149 Oct 18 02:21	7° δ 04'50 8.50512 AU	min. Earth dist.	12156 Jan 03 15:57	22° \ominus 15'39 8.66295 AU	
direct	12149 Dec 26 13:41	3° δ 41'10	direct	12156 Mar 13 11:03	18° \ominus 52'54	
evening set	12150 Apr 10 02:24	11° δ 24'43	evening set	12156 Jun 23 08:42	26° \ominus 18'17	
conjunction	12150 Apr 27 07:24	13° δ 32'28 -0°43'26	conjunction	12156 Jul 10 04:03	28° \ominus 21'21 -1°49'49	
minimum elong	12150 Apr 27 07:22	13° δ 32'28 0°43'57	minimum elong	12156 Jul 10 04:04	28° \ominus 21'22 1°50'37	
max. Earth dist.	12150 Apr 27 00:33	13° δ 30'21 10.52065 AU	max. Earth dist.	12156 Jul 10 12:28	28° \ominus 23'56 10.66848 AU	
	12150 May 09 00:58	15° δ		12156 Jul 23 14:27	0° δ	
morning rise	12150 May 14 09:33	15° δ 39'27	morning rise	12156 Jul 27 00:11	0° δ 24'40	
retrograde	12150 Aug 23 18:12	23° δ 10'34	retrograde	12156 Nov 07 01:41	7° δ 54'19	
opposition	12150 Oct 31 03:26	19° δ 49'34 -1°07'08	opposition	12157 Jan 15 22:12	4° δ 32'00 -2°12'31	
min. Earth dist.	12150 Oct 31 07:54	19° δ 48'42 8.53644 AU	min. Earth dist.	12157 Jan 15 14:20	4° δ 33'30 8.67515 AU	
direct	12151 Jan 08 21:58	16° δ 25'23	direct	12157 Mar 26 06:05	1° δ 10'50	
evening set	12151 Apr 23 03:08	24° δ 06'00	evening set	12157 Jul 05 18:10	8° δ 33'50	
conjunction	12151 May 10 05:24	26° δ 12'40 -1°04'42	conjunction	12157 Jul 22 14:07	10° δ 36'53 -1°44'07	
minimum elong	12151 May 10 05:22	26° δ 12'39 1°05'21	minimum elong	12157 Jul 22 14:08	10° δ 36'54 1°44'49	
max. Earth dist.	12151 May 10 00:43	26° δ 11'13 10.55146 AU	max. Earth dist.	12157 Jul 22 23:39	10° δ 39'49 10.67778 AU	
morning rise	12151 May 27 05:15	28° δ 18'40	morning rise	12157 Aug 08 11:41	12° δ 40'23	
	12151 Jun 10 10:27	0° Π		12157 Aug 28 15:20	15° δ	
retrograde	12151 Sep 05 17:53	5° Π 48'52	retrograde	12157 Nov 19 20:55	20° δ 10'37	
opposition	12151 Nov 13 09:43	2° Π 27'58 -1°31'32	opposition	12158 Jan 28 20:42	16° δ 47'51 -2°02'27	
min. Earth dist.	12151 Nov 13 12:38	2° Π 27'24 8.56707 AU	min. Earth dist.	12158 Jan 28 11:51	16° δ 49'33 8.68122 AU	
	12151 Dec 19 10:06	30° κ δ		12158 Feb 22 17:33	15° κ δ	
direct	12152 Jan 22 03:50	29° δ 04'25	direct	12158 Apr 07 23:13	13° δ 26'55	
	12152 Feb 24 11:14	0° Π		12158 May 21 00:40	15° δ	
evening set	12152 May 05 00:29	6° Π 41'59	evening set	12158 Jul 18 03:02	20° δ 48'05	
conjunction	12152 May 22 00:11	8° Π 47'36 -1°22'43	conjunction	12158 Aug 04 00:25	22° δ 51'21 -1°33'40	
minimum elong	12152 May 22 00:09	8° Π 47'35 1°23'29	minimum elong	12158 Aug 04 00:28	22° δ 51'22 1°34'15	
max. Earth dist.	12152 May 21 21:25	8° Π 46'44 10.58117 AU	max. Earth dist.	12158 Aug 04 11:25	22° δ 54'43 10.68081 AU	
morning rise	12152 Jun 07 22:11	10° Π 52'43	morning rise	12158 Aug 21 00:00	24° δ 55'15	
retrograde	12152 Sep 17 15:11	18° Π 22'17		12158 Oct 08 09:33	0° η	
opposition	12152 Nov 25 15:00	15° Π 01'20 -1°51'23	retrograde	12158 Dec 02 15:45	2° η 26'21	
min. Earth dist.	12152 Nov 25 16:11	15° Π 01'06 8.59612 AU		12159 Jan 29 04:24	30° κ δ	
direct	12153 Feb 03 10:00	11° Π 38'23	opposition	12159 Feb 10 18:00	29° δ 03'06 -1°46'49	
evening set	12153 May 17 18:33	19° Π 12'47	min. Earth dist.	12159 Feb 10 07:59	29° δ 05'01 8.68072 AU	
			direct	12159 Apr 20 16:58	25° δ 42'18	
conjunction	12153 Jun 03 16:06	21° Π 17'27 -1°36'42		12159 Jul 03 16:03	0° η	
minimum elong	12153 Jun 03 16:04	21° Π 17'26 1°37'33	evening set	12159 Jul 30 12:26	3° η 02'14	
max. Earth dist.	12153 Jun 03 15:39	21° Π 17'18 10.60876 AU				
morning rise	12153 Jun 20 12:41	23° Π 21'47	conjunction	12159 Aug 16 11:52	5° η 06'00 -1°18'57	
	12153 Aug 29 22:08	0° \ominus	minimum elong	12159 Aug 16 11:55	5° η 06'00 1°19'23	
retrograde	12153 Sep 30 12:33	0° \ominus 51'03	max. Earth dist.	12159 Aug 17 00:28	5° η 09'51 10.67721 AU	
	12153 Nov 01 17:25	30° κ Π	morning rise	12159 Sep 02 13:45	7° η 10'28	
opposition	12153 Dec 08 18:59	27° Π 29'52 -2°05'50	retrograde	12159 Dec 15 13:11	14° η 42'39	
min. Earth dist.	12153 Dec 08 17:37	27° Π 30'08 8.62250 AU	opposition	12160 Feb 23 14:20	11° η 18'56 -1°26'18	
direct	12154 Feb 16 13:20	24° Π 07'29	min. Earth dist.	12160 Feb 23 03:11	11° η 21'05 8.67354 AU	
	12154 May 16 10:59	0° \ominus	direct	12160 May 02 08:02	7° η 58'11	
evening set	12154 May 30 09:34	1° \ominus 38'40	evening set	12160 Aug 10 23:08	15° η 17'35	
conjunction	12154 Jun 16 05:43	3° \ominus 42'35 -1°46'05	conjunction	12160 Aug 28 00:56	17° η 21'59 -1°00'37	
minimum elong	12154 Jun 16 05:42	3° \ominus 42'34 1°46'58	minimum elong	12160 Aug 28 00:58	17° η 22'00 1°00'52	

max. Earth dist.	12160 Aug 28 14:26	17° \overline{m} 26'07	10.66710 AU	evening set	12166 Oct 26 08:18	0° \overline{z} 14'45	
morning rise	12160 Sep 14 05:27	19° \overline{m} 27'14					
retrograde	12160 Dec 27 11:26	27° \overline{m} 00'43		conjunction	12166 Nov 12 23:08	2° \overline{z} 24'19	1°13'37
opposition	12161 Mar 07 10:21	23° \overline{m} 36'34	-1°01'48	minimum elong	12166 Nov 12 23:06	2° \overline{z} 24'18	1°14'20
min. Earth dist.	12161 Mar 06 23:00	23° \overline{m} 38'45	8.66011 AU	max. Earth dist.	12166 Nov 13 03:17	2° \overline{z} 25'36	10.51665 AU
direct	12161 May 14 21:56	20° \overline{m} 15'44		morning rise	12166 Nov 30 15:58	4° \overline{z} 34'31	
evening set	12161 Aug 23 11:53	27° \overline{m} 35'20		retrograde	12167 Mar 15 03:30	12° \overline{z} 17'30	
				opposition	12167 May 22 17:00	8° \overline{z} 52'16	1°41'54
conjunction	12161 Sep 09 16:09	29° \overline{m} 40'33	-0°39'26	min. Earth dist.	12167 May 22 14:52	8° \overline{z} 52'41	8.50245 AU
minimum elong	12161 Sep 09 16:10	29° \overline{m} 40'33	0°39'32	direct	12167 Jul 29 11:34	5° \overline{z} 28'40	
max. Earth dist.	12161 Sep 10 05:01	29° \overline{m} 44'28	10.65105 AU	evening set	12167 Nov 08 19:16	13° \overline{z} 03'57	
	12161 Sep 12 07:48	0° \overline{z}					
morning rise	12161 Sep 26 23:31	1° \overline{z} 46'39		conjunction	12167 Nov 26 11:06	15° \overline{z} 14'11	1°29'58
retrograde	12162 Jan 09 10:10	9° \overline{z} 21'39		minimum elong	12167 Nov 26 11:04	15° \overline{z} 14'11	1°30'47
opposition	12162 Mar 20 06:13	5° \overline{z} 57'07	-0°34'21	max. Earth dist.	12167 Nov 26 11:22	15° \overline{z} 14'16	10.48709 AU
min. Earth dist.	12162 Mar 19 19:48	5° \overline{z} 59'08	8.64116 AU	morning rise	12167 Dec 14 04:30	17° \overline{z} 24'55	
direct	12162 May 27 12:59	2° \overline{z} 36'04		retrograde	12168 Mar 27 10:03	25° \overline{z} 08'57	
evening set	12162 Sep 05 03:37	9° \overline{z} 56'42		opposition	12168 Jun 03 17:43	21° \overline{z} 43'48	1°59'33
				min. Earth dist.	12168 Jun 03 18:35	21° \overline{z} 43'38	8.47370 AU
conjunction	12162 Sep 22 10:25	12° \overline{z} 02'48	-0°16'22	direct	12168 Aug 10 14:10	18° \overline{z} 19'28	
minimum elong	12162 Sep 22 10:26	12° \overline{z} 02'48	0°16'17	evening set	12168 Nov 21 09:33	25° \overline{z} 58'36	
max. Earth dist.	12162 Sep 22 21:56	12° \overline{z} 06'18	10.62989 AU				
morning rise	12162 Oct 09 20:34	14° \overline{z} 09'50		conjunction	12168 Dec 09 02:11	28° \overline{z} 09'28	1°41'54
retrograde	12163 Jan 22 10:21	21° \overline{z} 46'25		minimum elong	12168 Dec 09 02:09	28° \overline{z} 09'27	1°42'46
opposition	12163 Apr 02 02:03	18° \overline{z} 21'37	-0°05'10	max. Earth dist.	12168 Dec 08 23:07	28° \overline{z} 08'31	10.45880 AU
min. Earth dist.	12163 Apr 01 17:00	18° \overline{z} 23'22	8.61769 AU		12168 Dec 24 00:05	0° \overline{z}	
asc. node	12163 Jun 06 01:18	15° \overline{z} 00'45		morning rise	12168 Dec 26 19:44	0° \overline{z} 20'37	
direct	12163 Jun 09 04:29	15° \overline{z} 00'14		retrograde	12169 Apr 09 18:38	8° \overline{z} 05'22	
evening set	12163 Sep 17 22:45	22° \overline{z} 22'41		opposition	12169 Jun 16 19:42	4° \overline{z} 40'25	2°11'16
				min. Earth dist.	12169 Jun 16 22:56	4° \overline{z} 39'46	8.44668 AU
conjunction	12163 Oct 05 08:04	24° \overline{z} 29'41	0°07'40	direct	12169 Aug 23 18:01	1° \overline{z} 15'22	
minimum elong	12163 Oct 05 08:03	24° \overline{z} 29'41	0°07'56	evening set	12169 Dec 05 02:33	8° \overline{z} 58'17	
behind sun begin	12163 Oct 05 01:39	24° \overline{z} 27'44					
behind sun end	12163 Oct 05 14:28	24° \overline{z} 31'38		conjunction	12169 Dec 22 19:48	11° \overline{z} 09'43	1°48'42
max. Earth dist.	12163 Oct 05 18:26	24° \overline{z} 32'51	10.60463 AU	minimum elong	12169 Dec 22 19:47	11° \overline{z} 09'43	1°49'34
morning rise	12163 Oct 22 20:34	26° \overline{z} 37'38		max. Earth dist.	12169 Dec 22 14:03	11° \overline{z} 07'55	10.43309 AU
	12163 Nov 21 19:42	0° \overline{m}		morning rise	12170 Jan 09 13:06	13° \overline{z} 21'12	
retrograde	12164 Feb 04 11:25	4° \overline{m} 15'58		retrograde	12170 Apr 23 04:26	21° \overline{z} 06'16	
opposition	12164 Apr 13 22:27	0° \overline{m} 50'55	0°24'26	opposition	12170 Jun 29 23:20	17° \overline{z} 41'35	2°16'21
min. Earth dist.	12164 Apr 13 14:24	0° \overline{m} 52'29	8.59086 AU	min. Earth dist.	12170 Jun 30 04:21	17° \overline{z} 40'35	8.42317 AU
	12164 Apr 24 21:56	30° \overline{r} \overline{z}		direct	12170 Sep 06 00:53	14° \overline{z} 15'56	
direct	12164 Jun 20 22:04	27° \overline{z} 29'08		evening set	12170 Dec 18 21:35	22° \overline{z} 02'16	
	12164 Aug 14 18:47	0° \overline{m}					
evening set	12164 Sep 29 21:39	4° \overline{m} 54'04		conjunction	12171 Jan 05 15:04	24° \overline{z} 14'06	1°49'56
				minimum elong	12171 Jan 05 15:05	24° \overline{z} 14'06	1°50'46
conjunction	12164 Oct 17 09:14	7° \overline{m} 01'59	0°31'22	max. Earth dist.	12171 Jan 05 07:13	24° \overline{z} 11'39	10.41210 AU
minimum elong	12164 Oct 17 09:13	7° \overline{m} 01'59	0°31'48	morning rise	12171 Jan 23 07:46	26° \overline{z} 25'47	
max. Earth dist.	12164 Oct 17 18:44	7° \overline{m} 04'54	10.57649 AU		12171 Feb 23 12:01	0° \overline{z}	
morning rise	12164 Nov 03 23:37	9° \overline{m} 10'46		retrograde	12171 May 06 14:05	4° \overline{z} 10'39	
	12164 Dec 31 04:19	15° \overline{m}		opposition	12171 Jul 13 04:33	0° \overline{z} 46'17	2°14'25
retrograde	12165 Feb 16 14:47	16° \overline{m} 50'52		min. Earth dist.	12171 Jul 13 11:11	0° \overline{z} 44'58	8.40531 AU
	12165 Apr 05 23:31	15° \overline{r} \overline{m}			12171 Jul 22 22:25	30° \overline{r} \overline{z}	
opposition	12165 Apr 26 19:36	13° \overline{m} 25'39	0°53'04	direct	12171 Sep 19 10:08	27° \overline{z} 20'07	
min. Earth dist.	12165 Apr 26 12:36	13° \overline{m} 27'02	8.56192 AU		12171 Nov 15 03:45	0° \overline{z}	
direct	12165 Jul 03 17:10	10° \overline{m} 03'23		evening set	12172 Jan 01 17:43	5° \overline{z} 09'09	
	12165 Sep 21 04:42	15° \overline{m}					
evening set	12165 Oct 13 00:55	17° \overline{m} 31'22		conjunction	12172 Jan 19 11:07	7° \overline{z} 21'15	1°45'30
				minimum elong	12172 Jan 19 11:08	7° \overline{z} 21'16	1°46'14
conjunction	12165 Oct 30 14:21	19° \overline{m} 40'10	0°53'44	max. Earth dist.	12172 Jan 19 01:01	7° \overline{z} 18'06	10.39782 AU
minimum elong	12165 Oct 30 14:19	19° \overline{m} 40'09	0°54'19	morning rise	12172 Feb 06 03:04	9° \overline{z} 33'00	
max. Earth dist.	12165 Oct 30 21:48	19° \overline{m} 42'28	10.54677 AU		12172 Mar 28 04:51	15° \overline{z}	
morning rise	12165 Nov 17 06:11	21° \overline{m} 49'43		retrograde	12172 May 19 00:10	17° \overline{z} 17'03	
retrograde	12166 Mar 01 21:26	29° \overline{m} 31'23			12172 Jul 11 05:07	15° \overline{r} \overline{z}	
opposition	12166 May 09 17:38	26° \overline{m} 06'07	1°19'20	opposition	12172 Jul 25 11:05	13° \overline{z} 53'03	2°05'29
min. Earth dist.	12166 May 09 12:39	26° \overline{m} 07'06	8.53211 AU	min. Earth dist.	12172 Jul 25 19:39	13° \overline{z} 51'21	8.39470 AU
direct	12166 Jul 16 12:12	22° \overline{m} 43'14		direct	12172 Oct 01 20:45	10° \overline{z} 26'27	
	12166 Oct 24 07:17	0° \overline{z}			12172 Dec 17 03:42	15° \overline{z}	

evening set	12173 Jan 14 13:56	18° \approx 17'21		opposition	12178 Oct 12 12:02	1° \mathcal{B} 53'36	-0°26'40
				min. Earth dist.	12178 Oct 12 19:17	1° \mathcal{B} 52'12	8.48689 AU
conjunction	12173 Feb 01 06:54	20° \approx 29'33	1°35'33		12178 Nov 07 06:47	30° \mathcal{R} \mathcal{Y}	
minimum elong	12173 Feb 01 06:56	20° \approx 29'34	1°36'10	direct	12178 Dec 21 04:05	28° \mathcal{Y} 27'56	
max. Earth dist.	12173 Jan 31 18:39	20° \approx 25'43	10.39133 AU		12179 Feb 02 05:12	0° \mathcal{B}	
morning rise	12173 Feb 18 21:59	22° \approx 41'13		evening set	12179 Apr 04 19:46	6° \mathcal{B} 12'19	
	12173 May 11 08:23	0° \mathcal{H}					
retrograde	12173 Jun 01 09:54	0° \mathcal{H} 23'51		conjunction	12179 Apr 22 01:52	8° \mathcal{B} 20'31	-0°33'35
	12173 Jun 22 11:47	30° \mathcal{R} \approx		minimum elong	12179 Apr 22 01:51	8° \mathcal{B} 20'30	0°34'03
opposition	12173 Aug 07 18:42	27° \approx 00'16	1°50'01	max. Earth dist.	12179 Apr 21 17:43	8° \mathcal{B} 17'59	10.50329 AU
min. Earth dist.	12173 Aug 08 04:42	26° \approx 58'17	8.39201 AU	morning rise	12179 May 09 05:16	10° \mathcal{B} 27'55	
direct	12173 Oct 15 09:21	23° \approx 33'23			12179 Jun 19 10:43	15° \mathcal{B}	
	12174 Jan 16 13:56	0° \mathcal{H}		retrograde	12179 Aug 18 10:33	17° \mathcal{B} 59'03	
evening set	12174 Jan 28 09:19	1° \mathcal{H} 25'15			12179 Oct 20 22:28	15° \mathcal{R} \mathcal{B}	
max. Earth dist.	12174 Feb 14 11:59	3° \mathcal{H} 33'04	10.39293 AU	opposition	12179 Oct 25 18:56	14° \mathcal{B} 37'30	-0°55'33
				min. Earth dist.	12179 Oct 26 00:26	14° \mathcal{B} 36'26	8.52048 AU
conjunction	12174 Feb 15 01:28	3° \mathcal{H} 37'18	1°20'38	direct	12180 Jan 03 13:41	11° \mathcal{B} 12'31	
minimum elong	12174 Feb 15 01:31	3° \mathcal{H} 37'19	1°21'05		12180 Mar 13 04:47	15° \mathcal{B}	
morning rise	12174 Mar 04 15:21	5° \mathcal{H} 48'41		evening set	12180 Apr 16 21:16	18° \mathcal{B} 53'54	
retrograde	12174 Jun 14 16:21	13° \mathcal{H} 29'31					
opposition	12174 Aug 21 02:54	10° \mathcal{H} 06'20	1°28'49	conjunction	12180 May 04 00:38	21° \mathcal{B} 00'57	-0°55'54
min. Earth dist.	12174 Aug 21 13:26	10° \mathcal{H} 04'14	8.39736 AU	minimum elong	12180 May 04 00:36	21° \mathcal{B} 00'56	0°56'30
direct	12174 Oct 29 00:39	6° \mathcal{H} 39'21		max. Earth dist.	12180 May 03 18:53	20° \mathcal{B} 59'10	10.53755 AU
evening set	12175 Feb 11 02:51	14° \mathcal{H} 31'13		morning rise	12180 May 21 01:39	23° \mathcal{B} 07'18	
					12180 Aug 03 17:53	0° \mathcal{I}	
conjunction	12175 Feb 28 17:52	16° \mathcal{H} 42'53	1°01'34	retrograde	12180 Aug 30 09:19	0° \mathcal{I} 37'11	
minimum elong	12175 Feb 28 17:54	16° \mathcal{H} 42'54	1°01'50		12180 Sep 26 10:42	30° \mathcal{R} \mathcal{B}	
max. Earth dist.	12175 Feb 28 04:26	16° \mathcal{H} 38'40	10.40253 AU	opposition	12180 Nov 07 00:40	27° \mathcal{B} 15'50	-1°21'30
morning rise	12175 Mar 18 06:11	18° \mathcal{H} 53'47		min. Earth dist.	12180 Nov 07 03:37	27° \mathcal{B} 15'16	8.55532 AU
retrograde	12175 Jun 27 22:39	26° \mathcal{H} 32'36		direct	12181 Jan 15 21:05	23° \mathcal{B} 51'38	
opposition	12175 Sep 03 11:27	23° \mathcal{H} 09'46	1°03'05		12181 Apr 17 04:52	0° \mathcal{I}	
min. Earth dist.	12175 Sep 03 21:19	23° \mathcal{H} 07'49	8.41046 AU	evening set	12181 Apr 29 19:12	1° \mathcal{I} 29'50	
direct	12175 Nov 11 15:16	19° \mathcal{H} 42'53					
evening set	12176 Feb 24 17:47	27° \mathcal{H} 33'49		conjunction	12181 May 16 20:01	3° \mathcal{I} 35'45	-1°15'21
				minimum elong	12181 May 16 19:59	3° \mathcal{I} 35'45	1°16'04
conjunction	12176 Mar 13 07:18	29° \mathcal{H} 44'56	0°39'23	max. Earth dist.	12181 May 16 17:32	3° \mathcal{I} 34'59	10.57213 AU
minimum elong	12176 Mar 13 07:19	29° \mathcal{H} 44'56	0°39'27	morning rise	12181 Jun 02 18:47	5° \mathcal{I} 41'07	
max. Earth dist.	12176 Mar 12 19:09	29° \mathcal{H} 41'07	10.41947 AU	retrograde	12181 Sep 12 07:37	13° \mathcal{I} 10'07	
	12176 Mar 15 07:23	0° \mathcal{Y}		opposition	12181 Nov 20 05:30	9° \mathcal{I} 48'55	-1°43'20
morning rise	12176 Mar 30 17:41	1° \mathcal{Y} 55'09		min. Earth dist.	12181 Nov 20 05:42	9° \mathcal{I} 48'52	8.58970 AU
retrograde	12176 Jul 10 04:56	9° \mathcal{Y} 31'50		direct	12182 Jan 29 02:31	6° \mathcal{I} 25'31	
opposition	12176 Sep 15 20:00	6° \mathcal{Y} 09'21	0°34'12	evening set	12182 May 12 13:38	14° \mathcal{I} 00'25	
min. Earth dist.	12176 Sep 16 05:01	6° \mathcal{Y} 07'34	8.43047 AU				
direct	12176 Nov 24 04:07	2° \mathcal{Y} 42'43		conjunction	12182 May 29 12:10	16° \mathcal{I} 05'18	-1°31'06
evening set	12177 Mar 09 05:56	10° \mathcal{Y} 32'00		minimum elong	12182 May 29 12:09	16° \mathcal{I} 05'18	1°31'55
				max. Earth dist.	12182 May 29 12:59	16° \mathcal{I} 05'33	10.60540 AU
conjunction	12177 Mar 26 17:22	12° \mathcal{Y} 42'19	0°15'18	morning rise	12182 Jun 15 09:08	18° \mathcal{I} 09'46	
minimum elong	12177 Mar 26 17:23	12° \mathcal{Y} 42'19	0°15'11	retrograde	12182 Sep 25 05:47	25° \mathcal{I} 38'14	
behind sun begin	12177 Mar 26 15:02	12° \mathcal{Y} 41'35		opposition	12182 Dec 03 09:09	22° \mathcal{I} 17'05	-2°00'07
behind sun end	12177 Mar 26 19:44	12° \mathcal{Y} 43'03		min. Earth dist.	12182 Dec 03 07:10	22° \mathcal{I} 17'28	8.62203 AU
max. Earth dist.	12177 Mar 26 06:32	12° \mathcal{Y} 38'56	10.44270 AU	direct	12183 Feb 11 04:05	18° \mathcal{I} 54'29	
morning rise	12177 Apr 13 01:30	14° \mathcal{Y} 51'42		evening set	12183 May 25 05:13	26° \mathcal{I} 26'07	
retrograde	12177 Jul 23 08:47	22° \mathcal{Y} 26'16					
opposition	12177 Sep 29 04:13	19° \mathcal{Y} 04'08	0°03'45	conjunction	12183 Jun 11 01:53	28° \mathcal{I} 30'08	-1°42'29
min. Earth dist.	12177 Sep 29 12:27	19° \mathcal{Y} 02'31	8.45635 AU	minimum elong	12183 Jun 11 01:52	28° \mathcal{I} 30'07	1°43'21
desc. node	12177 Nov 13 17:05	16° \mathcal{Y} 07'03		max. Earth dist.	12183 Jun 11 04:54	28° \mathcal{I} 31'03	10.63592 AU
direct	12177 Dec 07 16:14	15° \mathcal{Y} 37'55			12183 Jun 23 06:08	0° \mathcal{E}	
evening set	12178 Mar 22 14:44	23° \mathcal{Y} 24'59		morning rise	12183 Jun 27 21:46	0° \mathcal{E} 33'55	
				retrograde	12183 Oct 08 01:47	8° \mathcal{E} 02'04	
conjunction	12178 Apr 08 23:37	25° \mathcal{Y} 34'18	-0°09'30	opposition	12183 Dec 16 11:20	4° \mathcal{E} 40'53	-2°11'10
minimum elong	12178 Apr 08 23:37	25° \mathcal{Y} 34'18	0°09'49	min. Earth dist.	12183 Dec 16 07:49	4° \mathcal{E} 41'34	8.65092 AU
behind sun begin	12178 Apr 08 17:46	25° \mathcal{Y} 32'29		direct	12184 Feb 24 03:21	1° \mathcal{E} 19'00	
behind sun end	12178 Apr 09 05:27	25° \mathcal{Y} 36'06		evening set	12184 Jun 05 18:09	8° \mathcal{E} 47'33	
max. Earth dist.	12178 Apr 08 14:04	25° \mathcal{Y} 31'19	10.47110 AU				
morning rise	12178 Apr 26 05:22	27° \mathcal{Y} 42'44		conjunction	12184 Jun 22 13:37	10° \mathcal{E} 50'52	-1°49'04
	12178 May 15 14:39	0° \mathcal{B}		minimum elong	12184 Jun 22 13:36	10° \mathcal{E} 50'52	1°49'56
retrograde	12178 Aug 05 10:14	5° \mathcal{B} 15'25		max. Earth dist.	12184 Jun 22 18:31	10° \mathcal{E} 52'23	10.66243 AU

morning rise	12184 Jul 09 09:07	12°♊54'11	retrograde	12191 Jan 03 20:17	3°♊59'28
retrograde	12184 Oct 19 20:17	20°♊22'21	opposition	12191 Mar 14 18:46	0°♊35'43 -0°47'01
opposition	12184 Dec 28 12:19	17°♊01'02 -2°16'07	min. Earth dist.	12191 Mar 14 09:05	0°♊37'35 8.66975 AU
min. Earth dist.	12184 Dec 28 06:53	17°♊02'04 8.67508 AU		12191 Mar 22 13:18	30°♋♊
direct	12185 Mar 08 02:28	13°♊39'47	direct	12191 May 22 05:05	27°♋15'17
evening set	12185 Jun 18 04:49	21°♊05'26	evening set	12191 Jul 18 22:37	0°♊
				12191 Aug 30 17:53	4°♊34'42
conjunction	12185 Jul 04 23:55	23°♊08'20 -1°50'36	conjunction	12191 Sep 16 23:32	6°♊40'11 -0°26'59
minimum elong	12185 Jul 04 23:55	23°♊08'20 1°51'26	minimum elong	12191 Sep 16 23:33	6°♊40'11 0°26'58
max. Earth dist.	12185 Jul 05 07:21	23°♊10'37 10.68376 AU	max. Earth dist.	12191 Sep 17 11:05	6°♊43'42 10.65682 AU
morning rise	12185 Jul 21 19:41	25°♊11'24	morning rise	12191 Oct 04 08:10	8°♊46'34
	12185 Sep 04 23:22	0°♋	retrograde	12192 Jan 16 21:07	16°♋21'48
retrograde	12185 Nov 01 16:08	2°♋39'50	opposition	12192 Mar 26 14:09	12°♋57'32 -0°18'33
	12186 Jan 01 06:43	30°♋♊	min. Earth dist.	12192 Mar 26 04:51	12°♋59'20 8.64282 AU
opposition	12186 Jan 10 11:59	29°♋18'17 -2°14'49	direct	12192 Jun 02 18:56	9°♋36'40
min. Earth dist.	12186 Jan 10 04:15	29°♋19'46 8.69345 AU	evening set	12192 Sep 11 11:00	16°♋57'38
direct	12186 Mar 20 22:27	25°♋57'35			
	12186 May 31 19:23	0°♋	conjunction	12192 Sep 28 19:07	19°♋04'04 -0°03'24
evening set	12186 Jun 30 14:06	3°♋20'38	minimum elong	12192 Sep 28 19:08	19°♋04'04 0°03'13
conjunction	12186 Jul 17 09:40	5°♋23'23 -1°47'05	behind sun begin	12192 Sep 28 12:00	19°♋01'55
minimum elong	12186 Jul 17 09:41	5°♋23'23 1°47'51	behind sun end	12192 Sep 29 02:15	19°♋06'13
max. Earth dist.	12186 Jul 17 19:55	5°♋26'31 10.69891 AU	max. Earth dist.	12192 Sep 29 05:29	19°♋07'13 10.62766 AU
morning rise	12186 Aug 03 06:20	7°♋26'27	morning rise	12192 Oct 16 06:20	21°♋11'26
retrograde	12186 Nov 14 11:31	14°♋55'22	asc. node	12192 Nov 21 04:54	25°♋09'12
opposition	12187 Jan 23 10:11	11°♋33'29 -2°07'24	retrograde	12193 Jan 28 21:24	28°♋48'30
min. Earth dist.	12187 Jan 23 00:33	11°♋35'19 8.70506 AU	opposition	12193 Apr 08 09:58	25°♋23'44 0°10'57
direct	12187 Apr 02 15:40	8°♋13'11	min. Earth dist.	12193 Apr 08 02:02	25°♋25'17 8.61162 AU
	12187 Jul 08 03:54	15°♋	direct	12193 Jun 15 10:37	22°♋02'16
evening set	12187 Jul 12 22:42	15°♋34'07	evening set	12193 Sep 24 07:45	29°♋25'33
				12193 Sep 29 02:00	0°♌
conjunction	12187 Jul 29 19:21	17°♋36'58 -1°38'44	conjunction	12193 Oct 11 18:09	1°♌32'56 0°20'37
minimum elong	12187 Jul 29 19:23	17°♋36'58 1°39'23	minimum elong	12193 Oct 11 18:08	1°♌32'56 0°20'59
max. Earth dist.	12187 Jul 30 07:01	17°♋40'31 10.70692 AU	max. Earth dist.	12193 Oct 12 02:09	1°♌35'23 10.59488 AU
morning rise	12187 Aug 15 17:40	19°♋40'18	morning rise	12193 Oct 29 07:42	3°♌41'15
retrograde	12187 Nov 27 07:06	27°♋09'55	retrograde	12194 Feb 10 23:00	11°♌20'11
opposition	12188 Feb 05 07:23	23°♋47'38 -1°54'14	opposition	12194 Apr 21 06:27	7°♌55'00 0°40'09
min. Earth dist.	12188 Feb 04 21:12	23°♋49'35 8.70891 AU	min. Earth dist.	12194 Apr 21 00:39	7°♌56'08 8.57763 AU
direct	12188 Apr 14 07:59	20°♋27'33	direct	12194 Jun 28 04:47	4°♌32'49
evening set	12188 Jul 24 07:19	27°♋46'56	evening set	12194 Oct 07 08:37	11°♌59'04
conjunction	12188 Aug 10 05:32	29°♋50'08 -1°25'55	conjunction	12194 Oct 24 21:04	14°♌07'25 0°43'43
minimum elong	12188 Aug 10 05:34	29°♋50'09 1°26'25	minimum elong	12194 Oct 24 21:02	14°♌07'24 0°44'15
max. Earth dist.	12188 Aug 10 17:15	29°♋53'43 10.70678 AU	max. Earth dist.	12194 Oct 25 02:52	14°♌09'12 10.55990 AU
	12188 Aug 11 13:51	0°♍		12194 Nov 01 00:20	15°♌
morning rise	12188 Aug 27 06:07	1°♍53'59	morning rise	12194 Nov 11 12:22	16°♌16'35
retrograde	12188 Dec 09 03:25	9°♍24'34	retrograde	12195 Feb 24 02:42	23°♌57'19
opposition	12189 Feb 17 03:43	6°♍01'52 -1°35'53	opposition	12195 May 04 03:39	20°♌31'50 1°07'40
min. Earth dist.	12189 Feb 16 17:49	6°♍03'45 8.70414 AU	min. Earth dist.	12195 May 03 23:40	20°♌32'37 8.54232 AU
direct	12189 Apr 26 22:23	2°♍41'49	direct	12195 Jul 11 00:12	17°♌08'52
evening set	12189 Aug 05 16:50	10°♍00'25	evening set	12195 Oct 20 13:32	24°♌38'37
conjunction	12189 Aug 22 17:12	12°♍04'12 -1°09'11	conjunction	12195 Nov 07 03:44	26°♌47'51 1°04'51
minimum elong	12189 Aug 22 17:14	12°♍04'12 1°09'32	minimum elong	12195 Nov 07 03:42	26°♌47'50 1°05'32
max. Earth dist.	12189 Aug 23 04:31	12°♍07'39 10.69790 AU	max. Earth dist.	12195 Nov 07 07:41	26°♌49'04 10.52427 AU
morning rise	12189 Sep 08 20:27	14°♍08'47	morning rise	12195 Nov 24 20:13	28°♌57'47
retrograde	12189 Dec 21 22:54	21°♍40'41		12195 Dec 03 13:16	0°♎
opposition	12190 Mar 01 23:25	18°♍17'28 -1°13'10	retrograde	12196 Mar 08 07:34	6°♎40'11
min. Earth dist.	12190 Mar 01 13:51	18°♍19'18 8.69072 AU	opposition	12196 May 16 02:08	3°♎14'29 1°32'05
direct	12190 May 09 13:28	14°♍57'19	min. Earth dist.	12196 May 15 23:38	3°♎14'59 8.50725 AU
evening set	12190 Aug 18 04:02	22°♍15'57		12196 Jul 09 18:00	30°♎♌
conjunction	12190 Sep 04 07:02	24°♍20'31 -0°49'15	direct	12196 Jul 22 22:35	29°♌50'44
minimum elong	12190 Sep 04 07:04	24°♍20'32 0°49'26		12196 Aug 05 01:19	0°♎
max. Earth dist.	12190 Sep 04 18:39	24°♍24'03 10.68079 AU	evening set	12196 Nov 01 22:22	7°♎24'19
morning rise	12190 Sep 21 13:02	26°♍25'58	conjunction	12196 Nov 19 13:56	9°♎34'20 1°22'57
	12190 Oct 23 14:32	0°♏			

minimum elong	12196 Nov 19 13:54	9° \mathbb{A} 34'20	1°23'44	morning rise	12203 Feb 27 15:53	29° \approx 59'58	
max. Earth dist.	12196 Nov 19 15:55	9° \mathbb{A} 34'57	10.48959 AU		12203 Feb 27 16:00	0° \mathbb{H}	
morning rise	12196 Dec 07 07:06	11° \mathbb{A} 44'54		retrograde	12203 Jun 09 22:25	7° \mathbb{H} 42'03	
retrograde	12197 Mar 21 14:37	19° \mathbb{A} 28'44		opposition	12203 Aug 16 08:00	4° \mathbb{H} 18'34	1°39'13
opposition	12197 May 29 01:58	16° \mathbb{A} 02'57	1°52'09	min. Earth dist.	12203 Aug 16 16:49	4° \mathbb{H} 16'49	8.38945 AU
min. Earth dist.	12197 May 29 01:11	16° \mathbb{A} 03'07	8.47393 AU	direct	12203 Oct 24 02:01	0° \mathbb{H} 51'39	
direct	12197 Aug 04 22:35	12° \mathbb{A} 38'24		evening set	12204 Feb 06 03:32	8° \mathbb{H} 43'54	
evening set	12197 Nov 15 11:07	20° \mathbb{A} 15'58					
conjunction	12197 Dec 03 03:36	22° \mathbb{A} 26'42	1°37'01	conjunction	12204 Feb 23 19:17	10° \mathbb{H} 55'52	1°10'46
minimum elong	12197 Dec 03 03:34	22° \mathbb{A} 26'41	1°37'52	minimum elong	12204 Feb 23 19:19	10° \mathbb{H} 55'53	1°11'08
max. Earth dist.	12197 Dec 03 02:35	22° \mathbb{A} 26'23	10.45744 AU	max. Earth dist.	12204 Feb 23 07:33	10° \mathbb{H} 52'11	10.39425 AU
morning rise	12197 Dec 20 21:03	24° \mathbb{A} 37'47		morning rise	12204 Mar 12 08:18	13° \mathbb{H} 07'05	
	12198 Feb 09 11:19	0° \mathbb{B}		retrograde	12204 Jun 22 06:42	20° \mathbb{H} 47'15	
retrograde	12198 Apr 03 23:34	2° \mathbb{B} 22'35		opposition	12204 Aug 28 16:48	17° \mathbb{H} 24'23	1°15'22
	12198 May 28 17:46	30° \mathbb{R} \mathbb{A}		min. Earth dist.	12204 Aug 29 02:25	17° \mathbb{H} 22'29	8.40213 AU
opposition	12198 Jun 11 03:15	28° \mathbb{A} 56'54	2°06'44	direct	12204 Nov 05 15:44	13° \mathbb{H} 57'38	
min. Earth dist.	12198 Jun 11 05:00	28° \mathbb{A} 56'33	8.44394 AU	evening set	12205 Feb 18 20:28	21° \mathbb{H} 49'28	
direct	12198 Aug 18 00:17	25° \mathbb{A} 31'34		conjunction	12205 Mar 08 10:43	24° \mathbb{H} 00'57	0°49'51
	12198 Nov 01 03:36	0° \mathbb{B}		minimum elong	12205 Mar 08 10:45	24° \mathbb{H} 00'57	0°50'01
evening set	12198 Nov 29 02:56	3° \mathbb{B} 13'04		max. Earth dist.	12205 Mar 07 22:20	23° \mathbb{H} 57'04	10.41097 AU
conjunction	12198 Dec 16 19:57	5° \mathbb{B} 24'22	1°46'16	morning rise	12205 Mar 25 22:05	26° \mathbb{H} 11'34	
minimum elong	12198 Dec 16 19:56	5° \mathbb{B} 24'22	1°47'08		12205 Apr 28 07:26	0° \mathbb{Y}	
max. Earth dist.	12198 Dec 16 15:30	5° \mathbb{B} 23'00	10.42949 AU	retrograde	12205 Jul 05 13:22	3° \mathbb{Y} 49'36	
morning rise	12199 Jan 03 13:24	7° \mathbb{B} 35'52		opposition	12205 Sep 11 01:57	0° \mathbb{Y} 27'18	0°47'43
retrograde	12199 Apr 17 08:43	15° \mathbb{B} 21'10		min. Earth dist.	12205 Sep 11 11:38	0° \mathbb{Y} 25'23	8.42213 AU
opposition	12199 Jun 24 06:15	11° \mathbb{B} 55'43	2°14'56		12205 Sep 16 20:46	30° \mathbb{R} \mathbb{H}	
min. Earth dist.	12199 Jun 24 10:32	11° \mathbb{B} 54'51	8.41884 AU	direct	12205 Nov 19 06:01	27° \mathbb{H} 00'53	
direct	12199 Aug 31 06:03	8° \mathbb{B} 29'43			12206 Jan 19 03:35	0° \mathbb{Y}	
evening set	12199 Dec 12 20:53	16° \mathbb{B} 14'47		evening set	12206 Mar 04 10:37	4° \mathbb{Y} 51'25	
conjunction	12199 Dec 30 14:12	18° \mathbb{B} 26'33	1°50'06	conjunction	12206 Mar 21 22:55	7° \mathbb{Y} 02'08	0°26'28
minimum elong	12199 Dec 30 14:12	18° \mathbb{B} 26'33	1°50'57	minimum elong	12206 Mar 21 22:56	7° \mathbb{Y} 02'09	0°26'26
max. Earth dist.	12199 Dec 30 06:52	18° \mathbb{B} 24'16	10.40726 AU	max. Earth dist.	12206 Mar 21 11:05	6° \mathbb{Y} 58'26	10.43439 AU
morning rise	12200 Jan 17 07:23	20° \mathbb{B} 38'18		morning rise	12206 Apr 08 08:15	9° \mathbb{Y} 12'00	
retrograde	12200 Apr 30 17:02	28° \mathbb{B} 23'36		retrograde	12206 Jul 18 17:25	16° \mathbb{Y} 47'52	
opposition	12200 Jul 07 10:49	24° \mathbb{B} 58'30	2°16'15	opposition	12206 Sep 24 10:55	13° \mathbb{Y} 26'02	0°17'46
min. Earth dist.	12200 Jul 07 17:04	24° \mathbb{B} 57'15	8.40000 AU	min. Earth dist.	12206 Sep 24 19:32	13° \mathbb{Y} 24'21	8.44822 AU
direct	12200 Sep 13 15:06	21° \mathbb{B} 31'59		direct	12206 Dec 02 20:49	10° \mathbb{Y} 00'05	
evening set	12200 Dec 26 16:31	29° \mathbb{B} 20'04		evening set	12207 Mar 17 21:30	17° \mathbb{Y} 48'34	
	12201 Jan 01 02:18	0° \approx		conjunction	12207 Apr 04 07:35	19° \mathbb{Y} 58'22	0°01'53
conjunction	12201 Jan 13 09:58	1° \approx 32'11	1°48'16	minimum elong	12207 Apr 04 07:34	19° \mathbb{Y} 58'22	0°01'40
minimum elong	12201 Jan 13 09:59	1° \approx 32'11	1°49'03	behind sun begin	12207 Apr 04 00:24	19° \mathbb{Y} 56'09	
max. Earth dist.	12201 Jan 13 00:39	1° \approx 29'16	10.39199 AU	behind sun end	12207 Apr 04 14:44	20° \mathbb{Y} 00'34	
morning rise	12201 Jan 31 02:33	3° \approx 44'02		max. Earth dist.	12207 Apr 03 21:24	19° \mathbb{Y} 55'12	10.46300 AU
retrograde	12201 May 14 02:54	11° \approx 28'46		morning rise	12207 Apr 21 14:34	22° \mathbb{Y} 07'17	
opposition	12201 Jul 20 16:35	8° \approx 04'08	2°10'30	desc. node	12207 May 02 17:47	23° \mathbb{Y} 27'38	
min. Earth dist.	12201 Jul 20 23:54	8° \approx 02'40	8.38845 AU	retrograde	12207 Jul 31 20:35	29° \mathbb{Y} 41'07	
direct	12201 Sep 27 01:08	4° \approx 37'18		opposition	12207 Oct 07 19:18	26° \mathbb{Y} 19'38	-0°12'53
evening set	12202 Jan 09 12:47	12° \approx 27'40		min. Earth dist.	12207 Oct 08 02:24	26° \mathbb{Y} 18'15	8.47860 AU
conjunction	12202 Jan 27 06:08	14° \approx 39'56	1°40'48	direct	12207 Dec 16 09:53	22° \mathbb{Y} 54'14	
minimum elong	12202 Jan 27 06:09	14° \approx 39'57	1°41'29		12208 Mar 24 16:20	0° \mathbb{B}	
max. Earth dist.	12202 Jan 26 19:51	14° \approx 36'43	10.38452 AU	evening set	12208 Mar 30 04:49	0° \mathbb{B} 40'07	
	12202 Jan 29 22:07	15° \approx		conjunction	12208 Apr 16 12:23	2° \mathbb{B} 48'52	-0°22'45
morning rise	12202 Feb 13 21:46	16° \approx 51'46		minimum elong	12208 Apr 16 12:22	2° \mathbb{B} 48'52	0°23'09
retrograde	12202 May 27 13:24	24° \approx 35'24		max. Earth dist.	12208 Apr 16 04:11	2° \mathbb{B} 46'19	10.49457 AU
opposition	12202 Aug 02 23:46	21° \approx 11'18	1°57'56	morning rise	12208 May 03 16:50	4° \mathbb{B} 56'44	
min. Earth dist.	12202 Aug 03 07:48	21° \approx 09'42	8.38484 AU	retrograde	12208 Aug 12 23:32	12° \mathbb{B} 28'49	
direct	12202 Oct 10 12:29	17° \approx 44'21		opposition	12208 Oct 20 03:01	9° \mathbb{B} 07'37	-0°42'39
evening set	12203 Jan 23 08:41	25° \approx 36'07		min. Earth dist.	12208 Oct 20 08:48	9° \mathbb{B} 06'30	8.51073 AU
conjunction	12203 Feb 10 01:27	27° \approx 48'21	1°28'04	direct	12208 Dec 28 19:38	5° \mathbb{B} 42'50	
minimum elong	12203 Feb 10 01:30	27° \approx 48'22	1°28'36	evening set	12209 Apr 12 08:36	13° \mathbb{B} 25'52	
max. Earth dist.	12203 Feb 09 14:27	27° \approx 44'54	10.38526 AU		12209 Apr 25 01:47	15° \mathbb{B}	
				conjunction	12209 Apr 29 13:20	15° \mathbb{B} 33'30	-0°46'01

minimum elong	12209 Apr 29 13:18	15°♄33'29	0°46'34	morning rise	12215 Jul 30 05:31	2°♄23'25	
max. Earth dist.	12209 Apr 29 06:45	15°♄31'26	10.52647 AU	retrograde	12215 Nov 10 07:00	9°♄53'17	
morning rise	12209 May 16 15:16	17°♄40'20		opposition	12216 Jan 19 04:18	6°♄30'57	-2°11'22
retrograde	12209 Aug 26 00:05	25°♄11'06		min. Earth dist.	12216 Jan 18 21:09	6°♄32'19	8.67232 AU
opposition	12209 Nov 02 09:58	21°♄50'08	-1°10'06	direct	12216 Mar 28 11:23	3°♄09'46	
min. Earth dist.	12209 Nov 02 14:50	21°♄49'11	8.54233 AU	evening set	12216 Jul 07 23:24	10°♄32'55	
direct	12210 Jan 11 03:44	18°♄26'00					
evening set	12210 Apr 25 08:53	26°♄06'08		conjunction	12216 Jul 24 19:32	12°♄36'03	-1°42'53
				minimum elong	12216 Jul 24 19:34	12°♄36'04	1°43'35
conjunction	12210 May 12 10:48	28°♄12'39	-1°06'53	max. Earth dist.	12216 Jul 25 04:45	12°♄38'53	10.67415 AU
minimum elong	12210 May 12 10:46	28°♄12'38	1°07'34	morning rise	12216 Aug 10 17:21	14°♄39'38	
max. Earth dist.	12210 May 12 05:32	28°♄11'00	10.55713 AU		12216 Aug 13 13:27	15°♄	
	12210 May 26 21:51	0°♄		retrograde	12216 Nov 22 02:13	22°♄10'14	
morning rise	12210 May 29 10:33	0°♄18'32		opposition	12217 Jan 31 02:55	18°♄47'24	-2°00'37
retrograde	12210 Sep 07 22:24	7°♄48'28		min. Earth dist.	12217 Jan 30 18:03	18°♄49'06	8.67673 AU
opposition	12210 Nov 15 16:05	4°♄27'36	-1°33'58	direct	12217 Apr 10 06:22	15°♄26'26	
min. Earth dist.	12210 Nov 15 19:25	4°♄26'57	8.57243 AU	evening set	12217 Jul 20 08:32	22°♄47'48	
direct	12211 Jan 24 11:22	1°♄04'07					
evening set	12211 May 08 05:43	8°♄41'15		conjunction	12217 Aug 06 06:14	24°♄51'14	-1°31'54
				minimum elong	12217 Aug 06 06:16	24°♄51'14	1°32'28
conjunction	12211 May 25 05:10	10°♄46'44	-1°24'26	max. Earth dist.	12217 Aug 06 17:44	24°♄54'45	10.67560 AU
minimum elong	12211 May 25 05:08	10°♄46'43	1°25'13	morning rise	12217 Aug 23 05:58	26°♄55'14	
max. Earth dist.	12211 May 25 02:01	10°♄45'45	10.58596 AU		12217 Sep 19 10:42	0°♄	
morning rise	12211 Jun 11 03:07	12°♄51'45		retrograde	12217 Dec 04 23:43	4°♄26'46	
retrograde	12211 Sep 20 20:54	20°♄21'12		opposition	12218 Feb 13 00:30	1°♄03'26	-1°44'21
opposition	12211 Nov 28 21:05	17°♄00'16	-1°53'10	min. Earth dist.	12218 Feb 12 14:02	1°♄05'26	8.67476 AU
min. Earth dist.	12211 Nov 28 22:07	17°♄00'04	8.60031 AU		12218 Feb 27 01:45	30°♄	
direct	12212 Feb 06 16:20	13°♄37'24		direct	12218 Apr 22 22:40	27°♄42'36	
evening set	12212 May 19 23:30	21°♄11'27			12218 Jun 14 13:16	0°♄	
				evening set	12218 Aug 01 18:23	5°♄02'49	
conjunction	12212 Jun 05 21:01	23°♄16'02	-1°37'53				
minimum elong	12212 Jun 05 20:59	23°♄16'02	1°38'44	conjunction	12218 Aug 18 18:07	7°♄06'44	-1°16'43
max. Earth dist.	12212 Jun 05 20:56	23°♄16'01	10.61216 AU	minimum elong	12218 Aug 18 18:10	7°♄06'45	1°17'08
morning rise	12212 Jun 22 17:29	25°♄20'19		max. Earth dist.	12218 Aug 19 07:02	7°♄10'41	10.67067 AU
	12212 Aug 04 18:39	0°♄		morning rise	12218 Sep 04 20:14	9°♄11'23	
retrograde	12212 Oct 02 18:09	2°♄49'32		retrograde	12218 Dec 17 20:47	16°♄44'01	
	12212 Dec 04 02:28	30°♄		opposition	12219 Feb 25 21:07	13°♄20'13	-1°23'19
opposition	12212 Dec 11 00:49	29°♄28'23	-2°06'55	min. Earth dist.	12219 Feb 25 09:59	13°♄22'21	8.66641 AU
min. Earth dist.	12212 Dec 10 22:55	29°♄28'44	8.62508 AU	direct	12219 May 05 13:27	9°♄59'23	
direct	12213 Feb 18 18:42	26°♄06'05		evening set	12219 Aug 14 05:40	17°♄19'12	
	12213 Apr 30 09:36	0°♄					
evening set	12213 Jun 01 14:28	3°♄37'03		conjunction	12219 Aug 31 07:40	19°♄23'47	-0°58'00
				minimum elong	12219 Aug 31 07:42	19°♄23'47	0°58'14
conjunction	12213 Jun 18 10:38	5°♄40'55	-1°46'40	max. Earth dist.	12219 Aug 31 20:30	19°♄27'42	10.65951 AU
minimum elong	12213 Jun 18 10:37	5°♄40'55	1°47'33	morning rise	12219 Sep 17 12:33	21°♄29'12	
max. Earth dist.	12213 Jun 18 14:02	5°♄41'58	10.63486 AU	retrograde	12219 Dec 30 18:57	29°♄03'11	
morning rise	12213 Jul 05 06:13	7°♄44'40		opposition	12220 Mar 09 17:29	25°♄38'57	-0°58'24
retrograde	12213 Oct 15 15:11	15°♄13'54		min. Earth dist.	12220 Mar 09 06:52	25°♄41'00	8.65206 AU
opposition	12213 Dec 24 03:24	11°♄52'25	-2°14'39	direct	12220 May 17 04:37	22°♄18'00	
min. Earth dist.	12213 Dec 23 23:05	11°♄53'14	8.64588 AU	evening set	12220 Aug 25 18:57	29°♄38'07	
direct	12214 Mar 03 18:48	8°♄30'35			12220 Aug 28 19:45	0°♄	
evening set	12214 Jun 14 02:56	15°♄58'36					
				conjunction	12220 Sep 11 23:25	1°♄43'30	-0°36'33
conjunction	12214 Jun 30 22:21	18°♄01'58	-1°50'28	minimum elong	12220 Sep 11 23:26	1°♄43'30	0°36'37
minimum elong	12214 Jun 30 22:21	18°♄01'58	1°51'20	max. Earth dist.	12220 Sep 12 11:28	1°♄47'11	10.64269 AU
max. Earth dist.	12214 Jul 01 04:13	18°♄03'47	10.65324 AU	morning rise	12220 Sep 29 07:09	3°♄49'48	
morning rise	12214 Jul 17 17:56	20°♄05'25		retrograde	12221 Jan 11 18:25	11°♄25'19	
retrograde	12214 Oct 28 12:16	27°♄34'53		opposition	12221 Mar 22 13:43	8°♄00'42	-0°30'41
opposition	12215 Jan 06 04:36	24°♄12'59	-2°16'09	min. Earth dist.	12221 Mar 22 03:52	8°♄02'36	8.63250 AU
min. Earth dist.	12215 Jan 05 22:40	24°♄14'07	8.66186 AU	direct	12221 May 29 19:36	4°♄39'32	
direct	12215 Mar 16 15:37	20°♄51'31		evening set	12221 Sep 07 11:11	12°♄00'44	
evening set	12215 Jun 26 13:46	28°♄16'53					
	12215 Jul 10 16:01	0°♄		conjunction	12221 Sep 24 18:18	14°♄07'00	-0°13'20
				minimum elong	12221 Sep 24 18:18	14°♄07'00	0°13'14
conjunction	12215 Jul 13 09:08	0°♄20'01	-1°49'11	behind sun begin	12221 Sep 24 14:09	14°♄05'45	
minimum elong	12215 Jul 13 09:08	0°♄20'01	1°49'58	behind sun end	12221 Sep 24 22:28	14°♄08'16	
max. Earth dist.	12215 Jul 13 16:34	0°♄22'18	10.66654 AU	max. Earth dist.	12221 Sep 25 05:51	14°♄10'32	10.62104 AU

morning rise	12221 Oct 12 04:41	16° <u>♄</u> 14'14	evening set	12227 Nov 24 20:35	28° <u>♄</u> 09'40
retrograde	12222 Jan 24 17:48	23° <u>♄</u> 51'23		12227 Dec 09 19:02	0° <u>♄</u>
opposition	12222 Apr 04 09:54	20° <u>♄</u> 26'27 -0°01'24			
min. Earth dist.	12222 Apr 04 00:41	20° <u>♄</u> 28'15 8.60872 AU	conjunction	12227 Dec 12 13:20	0° <u>♄</u> 20'36 1°42'54
asc. node	12222 Apr 21 21:02	19° <u>♄</u> 07'07	minimum elong	12227 Dec 12 13:18	0° <u>♄</u> 20'35 1°43'47
direct	12222 Jun 11 12:44	17° <u>♄</u> 04'57	max. Earth dist.	12227 Dec 12 11:14	0° <u>♄</u> 19'56 10.45572 AU
evening set	12222 Sep 20 06:57	24° <u>♄</u> 28'01	morning rise	12227 Dec 30 06:44	2° <u>♄</u> 31'46
			retrograde	12228 Apr 12 05:11	10° <u>♄</u> 16'33
conjunction	12222 Oct 07 16:35	26° <u>♄</u> 35'13 0°10'42	opposition	12228 Jun 19 05:28	6° <u>♄</u> 51'35 2°12'05
minimum elong	12222 Oct 07 16:35	26° <u>♄</u> 35'13 0°11'00	min. Earth dist.	12228 Jun 19 07:57	6° <u>♄</u> 51'05 8.44486 AU
behind sun begin	12222 Oct 07 11:13	26° <u>♄</u> 33'35	direct	12228 Aug 26 04:12	3° <u>♄</u> 26'30
behind sun end	12222 Oct 07 21:58	26° <u>♄</u> 36'50	evening set	12228 Dec 07 13:40	11° <u>♄</u> 09'38
max. Earth dist.	12222 Oct 08 03:37	26° <u>♄</u> 38'35 10.59557 AU			
morning rise	12222 Oct 25 05:14	28° <u>♄</u> 43'19	conjunction	12228 Dec 25 06:57	13° <u>♄</u> 21'03 1°48'59
	12222 Nov 05 01:17	0° <u>♄</u>	minimum elong	12228 Dec 25 06:56	13° <u>♄</u> 21'03 1°49'52
retrograde	12223 Feb 06 20:27	6° <u>♄</u> 22'13	max. Earth dist.	12228 Dec 25 01:55	13° <u>♄</u> 19'29 10.43235 AU
opposition	12223 Apr 17 06:36	2° <u>♄</u> 57'03 0°28'08	morning rise	12229 Jan 12 00:05	15° <u>♄</u> 32'31
min. Earth dist.	12223 Apr 16 22:02	2° <u>♄</u> 58'43 8.58184 AU	retrograde	12229 Apr 25 14:25	23° <u>♄</u> 17'27
	12223 Jun 02 10:12	30° <u>♄</u>	opposition	12229 Jul 02 09:12	19° <u>♄</u> 52'47 2°16'15
direct	12223 Jun 24 06:15	29° <u>♄</u> 35'09	min. Earth dist.	12229 Jul 02 13:58	19° <u>♄</u> 51'50 8.42338 AU
	12223 Jul 15 21:01	0° <u>♄</u>	direct	12229 Sep 08 11:09	16° <u>♄</u> 27'06
evening set	12223 Oct 03 06:36	7° <u>♄</u> 00'43	evening set	12229 Dec 21 08:46	24° <u>♄</u> 13'29
conjunction	12223 Oct 20 18:22	9° <u>♄</u> 08'49 0°34'16	conjunction	12230 Jan 08 02:11	26° <u>♄</u> 25'18 1°49'30
minimum elong	12223 Oct 20 18:21	9° <u>♄</u> 08'48 0°34'45	minimum elong	12230 Jan 08 02:12	26° <u>♄</u> 25'18 1°50'19
max. Earth dist.	12223 Oct 21 03:59	9° <u>♄</u> 11'46 10.56753 AU	max. Earth dist.	12230 Jan 07 18:07	26° <u>♄</u> 22'47 10.41311 AU
morning rise	12223 Nov 07 08:50	11° <u>♄</u> 17'46	morning rise	12230 Jan 25 18:48	28° <u>♄</u> 36'57
	12223 Dec 10 11:24	15° <u>♄</u>		12230 Feb 06 07:38	0° <u>♄</u>
retrograde	12224 Feb 20 01:34	18° <u>♄</u> 58'22	retrograde	12230 May 09 00:49	6° <u>♄</u> 21'32
opposition	12224 Apr 29 04:07	15° <u>♄</u> 33'04 0°56'31	opposition	12230 Jul 15 14:23	2° <u>♄</u> 57'14 2°13'24
min. Earth dist.	12224 Apr 28 21:08	15° <u>♄</u> 34'26 8.55320 AU	min. Earth dist.	12230 Jul 15 21:32	2° <u>♄</u> 55'49 8.40699 AU
	12224 May 06 05:11	15° <u>♄</u>		12230 Aug 29 08:00	30° <u>♄</u>
direct	12224 Jul 05 23:55	12° <u>♄</u> 10'40	direct	12230 Sep 21 19:34	29° <u>♄</u> 31'02
	12224 Sep 02 08:15	15° <u>♄</u>		12230 Oct 15 07:00	0° <u>♄</u>
evening set	12224 Oct 15 10:30	19° <u>♄</u> 39'20	evening set	12231 Jan 04 04:45	7° <u>♄</u> 20'03
conjunction	12224 Nov 01 23:58	21° <u>♄</u> 48'16 0°56'21	conjunction	12231 Jan 21 22:01	9° <u>♄</u> 32'06 1°44'20
minimum elong	12224 Nov 01 23:56	21° <u>♄</u> 48'15 0°56'59	minimum elong	12231 Jan 21 22:02	9° <u>♄</u> 32'07 1°45'04
max. Earth dist.	12224 Nov 02 06:48	21° <u>♄</u> 50'22 10.53839 AU	max. Earth dist.	12231 Jan 21 11:04	9° <u>♄</u> 28'41 10.40008 AU
morning rise	12224 Nov 19 15:55	23° <u>♄</u> 57'58	morning rise	12231 Feb 08 13:58	11° <u>♄</u> 43'49
	12225 Jan 18 10:39	0° <u>♄</u>		12231 Mar 08 20:20	15° <u>♄</u>
retrograde	12225 Mar 04 06:59	1° <u>♄</u> 40'05	retrograde	12231 May 22 10:16	19° <u>♄</u> 27'30
	12225 Apr 18 17:42	30° <u>♄</u>	opposition	12231 Jul 28 20:56	16° <u>♄</u> 03'36 2°03'37
opposition	12225 May 12 02:39	28° <u>♄</u> 14'46 1°22'21	min. Earth dist.	12231 Jul 29 06:02	16° <u>♄</u> 01'47 8.39744 AU
min. Earth dist.	12225 May 11 22:09	28° <u>♄</u> 15'39 8.52426 AU		12231 Aug 11 08:54	15° <u>♄</u>
direct	12225 Jul 18 21:08	24° <u>♄</u> 51'44	direct	12231 Oct 05 06:59	12° <u>♄</u> 36'59
	12225 Oct 08 03:19	0° <u>♄</u>		12231 Nov 27 21:27	15° <u>♄</u>
evening set	12225 Oct 28 18:24	2° <u>♄</u> 23'57	evening set	12232 Jan 18 00:34	20° <u>♄</u> 27'47
conjunction	12225 Nov 15 09:16	4° <u>♄</u> 33'38 1°15'48	conjunction	12232 Feb 04 17:25	22° <u>♄</u> 39'54 1°33'44
minimum elong	12225 Nov 15 09:13	4° <u>♄</u> 33'37 1°16'34	minimum elong	12232 Feb 04 17:28	22° <u>♄</u> 39'55 1°34'20
max. Earth dist.	12225 Nov 15 12:50	4° <u>♄</u> 34'44 10.50944 AU	max. Earth dist.	12232 Feb 04 04:44	22° <u>♄</u> 35'56 10.39453 AU
morning rise	12225 Dec 03 02:15	6° <u>♄</u> 43'57	morning rise	12232 Feb 22 08:29	24° <u>♄</u> 51'31
retrograde	12226 Mar 17 12:36	14° <u>♄</u> 27'19		12232 Apr 09 19:08	0° <u>♄</u>
opposition	12226 May 25 02:22	11° <u>♄</u> 02'04 1°44'18	retrograde	12232 Jun 03 18:00	2° <u>♄</u> 33'48
min. Earth dist.	12226 May 25 00:34	11° <u>♄</u> 02'26 8.49607 AU		12232 Jul 30 16:06	30° <u>♄</u>
direct	12226 Jul 31 21:43	7° <u>♄</u> 38'22	opposition	12232 Aug 10 04:27	29° <u>♄</u> 10'18 1°47'24
evening set	12226 Nov 11 05:58	15° <u>♄</u> 14'15	min. Earth dist.	12232 Aug 10 14:23	29° <u>♄</u> 08'19 8.39555 AU
			direct	12232 Oct 17 21:10	25° <u>♄</u> 43'27
conjunction	12226 Nov 28 21:53	17° <u>♄</u> 24'36 1°31'37		12232 Dec 30 14:06	0° <u>♄</u>
minimum elong	12226 Nov 28 21:51	17° <u>♄</u> 24'36 1°32'27	evening set	12233 Jan 30 19:37	3° <u>♄</u> 35'06
max. Earth dist.	12226 Nov 28 22:23	17° <u>♄</u> 24'46 10.48164 AU			
morning rise	12226 Dec 16 15:18	19° <u>♄</u> 35'24	conjunction	12233 Feb 17 11:46	5° <u>♄</u> 47'05 1°18'16
retrograde	12227 Mar 30 20:18	27° <u>♄</u> 19'40	minimum elong	12233 Feb 17 11:49	5° <u>♄</u> 47'06 1°18'42
opposition	12227 Jun 07 03:15	23° <u>♄</u> 54'31 2°01'12	max. Earth dist.	12233 Feb 16 22:35	5° <u>♄</u> 42'57 10.39682 AU
min. Earth dist.	12227 Jun 07 03:42	23° <u>♄</u> 54'26 8.46942 AU	morning rise	12233 Mar 07 01:33	7° <u>♄</u> 58'23
direct	12227 Aug 13 23:50	20° <u>♄</u> 30'06	retrograde	12233 Jun 17 01:35	15° <u>♄</u> 38'54

opposition	12233 Aug 23 12:29	12° X 15'46	1°25'36	max. Earth dist.	12239 May 07 03:48	23° S 05'20	10.54066 AU
min. Earth dist.	12233 Aug 23 22:26	12° X 13'48	8.40144 AU	morning rise	12239 May 24 09:27	25° S 13'07	
direct	12233 Oct 31 10:56	8° X 48'52			12239 Jul 07 12:04	0° II	
evening set	12234 Feb 13 12:53	16° X 40'27		retrograde	12239 Sep 02 17:44	2° II 42'56	
					12239 Nov 02 00:50	30° R 8	
conjunction	12234 Mar 03 03:54	18° X 52'04	0°58'47	opposition	12239 Nov 10 09:31	29° S 21'34	-1°24'24
minimum elong	12234 Mar 03 03:56	18° X 52'04	0°59'01	min. Earth dist.	12239 Nov 10 11:55	29° S 21'06	8.55809 AU
max. Earth dist.	12234 Mar 02 15:12	18° X 48'05	10.40682 AU	direct	12240 Jan 19 06:35	25° S 57'25	
morning rise	12234 Mar 20 15:59	21° X 02'51			12240 Mar 31 09:46	0° II	
retrograde	12234 Jun 30 09:01	28° X 41'20		evening set	12240 May 02 03:07	3° II 35'18	
opposition	12234 Sep 05 21:01	25° X 18'35	0°59'26				
min. Earth dist.	12234 Sep 06 06:32	25° X 16'43	8.41480 AU	conjunction	12240 May 19 03:46	5° II 41'09	-1°17'27
direct	12234 Nov 14 00:13	21° X 51'48		minimum elong	12240 May 19 03:44	5° II 41'08	1°18'12
evening set	12235 Feb 27 03:30	29° X 42'24		max. Earth dist.	12240 May 19 01:49	5° II 40'32	10.57445 AU
	12235 Mar 01 12:46	0° Y		morning rise	12240 Jun 05 02:19	7° II 46'25	
				retrograde	12240 Sep 14 17:10	15° II 15'23	
conjunction	12235 Mar 16 16:53	1° Y 53'25	0°36'19	opposition	12240 Nov 22 14:11	11° II 54'10	-1°45'36
minimum elong	12235 Mar 16 16:54	1° Y 53'26	0°36'22	min. Earth dist.	12240 Nov 22 14:33	11° II 54'06	8.59162 AU
max. Earth dist.	12235 Mar 16 05:04	1° Y 49'44	10.42393 AU	direct	12241 Jan 31 09:41	8° II 30'48	
morning rise	12235 Apr 03 03:00	4° Y 03'33		evening set	12241 May 14 21:23	16° II 05'27	
retrograde	12235 Jul 13 14:12	11° Y 39'56					
opposition	12235 Sep 19 05:34	8° Y 17'32	0°30'20	conjunction	12241 May 31 19:40	18° II 10'16	-1°32'39
min. Earth dist.	12235 Sep 19 14:50	8° Y 15'42	8.43493 AU	minimum elong	12241 May 31 19:39	18° II 10'16	1°33'29
direct	12235 Nov 27 13:33	4° Y 50'59		max. Earth dist.	12241 May 31 20:05	18° II 10'24	10.60680 AU
evening set	12236 Mar 11 15:19	12° Y 39'57		morning rise	12241 Jun 17 16:34	20° II 14'42	
				retrograde	12241 Sep 27 13:12	27° II 43'10	
conjunction	12236 Mar 29 02:30	14° Y 50'08	0°12'09	opposition	12241 Dec 05 17:45	24° II 21'59	-2°01'40
minimum elong	12236 Mar 29 02:30	14° Y 50'08	0°12'00	min. Earth dist.	12241 Dec 05 16:22	24° II 22'15	8.62300 AU
behind sun begin	12236 Mar 28 21:35	14° Y 48'37		direct	12242 Feb 13 11:57	20° II 59'23	
behind sun end	12236 Mar 29 07:25	14° Y 51'39		evening set	12242 May 27 12:41	28° II 30'52	
max. Earth dist.	12236 Mar 28 15:15	14° Y 46'38	10.44718 AU		12242 Jun 08 16:19	0° S	
morning rise	12236 Apr 15 10:29	16° Y 59'26					
retrograde	12236 Jul 25 17:12	24° Y 33'44		conjunction	12242 Jun 13 09:10	0° S 34'48	-1°43'26
desc. node	12236 Sep 29 16:52	21° Y 20'26		minimum elong	12242 Jun 13 09:09	0° S 34'48	1°44'19
opposition	12236 Oct 01 13:37	21° Y 11'41	-0°00'09	max. Earth dist.	12242 Jun 13 11:33	0° S 35'33	10.63637 AU
min. Earth dist.	12236 Oct 01 22:24	21° Y 09'57	8.46075 AU	morning rise	12242 Jun 30 05:06	2° S 38'34	
direct	12236 Dec 10 02:21	17° Y 45'31		retrograde	12242 Oct 10 08:40	10° S 06'50	
evening set	12237 Mar 24 23:47	25° Y 32'16		opposition	12242 Dec 18 19:53	6° S 45'36	-2°11'57
				min. Earth dist.	12242 Dec 18 16:28	6° S 46'15	8.65090 AU
conjunction	12237 Apr 11 08:22	27° Y 41'28	-0°12'36	direct	12243 Feb 26 12:53	3° S 23'41	
minimum elong	12237 Apr 11 08:21	27° Y 41'27	0°12'56	evening set	12243 Jun 09 01:21	10° S 52'07	
behind sun begin	12237 Apr 11 03:59	27° Y 40'06					
behind sun end	12237 Apr 11 12:44	27° Y 42'49		conjunction	12243 Jun 25 20:51	12° S 55'26	-1°49'21
max. Earth dist.	12237 Apr 10 22:10	27° Y 38'17	10.47536 AU	minimum elong	12243 Jun 25 20:50	12° S 55'26	1°50'14
morning rise	12237 Apr 28 14:01	29° Y 49'47		max. Earth dist.	12243 Jun 26 01:58	12° S 57'01	10.66186 AU
	12237 Apr 29 23:29	0° S		morning rise	12243 Jul 12 16:25	14° S 58'45	
retrograde	12237 Aug 07 18:48	7° S 22'16		retrograde	12243 Oct 23 05:07	22° S 27'05	
opposition	12237 Oct 14 21:13	4° S 00'30	-0°30'25	opposition	12243 Dec 31 20:42	19° S 05'41	-2°16'05
min. Earth dist.	12237 Oct 15 04:37	3° S 59'04	8.49094 AU	min. Earth dist.	12243 Dec 31 14:44	19° S 06'49	8.67397 AU
direct	12237 Dec 23 13:31	0° S 34'54		direct	12244 Mar 10 10:40	15° S 44'25	
evening set	12238 Apr 07 04:26	8° S 18'57		evening set	12244 Jun 20 12:00	23° S 09'59	
conjunction	12238 Apr 24 10:17	10° S 27'02	-0°36'29	conjunction	12244 Jul 07 07:15	25° S 12'55	-1°50'14
minimum elong	12238 Apr 24 10:16	10° S 27'02	0°36'59	minimum elong	12244 Jul 07 07:16	25° S 12'56	1°51'04
max. Earth dist.	12238 Apr 24 02:11	10° S 24'31	10.50705 AU	max. Earth dist.	12244 Jul 07 15:26	25° S 15'26	10.68208 AU
morning rise	12238 May 11 13:29	12° S 34'20		morning rise	12244 Jul 24 03:02	27° S 16'02	
	12238 Jun 01 06:04	15° S			12244 Aug 16 23:49	0° S	
retrograde	12238 Aug 20 18:24	20° S 05'19		retrograde	12244 Nov 04 00:19	4° S 44'40	
opposition	12238 Oct 28 03:57	16° S 43'46	-0°58'57	opposition	12245 Jan 12 20:16	1° S 23'02	-2°13'59
min. Earth dist.	12238 Oct 28 08:52	16° S 42'49	8.52396 AU	min. Earth dist.	12245 Jan 12 12:01	1° S 24'36	8.69123 AU
	12238 Nov 20 14:25	15° S			12245 Jan 31 14:59	30° R 8	
direct	12239 Jan 05 23:23	13° S 18'52		direct	12245 Mar 23 05:52	28° S 02'19	
	12239 Feb 20 04:48	15° S			12245 May 11 01:05	0° S	
evening set	12239 Apr 20 05:30	20° S 59'55		evening set	12245 Jul 02 21:22	5° S 25'22	
conjunction	12239 May 07 08:43	23° S 06'51	-0°58'27	conjunction	12245 Jul 19 17:04	7° S 28'10	-1°46'05
minimum elong	12239 May 07 08:41	23° S 06'51	0°59'05	minimum elong	12245 Jul 19 17:05	7° S 28'11	1°46'51

max. Earth dist.	12245 Jul 20 03:32	7°♎31'23	10.69624 AU	behind sun begin	12251 Oct 01 22:10	21°♎09'51	
morning rise	12245 Aug 05 13:53	9°♎31'19		behind sun end	12251 Oct 02 10:44	21°♎13'38	
	12245 Sep 27 23:40	15°♎		max. Earth dist.	12251 Oct 02 13:53	21°♎14'37	10.62460 AU
retrograde	12245 Nov 16 20:10	17°♎00'30		asc. node	12251 Oct 05 04:06	21°♎33'40	
	12246 Jan 07 09:26	15°♎♎		morning rise	12251 Oct 19 15:57	23°♎19'12	
opposition	12246 Jan 25 18:41	13°♎38'32	-2°05'47		12251 Dec 29 15:51	0°♎	
min. Earth dist.	12246 Jan 25 09:09	13°♎40'21	8.70198 AU	retrograde	12252 Feb 01 06:40	0°♎56'28	
direct	12246 Apr 04 23:41	10°♎18'12			12252 Mar 06 04:29	30°♎♎	
	12246 Jun 22 00:43	15°♎		opposition	12252 Apr 10 19:03	27°♎31'43	0°14'49
evening set	12246 Jul 15 06:04	17°♎39'11		min. Earth dist.	12252 Apr 10 11:50	27°♎33'07	8.60849 AU
				direct	12252 Jun 17 19:49	24°♎10'12	
conjunction	12246 Aug 01 02:49	19°♎42'07	-1°37'08		12252 Sep 13 09:26	0°♎	
minimum elong	12246 Aug 01 02:51	19°♎42'07	1°37'46	evening set	12252 Sep 26 17:19	1°♎33'49	
max. Earth dist.	12246 Aug 01 13:59	19°♎45'32	10.70363 AU				
morning rise	12246 Aug 18 01:28	21°♎45'35		conjunction	12252 Oct 14 03:54	3°♎41'18	0°23'41
retrograde	12246 Nov 29 16:23	29°♎15'27		minimum elong	12252 Oct 14 03:53	3°♎41'18	0°24'05
opposition	12247 Feb 07 15:59	25°♎53'07	-1°51'55	max. Earth dist.	12252 Oct 14 11:31	3°♎43'38	10.59175 AU
min. Earth dist.	12247 Feb 07 06:14	25°♎54'58	8.70547 AU	morning rise	12252 Oct 31 17:36	5°♎49'42	
direct	12247 Apr 17 15:19	22°♎33'00		retrograde	12253 Feb 13 08:50	13°♎28'51	
evening set	12247 Jul 27 14:58	29°♎52'29		opposition	12253 Apr 23 15:43	10°♎03'41	0°43'49
	12247 Jul 28 16:05	0°♎		min. Earth dist.	12253 Apr 23 10:07	10°♎04'47	8.57453 AU
				direct	12253 Jun 30 13:56	6°♎41'28	
conjunction	12247 Aug 13 13:24	1°♎55'46	-1°23'47	evening set	12253 Oct 09 18:37	14°♎08'05	
minimum elong	12247 Aug 13 13:26	1°♎55'47	1°24'16		12253 Oct 16 21:55	15°♎	
max. Earth dist.	12247 Aug 14 00:54	1°♎59'17	10.70341 AU				
morning rise	12247 Aug 30 14:20	3°♎59'45		conjunction	12253 Oct 27 07:18	16°♎16'30	0°46'32
retrograde	12247 Dec 12 10:38	11°♎30'34		minimum elong	12253 Oct 27 07:17	16°♎16'30	0°47'06
opposition	12248 Feb 20 12:15	8°♎07'47	-1°32'59	max. Earth dist.	12253 Oct 27 13:33	16°♎18'25	10.55685 AU
min. Earth dist.	12248 Feb 20 02:21	8°♎09'41	8.70088 AU	morning rise	12253 Nov 13 22:39	18°♎25'45	
direct	12248 Apr 29 06:52	4°♎47'42		retrograde	12254 Feb 26 12:20	26°♎06'41	
evening set	12248 Aug 08 00:43	12°♎06'26		opposition	12254 May 06 13:04	22°♎41'13	1°10'57
				min. Earth dist.	12254 May 06 08:43	22°♎42'04	8.53941 AU
conjunction	12248 Aug 25 01:25	14°♎10'19	-1°06'37	direct	12254 Jul 13 10:13	19°♎18'14	
minimum elong	12248 Aug 25 01:28	14°♎10'19	1°06'56	evening set	12254 Oct 23 00:05	26°♎48'22	
max. Earth dist.	12248 Aug 25 13:26	14°♎13'58	10.69483 AU				
morning rise	12248 Sep 11 04:53	16°♎14'59		conjunction	12254 Nov 09 14:26	28°♎57'41	1°07'18
retrograde	12248 Dec 24 07:33	23°♎47'06		minimum elong	12254 Nov 09 14:24	28°♎57'40	1°08'00
opposition	12249 Mar 04 08:00	20°♎23'49	-1°09'47	max. Earth dist.	12254 Nov 09 18:46	28°♎59'01	10.52144 AU
min. Earth dist.	12249 Mar 03 21:46	20°♎25'47	8.68776 AU		12254 Nov 18 00:46	0°♎♎	
direct	12249 May 11 22:44	17°♎03'39		morning rise	12254 Nov 27 06:52	1°♎♎07'39	
evening set	12249 Aug 20 12:13	24°♎22'23		retrograde	12255 Mar 11 18:23	8°♎♎50'14	
				opposition	12255 May 19 11:44	5°♎♎24'34	1°34'49
conjunction	12249 Sep 06 15:32	26°♎27'03	-0°46'22	min. Earth dist.	12255 May 19 09:03	5°♎♎25'06	8.50464 AU
minimum elong	12249 Sep 06 15:34	26°♎27'04	0°46'30	direct	12255 Jul 26 07:50	2°♎♎00'47	
max. Earth dist.	12249 Sep 07 03:53	26°♎30'50	10.67788 AU	evening set	12255 Nov 05 09:21	9°♎♎34'44	
morning rise	12249 Sep 23 21:42	28°♎32'36					
	12249 Oct 06 08:36	0°♎		conjunction	12255 Nov 23 00:54	11°♎♎44'50	1°24'53
retrograde	12250 Jan 06 06:50	6°♎06'18		minimum elong	12255 Nov 23 00:52	11°♎♎44'49	1°25'42
opposition	12250 Mar 17 03:31	2°♎42'30	-0°43'18	max. Earth dist.	12255 Nov 23 02:33	11°♎♎45'20	10.48716 AU
min. Earth dist.	12250 Mar 16 17:22	2°♎44'27	8.66682 AU	morning rise	12255 Dec 10 18:02	13°♎♎55'26	
	12250 Apr 27 05:16	30°♎♎		retrograde	12256 Mar 24 02:16	21°♎♎39'21	
direct	12250 May 24 12:27	29°♎22'04		opposition	12256 May 31 11:50	18°♎♎13'38	1°54'11
	12250 Jun 20 11:49	0°♎		min. Earth dist.	12256 May 31 11:30	18°♎♎13'42	8.47183 AU
evening set	12250 Sep 02 02:35	6°♎41'40		direct	12256 Aug 07 07:25	14°♎♎49'03	
				evening set	12256 Nov 17 22:21	22°♎♎26'58	
conjunction	12250 Sep 19 08:26	8°♎47'14	-0°23'54				
minimum elong	12250 Sep 19 08:27	8°♎47'14	0°23'51	conjunction	12256 Dec 05 14:44	24°♎♎37'44	1°38'20
max. Earth dist.	12250 Sep 19 19:43	8°♎50'40	10.65387 AU	minimum elong	12256 Dec 05 14:42	24°♎♎37'43	1°39'13
morning rise	12250 Oct 06 17:20	10°♎53'44		max. Earth dist.	12256 Dec 05 12:49	24°♎♎37'08	10.45567 AU
retrograde	12251 Jan 19 06:16	18°♎29'09		morning rise	12256 Dec 23 08:14	26°♎♎48'51	
opposition	12251 Mar 29 23:00	15°♎04'51	-0°14'41		12257 Jan 20 01:29	0°♎♎	
min. Earth dist.	12251 Mar 29 14:05	15°♎06'35	8.63979 AU	retrograde	12257 Apr 06 09:53	4°♎♎33'40	
direct	12251 Jun 06 02:55	11°♎43'57		opposition	12257 Jun 13 13:18	1°♎♎08'03	2°07'57
evening set	12251 Sep 14 20:12	19°♎05'13		min. Earth dist.	12257 Jun 13 15:48	1°♎♎07'33	8.44256 AU
					12257 Jun 28 00:51	30°♎♎♎	
conjunction	12251 Oct 02 04:28	21°♎11'45	-0°00'11	direct	12257 Aug 20 10:58	27°♎♎42'41	
minimum elong	12251 Oct 02 04:27	21°♎11'45	0°00'03		12257 Oct 11 14:22	0°♎♎	

evening set	12257 Dec 01 14:19	5°♄24'29		conjunction	12264 Mar 09 20:27	26°♄10'24	0°46'54
				minimum elong	12264 Mar 09 20:29	26°♄10'24	0°47'02
conjunction	12257 Dec 19 07:18	7°♄35'49	1°46'53	max. Earth dist.	12264 Mar 09 07:55	26°♄06'28	10.41360 AU
minimum elong	12257 Dec 19 07:17	7°♄35'48	1°47'47	morning rise	12264 Mar 27 07:45	28°♄20'58	
max. Earth dist.	12257 Dec 19 02:15	7°♄34'14	10.42848 AU		12264 Apr 10 01:50	0°♄	
morning rise	12258 Jan 06 00:48	9°♄47'18		retrograde	12264 Jul 06 21:16	5°♄58'43	
retrograde	12258 Apr 19 17:53	17°♄32'33		opposition	12264 Sep 12 11:28	2°♄36'25	0°43'55
opposition	12258 Jun 26 16:21	14°♄07'10	2°15'16	min. Earth dist.	12264 Sep 12 20:44	2°♄34'35	8.42491 AU
min. Earth dist.	12258 Jun 26 20:55	14°♄06'15	8.41820 AU		12264 Oct 20 03:40	30°♄♄	
direct	12258 Sep 02 17:37	10°♄41'07		direct	12264 Nov 20 17:19	29°♄10'01	
evening set	12258 Dec 15 08:21	18°♄26'24			12264 Dec 21 23:28	0°♄	
				evening set	12265 Mar 05 20:08	7°♄00'17	
conjunction	12259 Jan 02 01:42	20°♄38'11	1°50'00				
minimum elong	12259 Jan 02 01:42	20°♄38'11	1°50'51	conjunction	12265 Mar 23 08:22	9°♄10'55	0°23'20
max. Earth dist.	12259 Jan 01 18:30	20°♄35'56	10.40696 AU	minimum elong	12265 Mar 23 08:23	9°♄10'56	0°23'16
morning rise	12259 Jan 19 18:47	22°♄49'54		max. Earth dist.	12265 Mar 22 21:10	9°♄07'25	10.43737 AU
	12259 Apr 07 11:49	0°♄		morning rise	12265 Apr 09 17:30	11°♄20'41	
retrograde	12259 May 03 03:46	0°♄35'05		retrograde	12265 Jul 20 02:10	18°♄56'20	
	12259 May 28 22:53	30°♄♄		opposition	12265 Sep 25 20:14	15°♄34'30	0°13'51
opposition	12259 Jul 09 20:52	27°♄10'01	2°15'40	min. Earth dist.	12265 Sep 26 04:09	15°♄32'57	8.45134 AU
min. Earth dist.	12259 Jul 10 02:46	27°♄08'50	8.40004 AU	direct	12265 Dec 04 07:05	12°♄08'37	
direct	12259 Sep 16 01:19	23°♄43'29		desc. node	12266 Mar 16 02:27	19°♄33'34	
	12259 Dec 16 10:05	0°♄		evening set	12266 Mar 19 06:43	19°♄56'47	
evening set	12259 Dec 29 03:50	1°♄31'38					
conjunction	12260 Jan 15 21:20	3°♄43'45	1°47'26	conjunction	12266 Apr 05 16:39	22°♄06'30	-0°01'22
minimum elong	12260 Jan 15 21:21	3°♄43'45	1°48'13	minimum elong	12266 Apr 05 16:39	22°♄06'30	0°01'37
max. Earth dist.	12260 Jan 15 12:40	3°♄41'02	10.39237 AU	behind sun begin	12266 Apr 05 09:30	22°♄04'17	
morning rise	12260 Feb 02 13:43	5°♄55'34		behind sun end	12266 Apr 05 23:49	22°♄08'43	
retrograde	12260 May 15 13:37	13°♄40'06		max. Earth dist.	12266 Apr 05 07:22	22°♄03'37	10.46638 AU
opposition	12260 Jul 22 02:40	10°♄15'29	2°09'02	morning rise	12266 Apr 22 23:21	24°♄15'18	
min. Earth dist.	12260 Jul 22 09:36	10°♄14'05	8.38916 AU		12266 Jun 17 07:25	0°♄	
direct	12260 Sep 28 11:25	6°♄48'37		retrograde	12266 Aug 02 06:58	1°♄48'56	
evening set	12261 Jan 10 23:52	14°♄38'57			12266 Sep 18 15:00	30°♄♄	
	12261 Jan 13 20:20	15°♄		opposition	12266 Oct 09 04:39	28°♄27'29	-0°16'43
conjunction	12261 Jan 28 17:11	16°♄51'12	1°39'16	min. Earth dist.	12266 Oct 09 11:22	28°♄26'10	8.48228 AU
minimum elong	12261 Jan 28 17:13	16°♄51'13	1°39'57	direct	12266 Dec 17 17:48	25°♄02'09	
max. Earth dist.	12261 Jan 28 07:09	16°♄48'03	10.38557 AU		12267 Mar 08 13:27	0°♄	
morning rise	12261 Feb 15 08:40	19°♄02'59		evening set	12267 Apr 01 13:40	2°♄47'41	
retrograde	12261 May 28 23:10	26°♄46'21					
opposition	12261 Aug 04 09:47	23°♄22'17	1°55'39	conjunction	12267 Apr 18 20:57	4°♄56'19	-0°25'45
min. Earth dist.	12261 Aug 04 18:03	23°♄20'38	8.38617 AU	minimum elong	12267 Apr 18 20:56	4°♄56'19	0°26'11
direct	12261 Oct 11 23:17	19°♄55'16		max. Earth dist.	12267 Apr 18 13:13	4°♄53'55	10.49872 AU
evening set	12262 Jan 24 19:34	27°♄46'56		morning rise	12267 May 06 01:10	7°♄04'05	
conjunction	12262 Feb 11 12:12	29°♄59'08	1°25'57	retrograde	12267 Aug 15 07:47	14°♄35'55	
minimum elong	12262 Feb 11 12:15	29°♄59'08	1°26'27	opposition	12267 Oct 22 12:17	11°♄14'45	-0°46'13
max. Earth dist.	12262 Feb 11 00:40	29°♄55'30	10.38690 AU	min. Earth dist.	12267 Oct 22 18:11	11°♄13'37	8.51549 AU
	12262 Feb 11 15:00	0°♄		direct	12267 Dec 31 04:39	7°♄50'01	
morning rise	12262 Mar 01 02:33	2°♄10'41		evening set	12268 Apr 09 05:10	15°♄	
retrograde	12262 Jun 11 08:28	9°♄52'27			12268 Apr 13 17:05	15°♄32'38	
opposition	12262 Aug 17 17:53	6°♄29'00	1°36'16	conjunction	12268 Apr 30 21:30	17°♄40'06	-0°48'44
min. Earth dist.	12262 Aug 18 03:19	6°♄27'07	8.39134 AU	minimum elong	12268 Apr 30 21:28	17°♄40'05	0°49'19
direct	12262 Oct 25 11:47	3°♄02'02		max. Earth dist.	12268 Apr 30 14:42	17°♄37'59	10.53185 AU
evening set	12263 Feb 07 14:00	10°♄54'06		morning rise	12268 May 17 23:19	19°♄46'49	
conjunction	12263 Feb 25 05:33	13°♄06'01	1°08'10	retrograde	12268 Aug 27 07:07	27°♄17'15	
minimum elong	12263 Feb 25 05:35	13°♄06'02	1°08'30	opposition	12268 Nov 03 18:52	23°♄56'18	-1°13'14
max. Earth dist.	12263 Feb 24 17:02	13°♄02'06	10.39642 AU	min. Earth dist.	12268 Nov 03 23:49	23°♄55'21	8.54830 AU
morning rise	12263 Mar 14 18:32	15°♄17'11		direct	12269 Jan 12 13:53	20°♄32'12	
retrograde	12263 Jun 24 16:03	22°♄57'01		evening set	12269 Apr 26 16:53	28°♄11'49	
opposition	12263 Aug 31 02:32	19°♄34'10	1°11'54		12269 May 11 08:04	0°♄	
min. Earth dist.	12263 Aug 31 12:26	19°♄32'13	8.40452 AU	conjunction	12269 May 13 18:32	0°♄18'10	-1°09'11
direct	12263 Nov 08 02:04	16°♄07'24		minimum elong	12269 May 13 18:29	0°♄18'09	1°09'54
evening set	12264 Feb 21 06:20	23°♄59'00		max. Earth dist.	12269 May 13 13:14	0°♄16'31	10.56344 AU
				morning rise	12269 May 30 18:09	2°♄23'54	
				retrograde	12269 Sep 09 06:18	9°♄53'30	
				opposition	12269 Nov 17 00:37	6°♄32'37	-1°36'29

min. Earth dist.	12269 Nov 17 03:29	6° Π 32'04	8.57888 AU	evening set	12276 Jul 21 15:08	24° Ω 50'13	
direct	12270 Jan 25 20:21	3° Π 09'13					
evening set	12270 May 09 13:08	10° Π 45'46		conjunction	12276 Aug 07 13:04	26° Ω 53'43	-1°30'01
				minimum elong	12276 Aug 07 13:06	26° Ω 53'44	1°30'34
conjunction	12270 May 26 12:26	12° Π 51'07	-1°26'13	max. Earth dist.	12276 Aug 08 00:48	26° Ω 57'19	10.67398 AU
minimum elong	12270 May 26 12:24	12° Π 51'06	1°27'01	morning rise	12276 Aug 24 12:58	28° Ω 57'49	
max. Earth dist.	12270 May 26 09:59	12° Π 50'21	10.59231 AU		12276 Sep 02 07:27	0° Π	
morning rise	12270 Jun 12 10:10	14° Π 55'59		retrograde	12276 Dec 06 07:25	6° Π 29'34	
retrograde	12270 Sep 22 04:08	22° Π 25'10		opposition	12277 Feb 14 07:59	3° Π 06'11	-1°41'44
opposition	12270 Nov 30 05:18	19° Π 04'14	-1°54'59	min. Earth dist.	12277 Feb 13 21:35	3° Π 08'11	8.67227 AU
min. Earth dist.	12270 Nov 30 05:32	19° Π 04'11	8.60645 AU		12277 Apr 07 07:47	30° \mathbb{R} Ω	
direct	12271 Feb 08 00:40	15° Π 41'28		direct	12277 Apr 24 04:56	29° Ω 45'22	
evening set	12271 May 22 06:30	23° Π 15'00			12277 May 10 23:41	0° Π	
				evening set	12277 Aug 03 01:15	7° Π 05'42	
conjunction	12271 Jun 08 03:57	25° Π 19'28	-1°39'04				
minimum elong	12271 Jun 08 03:56	25° Π 19'28	1°39'55	conjunction	12277 Aug 20 01:07	9° Π 09'43	-1°14'23
max. Earth dist.	12271 Jun 08 04:40	25° Π 19'41	10.61790 AU	minimum elong	12277 Aug 20 01:10	9° Π 09'44	1°14'46
morning rise	12271 Jun 25 00:14	27° Π 23'38		max. Earth dist.	12277 Aug 20 13:22	9° Π 13'28	10.66743 AU
	12271 Jul 17 12:22	0° \mathbb{E}		morning rise	12277 Sep 06 03:33	11° Π 14'28	
retrograde	12271 Oct 05 01:58	4° \mathbb{E} 52'40		retrograde	12277 Dec 19 05:08	18° Π 47'24	
opposition	12271 Dec 13 08:42	1° \mathbb{E} 31'32	-2°07'58	opposition	12278 Feb 27 04:50	15° Π 23'34	-1°20'11
min. Earth dist.	12271 Dec 13 06:34	1° \mathbb{E} 31'56	8.63036 AU	min. Earth dist.	12278 Feb 26 18:25	15° Π 25'34	8.66241 AU
	12272 Jan 03 02:56	30° \mathbb{R} Π		direct	12278 May 06 20:27	12° Π 02'42	
direct	12272 Feb 21 02:32	28° Π 09'19		evening set	12278 Aug 15 12:46	19° Π 22'43	
	12272 Apr 08 11:43	0° \mathbb{E}					
evening set	12272 Jun 02 21:14	5° \mathbb{E} 39'53		conjunction	12278 Sep 01 14:58	21° Π 27'26	-0°55'17
				minimum elong	12278 Sep 01 15:00	21° Π 27'27	0°55'30
conjunction	12272 Jun 19 17:18	7° \mathbb{E} 43'40	-1°47'13	max. Earth dist.	12278 Sep 02 02:52	21° Π 31'04	10.65486 AU
minimum elong	12272 Jun 19 17:17	7° \mathbb{E} 43'40	1°48'06	morning rise	12278 Sep 18 20:15	23° Π 33'00	
max. Earth dist.	12272 Jun 19 20:32	7° \mathbb{E} 44'40	10.63954 AU		12278 Nov 25 05:04	0° \mathbb{E}	
morning rise	12272 Jul 06 12:53	9° \mathbb{E} 47'20		retrograde	12279 Jan 01 03:07	1° \mathbb{E} 07'19	
retrograde	12272 Oct 16 23:25	17° \mathbb{E} 16'26			12279 Feb 07 13:00	30° \mathbb{R} Π	
opposition	12272 Dec 25 11:07	13° \mathbb{E} 55'00	-2°14'55	opposition	12279 Mar 12 01:17	27° Π 43'02	-0°54'53
min. Earth dist.	12272 Dec 25 07:22	13° \mathbb{E} 55'43	8.64991 AU	min. Earth dist.	12279 Mar 11 15:21	27° Π 44'57	8.64670 AU
direct	12273 Mar 05 01:22	10° \mathbb{E} 33'15		direct	12279 May 19 11:33	24° Π 22'01	
evening set	12273 Jun 15 09:32	18° \mathbb{E} 00'57			12279 Aug 13 11:35	0° \mathbb{E}	
				evening set	12279 Aug 28 02:29	1° \mathbb{E} 42'29	
conjunction	12273 Jul 02 04:51	20° \mathbb{E} 04'17	-1°50'22				
minimum elong	12273 Jul 02 04:51	20° \mathbb{E} 04'17	1°51'14	conjunction	12279 Sep 14 07:16	3° \mathbb{E} 48'00	-0°33'36
max. Earth dist.	12273 Jul 02 09:54	20° \mathbb{E} 05'50	10.65657 AU	minimum elong	12279 Sep 14 07:18	3° \mathbb{E} 48'01	0°33'38
morning rise	12273 Jul 19 00:35	22° \mathbb{E} 07'43		max. Earth dist.	12279 Sep 14 19:09	3° \mathbb{E} 51'38	10.63670 AU
retrograde	12273 Oct 29 18:26	29° \mathbb{E} 37'08		morning rise	12279 Oct 01 15:16	5° \mathbb{E} 54'28	
opposition	12274 Jan 07 12:15	26° \mathbb{E} 15'16	-2°15'37	retrograde	12280 Jan 14 01:35	13° \mathbb{E} 30'23	
min. Earth dist.	12274 Jan 07 06:53	26° \mathbb{E} 16'18	8.66442 AU	opposition	12280 Mar 23 21:34	10° \mathbb{E} 05'40	-0°26'56
direct	12274 Mar 17 22:49	22° \mathbb{E} 53'52		min. Earth dist.	12280 Mar 23 11:44	10° \mathbb{E} 07'35	8.62588 AU
	12274 Jun 25 04:35	0° Ω		direct	12280 May 31 04:03	6° \mathbb{E} 44'25	
evening set	12274 Jun 27 20:11	0° Ω 19'02		evening set	12280 Sep 08 19:11	14° \mathbb{E} 06'04	
conjunction	12274 Jul 14 15:37	2° Ω 22'09	-1°48'26	conjunction	12280 Sep 26 02:38	16° \mathbb{E} 12'31	-0°10'16
minimum elong	12274 Jul 14 15:38	2° Ω 22'10	1°49'14	minimum elong	12280 Sep 26 02:38	16° \mathbb{E} 12'31	0°10'07
max. Earth dist.	12274 Jul 14 22:46	2° Ω 24'21	10.66834 AU	behind sun begin	12280 Sep 25 20:54	16° \mathbb{E} 10'46	
morning rise	12274 Jul 31 12:12	4° Ω 25'34		behind sun end	12280 Sep 26 08:21	16° \mathbb{E} 14'15	
retrograde	12274 Nov 11 13:57	11° Ω 55'32		max. Earth dist.	12280 Sep 26 14:33	16° \mathbb{E} 16'09	10.61385 AU
opposition	12275 Jan 20 11:50	8° Ω 33'11	-2°10'05	morning rise	12280 Oct 13 13:07	18° \mathbb{E} 19'52	
min. Earth dist.	12275 Jan 20 04:38	8° Ω 34'34	8.67328 AU	retrograde	12281 Jan 26 03:08	25° \mathbb{E} 57'31	
direct	12275 Mar 30 19:40	5° Ω 12'03		asc. node	12281 Mar 06 12:00	24° \mathbb{E} 42'38	
evening set	12275 Jul 10 05:48	12° Ω 35'05		opposition	12281 Apr 05 18:03	22° \mathbb{E} 32'28	0°02'25
				min. Earth dist.	12281 Apr 05 08:30	22° \mathbb{E} 34'19	8.60105 AU
conjunction	12275 Jul 27 02:12	14° Ω 38'16	-1°41'33	direct	12281 Jun 12 20:46	19° \mathbb{E} 10'52	
minimum elong	12275 Jul 27 02:14	14° Ω 38'17	1°42'14	evening set	12281 Sep 21 15:31	26° \mathbb{E} 34'26	
max. Earth dist.	12275 Jul 27 11:55	14° Ω 41'15	10.67428 AU				
	12275 Jul 30 01:01	15° Ω		conjunction	12281 Oct 09 01:22	28° \mathbb{E} 41'48	0°13'46
morning rise	12275 Aug 13 00:09	16° Ω 41'55		minimum elong	12281 Oct 09 01:21	28° \mathbb{E} 41'48	0°14'06
retrograde	12275 Nov 24 10:42	24° Ω 12'38		behind sun begin	12281 Oct 08 21:52	28° \mathbb{E} 40'45	
opposition	12276 Feb 02 10:21	20° Ω 49'47	-1°58'37	behind sun end	12281 Oct 09 04:50	28° \mathbb{E} 42'51	
min. Earth dist.	12276 Feb 02 01:03	20° Ω 51'34	8.67596 AU	max. Earth dist.	12281 Oct 09 12:22	28° \mathbb{E} 45'10	10.58746 AU
direct	12276 Apr 11 13:07	17° Ω 28'52			12281 Oct 19 16:41	0° \mathbb{E}	

morning rise	12281 Oct 26 14:08	0° \mathbb{M} 50'04		morning rise	12288 Jan 14 11:53	17° \mathbb{Z} 45'40	
retrograde	12282 Feb 08 07:06	8° \mathbb{M} 29'27		retrograde	12288 Apr 27 02:24	25° \mathbb{Z} 30'37	
opposition	12282 Apr 18 15:07	5° \mathbb{M} 04'11	0°31'51	opposition	12288 Jul 03 20:00	22° \mathbb{Z} 05'56	2°16'02
min. Earth dist.	12282 Apr 18 06:42	5° \mathbb{M} 05'50	8.57340 AU	min. Earth dist.	12288 Jul 04 01:05	22° \mathbb{Z} 04'55	8.42110 AU
direct	12282 Jun 25 12:59	1° \mathbb{M} 42'08		direct	12288 Sep 09 21:09	18° \mathbb{Z} 40'09	
evening set	12282 Oct 04 15:55	9° \mathbb{M} 08'20		evening set	12288 Dec 22 20:48	26° \mathbb{Z} 26'46	
conjunction	12282 Oct 22 03:46	11° \mathbb{M} 16'34	0°37'11	conjunction	12289 Jan 09 14:07	28° \mathbb{Z} 38'36	1°48'56
minimum elong	12282 Oct 22 03:44	11° \mathbb{M} 16'34	0°37'41	minimum elong	12289 Jan 09 14:08	28° \mathbb{Z} 38'36	1°49'45
max. Earth dist.	12282 Oct 22 12:26	11° \mathbb{M} 19'14	10.55883 AU	max. Earth dist.	12289 Jan 09 05:26	28° \mathbb{Z} 35'53	10.41183 AU
morning rise	12282 Nov 08 18:26	13° \mathbb{M} 25'41			12289 Jan 20 11:33	0° \approx	
	12282 Nov 22 02:54	15° \mathbb{M}		morning rise	12289 Jan 27 06:46	0° \approx 50'16	
retrograde	12283 Feb 21 10:49	21° \mathbb{M} 06'45		retrograde	12289 May 10 11:40	8° \approx 34'42	
opposition	12283 May 01 12:58	17° \mathbb{M} 41'22	0°59'57	opposition	12289 Jul 17 01:15	5° \approx 10'26	2°12'15
min. Earth dist.	12283 May 01 06:45	17° \mathbb{M} 42'35	8.54438 AU	min. Earth dist.	12289 Jul 17 08:51	5° \approx 08'55	8.40651 AU
	12283 Jun 10 04:56	15° \mathbb{R} \mathbb{M}		direct	12289 Sep 23 07:22	1° \approx 44'10	
direct	12283 Jul 08 08:41	14° \mathbb{M} 18'47		evening set	12290 Jan 05 16:48	9° \approx 33'19	
	12283 Aug 05 07:34	15° \mathbb{M}					
evening set	12283 Oct 17 20:24	21° \mathbb{M} 48'11		conjunction	12290 Jan 23 10:00	11° \approx 45'21	1°43'02
conjunction	12283 Nov 04 09:56	23° \mathbb{M} 57'15	0°58'57	minimum elong	12290 Jan 23 10:02	11° \approx 45'22	1°43'45
minimum elong	12283 Nov 04 09:54	23° \mathbb{M} 57'15	0°59'37	max. Earth dist.	12290 Jan 22 22:45	11° \approx 41'50	10.40034 AU
max. Earth dist.	12283 Nov 04 15:51	23° \mathbb{M} 59'05	10.52954 AU	morning rise	12290 Feb 10 01:57	13° \approx 57'03	
morning rise	12283 Nov 22 02:04	26° \mathbb{M} 07'06			12290 Feb 18 18:11	15° \approx	
	12283 Dec 26 19:42	0° \mathbb{Z}		retrograde	12290 May 23 19:59	21° \approx 40'32	
retrograde	12284 Mar 05 15:57	3° \mathbb{Z} 49'42		opposition	12290 Jul 30 07:52	18° \approx 16'41	2°01'36
opposition	12284 May 13 11:58	0° \mathbb{Z} 24'18	1°25'19	min. Earth dist.	12290 Jul 30 16:52	18° \approx 14'54	8.39826 AU
min. Earth dist.	12284 May 13 08:00	0° \mathbb{Z} 25'05	8.51553 AU		12290 Sep 23 02:32	15° \mathbb{R} \approx	
	12284 May 18 15:12	30° \mathbb{R} \mathbb{M}		direct	12290 Oct 06 19:46	14° \approx 50'05	
direct	12284 Jul 20 07:06	27° \mathbb{M} 01'07			12290 Oct 20 11:11	15° \approx	
	12284 Sep 18 07:35	0° \mathbb{Z}		evening set	12291 Jan 19 12:28	22° \approx 40'53	
evening set	12284 Oct 30 04:47	4° \mathbb{Z} 34'01					
conjunction	12284 Nov 16 19:47	6° \mathbb{Z} 43'51	1°17'58	conjunction	12291 Feb 06 05:19	24° \approx 52'59	1°31'47
minimum elong	12284 Nov 16 19:44	6° \mathbb{Z} 43'51	1°18'44	minimum elong	12291 Feb 06 05:22	24° \approx 53'00	1°32'21
max. Earth dist.	12284 Nov 16 23:21	6° \mathbb{Z} 44'58	10.50094 AU	max. Earth dist.	12291 Feb 05 17:06	24° \approx 49'09	10.39592 AU
morning rise	12284 Dec 04 12:49	8° \mathbb{Z} 54'18		morning rise	12291 Feb 23 20:15	27° \approx 04'32	
retrograde	12285 Mar 18 23:22	16° \mathbb{Z} 38'09			12291 Mar 20 21:00	0° \mathbb{H}	
opposition	12285 May 26 12:05	13° \mathbb{Z} 12'49	1°46'39	retrograde	12291 Jun 06 04:51	4° \mathbb{H} 46'39	
min. Earth dist.	12285 May 26 10:03	13° \mathbb{Z} 13'13	8.48801 AU	opposition	12291 Aug 12 15:26	1° \mathbb{H} 23'11	1°44'36
direct	12285 Aug 02 07:04	9° \mathbb{Z} 48'59		min. Earth dist.	12291 Aug 13 00:45	1° \mathbb{H} 21'20	8.39739 AU
evening set	12285 Nov 12 17:00	17° \mathbb{Z} 25'33			12291 Aug 30 13:52	30° \mathbb{R} \approx	
				direct	12291 Oct 20 08:35	27° \approx 56'24	
conjunction	12285 Nov 30 09:06	19° \mathbb{Z} 36'03	1°33'12		12291 Dec 09 01:08	0° \mathbb{H}	
minimum elong	12285 Nov 30 09:04	19° \mathbb{Z} 36'02	1°34'03	evening set	12292 Feb 02 07:19	5° \mathbb{H} 47'57	
max. Earth dist.	12285 Nov 30 10:22	19° \mathbb{Z} 36'26	10.47414 AU				
morning rise	12285 Dec 18 02:27	21° \mathbb{Z} 46'57		conjunction	12292 Feb 19 23:28	7° \mathbb{H} 59'54	1°15'45
retrograde	12286 Apr 01 07:04	29° \mathbb{Z} 31'36		minimum elong	12292 Feb 19 23:31	7° \mathbb{H} 59'55	1°16'10
opposition	12286 Jun 08 13:18	26° \mathbb{Z} 06'24	2°02'47	max. Earth dist.	12292 Feb 19 11:06	7° \mathbb{H} 56'01	10.39917 AU
min. Earth dist.	12286 Jun 08 13:05	26° \mathbb{Z} 06'27	8.46273 AU	morning rise	12292 Mar 08 13:02	10° \mathbb{H} 11'08	
direct	12286 Aug 15 10:10	22° \mathbb{Z} 41'54		retrograde	12292 Jun 18 13:37	17° \mathbb{H} 51'25	
	12286 Nov 23 07:20	0° \mathbb{Z}		opposition	12292 Aug 24 23:30	14° \mathbb{H} 28'23	1°22'12
evening set	12286 Nov 26 08:14	0° \mathbb{Z} 22'04		min. Earth dist.	12292 Aug 25 09:04	14° \mathbb{H} 26'29	8.40417 AU
				direct	12292 Nov 01 21:21	11° \mathbb{H} 01'34	
conjunction	12286 Dec 14 01:03	2° \mathbb{Z} 33'05	1°43'49	evening set	12293 Feb 15 00:25	18° \mathbb{H} 52'59	
minimum elong	12286 Dec 14 01:02	2° \mathbb{Z} 33'05	1°44'43				
max. Earth dist.	12286 Dec 13 23:35	2° \mathbb{Z} 32'38	10.44998 AU	conjunction	12293 Mar 04 15:21	21° \mathbb{H} 04'33	0°55'50
morning rise	12286 Dec 31 18:21	4° \mathbb{Z} 44'20		minimum elong	12293 Mar 04 15:23	21° \mathbb{H} 04'33	0°56'03
retrograde	12287 Apr 14 16:06	12° \mathbb{Z} 29'20		max. Earth dist.	12293 Mar 04 02:57	21° \mathbb{H} 00'40	10.40998 AU
opposition	12287 Jun 21 15:58	9° \mathbb{Z} 04'21	2°12'47	morning rise	12293 Mar 22 03:14	23° \mathbb{H} 15'17	
min. Earth dist.	12287 Jun 21 18:08	9° \mathbb{Z} 03'55	8.44028 AU		12293 May 31 03:12	0° \mathbb{Y}	
direct	12287 Aug 28 14:55	5° \mathbb{Z} 39'10		retrograde	12293 Jul 01 19:48	0° \mathbb{Y} 53'30	
evening set	12287 Dec 10 01:37	13° \mathbb{Z} 22'42			12293 Aug 02 21:48	30° \mathbb{R} \mathbb{H}	
				opposition	12293 Sep 07 08:03	27° \mathbb{H} 30'52	0°55'36
conjunction	12287 Dec 27 18:49	15° \mathbb{Z} 34'10	1°49'11	min. Earth dist.	12293 Sep 07 17:51	27° \mathbb{H} 28'56	8.41827 AU
minimum elong	12287 Dec 27 18:49	15° \mathbb{Z} 34'10	1°50'04	direct	12293 Nov 15 11:31	24° \mathbb{H} 04'10	
max. Earth dist.	12287 Dec 27 13:43	15° \mathbb{Z} 32'35	10.42895 AU		12294 Feb 12 14:06	0° \mathbb{Y}	
				evening set	12294 Feb 28 14:54	1° \mathbb{Y} 54'36	

conjunction	12294 Mar 18 04:00	4° Υ 05'32	0°33'07	conjunction	12300 Jun 03 04:28	20° Π 18'50	-1°34'12
minimum elong	12294 Mar 18 04:01	4° Υ 05'32	0°33'08	minimum elong	12300 Jun 03 04:26	20° Π 18'50	1°35'03
max. Earth dist.	12294 Mar 17 15:44	4° Υ 01'41	10.42771 AU	max. Earth dist.	12300 Jun 03 04:17	20° Π 18'47	10.60970 AU
morning rise	12294 Apr 04 13:59	6° Υ 15'34		morning rise	12300 Jun 20 01:21	22° Π 23'12	
retrograde	12294 Jul 15 00:35	13° Υ 51'42		retrograde	12300 Sep 29 21:51	29° Π 51'35	
opposition	12294 Sep 20 16:35	10° Υ 29'26	0°26'16	opposition	12300 Dec 08 03:35	26° Π 30'22	-2°03'11
min. Earth dist.	12294 Sep 21 02:22	10° Υ 27'31	8.43898 AU	min. Earth dist.	12300 Dec 08 02:21	26° Π 30'36	8.62550 AU
direct	12294 Nov 29 01:03	7° Υ 02'59		direct	12301 Feb 15 22:55	23° Π 07'45	
evening set	12295 Mar 14 02:19	14° Υ 51'43			12301 May 24 11:19	0° Θ	
				evening set	12301 May 29 21:20	0° Θ 38'55	
conjunction	12295 Mar 31 13:11	17° Υ 01'48	0°08'51	conjunction	12301 Jun 15 17:45	2° Θ 42'49	-1°44'20
minimum elong	12295 Mar 31 13:11	17° Υ 01'48	0°08'41	minimum elong	12301 Jun 15 17:44	2° Θ 42'48	1°45'13
behind sun begin	12295 Mar 31 06:58	16° Υ 59'52		max. Earth dist.	12301 Jun 15 20:15	2° Θ 43'35	10.63835 AU
behind sun end	12295 Mar 31 19:24	17° Υ 03'43		morning rise	12301 Jul 02 13:38	4° Θ 46'31	
max. Earth dist.	12295 Mar 31 01:25	16° Υ 58'07	10.45145 AU	retrograde	12301 Oct 12 18:18	12° Θ 14'46	
morning rise	12295 Apr 17 21:03	19° Υ 11'00		opposition	12301 Dec 21 05:33	8° Θ 53'27	-2°12'38
retrograde	12295 Jul 28 03:34	26° Υ 45'05		min. Earth dist.	12301 Dec 21 01:34	8° Θ 54'12	8.65234 AU
desc. node	12295 Aug 13 18:34	26° Υ 30'26		direct	12302 Feb 28 22:29	5° Θ 31'33	
opposition	12295 Oct 04 00:31	23° Υ 23'07	-0°04'14	evening set	12302 Jun 11 09:38	12° Θ 59'39	
min. Earth dist.	12295 Oct 04 09:15	23° Υ 21'25	8.46520 AU				
direct	12295 Dec 12 13:19	19° Υ 57'05		conjunction	12302 Jun 28 05:13	15° Θ 02'57	-1°49'35
evening set	12296 Mar 26 10:17	27° Υ 43'31		minimum elong	12302 Jun 28 05:12	15° Θ 02'57	1°50'28
				max. Earth dist.	12302 Jun 28 11:08	15° Θ 04'47	10.66271 AU
conjunction	12296 Apr 12 18:40	29° Υ 52'36	-0°15'50	morning rise	12302 Jul 15 00:43	17° Θ 06'15	
minimum elong	12296 Apr 12 18:39	29° Υ 52'36	0°16'12	retrograde	12302 Oct 25 14:00	24° Θ 34'37	
max. Earth dist.	12296 Apr 12 08:40	29° Υ 49'29	10.47989 AU	opposition	12303 Jan 03 06:11	21° Θ 13'07	-2°15'56
	12296 Apr 13 18:22	0° Ξ		min. Earth dist.	12303 Jan 02 23:41	21° Θ 14'22	8.67422 AU
morning rise	12296 Apr 30 00:10	2° Ξ 00'50		direct	12303 Mar 13 19:28	17° Θ 51'51	
retrograde	12296 Aug 09 04:06	9° Ξ 33'08		evening set	12303 Jun 23 20:13	25° Θ 17'12	
opposition	12296 Oct 16 07:53	6° Ξ 11'24	-0°34'18				
min. Earth dist.	12296 Oct 16 14:39	6° Ξ 10'06	8.49547 AU	conjunction	12303 Jul 10 15:34	27° Θ 20'08	-1°49'47
direct	12296 Dec 25 01:24	2° Ξ 45'55		minimum elong	12303 Jul 10 15:34	27° Θ 20'09	1°50'37
evening set	12297 Apr 08 14:36	10° Ξ 29'38		max. Earth dist.	12303 Jul 10 23:57	27° Θ 22'43	10.68172 AU
				morning rise	12303 Jul 27 11:26	29° Θ 23'16	
conjunction	12297 Apr 25 20:18	12° Ξ 37'36	-0°39'29		12303 Aug 01 14:42	0° Ω	
minimum elong	12297 Apr 25 20:17	12° Ξ 37'35	0°40'01	retrograde	12303 Nov 07 10:04	6° Ω 51'59	
max. Earth dist.	12297 Apr 25 13:03	12° Ξ 35'20	10.51149 AU	opposition	12304 Jan 16 05:34	3° Ω 30'15	-2°13'01
morning rise	12297 May 12 23:12	14° Ξ 44'46		min. Earth dist.	12304 Jan 15 21:32	3° Ω 31'47	8.69025 AU
	12297 May 15 01:17	15° Ξ		direct	12304 Mar 25 14:52	0° Ω 09'29	
retrograde	12297 Aug 22 04:50	22° Ξ 15'36		evening set	12304 Jul 05 05:36	7° Ω 32'25	
opposition	12297 Oct 29 14:26	18° Ξ 54'05	-1°02'27				
min. Earth dist.	12297 Oct 29 18:47	18° Ξ 53'14	8.52826 AU	conjunction	12304 Jul 22 01:20	9° Ω 35'16	-1°44'59
direct	12298 Jan 07 10:19	15° Ξ 29'16		minimum elong	12304 Jul 22 01:22	9° Ω 35'16	1°45'43
evening set	12298 Apr 21 15:18	23° Ξ 09'57		max. Earth dist.	12304 Jul 22 11:07	9° Ω 38'15	10.69470 AU
				morning rise	12304 Aug 07 22:26	11° Ω 38'29	
conjunction	12298 May 08 18:18	25° Ξ 16'46	-1°01'04		12304 Sep 06 20:20	15° Ω	
minimum elong	12298 May 08 18:16	25° Ξ 16'46	1°01'44	retrograde	12304 Nov 19 05:41	19° Ω 07'44	
max. Earth dist.	12298 May 08 13:58	25° Ξ 15'26	10.54474 AU	opposition	12305 Jan 28 04:01	15° Ω 45'43	-2°04'03
morning rise	12298 May 25 18:44	27° Ξ 22'54		min. Earth dist.	12305 Jan 27 19:07	15° Ω 47'24	8.69987 AU
	12298 Jun 17 06:18	0° Π			12305 Feb 07 06:19	15° \Re Ω	
retrograde	12298 Sep 04 04:44	4° Π 52'35		direct	12305 Apr 07 07:41	12° Ω 25'19	
opposition	12298 Nov 11 19:57	1° Π 31'13	-1°27'21		12305 Jun 02 14:43	15° Ω	
min. Earth dist.	12298 Nov 11 22:25	1° Π 30'45	8.56200 AU	evening set	12305 Jul 17 14:17	19° Ω 46'16	
	12298 Dec 02 07:25	30° \Re Ξ					
direct	12299 Jan 20 15:41	28° Ξ 07'08		conjunction	12305 Aug 03 11:11	21° Ω 49'16	-1°35'26
	12299 Mar 09 14:58	0° Π		minimum elong	12305 Aug 03 11:13	21° Ω 49'17	1°36'02
evening set	12299 May 04 12:28	5° Π 44'38		max. Earth dist.	12305 Aug 03 21:55	21° Ω 52'33	10.70111 AU
				morning rise	12305 Aug 20 10:10	23° Ω 52'50	
conjunction	12299 May 21 12:50	7° Π 50'22	-1°19'35		12305 Oct 21 22:06	0° Π	
minimum elong	12299 May 21 12:48	7° Π 50'21	1°20'21	retrograde	12305 Dec 02 00:14	1° Π 22'53	
max. Earth dist.	12299 May 21 10:38	7° Π 49'41	10.57804 AU		12306 Jan 13 01:08	30° \Re Ω	
morning rise	12299 Jun 07 11:16	9° Π 55'33		opposition	12306 Feb 10 01:21	28° Ω 00'27	-1°49'28
retrograde	12299 Sep 17 01:50	17° Π 24'24		min. Earth dist.	12306 Feb 09 15:41	28° Ω 02'18	8.70254 AU
opposition	12299 Nov 25 00:24	14° Π 03'09	-1°47'53	direct	12306 Apr 20 00:37	24° Ω 40'17	
min. Earth dist.	12299 Nov 25 01:12	14° Π 03'00	8.59495 AU		12306 Jul 12 17:36	0° Π	
direct	12300 Feb 02 19:34	10° Π 39'48		evening set	12306 Jul 29 23:19	1° Π 59'50	
evening set	12300 May 17 06:25	18° Π 14'08					

conjunction	12306 Aug 15 22:07	4° <u>൬</u> 03'14	-1°21'33			12312 Oct 01 01:09	15° <u>൬</u>	
minimum elong	12306 Aug 15 22:09	4° <u>൬</u> 03'14	1°22'00	evening set		12312 Oct 12 05:35	16° <u>൬</u> 19'20	
max. Earth dist.	12306 Aug 16 10:10	4° <u>൬</u> 06'55	10.70030 AU					
morning rise	12306 Sep 01 23:19	6° <u>൬</u> 07'18		conjunction		12312 Oct 29 18:26	18° <u>൬</u> 27'51	0°49'24
retrograde	12306 Dec 14 20:13	13° <u>൬</u> 38'22		minimum elong		12312 Oct 29 18:24	18° <u>൬</u> 27'51	0°50'00
opposition	12307 Feb 22 21:36	10° <u>൬</u> 15'29	-1°29'56	max. Earth dist.		12312 Oct 30 01:06	18° <u>൬</u> 29'54	10.55321 AU
min. Earth dist.	12307 Feb 22 11:05	10° <u>൬</u> 17'29	8.69762 AU	morning rise		12312 Nov 16 09:45	20° <u>൬</u> 37'10	
direct	12307 May 02 17:00	6° <u>൬</u> 55'22		retrograde		12313 Mar 01 00:05	28° <u>൬</u> 18'25	
evening set	12307 Aug 11 09:26	14° <u>൬</u> 14'10		opposition		12313 May 08 23:30	24° <u>൬</u> 52'59	1°14'15
				min. Earth dist.		12313 May 08 18:53	24° <u>൬</u> 53'53	8.53590 AU
conjunction	12307 Aug 28 10:31	16° <u>൬</u> 18'11	-1°03'56	direct		12313 Jul 15 20:02	21° <u>൬</u> 30'00	
minimum elong	12307 Aug 28 10:33	16° <u>൬</u> 18'11	1°04'13	evening set		12313 Oct 25 11:35	29° <u>൬</u> 00'36	
max. Earth dist.	12307 Aug 28 23:20	16° <u>൬</u> 22'05	10.69161 AU			12313 Nov 02 14:39	0° <u>ੜ</u>	
morning rise	12307 Sep 14 14:12	18° <u>൬</u> 22'58						
retrograde	12307 Dec 27 18:31	25° <u>൬</u> 55'16		conjunction		12313 Nov 12 01:59	1° <u>ੜ</u> 09'59	1°09'45
opposition	12308 Mar 06 17:26	22° <u>൬</u> 31'55	-1°06'16	minimum elong		12313 Nov 12 01:57	1° <u>ੜ</u> 09'59	1°10'30
min. Earth dist.	12308 Mar 06 06:42	22° <u>൬</u> 33'58	8.68456 AU	max. Earth dist.		12313 Nov 12 05:56	1° <u>ੜ</u> 11'12	10.51807 AU
direct	12308 May 14 06:41	19° <u>൬</u> 11'42		morning rise		12313 Nov 29 18:28	3° <u>ੜ</u> 20'03	
evening set	12308 Aug 22 21:20	26° <u>൬</u> 30'34		retrograde		12314 Mar 14 07:06	11° <u>ੜ</u> 02'51	
				opposition		12314 May 21 22:27	7° <u>ੜ</u> 37'15	1°37'33
conjunction	12308 Sep 09 00:51	28° <u>൬</u> 35'20	-0°43'22	min. Earth dist.		12314 May 21 20:13	7° <u>ੜ</u> 37'42	8.50152 AU
minimum elong	12308 Sep 09 00:52	28° <u>൬</u> 35'20	0°43'29	direct		12314 Jul 28 17:08	4° <u>ੜ</u> 13'28	
max. Earth dist.	12308 Sep 09 13:09	28° <u>൬</u> 39'05	10.67475 AU	evening set		12314 Nov 07 21:26	11° <u>ੜ</u> 47'55	
	12308 Sep 20 14:57	0° <u>ੲ</u>						
morning rise	12308 Sep 26 07:17	0° <u>ੲ</u> 40'59		conjunction		12314 Nov 25 12:55	13° <u>ੜ</u> 58'03	1°26'48
retrograde	12309 Jan 08 16:43	8° <u>ੲ</u> 14'52		minimum elong		12314 Nov 25 12:53	13° <u>ੜ</u> 58'02	1°27'39
opposition	12309 Mar 19 13:09	4° <u>ੲ</u> 51'02	-0°39'28	max. Earth dist.		12314 Nov 25 13:36	13° <u>ੜ</u> 58'15	10.48430 AU
min. Earth dist.	12309 Mar 19 03:17	4° <u>ੲ</u> 52'56	8.66365 AU	morning rise		12314 Dec 13 06:06	16° <u>ੜ</u> 08'43	
direct	12309 May 26 21:11	1° <u>ੲ</u> 30'34		retrograde		12315 Mar 27 13:09	23° <u>ੜ</u> 52'47	
evening set	12309 Sep 04 12:05	8° <u>ੲ</u> 50'22		opposition		12315 Jun 03 22:46	20° <u>ੜ</u> 27'10	1°56'11
				min. Earth dist.		12315 Jun 03 23:09	20° <u>ੜ</u> 27'05	8.46935 AU
conjunction	12309 Sep 21 18:05	10° <u>ੲ</u> 56'02	-0°20'43	direct		12315 Aug 10 19:10	17° <u>ੜ</u> 02'33	
minimum elong	12309 Sep 21 18:06	10° <u>ੲ</u> 56'03	0°20'39	evening set		12315 Nov 21 10:41	24° <u>ੜ</u> 40'56	
max. Earth dist.	12309 Sep 22 04:37	10° <u>ੲ</u> 59'15	10.65068 AU					
morning rise	12309 Oct 09 03:20	13° <u>ੲ</u> 02'39		conjunction		12315 Dec 09 03:03	26° <u>ੜ</u> 51'43	1°39'37
retrograde	12310 Jan 21 16:16	20° <u>ੲ</u> 38'18		minimum elong		12315 Dec 09 03:02	26° <u>ੜ</u> 51'43	1°40'30
opposition	12310 Apr 01 08:49	17° <u>ੲ</u> 14'00	-0°10'42	max. Earth dist.		12315 Dec 09 00:36	26° <u>ੜ</u> 50'58	10.45356 AU
min. Earth dist.	12310 Apr 01 00:34	17° <u>ੲ</u> 15'36	8.63651 AU	morning rise		12315 Dec 26 20:34	29° <u>ੜ</u> 02'52	
direct	12310 Jun 08 12:40	13° <u>ੲ</u> 53'04				12316 Jan 03 18:47	0° <u>ੜ</u>	
asc. node	12310 Aug 16 11:50	17° <u>ੲ</u> 42'00		retrograde		12316 Apr 08 20:41	6° <u>ੜ</u> 47'47	
evening set	12310 Sep 17 06:06	21° <u>ੲ</u> 14'38		opposition		12316 Jun 16 00:26	3° <u>ੜ</u> 22'15	2°09'05
				min. Earth dist.		12316 Jun 16 03:07	3° <u>ੜ</u> 21'43	8.44093 AU
conjunction	12310 Oct 04 14:36	23° <u>ੲ</u> 21'16	0°03'07			12316 Aug 15 07:22	30° <u>ੜ</u>	
minimum elong	12310 Oct 04 14:35	23° <u>ੲ</u> 21'16	0°03'22	direct		12316 Aug 22 23:06	29° <u>ੜ</u> 56'51	
behind sun begin	12310 Oct 04 07:28	23° <u>ੲ</u> 19'06				12316 Aug 30 14:06	0° <u>ੜ</u>	
behind sun end	12310 Oct 04 21:42	23° <u>ੲ</u> 23'25		evening set		12316 Dec 04 02:45	7° <u>ੜ</u> 38'59	
max. Earth dist.	12310 Oct 04 23:39	23° <u>ੲ</u> 24'01	10.62122 AU					
morning rise	12310 Oct 22 02:22	25° <u>ੲ</u> 28'50		conjunction		12316 Dec 21 19:48	9° <u>ੜ</u> 50'21	1°47'26
	12310 Dec 02 21:35	0° <u>൬</u>		minimum elong		12316 Dec 21 19:48	9° <u>ੜ</u> 50'21	1°48'20
retrograde	12311 Feb 03 17:04	3° <u>൬</u> 06'21		max. Earth dist.		12316 Dec 21 15:04	9° <u>ੜ</u> 48'52	10.42729 AU
	12311 Apr 10 06:29	30° <u>ੜ</u>		morning rise		12317 Jan 08 13:13	12° <u>ੜ</u> 01'51	
opposition	12311 Apr 14 04:59	29° <u>ੲ</u> 41'37	0°18'45	retrograde		12317 Apr 22 05:59	19° <u>ੜ</u> 47'06	
min. Earth dist.	12311 Apr 13 22:01	29° <u>ੲ</u> 42'59	8.60501 AU	opposition		12317 Jun 29 03:33	16° <u>ੜ</u> 21'45	2°15'29
direct	12311 Jun 21 05:19	26° <u>ੲ</u> 20'06		min. Earth dist.		12317 Jun 29 07:43	16° <u>ੜ</u> 20'55	8.41748 AU
	12311 Aug 27 13:47	0° <u>൬</u>		direct		12317 Sep 05 04:46	12° <u>ੜ</u> 55'42	
evening set	12311 Sep 30 03:45	3° <u>൬</u> 44'06		evening set		12317 Dec 17 20:58	20° <u>ੜ</u> 41'11	
conjunction	12311 Oct 17 14:35	5° <u>൬</u> 51'42	0°26'48	conjunction		12318 Jan 04 14:24	22° <u>ੜ</u> 52'59	1°49'47
minimum elong	12311 Oct 17 14:34	5° <u>൬</u> 51'41	0°27'14	minimum elong		12318 Jan 04 14:24	22° <u>ੜ</u> 52'59	1°50'39
max. Earth dist.	12311 Oct 17 22:37	5° <u>൬</u> 54'09	10.58814 AU	max. Earth dist.		12318 Jan 04 07:46	22° <u>ੜ</u> 50'55	10.40668 AU
morning rise	12311 Nov 04 04:22	8° <u>൬</u> 00'11		morning rise		12318 Jan 22 07:18	25° <u>ੜ</u> 04'42	
	12312 Jan 19 21:02	15° <u>൬</u>				12318 Mar 08 09:11	0° <u>ੜ</u>	
retrograde	12312 Feb 16 19:04	15° <u>൬</u> 39'37		retrograde		12318 May 05 15:33	2° <u>ੜ</u> 49'44	
	12312 Mar 15 22:12	15° <u>ੜ</u>				12318 Jul 04 22:53	30° <u>ੜ</u>	
opposition	12312 Apr 26 01:49	12° <u>൬</u> 14'29	0°47'32	opposition		12318 Jul 12 08:02	29° <u>ੜ</u> 24'43	2°14'57
min. Earth dist.	12312 Apr 25 19:48	12° <u>൬</u> 15'40	8.57091 AU	min. Earth dist.		12318 Jul 12 13:38	29° <u>ੜ</u> 23'35	8.40021 AU
direct	12312 Jul 03 00:31	8° <u>൬</u> 52'17		direct		12318 Sep 18 13:03	25° <u>ੜ</u> 58'09	

	12318 Nov 28 13:33	0°♊		evening set	12325 Mar 21 16:53	22°♑06'56	
evening set	12318 Dec 31 16:24	3°♊46'25					
conjunction	12319 Jan 18 09:52	5°♊58'29	1°46'28	conjunction	12325 Apr 08 02:36	24°♑16'32	-0°04'37
minimum elong	12319 Jan 18 09:53	5°♊58'30	1°47'15	minimum elong	12325 Apr 08 02:35	24°♑16'32	0°04'54
max. Earth dist.	12319 Jan 18 01:19	5°♊55'49	10.39299 AU	behind sun begin	12325 Apr 07 19:37	24°♑14'23	
morning rise	12319 Feb 05 02:04	8°♊10'17		behind sun end	12325 Apr 08 09:34	24°♑18'41	
	12319 Apr 16 23:08	15°♊		max. Earth dist.	12325 Apr 07 17:21	24°♑13'40	10.47018 AU
retrograde	12319 May 19 01:02	15°♊54'34		morning rise	12325 Apr 25 09:04	26°♑25'14	
	12319 Jun 20 09:10	15°♊			12325 May 26 17:08	0°♊	
opposition	12319 Jul 25 13:56	12°♊29'59	2°07'24	retrograde	12325 Aug 04 16:00	3°♊58'34	
min. Earth dist.	12319 Jul 25 21:06	12°♊28'33	8.39021 AU	opposition	12325 Oct 11 14:53	0°♊37'09	-0°20'38
direct	12319 Oct 01 23:03	9°♊03'05		min. Earth dist.	12325 Oct 11 21:59	0°♊35'46	8.48622 AU
	12319 Dec 29 15:58	15°♊			12325 Oct 19 14:36	30°♊	
evening set	12320 Jan 14 12:06	16°♊53'21		direct	12325 Dec 20 04:29	27°♑11'51	
					12326 Feb 17 07:04	0°♊	
conjunction	12320 Feb 01 05:18	19°♊05'34	1°37'37	evening set	12326 Apr 03 23:28	4°♊57'02	
minimum elong	12320 Feb 01 05:20	19°♊05'35	1°38'16				
max. Earth dist.	12320 Jan 31 18:42	19°♊02'15	10.38707 AU	conjunction	12326 Apr 21 06:23	7°♊05'31	-0°28'49
morning rise	12320 Feb 18 20:42	21°♊17'17		minimum elong	12326 Apr 21 06:22	7°♊05'31	0°29'16
retrograde	12320 May 31 10:40	29°♊00'19		max. Earth dist.	12326 Apr 20 22:17	7°♊03'00	10.50286 AU
opposition	12320 Aug 06 20:59	25°♊36'17	1°53'13	morning rise	12326 May 08 10:27	9°♊13'11	
min. Earth dist.	12320 Aug 07 05:52	25°♊34'30	8.38806 AU		12326 Jul 03 12:28	15°♊	
direct	12320 Oct 14 10:26	22°♊09'13		retrograde	12326 Aug 17 16:45	16°♊44'47	
evening set	12321 Jan 27 07:29	0°♊00'42			12326 Oct 03 07:14	15°♊	
	12321 Jan 27 05:12	0°♊		opposition	12326 Oct 24 22:23	13°♊23'40	-0°49'50
				min. Earth dist.	12326 Oct 25 04:23	13°♊22'30	8.52000 AU
conjunction	12321 Feb 13 23:59	2°♊12'50	1°23'41	direct	12327 Jan 02 15:34	9°♊58'59	
minimum elong	12321 Feb 14 00:01	2°♊12'51	1°24'10		12327 Mar 25 00:12	15°♊	
max. Earth dist.	12321 Feb 13 11:38	2°♊08'58	10.38922 AU	evening set	12327 Apr 17 02:25	17°♊41'12	
morning rise	12321 Mar 03 14:18	4°♊24'20					
retrograde	12321 Jun 13 18:52	12°♊05'41		conjunction	12327 May 04 06:32	19°♊48'31	-0°51'29
opposition	12321 Aug 20 04:49	8°♊42'14	1°33'08	minimum elong	12327 May 04 06:30	19°♊48'31	0°52'05
min. Earth dist.	12321 Aug 20 14:33	8°♊40'18	8.39396 AU	max. Earth dist.	12327 May 03 23:51	19°♊46'27	10.53680 AU
direct	12321 Oct 27 23:45	5°♊15'13		morning rise	12327 May 21 08:14	21°♊55'07	
evening set	12322 Feb 10 01:30	13°♊07'03		retrograde	12327 Aug 30 16:09	29°♊25'18	
				opposition	12327 Nov 07 04:38	26°♊04'21	-1°16'22
conjunction	12322 Feb 27 16:56	15°♊18'52	1°05'26	min. Earth dist.	12327 Nov 07 08:57	26°♊03'31	8.55381 AU
minimum elong	12322 Feb 27 16:59	15°♊18'53	1°05'44	direct	12328 Jan 15 23:58	22°♊40'20	
max. Earth dist.	12322 Feb 27 04:15	15°♊14'53	10.39936 AU		12328 Apr 26 09:25	0°♊	
morning rise	12322 Mar 17 05:51	17°♊29'57		evening set	12328 Apr 29 01:43	0°♊19'26	
retrograde	12322 Jun 27 00:56	25°♊09'24					
opposition	12322 Sep 02 13:19	21°♊46'32	1°08'16	conjunction	12328 May 16 03:12	2°♊25'38	-1°11'30
min. Earth dist.	12322 Sep 02 22:48	21°♊44'39	8.40763 AU	minimum elong	12328 May 16 03:10	2°♊25'38	1°12'14
direct	12322 Nov 10 14:59	18°♊19'46		max. Earth dist.	12328 May 15 22:49	2°♊24'17	10.56936 AU
evening set	12323 Feb 23 17:16	26°♊11'00		morning rise	12328 Jun 02 02:36	4°♊31'14	
				retrograde	12328 Sep 11 14:35	12°♊00'32	
conjunction	12323 Mar 13 07:18	28°♊22'18	0°43'51	opposition	12328 Nov 19 10:00	8°♊39'39	-1°39'01
minimum elong	12323 Mar 13 07:20	28°♊22'18	0°43'57	min. Earth dist.	12328 Nov 19 11:59	8°♊39'16	8.58509 AU
max. Earth dist.	12323 Mar 12 19:26	28°♊18'35	10.41695 AU	direct	12329 Jan 28 06:15	5°♊16'20	
	12323 Mar 26 08:08	0°♑		evening set	12329 May 11 21:32	12°♊52'22	
morning rise	12323 Mar 30 18:23	0°♑32'45					
retrograde	12323 Jul 10 07:41	8°♑10'10		conjunction	12329 May 28 20:43	14°♊57'33	-1°27'59
opposition	12323 Sep 15 22:02	4°♑47'50	0°39'59	minimum elong	12329 May 28 20:41	14°♊57'32	1°28'48
min. Earth dist.	12323 Sep 16 06:38	4°♑46'09	8.42836 AU	max. Earth dist.	12329 May 28 19:12	14°♊57'05	10.59856 AU
direct	12323 Nov 24 04:17	1°♑21'28		morning rise	12329 Jun 14 18:10	17°♊02'17	
evening set	12324 Mar 08 06:38	9°♑11'19		retrograde	12329 Sep 24 13:28	24°♊31'12	
				opposition	12329 Dec 02 14:24	21°♊10'17	-1°56'47
conjunction	12324 Mar 25 18:46	11°♑21'53	0°20'07	min. Earth dist.	12329 Dec 02 14:17	21°♊10'19	8.61263 AU
minimum elong	12324 Mar 25 18:47	11°♑21'53	0°20'01	direct	12330 Feb 10 09:48	17°♊47'38	
max. Earth dist.	12324 Mar 25 08:20	11°♑18'37	10.44099 AU	evening set	12330 May 24 14:30	25°♊20'40	
morning rise	12324 Apr 12 03:38	13°♑31'31					
retrograde	12324 Jul 22 13:10	21°♑06'50		conjunction	12330 Jun 10 11:46	27°♊25'01	-1°40'13
opposition	12324 Sep 28 06:35	17°♑45'00	0°09'49	minimum elong	12330 Jun 10 11:44	27°♊25'00	1°41'06
min. Earth dist.	12324 Sep 28 14:24	17°♑43'28	8.45503 AU	max. Earth dist.	12330 Jun 10 12:36	27°♊25'17	10.62382 AU
direct	12324 Dec 06 16:28	14°♑19'08		morning rise	12330 Jun 27 07:56	29°♊29'05	
desc. node	12325 Jan 27 01:49	16°♑28'42			12330 Jul 01 14:51	0°♊	
				retrograde	12330 Oct 07 11:00	6°♊57'53	

opposition	12330 Dec 15 17:37	3°♊36'49	-2°08'58	direct	12337 May 09 03:36	14°♏07'53	
min. Earth dist.	12330 Dec 15 15:53	3°♊37'09	8.63600 AU	evening set	12337 Aug 17 20:24	21°♏28'01	
direct	12331 Feb 23 09:54	0°♊14'43					
evening set	12331 Jun 06 04:53	7°♊44'52		conjunction	12337 Sep 03 22:55	23°♏32'49	-0°52'29
				minimum elong	12337 Sep 03 22:57	23°♏32'50	0°52'40
conjunction	12331 Jun 23 00:48	9°♊48'34	-1°47'42	max. Earth dist.	12337 Sep 04 10:42	23°♏36'26	10.65214 AU
minimum elong	12331 Jun 23 00:47	9°♊48'34	1°48'37	morning rise	12337 Sep 21 04:28	25°♏38'30	
max. Earth dist.	12331 Jun 23 03:20	9°♊49'21	10.64472 AU		12337 Oct 31 07:46	0°♏	
morning rise	12331 Jul 09 20:29	11°♊52'11		retrograde	12338 Jan 03 10:30	3°♏13'03	
retrograde	12331 Oct 20 06:29	19°♊21'09			12338 Mar 11 22:59	30°♏	
opposition	12331 Dec 28 19:45	15°♊59'47	-2°15'06	opposition	12338 Mar 14 09:34	29°♏48'42	-0°51'16
min. Earth dist.	12331 Dec 28 16:29	16°♊00'24	8.65460 AU	min. Earth dist.	12338 Mar 13 23:36	29°♏50'37	8.64335 AU
direct	12332 Mar 07 09:47	12°♊38'08		direct	12338 May 21 20:35	26°♏27'38	
evening set	12332 Jun 17 16:58	20°♊05'33			12338 Jul 27 01:08	0°♏	
				evening set	12338 Aug 30 10:30	3°♏48'18	
conjunction	12332 Jul 04 12:17	22°♊08'49	-1°50'12	conjunction	12338 Sep 16 15:40	5°♏53'57	-0°30'34
minimum elong	12332 Jul 04 12:17	22°♊08'49	1°51'04	minimum elong	12338 Sep 16 15:41	5°♏53'57	0°30'34
max. Earth dist.	12332 Jul 04 17:04	22°♊10'17	10.66065 AU	max. Earth dist.	12338 Sep 17 04:00	5°♏57'43	10.63278 AU
morning rise	12332 Jul 21 08:08	24°♊12'13		morning rise	12338 Oct 03 23:49	8°♏00'30	
	12332 Sep 16 17:40	0°♏		retrograde	12339 Jan 16 10:51	15°♏36'41	
retrograde	12332 Nov 01 02:16	1°♏41'36		opposition	12339 Mar 27 05:50	12°♏11'53	-0°23'07
	12332 Dec 17 21:25	30°♏		min. Earth dist.	12339 Mar 26 19:39	12°♏13'52	8.62139 AU
opposition	12333 Jan 09 20:37	28°♊19'48	-2°14'59	direct	12339 Jun 03 12:27	8°♏50'33	
min. Earth dist.	12333 Jan 09 15:07	28°♊20'51	8.66785 AU	evening set	12339 Sep 12 03:41	16°♏12'29	
direct	12333 Mar 20 08:15	24°♊58'30					
	12333 Jun 09 10:50	0°♏		conjunction	12339 Sep 29 11:21	18°♏19'03	-0°07'09
evening set	12333 Jun 30 03:26	2°♏23'26		minimum elong	12339 Sep 29 11:22	18°♏19'03	0°06'58
				behind sun begin	12339 Sep 29 04:44	18°♏17'02	
conjunction	12333 Jul 16 23:03	4°♏26'34	-1°47'37	behind sun end	12339 Sep 29 17:59	18°♏21'03	
minimum elong	12333 Jul 16 23:04	4°♏26'34	1°48'24	max. Earth dist.	12339 Sep 29 23:12	18°♏22'40	10.60882 AU
max. Earth dist.	12333 Jul 17 06:43	4°♏28'55	10.67109 AU	morning rise	12339 Oct 16 22:01	20°♏26'32	
morning rise	12333 Aug 02 19:41	6°♏29'58		asc. node	12340 Jan 20 07:31	28°♏00'05	
retrograde	12333 Nov 13 23:00	13°♏59'58		retrograde	12340 Jan 29 13:32	28°♏04'26	
opposition	12334 Jan 22 20:09	10°♏37'40	-2°08'40	opposition	12340 Apr 08 02:32	24°♏39'18	0°06'17
min. Earth dist.	12334 Jan 22 12:23	10°♏39'09	8.67529 AU	min. Earth dist.	12340 Apr 07 17:11	24°♏41'07	8.59553 AU
direct	12334 Apr 02 02:53	7°♏16'38		direct	12340 Jun 15 03:21	21°♏17'35	
evening set	12334 Jul 12 12:58	14°♏39'29		evening set	12340 Sep 24 00:24	28°♏41'32	
	12334 Jul 15 09:07	15°♏			12340 Oct 04 18:39	0°♏	
conjunction	12334 Jul 29 09:37	16°♏42'42	-1°40'06	conjunction	12340 Oct 11 10:21	0°♏49'00	0°16'51
minimum elong	12334 Jul 29 09:38	16°♏42'43	1°40'47	minimum elong	12340 Oct 11 10:20	0°♏49'00	0°17'13
max. Earth dist.	12334 Jul 29 19:44	16°♏45'49	10.67559 AU	max. Earth dist.	12340 Oct 11 20:26	0°♏52'05	10.58151 AU
morning rise	12334 Aug 15 07:42	18°♏46'23		morning rise	12340 Oct 28 23:21	2°♏57'24	
retrograde	12334 Nov 26 19:03	26°♏17'12		retrograde	12341 Feb 10 15:41	10°♏37'05	
opposition	12335 Feb 04 18:35	22°♏54'22	-1°56'29	opposition	12341 Apr 20 23:53	7°♏11'42	0°35'34
min. Earth dist.	12335 Feb 04 09:15	22°♏56'09	8.67651 AU	min. Earth dist.	12341 Apr 20 16:16	7°♏13'12	8.56709 AU
direct	12335 Apr 14 20:29	19°♏33'30		direct	12341 Jun 27 21:55	3°♏49'30	
evening set	12335 Jul 24 22:30	26°♏54'49		evening set	12341 Oct 07 01:16	11°♏16'09	
conjunction	12335 Aug 10 20:35	28°♏58'22	-1°28'02	conjunction	12341 Oct 24 13:14	13°♏24'32	0°40'04
minimum elong	12335 Aug 10 20:38	28°♏58'22	1°28'34	minimum elong	12341 Oct 24 13:13	13°♏24'31	0°40'37
max. Earth dist.	12335 Aug 11 07:43	29°♏01'46	10.67385 AU	max. Earth dist.	12341 Oct 24 20:55	13°♏26'53	10.55223 AU
	12335 Aug 19 06:07	0°♏			12341 Nov 06 12:39	15°♏	
morning rise	12335 Aug 27 20:48	1°♏02'32		morning rise	12341 Nov 11 04:09	15°♏33'45	
retrograde	12335 Dec 09 16:09	8°♏34'23		retrograde	12342 Feb 23 19:44	23°♏15'08	
opposition	12336 Feb 17 16:10	5°♏11'02	-1°38'59	opposition	12342 May 03 21:53	19°♏49'39	1°03'21
min. Earth dist.	12336 Feb 17 06:28	5°♏12'53	8.67141 AU	min. Earth dist.	12342 May 03 16:22	19°♏50'44	8.53753 AU
direct	12336 Apr 26 12:43	1°♏50'13		direct	12342 Jul 10 18:07	16°♏26'53	
evening set	12336 Aug 05 08:45	9°♏10'35		evening set	12342 Oct 20 06:12	23°♏56'47	
conjunction	12336 Aug 22 08:48	11°♏14'41	-1°11'56	conjunction	12342 Nov 06 19:55	26°♏05'59	1°01'31
minimum elong	12336 Aug 22 08:50	11°♏14'41	1°12'18	minimum elong	12342 Nov 06 19:53	26°♏05'59	1°02'12
max. Earth dist.	12336 Aug 22 20:10	11°♏18'09	10.66596 AU	max. Earth dist.	12342 Nov 07 01:39	26°♏07'45	10.52245 AU
morning rise	12336 Sep 08 11:36	13°♏19'32		morning rise	12342 Nov 24 12:08	28°♏15'56	
retrograde	12336 Dec 21 13:32	20°♏52'37			12342 Dec 09 05:25	0°♏	
opposition	12337 Mar 01 13:07	17°♏28'46	-1°16'56	retrograde	12343 Mar 09 01:51	5°♏58'52	
min. Earth dist.	12337 Mar 01 03:19	17°♏30'39	8.66025 AU				

opposition	12343 May 16 21:05	2°♊33'22	1°28'14	opposition	12349 Aug 01 18:43	20°♊29'33	1°59'29
min. Earth dist.	12343 May 16 17:06	2°♊34'09	8.50833 AU	min. Earth dist.	12349 Aug 02 03:09	20°♊27'52	8.39759 AU
	12343 Jun 22 14:17	30°♋♌		direct	12349 Oct 09 06:35	17°♋02'58	
direct	12343 Jul 23 16:09	29°♌10'01		evening set	12350 Jan 22 00:21	24°♋53'53	
	12343 Aug 23 11:08	0°♊					
evening set	12343 Nov 02 15:02	6°♊43'29		conjunction	12350 Feb 08 17:14	27°♋06'00	1°29'44
				minimum elong	12350 Feb 08 17:16	27°♋06'01	1°30'18
conjunction	12343 Nov 20 06:12	8°♊53'26	1°20'03	max. Earth dist.	12350 Feb 08 05:41	27°♋02'23	10.39564 AU
minimum elong	12343 Nov 20 06:09	8°♊53'26	1°20'52	morning rise	12350 Feb 26 07:57	29°♋17'33	
max. Earth dist.	12343 Nov 20 10:12	8°♊54'41	10.49365 AU		12350 Mar 04 03:36	0°♋	
morning rise	12343 Dec 07 23:10	11°♊03'59		retrograde	12350 Jun 08 16:45	6°♋59'35	
retrograde	12344 Mar 21 09:06	18°♊48'11		opposition	12350 Aug 15 02:27	3°♋36'12	1°41'43
opposition	12344 May 28 21:31	15°♊22'45	1°48'55	min. Earth dist.	12350 Aug 15 11:32	3°♋34'23	8.39740 AU
min. Earth dist.	12344 May 28 19:06	15°♊23'14	8.48083 AU	direct	12350 Oct 22 19:14	0°♋09'28	
direct	12344 Aug 04 17:06	11°♊58'48		evening set	12351 Feb 04 19:08	8°♋01'06	
evening set	12344 Nov 15 03:44	19°♊35'57					
				conjunction	12351 Feb 22 11:12	10°♋13'03	1°13'10
conjunction	12344 Dec 02 19:56	21°♊46'33	1°34'43	minimum elong	12351 Feb 22 11:14	10°♋13'04	1°13'33
minimum elong	12344 Dec 02 19:54	21°♊46'33	1°35'35	max. Earth dist.	12351 Feb 21 22:57	10°♋09'13	10.39954 AU
max. Earth dist.	12344 Dec 02 21:29	21°♊47'02	10.46715 AU	morning rise	12351 Mar 12 00:34	12°♋24'16	
morning rise	12344 Dec 20 13:14	23°♊57'33		retrograde	12351 Jun 22 00:34	20°♋04'30	
	12345 Feb 17 18:14	0°♊		opposition	12351 Aug 28 10:47	16°♋41'34	1°18'42
retrograde	12345 Apr 03 18:06	1°♊42'33		min. Earth dist.	12351 Aug 28 20:40	16°♋39'36	8.40484 AU
	12345 May 19 09:44	30°♋♌		direct	12351 Nov 05 09:00	13°♋14'49	
opposition	12345 Jun 10 23:09	28°♊17'17	2°04'16	evening set	12352 Feb 18 12:08	21°♋06'17	
min. Earth dist.	12345 Jun 10 22:54	28°♊17'20	8.45615 AU				
direct	12345 Aug 17 19:27	24°♊52'40		conjunction	12352 Mar 07 02:51	23°♋17'49	0°52'49
	12345 Nov 06 22:02	0°♊		minimum elong	12352 Mar 07 02:53	23°♋17'49	0°53'01
evening set	12345 Nov 28 19:32	2°♊33'25		max. Earth dist.	12352 Mar 06 13:58	23°♋13'47	10.41099 AU
				morning rise	12352 Mar 24 14:39	25°♋28'31	
conjunction	12345 Dec 16 12:21	4°♊44'33	1°44'39		12352 May 04 08:00	0°♋	
minimum elong	12345 Dec 16 12:19	4°♊44'33	1°45'33	retrograde	12352 Jul 04 07:22	3°♋06'43	
max. Earth dist.	12345 Dec 16 10:29	4°♊43'59	10.44395 AU		12352 Sep 06 11:19	30°♋♌	
morning rise	12346 Jan 03 05:40	6°♊55'53		opposition	12352 Sep 09 19:28	29°♋44'12	0°51'40
retrograde	12346 Apr 17 03:53	14°♊41'08		min. Earth dist.	12352 Sep 10 05:44	29°♋42'10	8.41957 AU
opposition	12346 Jun 24 02:15	11°♊16'08	2°13'23	direct	12352 Nov 17 22:41	26°♋17'34	
min. Earth dist.	12346 Jun 24 04:54	11°♊15'36	8.43502 AU		12353 Jan 25 09:51	0°♋	
direct	12346 Aug 31 00:25	7°♊50'51		evening set	12353 Mar 03 02:35	4°♋08'01	
evening set	12346 Dec 12 13:20	15°♊34'53					
				conjunction	12353 Mar 20 15:27	6°♋18'54	0°29'51
conjunction	12346 Dec 30 06:26	17°♊46'25	1°49'17	minimum elong	12353 Mar 20 15:28	6°♋18'54	0°29'50
minimum elong	12346 Dec 30 06:26	17°♊46'25	1°50'10	max. Earth dist.	12353 Mar 20 02:37	6°♋14'53	10.42932 AU
max. Earth dist.	12346 Dec 30 00:45	17°♊44'38	10.42461 AU	morning rise	12353 Apr 07 01:21	8°♋28'54	
morning rise	12347 Jan 16 23:33	19°♊57'59		retrograde	12353 Jul 17 11:32	16°♋05'00	
retrograde	12347 Apr 30 12:52	27°♊43'01		opposition	12353 Sep 23 04:02	12°♋42'50	0°22'07
opposition	12347 Jul 07 06:36	24°♊18'20	2°15'42	min. Earth dist.	12353 Sep 23 13:45	12°♋40'55	8.44084 AU
min. Earth dist.	12347 Jul 07 12:02	24°♊17'15	8.41775 AU	direct	12353 Dec 01 12:50	9°♋16'30	
direct	12347 Sep 13 08:50	20°♊52'28		evening set	12354 Mar 16 13:52	17°♋05'10	
evening set	12347 Dec 26 08:36	28°♊39'25					
	12348 Jan 06 05:35	0°♋		conjunction	12354 Apr 03 00:32	19°♋15'11	0°05'30
				minimum elong	12354 Apr 03 00:32	19°♋15'11	0°05'18
conjunction	12348 Jan 13 01:53	0°♋51'16	1°48'17	behind sun begin	12354 Apr 02 17:36	19°♋13'03	
minimum elong	12348 Jan 13 01:54	0°♋51'16	1°49'06	behind sun end	12354 Apr 03 07:28	19°♋17'20	
max. Earth dist.	12348 Jan 12 17:06	0°♋48'32	10.40938 AU	max. Earth dist.	12354 Apr 02 12:59	19°♋11'35	10.45358 AU
morning rise	12348 Jan 30 18:32	3°♋02'57		morning rise	12354 Apr 20 08:13	21°♋24'20	
retrograde	12348 May 12 21:25	10°♋47'24		desc. node	12354 Jun 26 09:19	27°♋56'39	
opposition	12348 Jul 19 12:01	7°♋23'08	2°11'00	retrograde	12354 Jul 30 13:50	28°♋58'25	
min. Earth dist.	12348 Jul 19 19:27	7°♋21'39	8.40481 AU	opposition	12354 Oct 06 12:07	25°♋36'31	-0°08'22
direct	12348 Sep 25 19:26	3°♋56'50		min. Earth dist.	12354 Oct 06 20:07	25°♋34'57	8.46754 AU
evening set	12349 Jan 08 04:35	11°♋46'09		direct	12354 Dec 15 02:12	22°♋10'37	
				evening set	12355 Mar 29 21:32	29°♋56'54	
conjunction	12349 Jan 25 21:51	13°♋58'14	1°41'40		12355 Mar 30 07:39	0°♋	
minimum elong	12349 Jan 25 21:53	13°♋58'15	1°42'22				
max. Earth dist.	12349 Jan 25 11:07	13°♋54'53	10.39924 AU	conjunction	12355 Apr 16 05:46	2°♋05'55	-0°19'06
	12349 Feb 03 03:31	15°♋		minimum elong	12355 Apr 16 05:45	2°♋05'54	0°19'30
morning rise	12349 Feb 12 13:43	16°♋09'55		max. Earth dist.	12355 Apr 15 20:43	2°♋03'05	10.48244 AU
retrograde	12349 May 26 07:28	23°♋53'23		morning rise	12355 May 03 10:58	4°♋14'03	

retrograde	12355 Aug 12 16:07	11° 8 46'21	min. Earth dist.	12362 Jan 04 10:13	23° 2 24'01	8.67630 AU
opposition	12355 Oct 19 19:30	8° 8 24'41 -0°38'14	direct	12362 Mar 15 05:54	20° 2 01'29	
min. Earth dist.	12355 Oct 20 01:35	8° 8 23'30 8.49819 AU	evening set	12362 Jun 25 05:23	27° 2 26'27	
direct	12355 Dec 28 13:05	4° 8 59'18				
evening set	12356 Apr 11 01:43	12° 8 42'47	conjunction	12362 Jul 12 00:42	29° 2 29'22 -1°49'15	
			minimum elong	12362 Jul 12 00:43	29° 2 29'22 1°50'05	
conjunction	12356 Apr 28 07:14	14° 8 50'40 -0°42'31	max. Earth dist.	12362 Jul 12 08:41	29° 2 31'49 10.68351 AU	
minimum elong	12356 Apr 28 07:12	14° 8 50'40 0°43'05		12362 Jul 16 04:36	0° 2	
max. Earth dist.	12356 Apr 28 00:40	14° 8 48'38 10.51433 AU	morning rise	12362 Jul 28 20:46	1° 2 32'29	
	12356 Apr 29 13:10	15° 8	retrograde	12362 Nov 08 20:13	9° 2 01'03	
morning rise	12356 May 15 09:49	16° 8 57'45	opposition	12363 Jan 17 15:47	5° 2 39'15 -2°11'56	
retrograde	12356 Aug 24 17:00	24° 8 28'30	min. Earth dist.	12363 Jan 17 08:15	5° 2 40'41 8.69169 AU	
opposition	12356 Nov 01 01:58	21° 8 07'02 -1°05'59	direct	12363 Mar 27 23:52	2° 2 18'26	
min. Earth dist.	12356 Nov 01 06:20	21° 8 06'11 8.53124 AU	evening set	12363 Jul 07 14:33	9° 2 41'03	
direct	12357 Jan 09 20:17	17° 8 42'17				
evening set	12357 Apr 24 02:13	25° 8 22'42	conjunction	12363 Jul 24 10:24	11° 2 43'54 -1°43'47	
			minimum elong	12363 Jul 24 10:25	11° 2 43'54 1°44'31	
conjunction	12357 May 11 04:53	27° 8 29'26 -1°03'43	max. Earth dist.	12363 Jul 24 19:42	11° 2 46'44 10.69581 AU	
minimum elong	12357 May 11 04:51	27° 8 29'25 1°04'25	morning rise	12363 Aug 10 07:46	13° 2 47'08	
max. Earth dist.	12357 May 11 00:26	27° 8 28'03 10.54778 AU		12363 Aug 20 15:06	15° 2	
morning rise	12357 May 28 05:08	29° 8 35'28	retrograde	12363 Nov 21 13:53	21° 2 16'18	
	12357 May 31 14:10	0° 2	opposition	12364 Jan 30 13:55	17° 2 54'11 -2°02'11	
retrograde	12357 Sep 06 14:44	7° 2 05'02	min. Earth dist.	12364 Jan 30 05:12	17° 2 55'50 8.70055 AU	
opposition	12357 Nov 14 07:30	3° 2 43'42 -1°30'19		12364 Mar 16 21:44	15° 2 40	
min. Earth dist.	12357 Nov 14 10:19	3° 2 43'09 8.56514 AU	direct	12364 Apr 08 18:07	14° 2 33'44	
direct	12358 Jan 23 03:10	0° 2 19'39		12364 May 01 08:26	15° 2	
evening set	12358 May 06 22:59	7° 2 56'51	evening set	12364 Jul 18 23:04	21° 2 54'28	
conjunction	12358 May 23 23:01	10° 2 02'26 -1°21'42	conjunction	12364 Aug 04 20:15	23° 2 57'30 -1°33'37	
minimum elong	12358 May 23 22:58	10° 2 02'26 1°22'31	minimum elong	12364 Aug 04 20:17	23° 2 57'30 1°34'13	
max. Earth dist.	12358 May 23 20:26	10° 2 01'38 10.58118 AU	max. Earth dist.	12364 Aug 05 07:22	24° 2 00'54 10.70143 AU	
morning rise	12358 Jun 09 21:21	12° 2 07'32	morning rise	12364 Aug 21 19:25	26° 2 01'04	
retrograde	12358 Sep 19 11:39	19° 2 36'18		12364 Sep 27 01:51	0° 2	
opposition	12358 Nov 27 11:44	16° 2 15'01 -1°50'09	retrograde	12364 Dec 03 09:49	3° 2 31'07	
min. Earth dist.	12358 Nov 27 12:26	16° 2 14'53 8.59815 AU	opposition	12365 Feb 11 11:03	0° 2 08'36 -1°46'55	
direct	12359 Feb 05 08:13	12° 2 51'41	min. Earth dist.	12365 Feb 11 00:50	0° 2 10'33 8.70245 AU	
evening set	12359 May 19 16:30	20° 2 25'38		12365 Feb 13 08:11	30° 2 40	
			direct	12365 Apr 21 11:03	26° 2 48'24	
conjunction	12359 Jun 05 14:24	22° 2 30'15 -1°35'43		12365 Jun 23 09:57	0° 2	
minimum elong	12359 Jun 05 14:23	22° 2 30'14 1°36'35	evening set	12365 Jul 31 08:06	4° 2 07'47	
max. Earth dist.	12359 Jun 05 14:33	22° 2 30'17 10.61283 AU				
morning rise	12359 Jun 22 11:13	24° 2 34'31	conjunction	12365 Aug 17 07:12	6° 2 11'14 -1°19'13	
	12359 Aug 13 15:35	0° 2	minimum elong	12365 Aug 17 07:15	6° 2 11'15 1°19'39	
retrograde	12359 Oct 02 08:31	2° 2 02'47	max. Earth dist.	12365 Aug 17 20:03	6° 2 15'10 10.69996 AU	
	12359 Nov 23 00:09	30° 2 40	morning rise	12365 Sep 03 08:35	8° 2 15'22	
opposition	12359 Dec 10 14:30	28° 2 41'29 -2°04'39	retrograde	12365 Dec 16 07:04	15° 2 46'27	
min. Earth dist.	12359 Dec 10 12:34	28° 2 41'51 8.62856 AU	opposition	12366 Feb 24 07:13	12° 2 23'30 -1°26'47	
direct	12360 Feb 18 09:34	25° 2 18'53	min. Earth dist.	12366 Feb 23 20:11	12° 2 25'36 8.69705 AU	
	12360 May 06 15:48	0° 2	direct	12366 May 04 01:15	9° 2 03'23	
evening set	12360 May 31 07:02	2° 2 49'39	evening set	12366 Aug 12 18:22	16° 2 22'07	
conjunction	12360 Jun 17 03:28	4° 2 53'28 -1°45'11	conjunction	12366 Aug 29 19:41	18° 2 26'10 -1°01'12	
minimum elong	12360 Jun 17 03:27	4° 2 53'28 1°46'05	minimum elong	12366 Aug 29 19:43	18° 2 26'11 1°01'27	
max. Earth dist.	12360 Jun 17 06:54	4° 2 54'32 10.64121 AU	max. Earth dist.	12366 Aug 30 08:33	18° 2 30'06 10.69101 AU	
morning rise	12360 Jul 03 23:13	6° 2 57'06	morning rise	12366 Sep 15 23:40	20° 2 31'02	
retrograde	12360 Oct 14 04:13	14° 2 25'14	retrograde	12366 Dec 29 04:03	28° 2 03'22	
opposition	12360 Dec 22 16:13	11° 2 03'49 -2°13'15	opposition	12367 Mar 09 02:58	24° 2 39'58 -1°02'41	
min. Earth dist.	12360 Dec 22 11:33	11° 2 04'42 8.65497 AU	min. Earth dist.	12367 Mar 08 16:26	24° 2 41'59 8.68396 AU	
direct	12361 Mar 02 09:04	7° 2 41'55	direct	12367 May 16 15:37	21° 2 19'44	
evening set	12361 Jun 12 19:03	15° 2 09'38	evening set	12367 Aug 25 06:31	28° 2 38'36	
				12367 Sep 05 11:52	0° 2	
conjunction	12361 Jun 29 14:36	17° 2 12'52 -1°49'44				
minimum elong	12361 Jun 29 14:36	17° 2 12'52 1°50'38	conjunction	12367 Sep 11 10:10	0° 2 43'26 -0°40'20	
max. Earth dist.	12361 Jun 29 21:00	17° 2 14'50 10.66508 AU	minimum elong	12367 Sep 11 10:11	0° 2 43'26 0°40'25	
morning rise	12361 Jul 16 10:04	19° 2 16'07	max. Earth dist.	12367 Sep 11 21:45	0° 2 46'58 10.67424 AU	
retrograde	12361 Oct 27 00:25	26° 2 44'22	morning rise	12367 Sep 28 16:57	2° 2 49'09	
opposition	12362 Jan 04 16:41	23° 2 22'47 -2°15'42	retrograde	12368 Jan 11 02:25	10° 2 23'02	

opposition	12368 Mar 20 22:35	6°♄59'13	-0°35'36	conjunction	12373 Nov 27 00:18	16°♄09'56	1°28'37
min. Earth dist.	12368 Mar 20 13:23	7°♄00'59	8.66311 AU	minimum elong	12373 Nov 27 00:16	16°♄09'55	1°29'29
direct	12368 May 28 06:19	3°♄38'42		max. Earth dist.	12373 Nov 27 00:17	16°♄09'55	10.48137 AU
evening set	12368 Sep 05 21:24	10°♄58'35		morning rise	12373 Dec 14 17:34	18°♄20'39	
				retrograde	12374 Mar 28 23:47	26°♄04'55	
conjunction	12368 Sep 23 03:36	13°♄04'18	-0°17'32	opposition	12374 Jun 05 09:02	22°♄39'23	1°58'03
minimum elong	12368 Sep 23 03:37	13°♄04'19	0°17'26	min. Earth dist.	12374 Jun 05 09:47	22°♄39'14	8.46647 AU
max. Earth dist.	12368 Sep 23 13:47	13°♄07'25	10.65006 AU	direct	12374 Aug 12 05:41	19°♄14'45	
morning rise	12368 Oct 10 13:07	15°♄10'59		evening set	12374 Nov 22 22:21	26°♄53'35	
retrograde	12369 Jan 23 01:46	22°♄46'42					
opposition	12369 Apr 02 18:17	19°♄22'25	-0°06'44	conjunction	12374 Dec 10 14:50	29°♄04'28	1°40'47
min. Earth dist.	12369 Apr 02 10:14	19°♄23'59	8.63568 AU	minimum elong	12374 Dec 10 14:48	29°♄04'27	1°41'41
direct	12369 Jun 09 21:51	16°♄01'29		max. Earth dist.	12374 Dec 10 12:31	29°♄03'45	10.45072 AU
asc. node	12369 Jun 27 10:53	16°♄17'46			12374 Dec 18 01:50	0°♄	
evening set	12369 Sep 18 15:38	23°♄23'13		morning rise	12374 Dec 28 08:16	1°♄15'39	
				retrograde	12375 Apr 11 08:19	9°♄00'44	
conjunction	12369 Oct 06 00:26	25°♄29'55	0°06'18	opposition	12375 Jun 18 10:58	5°♄35'15	2°10'06
minimum elong	12369 Oct 06 00:26	25°♄29'55	0°06'36	min. Earth dist.	12375 Jun 18 13:18	5°♄34'47	8.43823 AU
behind sun begin	12369 Oct 05 17:43	25°♄27'53		direct	12375 Aug 25 09:30	2°♄09'51	
behind sun end	12369 Oct 06 07:08	25°♄31'57		evening set	12375 Dec 06 14:38	9°♄52'22	
max. Earth dist.	12369 Oct 06 09:50	25°♄32'47	10.62011 AU				
morning rise	12369 Oct 23 12:19	27°♄37'33		conjunction	12375 Dec 24 07:46	12°♄03'48	1°47'53
	12369 Nov 13 02:26	0°♄		minimum elong	12375 Dec 24 07:46	12°♄03'47	1°48'47
retrograde	12370 Feb 05 02:21	5°♄15'14		max. Earth dist.	12375 Dec 24 03:34	12°♄02'29	10.42476 AU
opposition	12370 Apr 15 14:26	1°♄50'31	0°22'39	morning rise	12376 Jan 11 01:01	14°♄15'20	
min. Earth dist.	12370 Apr 15 07:10	1°♄51'56	8.60358 AU	retrograde	12376 Apr 23 17:18	22°♄00'41	
	12370 May 10 15:06	30°♄		opposition	12376 Jun 30 14:19	18°♄35'22	2°15'35
direct	12370 Jun 22 15:35	28°♄29'01		min. Earth dist.	12376 Jun 30 18:13	18°♄34'36	8.41521 AU
	12370 Aug 03 16:30	0°♄		direct	12376 Sep 06 15:57	15°♄09'19	
evening set	12370 Oct 01 13:47	5°♄53'18		evening set	12376 Dec 19 09:06	22°♄55'07	
conjunction	12370 Oct 19 00:51	8°♄00'59	0°29'52	conjunction	12377 Jan 06 02:32	25°♄06'57	1°49'29
minimum elong	12370 Oct 19 00:49	8°♄00'58	0°30'20	minimum elong	12377 Jan 06 02:32	25°♄06'57	1°50'20
max. Earth dist.	12370 Oct 19 09:05	8°♄03'30	10.58633 AU	max. Earth dist.	12377 Jan 05 19:52	25°♄04'52	10.40472 AU
morning rise	12370 Nov 05 14:39	10°♄09'31		morning rise	12377 Jan 23 19:21	27°♄18'41	
	12370 Dec 20 19:47	15°♄			12377 Feb 15 18:21	0°♄	
retrograde	12371 Feb 18 06:35	17°♄49'09		retrograde	12377 May 07 02:55	5°♄03'43	
	12371 Apr 20 19:08	15°♄		opposition	12377 Jul 13 18:59	1°♄38'44	2°14'06
opposition	12371 Apr 28 11:21	14°♄24'04	0°51'10	min. Earth dist.	12377 Jul 14 00:57	1°♄37'32	8.39856 AU
min. Earth dist.	12371 Apr 28 05:15	14°♄25'16	8.56880 AU		12377 Aug 04 05:51	30°♄	
direct	12371 Jul 05 08:58	11°♄01'54		direct	12377 Sep 19 23:58	28°♄12'07	
	12371 Sep 13 16:08	15°♄			12377 Nov 05 00:54	0°♄	
evening set	12371 Oct 14 16:05	18°♄29'19		evening set	12378 Jan 02 04:41	6°♄00'35	
conjunction	12371 Nov 01 04:59	20°♄37'55	0°52'11	conjunction	12378 Jan 19 22:03	8°♄12'42	1°45'25
minimum elong	12371 Nov 01 04:57	20°♄37'54	0°52'49	minimum elong	12378 Jan 19 22:05	8°♄12'42	1°46'11
max. Earth dist.	12371 Nov 01 11:02	20°♄39'47	10.55077 AU	max. Earth dist.	12378 Jan 19 12:48	8°♄09'48	10.39171 AU
morning rise	12371 Nov 18 20:22	22°♄47'18		morning rise	12378 Feb 06 14:15	10°♄24'30	
	12372 Feb 07 19:01	0°♄			12378 Mar 20 00:06	15°♄	
retrograde	12372 Mar 02 11:41	0°♄28'46		retrograde	12378 May 20 13:08	18°♄08'40	
	12372 Mar 26 04:15	30°♄			12378 Jul 23 17:32	15°♄	
opposition	12372 May 10 09:21	27°♄03'24	1°17'28	opposition	12378 Jul 27 01:06	14°♄44'06	2°05'40
min. Earth dist.	12372 May 10 05:18	27°♄04'12	8.53327 AU	min. Earth dist.	12378 Jul 27 08:56	14°♄42'32	8.38926 AU
direct	12372 Jul 17 04:35	23°♄40'26		direct	12378 Oct 03 09:54	11°♄17'07	
	12372 Oct 16 21:50	0°♄			12378 Dec 10 11:06	15°♄	
evening set	12372 Oct 26 22:27	1°♄11'29		evening set	12379 Jan 16 00:15	19°♄07'29	
conjunction	12372 Nov 13 12:50	3°♄20'56	1°12'07	conjunction	12379 Feb 02 17:18	21°♄19'41	1°35'53
minimum elong	12372 Nov 13 12:48	3°♄20'55	1°12'53	minimum elong	12379 Feb 02 17:20	21°♄19'42	1°36'30
max. Earth dist.	12372 Nov 13 15:42	3°♄21'49	10.51526 AU	max. Earth dist.	12379 Feb 02 05:59	21°♄16'09	10.38654 AU
morning rise	12372 Dec 01 05:26	5°♄31'03		morning rise	12379 Feb 20 08:43	23°♄31'25	
retrograde	12373 Mar 15 17:00	13°♄14'06			12379 Apr 26 08:33	0°♄	
opposition	12373 May 23 08:37	9°♄48'35	1°40'10	retrograde	12379 Jun 02 21:07	1°♄14'15	
min. Earth dist.	12373 May 23 07:11	9°♄48'52	8.49864 AU		12379 Jul 10 21:41	30°♄	
direct	12373 Jul 30 04:04	6°♄24'47		opposition	12379 Aug 09 08:12	27°♄50'12	1°50'40
evening set	12373 Nov 09 08:45	13°♄59'43		min. Earth dist.	12379 Aug 09 17:19	27°♄48'23	8.38791 AU
				direct	12379 Oct 16 23:01	24°♄23'04	

	12380 Jan 10 21:35	0°♄		min. Earth dist.	12385 Oct 26 14:22	15°♄32'43	8.52387 AU
evening set	12380 Jan 29 19:22	2°♄14'31			12385 Nov 02 16:11	15°♄	
				direct	12386 Jan 04 02:20	12°♄09'10	
conjunction	12380 Feb 16 11:48	4°♄26'37	1°21'20		12386 Mar 04 18:14	15°♄	
minimum elong	12380 Feb 16 11:51	4°♄26'38	1°21'48	evening set	12386 Apr 18 12:19	19°♄51'02	
max. Earth dist.	12380 Feb 15 23:28	4°♄22'45	10.38951 AU				
morning rise	12380 Mar 05 02:06	6°♄38'05		conjunction	12386 May 05 16:13	21°♄58'14	-0°54'15
retrograde	12380 Jun 15 04:24	14°♄19'13		minimum elong	12386 May 05 16:11	21°♄58'13	0°54'53
opposition	12380 Aug 21 15:56	10°♄55'44	1°29'55	max. Earth dist.	12386 May 05 10:31	21°♄56'27	10.54114 AU
min. Earth dist.	12380 Aug 22 01:13	10°♄53'53	8.39458 AU	morning rise	12386 May 22 17:39	24°♄04'43	
direct	12380 Oct 29 12:57	7°♄28'39			12386 Jul 20 01:26	0°♄	
evening set	12381 Feb 11 13:06	15°♄20'19		retrograde	12386 Sep 01 01:34	1°♄34'46	
					12386 Oct 15 09:45	30°♄	
conjunction	12381 Mar 01 04:33	17°♄32'06	1°02'36	opposition	12386 Nov 08 15:06	28°♄13'49	-1°19'31
minimum elong	12381 Mar 01 04:36	17°♄32'07	1°02'53	min. Earth dist.	12386 Nov 08 18:16	28°♄13'13	8.55876 AU
max. Earth dist.	12381 Feb 28 16:32	17°♄28'20	10.40039 AU	direct	12387 Jan 17 11:09	24°♄49'55	
morning rise	12381 Mar 18 17:17	19°♄43'07			12387 Apr 10 05:12	0°♄	
retrograde	12381 Jun 28 12:20	27°♄22'19		evening set	12387 May 01 11:10	2°♄28'35	
opposition	12381 Sep 04 00:21	23°♄59'24	1°04'33				
min. Earth dist.	12381 Sep 04 09:16	23°♄57'38	8.40893 AU	conjunction	12387 May 18 12:30	4°♄34'38	-1°13'48
direct	12381 Nov 12 01:59	20°♄32'36		minimum elong	12387 May 18 12:28	4°♄34'38	1°14'34
evening set	12382 Feb 25 04:37	28°♄23'35		max. Earth dist.	12387 May 18 09:29	4°♄33'42	10.57495 AU
	12382 Mar 10 03:23	0°♄		morning rise	12387 Jun 04 11:37	6°♄40'06	
				retrograde	12387 Sep 14 00:53	14°♄09'10	
conjunction	12382 Mar 14 18:33	0°♄34'50	0°40'42	opposition	12387 Nov 21 20:10	10°♄48'19	-1°41'31
minimum elong	12382 Mar 14 18:35	0°♄34'50	0°40'47	min. Earth dist.	12387 Nov 21 21:31	10°♄48'03	8.59135 AU
max. Earth dist.	12382 Mar 14 07:24	0°♄31'20	10.41861 AU	direct	12388 Jan 30 16:18	7°♄25'06	
morning rise	12382 Apr 01 05:21	2°♄45'12		evening set	12388 May 13 06:39	15°♄00'35	
retrograde	12382 Jul 11 19:04	10°♄22'21					
opposition	12382 Sep 17 09:03	6°♄59'59	0°35'59	conjunction	12388 May 30 05:35	17°♄05'38	-1°29'43
min. Earth dist.	12382 Sep 17 17:30	6°♄58'20	8.43029 AU	minimum elong	12388 May 30 05:33	17°♄05'37	1°30'35
direct	12382 Nov 25 14:46	3°♄33'36		max. Earth dist.	12388 May 30 04:30	17°♄05'18	10.60526 AU
evening set	12383 Mar 10 17:36	11°♄23'10		morning rise	12388 Jun 16 02:51	19°♄10'14	
				retrograde	12388 Sep 25 23:10	26°♄38'49	
conjunction	12383 Mar 28 05:30	13°♄33'38	0°16'49	opposition	12388 Dec 04 00:11	23°♄17'57	-1°58'33
minimum elong	12383 Mar 28 05:30	13°♄33'38	0°16'42	min. Earth dist.	12388 Dec 04 00:15	23°♄17'57	8.61966 AU
max. Earth dist.	12383 Mar 27 19:12	13°♄30'25	10.44326 AU	direct	12389 Feb 11 18:08	19°♄55'25	
morning rise	12383 Apr 14 14:09	15°♄43'12		evening set	12389 May 25 23:08	27°♄27'54	
retrograde	12383 Jul 24 23:02	23°♄18'16					
opposition	12383 Sep 30 17:31	19°♄56'26	0°05'43	conjunction	12389 Jun 11 20:07	29°♄32'06	-1°41'19
min. Earth dist.	12383 Oct 01 01:42	19°♄54'49	8.45760 AU	minimum elong	12389 Jun 11 20:05	29°♄32'05	1°42'13
direct	12383 Dec 09 03:57	16°♄30'33		max. Earth dist.	12389 Jun 11 20:34	29°♄32'14	10.63092 AU
desc. node	12383 Dec 09 16:11	16°♄30'34			12389 Jun 15 14:29	0°♄	
evening set	12384 Mar 23 03:30	24°♄18'04		morning rise	12389 Jun 28 16:15	1°♄36'03	
				retrograde	12389 Oct 08 18:32	9°♄04'34	
conjunction	12384 Apr 09 12:53	26°♄27'33	-0°07'52	opposition	12389 Dec 17 03:05	5°♄43'34	-2°09'55
minimum elong	12384 Apr 09 12:53	26°♄27'33	0°08'11	min. Earth dist.	12389 Dec 17 01:36	5°♄43'51	8.64309 AU
behind sun begin	12384 Apr 09 06:32	26°♄25'35		direct	12390 Feb 24 19:49	2°♄21'35	
behind sun end	12384 Apr 09 19:14	26°♄29'31		evening set	12390 Jun 07 12:55	9°♄51'14	
max. Earth dist.	12384 Apr 09 03:11	26°♄24'32	10.47304 AU				
morning rise	12384 Apr 26 19:15	28°♄36'10		conjunction	12390 Jun 24 08:43	11°♄54'48	-1°48'08
	12384 May 08 10:38	0°♄		minimum elong	12390 Jun 24 08:43	11°♄54'48	1°49'03
retrograde	12384 Aug 06 01:38	6°♄09'17		max. Earth dist.	12390 Jun 24 11:11	11°♄55'34	10.65159 AU
opposition	12384 Oct 13 01:39	2°♄47'53	-0°24'37	morning rise	12390 Jul 11 04:26	13°♄58'19	
min. Earth dist.	12384 Oct 13 08:55	2°♄46'28	8.48940 AU	retrograde	12390 Oct 21 14:53	21°♄27'05	
	12384 Nov 24 07:41	30°♄		opposition	12390 Dec 30 04:46	18°♄05'47	-2°15'12
direct	12384 Dec 21 16:02	29°♄22'37		min. Earth dist.	12390 Dec 30 01:11	18°♄06'28	8.66115 AU
	12385 Jan 17 19:07	0°♄		direct	12391 Mar 09 19:36	14°♄44'16	
evening set	12385 Apr 05 09:46	7°♄07'30		evening set	12391 Jun 20 00:39	22°♄11'13	
conjunction	12385 Apr 22 16:23	9°♄15'52	-0°31'54	conjunction	12391 Jul 06 20:05	24°♄14'25	-1°49'57
minimum elong	12385 Apr 22 16:22	9°♄15'52	0°32'24	minimum elong	12391 Jul 06 20:05	24°♄14'25	1°50'49
max. Earth dist.	12385 Apr 22 08:14	9°♄13'20	10.50633 AU	max. Earth dist.	12391 Jul 07 01:28	24°♄16'05	10.66674 AU
morning rise	12385 May 09 20:18	11°♄23'26		morning rise	12391 Jul 23 15:54	26°♄17'44	
	12385 Jun 10 13:49	15°♄			12391 Aug 25 20:55	0°♄	
retrograde	12385 Aug 19 02:25	18°♄54'52		retrograde	12391 Nov 03 11:19	3°♄46'56	
opposition	12385 Oct 26 08:58	15°♄33'45	-0°53'29	opposition	12392 Jan 12 05:09	0°♄25'12	-2°14'15

min. Earth dist.	12392 Jan 11 23:03	0°♈26'22	8.67337 AU	retrograde	12398 Jan 17 20:10	17°♏41'44	
	12392 Jan 17 18:00	30°♊♌		opposition	12398 Mar 28 13:40	14°♏16'54	-0°19'18
direct	12392 Mar 21 16:02	27°♌♍04'04		min. Earth dist.	12398 Mar 28 03:44	14°♏18'49	8.61845 AU
	12392 May 21 00:38	0°♈		direct	12398 Jun 04 18:45	10°♏55'29	
evening set	12392 Jul 01 10:53	4°♈28'36		evening set	12398 Sep 13 11:45	18°♏17'36	
conjunction	12392 Jul 18 06:39	6°♈31'41	-1°46'43	conjunction	12398 Sep 30 19:33	20°♏24'14	-0°04'03
minimum elong	12392 Jul 18 06:40	6°♈31'41	1°47'29	minimum elong	12398 Sep 30 19:34	20°♏24'15	0°03'50
max. Earth dist.	12392 Jul 18 14:46	6°♈34'10	10.67600 AU	behind sun begin	12398 Sep 30 12:29	20°♏22'06	
morning rise	12392 Aug 04 03:19	8°♈35'04		behind sun end	12398 Oct 01 02:39	20°♏26'23	
	12392 Oct 10 04:17	15°♈		max. Earth dist.	12398 Oct 01 06:24	20°♏27'33	10.60526 AU
retrograde	12392 Nov 15 07:08	16°♈04'55		morning rise	12398 Oct 18 06:31	22°♏31'50	
	12392 Dec 22 02:44	15°♊♈		asc. node	12398 Dec 03 19:55	27°♏28'49	
opposition	12393 Jan 24 04:32	12°♈42'41	-2°07'10		12399 Jan 16 23:04	0°♊	
min. Earth dist.	12393 Jan 23 20:39	12°♈44'11	8.67949 AU	retrograde	12399 Jan 30 21:11	0°♊09'53	
direct	12393 Apr 03 10:45	9°♈21'46			12399 Feb 13 19:28	30°♊♌	
	12393 Jun 28 23:19	15°♈		opposition	12399 Apr 10 10:29	26°♏44'41	0°10'06
evening set	12393 Jul 13 20:17	16°♈44'18		min. Earth dist.	12399 Apr 10 02:03	26°♏46'20	8.59135 AU
				direct	12399 Jun 17 11:34	23°♏22'50	
conjunction	12393 Jul 30 16:59	18°♈47'31	-1°38'36		12399 Sep 19 18:31	0°♊	
minimum elong	12393 Jul 30 17:01	18°♈47'32	1°39'16	evening set	12399 Sep 26 08:48	0°♊47'05	
max. Earth dist.	12393 Jul 31 02:40	18°♈50'29	10.67914 AU				
morning rise	12393 Aug 16 15:19	20°♈51'12		conjunction	12399 Oct 13 18:51	2°♊54'39	0°19'53
retrograde	12393 Nov 28 03:56	28°♈21'55		minimum elong	12399 Oct 13 18:51	2°♊54'39	0°20'17
opposition	12394 Feb 06 02:51	24°♈59'09	-1°54'17	max. Earth dist.	12399 Oct 14 03:54	2°♊57'26	10.57678 AU
min. Earth dist.	12394 Feb 05 18:10	25°♈00'49	8.67931 AU	morning rise	12399 Oct 31 08:06	5°♊03'09	
direct	12394 Apr 16 03:55	21°♈38'21		retrograde	12400 Feb 13 00:06	12°♊43'03	
evening set	12394 Jul 26 05:48	28°♈59'26		opposition	12400 Apr 22 07:59	9°♊17'35	0°39'14
	12394 Aug 03 14:02	0°♊		min. Earth dist.	12400 Apr 22 01:07	9°♊18'56	8.56185 AU
				direct	12400 Jun 29 06:09	5°♊55'14	
conjunction	12394 Aug 12 04:01	1°♊03'00	-1°26'00	evening set	12400 Oct 08 09:59	13°♊22'16	
minimum elong	12394 Aug 12 04:03	1°♊03'00	1°26'30		12400 Oct 21 18:20	15°♊	
max. Earth dist.	12394 Aug 12 14:12	1°♊06'07	10.67600 AU				
morning rise	12394 Aug 29 04:34	3°♊07'13		conjunction	12400 Oct 25 22:09	15°♊30'45	0°42'55
retrograde	12394 Dec 10 23:56	10°♊38'59		minimum elong	12400 Oct 25 22:08	15°♊30'44	0°43'28
opposition	12395 Feb 19 00:09	7°♊15'40	-1°36'11	max. Earth dist.	12400 Oct 26 05:37	15°♊33'03	10.54651 AU
min. Earth dist.	12395 Feb 18 15:09	7°♊17'23	8.67278 AU	morning rise	12400 Nov 12 13:10	17°♊40'04	
direct	12395 Apr 28 19:51	3°♊54'52		retrograde	12401 Feb 25 04:28	25°♊21'44	
evening set	12395 Aug 07 16:03	11°♊15'08		opposition	12401 May 05 06:11	21°♊56'08	1°06'40
				min. Earth dist.	12401 May 05 00:43	21°♊57'13	8.53144 AU
conjunction	12395 Aug 24 16:23	13°♊19'16	-1°09'27	direct	12401 Jul 12 02:31	18°♊33'13	
minimum elong	12395 Aug 24 16:26	13°♊19'17	1°09'47	evening set	12401 Oct 21 15:23	26°♊03'35	
max. Earth dist.	12395 Aug 25 03:33	13°♊22'41	10.66664 AU				
morning rise	12395 Sep 10 19:28	15°♊24'11		conjunction	12401 Nov 08 05:21	28°♊12'54	1°04'00
retrograde	12395 Dec 23 20:04	22°♊57'16		minimum elong	12401 Nov 08 05:19	28°♊12'54	1°04'43
opposition	12396 Mar 02 20:57	19°♊33'24	-1°13'39	max. Earth dist.	12401 Nov 08 11:25	28°♊14'47	10.51596 AU
min. Earth dist.	12396 Mar 02 11:10	19°♊35'17	8.66012 AU		12401 Nov 22 17:49	0°♊	
direct	12396 May 10 12:35	16°♊12'30		morning rise	12401 Nov 25 21:33	0°♊22'57	
evening set	12396 Aug 19 03:47	23°♊32'37		retrograde	12402 Mar 10 10:40	8°♊06'12	
				opposition	12402 May 18 05:35	4°♊40'35	1°31'02
conjunction	12396 Sep 05 06:38	25°♊37'30	-0°49'40	min. Earth dist.	12402 May 18 01:20	4°♊41'26	8.50159 AU
minimum elong	12396 Sep 05 06:40	25°♊37'31	0°49'50	direct	12402 Jul 25 01:12	1°♊17'06	
max. Earth dist.	12396 Sep 05 18:51	25°♊41'14	10.65129 AU	evening set	12402 Nov 04 00:47	8°♊51'06	
morning rise	12396 Sep 22 12:20	27°♊43'14					
	12396 Oct 12 06:14	0°♏		conjunction	12402 Nov 21 16:03	11°♊01'11	1°22'04
retrograde	12397 Jan 04 19:41	5°♏17'52		minimum elong	12402 Nov 21 16:00	11°♊01'10	1°22'54
opposition	12397 Mar 15 17:24	1°♏53'28	-0°47'38	max. Earth dist.	12402 Nov 21 19:59	11°♊02'24	10.48666 AU
min. Earth dist.	12397 Mar 15 07:05	1°♏55'27	8.64175 AU	morning rise	12402 Dec 09 08:58	13°♊11'48	
	12397 Apr 10 18:05	30°♊♌		retrograde	12403 Mar 23 19:17	20°♊56'21	
direct	12397 May 23 04:08	28°♊32'22		opposition	12403 May 31 06:23	17°♊30'51	1°51'04
	12397 Jul 03 12:56	0°♏		min. Earth dist.	12403 May 31 04:08	17°♊31'18	8.47380 AU
evening set	12397 Aug 31 18:11	5°♏53'05		direct	12403 Aug 07 01:07	14°♊06'45	
				evening set	12403 Nov 17 13:58	21°♊44'29	
conjunction	12397 Sep 17 23:36	7°♏58'49	-0°27'32				
minimum elong	12397 Sep 17 23:37	7°♏58'50	0°27'30	conjunction	12403 Dec 05 06:07	23°♊55'13	1°36'08
max. Earth dist.	12397 Sep 18 11:54	8°♏02'35	10.63053 AU	minimum elong	12403 Dec 05 06:05	23°♊55'12	1°37'02
morning rise	12397 Oct 05 07:57	10°♏05'28		max. Earth dist.	12403 Dec 05 06:57	23°♊55'28	10.46017 AU

morning rise	12403 Dec 22 23:27	26° \mathbb{X} 06'19		retrograde	12410 Jun 23 11:28	22° \mathbb{X} 16'20	
	12404 Jan 26 13:13	0° \mathbb{Z}		opposition	12410 Aug 29 21:28	18° \mathbb{X} 53'29	1°15'12
retrograde	12404 Apr 05 04:56	3° \mathbb{Z} 51'39		min. Earth dist.	12410 Aug 30 07:51	18° \mathbb{X} 51'26	8.40592 AU
opposition	12404 Jun 12 08:29	0° \mathbb{Z} 26'22	2°05'38	direct	12410 Nov 06 19:25	15° \mathbb{X} 26'48	
min. Earth dist.	12404 Jun 12 08:53	0° \mathbb{Z} 26'17	8.44943 AU	evening set	12411 Feb 19 23:07	23° \mathbb{X} 18'15	
	12404 Jun 17 21:09	30° \mathbb{R} \mathbb{X}					
direct	12404 Aug 19 04:02	27° \mathbb{X} 01'37		conjunction	12411 Mar 09 13:38	25° \mathbb{X} 29'45	0°49'49
	12404 Oct 18 04:00	0° \mathbb{Z}		minimum elong	12411 Mar 09 13:40	25° \mathbb{X} 29'46	0°49'58
evening set	12404 Nov 30 06:09	4° \mathbb{Z} 43'00		max. Earth dist.	12411 Mar 09 00:15	25° \mathbb{X} 25'34	10.41240 AU
				morning rise	12411 Mar 27 01:24	27° \mathbb{X} 40'27	
conjunction	12404 Dec 17 22:56	6° \mathbb{Z} 54'14	1°45'23		12411 Apr 15 16:47	0° \mathbb{Y}	
minimum elong	12404 Dec 17 22:55	6° \mathbb{Z} 54'13	1°46'19	retrograde	12411 Jul 06 17:23	5° \mathbb{Y} 18'34	
max. Earth dist.	12404 Dec 17 20:14	6° \mathbb{Z} 53'24	10.43763 AU	opposition	12411 Sep 12 06:14	1° \mathbb{Y} 56'08	0°47'46
morning rise	12405 Jan 04 16:21	9° \mathbb{Z} 05'41		min. Earth dist.	12411 Sep 12 16:25	1° \mathbb{Y} 54'07	8.42123 AU
retrograde	12405 Apr 18 13:21	16° \mathbb{Z} 51'14			12411 Oct 08 08:23	30° \mathbb{R} \mathbb{X}	
opposition	12405 Jun 25 11:59	13° \mathbb{Z} 26'14	2°13'53	direct	12411 Nov 20 10:01	28° \mathbb{X} 29'37	
min. Earth dist.	12405 Jun 25 15:05	13° \mathbb{Z} 25'37	8.42930 AU		12412 Jan 01 20:08	0° \mathbb{Y}	
direct	12405 Sep 01 11:09	10° \mathbb{Z} 00'52		evening set	12412 Mar 04 13:25	6° \mathbb{Y} 20'00	
evening set	12405 Dec 14 00:26	17° \mathbb{Z} 45'30					
				conjunction	12412 Mar 22 02:10	8° \mathbb{Y} 30'50	0°26'37
conjunction	12405 Dec 31 17:34	19° \mathbb{Z} 57'07	1°49'18	minimum elong	12412 Mar 22 02:11	8° \mathbb{Y} 30'50	0°26'33
minimum elong	12405 Dec 31 17:34	19° \mathbb{Z} 57'07	1°50'11	max. Earth dist.	12412 Mar 21 13:33	8° \mathbb{Y} 26'53	10.43125 AU
max. Earth dist.	12405 Dec 31 11:49	19° \mathbb{Z} 55'20	10.41966 AU	morning rise	12412 Apr 08 11:57	10° \mathbb{Y} 40'48	
morning rise	12406 Jan 18 10:41	22° \mathbb{Z} 08'45		retrograde	12412 Jul 18 21:06	18° \mathbb{Y} 16'50	
retrograde	12406 May 01 22:20	29° \mathbb{Z} 54'00		opposition	12412 Sep 24 14:46	14° \mathbb{Y} 54'45	0°18'02
opposition	12406 Jul 08 16:34	26° \mathbb{Z} 29'21	2°15'16	min. Earth dist.	12412 Sep 24 23:49	14° \mathbb{Y} 52'58	8.44293 AU
min. Earth dist.	12406 Jul 08 21:42	26° \mathbb{Z} 28'19	8.41376 AU	direct	12412 Dec 03 00:57	11° \mathbb{Y} 28'32	
direct	12406 Sep 14 19:53	23° \mathbb{Z} 03'26		evening set	12413 Mar 18 00:35	19° \mathbb{Y} 17'06	
	12406 Dec 20 20:01	0° \mathbb{Z}					
evening set	12406 Dec 27 19:52	0° \mathbb{Z} 50'46		conjunction	12413 Apr 04 11:09	21° \mathbb{Y} 27'03	0°02'11
				minimum elong	12413 Apr 04 11:09	21° \mathbb{Y} 27'03	0°01'56
conjunction	12407 Jan 14 13:14	3° \mathbb{Z} 02'42	1°47'33	behind sun begin	12413 Apr 04 04:00	21° \mathbb{Y} 24'51	
minimum elong	12407 Jan 14 13:15	3° \mathbb{Z} 02'42	1°48'22	behind sun end	12413 Apr 04 18:19	21° \mathbb{Y} 29'16	
max. Earth dist.	12407 Jan 14 05:14	3° \mathbb{Z} 00'11	10.40641 AU	max. Earth dist.	12413 Apr 04 00:29	21° \mathbb{Y} 23'44	10.45586 AU
morning rise	12407 Feb 01 05:46	5° \mathbb{Z} 14'24		morning rise	12413 Apr 21 18:34	23° \mathbb{Y} 36'07	
retrograde	12407 May 15 08:39	12° \mathbb{Z} 58'55		desc. node	12413 May 07 19:24	25° \mathbb{Y} 30'43	
opposition	12407 Jul 21 22:14	9° \mathbb{Z} 34'39	2°09'40		12413 Jun 25 12:08	0° \mathbb{Z}	
min. Earth dist.	12407 Jul 22 04:57	9° \mathbb{Z} 33'18	8.40278 AU	retrograde	12413 Aug 01 01:09	1° \mathbb{Z} 10'11	
direct	12407 Sep 28 05:18	6° \mathbb{Z} 08'20			12413 Sep 07 07:50	30° \mathbb{R} \mathbb{Y}	
evening set	12408 Jan 10 15:48	13° \mathbb{Z} 57'51		opposition	12413 Oct 07 23:01	27° \mathbb{Y} 48'22	-0°12'26
	12408 Jan 19 01:07	15° \mathbb{Z}		min. Earth dist.	12413 Oct 08 06:25	27° \mathbb{Y} 46'55	8.46991 AU
				direct	12413 Dec 16 12:56	24° \mathbb{Y} 22'35	
conjunction	12408 Jan 28 09:09	16° \mathbb{Z} 09'58	1°40'13		12414 Mar 13 04:34	0° \mathbb{Z}	
minimum elong	12408 Jan 28 09:10	16° \mathbb{Z} 09'58	1°40'55	evening set	12414 Mar 31 08:05	2° \mathbb{Z} 08'41	
max. Earth dist.	12408 Jan 27 23:13	16° \mathbb{Z} 06'51	10.39804 AU				
morning rise	12408 Feb 15 00:50	18° \mathbb{Z} 21'40		conjunction	12414 Apr 17 16:07	4° \mathbb{Z} 17'37	-0°22'19
retrograde	12408 May 27 18:21	26° \mathbb{Z} 05'04		minimum elong	12414 Apr 17 16:06	4° \mathbb{Z} 17'36	0°22'45
opposition	12408 Aug 03 05:06	22° \mathbb{Z} 41'17	1°57'17	max. Earth dist.	12414 Apr 17 07:43	4° \mathbb{Z} 15'00	10.48494 AU
min. Earth dist.	12408 Aug 03 13:13	22° \mathbb{Z} 39'39	8.39701 AU	morning rise	12414 May 04 21:00	6° \mathbb{Z} 25'40	
direct	12408 Oct 10 17:05	19° \mathbb{Z} 14'42		retrograde	12414 Aug 14 03:40	13° \mathbb{Z} 57'56	
evening set	12409 Jan 23 11:38	27° \mathbb{Z} 05'45		opposition	12414 Oct 21 06:32	10° \mathbb{Z} 36'19	-0°42'04
				min. Earth dist.	12414 Oct 21 12:38	10° \mathbb{Z} 35'07	8.50078 AU
conjunction	12409 Feb 10 04:29	29° \mathbb{Z} 17'52	1°27'40	direct	12414 Dec 29 22:27	7° \mathbb{Z} 11'03	
minimum elong	12409 Feb 10 04:31	29° \mathbb{Z} 17'53	1°28'12	evening set	12415 Apr 13 12:05	14° \mathbb{Z} 54'18	
max. Earth dist.	12409 Feb 09 16:59	29° \mathbb{Z} 14'16	10.39562 AU		12415 Apr 14 06:48	15° \mathbb{Z}	
	12409 Feb 15 18:58	0° \mathbb{X}					
morning rise	12409 Feb 27 19:05	1° \mathbb{X} 29'24		conjunction	12415 Apr 30 17:17	17° \mathbb{Z} 02'05	-0°45'28
retrograde	12409 Jun 10 03:14	9° \mathbb{X} 11'21		minimum elong	12415 Apr 30 17:15	17° \mathbb{Z} 02'04	0°46'04
opposition	12409 Aug 16 12:55	5° \mathbb{X} 48'03	1°38'48	max. Earth dist.	12415 Apr 30 10:36	17° \mathbb{Z} 00'00	10.51700 AU
min. Earth dist.	12409 Aug 16 22:24	5° \mathbb{X} 46'10	8.39778 AU	morning rise	12415 May 17 19:43	19° \mathbb{Z} 09'06	
direct	12409 Oct 24 05:59	2° \mathbb{X} 21'21		retrograde	12415 Aug 27 02:27	26° \mathbb{Z} 39'47	
evening set	12410 Feb 06 06:23	10° \mathbb{X} 13'04		opposition	12415 Nov 03 12:56	23° \mathbb{Z} 18'20	-1°09'24
				min. Earth dist.	12415 Nov 03 17:41	23° \mathbb{Z} 17'25	8.53398 AU
conjunction	12410 Feb 23 22:16	12° \mathbb{X} 24'59	1°10'33	direct	12416 Jan 12 07:43	19° \mathbb{Z} 53'39	
minimum elong	12410 Feb 23 22:19	12° \mathbb{X} 25'00	1°10'54	evening set	12416 Apr 25 12:24	27° \mathbb{Z} 33'50	
max. Earth dist.	12410 Feb 23 09:22	12° \mathbb{X} 20'57	10.40032 AU				
morning rise	12410 Mar 13 11:35	14° \mathbb{X} 36'11		conjunction	12416 May 12 14:44	29° \mathbb{Z} 40'26	-1°06'16

minimum elong	12416 May 12 14:42	29° 8 40'25	1°06'59			12422 Aug 04 03:15	15° 0
max. Earth dist.	12416 May 12 09:51	29° 8 38'55	10.55049 AU	morning rise		12422 Aug 11 16:44	15° 0 54'47
	12416 May 15 05:43	0° II		retrograde		12422 Nov 22 23:45	23° 0 23'57
morning rise	12416 May 29 14:54	1° II 46'24		opposition		12423 Jan 31 23:31	20° 0 01'44 -2°00'14
retrograde	12416 Sep 08 00:34	9° II 15'55		min. Earth dist.		12423 Jan 31 14:13	20° 0 03'30 8.70099 AU
opposition	12416 Nov 15 18:21	5° II 54'33	-1°33'10	direct		12423 Apr 11 04:11	16° 0 41'16
min. Earth dist.	12416 Nov 15 21:10	5° II 54'01	8.56786 AU	evening set		12423 Jul 21 07:36	24° 0 01'47
direct	12417 Jan 24 14:58	2° II 30'32					
evening set	12417 May 08 08:51	10° II 07'26		conjunction		12423 Aug 07 05:04	26° 0 04'51 -1°31'46
				minimum elong		12423 Aug 07 05:06	26° 0 04'52 1°32'20
conjunction	12417 May 25 08:40	12° II 12'56	-1°23'45	max. Earth dist.		12423 Aug 07 16:58	26° 0 08'29 10.70156 AU
minimum elong	12417 May 25 08:38	12° II 12'55	1°24'34	morning rise		12423 Aug 24 04:22	28° 0 08'28
max. Earth dist.	12417 May 25 06:23	12° II 12'13	10.58381 AU			12423 Sep 09 04:10	0° II
morning rise	12417 Jun 11 06:51	14° II 17'56		retrograde		12423 Dec 05 19:51	5° II 38'30
retrograde	12417 Sep 20 21:57	21° II 46'38		opposition		12424 Feb 13 20:23	2° II 15'55 -1°44'17
opposition	12417 Nov 28 22:27	18° II 25'18	-1°52'17	min. Earth dist.		12424 Feb 13 09:39	2° II 17'58 8.70227 AU
min. Earth dist.	12417 Nov 28 22:26	18° II 25'18	8.60072 AU			12424 Mar 17 12:53	30° R 0
direct	12418 Feb 06 18:56	15° II 02'00		direct		12424 Apr 22 19:15	28° 0 55'43
evening set	12418 May 21 02:02	22° II 35'36				12424 May 28 08:02	0° II
				evening set		12424 Aug 01 16:40	6° II 14'59
conjunction	12418 Jun 06 23:52	24° II 40'07	-1°37'09				
minimum elong	12418 Jun 06 23:51	24° II 40'07	1°38'02	conjunction		12424 Aug 18 15:58	8° II 18'29 -1°16'51
max. Earth dist.	12418 Jun 07 01:01	24° II 40'29	10.61527 AU	minimum elong		12424 Aug 18 16:00	8° II 18'29 1°17'16
morning rise	12418 Jun 23 20:29	26° II 44'19		max. Earth dist.		12424 Aug 19 04:52	8° II 22'25 10.69960 AU
	12418 Jul 22 12:49	0° III		morning rise		12424 Sep 04 17:35	10° II 22'41
retrograde	12418 Oct 03 18:09	4° III 12'32		retrograde		12424 Dec 17 16:15	17° II 53'47
opposition	12418 Dec 12 01:02	0° III 51'09	-2°06'00	opposition		12425 Feb 25 16:34	14° II 30'48 -1°23'36
min. Earth dist.	12418 Dec 11 22:22	0° III 51'39	8.63089 AU	min. Earth dist.		12425 Feb 25 05:41	14° II 32'53 8.69654 AU
	12418 Dec 23 07:50	30° R II		direct		12425 May 05 09:59	11° II 10'41
direct	12419 Feb 19 20:14	27° II 28'33		evening set		12425 Aug 14 02:59	18° II 29'22
	12419 Apr 16 18:13	0° III					
evening set	12419 Jun 02 16:21	4° III 58'58		conjunction		12425 Aug 31 04:27	20° II 33'29 -0°58'25
				minimum elong		12425 Aug 31 04:29	20° II 33'30 0°58'39
conjunction	12419 Jun 19 12:43	7° III 02'43	-1°45'57	max. Earth dist.		12425 Aug 31 16:47	20° II 37'15 10.69056 AU
minimum elong	12419 Jun 19 12:42	7° III 02'42	1°46'52	morning rise		12425 Sep 17 08:48	22° II 38'26
max. Earth dist.	12419 Jun 19 16:45	7° III 03'57	10.64334 AU			12425 Dec 15 21:35	0° III
morning rise	12419 Jul 06 08:23	9° III 06'17		retrograde		12425 Dec 30 13:56	0° III 10'48
retrograde	12419 Oct 16 14:57	16° III 34'19				12426 Jan 14 06:07	30° R II
opposition	12419 Dec 25 02:31	13° III 12'51	-2°13'46	opposition		12426 Mar 10 12:14	26° II 47'24 -0°59'04
min. Earth dist.	12419 Dec 24 21:52	13° III 13'44	8.65694 AU	min. Earth dist.		12426 Mar 10 02:09	26° II 49'20 8.68359 AU
direct	12420 Mar 03 18:53	9° III 50'56		direct		12426 May 18 00:15	23° II 27'10
evening set	12420 Jun 14 04:12	17° III 18'19				12426 Aug 20 03:34	0° III
				evening set		12426 Aug 26 15:19	0° III 46'02
conjunction	12420 Jun 30 23:38	19° III 21'30	-1°49'49				
minimum elong	12420 Jun 30 23:38	19° III 21'30	1°50'42	conjunction		12426 Sep 12 19:12	2° III 50'55 -0°37'17
max. Earth dist.	12420 Jul 01 05:40	19° III 23'21	10.66681 AU	minimum elong		12426 Sep 12 19:14	2° III 50'56 0°37'19
morning rise	12420 Jul 17 19:12	21° III 24'43		max. Earth dist.		12426 Sep 13 06:37	2° III 54'24 10.67413 AU
retrograde	12420 Oct 28 10:08	28° III 52'52		morning rise		12426 Sep 30 02:18	4° III 56'43
opposition	12421 Jan 06 02:49	25° III 31'13	-2°15'21	retrograde		12427 Jan 12 10:58	12° III 30'36
min. Earth dist.	12421 Jan 05 20:50	25° III 32'21	8.67781 AU	opposition		12427 Mar 23 07:37	9° III 06'46 -0°31'44
direct	12421 Mar 16 14:57	22° III 09'53		min. Earth dist.		12427 Mar 22 22:29	9° III 08'32 8.66322 AU
evening set	12421 Jun 26 14:14	29° III 34'33		direct		12427 May 30 15:16	5° III 46'16
	12421 Jun 30 02:39	0° 0		evening set		12427 Sep 08 06:21	13° III 06'11
conjunction	12421 Jul 13 09:33	1° 0 37'26	-1°48'38	conjunction		12427 Sep 25 12:51	15° III 11'58 -0°14'21
minimum elong	12421 Jul 13 09:34	1° 0 37'26	1°49'28	minimum elong		12427 Sep 25 12:52	15° III 11'58 0°14'12
max. Earth dist.	12421 Jul 13 17:06	1° 0 39'45	10.68480 AU	behind sun begin		12427 Sep 25 09:27	15° III 10'56
morning rise	12421 Jul 30 05:49	3° 0 40'33		behind sun end		12427 Sep 25 16:16	15° III 13'00
retrograde	12421 Nov 10 04:04	11° 0 09'04		max. Earth dist.		12427 Sep 25 23:37	15° III 15'14 10.65033 AU
opposition	12422 Jan 19 01:42	7° 0 47'10	-2°10'45	morning rise		12427 Oct 12 22:29	17° III 18'40
min. Earth dist.	12422 Jan 18 18:12	7° 0 48'36	8.69272 AU	retrograde		12428 Jan 25 10:20	24° III 54'24
direct	12422 Mar 29 10:18	4° 0 26'19		opposition		12428 Apr 04 03:12	21° III 30'08 -0°02'48
evening set	12422 Jul 08 23:06	11° 0 48'41		min. Earth dist.		12428 Apr 03 18:39	21° III 31'47 8.63601 AU
				asc. node		12428 May 09 10:54	19° III 03'44
conjunction	12422 Jul 25 19:11	13° 0 51'32	-1°42'31	direct		12428 Jun 11 07:40	18° III 09'13
minimum elong	12422 Jul 25 19:12	13° 0 51'33	1°43'14	evening set		12428 Sep 20 00:45	25° III 31'01
max. Earth dist.	12422 Jul 26 04:54	13° 0 54'31	10.69658 AU				

conjunction	12428 Oct 07 09:47	27° \mathfrak{L} 37'46	0°09'28	direct	12434 Aug 26 19:20	4° \mathfrak{Z} 19'54	
minimum elong	12428 Oct 07 09:46	27° \mathfrak{L} 37'46	0°09'48	evening set	12434 Dec 08 01:24	12° \mathfrak{Z} 02'42	
behind sun begin	12428 Oct 07 03:55	27° \mathfrak{L} 36'00					
behind sun end	12428 Oct 07 15:37	27° \mathfrak{L} 39'32		conjunction	12434 Dec 25 18:31	14° \mathfrak{Z} 14'09	1°48'15
max. Earth dist.	12428 Oct 07 19:39	27° \mathfrak{L} 40'46	10.62035 AU	minimum elong	12434 Dec 25 18:31	14° \mathfrak{Z} 14'09	1°49'09
morning rise	12428 Oct 24 21:43	29° \mathfrak{L} 45'26		max. Earth dist.	12434 Dec 25 14:02	14° \mathfrak{Z} 12'45	10.42354 AU
	12428 Oct 26 22:33	0° \mathfrak{M}		morning rise	12435 Jan 12 11:40	16° \mathfrak{Z} 25'40	
retrograde	12429 Feb 06 13:07	7° \mathfrak{M} 23'08		retrograde	12435 Apr 26 03:49	24° \mathfrak{Z} 11'01	
opposition	12429 Apr 16 23:20	3° \mathfrak{M} 58'28	0°26'29	opposition	12435 Jul 02 23:55	20° \mathfrak{Z} 45'46	2°15'35
min. Earth dist.	12429 Apr 16 15:49	3° \mathfrak{M} 59'56	8.60373 AU	min. Earth dist.	12435 Jul 03 04:17	20° \mathfrak{Z} 44'53	8.41401 AU
direct	12429 Jun 23 23:27	0° \mathfrak{M} 37'00		direct	12435 Sep 09 01:12	17° \mathfrak{Z} 19'40	
evening set	12429 Oct 02 23:18	8° \mathfrak{M} 01'25		evening set	12435 Dec 21 19:57	25° \mathfrak{Z} 05'41	
conjunction	12429 Oct 20 10:26	10° \mathfrak{M} 09'08	0°32'52	conjunction	12436 Jan 08 13:17	27° \mathfrak{Z} 17'33	1°49'06
minimum elong	12429 Oct 20 10:25	10° \mathfrak{M} 09'08	0°33'23	minimum elong	12436 Jan 08 13:18	27° \mathfrak{Z} 17'33	1°49'57
max. Earth dist.	12429 Oct 20 18:08	10° \mathfrak{M} 11'29	10.58630 AU	max. Earth dist.	12436 Jan 08 05:43	27° \mathfrak{Z} 15'11	10.40360 AU
morning rise	12429 Nov 07 00:21	12° \mathfrak{M} 17'43		morning rise	12436 Jan 26 06:07	29° \mathfrak{Z} 29'17	
	12429 Nov 30 14:02	15° \mathfrak{M}			12436 Jan 30 11:12	0° \mathfrak{N}	
retrograde	12430 Feb 19 16:41	19° \mathfrak{M} 57'21		retrograde	12436 May 08 13:42	7° \mathfrak{N} 14'15	
opposition	12430 Apr 29 20:13	16° \mathfrak{M} 32'21	0°54'44	opposition	12436 Jul 15 04:45	3° \mathfrak{N} 49'18	2°13'11
min. Earth dist.	12430 Apr 29 14:41	16° \mathfrak{M} 33'27	8.56860 AU	min. Earth dist.	12436 Jul 15 11:31	3° \mathfrak{N} 47'57	8.39751 AU
	12430 May 20 05:53	15° \mathfrak{R} \mathfrak{M}		direct	12436 Sep 21 09:27	0° \mathfrak{N} 22'38	
direct	12430 Jul 06 16:48	13° \mathfrak{M} 10'10		evening set	12437 Jan 03 15:33	8° \mathfrak{N} 11'17	
	12430 Aug 22 02:34	15° \mathfrak{M}					
evening set	12430 Oct 16 01:55	20° \mathfrak{M} 37'52		conjunction	12437 Jan 21 08:51	10° \mathfrak{N} 23'23	1°44'19
conjunction	12430 Nov 02 14:49	22° \mathfrak{M} 46'29	0°54'54	minimum elong	12437 Jan 21 08:53	10° \mathfrak{N} 23'24	1°45'04
minimum elong	12430 Nov 02 14:47	22° \mathfrak{M} 46'29	0°55'33	max. Earth dist.	12437 Jan 20 22:43	10° \mathfrak{N} 20'13	10.39077 AU
max. Earth dist.	12430 Nov 02 19:41	22° \mathfrak{M} 47'59	10.55038 AU	morning rise	12437 Feb 08 01:07	12° \mathfrak{N} 35'13	
morning rise	12430 Nov 20 06:21	24° \mathfrak{M} 55'54			12437 Feb 28 11:43	15° \mathfrak{N}	
	12431 Jan 06 21:00	0° \mathfrak{J}		retrograde	12437 May 21 22:02	20° \mathfrak{N} 19'15	
retrograde	12431 Mar 04 20:17	2° \mathfrak{J} 37'23		opposition	12437 Jul 28 10:56	16° \mathfrak{N} 54'43	2°03'53
	12431 May 02 13:07	30° \mathfrak{R} \mathfrak{M}		min. Earth dist.	12437 Jul 28 19:14	16° \mathfrak{N} 53'03	8.38837 AU
opposition	12431 May 12 18:21	29° \mathfrak{M} 12'08	1°20'33		12437 Aug 22 19:51	15° \mathfrak{R} \mathfrak{N}	
min. Earth dist.	12431 May 12 15:12	29° \mathfrak{M} 12'45	8.53271 AU	direct	12437 Oct 04 21:27	13° \mathfrak{N} 27'40	
direct	12431 Jul 19 14:23	25° \mathfrak{M} 49'09			12437 Nov 16 09:23	15° \mathfrak{N}	
	12431 Sep 29 21:48	0° \mathfrak{J}		evening set	12438 Jan 17 11:05	21° \mathfrak{N} 18'09	
evening set	12431 Oct 29 08:27	3° \mathfrak{J} 20'30		conjunction	12438 Feb 04 04:07	23° \mathfrak{N} 30'21	1°34'06
conjunction	12431 Nov 15 22:52	5° \mathfrak{J} 29'59	1°14'23	minimum elong	12438 Feb 04 04:09	23° \mathfrak{N} 30'21	1°34'43
minimum elong	12431 Nov 15 22:50	5° \mathfrak{J} 29'58	1°15'11	max. Earth dist.	12438 Feb 03 16:39	23° \mathfrak{N} 26'45	10.38573 AU
max. Earth dist.	12431 Nov 16 01:06	5° \mathfrak{J} 30'40	10.51453 AU	morning rise	12438 Feb 21 19:28	25° \mathfrak{N} 42'04	
morning rise	12431 Dec 03 15:31	7° \mathfrak{J} 40'07			12438 Apr 01 02:44	0° \mathfrak{H}	
retrograde	12432 Mar 17 02:14	15° \mathfrak{J} 23'13		retrograde	12438 Jun 04 06:10	3° \mathfrak{H} 24'47	
opposition	12432 May 24 17:41	11° \mathfrak{J} 57'47	1°42'38	opposition	12438 Aug 10 18:06	0° \mathfrak{H} 00'43	1°48'06
min. Earth dist.	12432 May 24 16:36	11° \mathfrak{J} 58'00	8.49780 AU		12438 Aug 10 21:39	30° \mathfrak{R} \mathfrak{N}	
direct	12432 Jul 31 13:36	8° \mathfrak{J} 33'59		min. Earth dist.	12438 Aug 11 02:55	29° \mathfrak{N} 58'57	8.38716 AU
evening set	12432 Nov 10 18:59	16° \mathfrak{J} 09'12		direct	12438 Oct 18 10:13	26° \mathfrak{N} 33'32	
conjunction	12432 Nov 28 10:41	18° \mathfrak{J} 19'27	1°30'20		12438 Dec 22 18:09	0° \mathfrak{H}	
minimum elong	12432 Nov 28 10:39	18° \mathfrak{J} 19'27	1°31'13	evening set	12439 Jan 31 05:59	4° \mathfrak{H} 24'59	
max. Earth dist.	12432 Nov 28 10:49	18° \mathfrak{J} 19'30	10.48040 AU	conjunction	12439 Feb 17 22:27	6° \mathfrak{H} 37'05	1°19'00
morning rise	12432 Dec 16 03:53	20° \mathfrak{J} 30'12		minimum elong	12439 Feb 17 22:29	6° \mathfrak{H} 37'05	1°19'26
retrograde	12433 Mar 30 09:58	28° \mathfrak{J} 14'31		max. Earth dist.	12439 Feb 17 10:44	6° \mathfrak{H} 33'24	10.38887 AU
opposition	12433 Jun 06 18:11	24° \mathfrak{J} 49'01	1°59'47	morning rise	12439 Mar 07 12:34	8° \mathfrak{H} 48'31	
min. Earth dist.	12433 Jun 06 18:44	24° \mathfrak{J} 48'55	8.46542 AU	retrograde	12439 Jun 17 14:59	16° \mathfrak{H} 29'32	
direct	12433 Aug 13 14:54	21° \mathfrak{J} 24'23		opposition	12439 Aug 24 01:54	13° \mathfrak{H} 05'59	1°26'43
evening set	12433 Nov 24 08:55	29° \mathfrak{J} 03'32		min. Earth dist.	12439 Aug 24 10:42	13° \mathfrak{H} 04'15	8.39403 AU
	12433 Dec 02 01:17	0° \mathfrak{Z}		direct	12439 Oct 31 22:39	9° \mathfrak{H} 38'53	
conjunction	12433 Dec 12 01:30	1° \mathfrak{Z} 14'27	1°41'51	evening set	12440 Feb 13 23:32	17° \mathfrak{H} 30'29	
minimum elong	12433 Dec 12 01:29	1° \mathfrak{Z} 14'26	1°42'46	conjunction	12440 Mar 02 14:58	19° \mathfrak{H} 42'15	0°59'49
max. Earth dist.	12433 Dec 11 23:29	1° \mathfrak{Z} 13'49	10.44957 AU	minimum elong	12440 Mar 02 15:00	19° \mathfrak{H} 42'16	1°00'04
morning rise	12433 Dec 29 18:49	3° \mathfrak{Z} 25'39		max. Earth dist.	12440 Mar 02 03:29	19° \mathfrak{H} 38'39	10.39999 AU
retrograde	12434 Apr 12 18:04	11° \mathfrak{Z} 10'44		morning rise	12440 Mar 20 03:30	21° \mathfrak{H} 53'15	
opposition	12434 Jun 19 20:17	7° \mathfrak{Z} 45'18	2°11'00	retrograde	12440 Jun 29 22:45	29° \mathfrak{H} 32'19	
min. Earth dist.	12434 Jun 19 22:32	7° \mathfrak{Z} 44'51	8.43703 AU	opposition	12440 Sep 05 10:23	26° \mathfrak{H} 09'21	1°00'53
				min. Earth dist.	12440 Sep 05 19:20	26° \mathfrak{H} 07'35	8.40863 AU

direct	12440 Nov 13 11:41	22° K 42'31		minimum elong	12446 May 19 21:26	6° II 43'20	1°16'50
	12441 Feb 22 01:10	0° Y		max. Earth dist.	12446 May 19 19:09	6° II 42'37	10.57785 AU
evening set	12441 Feb 26 14:59	0° Y 33'26		morning rise	12446 Jun 05 20:24	8° II 48'43	
				retrograde	12446 Sep 15 10:50	16° II 17'45	
conjunction	12441 Mar 16 04:45	2° Y 44'38	0°37'36	opposition	12446 Nov 23 06:20	12° II 56'57	-1°43'57
minimum elong	12441 Mar 16 04:46	2° Y 44'39	0°37'39	min. Earth dist.	12446 Nov 23 07:34	12° II 56'42	8.59509 AU
max. Earth dist.	12441 Mar 15 17:24	2° Y 41'05	10.41846 AU	direct	12447 Feb 01 01:00	9° II 33'50	
morning rise	12441 Apr 02 15:23	4° Y 54'59		evening set	12447 May 15 15:38	17° II 08'59	
retrograde	12441 Jul 13 04:20	12° Y 32'01					
opposition	12441 Sep 18 19:07	9° Y 09'38	0°32'01	conjunction	12447 Jun 01 14:16	19° II 13'54	-1°31'24
min. Earth dist.	12441 Sep 19 04:04	9° Y 07'52	8.43028 AU	minimum elong	12447 Jun 01 14:14	19° II 13'54	1°32'16
direct	12441 Nov 27 01:28	5° Y 43'13		max. Earth dist.	12447 Jun 01 13:11	19° II 13'34	10.60981 AU
evening set	12442 Mar 12 03:45	13° Y 32'43		morning rise	12447 Jun 18 11:31	21° II 18'25	
				retrograde	12447 Sep 28 06:51	28° II 46'50	
conjunction	12442 Mar 29 15:21	15° Y 43'07	0°13'35	opposition	12447 Dec 06 10:01	25° II 26'01	-2°00'13
minimum elong	12442 Mar 29 15:22	15° Y 43'07	0°13'26	min. Earth dist.	12447 Dec 06 10:02	25° II 26'01	8.62499 AU
behind sun begin	12442 Mar 29 11:20	15° Y 41'52		direct	12448 Feb 14 04:34	22° II 03'33	
behind sun end	12442 Mar 29 19:24	15° Y 44'22		evening set	12448 May 27 07:43	29° II 35'37	
max. Earth dist.	12442 Mar 29 04:26	15° Y 39'43	10.44343 AU		12448 May 30 16:09	0° E	
morning rise	12442 Apr 15 23:55	17° Y 52'38					
retrograde	12442 Jul 26 08:38	25° Y 27'39		conjunction	12448 Jun 13 04:31	1° E 39'41	-1°42'22
opposition	12442 Oct 02 03:40	22° Y 05'48	0°01'42	minimum elong	12448 Jun 13 04:30	1° E 39'41	1°43'17
min. Earth dist.	12442 Oct 02 12:04	22° Y 04'10	8.45798 AU	max. Earth dist.	12448 Jun 13 05:12	1° E 39'54	10.63678 AU
desc. node	12442 Oct 22 19:17	20° Y 32'24		morning rise	12448 Jun 30 00:39	3° E 43'32	
direct	12442 Dec 10 14:18	18° Y 39'56		retrograde	12448 Oct 10 03:40	11° E 11'50	
evening set	12443 Mar 25 13:18	26° Y 27'20		opposition	12448 Dec 18 12:36	7° E 50'53	-2°10'46
				min. Earth dist.	12448 Dec 18 10:30	7° E 51'17	8.64932 AU
conjunction	12443 Apr 11 22:26	28° Y 36'46	-0°11'04	direct	12449 Feb 26 06:02	4° E 29'01	
minimum elong	12443 Apr 11 22:26	28° Y 36'46	0°11'26	evening set	12449 Jun 08 21:00	11° E 58'08	
behind sun begin	12443 Apr 11 17:15	28° Y 35'09					
behind sun end	12443 Apr 12 03:37	28° Y 38'22		conjunction	12449 Jun 25 16:48	14° E 01'37	-1°48'31
max. Earth dist.	12443 Apr 11 12:38	28° Y 33'43	10.47363 AU	minimum elong	12449 Jun 25 16:48	14° E 01'37	1°49'25
	12443 Apr 23 01:33	0° E		max. Earth dist.	12449 Jun 25 20:15	14° E 02'41	10.65803 AU
morning rise	12443 Apr 29 04:43	0° E 45'20		morning rise	12449 Jul 12 12:25	16° E 05'02	
retrograde	12443 Aug 08 10:50	8° E 18'27		retrograde	12449 Oct 22 23:49	23° E 33'34	
opposition	12443 Oct 15 11:44	4° E 57'02	-0°28'30	opposition	12449 Dec 31 13:55	20° E 12'18	-2°15'13
min. Earth dist.	12443 Oct 15 18:29	4° E 55'43	8.49021 AU	min. Earth dist.	12449 Dec 31 09:22	20° E 13'10	8.66768 AU
direct	12443 Dec 24 02:31	1° E 31'49		direct	12450 Mar 11 04:01	16° E 50'56	
evening set	12444 Apr 06 19:23	9° E 16'35		evening set	12450 Jun 21 08:26	24° E 17'22	
conjunction	12444 Apr 24 01:52	11° E 24'53	-0°34'56	conjunction	12450 Jul 08 03:56	26° E 20'29	-1°49'38
minimum elong	12444 Apr 24 01:50	11° E 24'53	0°35'28	minimum elong	12450 Jul 08 03:56	26° E 20'29	1°50'30
max. Earth dist.	12444 Apr 23 18:28	11° E 22'35	10.50737 AU	max. Earth dist.	12450 Jul 08 10:12	26° E 22'24	10.67325 AU
morning rise	12444 May 11 05:33	13° E 32'24		morning rise	12450 Jul 24 23:43	28° E 23'44	
	12444 May 23 10:25	15° E			12450 Aug 07 15:34	0° E	
retrograde	12444 Aug 20 11:30	21° E 03'52		retrograde	12450 Nov 04 19:32	5° E 52'40	
opposition	12444 Oct 27 19:00	17° E 42'46	-0°57'03	opposition	12451 Jan 13 13:53	2° E 31'00	-2°13'26
min. Earth dist.	12444 Oct 27 23:30	17° E 41'53	8.52520 AU	min. Earth dist.	12451 Jan 13 07:27	2° E 32'13	8.67976 AU
	12444 Dec 07 11:38	15° E			12451 Feb 20 01:36	30° E	
direct	12445 Jan 05 13:19	14° E 18'16		direct	12451 Mar 24 00:28	29° E 09'59	
	12445 Feb 03 06:01	15° E			12451 Apr 24 09:51	0° E	
evening set	12445 Apr 19 21:46	21° E 59'59		evening set	12451 Jul 03 18:28	6° E 34'03	
conjunction	12445 May 07 01:32	24° E 07'07	-0°56'57	conjunction	12451 Jul 20 14:15	8° E 37'03	-1°45'45
minimum elong	12445 May 07 01:30	24° E 07'06	0°57'37	minimum elong	12451 Jul 20 14:16	8° E 37'04	1°46'31
max. Earth dist.	12445 May 06 20:57	24° E 05'42	10.54284 AU	max. Earth dist.	12451 Jul 20 22:11	8° E 39'30	10.68220 AU
morning rise	12445 May 24 02:39	26° E 13'31		morning rise	12451 Aug 06 11:04	10° E 40'23	
	12445 Jun 26 13:56	0° E			12451 Sep 15 06:01	15° E	
retrograde	12445 Sep 02 12:42	3° E 43'37		retrograde	12451 Nov 17 16:08	18° E 09'58	
opposition	12445 Nov 10 01:17	0° E 22'43	-1°22'36		12452 Jan 23 20:53	15° E	
min. Earth dist.	12445 Nov 10 03:48	0° E 22'14	8.56100 AU	opposition	12452 Jan 26 12:58	14° E 47'48	-2°05'35
	12445 Nov 14 23:31	30° E		min. Earth dist.	12452 Jan 26 05:31	14° E 49'13	8.68539 AU
direct	12446 Jan 18 20:19	26° E 58'56		direct	12452 Apr 04 18:42	11° E 26'59	
	12446 Mar 21 10:30	0° E			12452 Jun 10 14:48	15° E	
evening set	12446 May 02 20:23	4° E 37'21		evening set	12452 Jul 15 03:37	18° E 49'04	
conjunction	12446 May 19 21:28	6° E 43'20	-1°16'03	conjunction	12452 Aug 01 00:21	20° E 52'14	-1°37'03

minimum elong	12452 Aug 01 00:23	20° Ω 52'14	1°37'41	evening set	12458 Sep 27 15:57	2° \mathbb{M} 49'18	
max. Earth dist.	12452 Aug 01 09:22	20° Ω 54'59	10.68477 AU				
morning rise	12452 Aug 17 22:56	22° Ω 55'53		conjunction	12458 Oct 15 02:12	4° \mathbb{M} 56'54	0°22'49
	12452 Nov 06 13:45	0° \mathbb{M}		minimum elong	12458 Oct 15 02:11	4° \mathbb{M} 56'54	0°23'15
retrograde	12452 Nov 29 11:10	0° \mathbb{M} 26'20		max. Earth dist.	12458 Oct 15 10:58	4° \mathbb{M} 59'36	10.57586 AU
	12452 Dec 22 13:16	30° \mathbb{R} Ω		morning rise	12458 Nov 01 15:31	7° \mathbb{M} 05'25	
opposition	12453 Feb 07 10:59	27° Ω 03'37	-1°52'01	retrograde	12459 Feb 14 06:39	14° \mathbb{M} 45'18	
min. Earth dist.	12453 Feb 07 02:46	27° Ω 05'11	8.68452 AU	opposition	12459 Apr 24 14:36	11° \mathbb{M} 19'47	0°42'44
direct	12453 Apr 17 11:19	23° Ω 42'53		min. Earth dist.	12459 Apr 24 07:52	11° \mathbb{M} 21'06	8.56029 AU
	12453 Jul 18 13:32	0° \mathbb{M}		direct	12459 Jul 01 13:14	7° \mathbb{M} 57'20	
evening set	12453 Jul 27 12:51	1° \mathbb{M} 03'33			12459 Oct 07 07:25	15° \mathbb{M}	
				evening set	12459 Oct 10 17:17	15° \mathbb{M} 24'33	
conjunction	12453 Aug 13 11:17	3° \mathbb{M} 07'05	-1°23'55				
minimum elong	12453 Aug 13 11:20	3° \mathbb{M} 07'06	1°24'24	conjunction	12459 Oct 28 05:38	17° \mathbb{M} 33'04	0°45'37
max. Earth dist.	12453 Aug 13 21:28	3° \mathbb{M} 10'12	10.68086 AU	minimum elong	12459 Oct 28 05:36	17° \mathbb{M} 33'04	0°46'13
morning rise	12453 Aug 30 12:05	5° \mathbb{M} 11'17		max. Earth dist.	12459 Oct 28 13:18	17° \mathbb{M} 35'26	10.54425 AU
retrograde	12453 Dec 12 06:20	12° \mathbb{M} 42'49		morning rise	12459 Nov 14 20:35	19° \mathbb{M} 42'25	
opposition	12454 Feb 20 07:52	9° \mathbb{M} 19'30	-1°33'20	retrograde	12460 Feb 27 11:19	27° \mathbb{M} 24'10	
min. Earth dist.	12454 Feb 19 22:43	9° \mathbb{M} 21'16	8.67714 AU	opposition	12460 May 06 12:50	23° \mathbb{M} 58'29	1°09'48
direct	12454 Apr 30 04:40	5° \mathbb{M} 58'45		min. Earth dist.	12460 May 06 07:11	23° \mathbb{M} 59'36	8.52859 AU
evening set	12454 Aug 08 22:59	13° \mathbb{M} 18'40		direct	12460 Jul 13 09:43	20° \mathbb{M} 35'29	
				evening set	12460 Oct 22 22:54	28° \mathbb{M} 06'06	
conjunction	12454 Aug 25 23:39	15° \mathbb{M} 22'48	-1°06'57		12460 Nov 07 10:46	0° \mathbb{Z}	
minimum elong	12454 Aug 25 23:41	15° \mathbb{M} 22'49	1°07'16				
max. Earth dist.	12454 Aug 26 11:22	15° \mathbb{M} 26'24	10.67052 AU	conjunction	12460 Nov 09 12:57	0° \mathbb{Z} 15'30	1°06'20
morning rise	12454 Sep 12 02:52	17° \mathbb{M} 27'42		minimum elong	12460 Nov 09 12:55	0° \mathbb{Z} 15'29	1°07'05
retrograde	12454 Dec 25 04:26	25° \mathbb{M} 00'34		max. Earth dist.	12460 Nov 09 18:46	0° \mathbb{Z} 17'18	10.51245 AU
opposition	12455 Mar 05 04:17	21° \mathbb{M} 36'41	-1°10'21	morning rise	12460 Nov 27 05:07	2° \mathbb{Z} 25'35	
min. Earth dist.	12455 Mar 04 18:07	21° \mathbb{M} 38'38	8.66341 AU	retrograde	12461 Mar 11 19:03	10° \mathbb{Z} 08'59	
direct	12455 May 12 20:07	18° \mathbb{M} 15'49		opposition	12461 May 19 12:22	6° \mathbb{Z} 43'18	1°33'40
evening set	12455 Aug 21 10:44	25° \mathbb{M} 35'38		min. Earth dist.	12461 May 19 08:28	6° \mathbb{Z} 44'05	8.49755 AU
				direct	12461 Jul 26 07:02	3° \mathbb{Z} 19'41	
conjunction	12455 Sep 07 13:48	27° \mathbb{M} 40'32	-0°46'52	evening set	12461 Nov 05 08:43	10° \mathbb{Z} 54'05	
minimum elong	12455 Sep 07 13:50	27° \mathbb{M} 40'32	0°47'00				
max. Earth dist.	12455 Sep 08 02:05	27° \mathbb{M} 44'17	10.65402 AU	conjunction	12461 Nov 22 23:57	13° \mathbb{Z} 04'14	1°23'56
morning rise	12455 Sep 24 19:39	29° \mathbb{M} 46'16		minimum elong	12461 Nov 22 23:54	13° \mathbb{Z} 04'13	1°24'47
	12455 Sep 26 17:41	0° \mathbb{Z}		max. Earth dist.	12461 Nov 23 02:45	13° \mathbb{Z} 05'06	10.48208 AU
retrograde	12456 Jan 07 03:34	7° \mathbb{Z} 20'41		morning rise	12461 Dec 10 16:55	15° \mathbb{Z} 14'56	
opposition	12456 Mar 17 00:30	3° \mathbb{Z} 56'16	-0°44'03	retrograde	12462 Mar 25 03:25	22° \mathbb{Z} 59'39	
min. Earth dist.	12456 Mar 16 14:20	3° \mathbb{Z} 58'14	8.64387 AU	opposition	12462 Jun 01 13:18	19° \mathbb{Z} 34'07	1°53'02
direct	12456 May 24 09:53	0° \mathbb{Z} 35'10		min. Earth dist.	12462 Jun 01 11:59	19° \mathbb{Z} 34'23	8.46881 AU
evening set	12456 Sep 02 01:09	7° \mathbb{Z} 55'42		direct	12462 Aug 08 07:37	16° \mathbb{Z} 09'53	
				evening set	12462 Nov 18 22:11	23° \mathbb{Z} 48'10	
conjunction	12456 Sep 19 06:39	10° \mathbb{Z} 01'27	-0°24'33				
minimum elong	12456 Sep 19 06:40	10° \mathbb{Z} 01'27	0°24'30	conjunction	12462 Dec 06 14:17	25° \mathbb{Z} 58'57	1°37'25
max. Earth dist.	12456 Sep 19 18:06	10° \mathbb{Z} 04'56	10.63209 AU	minimum elong	12462 Dec 06 14:16	25° \mathbb{Z} 58'57	1°38'20
morning rise	12456 Oct 06 15:16	12° \mathbb{Z} 08'06		max. Earth dist.	12462 Dec 06 13:54	25° \mathbb{Z} 58'50	10.45483 AU
retrograde	12457 Jan 19 02:48	19° \mathbb{Z} 44'13		morning rise	12462 Dec 24 07:41	28° \mathbb{Z} 10'09	
opposition	12457 Mar 29 20:41	16° \mathbb{Z} 19'21	-0°15'34		12463 Jan 08 18:36	0° \mathbb{Z}	
min. Earth dist.	12457 Mar 29 11:37	16° \mathbb{Z} 21'07	8.61942 AU	retrograde	12463 Apr 07 11:28	5° \mathbb{Z} 55'44	
direct	12457 Jun 06 01:56	12° \mathbb{Z} 57'53		opposition	12463 Jun 14 15:44	2° \mathbb{Z} 30'26	2°06'50
evening set	12457 Sep 14 18:45	20° \mathbb{Z} 19'57		min. Earth dist.	12463 Jun 14 16:51	2° \mathbb{Z} 30'13	8.44387 AU
					12463 Jul 20 02:05	30° \mathbb{R} \mathbb{Z}	
conjunction	12457 Oct 02 02:42	22° \mathbb{Z} 26'37	-0°00'59	direct	12463 Aug 21 12:27	29° \mathbb{Z} 05'36	
minimum elong	12457 Oct 02 02:40	22° \mathbb{Z} 26'36	0°00'44		12463 Sep 22 16:15	0° \mathbb{Z}	
behind sun begin	12457 Oct 01 19:31	22° \mathbb{Z} 24'26		evening set	12463 Dec 02 14:34	6° \mathbb{Z} 47'32	
behind sun end	12457 Oct 02 09:50	22° \mathbb{Z} 28'46					
max. Earth dist.	12457 Oct 02 12:30	22° \mathbb{Z} 29'36	10.60566 AU	conjunction	12463 Dec 20 07:23	8° \mathbb{Z} 58'53	1°46'01
asc. node	12457 Oct 17 16:13	24° \mathbb{Z} 20'29		minimum elong	12463 Dec 20 07:22	8° \mathbb{Z} 58'52	1°46'57
morning rise	12457 Oct 19 13:53	24° \mathbb{Z} 34'13		max. Earth dist.	12463 Dec 20 04:19	8° \mathbb{Z} 57'55	10.43197 AU
	12457 Dec 10 22:09	0° \mathbb{M}		morning rise	12464 Jan 07 00:50	11° \mathbb{Z} 10'24	
retrograde	12458 Feb 01 04:01	2° \mathbb{M} 12'10		retrograde	12464 Apr 19 21:11	18° \mathbb{Z} 56'17	
	12458 Mar 26 18:05	30° \mathbb{R} \mathbb{Z}		opposition	12464 Jun 26 19:30	15° \mathbb{Z} 31'18	2°14'15
opposition	12458 Apr 11 17:18	28° \mathbb{Z} 46'56	0°13'48	min. Earth dist.	12464 Jun 26 22:35	15° \mathbb{Z} 30'41	8.42370 AU
min. Earth dist.	12458 Apr 11 09:39	28° \mathbb{Z} 48'26	8.59111 AU	direct	12464 Sep 02 18:52	12° \mathbb{Z} 05'53	
direct	12458 Jun 18 18:41	25° \mathbb{Z} 25'00		evening set	12464 Dec 15 09:16	19° \mathbb{Z} 51'04	
	12458 Sep 02 23:57	0° \mathbb{M}					

conjunction	12465 Jan 02 02:33	22° S 02'49	1°49'13	conjunction	12471 Mar 24 11:22	10° V 39'05	0°23'28
minimum elong	12465 Jan 02 02:33	22° S 02'49	1°50'06	minimum elong	12471 Mar 24 11:23	10° V 39'05	0°23'23
max. Earth dist.	12465 Jan 01 21:19	22° S 01'11	10.41431 AU	max. Earth dist.	12471 Mar 23 23:37	10° V 35'25	10.43119 AU
morning rise	12465 Jan 19 19:36	24° S 14'32		morning rise	12471 Apr 10 20:55	12° V 49'01	
	12465 Mar 15 19:41	0° \approx		retrograde	12471 Jul 21 07:36	20° V 25'09	
retrograde	12465 May 03 07:26	2° \approx 00'05		opposition	12471 Sep 27 00:05	17° V 03'06	0°14'04
	12465 Jun 21 19:33	30° R S		min. Earth dist.	12471 Sep 27 08:36	17° V 01'25	8.44305 AU
opposition	12465 Jul 10 00:23	28° S 35'26	2°14'46	direct	12471 Dec 05 09:17	13° V 36'58	
min. Earth dist.	12465 Jul 10 04:57	28° S 34'31	8.40883 AU	evening set	12472 Mar 19 09:53	21° V 25'31	
direct	12465 Sep 16 03:20	25° S 09'31		desc. node	12472 Mar 19 23:29	21° V 29'41	
	12465 Dec 03 19:50	0° \approx					
evening set	12465 Dec 29 05:06	2° \approx 57'20		conjunction	12472 Apr 05 20:19	23° V 35'28	-0°01'07
				minimum elong	12472 Apr 05 20:20	23° V 35'28	0°01'24
conjunction	12466 Jan 15 22:34	5° \approx 09'21	1°46'47	behind sun begin	12472 Apr 05 13:10	23° V 33'15	
minimum elong	12466 Jan 15 22:35	5° \approx 09'21	1°47'35	behind sun end	12472 Apr 06 03:30	23° V 37'41	
max. Earth dist.	12466 Jan 15 15:15	5° \approx 07'04	10.40215 AU	max. Earth dist.	12472 Apr 05 10:14	23° V 32'20	10.45619 AU
morning rise	12466 Feb 02 14:57	7° \approx 21'08		morning rise	12472 Apr 23 03:30	25° V 44'30	
	12466 May 06 09:13	15° \approx			12472 May 31 05:49	0° S	
retrograde	12466 May 16 17:25	15° \approx 05'49		retrograde	12472 Aug 02 11:12	3° S 18'37	
	12466 May 27 02:09	15° R \approx			12472 Oct 08 16:24	30° R V	
opposition	12466 Jul 23 06:31	11° \approx 41'34	2°08'17	opposition	12472 Oct 09 08:34	29° V 56'50	-0°16'22
min. Earth dist.	12466 Jul 23 12:56	11° \approx 40'17	8.39926 AU	min. Earth dist.	12472 Oct 09 16:05	29° V 55'23	8.47043 AU
direct	12466 Sep 29 13:52	8° \approx 15'14		direct	12472 Dec 17 21:20	26° V 31'08	
	12467 Jan 03 01:44	15° \approx			12473 Feb 22 06:38	0° S	
evening set	12467 Jan 12 01:09	16° \approx 05'05		evening set	12473 Apr 01 17:28	4° S 17'13	
conjunction	12467 Jan 29 18:27	18° \approx 17'14	1°38'47	conjunction	12473 Apr 19 01:12	6° S 26'05	-0°25'25
minimum elong	12467 Jan 29 18:29	18° \approx 17'15	1°39'27	minimum elong	12473 Apr 19 01:11	6° S 26'05	0°25'53
max. Earth dist.	12467 Jan 29 08:35	18° \approx 14'09	10.39530 AU	max. Earth dist.	12473 Apr 18 16:38	6° S 23'25	10.48564 AU
morning rise	12467 Feb 16 10:04	20° \approx 28'59		morning rise	12473 May 06 05:55	8° S 34'07	
retrograde	12467 May 30 03:17	28° \approx 12'27			12473 Jul 10 20:37	15° S	
opposition	12467 Aug 05 13:41	24° \approx 48'41	1°55'07	retrograde	12473 Aug 15 12:04	16° S 06'25	
min. Earth dist.	12467 Aug 05 22:10	24° \approx 46'59	8.39488 AU		12473 Sep 20 20:52	15° R S	
direct	12467 Oct 13 01:18	21° \approx 22'05		opposition	12473 Oct 22 16:19	12° S 44'51	-0°45'47
evening set	12468 Jan 25 21:02	29° \approx 13'19		min. Earth dist.	12473 Oct 22 22:47	12° S 43'36	8.50172 AU
	12468 Feb 01 04:13	0° H		direct	12473 Dec 31 08:46	9° S 19'39	
					12474 Mar 28 13:24	15° S	
conjunction	12468 Feb 12 13:46	1° H 25'29	1°25'37	evening set	12474 Apr 14 21:22	17° S 02'50	
minimum elong	12468 Feb 12 13:48	1° H 25'30	1°26'07				
max. Earth dist.	12468 Feb 12 01:35	1° H 21'40	10.39405 AU	conjunction	12474 May 02 02:14	19° S 10'32	-0°48'19
morning rise	12468 Mar 01 04:23	3° H 37'03		minimum elong	12474 May 02 02:12	19° S 10'31	0°48'56
retrograde	12468 Jun 11 12:31	11° H 18'58		max. Earth dist.	12474 May 01 19:12	19° S 08'20	10.51813 AU
opposition	12468 Aug 17 21:38	7° H 55'44	1°35'56	morning rise	12474 May 19 04:34	21° S 17'29	
min. Earth dist.	12468 Aug 18 07:42	7° H 53'44	8.39656 AU	retrograde	12474 Aug 28 11:40	28° S 48'15	
direct	12468 Oct 25 14:25	4° H 29'01		opposition	12474 Nov 04 22:49	25° S 26'49	-1°12'42
evening set	12469 Feb 07 15:47	12° H 20'53		min. Earth dist.	12474 Nov 05 03:28	25° S 25'55	8.53535 AU
				direct	12475 Jan 13 18:08	22° S 02'10	
conjunction	12469 Feb 25 07:33	14° H 32'50	1°08'00	evening set	12475 Apr 27 21:27	29° S 42'11	
minimum elong	12469 Feb 25 07:35	14° H 32'51	1°08'19		12475 Apr 30 07:56	0° II	
max. Earth dist.	12469 Feb 24 18:04	14° H 28'36	10.39943 AU				
morning rise	12469 Mar 14 20:54	16° H 44'04		conjunction	12475 May 14 23:36	1° II 48'43	-1°08'43
retrograde	12469 Jun 24 19:35	24° H 24'11		minimum elong	12475 May 14 23:34	1° II 48'42	1°09'28
opposition	12469 Aug 31 06:23	21° H 01'24	1°11'46	max. Earth dist.	12475 May 14 19:03	1° II 47'18	10.55201 AU
min. Earth dist.	12469 Aug 31 16:45	20° H 59'21	8.40522 AU	morning rise	12475 May 31 23:39	3° II 54'37	
direct	12469 Nov 08 05:26	17° H 34'46		retrograde	12475 Sep 10 09:47	11° II 24'10	
evening set	12470 Feb 21 08:25	25° H 26'19		opposition	12475 Nov 18 04:09	8° II 02'47	-1°35'53
				min. Earth dist.	12475 Nov 18 06:12	8° II 02'23	8.56955 AU
conjunction	12470 Mar 10 22:52	27° H 37'49	0°46'54	direct	12476 Jan 27 00:40	4° II 38'48	
minimum elong	12470 Mar 10 22:54	27° H 37'49	0°47'01	evening set	12476 May 09 17:47	12° II 15'28	
max. Earth dist.	12470 Mar 10 09:46	27° H 33'42	10.41194 AU				
morning rise	12470 Mar 28 10:31	29° H 48'30		conjunction	12476 May 26 17:30	14° II 20'54	-1°25'41
	12470 Mar 30 00:04	0° V		minimum elong	12476 May 26 17:28	14° II 20'54	1°26'32
retrograde	12470 Jul 08 01:19	7° V 26'41		max. Earth dist.	12476 May 26 16:17	14° II 20'31	10.58557 AU
opposition	12470 Sep 13 15:21	4° V 04'17	0°43'59	morning rise	12476 Jun 12 15:27	16° II 25'50	
min. Earth dist.	12470 Sep 14 00:55	4° V 02'24	8.42094 AU	retrograde	12476 Sep 22 07:02	23° II 54'33	
direct	12470 Nov 21 20:37	0° V 37'51		opposition	12476 Nov 30 08:12	20° II 33'09	-1°54'19
evening set	12471 Mar 06 22:39	8° V 28'15		min. Earth dist.	12476 Nov 30 07:23	20° II 33'19	8.60260 AU

direct	12477 Feb 08 04:56	17° Π 09'54	min. Earth dist.	12483 Feb 14 18:14	4° η 22'59	8.70318 AU
evening set	12477 May 22 10:47	24° Π 43'13	direct	12483 Apr 25 03:18	1° η 00'46	
			evening set	12483 Aug 04 00:15	8° η 19'51	
conjunction	12477 Jun 08 08:30	26° Π 47'40 -1°38'29	conjunction	12483 Aug 20 23:40	10° η 23'23 -1°14'30	
minimum elong	12477 Jun 08 08:28	26° Π 47'40 1°39'24	minimum elong	12483 Aug 20 23:42	10° η 23'23 1°14'53	
max. Earth dist.	12477 Jun 08 10:25	26° Π 48'16 10.61720 AU	max. Earth dist.	12483 Aug 21 11:50	10° η 27'06 10.70034 AU	
morning rise	12477 Jun 25 04:56	28° Π 51'48	morning rise	12483 Sep 07 01:38	12° η 27'37	
	12477 Jul 04 18:02	0° \mathfrak{E}	retrograde	12483 Dec 20 00:48	19° η 58'40	
retrograde	12477 Oct 05 04:20	6° \mathfrak{E} 19'59	retrograde	12484 Feb 28 00:49	16° η 35'40 -1°20'27	
opposition	12477 Dec 13 10:49	2° \mathfrak{E} 58'33 -2°07'15	opposition	12484 Feb 27 14:31	16° η 37'39 8.69704 AU	
min. Earth dist.	12477 Dec 13 08:01	2° \mathfrak{E} 59'05 8.63295 AU	min. Earth dist.	12484 May 06 17:33	13° η 15'33	
	12478 Jan 30 06:52	30° $\mathfrak{R}\Pi$	direct	12484 Aug 15 10:28	20° η 34'06	
direct	12478 Feb 21 05:29	29° Π 35'59	evening set			
	12478 Mar 14 23:18	0° \mathfrak{E}				
evening set	12478 Jun 04 00:49	7° \mathfrak{E} 06'03	conjunction	12484 Sep 01 12:08	22° η 38'16 -0°55'42	
			minimum elong	12484 Sep 01 12:10	22° η 38'16 0°55'54	
conjunction	12478 Jun 20 21:02	9° \mathfrak{E} 09'44 -1°46'38	max. Earth dist.	12484 Sep 02 00:12	22° η 41'57 10.69101 AU	
minimum elong	12478 Jun 20 21:01	9° \mathfrak{E} 09'44 1°47'33	morning rise	12484 Sep 18 16:48	24° η 43'16	
max. Earth dist.	12478 Jun 21 00:58	9° \mathfrak{E} 10'57 10.64544 AU		12484 Nov 08 15:56	0° \mathfrak{A}	
morning rise	12478 Jul 07 16:45	11° \mathfrak{E} 13'17	retrograde	12484 Dec 31 21:04	2° \mathfrak{A} 15'37	
retrograde	12478 Oct 17 23:49	18° \mathfrak{E} 41'14		12485 Feb 24 20:04	30° $\mathfrak{R}\eta$	
opposition	12478 Dec 26 12:06	15° \mathfrak{E} 19'43 -2°14'11	opposition	12485 Mar 11 20:17	28° η 52'13 -0°55'32	
min. Earth dist.	12478 Dec 26 07:46	15° \mathfrak{E} 20'32 8.65910 AU	min. Earth dist.	12485 Mar 11 10:14	28° η 54'09 8.68397 AU	
direct	12479 Mar 06 03:14	11° \mathfrak{E} 57'47	direct	12485 May 19 08:04	25° η 31'59	
evening set	12479 Jun 16 12:26	19° \mathfrak{E} 24'51		12485 Aug 02 20:39	0° \mathfrak{A}	
			evening set	12485 Aug 27 22:52	2° \mathfrak{A} 50'48	
conjunction	12479 Jul 03 07:49	21° \mathfrak{E} 27'59 -1°49'49	conjunction	12485 Sep 14 03:05	4° \mathfrak{A} 55'44 -0°34'19	
minimum elong	12479 Jul 03 07:49	21° \mathfrak{E} 27'59 1°50'42	minimum elong	12485 Sep 14 03:07	4° \mathfrak{A} 55'45 0°34'19	
max. Earth dist.	12479 Jul 03 13:29	21° \mathfrak{E} 29'44 10.66894 AU	max. Earth dist.	12485 Sep 14 15:09	4° \mathfrak{A} 59'25 10.67462 AU	
morning rise	12479 Jul 20 03:31	23° \mathfrak{E} 31'11	morning rise	12485 Oct 01 10:21	7° \mathfrak{A} 01'34	
	12479 Sep 26 09:15	0° \mathfrak{Q}	retrograde	12486 Jan 13 18:34	14° \mathfrak{A} 35'27	
retrograde	12479 Oct 30 17:40	0° \mathfrak{Q} 59'15	opposition	12486 Mar 24 15:21	11° \mathfrak{A} 11'36 -0°27'59	
	12479 Dec 04 19:01	30° $\mathfrak{R}\mathfrak{E}$	min. Earth dist.	12486 Mar 24 05:38	11° \mathfrak{A} 13'28 8.66386 AU	
opposition	12480 Jan 08 12:03	27° \mathfrak{E} 37'32 -2°14'56	direct	12486 Jun 01 00:03	7° \mathfrak{A} 51'07	
min. Earth dist.	12480 Jan 08 06:04	27° \mathfrak{E} 38'40 8.67989 AU	evening set	12486 Sep 09 14:05	15° \mathfrak{A} 10'59	
direct	12480 Mar 18 00:59	24° \mathfrak{E} 16'11				
	12480 Jun 13 14:37	0° \mathfrak{Q}				
evening set	12480 Jun 27 22:12	1° \mathfrak{Q} 40'33	conjunction	12486 Sep 26 20:51	17° \mathfrak{A} 16'49 -0°11'16	
			minimum elong	12486 Sep 26 20:52	17° \mathfrak{A} 16'49 0°11'06	
conjunction	12480 Jul 14 17:37	3° \mathfrak{Q} 43'25 -1°47'58	behind sun begin	12486 Sep 26 15:33	17° \mathfrak{A} 15'12	
minimum elong	12480 Jul 14 17:38	3° \mathfrak{Q} 43'25 1°48'47	behind sun end	12486 Sep 27 02:11	17° \mathfrak{A} 18'25	
max. Earth dist.	12480 Jul 15 01:37	3° \mathfrak{Q} 45'52 10.68678 AU	max. Earth dist.	12486 Sep 27 08:16	17° \mathfrak{A} 20'17 10.65112 AU	
morning rise	12480 Jul 31 13:59	5° \mathfrak{Q} 46'30	morning rise	12486 Oct 14 06:35	19° \mathfrak{A} 23'32	
retrograde	12480 Nov 11 13:04	13° \mathfrak{Q} 14'58	retrograde	12487 Jan 26 19:41	26° \mathfrak{A} 59'11	
opposition	12481 Jan 20 10:44	9° \mathfrak{Q} 52'59 -2°09'32	asc. node	12487 Mar 24 15:11	24° \mathfrak{A} 33'43	
min. Earth dist.	12481 Jan 20 02:31	9° \mathfrak{Q} 54'33 8.69453 AU	opposition	12487 Apr 06 10:48	23° \mathfrak{A} 34'56 0°01'01	
direct	12481 Mar 30 19:53	6° \mathfrak{Q} 32'09	min. Earth dist.	12487 Apr 06 01:55	23° \mathfrak{A} 36'39 8.63689 AU	
evening set	12481 Jul 10 06:46	13° \mathfrak{Q} 54'11	direct	12487 Jun 13 14:12	20° \mathfrak{A} 14'02	
	12481 Jul 19 08:26	15° \mathfrak{Q}	evening set	12487 Sep 22 08:40	27° \mathfrak{A} 35'49	
conjunction	12481 Jul 27 03:04	15° \mathfrak{Q} 57'02 -1°41'13	conjunction	12487 Oct 09 17:45	29° \mathfrak{A} 42'35 0°12'30	
minimum elong	12481 Jul 27 03:05	15° \mathfrak{Q} 57'03 1°41'55	minimum elong	12487 Oct 09 17:44	29° \mathfrak{A} 42'35 0°12'52	
max. Earth dist.	12481 Jul 27 13:41	16° \mathfrak{Q} 00'18 10.69821 AU	behind sun begin	12487 Oct 09 13:21	29° \mathfrak{A} 41'15	
morning rise	12481 Aug 13 00:42	18° \mathfrak{Q} 00'18	behind sun end	12487 Oct 09 22:08	29° \mathfrak{A} 43'54	
retrograde	12481 Nov 24 08:46	25° \mathfrak{Q} 29'24	max. Earth dist.	12487 Oct 10 03:14	29° \mathfrak{A} 45'28 10.62121 AU	
opposition	12482 Feb 02 08:15	22° \mathfrak{Q} 07'06 -1°58'16		12487 Oct 12 02:39	0° \mathfrak{M}	
min. Earth dist.	12482 Feb 01 22:20	22° \mathfrak{Q} 09'00 8.70237 AU	morning rise	12487 Oct 27 05:48	1° \mathfrak{M} 50'16	
direct	12482 Apr 12 11:44	18° \mathfrak{Q} 46'39	retrograde	12488 Feb 08 21:29	9° \mathfrak{M} 27'54	
evening set	12482 Jul 22 15:15	26° \mathfrak{Q} 06'54	opposition	12488 Apr 18 06:55	6° \mathfrak{M} 03'16 0°30'10	
			min. Earth dist.	12488 Apr 17 23:53	6° \mathfrak{M} 04'38 8.60449 AU	
conjunction	12482 Aug 08 12:53	28° \mathfrak{Q} 10'00 -1°29'54	direct	12488 Jun 25 06:03	2° \mathfrak{M} 41'48	
minimum elong	12482 Aug 08 12:55	28° \mathfrak{Q} 10'00 1°30'27	evening set	12488 Oct 04 07:22	10° \mathfrak{M} 06'19	
max. Earth dist.	12482 Aug 09 00:55	28° \mathfrak{Q} 13'40 10.70274 AU				
	12482 Aug 23 14:52	0° \mathfrak{M}	conjunction	12488 Oct 21 18:31	12° \mathfrak{M} 14'02 0°35'45	
morning rise	12482 Aug 25 12:23	0° \mathfrak{M} 13'38	minimum elong	12488 Oct 21 18:29	12° \mathfrak{M} 14'01 0°36'17	
retrograde	12482 Dec 07 04:17	7° \mathfrak{M} 43'36	max. Earth dist.	12488 Oct 22 01:14	12° \mathfrak{M} 16'05 10.58690 AU	
opposition	12483 Feb 15 04:47	4° \mathfrak{M} 20'58 -1°41'40	morning rise	12488 Nov 08 08:37	14° \mathfrak{M} 22'38	



























































































































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retrograde	12489 Feb 20 23:39	22°♄02'14		retrograde	12495 May 10 21:09	9°♄21'06	
opposition	12489 May 01 03:47	18°♄37'17	0°58'07	opposition	12495 Jul 17 13:09	5°♄56'12	2°12'12
min. Earth dist.	12489 Apr 30 23:05	18°♄38'13	8.56899 AU	min. Earth dist.	12495 Jul 17 20:16	5°♄54'47	8.39638 AU
direct	12489 Jul 08 01:13	15°♄15'06		direct	12495 Sep 23 19:33	2°♄29'30	
evening set	12489 Oct 17 10:11	22°♄42'57		evening set	12496 Jan 06 00:59	10°♄18'21	
conjunction	12489 Nov 03 23:10	24°♄51'36	0°57'28	conjunction	12496 Jan 23 18:20	12°♄30'29	1°43'11
minimum elong	12489 Nov 03 23:09	24°♄51'35	0°58'09	minimum elong	12496 Jan 23 18:22	12°♄30'30	1°43'55
max. Earth dist.	12489 Nov 04 03:24	24°♄52'54	10.55049 AU	max. Earth dist.	12496 Jan 23 08:12	12°♄27'19	10.38977 AU
morning rise	12489 Nov 21 14:48	27°♄01'01		morning rise	12496 Feb 10 10:34	14°♄42'18	
	12489 Dec 17 16:41	0°♄			12496 Feb 12 20:30	15°♄	
retrograde	12490 Mar 06 04:28	4°♄42'30		retrograde	12496 May 23 06:04	22°♄26'19	
opposition	12490 May 14 01:53	1°♄17'18	1°23'29	opposition	12496 Jul 29 19:25	19°♄01'47	2°02'03
min. Earth dist.	12490 May 13 23:08	1°♄17'51	8.53256 AU	min. Earth dist.	12496 Jul 30 03:24	19°♄00'11	8.38746 AU
	12490 May 30 20:12	30°♄		direct	12496 Oct 06 06:47	15°♄34'44	
direct	12490 Jul 20 21:56	27°♄54'19		evening set	12497 Jan 18 20:37	23°♄25'19	
	12490 Sep 08 15:36	0°♄					
evening set	12490 Oct 30 16:57	5°♄25'53		conjunction	12497 Feb 05 13:43	25°♄37'32	1°32'20
				minimum elong	12497 Feb 05 13:46	25°♄37'33	1°32'55
conjunction	12490 Nov 17 07:30	7°♄35'23	1°16'31	max. Earth dist.	12497 Feb 05 02:46	25°♄34'06	10.38497 AU
minimum elong	12490 Nov 17 07:27	7°♄35'23	1°17'20	morning rise	12497 Feb 23 04:56	27°♄49'15	
max. Earth dist.	12490 Nov 17 09:53	7°♄36'08	10.51405 AU		12497 Mar 13 13:08	0°♄	
morning rise	12490 Dec 05 00:04	9°♄45'32		retrograde	12497 Jun 05 15:51	5°♄31'52	
retrograde	12491 Mar 19 10:27	17°♄28'40		opposition	12497 Aug 12 02:38	2°♄07'48	1°45'33
opposition	12491 May 27 01:16	14°♄03'17	1°44'57	min. Earth dist.	12497 Aug 12 11:06	2°♄06'07	8.38648 AU
min. Earth dist.	12491 May 26 23:56	14°♄03'33	8.49711 AU		12497 Sep 09 22:24	30°♄	
direct	12491 Aug 02 21:24	10°♄39'28		direct	12497 Oct 19 18:23	28°♄40'36	
evening set	12491 Nov 13 03:45	18°♄14'58			12497 Nov 28 04:24	0°♄	
				evening set	12498 Feb 01 15:27	6°♄32'06	
conjunction	12491 Nov 30 19:30	20°♄25'14	1°31'55				
minimum elong	12491 Nov 30 19:28	20°♄25'14	1°32'49	conjunction	12498 Feb 19 07:54	8°♄44'13	1°16'40
max. Earth dist.	12491 Nov 30 19:57	20°♄25'22	10.47945 AU	minimum elong	12498 Feb 19 07:57	8°♄44'13	1°17'05
morning rise	12491 Dec 18 12:34	22°♄35'59		max. Earth dist.	12498 Feb 18 20:33	8°♄40'39	10.38837 AU
	12492 Mar 12 02:09	0°♄		morning rise	12498 Mar 08 21:49	10°♄55'38	
retrograde	12492 Mar 31 17:59	0°♄20'21		retrograde	12498 Jun 18 23:56	18°♄36'32	
	12492 Apr 20 11:27	30°♄		opposition	12498 Aug 25 10:40	15°♄13'00	1°23'33
opposition	12492 Jun 08 01:58	26°♄54'54	2°01'22	min. Earth dist.	12498 Aug 25 19:34	15°♄11'14	8.39367 AU
min. Earth dist.	12492 Jun 08 02:24	26°♄54'49	8.46434 AU	direct	12498 Nov 02 07:31	11°♄45'52	
direct	12492 Aug 14 23:10	23°♄30'16		evening set	12499 Feb 15 08:45	19°♄37'27	
	12492 Nov 16 01:11	0°♄					
evening set	12492 Nov 25 17:59	1°♄09'41		conjunction	12499 Mar 05 00:02	21°♄49'12	0°57'04
				minimum elong	12499 Mar 05 00:05	21°♄49'12	0°57'17
conjunction	12492 Dec 13 10:33	3°♄20'38	1°42'48	max. Earth dist.	12499 Mar 04 12:17	21°♄45'31	10.39985 AU
minimum elong	12492 Dec 13 10:32	3°♄20'37	1°43'44	morning rise	12499 Mar 22 12:28	24°♄00'10	
max. Earth dist.	12492 Dec 13 08:07	3°♄19'52	10.44835 AU		12499 May 19 17:38	0°♄	
morning rise	12492 Dec 31 03:48	5°♄31'50		retrograde	12499 Jul 02 06:59	1°♄39'07	
retrograde	12493 Apr 14 03:36	13°♄16'57			12499 Aug 15 19:48	30°♄	
opposition	12493 Jun 21 04:18	9°♄51'35	2°11'46	opposition	12499 Sep 07 19:13	28°♄16'10	0°57'17
min. Earth dist.	12493 Jun 21 07:05	9°♄51'01	8.43575 AU	min. Earth dist.	12499 Sep 08 04:42	28°♄14'17	8.40868 AU
direct	12493 Aug 28 02:17	6°♄26'09		direct	12499 Nov 15 21:04	24°♄49'18	
evening set	12493 Dec 09 10:48	14°♄09'14			12500 Feb 06 06:18	0°♄	
				evening set	12500 Mar 01 00:01	2°♄40'10	
conjunction	12493 Dec 27 03:48	16°♄20'43	1°48'30				
minimum elong	12493 Dec 27 03:48	16°♄20'42	1°49'25	conjunction	12500 Mar 18 13:35	4°♄51'19	0°34'35
max. Earth dist.	12493 Dec 26 22:13	16°♄18'58	10.42221 AU	minimum elong	12500 Mar 18 13:36	4°♄51'20	0°34'35
morning rise	12494 Jan 13 20:57	18°♄32'16		max. Earth dist.	12500 Mar 18 01:31	4°♄47'33	10.41873 AU
retrograde	12494 Apr 27 12:46	26°♄17'34		morning rise	12500 Apr 05 00:11	7°♄01'38	
opposition	12494 Jul 04 08:06	22°♄52'23	2°15'28	retrograde	12500 Jul 15 12:55	14°♄38'33	
min. Earth dist.	12494 Jul 04 13:21	22°♄51'20	8.41271 AU	opposition	12500 Sep 21 03:50	11°♄16'11	0°28'11
direct	12494 Sep 10 09:30	19°♄26'15		min. Earth dist.	12500 Sep 21 13:05	11°♄14'21	8.43074 AU
evening set	12494 Dec 23 05:26	27°♄12'33		direct	12500 Nov 29 10:10	7°♄49'45	
				evening set	12501 Mar 14 12:31	15°♄39'09	
conjunction	12495 Jan 09 22:42	29°♄24'25	1°48'39				
minimum elong	12495 Jan 09 22:42	29°♄24'25	1°49'30	conjunction	12501 Mar 31 23:56	17°♄49'30	0°10'28
max. Earth dist.	12495 Jan 09 14:15	29°♄21'47	10.40238 AU	minimum elong	12501 Mar 31 23:56	17°♄49'31	0°10'16
	12495 Jan 14 16:40	0°♄		behind sun begin	12501 Mar 31 18:15	17°♄47'45	

behind sun end	12501 Apr 01 05:37	17° Υ 51'16			12507 May 16 10:56	0° \mathfrak{D}
max. Earth dist.	12501 Mar 31 12:46	17° Υ 46'01	10.44407 AU	evening set	12507 May 30 14:51	1° \mathfrak{D} 40'06
morning rise	12501 Apr 18 08:24	19° Υ 59'00				
retrograde	12501 Jul 28 16:03	27° Υ 33'56		conjunction	12507 Jun 16 11:39	3° \mathfrak{D} 44'05 -1°43'18
desc. node	12501 Sep 07 22:19	26° Υ 09'01		minimum elong	12507 Jun 16 11:37	3° \mathfrak{D} 44'04 1°44'14
opposition	12501 Oct 04 12:24	24° Υ 12'04	-0°02'11	max. Earth dist.	12507 Jun 16 13:25	3° \mathfrak{D} 44'38 10.64182 AU
min. Earth dist.	12501 Oct 04 20:20	24° Υ 10'31	8.45877 AU	morning rise	12507 Jul 03 07:40	5° \mathfrak{D} 47'50
direct	12501 Dec 13 00:03	20° Υ 46'13		retrograde	12507 Oct 13 11:18	13° \mathfrak{D} 15'55
evening set	12502 Mar 27 21:39	28° Υ 33'29		opposition	12507 Dec 21 20:33	9° \mathfrak{D} 54'57 -2°11'31
	12502 Apr 08 13:30	0° \mathfrak{B}		min. Earth dist.	12507 Dec 21 17:29	9° \mathfrak{D} 55'32 8.65482 AU
				direct	12508 Feb 29 13:28	6° \mathfrak{D} 33'12
conjunction	12502 Apr 14 06:41	0° \mathfrak{B} 42'51	-0°14'09	evening set	12508 Jun 11 03:50	14° \mathfrak{D} 01'50
minimum elong	12502 Apr 14 06:40	0° \mathfrak{B} 42'51	0°14'33			
behind sun begin	12502 Apr 14 03:33	0° \mathfrak{B} 41'53		conjunction	12508 Jun 27 23:38	16° \mathfrak{D} 05'12 -1°48'48
behind sun end	12502 Apr 14 09:47	0° \mathfrak{B} 43'49		minimum elong	12508 Jun 27 23:37	16° \mathfrak{D} 05'12 1°49'43
max. Earth dist.	12502 Apr 13 21:35	0° \mathfrak{B} 40'01	10.47459 AU	max. Earth dist.	12508 Jun 28 04:06	16° \mathfrak{D} 06'35 10.66379 AU
morning rise	12502 May 01 12:43	2° \mathfrak{B} 51'22		morning rise	12508 Jul 14 19:08	18° \mathfrak{D} 08'32
retrograde	12502 Aug 10 18:43	10° \mathfrak{B} 24'30		retrograde	12508 Oct 25 07:14	25° \mathfrak{D} 36'48
opposition	12502 Oct 17 20:25	7° \mathfrak{B} 03'03	-0°32'14	opposition	12509 Jan 02 21:38	22° \mathfrak{D} 15'34 -2°15'09
min. Earth dist.	12502 Oct 18 02:18	7° \mathfrak{B} 01'54	8.49131 AU	min. Earth dist.	12509 Jan 02 16:36	22° \mathfrak{D} 16'32 8.67361 AU
direct	12502 Dec 26 12:07	3° \mathfrak{B} 37'53		direct	12509 Mar 13 11:45	18° \mathfrak{D} 54'18
evening set	12503 Apr 10 03:31	11° \mathfrak{B} 22'29		evening set	12509 Jun 23 14:58	26° \mathfrak{D} 20'14
conjunction	12503 Apr 27 09:53	13° \mathfrak{B} 30'44	-0°37'50	conjunction	12509 Jul 10 10:25	28° \mathfrak{D} 23'17 -1°49'16
minimum elong	12503 Apr 27 09:52	13° \mathfrak{B} 30'43	0°38'23	minimum elong	12509 Jul 10 10:25	28° \mathfrak{D} 23'17 1°50'08
max. Earth dist.	12503 Apr 27 03:29	13° \mathfrak{B} 28'44	10.50864 AU	max. Earth dist.	12509 Jul 10 16:48	28° \mathfrak{D} 25'14 10.67925 AU
	12503 May 09 08:58	15° \mathfrak{B}			12509 Jul 23 14:40	0° \mathfrak{Q}
morning rise	12503 May 14 13:18	15° \mathfrak{B} 38'09		morning rise	12509 Jul 27 06:18	0° \mathfrak{Q} 26'27
retrograde	12503 Aug 23 21:03	23° \mathfrak{B} 09'39		retrograde	12509 Nov 07 03:27	7° \mathfrak{Q} 55'07
opposition	12503 Oct 31 03:36	19° \mathfrak{B} 48'32	-1°00'27	opposition	12510 Jan 15 21:23	4° \mathfrak{Q} 33'30 -2°12'35
min. Earth dist.	12503 Oct 31 07:46	19° \mathfrak{B} 47'44	8.52666 AU	min. Earth dist.	12510 Jan 15 15:15	4° \mathfrak{Q} 34'40 8.68575 AU
direct	12504 Jan 08 20:58	16° \mathfrak{B} 24'06		direct	12510 Mar 26 07:04	1° \mathfrak{Q} 12'35
evening set	12504 Apr 22 05:47	24° \mathfrak{B} 05'39		evening set	12510 Jul 06 00:44	8° \mathfrak{Q} 36'10
conjunction	12504 May 09 09:19	26° \mathfrak{B} 12'43	-0°59'30	conjunction	12510 Jul 22 20:31	10° \mathfrak{Q} 39'07 -1°44'45
minimum elong	12504 May 09 09:17	26° \mathfrak{B} 12'42	1°00'12	minimum elong	12510 Jul 22 20:32	10° \mathfrak{Q} 39'07 1°45'31
max. Earth dist.	12504 May 09 05:04	26° \mathfrak{B} 11'24	10.54452 AU	max. Earth dist.	12510 Jul 23 03:52	10° \mathfrak{Q} 41'22 10.68812 AU
morning rise	12504 May 26 10:14	28° \mathfrak{B} 19'04		morning rise	12510 Aug 08 17:35	12° \mathfrak{Q} 42'24
	12504 Jun 09 14:05	0° \mathfrak{I}			12510 Aug 28 14:02	15° \mathfrak{Q}
retrograde	12504 Sep 04 20:55	5° \mathfrak{I} 49'09		retrograde	12510 Nov 19 22:13	20° \mathfrak{Q} 11'41
opposition	12504 Nov 12 09:57	2° \mathfrak{I} 28'17	-1°25'30	opposition	12511 Jan 28 20:06	16° \mathfrak{Q} 49'35 -2°03'58
min. Earth dist.	12504 Nov 12 12:37	2° \mathfrak{I} 27'46	8.56300 AU	min. Earth dist.	12511 Jan 28 13:02	16° \mathfrak{Q} 50'56 8.69111 AU
	12504 Dec 18 11:23	30° \mathfrak{R} \mathfrak{B}			12511 Feb 23 05:19	15° \mathfrak{R} \mathfrak{Q}
direct	12505 Jan 21 03:41	29° \mathfrak{B} 04'34		direct	12511 Apr 08 01:04	13° \mathfrak{Q} 28'51
	12505 Feb 23 10:16	0° \mathfrak{I}			12511 May 20 17:00	15° \mathfrak{Q}
evening set	12505 May 05 04:12	6° \mathfrak{I} 42'49		evening set	12511 Jul 18 09:39	20° \mathfrak{Q} 50'32
conjunction	12505 May 22 04:58	8° \mathfrak{I} 48'41	-1°18'09	conjunction	12511 Aug 04 06:33	22° \mathfrak{Q} 53'38 -1°35'29
minimum elong	12505 May 22 04:55	8° \mathfrak{I} 48'41	1°18'58	minimum elong	12511 Aug 04 06:35	22° \mathfrak{Q} 53'38 1°36'06
max. Earth dist.	12505 May 22 02:29	8° \mathfrak{I} 47'55	10.58026 AU	max. Earth dist.	12511 Aug 04 15:34	22° \mathfrak{Q} 56'23 10.69027 AU
morning rise	12505 Jun 08 03:49	10° \mathfrak{I} 54'01		morning rise	12511 Aug 21 05:20	24° \mathfrak{Q} 57'15
retrograde	12505 Sep 17 17:46	18° \mathfrak{I} 23'03			12511 Oct 08 05:56	0° \mathfrak{N}
opposition	12505 Nov 25 14:57	15° \mathfrak{I} 02'16	-1°46'13	retrograde	12511 Dec 02 16:43	2° \mathfrak{N} 27'27
min. Earth dist.	12505 Nov 25 16:09	15° \mathfrak{I} 02'02	8.59812 AU		12512 Jan 29 12:25	30° \mathfrak{R} \mathfrak{Q}
direct	12506 Feb 03 10:25	11° \mathfrak{I} 39'14		opposition	12512 Feb 10 17:46	29° \mathfrak{Q} 04'45 -1°49'45
evening set	12506 May 17 23:08	19° \mathfrak{I} 14'06		min. Earth dist.	12512 Feb 10 09:17	29° \mathfrak{Q} 06'22 8.68969 AU
				direct	12512 Apr 19 19:26	25° \mathfrak{Q} 44'06
conjunction	12506 Jun 03 21:35	21° \mathfrak{I} 18'55	-1°32'57		12512 Jul 02 13:56	0° \mathfrak{N}
minimum elong	12506 Jun 03 21:33	21° \mathfrak{I} 18'55	1°33'51	evening set	12512 Jul 29 18:42	3° \mathfrak{N} 04'23
max. Earth dist.	12506 Jun 03 20:49	21° \mathfrak{I} 18'41	10.61351 AU			
morning rise	12506 Jun 20 18:47	23° \mathfrak{I} 23'21		conjunction	12512 Aug 15 17:24	5° \mathfrak{N} 07'54 -1°21'51
	12506 Aug 29 20:05	0° \mathfrak{D}		minimum elong	12512 Aug 15 17:27	5° \mathfrak{N} 07'55 1°22'20
retrograde	12506 Sep 30 14:42	0° \mathfrak{D} 51'41		max. Earth dist.	12512 Aug 16 04:19	5° \mathfrak{N} 11'14 10.68573 AU
	12506 Nov 01 23:53	30° \mathfrak{R} \mathfrak{I}		morning rise	12512 Sep 01 18:18	7° \mathfrak{N} 12'04
opposition	12506 Dec 08 18:20	27° \mathfrak{I} 30'51	-2°01'46	retrograde	12512 Dec 14 13:52	14° \mathfrak{N} 43'22
min. Earth dist.	12506 Dec 08 17:36	27° \mathfrak{I} 31'00	8.62943 AU	opposition	12513 Feb 22 14:26	11° \mathfrak{N} 20'05 -1°30'31
direct	12507 Feb 16 13:37	24° \mathfrak{I} 08'28		min. Earth dist.	12513 Feb 22 04:39	11° \mathfrak{N} 21'57 8.68162 AU

direct	12513 May 02 10:51	7° \mathbb{M} 59'24	retrograde	12519 Mar 01 18:30	29° \mathbb{M} 23'01	
evening set	12513 Aug 11 04:42	15° \mathbb{M} 18'56	opposition	12519 May 09 18:02	25° \mathbb{M} 57'21	1°12'47
			min. Earth dist.	12519 May 09 12:42	25° \mathbb{M} 58'24	8.52785 AU
conjunction	12513 Aug 28 05:36	17° \mathbb{M} 23'04 -1°04'29	direct	12519 Jul 16 13:27	22° \mathbb{M} 34'16	
minimum elong	12513 Aug 28 05:38	17° \mathbb{M} 23'04 1°04'47		12519 Oct 25 12:12	0° \mathbb{Z}	
max. Earth dist.	12513 Aug 28 17:39	17° \mathbb{M} 26'45 10.67465 AU	evening set	12519 Oct 26 04:55	0° \mathbb{Z} 05'03	
morning rise	12513 Sep 14 09:00	19° \mathbb{M} 27'57				
retrograde	12513 Dec 27 11:16	27° \mathbb{M} 00'35	conjunction	12519 Nov 12 18:53	2° \mathbb{Z} 14'27	1°08'33
opposition	12514 Mar 07 10:35	23° \mathbb{M} 36'43 -1°07'07	minimum elong	12519 Nov 12 18:51	2° \mathbb{Z} 14'26	1°09'20
min. Earth dist.	12514 Mar 07 00:24	23° \mathbb{M} 38'41 8.66712 AU	max. Earth dist.	12519 Nov 12 23:37	2° \mathbb{Z} 15'54	10.51121 AU
direct	12514 May 15 01:09	20° \mathbb{M} 15'54	morning rise	12519 Nov 30 11:07	4° \mathbb{Z} 24'33	
evening set	12514 Aug 23 16:33	27° \mathbb{M} 35'27	retrograde	12520 Mar 14 00:36	12° \mathbb{Z} 07'56	
			opposition	12520 May 21 17:36	8° \mathbb{Z} 42'16	1°36'07
conjunction	12514 Sep 09 19:43	29° \mathbb{M} 40'19 -0°44'08	min. Earth dist.	12520 May 21 14:37	8° \mathbb{Z} 42'51	8.49588 AU
minimum elong	12514 Sep 09 19:45	29° \mathbb{M} 40'20 0°44'13	direct	12520 Jul 28 12:20	5° \mathbb{Z} 18'33	
max. Earth dist.	12514 Sep 10 07:17	29° \mathbb{M} 43'51 10.65736 AU	evening set	12520 Nov 07 14:51	12° \mathbb{Z} 53'12	
	12514 Sep 12 12:06	0° \mathbb{Z}				
morning rise	12514 Sep 27 01:50	1° \mathbb{Z} 46'03	conjunction	12520 Nov 25 06:02	15° \mathbb{Z} 03'22	1°25'40
retrograde	12515 Jan 09 09:12	9° \mathbb{Z} 20'15	minimum elong	12520 Nov 25 06:00	15° \mathbb{Z} 03'21	1°26'32
opposition	12515 Mar 20 06:29	5° \mathbb{Z} 55'52 -0°40'32	max. Earth dist.	12520 Nov 25 07:37	15° \mathbb{Z} 03'51	10.47998 AU
min. Earth dist.	12515 Mar 19 21:02	5° \mathbb{Z} 57'42 8.64678 AU	morning rise	12520 Dec 12 23:06	17° \mathbb{Z} 14'06	
direct	12515 May 27 16:10	2° \mathbb{Z} 34'46	retrograde	12521 Mar 27 07:44	24° \mathbb{Z} 58'50	
evening set	12515 Sep 05 06:54	9° \mathbb{Z} 55'07	opposition	12521 Jun 03 18:28	21° \mathbb{Z} 33'18	1°54'51
			min. Earth dist.	12521 Jun 03 17:57	21° \mathbb{Z} 33'25	8.46631 AU
conjunction	12515 Sep 22 12:31	12° \mathbb{Z} 00'51 -0°21'39	direct	12521 Aug 10 14:10	18° \mathbb{Z} 08'58	
minimum elong	12515 Sep 22 12:31	12° \mathbb{Z} 00'52 0°21'34	evening set	12521 Nov 21 04:24	25° \mathbb{Z} 47'33	
max. Earth dist.	12515 Sep 22 23:06	12° \mathbb{Z} 04'05 10.63464 AU				
morning rise	12515 Oct 09 21:23	14° \mathbb{Z} 07'31	conjunction	12521 Dec 08 20:34	27° \mathbb{Z} 58'24	1°38'35
retrograde	12516 Jan 22 08:46	21° \mathbb{Z} 43'27	minimum elong	12521 Dec 08 20:33	27° \mathbb{Z} 58'23	1°39'31
opposition	12516 Apr 01 02:30	18° \mathbb{Z} 18'37 -0°11'57	max. Earth dist.	12521 Dec 08 19:45	27° \mathbb{Z} 58'09	10.45193 AU
min. Earth dist.	12516 Mar 31 18:01	18° \mathbb{Z} 20'15 8.62154 AU		12521 Dec 25 06:22	0° \mathbb{Z}	
direct	12516 Jun 08 07:30	14° \mathbb{Z} 57'07	morning rise	12521 Dec 26 13:58	0° \mathbb{Z} 09'37	
asc. node	12516 Sep 02 08:57	20° \mathbb{Z} 36'19	retrograde	12522 Apr 09 17:03	7° \mathbb{Z} 55'18	
evening set	12516 Sep 17 00:25	22° \mathbb{Z} 19'04	opposition	12522 Jun 16 20:56	4° \mathbb{Z} 29'59	2°07'55
			min. Earth dist.	12522 Jun 16 22:08	4° \mathbb{Z} 29'45	8.44064 AU
conjunction	12516 Oct 04 08:33	24° \mathbb{Z} 25'44 0°02'02	direct	12522 Aug 23 17:45	1° \mathbb{Z} 05'04	
minimum elong	12516 Oct 04 08:33	24° \mathbb{Z} 25'44 0°02'19	evening set	12522 Dec 04 20:50	8° \mathbb{Z} 47'21	
behind sun begin	12516 Oct 04 01:23	24° \mathbb{Z} 23'34				
behind sun end	12516 Oct 04 15:42	24° \mathbb{Z} 27'54	conjunction	12522 Dec 22 13:46	10° \mathbb{Z} 58'45	1°46'34
max. Earth dist.	12516 Oct 04 18:20	24° \mathbb{Z} 28'43 10.60736 AU	minimum elong	12522 Dec 22 13:45	10° \mathbb{Z} 58'45	1°47'30
morning rise	12516 Oct 21 19:53	26° \mathbb{Z} 33'20	max. Earth dist.	12522 Dec 22 11:01	10° \mathbb{Z} 57'54	10.42845 AU
	12516 Nov 21 11:48	0° \mathbb{M}	morning rise	12523 Jan 09 07:05	13° \mathbb{Z} 10'20	
retrograde	12517 Feb 03 09:04	4° \mathbb{M} 11'10	retrograde	12523 Apr 23 03:29	20° \mathbb{Z} 56'22	
opposition	12517 Apr 13 22:50	0° \mathbb{M} 45'56 0°17'22	opposition	12523 Jun 30 00:53	17° \mathbb{Z} 31'21	2°14'31
min. Earth dist.	12517 Apr 13 15:08	0° \mathbb{M} 47'26 8.59236 AU	min. Earth dist.	12523 Jun 30 03:37	17° \mathbb{Z} 30'49	8.42001 AU
	12517 Apr 23 20:15	30° \mathbb{R} \mathbb{Z}	direct	12523 Sep 06 00:19	14° \mathbb{Z} 05'54	
direct	12517 Jun 21 00:51	27° \mathbb{Z} 23'59	evening set	12523 Dec 18 15:44	21° \mathbb{Z} 51'27	
	12517 Aug 15 21:28	0° \mathbb{M}				
evening set	12517 Sep 29 21:46	4° \mathbb{M} 48'16	conjunction	12524 Jan 05 09:05	24° \mathbb{Z} 03'16	1°49'06
			minimum elong	12524 Jan 05 09:06	24° \mathbb{Z} 03'16	1°49'59
conjunction	12517 Oct 17 08:14	6° \mathbb{M} 55'53 0°25'38	max. Earth dist.	12524 Jan 05 04:12	24° \mathbb{Z} 01'45	10.41058 AU
minimum elong	12517 Oct 17 08:13	6° \mathbb{M} 55'53 0°26'06	morning rise	12524 Jan 23 02:02	26° \mathbb{Z} 15'02	
max. Earth dist.	12517 Oct 17 17:21	6° \mathbb{M} 58'41 10.57661 AU		12524 Feb 24 23:54	0° \mathbb{Z}	
morning rise	12517 Nov 03 21:32	9° \mathbb{M} 04'23	retrograde	12524 May 05 13:29	4° \mathbb{Z} 00'46	
	12518 Jan 01 13:29	15° \mathbb{M}	opposition	12524 Jul 12 06:03	0° \mathbb{Z} 36'08	2°14'12
retrograde	12518 Feb 16 12:04	16° \mathbb{M} 44'10	min. Earth dist.	12524 Jul 12 10:36	0° \mathbb{Z} 35'13	8.40519 AU
	12518 Apr 04 06:45	15° \mathbb{R} \mathbb{M}		12524 Jul 19 19:54	30° \mathbb{R} \mathbb{Z}	
opposition	12518 Apr 26 19:49	13° \mathbb{M} 18'39 0°46'05	direct	12524 Sep 18 09:13	27° \mathbb{Z} 10'10	
min. Earth dist.	12518 Apr 26 12:52	13° \mathbb{M} 20'01 8.56057 AU		12524 Nov 15 22:06	0° \mathbb{Z}	
direct	12518 Jul 03 19:10	9° \mathbb{M} 56'10	evening set	12524 Dec 31 11:54	4° \mathbb{Z} 58'22	
	12518 Sep 22 08:11	15° \mathbb{M}				
evening set	12518 Oct 12 23:16	17° \mathbb{M} 23'26	conjunction	12525 Jan 18 05:19	7° \mathbb{Z} 10'28	1°46'00
			minimum elong	12525 Jan 18 05:21	7° \mathbb{Z} 10'28	1°46'47
conjunction	12518 Oct 30 11:41	19° \mathbb{M} 31'59 0°48'11	max. Earth dist.	12525 Jan 17 21:45	7° \mathbb{Z} 08'05	10.39882 AU
minimum elong	12518 Oct 30 11:39	19° \mathbb{M} 31'59 0°48'50	morning rise	12525 Feb 04 21:41	9° \mathbb{Z} 22'17	
max. Earth dist.	12518 Oct 30 19:05	19° \mathbb{M} 34'16 10.54398 AU		12525 Mar 30 04:00	15° \mathbb{Z}	
morning rise	12518 Nov 17 02:36	21° \mathbb{M} 41'20	retrograde	12525 May 19 00:01	17° \mathbb{Z} 07'05	

	12525 Jul 09 00:01	15°♊		morning rise	12531 Apr 26 10:13	27°♏46'54
opposition	12525 Jul 25 12:31	13°♊42'53	2°06'56		12531 May 15 03:53	0°♏
min. Earth dist.	12525 Jul 25 19:26	13°♊41'30	8.39637 AU	retrograde	12531 Aug 05 17:43	5°♏21'11
direct	12525 Oct 01 19:30	10°♊16'30		opposition	12531 Oct 12 15:55	1°♏59'28 -0°20'03
	12525 Dec 18 13:45	15°♊		min. Earth dist.	12531 Oct 12 23:58	1°♏57'54 8.46906 AU
evening set	12526 Jan 14 08:07	18°♊06'36			12531 Nov 08 22:05	30°♏♏
				direct	12531 Dec 21 05:06	28°♏33'48
conjunction	12526 Feb 01 01:16	20°♊18'48	1°37'22		12532 Jan 31 18:32	0°♏
minimum elong	12526 Feb 01 01:19	20°♊18'49	1°38'01	evening set	12532 Apr 04 00:42	6°♏20'02
max. Earth dist.	12526 Jan 31 14:46	20°♊15'30	10.39301 AU			
morning rise	12526 Feb 18 16:54	22°♊30'34		conjunction	12532 Apr 21 08:10	8°♏28'53 -0°28'19
	12526 May 16 06:38	0°♏		minimum elong	12532 Apr 21 08:09	8°♏28'53 0°28'49
retrograde	12526 Jun 01 10:07	0°♏14'02		max. Earth dist.	12532 Apr 20 22:57	8°♏26'01 10.48424 AU
	12526 Jun 17 12:58	30°♏		morning rise	12532 May 08 12:49	10°♏36'54
opposition	12526 Aug 07 19:55	26°♊50'17	1°53'01		12532 Jun 17 01:15	15°♏
min. Earth dist.	12526 Aug 08 04:53	26°♊48'30	8.39314 AU	retrograde	12532 Aug 17 19:15	18°♏09'27
direct	12526 Oct 15 07:30	23°♊23'39			12532 Oct 22 09:35	15°♏♏
	12527 Jan 17 19:10	0°♏		opposition	12532 Oct 24 23:53	14°♏47'55 -0°49'14
evening set	12527 Jan 28 03:56	1°♏15'01		min. Earth dist.	12532 Oct 25 06:22	14°♏46'39 8.50037 AU
				direct	12533 Jan 02 16:36	11°♏22'46
conjunction	12527 Feb 14 20:33	3°♏27'11	1°23'38		12533 Mar 11 12:57	15°♏
minimum elong	12527 Feb 14 20:36	3°♏27'11	1°24'08	evening set	12533 Apr 17 04:39	19°♏06'04
max. Earth dist.	12527 Feb 14 07:57	3°♏23'14	10.39276 AU			
morning rise	12527 Mar 04 11:13	5°♏38'46		conjunction	12533 May 04 09:19	21°♏13'46 -0°50'58
retrograde	12527 Jun 14 17:30	13°♏20'39		minimum elong	12533 May 04 09:18	21°♏13'45 0°51'37
opposition	12527 Aug 21 03:59	9°♏57'24	1°33'11	max. Earth dist.	12533 May 04 02:29	21°♏11'38 10.51680 AU
min. Earth dist.	12527 Aug 21 14:02	9°♏55'24	8.39551 AU	morning rise	12533 May 21 11:32	23°♏20'43
direct	12527 Oct 28 22:25	6°♏30'40			12533 Jul 30 07:58	0°♏
evening set	12528 Feb 10 22:36	14°♏22'37		retrograde	12533 Aug 30 19:04	0°♏51'44
					12533 Oct 01 20:02	30°♏♏
conjunction	12528 Feb 28 14:23	16°♏34'34	1°05'34	opposition	12533 Nov 07 06:43	27°♏30'18 -1°15'46
minimum elong	12528 Feb 28 14:25	16°♏34'34	1°05'52	min. Earth dist.	12533 Nov 07 10:38	27°♏29'33 8.53412 AU
max. Earth dist.	12528 Feb 28 01:07	16°♏30'24	10.39851 AU	direct	12534 Jan 16 01:55	24°♏05'44
morning rise	12528 Mar 17 03:39	18°♏45'47			12534 Apr 15 07:33	0°♏
retrograde	12528 Jun 27 01:21	26°♏25'56		evening set	12534 Apr 30 04:40	1°♏45'48
opposition	12528 Sep 02 12:49	23°♏03'09	1°08'33			
min. Earth dist.	12528 Sep 02 22:41	23°♏01'12	8.40424 AU	conjunction	12534 May 17 06:45	3°♏52'19 -1°10'59
direct	12528 Nov 10 12:52	19°♏36'31		minimum elong	12534 May 17 06:42	3°♏52'19 1°11'46
evening set	12529 Feb 23 15:20	27°♏28'10		max. Earth dist.	12534 May 17 03:12	3°♏51'13 10.55085 AU
				morning rise	12534 Jun 03 06:35	5°♏58'13
conjunction	12529 Mar 13 05:47	29°♏39'40	0°44'08	retrograde	12534 Sep 12 17:47	13°♏28'02
minimum elong	12529 Mar 13 05:49	29°♏39'41	0°44'14	opposition	12534 Nov 20 12:16	10°♏06'38 -1°38'25
max. Earth dist.	12529 Mar 12 17:21	29°♏35'46	10.41089 AU	min. Earth dist.	12534 Nov 20 13:32	10°♏06'23 8.56851 AU
	12529 Mar 15 22:36	0°♏		direct	12535 Jan 29 09:01	6°♏42'44
morning rise	12529 Mar 30 17:13	1°♏50'20		evening set	12535 May 13 01:08	14°♏19'24
retrograde	12529 Jul 10 09:09	9°♏28'35				
opposition	12529 Sep 15 22:02	6°♏06'12	0°40'25	conjunction	12535 May 30 00:45	16°♏24'49 -1°27'28
min. Earth dist.	12529 Sep 16 07:18	6°♏04'23	8.41975 AU	minimum elong	12535 May 30 00:43	16°♏24'49 1°28'20
direct	12529 Nov 24 02:18	2°♏39'49		max. Earth dist.	12535 May 30 00:18	16°♏24'41 10.58464 AU
evening set	12530 Mar 09 05:38	10°♏30'19		morning rise	12535 Jun 15 22:32	18°♏29'44
				retrograde	12535 Sep 25 16:10	25°♏58'40
conjunction	12530 Mar 26 18:13	12°♏41'09	0°20'31	opposition	12535 Dec 03 16:27	22°♏37'16 -1°56'11
minimum elong	12530 Mar 26 18:14	12°♏41'09	0°20'24	min. Earth dist.	12535 Dec 03 15:31	22°♏37'26 8.60186 AU
max. Earth dist.	12530 Mar 26 06:47	12°♏37'34	10.42991 AU	direct	12536 Feb 11 11:58	19°♏14'02
morning rise	12530 Apr 13 03:33	14°♏51'05		evening set	12536 May 24 18:12	26°♏47'19
retrograde	12530 Jul 23 14:50	22°♏27'20				
opposition	12530 Sep 29 07:08	19°♏05'19	0°10'21	conjunction	12536 Jun 10 15:43	28°♏51'46 -1°39'42
min. Earth dist.	12530 Sep 29 15:55	19°♏03'36	8.44172 AU	minimum elong	12536 Jun 10 15:42	28°♏51'45 1°40'37
direct	12530 Dec 07 15:32	15°♏39'14		max. Earth dist.	12536 Jun 10 17:34	28°♏52'20 10.61664 AU
desc. node	12531 Feb 04 03:56	18°♏24'59			12536 Jun 19 20:58	0°♏
evening set	12531 Mar 22 16:56	23°♏27'55		morning rise	12536 Jun 27 12:09	0°♏55'53
				retrograde	12536 Oct 07 12:10	8°♏24'14
conjunction	12531 Apr 09 03:10	25°♏37'51	-0°04'09	opposition	12536 Dec 15 19:16	5°♏02'46 -2°08'22
minimum elong	12531 Apr 09 03:09	25°♏37'50	0°04'27	min. Earth dist.	12536 Dec 15 16:43	5°♏03'16 8.63265 AU
behind sun begin	12531 Apr 08 20:07	25°♏35'40		direct	12537 Feb 23 12:41	1°♏40'13
behind sun end	12531 Apr 09 10:10	25°♏40'01		evening set	12537 Jun 06 08:05	9°♏10'13
max. Earth dist.	12531 Apr 08 16:39	25°♏34'34	10.45480 AU			

conjunction	12537 Jun 23 04:09	11°☿13'52	-1°47'12	conjunction	12543 Sep 04 18:55	24°♊40'46	-0°53'02
minimum elong	12537 Jun 23 04:09	11°☿13'52	1°48'08	minimum elong	12543 Sep 04 18:57	24°♊40'47	0°53'13
max. Earth dist.	12537 Jun 23 07:53	11°☿15'01	10.64538 AU	max. Earth dist.	12543 Sep 05 07:39	24°♊44'39	10.69287 AU
morning rise	12537 Jul 09 23:58	13°☿17'25		morning rise	12543 Sep 21 23:44	26°♊45'46	
retrograde	12537 Oct 20 06:33	20°☿45'31			12543 Oct 20 19:56	0°♊	
opposition	12537 Dec 28 20:30	17°☿23'56	-2°14'30	retrograde	12544 Jan 04 03:18	4°♊17'59	
min. Earth dist.	12537 Dec 28 15:59	17°☿24'48	8.65931 AU	opposition	12544 Mar 14 03:09	0°♊54'32	-0°52'05
direct	12538 Mar 08 12:28	14°☿02'01		min. Earth dist.	12544 Mar 13 16:26	0°♊56'35	8.68595 AU
evening set	12538 Jun 18 19:33	21°☿28'56			12544 Mar 26 02:50	30°♊	
				direct	12544 May 21 16:12	27°♊34'19	
conjunction	12538 Jul 05 15:00	23°☿32'04	-1°49'44		12544 Jul 14 19:40	0°♊	
minimum elong	12538 Jul 05 15:00	23°☿32'04	1°50'38	evening set	12544 Aug 30 05:18	4°♊52'54	
max. Earth dist.	12538 Jul 05 21:14	23°☿33'59	10.66939 AU				
morning rise	12538 Jul 22 10:48	25°☿35'16		conjunction	12544 Sep 16 09:48	6°♊57'52	-0°31'25
	12538 Sep 01 02:22	0°♊		minimum elong	12544 Sep 16 09:49	6°♊57'52	0°31'25
retrograde	12538 Nov 02 02:05	3°♊03'23		max. Earth dist.	12544 Sep 16 22:42	7°♊01'48	10.67684 AU
	12539 Jan 06 19:21	30°♊		morning rise	12544 Oct 03 17:11	9°♊03'42	
opposition	12539 Jan 10 20:09	29°☿41'37	-2°14'26	retrograde	12545 Jan 16 03:04	16°♊37'23	
min. Earth dist.	12539 Jan 10 13:20	29°☿42'55	8.68054 AU	opposition	12545 Mar 26 21:59	13°♊13'31	-0°24'20
direct	12539 Mar 21 09:02	26°☿20'17		min. Earth dist.	12545 Mar 26 11:43	13°♊15'30	8.66638 AU
	12539 May 28 12:10	0°♊		direct	12545 Jun 03 05:23	9°♊53'03	
evening set	12539 Jul 01 05:11	3°♊44'27		evening set	12545 Sep 11 20:35	17°♊12'42	
conjunction	12539 Jul 18 00:48	5°♊47'19	-1°47'15	conjunction	12545 Sep 29 03:29	19°♊18'31	-0°08'18
minimum elong	12539 Jul 18 00:49	5°♊47'19	1°48'03	minimum elong	12545 Sep 29 03:29	19°♊18'31	0°08'06
max. Earth dist.	12539 Jul 18 09:54	5°♊50'06	10.68761 AU	behind sun begin	12545 Sep 28 21:07	19°♊16'36	
morning rise	12539 Aug 03 21:11	7°♊50'25		behind sun end	12545 Sep 29 09:50	19°♊20'26	
	12539 Oct 26 13:34	15°♊		max. Earth dist.	12545 Sep 29 14:51	19°♊21'58	10.65403 AU
retrograde	12539 Nov 14 21:03	15°♊18'52		morning rise	12545 Oct 16 13:23	21°♊25'14	
	12539 Dec 04 08:26	15°♊		retrograde	12546 Jan 29 02:08	29°♊00'36	
opposition	12540 Jan 23 18:39	11°♊56'50	-2°08'15	asc. node	12546 Feb 08 13:01	28°♊55'03	
min. Earth dist.	12540 Jan 23 09:40	11°♊58'32	8.69548 AU	opposition	12546 Apr 08 17:09	25°♊36'21	0°04'41
direct	12540 Apr 02 02:53	8°♊36'00		min. Earth dist.	12546 Apr 08 08:32	25°♊38'02	8.64017 AU
	12540 Jul 04 10:08	15°♊		direct	12546 Jun 15 20:00	22°♊15'26	
evening set	12540 Jul 12 13:38	15°♊57'48		evening set	12546 Sep 24 15:10	29°♊37'02	
					12546 Sep 27 19:37	0°♊	
conjunction	12540 Jul 29 10:03	18°♊00'40	-1°39'53				
minimum elong	12540 Jul 29 10:05	18°♊00'40	1°40'34	conjunction	12546 Oct 12 00:16	1°♊43'45	0°15'25
max. Earth dist.	12540 Jul 29 21:06	18°♊04'03	10.69933 AU	minimum elong	12546 Oct 12 00:15	1°♊43'45	0°15'49
morning rise	12540 Aug 15 07:49	20°♊03'57		behind sun begin	12546 Oct 11 23:15	1°♊43'27	
retrograde	12540 Nov 26 16:17	27°♊32'59		behind sun end	12546 Oct 12 01:15	1°♊44'03	
opposition	12541 Feb 04 16:02	24°♊10'38	-1°56'17	max. Earth dist.	12546 Oct 12 08:56	1°♊46'24	10.62476 AU
min. Earth dist.	12541 Feb 04 06:06	24°♊12'32	8.70361 AU	morning rise	12546 Oct 29 12:30	3°♊51'23	
direct	12541 Apr 14 19:23	20°♊50'11		retrograde	12547 Feb 11 02:42	11°♊28'42	
evening set	12541 Jul 24 22:00	28°♊10'11		opposition	12547 Apr 21 12:58	8°♊04'06	0°33'40
	12541 Aug 09 00:16	0°♊		min. Earth dist.	12547 Apr 21 06:39	8°♊05'20	8.60818 AU
				direct	12547 Jun 28 13:00	4°♊42'37	
conjunction	12541 Aug 10 19:45	0°♊13'17	-1°28'02	evening set	12547 Oct 07 13:42	12°♊06'58	
minimum elong	12541 Aug 10 19:47	0°♊13'17	1°28'33				
max. Earth dist.	12541 Aug 11 07:23	0°♊16'50	10.70418 AU	conjunction	12547 Oct 25 00:55	14°♊14'38	0°38'29
morning rise	12541 Aug 27 19:35	2°♊16'58		minimum elong	12547 Oct 25 00:53	14°♊14'38	0°39'03
retrograde	12541 Dec 09 12:16	9°♊46'47		max. Earth dist.	12547 Oct 25 07:16	14°♊16'35	10.59056 AU
opposition	12542 Feb 17 12:17	6°♊24'07	-1°39'04		12547 Oct 31 04:56	15°♊	
min. Earth dist.	12542 Feb 17 02:10	6°♊26'03	8.70470 AU	morning rise	12547 Nov 11 15:06	16°♊23'11	
direct	12542 Apr 27 09:45	3°♊03'53		retrograde	12548 Feb 24 05:40	24°♊02'30	
evening set	12542 Aug 06 06:53	10°♊22'43		opposition	12548 May 03 09:35	20°♊37'36	1°01'17
				min. Earth dist.	12548 May 03 05:07	20°♊38'29	8.57254 AU
conjunction	12542 Aug 23 06:30	12°♊26'16	-1°12'11	direct	12548 Jul 10 07:09	17°♊15'25	
minimum elong	12542 Aug 23 06:33	12°♊26'17	1°12'32	evening set	12548 Oct 19 16:27	24°♊43'08	
max. Earth dist.	12542 Aug 23 18:26	12°♊29'55	10.70202 AU				
morning rise	12542 Sep 09 08:47	14°♊30'33		conjunction	12548 Nov 06 05:35	26°♊51'45	0°59'52
retrograde	12542 Dec 22 06:42	22°♊01'26		minimum elong	12548 Nov 06 05:33	26°♊51'44	1°00'35
opposition	12543 Mar 02 07:58	18°♊38'24	-1°17'21	max. Earth dist.	12548 Nov 06 10:06	26°♊53'08	10.55375 AU
min. Earth dist.	12543 Mar 01 21:42	18°♊40'21	8.69877 AU	morning rise	12548 Nov 23 21:09	29°♊01'08	
direct	12543 May 10 00:54	15°♊18'14			12548 Dec 02 03:16	0°♊	
evening set	12543 Aug 18 16:56	22°♊36'36		retrograde	12549 Mar 08 09:56	6°♊42'22	
				opposition	12549 May 16 07:25	3°♊17'13	1°26'11

min. Earth dist.	12549 May 16 04:26	3°  17'48	8.53553 AU	min. Earth dist.	12555 Aug 02 09:02	21°  00'42	8.38630 AU
	12549 Jul 12 18:42	30°  18		direct	12555 Oct 09 12:07	17°  35'14	
direct	12549 Jul 23 04:14	29°  15'41		evening set	12556 Jan 22 03:19	25°  25'59	
	12549 Aug 02 12:30	0°  1					
evening set	12549 Nov 01 23:23	7°  25'47		conjunction	12556 Feb 08 20:27	27°  38'15	1°30'36
				minimum elong	12556 Feb 08 20:29	27°  38'15	1°31'10
conjunction	12549 Nov 19 13:59	9°  35'15	1°18'29	max. Earth dist.	12556 Feb 08 09:35	27°  34'50	10.38365 AU
minimum elong	12549 Nov 19 13:57	9°  35'14	1°19'20	morning rise	12556 Feb 26 11:32	29°  49'59	
max. Earth dist.	12549 Nov 19 16:32	9°  36'02	10.51657 AU		12556 Feb 27 20:16	0°  1	
morning rise	12549 Dec 07 06:24	11°  45'20		retrograde	12556 Jun 07 21:59	7°  32'37	
retrograde	12550 Mar 21 16:20	19°  28'16		opposition	12556 Aug 14 08:41	4°  08'36	1°43'05
opposition	12550 May 29 06:39	16°  02'57	1°47'03	min. Earth dist.	12556 Aug 14 17:30	4°  06'50	8.38495 AU
min. Earth dist.	12550 May 29 05:18	16°  03'13	8.49926 AU	direct	12556 Oct 22 00:41	0°  41'24	
direct	12550 Aug 05 03:01	12°  39'10		evening set	12557 Feb 03 22:16	8°  33'05	
evening set	12550 Nov 15 10:15	20°  14'42					
				conjunction	12557 Feb 21 14:36	10°  45'12	1°14'27
conjunction	12550 Dec 03 01:56	22°  24'57	1°33'21	minimum elong	12557 Feb 21 14:39	10°  45'13	1°14'50
minimum elong	12550 Dec 03 01:54	22°  24'57	1°34'16	max. Earth dist.	12557 Feb 21 02:38	10°  41'27	10.38673 AU
max. Earth dist.	12550 Dec 03 01:42	22°  24'53	10.48116 AU	morning rise	12557 Mar 11 04:28	12°  56'39	
morning rise	12550 Dec 20 18:54	24°  35'39		retrograde	12557 Jun 21 06:28	20°  37'35	
	12551 Feb 09 22:36	0°  3		opposition	12557 Aug 27 16:59	17°  14'05	1°20'32
retrograde	12551 Apr 04 00:50	2°  31'52		min. Earth dist.	12557 Aug 28 02:38	17°  12'10	8.39191 AU
	12551 May 28 08:15	30°  18		direct	12557 Nov 04 13:39	13°  46'55	
opposition	12551 Jun 11 07:28	28°  54'31	2°02'46	evening set	12558 Feb 17 15:28	21°  38'38	
min. Earth dist.	12551 Jun 11 08:33	28°  54'18	8.46569 AU				
direct	12551 Aug 18 03:43	25°  29'53		conjunction	12558 Mar 07 06:34	23°  50'24	0°54'27
	12551 Nov 01 13:34	0°  3		minimum elong	12558 Mar 07 06:36	23°  50'25	0°54'38
evening set	12551 Nov 29 00:29	3°  30'24		max. Earth dist.	12558 Mar 06 17:55	23°  46'27	10.39806 AU
				morning rise	12558 Mar 24 18:59	26°  01'23	
conjunction	12551 Dec 16 16:56	5°  32'01	1°43'37		12558 Apr 28 20:10	0°  1	
minimum elong	12551 Dec 16 16:54	5°  32'01	1°44'34	retrograde	12558 Jul 04 13:17	3°  40'24	
max. Earth dist.	12551 Dec 16 13:17	5°  31'12	10.44933 AU	opposition	12558 Sep 10 01:42	0°  17'27	0°53'52
morning rise	12552 Jan 03 10:12	7°  31'31		min. Earth dist.	12558 Sep 10 11:30	0°  15'30	8.40688 AU
retrograde	12552 Apr 16 09:34	15°  31'6			12558 Sep 13 17:58	30°  18	
opposition	12552 Jun 23 09:51	11°  35'15	2°12'23	direct	12558 Nov 18 03:37	26°  50'33	
min. Earth dist.	12552 Jun 23 13:34	11°  35'03	8.43639 AU		12559 Jan 19 19:40	0°  1	
direct	12552 Aug 30 08:20	8°  32'54		evening set	12559 Mar 03 06:38	4°  41'31	
evening set	12552 Dec 11 17:26	16°  30'05					
				conjunction	12559 Mar 20 20:04	6°  52'41	0°31'43
conjunction	12552 Dec 29 10:23	18°  32'03	1°48'41	minimum elong	12559 Mar 20 20:06	6°  52'41	0°31'42
minimum elong	12552 Dec 29 10:23	18°  32'03	1°49'36	max. Earth dist.	12559 Mar 20 07:48	6°  48'50	10.41699 AU
max. Earth dist.	12552 Dec 29 03:48	18°  31'30	10.42251 AU	morning rise	12559 Apr 07 06:39	9°  03'01	
morning rise	12553 Jan 16 03:34	20°  32'06		retrograde	12559 Jul 17 18:05	16°  40'00	
retrograde	12553 Apr 29 17:24	28°  31'20		opposition	12559 Sep 23 10:21	13°  17'36	0°24'32
opposition	12553 Jul 06 13:38	24°  35'21	2°15'16	min. Earth dist.	12559 Sep 23 19:11	13°  15'51	8.42901 AU
min. Earth dist.	12553 Jul 06 19:24	24°  35'06	8.41267 AU	direct	12559 Dec 01 18:06	9°  51'09	
direct	12553 Sep 12 16:27	21°  32'07		evening set	12560 Mar 15 19:04	17°  40'38	
evening set	12553 Dec 25 12:06	29°  31'27					
	12553 Dec 31 22:08	0°  1		conjunction	12560 Apr 02 06:27	19°  50'59	0°07'30
conjunction	12554 Jan 12 05:24	1°  48'10	1°48'10	minimum elong	12560 Apr 02 06:26	19°  50'59	0°07'16
minimum elong	12554 Jan 12 05:24	1°  48'10	1°49'01	behind sun begin	12560 Apr 01 23:52	19°  48'56	
max. Earth dist.	12554 Jan 11 20:48	1°  48'10	10.40203 AU	behind sun end	12560 Apr 02 13:01	19°  53'01	
morning rise	12554 Jan 29 22:10	3°  36'16		max. Earth dist.	12560 Apr 01 19:53	19°  47'41	10.44243 AU
retrograde	12554 May 13 03:07	11°  21'11		morning rise	12560 Apr 19 14:44	22°  00'27	
opposition	12554 Jul 19 18:51	7°  56'22	2°11'11	desc. node	12560 Jul 26 08:56	29°  34'49	
min. Earth dist.	12554 Jul 20 01:44	7°  54'59	8.39573 AU	retrograde	12560 Jul 29 22:28	29°  35'31	
direct	12554 Sep 26 01:30	4°  29'42		opposition	12560 Oct 05 19:02	26°  13'36	-0°05'52
evening set	12555 Jan 08 07:34	12°  18'42		min. Earth dist.	12560 Oct 06 02:17	26°  12'11	8.45717 AU
				direct	12560 Dec 14 07:19	22°  47'46	
conjunction	12555 Jan 26 01:00	14°  30'53	1°42'03		12561 Mar 24 08:44	0°  1	
minimum elong	12555 Jan 26 01:02	14°  30'53	1°42'46	evening set	12561 Mar 29 04:11	0°  35'03	
max. Earth dist.	12555 Jan 25 15:20	14°  30'53	10.38888 AU				
	12555 Jan 29 22:02	15°  1		conjunction	12561 Apr 15 13:05	2°  44'24	-0°17'05
morning rise	12555 Feb 12 17:05	16°  42'42		minimum elong	12561 Apr 15 13:04	2°  44'24	0°17'30
retrograde	12555 May 26 13:06	24°  26'44		max. Earth dist.	12561 Apr 15 04:51	2°  41'50	10.47309 AU
opposition	12555 Aug 02 01:16	21°  02'15	2°00'17	morning rise	12561 May 02 18:50	4°  52'52	
				retrograde	12561 Aug 12 02:38	12°  26'09	

opposition	12561 Oct 19 03:15	9° ♁ 04'39	-0°35'46	direct	12568 Mar 14 17:10	20° ♁ 54'30	
min. Earth dist.	12561 Oct 19 08:52	9° ♁ 03'34	8.48995 AU	evening set	12568 Jun 24 20:27	28° ♁ 19'59	
direct	12561 Dec 27 17:35	5° ♁ 39'30			12568 Jul 08 13:06	0° ♁	
evening set	12562 Apr 11 09:57	13° ♁ 24'06					
	12562 Apr 24 08:27	15° ♁		conjunction	12568 Jul 11 15:47	0° ♁ 22'55	-1°48'52
				minimum elong	12568 Jul 11 15:48	0° ♁ 22'56	1°49'43
conjunction	12562 Apr 28 16:06	15° ♁ 32'19	-0°40'34	max. Earth dist.	12568 Jul 11 21:51	0° ♁ 24'47	10.68491 AU
minimum elong	12562 Apr 28 16:04	15° ♁ 32'19	0°41'09	morning rise	12568 Jul 28 11:50	2° ♁ 26'02	
max. Earth dist.	12562 Apr 28 09:58	15° ♁ 30'25	10.50748 AU	retrograde	12568 Nov 08 08:17	9° ♁ 54'25	
morning rise	12562 May 15 19:19	17° ♁ 39'44		opposition	12569 Jan 17 03:42	6° ♁ 32'50	-2°11'40
retrograde	12562 Aug 25 03:34	25° ♁ 11'20		min. Earth dist.	12569 Jan 16 21:43	6° ♁ 33'58	8.69174 AU
opposition	12562 Nov 01 10:32	21° ♁ 50'12	-1°03'40	direct	12569 Mar 27 13:03	3° ♁ 11'58	
min. Earth dist.	12562 Nov 01 14:58	21° ♁ 49'20	8.52577 AU	evening set	12569 Jul 07 05:47	10° ♁ 35'06	
direct	12563 Jan 10 03:02	18° ♁ 25'46					
evening set	12563 Apr 24 12:10	26° ♁ 07'19		conjunction	12569 Jul 24 01:40	12° ♁ 37'58	-1°43'45
				minimum elong	12569 Jul 24 01:41	12° ♁ 37'58	1°44'30
conjunction	12563 May 11 15:24	28° ♁ 14'19	-1°01'55	max. Earth dist.	12569 Jul 24 09:15	12° ♁ 40'17	10.69434 AU
minimum elong	12563 May 11 15:22	28° ♁ 14'19	1°02'39	morning rise	12569 Aug 09 22:54	14° ♁ 41'11	
max. Earth dist.	12563 May 11 10:48	28° ♁ 12'53	10.54389 AU		12569 Aug 12 13:54	15° ♁	
	12563 May 25 20:42	0° ♁		retrograde	12569 Nov 21 02:50	22° ♁ 10'12	
morning rise	12563 May 28 16:17	0° ♁ 20'39		opposition	12570 Jan 30 01:59	18° ♁ 48'07	-2°02'22
retrograde	12563 Sep 07 02:15	7° ♁ 50'52		min. Earth dist.	12570 Jan 29 18:27	18° ♁ 49'33	8.69743 AU
opposition	12563 Nov 14 16:55	4° ♁ 29'58	-1°28'13	direct	12570 Apr 09 08:10	15° ♁ 27'29	
min. Earth dist.	12563 Nov 14 19:43	4° ♁ 29'26	8.56276 AU	evening set	12570 Jul 19 14:29	22° ♁ 48'40	
direct	12564 Jan 23 11:43	1° ♁ 06'16					
evening set	12564 May 06 10:29	8° ♁ 44'28		conjunction	12570 Aug 05 11:38	24° ♁ 51'44	-1°33'55
				minimum elong	12570 Aug 05 11:40	24° ♁ 51'45	1°34'31
conjunction	12564 May 23 11:02	10° ♁ 50'18	-1°20'07	max. Earth dist.	12570 Aug 05 21:28	24° ♁ 54'45	10.69660 AU
minimum elong	12564 May 23 11:00	10° ♁ 50'17	1°20'58	morning rise	12570 Aug 22 10:29	26° ♁ 55'18	
max. Earth dist.	12564 May 23 08:38	10° ♁ 49'33	10.58041 AU		12570 Sep 18 16:06	0° ♁	
morning rise	12564 Jun 09 09:49	12° ♁ 55'35		retrograde	12570 Dec 03 23:10	4° ♁ 25'10	
retrograde	12564 Sep 19 00:37	20° ♁ 24'43		opposition	12571 Feb 11 23:08	1° ♁ 02'32	-1°47'30
opposition	12564 Nov 26 21:56	17° ♁ 03'55	-1°48'21	min. Earth dist.	12571 Feb 11 13:59	1° ♁ 04'16	8.69591 AU
min. Earth dist.	12564 Nov 26 22:27	17° ♁ 03'49	8.59885 AU		12571 Feb 25 20:33	30° ♁	
direct	12565 Feb 04 17:22	13° ♁ 40'56		direct	12571 Apr 22 00:29	27° ♁ 42'00	
evening set	12565 May 19 05:14	21° ♁ 15'39		evening set	12571 Jun 13 20:45	0° ♁	
					12571 Jul 31 23:22	5° ♁ 01'49	
conjunction	12565 Jun 05 03:36	23° ♁ 20'25	-1°34'24				
minimum elong	12565 Jun 05 03:35	23° ♁ 20'25	1°35'18	conjunction	12571 Aug 17 22:16	7° ♁ 05'17	-1°19'50
max. Earth dist.	12565 Jun 05 04:02	23° ♁ 20'33	10.61492 AU	minimum elong	12571 Aug 17 22:18	7° ♁ 05'18	1°20'17
morning rise	12565 Jun 22 00:40	25° ♁ 24'48		max. Earth dist.	12571 Aug 18 09:37	7° ♁ 08'45	10.69184 AU
	12565 Aug 03 06:51	0° ♁		morning rise	12571 Sep 03 23:17	9° ♁ 09'25	
retrograde	12565 Oct 01 21:14	2° ♁ 53'09		retrograde	12571 Dec 16 19:07	16° ♁ 40'22	
	12565 Dec 03 23:42	30° ♁		opposition	12572 Feb 24 19:34	13° ♁ 17'09	-1°27'46
opposition	12565 Dec 10 01:20	29° ♁ 32'18	-2°03'11	min. Earth dist.	12572 Feb 24 09:38	13° ♁ 19'03	8.68752 AU
min. Earth dist.	12565 Dec 09 23:19	29° ♁ 32'41	8.63169 AU	direct	12572 May 03 15:05	9° ♁ 56'34	
direct	12566 Feb 17 20:12	26° ♁ 09'59		evening set	12572 Aug 12 09:11	17° ♁ 15'42	
	12566 Apr 28 22:01	0° ♁					
evening set	12566 May 31 20:45	3° ♁ 41'18		conjunction	12572 Aug 29 10:09	19° ♁ 19'47	-1°02'06
				minimum elong	12572 Aug 29 10:12	19° ♁ 19'47	1°02'22
conjunction	12566 Jun 17 17:32	5° ♁ 45'12	-1°44'09	max. Earth dist.	12572 Aug 29 21:39	19° ♁ 23'17	10.68039 AU
minimum elong	12566 Jun 17 17:31	5° ♁ 45'12	1°45'05	morning rise	12572 Sep 15 13:49	21° ♁ 24'38	
max. Earth dist.	12566 Jun 17 20:44	5° ♁ 46'12	10.64494 AU	retrograde	12572 Dec 28 15:58	28° ♁ 56'56	
morning rise	12566 Jul 04 13:26	7° ♁ 48'54		opposition	12573 Mar 08 15:26	25° ♁ 33'09	-1°03'59
retrograde	12566 Oct 14 17:37	15° ♁ 16'52		min. Earth dist.	12573 Mar 08 05:52	25° ♁ 35'00	8.67259 AU
opposition	12566 Dec 23 03:22	11° ♁ 55'52	-2°12'10	direct	12573 May 16 05:54	22° ♁ 12'24	
min. Earth dist.	12566 Dec 22 23:35	11° ♁ 56'35	8.65879 AU	evening set	12573 Aug 24 20:55	29° ♁ 31'36	
direct	12567 Mar 02 20:24	8° ♁ 34'09			12573 Aug 28 19:26	0° ♁	
evening set	12567 Jun 13 09:35	16° ♁ 02'22					
				conjunction	12573 Sep 11 00:12	1° ♁ 36'26	-0°41'29
conjunction	12567 Jun 30 05:17	18° ♁ 05'40	-1°49'01	minimum elong	12573 Sep 11 00:14	1° ♁ 36'27	0°41'33
minimum elong	12567 Jun 30 05:17	18° ♁ 05'40	1°49'56	max. Earth dist.	12573 Sep 11 10:59	1° ♁ 39'44	10.66262 AU
max. Earth dist.	12567 Jun 30 10:09	18° ♁ 07'09	10.66844 AU	morning rise	12573 Sep 28 06:37	3° ♁ 42'10	
morning rise	12567 Jul 17 00:48	20° ♁ 08'55		retrograde	12574 Jan 10 13:40	11° ♁ 16'00	
retrograde	12567 Oct 27 14:14	27° ♁ 36'56		opposition	12574 Mar 21 10:53	7° ♁ 51'42	-0°37'10
opposition	12568 Jan 05 04:11	24° ♁ 15'43	-2°15'01	min. Earth dist.	12574 Mar 21 02:01	7° ♁ 53'25	8.65169 AU
min. Earth dist.	12568 Jan 04 23:15	24° ♁ 16'39	8.67884 AU	direct	12574 May 28 20:17	4° ♁ 30'39	

evening set	12574 Sep 06 11:07	11° <u>♄</u> 50'45		morning rise	12579 Dec 15 02:58	19° <u>♄</u> 08'18	
				retrograde	12580 Mar 28 11:17	26° <u>♄</u> 53'01	
conjunction	12574 Sep 23 16:57	13° <u>♄</u> 56'27 -0°18'53		opposition	12580 Jun 04 21:31	23° <u>♄</u> 27'27	1°56'30
minimum elong	12574 Sep 23 16:58	13° <u>♄</u> 56'27 0°18'45		min. Earth dist.	12580 Jun 04 21:06	23° <u>♄</u> 27'32	8.46505 AU
max. Earth dist.	12574 Sep 24 03:31	13° <u>♄</u> 59'40 10.63920 AU		direct	12580 Aug 11 17:20	20° <u>♄</u> 03'02	
morning rise	12574 Oct 11 01:58	16° <u>♄</u> 03'05		evening set	12580 Nov 22 08:18	27° <u>♄</u> 41'47	
retrograde	12575 Jan 23 11:49	23° <u>♄</u> 38'44					
opposition	12575 Apr 03 06:32	20° <u>♄</u> 13'56 -0°08'30		conjunction	12580 Dec 10 00:35	29° <u>♄</u> 52'39	1°39'38
min. Earth dist.	12575 Apr 02 21:58	20° <u>♄</u> 15'36 8.62566 AU		minimum elong	12580 Dec 10 00:34	29° <u>♄</u> 52'39	1°40'34
direct	12575 Jun 10 12:35	16° <u>♄</u> 52'30		max. Earth dist.	12580 Dec 10 00:01	29° <u>♄</u> 52'28	10.45007 AU
asc. node	12575 Jul 21 11:05	18° <u>♄</u> 18'40			12580 Dec 11 00:13	0° <u>♄</u>	
evening set	12575 Sep 19 04:27	24° <u>♄</u> 14'14		morning rise	12580 Dec 27 17:52	2° <u>♄</u> 03'53	
				retrograde	12581 Apr 10 20:39	9° <u>♄</u> 49'35	
conjunction	12575 Oct 06 12:48	26° <u>♄</u> 20'53 0°04'48		opposition	12581 Jun 17 23:58	6° <u>♄</u> 24'14	2°08'51
minimum elong	12575 Oct 06 12:48	26° <u>♄</u> 20'53 0°05'08		min. Earth dist.	12581 Jun 18 00:59	6° <u>♄</u> 24'01	8.43826 AU
behind sun begin	12575 Oct 06 05:51	26° <u>♄</u> 18'46		direct	12581 Aug 24 21:11	2° <u>♄</u> 59'14	
behind sun end	12575 Oct 06 19:45	26° <u>♄</u> 22'59		evening set	12581 Dec 06 00:54	10° <u>♄</u> 41'46	
max. Earth dist.	12575 Oct 06 23:05	26° <u>♄</u> 24'01 10.61103 AU					
morning rise	12575 Oct 24 00:08	28° <u>♄</u> 28'26		conjunction	12581 Dec 23 17:51	12° <u>♄</u> 53'12	1°47'01
	12575 Nov 06 00:22	0° <u>♄</u>		minimum elong	12581 Dec 23 17:50	12° <u>♄</u> 53'12	1°47'57
retrograde	12576 Feb 05 13:29	6° <u>♄</u> 06'03		max. Earth dist.	12581 Dec 23 15:04	12° <u>♄</u> 52'20	10.42557 AU
opposition	12576 Apr 15 02:36	2° <u>♄</u> 40'51 0°20'44		morning rise	12582 Jan 10 11:01	15° <u>♄</u> 04'47	
min. Earth dist.	12576 Apr 14 18:33	2° <u>♄</u> 42'25 8.59557 AU		retrograde	12582 Apr 24 06:50	22° <u>♄</u> 50'55	
	12576 May 24 22:30	30° <u>♄</u>		opposition	12582 Jul 01 04:05	19° <u>♄</u> 25'53	2°14'42
direct	12576 Jun 22 04:51	29° <u>♄</u> 18'56		min. Earth dist.	12582 Jul 01 07:02	19° <u>♄</u> 25'18	8.41675 AU
	12576 Jul 20 03:04	0° <u>♄</u>		direct	12582 Sep 07 03:36	16° <u>♄</u> 00'21	
evening set	12576 Oct 01 01:49	6° <u>♄</u> 43'03		evening set	12582 Dec 19 19:56	23° <u>♄</u> 46'12	
conjunction	12576 Oct 18 12:23	8° <u>♄</u> 50'40 0°28'17		conjunction	12583 Jan 06 13:13	25° <u>♄</u> 58'05	1°48'55
minimum elong	12576 Oct 18 12:22	8° <u>♄</u> 50'39 0°28'47		minimum elong	12583 Jan 06 13:13	25° <u>♄</u> 58'05	1°49'49
max. Earth dist.	12576 Oct 18 21:19	8° <u>♄</u> 53'24 10.57932 AU		max. Earth dist.	12583 Jan 06 07:40	25° <u>♄</u> 56'21	10.40706 AU
morning rise	12576 Nov 05 01:44	10° <u>♄</u> 59'08		morning rise	12583 Jan 24 06:07	28° <u>♄</u> 09'54	
	12576 Dec 11 08:52	15° <u>♄</u>			12583 Feb 08 15:43	0° <u>♄</u>	
retrograde	12577 Feb 17 17:17	18° <u>♄</u> 38'43		retrograde	12583 May 07 18:12	5° <u>♄</u> 55'45	
opposition	12577 Apr 27 23:19	15° <u>♄</u> 13'13 0°49'13		opposition	12583 Jul 14 09:33	2° <u>♄</u> 31'07	2°13'37
min. Earth dist.	12577 Apr 27 16:44	15° <u>♄</u> 14'31 8.56276 AU		min. Earth dist.	12583 Jul 14 14:50	2° <u>♄</u> 30'04	8.40155 AU
	12577 Apr 30 18:45	15° <u>♄</u>			12583 Aug 18 21:11	30° <u>♄</u>	
direct	12577 Jul 04 21:20	11° <u>♄</u> 50'44		direct	12583 Sep 20 11:45	29° <u>♄</u> 05'05	
	12577 Sep 04 20:48	15° <u>♄</u>			12583 Oct 22 22:42	0° <u>♄</u>	
evening set	12577 Oct 14 03:20	19° <u>♄</u> 17'58		evening set	12584 Jan 02 16:16	6° <u>♄</u> 53'37	
conjunction	12577 Oct 31 15:43	21° <u>♄</u> 26'29 0°50'35		conjunction	12584 Jan 20 09:36	9° <u>♄</u> 05'46	1°45'12
minimum elong	12577 Oct 31 15:41	21° <u>♄</u> 26'28 0°51'15		minimum elong	12584 Jan 20 09:38	9° <u>♄</u> 05'47	1°45'59
max. Earth dist.	12577 Oct 31 22:00	21° <u>♄</u> 28'24 10.54561 AU		max. Earth dist.	12584 Jan 20 01:04	9° <u>♄</u> 03'06	10.39524 AU
morning rise	12577 Nov 18 06:45	23° <u>♄</u> 35'48		morning rise	12584 Feb 07 02:04	11° <u>♄</u> 17'40	
	12578 Jan 22 15:38	0° <u>♄</u>			12584 Mar 10 11:53	15° <u>♄</u>	
retrograde	12578 Mar 02 21:42	1° <u>♄</u> 17'18		retrograde	12584 May 20 04:07	19° <u>♄</u> 02'35	
	12578 Apr 11 12:38	30° <u>♄</u>		opposition	12584 Jul 26 16:18	15° <u>♄</u> 38'24	2°05'34
opposition	12578 May 10 21:23	27° <u>♄</u> 51'40 1°15'32		min. Earth dist.	12584 Jul 26 23:45	15° <u>♄</u> 36'54	8.39301 AU
min. Earth dist.	12578 May 10 17:01	27° <u>♄</u> 52'32 8.52890 AU			12584 Aug 03 17:37	15° <u>♄</u>	
direct	12578 Jul 17 17:19	24° <u>♄</u> 28'32		direct	12584 Oct 02 23:33	12° <u>♄</u> 11'58	
	12578 Oct 10 09:37	0° <u>♄</u>			12584 Nov 30 07:31	15° <u>♄</u>	
evening set	12578 Oct 27 08:54	1° <u>♄</u> 59'22		evening set	12585 Jan 15 12:45	20° <u>♄</u> 02'23	
conjunction	12578 Nov 13 22:49	4° <u>♄</u> 08'45 1°10'36		conjunction	12585 Feb 02 05:52	22° <u>♄</u> 14'37	1°35'59
minimum elong	12578 Nov 13 22:47	4° <u>♄</u> 08'44 1°11'24		minimum elong	12585 Feb 02 05:54	22° <u>♄</u> 14'38	1°36'37
max. Earth dist.	12578 Nov 14 02:24	4° <u>♄</u> 09'52 10.51166 AU		max. Earth dist.	12585 Feb 01 19:04	22° <u>♄</u> 11'14	10.39009 AU
morning rise	12578 Dec 01 15:06	6° <u>♄</u> 18'50		morning rise	12585 Feb 19 21:32	24° <u>♄</u> 26'27	
retrograde	12579 Mar 16 03:12	14° <u>♄</u> 02'07			12585 Apr 13 06:05	0° <u>♄</u>	
opposition	12579 May 23 20:47	10° <u>♄</u> 36'27 1°38'23		retrograde	12585 Jun 02 12:38	2° <u>♄</u> 09'58	
min. Earth dist.	12579 May 23 18:36	10° <u>♄</u> 36'53 8.49577 AU			12585 Jul 24 04:51	30° <u>♄</u>	
direct	12579 Jul 30 16:28	7° <u>♄</u> 12'40		opposition	12585 Aug 08 23:53	28° <u>♄</u> 46'13	1°50'58
evening set	12579 Nov 09 18:41	14° <u>♄</u> 47'24		min. Earth dist.	12585 Aug 09 08:37	28° <u>♄</u> 44'29	8.39074 AU
				direct	12585 Oct 16 13:28	25° <u>♄</u> 19'32	
conjunction	12579 Nov 27 09:56	16° <u>♄</u> 57'35 1°27'15			12586 Jan 01 22:19	0° <u>♄</u>	
minimum elong	12579 Nov 27 09:54	16° <u>♄</u> 57'35 1°28'08		evening set	12586 Jan 29 08:34	3° <u>♄</u> 11'04	
max. Earth dist.	12579 Nov 27 11:12	16° <u>♄</u> 57'59 10.47927 AU					

conjunction	12586 Feb 16 01:14	5° ✕ 23'15	1°21'45	conjunction	12592 May 05 14:13	23° 8 11'18	-0°53'24
minimum elong	12586 Feb 16 01:16	5° ✕ 23'16	1°22'13	minimum elong	12592 May 05 14:11	23° 8 11'18	0°54'06
max. Earth dist.	12586 Feb 15 13:12	5° ✕ 19'29	10.39094 AU	max. Earth dist.	12592 May 05 08:16	23° 8 09'27	10.51553 AU
morning rise	12586 Mar 05 15:47	7° ✕ 34'51		morning rise	12592 May 22 16:11	25° 8 18'15	
retrograde	12586 Jun 15 21:34	15° ✕ 16'45			12592 Jul 04 16:14	0° II	
opposition	12586 Aug 22 08:09	11° ✕ 53'27	1°30'34	retrograde	12592 Sep 01 00:40	2° II 49'35	
min. Earth dist.	12586 Aug 22 17:32	11° ✕ 51'36	8.39411 AU		12592 Nov 01 14:57	30° R 8	
direct	12586 Oct 30 02:49	8° ✕ 26'43		opposition	12592 Nov 08 12:21	29° 8 28'10	-1°18'36
evening set	12587 Feb 12 03:07	16° ✕ 18'41		min. Earth dist.	12592 Nov 08 15:35	29° 8 27'33	8.53281 AU
				direct	12593 Jan 17 07:45	26° 8 03'43	
conjunction	12587 Mar 01 18:57	18° ✕ 30'39	1°03'15		12593 Mar 29 08:50	0° II	
minimum elong	12587 Mar 01 18:59	18° ✕ 30'40	1°03'31	evening set	12593 May 01 09:44	3° II 43'53	
max. Earth dist.	12587 Mar 01 06:30	18° ✕ 26'45	10.39742 AU				
morning rise	12587 Mar 19 08:03	20° ✕ 41'52		conjunction	12593 May 18 11:40	5° II 50'24	-1°13'04
retrograde	12587 Jun 29 06:46	28° ✕ 22'01		minimum elong	12593 May 18 11:38	5° II 50'23	1°13'52
opposition	12587 Sep 04 17:08	24° ✕ 59'13	1°05'28	max. Earth dist.	12593 May 18 08:49	5° II 49'31	10.54953 AU
min. Earth dist.	12587 Sep 05 02:41	24° ✕ 57'19	8.40326 AU	morning rise	12593 Jun 04 11:17	7° II 56'17	
direct	12587 Nov 12 16:17	21° ✕ 32'35		retrograde	12593 Sep 14 00:54	15° II 26'24	
evening set	12588 Feb 25 19:59	29° ✕ 24'15		opposition	12593 Nov 21 18:12	12° II 05'02	-1°40'43
	12588 Mar 01 15:50	0° Y		min. Earth dist.	12593 Nov 21 19:25	12° II 04'47	8.56725 AU
conjunction	12588 Mar 14 10:21	1° Y 35'46	0°41'31	direct	12594 Jan 30 13:06	8° II 41'12	
minimum elong	12588 Mar 14 10:23	1° Y 35'47	0°41'35	evening set	12594 May 14 06:19	16° II 17'56	
max. Earth dist.	12588 Mar 13 22:06	1° Y 31'56	10.40997 AU	conjunction	12594 May 31 05:43	18° II 23'21	-1°29'04
morning rise	12588 Mar 31 21:37	3° Y 46'27		minimum elong	12594 May 31 05:41	18° II 23'21	1°29'58
retrograde	12588 Jul 11 13:42	11° Y 24'43		max. Earth dist.	12594 May 31 05:08	18° II 23'10	10.58343 AU
opposition	12588 Sep 17 02:34	8° Y 02'22	0°37'04	morning rise	12594 Jun 17 03:28	20° II 28'18	
min. Earth dist.	12588 Sep 17 12:13	8° Y 00'28	8.41879 AU	retrograde	12594 Sep 26 21:18	27° II 57'27	
direct	12588 Nov 25 06:38	4° Y 35'59		opposition	12594 Dec 04 22:27	24° II 36'04	-1°57'51
evening set	12589 Mar 10 10:23	12° Y 26'36		min. Earth dist.	12594 Dec 04 21:56	24° II 36'10	8.60078 AU
conjunction	12589 Mar 27 22:44	14° Y 37'24	0°17'44	direct	12595 Feb 12 17:06	21° II 12'52	
minimum elong	12589 Mar 27 22:45	14° Y 37'25	0°17'35	evening set	12595 May 26 23:25	28° II 46'13	
max. Earth dist.	12589 Mar 27 10:43	14° Y 33'39	10.42890 AU		12595 Jun 06 00:46	0° ☾	
morning rise	12589 Apr 14 07:59	16° Y 47'21		conjunction	12595 Jun 12 20:46	0° ☾ 50'39	-1°40'46
retrograde	12589 Jul 24 18:56	24° Y 23'43		minimum elong	12595 Jun 12 20:44	0° ☾ 50'38	1°41'42
opposition	12589 Sep 30 12:02	21° Y 01'45	0°06'52	max. Earth dist.	12595 Jun 12 22:12	0° ☾ 51'05	10.61564 AU
min. Earth dist.	12589 Sep 30 21:19	20° Y 59'55	8.44067 AU	morning rise	12595 Jun 29 17:15	2° ☾ 54'47	
direct	12589 Dec 08 20:52	17° Y 35'42		retrograde	12595 Oct 09 16:56	10° ☾ 23'21	
desc. node	12589 Dec 23 17:43	17° Y 47'08		opposition	12595 Dec 18 01:19	7° ☾ 01'53	-2°09'19
evening set	12590 Mar 23 21:37	25° Y 24'30		min. Earth dist.	12595 Dec 17 22:43	7° ☾ 02'22	8.63177 AU
conjunction	12590 Apr 10 07:36	27° Y 34'25	-0°06'56	direct	12596 Feb 25 19:40	3° ☾ 39'21	
minimum elong	12590 Apr 10 07:35	27° Y 34'25	0°07'17	evening set	12596 Jun 07 13:12	11° ☾ 09'20	
behind sun begin	12590 Apr 10 01:01	27° Y 32'23		conjunction	12596 Jun 24 09:16	13° ☾ 12'59	-1°47'41
behind sun end	12590 Apr 10 14:09	27° Y 36'27		minimum elong	12596 Jun 24 09:16	13° ☾ 12'59	1°48'37
max. Earth dist.	12590 Apr 09 20:31	27° Y 30'57	10.45369 AU	max. Earth dist.	12596 Jun 24 13:29	13° ☾ 14'17	10.64460 AU
morning rise	12590 Apr 27 14:37	29° Y 43'28		morning rise	12596 Jul 11 05:05	15° ☾ 16'33	
	12590 Apr 29 20:44	0° 8		retrograde	12596 Oct 21 13:03	22° ☾ 44'49	
retrograde	12590 Aug 06 22:37	7° 8 17'58		opposition	12596 Dec 30 02:33	19° ☾ 23'11	-2°14'43
opposition	12590 Oct 13 21:02	3° 8 56'17	-0°23'29	min. Earth dist.	12596 Dec 29 21:15	19° ☾ 24'12	8.65868 AU
min. Earth dist.	12590 Oct 14 05:04	3° 8 54'43	8.46793 AU	direct	12597 Mar 09 18:34	16° ☾ 01'18	
direct	12590 Dec 22 09:57	0° 8 30'41		evening set	12597 Jun 20 00:35	23° ☾ 28'07	
evening set	12591 Apr 06 05:31	8° 8 17'03		conjunction	12597 Jul 06 20:10	25° ☾ 31'16	-1°49'36
conjunction	12591 Apr 23 12:50	10° 8 25'54	-0°31'00	minimum elong	12597 Jul 06 20:10	25° ☾ 31'16	1°50'29
minimum elong	12591 Apr 23 12:49	10° 8 25'54	0°31'32	max. Earth dist.	12597 Jul 07 03:29	25° ☾ 33'31	10.66889 AU
max. Earth dist.	12591 Apr 23 03:44	10° 8 23'04	10.48305 AU	morning rise	12597 Jul 23 15:56	27° ☾ 34'30	
morning rise	12591 May 10 17:23	12° 8 33'56			12597 Aug 13 15:57	0° ♈	
	12591 May 31 09:59	15° 8		retrograde	12597 Nov 03 07:53	5° ♈ 02'43	
retrograde	12591 Aug 19 23:50	20° 8 06'44		opposition	12598 Jan 12 02:07	1° ♈ 40'53	-2°13'53
opposition	12591 Oct 27 05:09	16° 8 45'14	-0°52'26	min. Earth dist.	12598 Jan 11 18:34	1° ♈ 42'19	8.68018 AU
min. Earth dist.	12591 Oct 27 10:57	16° 8 44'06	8.49915 AU		12598 Feb 04 05:30	30° R ☾	
	12591 Nov 19 22:58	15° R 8		direct	12598 Mar 22 14:11	28° ☾ 19'33	
direct	12592 Jan 04 22:15	13° 8 20'10			12598 May 06 13:23	0° ♈	
	12592 Feb 18 19:07	15° 8		evening set	12598 Jul 02 10:13	5° ♈ 43'35	
evening set	12592 Apr 18 09:37	21° 8 03'37					

conjunction	12598 Jul 19 05:57	7°♊46'29 -1°46'30
minimum elong	12598 Jul 19 05:58	7°♊46'29 1°47'18
max. Earth dist.	12598 Jul 19 15:32	7°♊49'25 10.68737 AU
morning rise	12598 Aug 05 02:27	9°♊49'37
	12598 Sep 23 15:31	15°♊
retrograde	12598 Nov 16 03:10	17°♊18'06
	12599 Jan 10 18:21	15°♋♊
opposition	12599 Jan 25 00:32	13°♊56'00 -2°06'58
min. Earth dist.	12599 Jan 24 15:34	13°♊57'42 8.69535 AU
direct	12599 Apr 04 08:32	10°♊35'09
	12599 Jun 18 19:06	15°♊
evening set	12599 Jul 14 18:40	17°♊56'48
conjunction	12599 Jul 31 15:07	19°♊59'41 -1°38'35
minimum elong	12599 Jul 31 15:09	19°♊59'42 1°39'15
max. Earth dist.	12599 Aug 01 01:44	20°♊02'56 10.69934 AU
morning rise	12599 Aug 17 13:09	22°♊03'00
retrograde	12599 Nov 28 22:25	29°♊32'00
opposition	12600 Feb 06 21:50	26°♊09'36 -1°54'20
min. Earth dist.	12600 Feb 06 12:20	26°♊11'25 8.70373 AU
direct	12600 Apr 17 00:19	22°♊49'06
	12600 Jul 25 20:58	0°♋
evening set	12600 Jul 27 02:55	0°♋08'56
conjunction	12600 Aug 13 00:48	2°♋12'02 -1°26'12
minimum elong	12600 Aug 13 00:50	2°♋12'03 1°26'43
max. Earth dist.	12600 Aug 13 12:14	2°♋15'32 10.70447 AU
morning rise	12600 Aug 30 00:55	4°♋15'46
retrograde	12600 Dec 11 16:07	11°♋45'32
opposition	12601 Feb 19 17:55	8°♋22'47 -1°36'32
min. Earth dist.	12601 Feb 19 07:45	8°♋24'43 8.70509 AU
direct	12601 Apr 29 15:31	5°♋02'29
evening set	12601 Aug 08 11:38	12°♋21'09
conjunction	12601 Aug 25 11:35	14°♋24'44 -1°09'56
minimum elong	12601 Aug 25 11:38	14°♋24'45 1°10'16
max. Earth dist.	12601 Aug 26 00:10	14°♋28'35 10.70254 AU
morning rise	12601 Sep 11 14:04	16°♋29'02
retrograde	12601 Dec 24 11:58	23°♋59'51