

evening set	15100 Jan 04 07:41	13° \approx 03'09		conjunction	15106 Feb 03 13:36	26° \approx 55'18	0°21'43
				minimum elong	15106 Feb 03 13:36	26° \approx 55'18	0°22'19
conjunction	15100 Jan 20 09:34	13° \approx 38'50	0°16'59	max. Earth dist.	15106 Feb 03 19:10	26° \approx 55'48	31.08291 AU
minimum elong	15100 Jan 20 09:34	13° \approx 38'50	0°17'45	morning rise	15106 Feb 19 16:20	27° \approx 30'58	
max. Earth dist.	15100 Jan 20 16:55	13° \approx 39'30	31.02277 AU	retrograde	15106 May 19 22:40	29° \approx 26'04	
morning rise	15100 Feb 05 12:16	14° \approx 14'36		opposition	15106 Aug 06 15:11	28° \approx 02'15	0°23'36
	15100 Feb 27 13:48	15° \approx		min. Earth dist.	15106 Aug 06 10:38	28° \approx 02'34	29.08936 AU
retrograde	15100 May 06 05:17	16° \approx 10'27		direct	15106 Oct 24 07:00	26° \approx 38'01	
	15100 Jul 15 20:42	15° \approx		evening set	15107 Jan 20 23:34	28° \approx 32'02	
opposition	15100 Jul 23 23:10	14° \approx 46'26	0°18'39				
min. Earth dist.	15100 Jul 23 15:54	14° \approx 46'57	29.02758 AU	conjunction	15107 Feb 06 02:03	29° \approx 07'38	0°22'24
direct	15100 Oct 10 12:38	13° \approx 22'21		minimum elong	15107 Feb 06 02:03	29° \approx 07'38	0°23'00
	15100 Dec 30 04:32	15° \approx		max. Earth dist.	15107 Feb 06 06:19	29° \approx 08'02	31.09603 AU
evening set	15101 Jan 06 20:27	15° \approx 16'25		morning rise	15107 Feb 22 04:55	29° \approx 43'17	
					15107 Mar 02 00:37	0° \approx	
conjunction	15101 Jan 22 22:27	15° \approx 52'05	0°17'51	retrograde	15107 May 22 12:06	1° \approx 38'19	
minimum elong	15101 Jan 22 22:27	15° \approx 52'05	0°18'36	opposition	15107 Aug 09 01:43	0° \approx 14'34	0°24'19
max. Earth dist.	15101 Jan 23 05:16	15° \approx 52'43	31.03215 AU	min. Earth dist.	15107 Aug 08 20:52	0° \approx 14'55	29.10300 AU
morning rise	15101 Feb 08 01:12	16° \approx 27'51			15107 Aug 17 19:00	30° \approx	
retrograde	15101 May 08 16:21	18° \approx 23'33		direct	15107 Oct 26 18:44	28° \approx 50'23	
opposition	15101 Jul 26 10:02	16° \approx 59'33	0°19'33		15108 Jan 01 19:06	0° \approx	
min. Earth dist.	15101 Jul 26 04:19	16° \approx 59'57	29.03680 AU	evening set	15108 Jan 23 11:50	0° \approx 44'26	
direct	15101 Oct 12 23:54	15° \approx 35'25					
evening set	15102 Jan 09 09:06	17° \approx 29'27		conjunction	15108 Feb 08 14:29	1° \approx 20'02	0°23'03
				minimum elong	15108 Feb 08 14:29	1° \approx 20'02	0°23'36
conjunction	15102 Jan 25 11:19	18° \approx 05'07	0°18'41	max. Earth dist.	15108 Feb 08 19:20	1° \approx 20'29	31.10999 AU
minimum elong	15102 Jan 25 11:19	18° \approx 05'07	0°19'24	morning rise	15108 Feb 24 17:13	1° \approx 55'40	
max. Earth dist.	15102 Jan 25 17:49	18° \approx 05'43	31.04133 AU	retrograde	15108 May 23 22:56	3° \approx 50'38	
morning rise	15102 Feb 10 14:04	18° \approx 40'51		opposition	15108 Aug 10 12:20	2° \approx 26'59	0°24'59
retrograde	15102 May 11 04:26	20° \approx 36'24		min. Earth dist.	15108 Aug 10 08:46	2° \approx 27'14	29.11715 AU
opposition	15102 Jul 28 20:46	19° \approx 12'26	0°20'26	direct	15108 Oct 28 06:13	1° \approx 02'51	
min. Earth dist.	15102 Jul 28 14:35	19° \approx 12'52	29.04589 AU	evening set	15109 Jan 25 00:25	2° \approx 56'56	
direct	15102 Oct 15 12:09	17° \approx 48'15					
evening set	15103 Jan 11 21:42	19° \approx 42'15		conjunction	15109 Feb 10 03:04	3° \approx 32'32	0°23'40
				minimum elong	15109 Feb 10 03:04	3° \approx 32'32	0°24'12
conjunction	15103 Jan 27 23:51	20° \approx 17'55	0°19'29	max. Earth dist.	15109 Feb 10 06:49	3° \approx 32'52	31.12424 AU
minimum elong	15103 Jan 27 23:52	20° \approx 17'55	0°20'12	morning rise	15109 Feb 26 05:51	4° \approx 08'09	
max. Earth dist.	15103 Jan 28 05:24	20° \approx 18'25	31.05048 AU	retrograde	15109 May 26 12:06	6° \approx 03'03	
morning rise	15103 Feb 13 02:42	20° \approx 53'38		opposition	15109 Aug 12 22:40	4° \approx 39'30	0°25'37
retrograde	15103 May 13 14:24	22° \approx 49'04		min. Earth dist.	15109 Aug 12 18:48	4° \approx 39'46	29.13119 AU
opposition	15103 Jul 31 07:31	21° \approx 25'06	0°21'16	direct	15109 Oct 30 18:10	3° \approx 15'24	
min. Earth dist.	15103 Jul 31 02:27	21° \approx 25'27	29.05538 AU	evening set	15110 Jan 27 13:06	5° \approx 09'32	
direct	15103 Oct 17 22:16	20° \approx 00'53					
evening set	15104 Jan 14 10:07	21° \approx 54'52		conjunction	15110 Feb 12 15:45	5° \approx 45'07	0°24'15
				minimum elong	15110 Feb 12 15:45	5° \approx 45'07	0°24'44
conjunction	15104 Jan 30 12:32	22° \approx 30'30	0°20'16	max. Earth dist.	15110 Feb 12 18:50	5° \approx 45'24	31.13781 AU
minimum elong	15104 Jan 30 12:32	22° \approx 30'30	0°20'56	morning rise	15110 Feb 28 18:26	6° \approx 20'43	
max. Earth dist.	15104 Jan 30 18:40	22° \approx 31'04	31.06031 AU	retrograde	15110 May 28 23:57	8° \approx 15'32	
morning rise	15104 Feb 15 15:16	23° \approx 06'12		opposition	15110 Aug 15 09:19	6° \approx 52'04	0°26'13
retrograde	15104 May 15 00:28	25° \approx 01'31		min. Earth dist.	15110 Aug 15 07:08	6° \approx 52'13	29.14434 AU
opposition	15104 Aug 01 18:06	23° \approx 37'35	0°22'05	direct	15110 Nov 02 05:25	5° \approx 28'00	
min. Earth dist.	15104 Aug 01 12:48	23° \approx 37'57	29.06558 AU	evening set	15111 Jan 30 01:34	7° \approx 22'08	
direct	15104 Oct 19 10:11	22° \approx 13'21					
evening set	15105 Jan 15 22:38	24° \approx 07'19		conjunction	15111 Feb 15 04:17	7° \approx 57'43	0°24'47
				minimum elong	15111 Feb 15 04:17	7° \approx 57'43	0°25'15
conjunction	15105 Feb 01 00:58	24° \approx 42'57	0°21'00	max. Earth dist.	15111 Feb 15 06:45	7° \approx 57'56	31.15038 AU
minimum elong	15105 Feb 01 00:58	24° \approx 42'57	0°21'39	morning rise	15111 Mar 03 06:52	8° \approx 33'18	
max. Earth dist.	15105 Feb 01 05:45	24° \approx 43'23	31.07103 AU	retrograde	15111 May 31 12:16	10° \approx 28'01	
morning rise	15105 Feb 17 03:53	25° \approx 18'38		opposition	15111 Aug 17 19:49	9° \approx 04'37	0°26'46
retrograde	15105 May 17 12:21	27° \approx 13'50		min. Earth dist.	15111 Aug 17 17:26	9° \approx 04'47	29.15619 AU
opposition	15105 Aug 04 04:42	25° \approx 49'56	0°22'51	direct	15111 Nov 04 17:56	7° \approx 40'33	
min. Earth dist.	15105 Aug 03 23:42	25° \approx 50'17	29.07693 AU	evening set	15112 Feb 01 14:12	9° \approx 34'42	
direct	15105 Oct 21 19:44	24° \approx 25'42					
evening set	15106 Jan 18 11:02	26° \approx 19'41		conjunction	15112 Feb 17 16:49	10° \approx 10'15	0°25'17
				minimum elong	15112 Feb 17 16:49	10° \approx 10'15	0°25'43

max. Earth dist.	15112 Feb 17 17:53	10° ✕ 10'21	31.16157 AU	conjunction	15119 Mar 05 06:24	25° ✕ 32'45	0°27'44
morning rise	15112 Mar 04 19:24	10° ✕ 45'50		minimum elong	15119 Mar 05 06:24	25° ✕ 32'45	0°27'55
retrograde	15112 Jun 01 22:02	12° ✕ 40'27		max. Earth dist.	15119 Mar 05 04:14	25° ✕ 32'34	31.22577 AU
opposition	15112 Aug 19 06:20	11° ✕ 17'04	0°27'17	morning rise	15119 Mar 21 08:12	26° ✕ 08'09	
min. Earth dist.	15112 Aug 19 05:26	11° ✕ 17'08	29.16686 AU	retrograde	15119 Jun 18 00:09	28° ✕ 01'58	
direct	15112 Nov 06 04:05	9° ✕ 53'00		opposition	15119 Sep 04 06:10	26° ✕ 38'44	0°29'44
evening set	15113 Feb 03 02:37	11° ✕ 47'07		min. Earth dist.	15119 Sep 04 08:21	26° ✕ 38'35	29.23138 AU
				direct	15119 Nov 22 10:47	25° ✕ 14'29	
conjunction	15113 Feb 19 05:25	12° ✕ 22'40	0°25'45	evening set	15120 Feb 19 15:55	27° ✕ 08'30	
minimum elong	15113 Feb 19 05:25	12° ✕ 22'40	0°26'09				
max. Earth dist.	15113 Feb 19 06:33	12° ✕ 22'47	31.17165 AU	conjunction	15120 Mar 06 18:23	27° ✕ 43'56	0°27'55
morning rise	15113 Mar 07 07:50	12° ✕ 58'13		minimum elong	15120 Mar 06 18:24	27° ✕ 43'56	0°28'04
retrograde	15113 Jun 04 07:46	14° ✕ 52'42		max. Earth dist.	15120 Mar 06 16:08	27° ✕ 43'43	31.23700 AU
opposition	15113 Aug 21 16:43	13° ✕ 29'22	0°27'46	morning rise	15120 Mar 22 20:04	28° ✕ 19'18	
min. Earth dist.	15113 Aug 21 16:07	13° ✕ 29'25	29.17629 AU		15120 May 22 11:53	0° ∇	
direct	15113 Nov 08 16:02	12° ✕ 05'16		retrograde	15120 Jun 19 11:44	0° ∇ 13'02	
evening set	15114 Feb 05 15:10	13° ✕ 59'22			15120 Jul 17 16:48	30° ℞ ✕	
				opposition	15120 Sep 05 16:09	28° ✕ 49'53	0°29'54
conjunction	15114 Feb 21 17:46	14° ✕ 34'54	0°26'11	min. Earth dist.	15120 Sep 05 17:52	28° ✕ 49'46	29.24278 AU
minimum elong	15114 Feb 21 17:47	14° ✕ 34'54	0°26'32	direct	15120 Nov 23 23:14	27° ✕ 25'39	
max. Earth dist.	15114 Feb 21 17:06	14° ✕ 34'50	31.18067 AU	evening set	15121 Feb 21 04:04	29° ✕ 19'43	
morning rise	15114 Mar 09 20:15	15° ✕ 10'25					
retrograde	15114 Jun 06 18:57	17° ✕ 04'48		conjunction	15121 Mar 09 06:22	29° ✕ 55'08	0°28'04
opposition	15114 Aug 24 03:01	15° ✕ 41'28	0°28'12	minimum elong	15121 Mar 09 06:22	29° ✕ 55'08	0°28'11
min. Earth dist.	15114 Aug 24 03:04	15° ✕ 41'28	29.18504 AU	max. Earth dist.	15121 Mar 09 03:02	29° ✕ 54'50	31.24847 AU
direct	15114 Nov 11 01:22	14° ✕ 17'19			15121 Mar 11 11:04	0° ∇	
evening set	15115 Feb 08 03:25	16° ✕ 11'24		morning rise	15121 Mar 25 07:58	0° ∇ 30'29	
				retrograde	15121 Jun 21 22:09	2° ∇ 24'10	
conjunction	15115 Feb 24 06:11	16° ✕ 46'54	0°26'34	opposition	15121 Sep 08 02:22	1° ∇ 01'05	0°30'02
minimum elong	15115 Feb 24 06:11	16° ✕ 46'54	0°26'54	min. Earth dist.	15121 Sep 08 05:20	1° ∇ 00'53	29.25422 AU
max. Earth dist.	15115 Feb 24 05:59	16° ✕ 46'53	31.18915 AU		15121 Oct 19 00:48	30° ℞ ✕	
morning rise	15115 Mar 12 08:23	17° ✕ 22'24		direct	15121 Nov 26 09:01	29° ✕ 36'54	
retrograde	15115 Jun 09 03:48	19° ✕ 16'39			15122 Jan 03 01:31	0° ∇	
opposition	15115 Aug 26 13:21	17° ✕ 53'20	0°28'35	evening set	15122 Feb 23 16:08	1° ∇ 31'00	
min. Earth dist.	15115 Aug 26 14:09	17° ✕ 53'16	29.19336 AU				
direct	15115 Nov 13 13:02	16° ✕ 29'08		conjunction	15122 Mar 11 18:27	2° ∇ 06'24	0°28'11
evening set	15116 Feb 10 15:36	18° ✕ 23'11		minimum elong	15122 Mar 11 18:27	2° ∇ 06'24	0°28'14
				max. Earth dist.	15122 Mar 11 15:24	2° ∇ 06'07	31.25958 AU
conjunction	15116 Feb 26 18:12	18° ✕ 58'40	0°26'55	morning rise	15122 Mar 27 19:44	2° ∇ 41'44	
minimum elong	15116 Feb 26 18:12	18° ✕ 58'40	0°27'12	retrograde	15122 Jun 24 08:05	4° ∇ 35'20	
max. Earth dist.	15116 Feb 26 16:32	18° ✕ 58'31	31.19754 AU	opposition	15122 Sep 10 12:30	3° ∇ 12'21	0°30'08
morning rise	15116 Mar 13 20:29	19° ✕ 34'08		min. Earth dist.	15122 Sep 10 15:48	3° ∇ 12'07	29.26483 AU
retrograde	15116 Jun 10 15:20	21° ✕ 28'16		direct	15122 Nov 28 20:45	1° ∇ 48'12	
opposition	15116 Aug 27 23:33	20° ✕ 04'57	0°28'56	evening set	15123 Feb 26 04:21	3° ∇ 42'19	
min. Earth dist.	15116 Aug 28 00:11	20° ✕ 04'54	29.20186 AU				
direct	15116 Nov 15 00:28	18° ✕ 40'42		conjunction	15123 Mar 14 06:23	4° ∇ 17'42	0°28'15
evening set	15117 Feb 12 03:47	20° ✕ 34'44		minimum elong	15123 Mar 14 06:23	4° ∇ 17'42	0°28'17
				max. Earth dist.	15123 Mar 14 01:30	4° ∇ 17'16	31.26967 AU
conjunction	15117 Feb 28 06:27	21° ✕ 10'12	0°27'14	morning rise	15123 Mar 30 07:38	4° ∇ 53'02	
minimum elong	15117 Feb 28 06:27	21° ✕ 10'12	0°27'29	retrograde	15123 Jun 26 19:26	6° ∇ 46'35	
max. Earth dist.	15117 Feb 28 05:15	21° ✕ 10'06	31.20614 AU	opposition	15123 Sep 12 22:43	5° ∇ 23'39	0°30'10
morning rise	15117 Mar 16 08:29	21° ✕ 45'39		min. Earth dist.	15123 Sep 13 02:38	5° ∇ 23'22	29.27438 AU
retrograde	15117 Jun 13 00:49	23° ✕ 39'39		direct	15123 Dec 01 05:54	3° ∇ 59'30	
opposition	15117 Aug 30 09:43	22° ✕ 16'21	0°29'14	evening set	15124 Feb 28 16:18	5° ∇ 53'38	
min. Earth dist.	15117 Aug 30 11:34	22° ✕ 16'13	29.21080 AU				
direct	15117 Nov 17 11:21	20° ✕ 52'04		conjunction	15124 Mar 15 18:25	6° ∇ 29'01	0°28'16
evening set	15118 Feb 14 15:57	22° ✕ 46'06		minimum elong	15124 Mar 15 18:25	6° ∇ 29'01	0°28'15
				max. Earth dist.	15124 Mar 15 13:48	6° ∇ 28'35	31.27845 AU
conjunction	15118 Mar 02 18:30	23° ✕ 21'33	0°27'30	morning rise	15124 Mar 31 19:20	7° ∇ 04'19	
minimum elong	15118 Mar 02 18:31	23° ✕ 21'33	0°27'42	retrograde	15124 Jun 28 04:09	8° ∇ 57'48	
max. Earth dist.	15118 Mar 02 16:27	23° ✕ 21'21	31.21554 AU	opposition	15124 Sep 14 09:00	7° ∇ 34'55	0°30'11
morning rise	15118 Mar 18 20:30	23° ✕ 56'58		min. Earth dist.	15124 Sep 14 14:00	7° ∇ 34'34	29.28237 AU
retrograde	15118 Jun 15 13:02	25° ✕ 50'51		direct	15124 Dec 02 17:18	6° ∇ 10'47	
opposition	15118 Sep 01 19:51	24° ✕ 27'35	0°29'30	evening set	15125 Mar 02 04:30	8° ∇ 04'55	
min. Earth dist.	15118 Sep 01 20:54	24° ✕ 27'31	29.22062 AU				
direct	15118 Nov 19 23:29	23° ✕ 03'18		conjunction	15125 Mar 18 06:21	8° ∇ 40'17	0°28'15
evening set	15119 Feb 17 03:55	24° ✕ 57'19		minimum elong	15125 Mar 18 06:21	8° ∇ 40'17	0°28'12

max. Earth dist.	15125 Mar 17 23:52	8° Υ 39'41	31.28579 AU	conjunction	15132 Apr 02 15:14	23° Υ 55'25	0°27'03
morning rise	15125 Apr 03 07:15	9° Υ 15'34		minimum elong	15132 Apr 02 15:14	23° Υ 55'25	0°26'44
retrograde	15125 Jun 30 15:21	11° Υ 08'58		max. Earth dist.	15132 Apr 02 06:06	23° Υ 54'35	31.32264 AU
opposition	15125 Sep 16 19:02	9° Υ 46'07	0°30'08	morning rise	15132 Apr 18 14:43	24° Υ 30'33	
min. Earth dist.	15125 Sep 17 00:07	9° Υ 45'46	29.28904 AU	retrograde	15132 Jul 15 16:27	26° Υ 23'25	
direct	15125 Dec 05 04:11	8° Υ 21'57		opposition	15132 Oct 01 17:26	25° Υ 00'41	0°28'41
evening set	15126 Mar 04 16:30	10° Υ 16'07		min. Earth dist.	15132 Oct 02 00:53	25° Υ 00'10	29.32640 AU
				direct	15132 Dec 20 11:19	23° Υ 36'26	
				evening set	15133 Mar 20 01:54	25° Υ 30'36	
conjunction	15126 Mar 20 18:20	10° Υ 51'27	0°28'12				
minimum elong	15126 Mar 20 18:21	10° Υ 51'27	0°28'07				
max. Earth dist.	15126 Mar 20 11:58	10° Υ 50'52	31.29177 AU	conjunction	15133 Apr 05 02:42	26° Υ 05'49	0°26'43
morning rise	15126 Apr 05 18:54	11° Υ 26'43		minimum elong	15133 Apr 05 02:42	26° Υ 05'49	0°26'23
retrograde	15126 Jul 03 00:36	13° Υ 20'02		max. Earth dist.	15133 Apr 04 18:21	26° Υ 05'04	31.32999 AU
opposition	15126 Sep 19 05:19	11° Υ 57'12	0°30'03	morning rise	15133 Apr 21 01:45	26° Υ 40'57	
min. Earth dist.	15126 Sep 19 11:54	11° Υ 56'45	29.29448 AU	retrograde	15133 Jul 18 00:18	28° Υ 33'46	
direct	15126 Dec 07 14:35	10° Υ 33'01		opposition	15133 Oct 04 03:27	27° Υ 11'07	0°28'18
evening set	15127 Mar 07 04:17	12° Υ 27'10		min. Earth dist.	15133 Oct 04 11:43	27° Υ 10'33	29.33380 AU
				direct	15133 Dec 22 22:19	25° Υ 46'53	
				evening set	15134 Mar 22 13:33	27° Υ 41'05	
conjunction	15127 Mar 23 05:55	13° Υ 02'29	0°28'06				
minimum elong	15127 Mar 23 05:56	13° Υ 02'29	0°27'59				
max. Earth dist.	15127 Mar 22 22:32	13° Υ 01'48	31.29684 AU	conjunction	15134 Apr 07 13:58	28° Υ 16'18	0°26'21
morning rise	15127 Apr 08 06:24	13° Υ 37'43		minimum elong	15134 Apr 07 13:58	28° Υ 16'18	0°25'59
retrograde	15127 Jul 05 12:15	15° Υ 30'58		max. Earth dist.	15134 Apr 07 04:16	28° Υ 15'24	31.33745 AU
opposition	15127 Sep 21 15:21	14° Υ 08'08	0°29'55	morning rise	15134 Apr 23 12:57	28° Υ 51'24	
min. Earth dist.	15127 Sep 21 21:25	14° Υ 07'43	29.29915 AU		15134 May 29 04:04	0° \mathcal{B}	
direct	15127 Dec 10 02:54	12° Υ 43'55		retrograde	15134 Jul 20 10:57	0° \mathcal{B} 44'12	
evening set	15128 Mar 08 16:05	14° Υ 38'04			15134 Sep 12 11:58	30° \mathcal{K} Υ	
				opposition	15134 Oct 06 13:32	29° Υ 21'36	0°27'53
conjunction	15128 Mar 24 17:37	15° Υ 13'22	0°27'58	min. Earth dist.	15134 Oct 06 21:29	29° Υ 21'03	29.34108 AU
minimum elong	15128 Mar 24 17:37	15° Υ 13'22	0°27'49	direct	15134 Dec 25 08:05	27° Υ 57'24	
max. Earth dist.	15128 Mar 24 09:49	15° Υ 12'39	31.30122 AU	evening set	15135 Mar 25 00:53	29° Υ 51'37	
morning rise	15128 Apr 09 17:51	15° Υ 48'35			15135 Mar 28 21:30	0° \mathcal{B}	
retrograde	15128 Jul 06 23:05	17° Υ 41'44					
opposition	15128 Sep 23 01:23	16° Υ 18'54	0°29'45	conjunction	15135 Apr 10 01:13	0° \mathcal{B} 26'49	0°25'57
min. Earth dist.	15128 Sep 23 08:50	16° Υ 18'23	29.30350 AU	minimum elong	15135 Apr 10 01:14	0° \mathcal{B} 26'49	0°25'33
direct	15128 Dec 11 14:33	14° Υ 54'38		max. Earth dist.	15135 Apr 09 15:53	0° \mathcal{B} 25'58	31.34427 AU
evening set	15129 Mar 11 03:47	16° Υ 48'47		morning rise	15135 Apr 25 23:49	1° \mathcal{B} 01'55	
				retrograde	15135 Jul 22 20:08	2° \mathcal{B} 54'41	
conjunction	15129 Mar 27 05:13	17° Υ 24'04	0°27'47	opposition	15135 Oct 08 23:48	1° \mathcal{B} 32'08	0°27'26
minimum elong	15129 Mar 27 05:13	17° Υ 24'04	0°27'36	min. Earth dist.	15135 Oct 09 09:14	1° \mathcal{B} 31'29	29.34745 AU
max. Earth dist.	15129 Mar 26 21:18	17° Υ 23'20	31.30561 AU	direct	15135 Dec 27 17:25	0° \mathcal{B} 07'57	
morning rise	15129 Apr 12 05:15	17° Υ 59'15		evening set	15136 Mar 26 12:29	2° \mathcal{B} 02'11	
retrograde	15129 Jul 09 09:55	19° Υ 52'19					
opposition	15129 Sep 25 11:21	18° Υ 29'29	0°29'33	conjunction	15136 Apr 11 12:33	2° \mathcal{B} 37'22	0°25'30
min. Earth dist.	15129 Sep 25 18:16	18° Υ 29'01	29.30795 AU	minimum elong	15136 Apr 11 12:33	2° \mathcal{B} 37'22	0°25'04
direct	15129 Dec 14 03:41	17° Υ 05'12		max. Earth dist.	15136 Apr 11 02:11	2° \mathcal{B} 36'25	31.35011 AU
evening set	15130 Mar 13 15:27	18° Υ 59'20		morning rise	15136 Apr 27 11:01	3° \mathcal{B} 12'26	
				retrograde	15136 Jul 24 07:15	5° \mathcal{B} 05'10	
conjunction	15130 Mar 29 16:34	19° Υ 34'36	0°27'35	opposition	15136 Oct 10 09:50	3° \mathcal{B} 42'39	0°26'56
minimum elong	15130 Mar 29 16:35	19° Υ 34'36	0°27'21	min. Earth dist.	15136 Oct 10 18:49	3° \mathcal{B} 42'02	29.35260 AU
max. Earth dist.	15130 Mar 29 07:50	19° Υ 33'48	31.31029 AU	direct	15136 Dec 29 05:31	2° \mathcal{B} 18'28	
morning rise	15130 Apr 14 16:25	20° Υ 09'47		evening set	15137 Mar 29 00:04	4° \mathcal{B} 12'43	
retrograde	15130 Jul 11 19:46	22° Υ 02'46					
opposition	15130 Sep 27 21:25	20° Υ 39'57	0°29'18	conjunction	15137 Apr 13 23:57	4° \mathcal{B} 47'53	0°25'01
min. Earth dist.	15130 Sep 28 05:03	20° Υ 39'25	29.31315 AU	minimum elong	15137 Apr 13 23:57	4° \mathcal{B} 47'53	0°24'34
direct	15130 Dec 16 13:41	19° Υ 15'39		max. Earth dist.	15137 Apr 13 12:56	4° \mathcal{B} 46'53	31.35448 AU
evening set	15131 Mar 16 02:54	21° Υ 09'47		morning rise	15137 Apr 29 22:06	5° \mathcal{B} 22'56	
				retrograde	15137 Jul 26 17:51	7° \mathcal{B} 15'37	
conjunction	15131 Apr 01 04:01	21° Υ 45'02	0°27'20	opposition	15137 Oct 12 20:10	5° \mathcal{B} 53'07	0°26'24
minimum elong	15131 Apr 01 04:01	21° Υ 45'02	0°27'04	min. Earth dist.	15137 Oct 13 06:37	5° \mathcal{B} 52'24	29.35635 AU
max. Earth dist.	15131 Mar 31 20:06	21° Υ 44'19	31.31596 AU	direct	15137 Dec 31 16:35	4° \mathcal{B} 28'56	
morning rise	15131 Apr 17 03:31	22° Υ 20'11		evening set	15138 Mar 31 11:27	6° \mathcal{B} 23'11	
retrograde	15131 Jul 14 05:30	24° Υ 13'06					
opposition	15131 Sep 30 07:25	22° Υ 50'19	0°29'01	conjunction	15138 Apr 16 11:09	6° \mathcal{B} 58'20	0°24'31
min. Earth dist.	15131 Sep 30 14:52	22° Υ 49'48	29.31927 AU	minimum elong	15138 Apr 16 11:09	6° \mathcal{B} 58'20	0°24'01
direct	15131 Dec 19 01:53	21° Υ 26'02		max. Earth dist.	15138 Apr 15 23:54	6° \mathcal{B} 57'18	31.35756 AU
evening set	15132 Mar 17 14:26	23° Υ 20'10		morning rise	15138 May 02 09:00	7° \mathcal{B} 33'21	

retrograde	15138 Jul 29 04:21	9°8'26"00		evening set	15145 Apr 15 17:45	21°8'33"30	
opposition	15138 Oct 15 06:22	8°8'03"30	0°25'50				
min. Earth dist.	15138 Oct 15 16:31	8°8'02"48	29.35867 AU	conjunction	15145 May 01 15:46	22°8'08"33	0°20'01
direct	15139 Jan 03 05:33	6°8'39"17		minimum elong	15145 May 01 15:46	22°8'08"33	0°19'19
evening set	15139 Apr 02 22:56	8°8'33"33		max. Earth dist.	15145 May 01 03:03	22°8'07"23	31.36621 AU
				morning rise	15145 May 17 11:54	22°8'43"28	
conjunction	15139 Apr 18 22:18	9°8'08"41	0°23'58	retrograde	15145 Aug 13 00:53	24°8'35"53	
minimum elong	15139 Apr 18 22:18	9°8'08"41	0°23'26	opposition	15145 Oct 30 05:54	23°8'13"30	0°20'54
max. Earth dist.	15139 Apr 18 09:52	9°8'07"32	31.35931 AU	min. Earth dist.	15145 Oct 30 16:53	23°8'12"45	29.36775 AU
morning rise	15139 May 04 19:59	9°8'43"41		direct	15146 Jan 18 08:58	21°8'49"16	
retrograde	15139 Jul 31 14:51	11°8'36"16		evening set	15146 Apr 18 04:42	23°8'43"37	
opposition	15139 Oct 17 16:34	10°8'13"46	0°25'14				
min. Earth dist.	15139 Oct 18 03:42	10°8'13"00	29.36001 AU	conjunction	15146 May 04 02:27	24°8'18"40	0°19'15
direct	15140 Jan 05 15:55	8°8'49"31		minimum elong	15146 May 04 02:27	24°8'18"40	0°18'31
evening set	15140 Apr 04 10:08	10°8'43"46		max. Earth dist.	15146 May 03 13:38	24°8'17"29	31.36912 AU
				morning rise	15146 May 19 22:16	24°8'53"34	
conjunction	15140 Apr 20 09:28	11°8'18"53	0°23'23	retrograde	15146 Aug 15 11:52	26°8'46"02	
minimum elong	15140 Apr 20 09:28	11°8'18"53	0°22'49	opposition	15146 Nov 01 16:23	25°8'23"42	0°20'04
max. Earth dist.	15140 Apr 19 21:37	11°8'17"48	31.36020 AU	min. Earth dist.	15146 Nov 02 04:24	25°8'22"52	29.37069 AU
morning rise	15140 May 06 06:48	11°8'53"52		direct	15147 Jan 20 19:09	23°8'59"31	
retrograde	15140 Aug 02 00:28	13°8'46"23		evening set	15147 Apr 20 15:43	25°8'53"55	
opposition	15140 Oct 19 02:46	12°8'23"53	0°24'36				
min. Earth dist.	15140 Oct 19 14:07	12°8'23"06	29.36044 AU	conjunction	15147 May 06 13:17	26°8'28"57	0°18'27
direct	15141 Jan 07 04:57	10°8'59"37		minimum elong	15147 May 06 13:17	26°8'28"57	0°17'43
evening set	15141 Apr 06 21:30	12°8'53"51		max. Earth dist.	15147 May 06 00:39	26°8'27"48	31.37186 AU
				morning rise	15147 May 22 08:48	27°8'03"51	
conjunction	15141 Apr 22 20:25	13°8'28"57	0°22'46	retrograde	15147 Aug 17 22:35	28°8'56"20	
minimum elong	15141 Apr 22 20:25	13°8'28"57	0°22'10	opposition	15147 Nov 04 02:42	27°8'34"04	0°19'12
max. Earth dist.	15141 Apr 22 07:12	13°8'27"44	31.36046 AU	min. Earth dist.	15147 Nov 04 14:21	27°8'33"16	29.37297 AU
morning rise	15141 May 08 17:39	14°8'03"55		direct	15148 Jan 23 07:16	26°8'09"55	
	15141 Jun 05 21:40	15°8'		evening set	15148 Apr 22 02:53	28°8'04"22	
retrograde	15141 Aug 04 11:06	15°8'56"23		max. Earth dist.	15148 May 07 10:21	28°8'38"08	31.37363 AU
	15141 Oct 05 11:34	15°8'					
opposition	15141 Oct 21 12:53	14°8'33"52	0°23'55	conjunction	15148 May 08 00:05	28°8'39"24	0°17'38
min. Earth dist.	15141 Oct 22 00:11	14°8'33"05	29.36071 AU	minimum elong	15148 May 08 00:05	28°8'39"24	0°16'51
direct	15142 Jan 09 15:17	13°8'09"34		morning rise	15148 May 23 19:26	29°8'14"17	
	15142 Apr 07 14:15	15°8'			15148 Jun 15 05:07	0°II	
evening set	15142 Apr 09 08:35	15°8'03"48		retrograde	15148 Aug 19 09:59	1°II06'47	
					15148 Oct 27 02:57	30°R8	
conjunction	15142 Apr 25 07:25	15°8'38"53	0°22'08	opposition	15148 Nov 05 13:17	29°8'44"33	0°18'18
minimum elong	15142 Apr 25 07:25	15°8'38"53	0°21'30	min. Earth dist.	15148 Nov 06 01:44	29°8'43"42	29.37422 AU
max. Earth dist.	15142 Apr 24 19:10	15°8'37"46	31.36075 AU	direct	15149 Jan 24 17:32	28°8'20"26	
morning rise	15142 May 11 04:12	16°8'13"50			15149 Apr 17 14:05	0°II	
retrograde	15142 Aug 06 18:48	18°8'06"16		evening set	15149 Apr 24 13:57	0°II14'56	
opposition	15142 Oct 23 23:12	16°8'43"45	0°23'13				
min. Earth dist.	15142 Oct 24 11:02	16°8'42"56	29.36123 AU	conjunction	15149 May 10 11:01	0°II49'57	0°16'47
direct	15143 Jan 12 02:37	15°8'19"26		minimum elong	15149 May 10 11:01	0°II49'57	0°15'59
evening set	15143 Apr 11 19:36	17°8'13"40		max. Earth dist.	15149 May 09 21:54	0°II48'44	31.37413 AU
				morning rise	15149 May 26 05:56	1°II24'48	
conjunction	15143 Apr 27 18:03	17°8'48"44	0°21'27	retrograde	15149 Aug 21 20:35	3°II17'19	
minimum elong	15143 Apr 27 18:03	17°8'48"44	0°20'48	opposition	15149 Nov 07 23:53	1°II55'07	0°17'23
max. Earth dist.	15143 Apr 27 04:55	17°8'47"32	31.36171 AU	min. Earth dist.	15149 Nov 08 12:41	1°II54'14	29.37391 AU
morning rise	15143 May 13 14:45	18°8'23"40		direct	15150 Jan 27 07:04	0°II31'01	
retrograde	15143 Aug 09 05:02	20°8'16"05		evening set	15150 Apr 27 01:08	2°II25'32	
opposition	15143 Oct 26 09:24	18°8'53"36	0°22'29				
min. Earth dist.	15143 Oct 26 20:22	18°8'52"50	29.36263 AU	conjunction	15150 May 12 21:46	3°II00'32	0°15'55
direct	15144 Jan 14 12:32	17°8'29"17		minimum elong	15150 May 12 21:46	3°II00'32	0°15'06
evening set	15144 Apr 13 06:38	19°8'23"32		behind sun begin	15150 May 12 19:33	3°II00'20	
				behind sun end	15150 May 12 23:59	3°II00'44	
conjunction	15144 Apr 29 04:58	19°8'58"36	0°20'45	max. Earth dist.	15150 May 12 07:09	2°II59'11	31.37311 AU
minimum elong	15144 Apr 29 04:58	19°8'58"36	0°20'05	morning rise	15150 May 28 16:34	3°II35'23	
max. Earth dist.	15144 Apr 28 16:35	19°8'57"28	31.36350 AU	retrograde	15150 Aug 24 07:51	5°II27'55	
morning rise	15144 May 15 01:16	20°8'33"31		opposition	15150 Nov 10 10:32	4°II05'43	0°16'27
retrograde	15144 Aug 10 13:57	22°8'25"56		min. Earth dist.	15150 Nov 10 23:17	4°II04'50	29.37221 AU
opposition	15144 Oct 27 19:38	21°8'03"29	0°21'42	direct	15151 Jan 29 17:58	2°II41'36	
min. Earth dist.	15144 Oct 28 07:36	21°8'02"40	29.36489 AU	evening set	15151 Apr 29 11:59	4°II36'07	
direct	15145 Jan 15 21:18	19°8'39"12					

conjunction	15151 May 15 08:33	5°II11'07	0°15'01	opposition	15156 Nov 23 02:47	17°II07'11	0°10'22
minimum elong	15151 May 15 08:33	5°II11'07	0°14'12	min. Earth dist.	15156 Nov 23 15:40	17°II06'18	29.34420 AU
behind sun begin	15151 May 15 05:27	5°II10'50		direct	15157 Feb 11 12:20	15°II42'54	
behind sun end	15151 May 15 11:39	5°II11'23		evening set	15157 May 12 04:50	17°II37'22	
max. Earth dist.	15151 May 14 18:36	5°II09'50	31.37059 AU				
morning rise	15151 May 31 02:57	5°II45'57		conjunction	15157 May 27 23:38	18°II12'17	0°09'19
retrograde	15151 Aug 26 15:51	7°II38'28		minimum elong	15157 May 27 23:38	18°II12'17	0°08'24
opposition	15151 Nov 12 21:18	6°II16'15	0°15'29	behind sun begin	15157 May 27 17:56	18°II11'47	
min. Earth dist.	15151 Nov 13 11:01	6°II15'19	29.36889 AU	behind sun end	15157 May 28 05:20	18°II12'48	
direct	15152 Feb 01 05:53	4°II52'08		max. Earth dist.	15157 May 27 09:01	18°II10'56	31.34227 AU
evening set	15152 Apr 30 23:05	6°II46'38		morning rise	15157 Jun 12 16:38	18°II47'04	
				retrograde	15157 Sep 08 04:08	20°II39'37	
conjunction	15152 May 16 19:14	7°II21'37	0°14'07	opposition	15157 Nov 25 13:38	19°II17'14	0°09'18
minimum elong	15152 May 16 19:15	7°II21'37	0°13'16	min. Earth dist.	15157 Nov 26 02:38	19°II16'21	29.34075 AU
behind sun begin	15152 May 16 15:29	7°II21'17		direct	15158 Feb 13 22:39	17°II52'58	
behind sun end	15152 May 16 23:00	7°II21'57		evening set	15158 May 14 15:26	19°II47'29	
max. Earth dist.	15152 May 16 04:03	7°II20'13	31.36668 AU				
morning rise	15152 Jun 01 13:32	7°II56'27		conjunction	15158 May 30 10:07	20°II22'24	0°08'19
retrograde	15152 Aug 28 02:05	9°II48'56		minimum elong	15158 May 30 10:07	20°II22'24	0°07'23
opposition	15152 Nov 14 07:47	8°II26'42	0°14'29	behind sun begin	15158 May 30 04:12	20°II21'52	
min. Earth dist.	15152 Nov 14 20:57	8°II25'48	29.36437 AU	behind sun end	15158 May 30 16:03	20°II22'55	
direct	15153 Feb 02 16:44	7°II02'32		max. Earth dist.	15158 May 29 20:47	20°II21'10	31.33907 AU
evening set	15153 May 03 09:58	8°II57'01		morning rise	15158 Jun 15 02:44	20°II57'10	
				retrograde	15158 Sep 10 14:46	22°II49'46	
conjunction	15153 May 19 05:59	9°II31'59	0°13'11	opposition	15158 Nov 28 00:33	21°II27'25	0°08'13
minimum elong	15153 May 19 05:58	9°II31'59	0°12'19	min. Earth dist.	15158 Nov 28 13:27	21°II26'32	29.33761 AU
behind sun begin	15153 May 19 01:41	9°II31'36		direct	15159 Feb 16 11:33	20°II03'12	
behind sun end	15153 May 19 10:16	9°II32'22		evening set	15159 May 17 02:07	21°II57'45	
max. Earth dist.	15153 May 18 15:16	9°II30'38	31.36163 AU				
morning rise	15153 Jun 03 23:53	10°II06'49		conjunction	15159 Jun 01 20:23	22°II32'39	0°07'18
retrograde	15153 Aug 30 10:52	11°II59'17		minimum elong	15159 Jun 01 20:24	22°II32'39	0°06'21
opposition	15153 Nov 16 18:38	10°II37'01	0°13'29	behind sun begin	15159 Jun 01 14:16	22°II32'07	
min. Earth dist.	15153 Nov 17 08:55	10°II36'02	29.35902 AU	behind sun end	15159 Jun 02 02:31	22°II33'12	
direct	15154 Feb 05 02:36	9°II12'48		max. Earth dist.	15159 Jun 01 06:06	22°II31'20	31.33597 AU
evening set	15154 May 05 20:41	11°II07'15		morning rise	15159 Jun 17 12:57	23°II07'26	
				retrograde	15159 Sep 13 02:35	25°II00'05	
conjunction	15154 May 21 16:21	11°II42'12	0°12'14	opposition	15159 Nov 30 11:29	23°II37'46	0°07'07
minimum elong	15154 May 21 16:21	11°II42'12	0°11'22	min. Earth dist.	15159 Nov 30 23:57	23°II36'55	29.33436 AU
behind sun begin	15154 May 21 11:37	11°II41'47		direct	15160 Feb 18 22:15	22°II13'35	
behind sun end	15154 May 21 21:05	11°II42'37		evening set	15160 May 18 12:49	24°II08'11	
max. Earth dist.	15154 May 21 01:32	11°II40'50	31.35617 AU				
morning rise	15154 Jun 06 10:05	12°II17'01		conjunction	15160 Jun 03 06:59	24°II43'06	0°06'16
retrograde	15154 Sep 01 20:27	14°II09'29		minimum elong	15160 Jun 03 06:59	24°II43'06	0°05'19
opposition	15154 Nov 19 05:18	12°II47'10	0°12'28	behind sun begin	15160 Jun 03 00:43	24°II42'32	
min. Earth dist.	15154 Nov 19 18:27	12°II46'15	29.35350 AU	behind sun end	15160 Jun 03 13:14	24°II43'39	
direct	15155 Feb 07 14:45	11°II22'54		max. Earth dist.	15160 Jun 02 17:37	24°II41'52	31.33233 AU
evening set	15155 May 08 07:25	13°II17'20		morning rise	15160 Jun 18 23:06	25°II17'52	
max. Earth dist.	15155 May 23 12:00	13°II50'55	31.35075 AU	retrograde	15160 Sep 14 11:36	27°II10'35	
				opposition	15160 Dec 01 22:33	25°II48'18	0°06'01
conjunction	15155 May 24 02:49	13°II52'17	0°11'17	min. Earth dist.	15160 Dec 02 11:49	25°II47'24	29.33029 AU
minimum elong	15155 May 24 02:49	13°II52'17	0°10'23	direct	15161 Feb 20 10:02	24°II24'09	
behind sun begin	15155 May 23 21:42	13°II51'50		evening set	15161 May 20 23:41	26°II18'47	
behind sun end	15155 May 24 07:55	13°II52'44					
morning rise	15155 Jun 08 20:16	14°II27'05		conjunction	15161 Jun 05 17:26	26°II53'42	0°05'14
retrograde	15155 Sep 04 06:27	16°II19'34		minimum elong	15161 Jun 05 17:26	26°II53'42	0°04'17
opposition	15155 Nov 21 16:01	14°II57'11	0°11'26	behind sun begin	15161 Jun 05 11:04	26°II53'08	
min. Earth dist.	15155 Nov 22 05:49	14°II56'15	29.34850 AU	behind sun end	15161 Jun 05 23:48	26°II54'16	
direct	15156 Feb 10 00:26	13°II32'54		max. Earth dist.	15161 Jun 05 03:10	26°II52'23	31.32785 AU
evening set	15156 May 09 18:06	15°II27'21		morning rise	15161 Jun 21 09:27	27°II28'28	
				retrograde	15161 Sep 16 22:53	29°II21'15	
conjunction	15156 May 25 13:19	16°II02'17	0°10'18	opposition	15161 Dec 04 09:42	27°II58'59	0°04'54
minimum elong	15156 May 25 13:19	16°II02'17	0°09'24	min. Earth dist.	15161 Dec 04 22:09	27°II58'08	29.32523 AU
behind sun begin	15156 May 25 07:54	16°II01'48		direct	15162 Feb 22 21:03	26°II34'51	
behind sun end	15156 May 25 18:45	16°II02'46		evening set	15162 May 23 10:19	28°II29'32	
max. Earth dist.	15156 May 24 23:13	16°II00'59	31.34614 AU				
morning rise	15156 Jun 10 06:29	16°II37'04		conjunction	15162 Jun 08 03:54	29°II04'26	0°04'11
retrograde	15156 Sep 05 16:36	18°II29'34		minimum elong	15162 Jun 08 03:53	29°II04'26	0°03'14

behind sun begin	15162 Jun 07 21:26	29°11'03"52		morning rise	15167 Jul 04 22:33	10°03'33"24	
behind sun end	15162 Jun 08 10:19	29°11'05"00		retrograde	15167 Sep 30 13:54	12°02'26"31	
max. Earth dist.	15162 Jun 07 14:05	29°11'03"10	31.32206 AU	opposition	15167 Dec 18 05:33	11°02'04"02	-0°01'53
morning rise	15162 Jun 23 19:33	29°11'39"12		min. Earth dist.	15167 Dec 18 18:17	11°02'03"09	29.27106 AU
	15162 Jul 03 13:30	0°00'00"00		direct	15168 Mar 07 16:40	9°02'39"46	
retrograde	15162 Sep 19 08:28	1°02'32"04		evening set	15168 Jun 05 02:06	11°02'34"29	
opposition	15162 Dec 06 21:03	0°02'09"48	0°03'46				
min. Earth dist.	15162 Dec 07 10:40	0°02'08"52	29.31882 AU	conjunction	15168 Jun 20 18:05	12°02'09"21	-0°02'18
	15162 Dec 12 20:38	30°08'11"00		minimum elong	15168 Jun 20 18:06	12°02'09"21	0°03'15
direct	15163 Feb 25 06:59	28°11'45"41		behind sun begin	15168 Jun 20 11:40	12°02'08"47	
	15163 May 06 09:01	0°00'00"00		behind sun end	15168 Jun 21 00:31	12°02'09"56	
evening set	15163 May 25 21:06	0°02'40"23		max. Earth dist.	15168 Jun 20 04:27	12°02'08"06	31.26622 AU
				morning rise	15168 Jul 06 08:39	12°02'44"06	
conjunction	15163 Jun 10 14:24	1°02'15"17	0°03'07	retrograde	15168 Oct 02 01:32	14°02'37"17	
minimum elong	15163 Jun 10 14:24	1°02'15"17	0°02'10	opposition	15168 Dec 19 16:54	13°02'14"45	-0°03'00
behind sun begin	15163 Jun 10 07:56	1°02'14"42		min. Earth dist.	15168 Dec 20 04:36	13°02'13"57	29.26186 AU
behind sun end	15163 Jun 10 20:52	1°02'15"51		direct	15169 Mar 10 03:26	11°02'50"29	
max. Earth dist.	15163 Jun 10 00:21	1°02'13"58	31.31500 AU	evening set	15169 Jun 07 12:30	13°02'45"13	
morning rise	15163 Jun 26 05:55	1°02'50"03					
retrograde	15163 Sep 21 18:32	3°02'42"58		conjunction	15169 Jun 23 04:25	14°02'20"05	-0°03'21
opposition	15163 Dec 09 08:08	2°02'20"41	0°02'38	minimum elong	15169 Jun 23 04:24	14°02'20"05	0°04'18
min. Earth dist.	15163 Dec 09 20:53	2°02'19"49	29.31098 AU	behind sun begin	15169 Jun 22 22:03	14°02'19"31	
direct	15164 Feb 27 19:02	0°02'56"33		behind sun end	15169 Jun 23 10:46	14°02'20"39	
evening set	15164 May 27 07:56	2°02'51"16		max. Earth dist.	15169 Jun 22 16:14	14°02'18"58	31.25751 AU
max. Earth dist.	15164 Jun 11 10:27	3°02'24"50	31.30643 AU	morning rise	15169 Jul 08 18:36	14°02'54"50	
				retrograde	15169 Oct 04 11:10	16°02'48"05	
conjunction	15164 Jun 12 00:59	3°02'26"10	0°02'02	opposition	15169 Dec 22 04:30	15°02'25"32	-0°04'08
minimum elong	15164 Jun 12 00:57	3°02'26"10	0°01'05	min. Earth dist.	15169 Dec 22 16:21	15°02'24"43	29.25367 AU
behind sun begin	15164 Jun 11 18:29	3°02'25"36		direct	15170 Mar 12 15:47	14°02'01"17	
behind sun end	15164 Jun 12 07:25	3°02'26"45		evening set	15170 Jun 09 22:52	15°02'56"02	
morning rise	15164 Jun 27 16:15	4°02'00"56					
retrograde	15164 Sep 23 05:04	5°02'53"55		conjunction	15170 Jun 25 14:26	16°02'30"54	-0°04'24
opposition	15164 Dec 10 19:32	4°02'31"36	0°01'31	minimum elong	15170 Jun 25 14:26	16°02'30"54	0°05'20
min. Earth dist.	15164 Dec 11 09:10	4°02'30"40	29.30184 AU	behind sun begin	15170 Jun 25 08:11	16°02'30"21	
direct	15165 Mar 01 04:34	3°02'07"27		behind sun end	15170 Jun 25 20:40	16°02'31"28	
evening set	15165 May 29 18:31	5°02'02"10		max. Earth dist.	15170 Jun 25 02:06	16°02'29"46	31.24992 AU
				morning rise	15170 Jul 11 04:36	17°02'05"39	
conjunction	15165 Jun 14 11:22	5°02'37"03	0°00'56	retrograde	15170 Oct 06 23:12	18°02'58"59	
minimum elong	15165 Jun 14 11:22	5°02'37"03	0°00'02	opposition	15170 Dec 24 15:58	17°02'36"26	-0°05'15
behind sun begin	15165 Jun 14 06:08	5°02'36"36		min. Earth dist.	15170 Dec 25 02:26	17°02'35"43	29.24642 AU
behind sun end	15165 Jun 14 16:35	5°02'37"31		direct	15171 Mar 15 03:45	16°02'12"13	
max. Earth dist.	15165 Jun 13 21:30	5°02'35"47	31.29676 AU	evening set	15171 Jun 12 09:20	18°02'06"59	
morning rise	15165 Jun 30 02:23	6°02'11"49					
retrograde	15165 Sep 25 15:11	8°02'04"51		conjunction	15171 Jun 28 00:45	18°02'41"52	-0°05'26
opposition	15165 Dec 13 06:51	6°02'42"29	0°00'23	minimum elong	15171 Jun 28 00:45	18°02'41"52	0°06'23
min. Earth dist.	15165 Dec 13 19:48	6°02'41"36	29.29164 AU	behind sun begin	15171 Jun 27 18:39	18°02'41"19	
direct	15166 Mar 03 16:25	5°02'18"17		behind sun end	15171 Jun 28 06:51	18°02'42"24	
desc. node	15166 May 05 07:00	6°02'18"43		max. Earth dist.	15171 Jun 27 13:16	18°02'40"48	31.24287 AU
evening set	15166 Jun 01 05:10	7°02'13"01		morning rise	15171 Jul 13 14:40	19°02'16"37	
				retrograde	15171 Oct 09 09:07	21°02'10"03	
conjunction	15166 Jun 16 21:38	7°02'47"53	-0°00'09	opposition	15171 Dec 27 03:31	19°02'47"30	-0°06'22
minimum elong	15166 Jun 16 21:39	7°02'47"53	0°01'07	min. Earth dist.	15171 Dec 27 14:46	19°02'46"43	29.23955 AU
behind sun begin	15166 Jun 16 15:12	7°02'47"19		direct	15172 Mar 16 14:18	18°02'23"18	
behind sun end	15166 Jun 17 04:07	7°02'48"28		evening set	15172 Jun 13 19:54	20°02'18"07	
max. Earth dist.	15166 Jun 16 07:08	7°02'46"33	31.28635 AU				
morning rise	15166 Jul 02 12:36	8°02'22"39		conjunction	15172 Jun 29 11:05	20°02'52"59	-0°06'28
retrograde	15166 Sep 28 03:01	10°02'15"43		minimum elong	15172 Jun 29 11:05	20°02'52"59	0°07'24
opposition	15166 Dec 15 18:10	8°02'53"17	-0°00'45	behind sun begin	15172 Jun 29 05:11	20°02'52"27	
min. Earth dist.	15166 Dec 16 07:12	8°02'52"24	29.28125 AU	behind sun end	15172 Jun 29 16:59	20°02'53"31	
direct	15167 Mar 06 03:14	7°02'29"03		max. Earth dist.	15172 Jun 28 23:56	20°02'51"57	31.23609 AU
evening set	15167 Jun 03 15:31	9°02'23"46		morning rise	15172 Jul 15 00:51	21°02'27"45	
				retrograde	15172 Oct 10 19:09	23°02'21"16	
conjunction	15167 Jun 19 07:57	9°02'58"39	-0°01'14	opposition	15172 Dec 28 15:12	21°02'58"43	-0°07'28
minimum elong	15167 Jun 19 07:57	9°02'58"39	0°02'12	min. Earth dist.	15172 Dec 29 01:11	21°02'58"02	29.23258 AU
behind sun begin	15167 Jun 19 01:29	9°02'58"04		direct	15173 Mar 19 02:07	20°02'34"34	
behind sun end	15167 Jun 19 14:24	9°02'59"13		evening set	15173 Jun 16 06:27	22°02'29"24	
max. Earth dist.	15167 Jun 18 18:54	9°02'57"26	31.27598 AU				






























































































































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minimum elong	15173 Jul 01 21:20	23°04'16	0°08'25	morning rise	15178 Jul 28 14:33	4°03'01	
behind sun begin	15173 Jul 01 15:39	23°03'46		retrograde	15178 Oct 24 14:57	6°03'05	
behind sun end	15173 Jul 02 03:01	23°04'47		opposition	15179 Jan 11 15:16	5°08'17	-0°13'50
max. Earth dist.	15173 Jul 01 10:05	23°03'14	31.22885 AU	min. Earth dist.	15179 Jan 12 01:03	5°07'37	29.17189 AU
morning rise	15173 Jul 17 10:57	23°39'02		direct	15179 Apr 01 22:35	3°04'07	
retrograde	15173 Oct 13 05:54	25°32'40		evening set	15179 Jun 29 22:16	5°03'59	
opposition	15173 Dec 31 03:08	24°10'06	-0°08'34				
min. Earth dist.	15173 Dec 31 13:42	24°09'23	29.22514 AU	conjunction	15179 Jul 15 12:03	6°03'51	-0°13'23
direct	15174 Mar 21 11:26	22°45'58		minimum elong	15179 Jul 15 12:03	6°03'51	0°14'13
evening set	15174 Jun 18 17:02	24°40'50		behind sun begin	15179 Jul 15 08:54	6°03'34	
				behind sun end	15179 Jul 15 15:11	6°04'08	
conjunction	15174 Jul 04 07:49	25°15'42	-0°08'31	max. Earth dist.	15179 Jul 15 02:02	6°02'55	31.16558 AU
minimum elong	15174 Jul 04 07:48	25°15'42	0°09'25	morning rise	15179 Jul 31 00:55	6°04'38	
behind sun begin	15174 Jul 04 02:24	25°15'13		retrograde	15179 Oct 27 03:29	8°04'47	
behind sun end	15174 Jul 04 13:13	25°16'11		opposition	15180 Jan 14 03:10	7°09'55	-0°14'49
max. Earth dist.	15174 Jul 03 21:24	25°14'44	31.22102 AU	min. Earth dist.	15180 Jan 14 11:33	7°09'21	29.15940 AU
morning rise	15174 Jul 19 21:11	25°50'28		direct	15180 Apr 03 11:15	5°05'43	
retrograde	15174 Oct 15 16:34	27°44'12		evening set	15180 Jul 01 08:50	7°05'35	
opposition	15175 Jan 02 14:56	26°21'38	-0°09'39				
min. Earth dist.	15175 Jan 03 00:49	26°20'57	29.21675 AU	conjunction	15180 Jul 16 22:28	8°02'58	-0°14'19
direct	15175 Mar 23 23:09	24°57'30		minimum elong	15180 Jul 16 22:28	8°02'58	0°15'07
evening set	15175 Jun 21 03:46	26°52'23		behind sun begin	15180 Jul 16 20:09	8°02'51	
				behind sun end	15180 Jul 17 00:48	8°02'54	
conjunction	15175 Jul 06 18:13	27°27'15	-0°09'31	max. Earth dist.	15180 Jul 16 13:26	8°02'47	31.15330 AU
minimum elong	15175 Jul 06 18:13	27°27'15	0°10'25	morning rise	15180 Aug 01 11:09	9°00'16	
behind sun begin	15175 Jul 06 13:08	27°26'48		retrograde	15180 Oct 28 13:48	10°05'43	
behind sun end	15175 Jul 06 23:18	27°27'42		opposition	15181 Jan 15 15:28	9°03'35	-0°15'48
max. Earth dist.	15175 Jul 06 06:58	27°26'13	31.21208 AU	min. Earth dist.	15181 Jan 16 00:15	9°03'09	29.14763 AU
morning rise	15175 Jul 22 07:36	28°02'02		direct	15181 Apr 05 22:37	8°07'22	
retrograde	15175 Oct 18 04:54	29°55'52		evening set	15181 Jul 03 19:16	10°02'15	
opposition	15176 Jan 05 02:57	28°33'15	-0°10'43				
min. Earth dist.	15176 Jan 05 13:01	28°32'34	29.20727 AU	conjunction	15181 Jul 19 08:45	10°03'07	-0°15'13
direct	15176 Mar 25 09:45	27°09'08		minimum elong	15181 Jul 19 08:45	10°03'07	0°16'01
evening set	15176 Jun 22 14:25	29°04'01		behind sun begin	15181 Jul 19 07:55	10°03'03	
				behind sun end	15181 Jul 19 09:34	10°03'12	
conjunction	15176 Jul 08 04:49	29°38'54	-0°10'31	max. Earth dist.	15181 Jul 19 00:32	10°03'21	31.14210 AU
minimum elong	15176 Jul 08 04:49	29°38'53	0°11'23	morning rise	15181 Aug 03 21:20	11°01'56	
behind sun begin	15176 Jul 08 00:06	29°38'28		retrograde	15181 Oct 31 00:10	13°06'17	
behind sun end	15176 Jul 08 09:32	29°39'19		opposition	15182 Jan 18 03:37	11°04'19	-0°16'45
max. Earth dist.	15176 Jul 07 18:44	29°37'58	31.20188 AU	min. Earth dist.	15182 Jan 18 10:39	11°04'51	29.13694 AU
	15176 Jul 17 13:53	0°0		direct	15182 Apr 08 10:49	10°09'08	
morning rise	15176 Jul 23 17:52	0°03'40		evening set	15182 Jul 06 05:49	12°04'02	
retrograde	15176 Oct 19 15:56	2°07'35					
opposition	15177 Jan 06 15:01	0°04'56	-0°11'46	conjunction	15182 Jul 21 19:05	12°04'55	-0°16'06
min. Earth dist.	15177 Jan 07 01:05	0°04'15	29.19635 AU	minimum elong	15182 Jul 21 19:06	12°04'55	0°16'52
	15177 Feb 04 12:30	30°0		max. Earth dist.	15182 Jul 21 11:06	12°04'10	31.13194 AU
direct	15177 Mar 27 22:34	29°20'48		morning rise	15182 Aug 06 07:40	13°02'34	
	15177 May 16 11:25	0°0			15182 Sep 30 09:55	15°0	
evening set	15177 Jun 25 01:12	1°03'42		retrograde	15182 Nov 02 11:15	15°03'13	
					15182 Dec 06 09:36	15°03'0	
conjunction	15177 Jul 10 15:15	1°05'34	-0°11'29	opposition	15183 Jan 20 15:49	13°05'51	-0°17'41
minimum elong	15177 Jul 10 15:15	1°05'34	0°12'22	min. Earth dist.	15183 Jan 20 23:00	13°05'45	29.12739 AU
behind sun begin	15177 Jul 10 10:58	1°05'11		direct	15183 Apr 10 20:07	12°03'05	
behind sun end	15177 Jul 10 19:32	1°05'57		evening set	15183 Jul 08 16:19	14°02'61	
max. Earth dist.	15177 Jul 10 04:16	1°04'33	31.19049 AU		15183 Jul 23 19:54	15°0	
morning rise	15177 Jul 26 04:21	2°02'52					
retrograde	15177 Oct 22 04:27	4°09'21		conjunction	15183 Jul 24 05:36	15°00'54	-0°16'57
opposition	15178 Jan 09 03:06	2°05'37	-0°12'49	minimum elong	15183 Jul 24 05:36	15°00'54	0°17'43
min. Earth dist.	15178 Jan 09 12:26	2°05'59	29.18449 AU	max. Earth dist.	15183 Jul 23 22:56	15°00'17	31.12283 AU
direct	15178 Mar 30 09:32	1°03'28		morning rise	15183 Aug 08 18:01	15°03'54	
evening set	15178 Jun 27 11:38	3°02'21		retrograde	15183 Nov 04 22:13	17°03'02	
				opposition	15184 Jan 23 04:06	16°07'22	-0°18'36
conjunction	15178 Jul 13 01:41	4°02'13	-0°12'27	min. Earth dist.	15184 Jan 23 10:09	16°06'58	29.11847 AU
minimum elong	15178 Jul 13 01:41	4°02'13	0°13'18		15184 Mar 10 16:57	15°03'0	
behind sun begin	15178 Jul 12 21:54	4°01'53		direct	15184 Apr 12 07:49	14°04'16	
behind sun end	15178 Jul 13 05:28	4°02'34			15184 May 14 05:04	15°0	

evening set	15184 Jul 10 02:58	16°Ω38'14		max. Earth dist.	15190 Aug 08 03:48	0°൬30'04	31.05102 AU
				morning rise	15190 Aug 23 20:32	1°൬05'26	
conjunction	15184 Jul 25 15:56	17°Ω13'07 -0°17'48		retrograde	15190 Nov 20 12:21	3°൬00'52	
minimum elong	15184 Jul 25 15:56	17°Ω13'07 0°18'31		opposition	15191 Feb 07 20:35	1°൬37'36 -0°24'06	
max. Earth dist.	15184 Jul 25 08:54	17°Ω12'28 31.11415 AU		min. Earth dist.	15191 Feb 08 00:14	1°൬37'21 29.04411 AU	
morning rise	15184 Aug 10 04:25	17°Ω47'59		direct	15191 Apr 28 19:56	0°൬13'35	
retrograde	15184 Nov 06 10:47	19°Ω42'44		evening set	15191 Jul 26 06:43	2°൬08'35	
opposition	15185 Jan 24 16:32	18°Ω19'45 -0°19'29					
min. Earth dist.	15185 Jan 24 22:20	18°Ω19'21 29.10997 AU		conjunction	15191 Aug 10 19:05	2°൬43'32 -0°22'51	
direct	15185 Apr 14 17:56	16°Ω55'42		minimum elong	15191 Aug 10 19:05	2°൬43'32 0°23'23	
evening set	15185 Jul 12 13:33	18°Ω50'41		max. Earth dist.	15191 Aug 10 14:28	2°൬43'06 31.03707 AU	
				morning rise	15191 Aug 26 07:25	3°൬18'29	
conjunction	15185 Jul 28 02:34	19°Ω25'36 -0°18'36		retrograde	15191 Nov 23 00:11	5°൬13'59	
minimum elong	15185 Jul 28 02:34	19°Ω25'36 0°19'19		opposition	15192 Feb 10 09:27	3°൬50'38 -0°24'45	
max. Earth dist.	15185 Jul 27 21:08	19°Ω25'06 31.10562 AU		min. Earth dist.	15192 Feb 10 13:27	3°൬50'21 29.03017 AU	
morning rise	15185 Aug 12 14:50	20°Ω00'28		direct	15192 Apr 30 07:18	2°൬26'34	
retrograde	15185 Nov 08 22:24	21°Ω55'22		evening set	15192 Jul 27 17:24	4°൬21'31	
opposition	15186 Jan 27 05:06	20°Ω32'22 -0°20'20					
min. Earth dist.	15186 Jan 27 10:39	20°Ω31'59 29.10129 AU		conjunction	15192 Aug 12 05:49	4°൬56'28 -0°23'26	
direct	15186 Apr 17 05:39	19°Ω08'22		minimum elong	15192 Aug 12 05:49	4°൬56'28 0°23'56	
evening set	15186 Jul 15 00:17	21°Ω03'23		max. Earth dist.	15192 Aug 12 02:39	4°൬56'11 31.02325 AU	
				morning rise	15192 Aug 27 18:02	5°൬31'26	
conjunction	15186 Jul 30 13:02	21°Ω38'18 -0°19'23		retrograde	15192 Nov 24 10:36	7°൬27'01	
minimum elong	15186 Jul 30 13:02	21°Ω38'18 0°20'03		opposition	15193 Feb 11 22:15	6°൬03'34 -0°25'22	
max. Earth dist.	15186 Jul 30 06:58	21°Ω37'44 31.09677 AU		min. Earth dist.	15193 Feb 12 00:55	6°൬03'23 29.01659 AU	
morning rise	15186 Aug 15 01:27	22°Ω13'11		direct	15193 May 02 20:25	4°൬39'28	
retrograde	15186 Nov 11 11:43	24°Ω08'13		evening set	15193 Jul 30 04:17	6°൬34'24	
opposition	15187 Jan 29 17:39	22°Ω45'12 -0°21'09					
min. Earth dist.	15187 Jan 29 22:24	22°Ω44'53 29.09213 AU		conjunction	15193 Aug 14 16:30	7°൬09'21 -0°24'00	
direct	15187 Apr 19 15:53	21°Ω21'13		minimum elong	15193 Aug 14 16:30	7°൬09'21 0°24'28	
evening set	15187 Jul 17 11:05	23°Ω16'17		max. Earth dist.	15193 Aug 14 13:06	7°൬09'02 31.01014 AU	
				morning rise	15193 Aug 30 04:53	7°൬44'20	
conjunction	15187 Aug 01 23:52	23°Ω51'12 -0°20'09		retrograde	15193 Nov 26 22:27	9°൬40'01	
minimum elong	15187 Aug 01 23:52	23°Ω51'12 0°20'47		opposition	15194 Feb 14 11:05	8°൬16'29 -0°25'57	
max. Earth dist.	15187 Aug 01 18:50	23°Ω50'44 31.08705 AU		min. Earth dist.	15194 Feb 14 13:15	8°൬16'20 29.00415 AU	
morning rise	15187 Aug 17 12:04	24°Ω26'06		direct	15194 May 05 06:42	6°൬52'22	
retrograde	15187 Nov 13 23:43	26°Ω21'15		evening set	15194 Aug 01 14:56	8°൬47'17	
opposition	15188 Feb 01 06:19	24°Ω58'13 -0°21'56					
min. Earth dist.	15188 Feb 01 11:37	24°Ω57'51 29.08188 AU		conjunction	15194 Aug 17 03:18	9°൬22'15 -0°24'31	
direct	15188 Apr 21 05:11	23°Ω34'16		minimum elong	15194 Aug 17 03:18	9°൬22'15 0°24'57	
evening set	15188 Jul 18 22:05	25°Ω29'20		max. Earth dist.	15194 Aug 17 01:47	9°൬22'06 30.99823 AU	
				morning rise	15194 Sep 01 15:35	9°൬57'14	
conjunction	15188 Aug 03 10:39	26°Ω04'15 -0°20'52		retrograde	15194 Nov 29 09:17	11°൬53'02	
minimum elong	15188 Aug 03 10:39	26°Ω04'15 0°21'28		opposition	15195 Feb 16 23:55	10°൬29'26 -0°26'29	
max. Earth dist.	15188 Aug 03 05:13	26°Ω03'45 31.07631 AU		min. Earth dist.	15195 Feb 17 01:26	10°൬29'20 28.99276 AU	
morning rise	15188 Aug 18 22:56	26°Ω39'10		direct	15195 May 07 18:26	9°൬05'20	
retrograde	15188 Nov 15 13:51	28°Ω34'26		evening set	15195 Aug 04 01:51	11°൬00'15	
opposition	15189 Feb 02 19:04	27°Ω11'20 -0°22'42					
min. Earth dist.	15189 Feb 02 23:10	27°Ω11'03 29.07047 AU		conjunction	15195 Aug 19 14:02	11°൬35'13 -0°25'00	
direct	15189 Apr 23 18:23	25°Ω47'23		minimum elong	15195 Aug 19 14:02	11°൬35'13 0°25'24	
evening set	15189 Jul 21 08:54	27°Ω42'27		max. Earth dist.	15195 Aug 19 12:13	11°൬35'03 30.98748 AU	
				morning rise	15195 Sep 04 02:31	12°൬10'14	
conjunction	15189 Aug 05 21:25	28°Ω17'23 -0°21'34		retrograde	15195 Dec 01 22:47	14°൬06'09	
minimum elong	15189 Aug 05 21:26	28°Ω17'23 0°22'09		opposition	15196 Feb 19 12:40	12°൬42'31 -0°26'59	
max. Earth dist.	15189 Aug 05 16:30	28°Ω16'55 31.06417 AU		min. Earth dist.	15196 Feb 19 13:00	12°൬42'29 28.98256 AU	
morning rise	15189 Aug 21 09:39	28°Ω52'18		direct	15196 May 09 04:48	11°൬18'26	
	15189 Sep 24 13:54	0°൬		evening set	15196 Aug 05 12:40	13°൬13'22	
retrograde	15189 Nov 18 00:57	0°൬47'40					
	15190 Jan 13 23:40	30°ꣳΩ		conjunction	15196 Aug 21 00:58	13°൬48'21 -0°25'28	
opposition	15190 Feb 05 08:00	29°Ω24'30 -0°23'25		minimum elong	15196 Aug 21 00:58	13°൬48'21 0°25'49	
min. Earth dist.	15190 Feb 05 12:56	29°Ω24'10 29.05777 AU		max. Earth dist.	15196 Aug 21 00:41	13°൬48'20 30.97768 AU	
direct	15190 Apr 26 06:23	28°Ω00'31		morning rise	15196 Sep 05 13:22	14°൬23'23	
evening set	15190 Jul 23 19:48	29°Ω55'33		retrograde	15196 Dec 03 10:57	16°൬19'26	
	15190 Jul 25 19:56	0°൬		opposition	15197 Feb 21 01:42	14°൬55'46 -0°27'27	
				min. Earth dist.	15197 Feb 21 02:03	14°൬55'45 28.97315 AU	
conjunction	15190 Aug 08 08:18	0°൬30'30 -0°22'13		direct	15197 May 11 17:18	13°൬31'44	
minimum elong	15190 Aug 08 08:18	0°൬30'30 0°22'46		evening set	15197 Aug 07 23:31	15°൬26'41	

conjunction	15197 Aug 23 11:44	16° 00 01'41	-0°25'52	min. Earth dist.	15204 Mar 08 19:02	0° 00 34'03	28.90100 AU
minimum elong	15197 Aug 23 11:44	16° 00 01'41	0°26'12		15204 Mar 29 23:53	30° 00 00	
max. Earth dist.	15197 Aug 23 11:33	16° 00 01'40	30.96868 AU	direct	15204 May 27 06:50	29° 00 09'57	
morning rise	15197 Sep 08 00:20	16° 00 36'44			15204 Jul 21 19:44	0° 00 00	
retrograde	15197 Dec 06 01:24	18° 00 32'55		evening set	15204 Aug 23 05:51	1° 00 04'53	
opposition	15198 Feb 23 14:38	17° 00 09'14	-0°27'52				
min. Earth dist.	15198 Feb 23 13:30	17° 00 09'19	28.96430 AU	conjunction	15204 Sep 07 18:20	1° 00 39'59	-0°27'39
direct	15198 May 14 05:35	15° 00 45'15		minimum elong	15204 Sep 07 18:20	1° 00 39'59	0°27'43
evening set	15198 Aug 10 10:34	17° 00 40'14		max. Earth dist.	15204 Sep 07 20:38	1° 00 40'12	30.89493 AU
				morning rise	15204 Sep 23 07:47	2° 00 15'12	
conjunction	15198 Aug 25 22:49	18° 00 15'15	-0°26'15	retrograde	15204 Dec 21 15:52	4° 00 12'09	
minimum elong	15198 Aug 25 22:49	18° 00 15'15	0°26'32	opposition	15205 Mar 11 10:42	2° 00 48'06	-0°29'36
max. Earth dist.	15198 Aug 25 23:24	18° 00 15'18	30.95982 AU	min. Earth dist.	15205 Mar 11 07:11	2° 00 48'20	28.88912 AU
morning rise	15198 Sep 10 11:28	18° 00 50'19		direct	15205 May 29 17:52	1° 00 24'08	
retrograde	15198 Dec 08 13:32	20° 00 46'39		evening set	15205 Aug 25 16:53	3° 00 19'02	
opposition	15199 Feb 26 03:36	19° 00 22'57	-0°28'15				
min. Earth dist.	15199 Feb 26 03:11	19° 00 22'59	28.95548 AU	conjunction	15205 Sep 10 05:35	3° 00 54'09	-0°27'45
direct	15199 May 16 17:01	17° 00 59'00		minimum elong	15205 Sep 10 05:35	3° 00 54'09	0°27'47
evening set	15199 Aug 12 21:41	19° 00 54'01		max. Earth dist.	15205 Sep 10 09:26	3° 00 54'31	30.88337 AU
				morning rise	15205 Sep 25 19:04	4° 00 29'23	
conjunction	15199 Aug 28 09:59	20° 00 29'03	-0°26'35	retrograde	15205 Dec 24 03:21	6° 00 26'24	
minimum elong	15199 Aug 28 09:59	20° 00 29'03	0°26'51	opposition	15206 Mar 13 23:54	5° 00 02'16	-0°29'41
max. Earth dist.	15199 Aug 28 11:09	20° 00 29'09	30.95091 AU	min. Earth dist.	15206 Mar 13 20:19	5° 00 02'31	28.87813 AU
morning rise	15199 Sep 12 22:42	21° 00 04'09		direct	15206 Jun 01 06:21	3° 00 38'17	
retrograde	15199 Dec 11 02:44	23° 00 00'36		evening set	15206 Aug 28 04:09	5° 00 33'09	
opposition	15200 Feb 28 16:39	21° 00 36'53	-0°28'35				
min. Earth dist.	15200 Feb 28 14:54	21° 00 37'01	28.94625 AU	conjunction	15206 Sep 12 16:52	6° 00 08'17	-0°27'48
direct	15200 May 18 06:37	20° 00 12'59		minimum elong	15206 Sep 12 16:52	6° 00 08'17	0°27'47
evening set	15200 Aug 14 08:52	22° 00 08'01		max. Earth dist.	15206 Sep 12 20:53	6° 00 08'40	30.87311 AU
				morning rise	15206 Sep 28 06:36	6° 00 43'32	
conjunction	15200 Aug 29 21:05	22° 00 43'04	-0°26'53	retrograde	15206 Dec 26 17:12	8° 00 40'38	
minimum elong	15200 Aug 29 21:06	22° 00 43'04	0°27'06	opposition	15207 Mar 16 12:49	7° 00 16'26	-0°29'43
max. Earth dist.	15200 Aug 29 22:02	22° 00 43'09	30.94128 AU	min. Earth dist.	15207 Mar 16 07:34	7° 00 16'48	28.86858 AU
morning rise	15200 Sep 14 09:57	23° 00 18'11		direct	15207 Jun 03 17:55	5° 00 52'26	
retrograde	15200 Dec 12 16:11	25° 00 14'47		evening set	15207 Aug 30 15:25	7° 00 47'19	
opposition	15201 Mar 02 06:00	23° 00 51'02	-0°28'52				
min. Earth dist.	15201 Mar 02 04:45	23° 00 51'07	28.93629 AU	conjunction	15207 Sep 15 04:15	8° 00 22'28	-0°27'48
direct	15201 May 20 18:19	22° 00 27'09		minimum elong	15207 Sep 15 04:15	8° 00 22'28	0°27'46
evening set	15201 Aug 16 20:05	24° 00 22'10		max. Earth dist.	15207 Sep 15 09:15	8° 00 22'56	30.86421 AU
				morning rise	15207 Sep 30 18:06	8° 00 57'44	
conjunction	15201 Sep 01 08:30	24° 00 57'15	-0°27'08	retrograde	15207 Dec 29 05:37	10° 00 54'55	
minimum elong	15201 Sep 01 08:30	24° 00 57'15	0°27'20	opposition	15208 Mar 18 02:04	9° 00 30'40	-0°29'42
max. Earth dist.	15201 Sep 01 10:28	24° 00 57'26	30.93083 AU	min. Earth dist.	15208 Mar 17 21:06	9° 00 31'00	28.86045 AU
morning rise	15201 Sep 16 21:21	25° 00 32'24		direct	15208 Jun 05 05:18	8° 00 06'41	
retrograde	15201 Dec 15 03:28	27° 00 29'05		evening set	15208 Sep 01 02:33	10° 00 01'32	
opposition	15202 Mar 04 19:07	26° 00 05'17	-0°29'07				
min. Earth dist.	15202 Mar 04 16:57	26° 00 05'26	28.92526 AU	conjunction	15208 Sep 16 15:32	10° 00 36'42	-0°27'47
direct	15202 May 23 07:44	24° 00 41'25		minimum elong	15208 Sep 16 15:32	10° 00 36'42	0°27'42
evening set	15202 Aug 19 07:25	26° 00 36'25		max. Earth dist.	15208 Sep 16 21:32	10° 00 37'16	30.85686 AU
				morning rise	15208 Oct 02 05:33	11° 00 11'59	
conjunction	15202 Sep 03 19:45	27° 00 11'30	-0°27'21	retrograde	15208 Dec 30 19:50	13° 00 09'16	
minimum elong	15202 Sep 03 19:45	27° 00 11'30	0°27'29	opposition	15209 Mar 20 15:12	11° 00 44'59	-0°29'39
max. Earth dist.	15202 Sep 03 20:58	27° 00 11'37	30.91935 AU	min. Earth dist.	15209 Mar 20 08:30	11° 00 45'27	28.85370 AU
morning rise	15202 Sep 19 08:56	27° 00 46'41		direct	15209 Jun 07 19:25	10° 00 21'02	
retrograde	15202 Dec 17 15:38	29° 00 43'28		evening set	15209 Sep 03 13:56	12° 00 15'53	
opposition	15203 Mar 07 08:22	28° 00 19'36	-0°29'20				
min. Earth dist.	15203 Mar 07 06:15	28° 00 19'45	28.91340 AU	conjunction	15209 Sep 19 02:57	12° 00 51'04	-0°27'42
direct	15203 May 25 18:40	26° 00 55'42		minimum elong	15209 Sep 19 02:58	12° 00 51'04	0°27'36
evening set	15203 Aug 21 18:34	28° 00 50'40		max. Earth dist.	15209 Sep 19 09:07	12° 00 51'39	30.85068 AU
				morning rise	15209 Oct 04 17:15	13° 00 26'23	
conjunction	15203 Sep 06 07:08	29° 00 25'47	-0°27'31	retrograde	15210 Jan 02 09:54	15° 00 23'45	
minimum elong	15203 Sep 06 07:09	29° 00 25'47	0°27'38	opposition	15210 Mar 23 04:23	13° 00 59'26	-0°29'32
max. Earth dist.	15203 Sep 06 09:50	29° 00 26'02	30.90714 AU	min. Earth dist.	15210 Mar 22 21:59	13° 00 59'53	28.84812 AU
morning rise	15203 Sep 21 20:16	0° 00 00'58		direct	15210 Jun 10 07:15	12° 00 35'31	
	15203 Sep 21 09:51	0° 00 00		evening set	15210 Sep 06 01:15	14° 00 30'22	
retrograde	15203 Dec 20 02:27	1° 00 57'50					
opposition	15204 Mar 08 21:31	0° 00 33'53	-0°29'29	conjunction	15210 Sep 21 14:35	15° 00 05'34	-0°27'35

minimum elong	15210 Sep 21 14:35	15° <u>05</u> '34	0°27'26	min. Earth dist.	15217 Apr 07 17:09	29° <u>04</u> '35	28.80639 AU
max. Earth dist.	15210 Sep 21 22:05	15° <u>06</u> '17	30.84550 AU	direct	15217 Jun 25 19:57	28° <u>02</u> '09	
morning rise	15210 Oct 07 04:58	15° <u>04</u> '55			15217 Sep 14 16:24	0° <u>00</u> '	
retrograde	15211 Jan 04 21:54	17° <u>03</u> '22		evening set	15217 Sep 21 11:12	0° <u>00</u> '14'52	
opposition	15211 Mar 25 17:33	16° <u>01</u> '40'3	-0°29'23				
min. Earth dist.	15211 Mar 25 09:57	16° <u>01</u> '43'5	28.84313 AU	conjunction	15217 Oct 07 01:43	0° <u>00</u> '50'11	-0°25'35
direct	15211 Jun 12 20:35	14° <u>01</u> '50'10		minimum elong	15217 Oct 07 01:43	0° <u>00</u> '50'11	0°25'12
evening set	15211 Sep 08 12:50	16° <u>01</u> '45'01		max. Earth dist.	15217 Oct 07 11:10	0° <u>00</u> '51'04	30.80291 AU
				morning rise	15217 Oct 22 17:44	1° <u>00</u> '25'41	
conjunction	15211 Sep 24 02:06	17° <u>01</u> '20'15	-0°27'25	retrograde	15218 Jan 20 16:58	3° <u>00</u> '23'34	
minimum elong	15211 Sep 24 02:06	17° <u>01</u> '20'15	0°27'15	opposition	15218 Apr 10 14:29	1° <u>00</u> '58'58	-0°27'05
max. Earth dist.	15211 Sep 24 09:05	17° <u>01</u> '20'54	30.84069 AU	min. Earth dist.	15218 Apr 10 04:42	1° <u>00</u> '59'39	28.79977 AU
morning rise	15211 Oct 09 16:49	17° <u>01</u> '55'37		direct	15218 Jun 28 09:54	0° <u>00</u> '35'05	
retrograde	15212 Jan 07 11:23	19° <u>01</u> '53'10		evening set	15218 Sep 23 23:02	2° <u>00</u> '29'46	
opposition	15212 Mar 27 06:52	18° <u>01</u> '28'50	-0°29'11				
min. Earth dist.	15212 Mar 26 23:17	18° <u>01</u> '29'21	28.83844 AU	conjunction	15218 Oct 09 13:39	3° <u>00</u> '05'07	-0°25'09
direct	15212 Jun 14 08:00	17° <u>01</u> '05'00		minimum elong	15218 Oct 09 13:39	3° <u>00</u> '05'07	0°24'42
evening set	15212 Sep 10 00:24	18° <u>01</u> '59'50		max. Earth dist.	15218 Oct 09 23:08	3° <u>00</u> '06'00	30.79674 AU
				morning rise	15218 Oct 25 06:00	3° <u>00</u> '40'38	
conjunction	15212 Sep 25 13:59	19° <u>01</u> '35'05	-0°27'13	retrograde	15219 Jan 23 06:46	5° <u>00</u> '38'35	
minimum elong	15212 Sep 25 13:59	19° <u>01</u> '35'05	0°26'59	opposition	15219 Apr 13 03:43	4° <u>00</u> '13'55	-0°26'35
max. Earth dist.	15212 Sep 25 22:25	19° <u>01</u> '35'53	30.83588 AU	min. Earth dist.	15219 Apr 12 18:18	4° <u>00</u> '14'34	28.79430 AU
morning rise	15212 Oct 11 04:43	20° <u>01</u> '10'28		direct	15219 Jun 30 21:49	2° <u>00</u> '50'01	
retrograde	15213 Jan 08 23:26	22° <u>01</u> '08'07		evening set	15219 Sep 26 10:40	4° <u>00</u> '44'42	
opposition	15213 Mar 29 20:13	20° <u>01</u> '43'46	-0°28'57				
min. Earth dist.	15213 Mar 29 12:22	20° <u>01</u> '44'19	28.83340 AU	conjunction	15219 Oct 12 01:36	5° <u>00</u> '20'03	-0°24'40
direct	15213 Jun 16 20:50	19° <u>01</u> '19'58		minimum elong	15219 Oct 12 01:37	5° <u>00</u> '20'03	0°24'12
evening set	15213 Sep 12 12:09	21° <u>01</u> '14'48		max. Earth dist.	15219 Oct 12 12:29	5° <u>00</u> '21'05	30.79192 AU
				morning rise	15219 Oct 27 18:04	5° <u>00</u> '55'36	
conjunction	15213 Sep 28 01:46	21° <u>01</u> '50'04	-0°26'59	retrograde	15220 Jan 25 19:22	7° <u>00</u> '53'35	
minimum elong	15213 Sep 28 01:46	21° <u>01</u> '50'04	0°26'43	opposition	15220 Apr 14 16:48	6° <u>00</u> '28'54	-0°26'03
max. Earth dist.	15213 Sep 28 09:24	21° <u>01</u> '50'47	30.83057 AU	min. Earth dist.	15220 Apr 14 05:58	6° <u>00</u> '29'39	28.79012 AU
morning rise	15213 Oct 13 16:54	22° <u>01</u> '25'29		direct	15220 Jul 02 11:21	5° <u>00</u> '05'01	
retrograde	15214 Jan 11 13:06	24° <u>01</u> '23'12		evening set	15220 Sep 27 22:33	6° <u>00</u> '59'41	
opposition	15214 Apr 01 09:34	22° <u>01</u> '58'50	-0°28'40				
min. Earth dist.	15214 Apr 01 01:14	22° <u>01</u> '59'24	28.82771 AU	conjunction	15220 Oct 13 13:33	7° <u>00</u> '35'04	-0°24'09
direct	15214 Jun 19 08:14	21° <u>01</u> '35'01		minimum elong	15220 Oct 13 13:33	7° <u>00</u> '35'04	0°23'38
evening set	15214 Sep 14 23:57	23° <u>01</u> '29'51		max. Earth dist.	15220 Oct 14 00:02	7° <u>00</u> '36'03	30.78851 AU
				morning rise	15220 Oct 29 06:27	8° <u>00</u> '10'38	
conjunction	15214 Sep 30 13:51	24° <u>01</u> '05'07	-0°26'41	retrograde	15221 Jan 27 09:50	10° <u>00</u> '08'40	
minimum elong	15214 Sep 30 13:51	24° <u>01</u> '05'07	0°26'23	opposition	15221 Apr 17 05:58	8° <u>00</u> '43'58	-0°25'28
max. Earth dist.	15214 Sep 30 22:23	24° <u>01</u> '05'55	30.82430 AU	min. Earth dist.	15221 Apr 16 19:00	8° <u>00</u> '44'43	28.78753 AU
morning rise	15214 Oct 16 05:05	24° <u>01</u> '40'34		direct	15221 Jul 04 23:17	7° <u>00</u> '20'07	
retrograde	15215 Jan 14 00:20	26° <u>01</u> '38'20		evening set	15221 Sep 30 10:15	9° <u>00</u> '14'46	
opposition	15215 Apr 03 22:50	25° <u>01</u> '13'55	-0°28'20				
min. Earth dist.	15215 Apr 03 14:59	25° <u>01</u> '14'28	28.82096 AU	conjunction	15221 Oct 16 01:41	9° <u>00</u> '50'10	-0°23'35
direct	15215 Jun 21 20:30	23° <u>01</u> '50'07		minimum elong	15221 Oct 16 01:41	9° <u>00</u> '50'10	0°23'04
evening set	15215 Sep 17 11:49	25° <u>01</u> '44'54		max. Earth dist.	15221 Oct 16 13:50	9° <u>00</u> '51'19	30.78654 AU
				morning rise	15221 Oct 31 18:42	10° <u>00</u> '25'46	
conjunction	15215 Oct 03 01:51	26° <u>01</u> '20'11	-0°26'22	retrograde	15222 Jan 29 22:24	12° <u>00</u> '23'51	
minimum elong	15215 Oct 03 01:51	26° <u>01</u> '20'11	0°26'02	opposition	15222 Apr 19 19:04	10° <u>00</u> '59'09	-0°24'51
max. Earth dist.	15215 Oct 03 09:57	26° <u>01</u> '20'57	30.81732 AU	min. Earth dist.	15222 Apr 19 07:31	10° <u>00</u> '59'57	28.78609 AU
morning rise	15215 Oct 18 17:25	26° <u>01</u> '55'39		direct	15222 Jul 07 12:37	9° <u>00</u> '35'20	
retrograde	15216 Jan 16 14:20	28° <u>01</u> '53'28		evening set	15222 Oct 02 22:16	11° <u>00</u> '30'00	
opposition	15216 Apr 05 12:07	27° <u>01</u> '29'00	-0°27'57				
min. Earth dist.	15216 Apr 05 03:08	27° <u>01</u> '29'37	28.81369 AU	conjunction	15222 Oct 18 13:46	12° <u>00</u> '05'25	-0°23'00
direct	15216 Jun 23 08:09	26° <u>01</u> '05'09		minimum elong	15222 Oct 18 13:46	12° <u>00</u> '05'25	0°22'25
evening set	15216 Sep 18 23:28	27° <u>01</u> '59'54		max. Earth dist.	15222 Oct 19 01:22	12° <u>00</u> '06'31	30.78571 AU
				morning rise	15222 Nov 03 07:13	12° <u>00</u> '41'02	
conjunction	15216 Oct 04 13:43	28° <u>01</u> '35'13	-0°26'00	retrograde	15223 Feb 01 11:47	14° <u>00</u> '39'10	
minimum elong	15216 Oct 04 13:43	28° <u>01</u> '35'13	0°25'37	opposition	15223 Apr 22 08:05	13° <u>00</u> '14'30	-0°24'11
max. Earth dist.	15216 Oct 04 22:29	28° <u>01</u> '36'02	30.80989 AU	min. Earth dist.	15223 Apr 21 19:58	13° <u>00</u> '15'20	28.78574 AU
morning rise	15216 Oct 20 05:29	29° <u>01</u> '10'41		direct	15223 Jul 09 23:55	11° <u>00</u> '50'43	
	15216 Nov 12 20:37	0° <u>00</u> '		evening set	15223 Oct 05 10:14	13° <u>00</u> '45'23	
retrograde	15217 Jan 18 02:40	1° <u>00</u> '08'34					
	15217 Mar 29 08:56	30° <u>00</u> ' <u>00</u> '		conjunction	15223 Oct 21 02:06	14° <u>00</u> '20'49	-0°22'22
opposition	15217 Apr 08 01:29	29° <u>01</u> '44'01	-0°27'32	minimum elong	15223 Oct 21 02:06	14° <u>00</u> '20'49	0°21'47

max. Earth dist.	15223 Oct 21 14:57	14° ℳ 22'02	30.78565 AU		15230 Apr 01 07:45	30° ℳ	
morning rise	15223 Nov 05 19:40	14° ℳ 56'28		opposition	15230 May 08 03:42	29° ℳ 03'46	-0°18'36
	15223 Nov 07 09:57	15° ℳ		min. Earth dist.	15230 May 07 15:29	29° ℳ 04'37	28.77749 AU
retrograde	15224 Feb 03 23:03	16° ℳ 54'39		direct	15230 Jul 25 13:55	27° ℳ 39'55	
opposition	15224 Apr 23 21:18	15° ℳ 30'00	-0°23'30	evening set	15230 Oct 21 00:03	29° ℳ 34'23	
min. Earth dist.	15224 Apr 23 09:26	15° ℳ 30'50	28.78590 AU		15230 Nov 01 09:12	0° ♂	
	15224 May 12 07:16	15° ℳ					
direct	15224 Jul 11 11:49	14° ℳ 06'16		conjunction	15230 Nov 05 17:47	0° ♂ 09'56	-0°17'03
	15224 Sep 06 19:39	15° ℳ		minimum elong	15230 Nov 05 17:47	0° ♂ 09'56	0°16'15
evening set	15224 Oct 06 22:17	16° ℳ 00'56		max. Earth dist.	15230 Nov 06 07:23	0° ♂ 11'12	30.77642 AU
				morning rise	15230 Nov 21 13:19	0° ♂ 45'40	
conjunction	15224 Oct 22 14:19	16° ℳ 36'23	-0°21'42	retrograde	15231 Feb 19 20:48	2° ♂ 43'51	
minimum elong	15224 Oct 22 14:19	16° ℳ 36'23	0°21'04	opposition	15231 May 10 16:24	1° ♂ 18'58	-0°17'41
max. Earth dist.	15224 Oct 23 02:47	16° ℳ 37'34	30.78600 AU	min. Earth dist.	15231 May 10 03:43	1° ♂ 19'51	28.77584 AU
morning rise	15224 Nov 07 08:16	17° ℳ 12'03			15231 Jul 11 00:40	30° ℳ	
retrograde	15225 Feb 05 13:46	19° ℳ 10'18		direct	15231 Jul 28 03:57	29° ℳ 55'04	
opposition	15225 Apr 26 10:26	17° ℳ 45'40	-0°22'46		15231 Aug 14 01:01	0° ♂	
min. Earth dist.	15225 Apr 25 21:37	17° ℳ 46'33	28.78618 AU	evening set	15231 Oct 23 12:22	1° ♂ 49'30	
direct	15225 Jul 13 22:49	16° ℳ 21'57					
evening set	15225 Oct 09 10:36	18° ℳ 16'37		conjunction	15231 Nov 08 06:13	2° ♂ 25'03	-0°16'11
				minimum elong	15231 Nov 08 06:13	2° ♂ 25'03	0°15'24
conjunction	15225 Oct 25 02:53	18° ℳ 52'05	-0°21'00	behind sun begin	15231 Nov 08 04:21	2° ♂ 24'53	
minimum elong	15225 Oct 25 02:53	18° ℳ 52'05	0°20'21	behind sun end	15231 Nov 08 08:04	2° ♂ 25'13	
max. Earth dist.	15225 Oct 25 15:41	18° ℳ 53'18	30.78595 AU	max. Earth dist.	15231 Nov 08 19:08	2° ♂ 26'16	30.77541 AU
morning rise	15225 Nov 09 21:04	19° ℳ 27'47		morning rise	15231 Nov 24 02:12	3° ♂ 00'48	
retrograde	15226 Feb 08 01:32	21° ℳ 26'04		retrograde	15232 Feb 22 10:31	4° ♂ 58'57	
opposition	15226 Apr 28 23:33	20° ℳ 01'25	-0°21'59	opposition	15232 May 12 05:11	3° ♂ 34'02	-0°16'44
min. Earth dist.	15226 Apr 28 11:48	20° ℳ 02'14	28.78584 AU	min. Earth dist.	15232 May 11 16:00	3° ♂ 34'57	28.77555 AU
direct	15226 Jul 16 10:26	18° ℳ 37'43		direct	15232 Jul 29 15:39	2° ♂ 10'07	
evening set	15226 Oct 11 22:57	20° ℳ 32'22		evening set	15232 Oct 25 00:28	4° ♂ 04'30	
conjunction	15226 Oct 27 15:33	21° ℳ 07'52	-0°20'16	conjunction	15232 Nov 09 18:44	4° ♂ 40'04	-0°15'17
minimum elong	15226 Oct 27 15:33	21° ℳ 07'52	0°19'35	minimum elong	15232 Nov 09 18:44	4° ♂ 40'04	0°14'28
max. Earth dist.	15226 Oct 28 04:19	21° ℳ 09'04	30.78522 AU	behind sun begin	15232 Nov 09 15:51	4° ♂ 39'48	
morning rise	15226 Nov 12 09:59	21° ℳ 43'33		behind sun end	15232 Nov 09 21:37	4° ♂ 40'20	
retrograde	15227 Feb 10 15:30	23° ℳ 41'51		max. Earth dist.	15232 Nov 10 09:01	4° ♂ 41'25	30.77573 AU
opposition	15227 May 01 12:38	22° ℳ 17'11	-0°21'11	morning rise	15232 Nov 25 14:54	5° ♂ 15'50	
min. Earth dist.	15227 Apr 30 23:58	22° ℳ 18'04	28.78454 AU	retrograde	15233 Feb 23 22:09	7° ♂ 13'57	
direct	15227 Jul 18 23:44	20° ℳ 53'28		opposition	15233 May 14 17:56	5° ♂ 49'01	-0°15'46
evening set	15227 Oct 14 11:16	22° ℳ 48'06		min. Earth dist.	15233 May 14 04:52	5° ♂ 49'56	28.77656 AU
				direct	15233 Aug 01 04:29	4° ♂ 25'06	
conjunction	15227 Oct 30 04:02	23° ℳ 23'36	-0°19'30	evening set	15233 Oct 27 12:49	6° ♂ 19'28	
minimum elong	15227 Oct 30 04:02	23° ℳ 23'36	0°18'48				
max. Earth dist.	15227 Oct 30 16:20	23° ℳ 24'45	30.78339 AU	conjunction	15233 Nov 12 07:19	6° ♂ 55'03	-0°14'23
morning rise	15227 Nov 14 22:50	23° ℳ 59'18		minimum elong	15233 Nov 12 07:18	6° ♂ 55'03	0°13'33
retrograde	15228 Feb 13 04:40	25° ℳ 57'36		behind sun begin	15233 Nov 12 03:44	6° ♂ 54'43	
opposition	15228 May 03 01:52	24° ℳ 32'53	-0°20'21	behind sun end	15233 Nov 12 10:53	6° ♂ 55'22	
min. Earth dist.	15228 May 02 14:10	24° ℳ 33'42	28.78238 AU	max. Earth dist.	15233 Nov 12 21:09	6° ♂ 56'21	30.77757 AU
direct	15228 Jul 20 11:04	23° ℳ 09'08		morning rise	15233 Nov 28 03:51	7° ♂ 30'50	
evening set	15228 Oct 15 23:31	25° ℳ 03'42		retrograde	15234 Feb 26 12:21	9° ♂ 28'56	
				opposition	15234 May 17 06:23	8° ♂ 04'01	-0°14'47
conjunction	15228 Oct 31 16:42	25° ℳ 39'13	-0°18'42	min. Earth dist.	15234 May 16 16:15	8° ♂ 05'00	28.77914 AU
minimum elong	15228 Oct 31 16:42	25° ℳ 39'13	0°17'58	direct	15234 Aug 03 15:56	6° ♂ 40'06	
max. Earth dist.	15228 Nov 01 05:45	25° ℳ 40'27	30.78101 AU	evening set	15234 Oct 30 01:10	8° ♂ 34'27	
morning rise	15228 Nov 16 11:41	26° ℳ 14'56					
retrograde	15229 Feb 14 18:03	28° ℳ 13'11		conjunction	15234 Nov 14 19:57	9° ♂ 10'03	-0°13'27
opposition	15229 May 05 14:45	26° ℳ 48'25	-0°19'29	minimum elong	15234 Nov 14 19:57	9° ♂ 10'03	0°12'35
min. Earth dist.	15229 May 05 02:10	26° ℳ 49'18	28.77979 AU	behind sun begin	15234 Nov 14 15:48	9° ♂ 09'41	
direct	15229 Jul 23 01:15	25° ℳ 24'37		behind sun end	15234 Nov 15 00:06	9° ♂ 10'26	
evening set	15229 Oct 18 11:50	27° ℳ 19'08		max. Earth dist.	15234 Nov 15 10:29	9° ♂ 11'25	30.78076 AU
				morning rise	15234 Nov 30 16:44	9° ♂ 45'52	
conjunction	15229 Nov 03 05:10	27° ℳ 54'40	-0°17'53	retrograde	15235 Feb 28 23:27	11° ♂ 43'57	
minimum elong	15229 Nov 03 05:10	27° ℳ 54'40	0°17'09	opposition	15235 May 19 19:06	10° ♂ 19'04	-0°13'46
max. Earth dist.	15229 Nov 03 17:23	27° ℳ 55'49	30.77847 AU	min. Earth dist.	15235 May 19 05:39	10° ♂ 20'00	28.78299 AU
morning rise	15229 Nov 19 00:37	28° ℳ 30'24		direct	15235 Aug 06 03:12	8° ♂ 55'10	
	15230 Jan 06 09:21	0° ♂		evening set	15235 Nov 01 13:24	10° ♂ 49'32	
retrograde	15230 Feb 17 08:44	0° ♂ 28'37					

conjunction	15235 Nov 17 08:30	11°  25'09	-0°12'29	opposition	15241 Jun 01 22:22	23°  51'15	-0°07'17
minimum elong	15235 Nov 17 08:30	11°  25'09	0°11'38	min. Earth dist.	15241 Jun 01 09:08	23°  52'11	28.81075 AU
behind sun begin	15235 Nov 17 03:53	11°  24'43		direct	15241 Aug 19 04:29	22°  27'25	
behind sun end	15235 Nov 17 13:07	11°  25'34		evening set	15241 Nov 14 17:10	24°  21'46	
max. Earth dist.	15235 Nov 17 23:21	11°  26'32	30.78530 AU				
morning rise	15235 Dec 03 05:33	12°  00'58		conjunction	15241 Nov 30 14:01	24°  57'27	-0°06'25
retrograde	15236 Mar 02 12:58	13°  59'03		minimum elong	15241 Nov 30 14:01	24°  57'27	0°05'30
opposition	15236 May 21 07:41	12°  34'13	-0°12'44	behind sun begin	15241 Nov 30 07:44	24°  56'53	
min. Earth dist.	15236 May 20 17:04	12°  35'14	28.78794 AU	behind sun end	15241 Nov 30 20:17	24°  58'01	
direct	15236 Aug 07 15:14	11°  10'21		max. Earth dist.	15241 Dec 01 04:15	24°  58'47	30.81218 AU
evening set	15236 Nov 03 01:56	13°  04'44		morning rise	15241 Dec 16 12:39	25°  33'20	
				retrograde	15242 Mar 16 21:54	27°  31'13	
conjunction	15236 Nov 18 21:13	13°  40'22	-0°11'31	opposition	15242 Jun 04 10:34	26°  06'27	-0°06'10
minimum elong	15236 Nov 18 21:13	13°  40'22	0°10'38	min. Earth dist.	15242 Jun 03 21:56	26°  07'21	28.81386 AU
behind sun begin	15236 Nov 18 16:11	13°  39'54		direct	15242 Aug 21 18:19	24°  42'35	
behind sun end	15236 Nov 19 02:15	13°  40'49		evening set	15242 Nov 17 05:49	26°  36'53	
max. Earth dist.	15236 Nov 19 11:52	13°  41'44	30.79055 AU				
morning rise	15236 Dec 04 18:38	14°  16'12		conjunction	15242 Dec 03 02:52	27°  12'35	-0°05'23
retrograde	15237 Mar 05 01:55	16°  14'18		minimum elong	15242 Dec 03 02:51	27°  12'35	0°04'26
opposition	15237 May 23 20:17	14°  49'30	-0°11'40	behind sun begin	15242 Dec 02 20:27	27°  12'00	
min. Earth dist.	15237 May 23 06:44	14°  50'27	28.79349 AU	behind sun end	15242 Dec 03 09:15	27°  13'09	
direct	15237 Aug 10 01:09	13°  25'41		max. Earth dist.	15242 Dec 03 16:15	27°  13'50	30.81556 AU
evening set	15237 Nov 05 14:27	15°  20'05		morning rise	15242 Dec 19 01:52	27°  48'28	
				retrograde	15243 Mar 19 11:40	29°  46'16	
conjunction	15237 Nov 21 10:10	15°  55'44	-0°10'31	opposition	15243 Jun 06 22:45	28°  21'29	-0°05'02
minimum elong	15237 Nov 21 10:10	15°  55'44	0°09'38	min. Earth dist.	15243 Jun 06 09:22	28°  22'25	28.81755 AU
behind sun begin	15237 Nov 21 04:48	15°  55'15		direct	15243 Aug 24 06:41	26°  57'33	
behind sun end	15237 Nov 21 15:32	15°  56'13		evening set	15243 Nov 19 18:15	28°  51'49	
max. Earth dist.	15237 Nov 22 01:22	15°  57'09	30.79614 AU				
morning rise	15237 Dec 07 07:45	16°  31'35		conjunction	15243 Dec 05 15:34	29°  27'31	-0°04'19
retrograde	15238 Mar 07 15:42	18°  29'40		minimum elong	15243 Dec 05 15:34	29°  27'31	0°03'23
opposition	15238 May 26 08:47	17°  04'55	-0°10'36	behind sun begin	15243 Dec 05 09:05	29°  26'56	
min. Earth dist.	15238 May 25 18:34	17°  05'55	28.79884 AU	behind sun end	15243 Dec 05 22:03	29°  28'06	
direct	15238 Aug 12 14:44	15°  41'07		max. Earth dist.	15243 Dec 06 05:32	29°  28'49	30.81957 AU
evening set	15238 Nov 08 03:12	17°  35'33			15243 Dec 20 01:46	0°  3	
				morning rise	15243 Dec 21 14:46	0°  30'25	
conjunction	15238 Nov 23 23:00	18°  11'12	-0°09'31	retrograde	15244 Mar 20 21:57	2°  30'08	
minimum elong	15238 Nov 23 23:00	18°  11'12	0°08'36	opposition	15244 Jun 08 10:58	0°  36'20	-0°03'54
behind sun begin	15238 Nov 23 17:20	18°  10'41		min. Earth dist.	15244 Jun 07 22:24	0°  37'13	28.82211 AU
behind sun end	15238 Nov 24 04:41	18°  11'43			15244 Jun 30 19:47	30°  R 	
max. Earth dist.	15238 Nov 24 12:59	18°  12'31	30.80117 AU	direct	15244 Aug 25 18:27	29°  12'22	
morning rise	15238 Dec 09 20:58	18°  47'04			15244 Oct 18 14:36	0°  3	
retrograde	15239 Mar 10 06:33	20°  45'09		evening set	15244 Nov 21 06:47	1°  30'36	
opposition	15239 May 28 21:24	19°  20'25	-0°09'30				
min. Earth dist.	15239 May 28 08:00	19°  21'21	28.80359 AU	conjunction	15244 Dec 07 04:26	1°  34'21'8	-0°03'15
direct	15239 Aug 15 02:45	17°  56'37		minimum elong	15244 Dec 07 04:25	1°  34'21'8	0°02'18
evening set	15239 Nov 10 15:51	19°  51'02		behind sun begin	15244 Dec 06 21:54	1°  34'14'2	
				behind sun end	15244 Dec 07 10:56	1°  34'25'3	
conjunction	15239 Nov 26 12:07	20°  26'43	-0°08'30	max. Earth dist.	15244 Dec 07 18:25	1°  34'36'3	30.82481 AU
minimum elong	15239 Nov 26 12:07	20°  26'43	0°07'35	morning rise	15244 Dec 23 03:53	2°  31'8'11	
behind sun begin	15239 Nov 26 06:12	20°  26'10		retrograde	15245 Mar 23 10:53	4°  31'54'9	
behind sun end	15239 Nov 26 18:01	20°  27'15		opposition	15245 Jun 10 22:50	2°  35'1'01	-0°02'46
max. Earth dist.	15239 Nov 27 02:51	20°  28'05	30.80548 AU	min. Earth dist.	15245 Jun 10 09:13	2°  35'1'58	28.82799 AU
morning rise	15239 Dec 12 10:10	21°  02'35		direct	15245 Aug 28 06:17	1°  32'7'02	
retrograde	15240 Mar 11 19:04	23°  00'37		evening set	15245 Nov 23 19:25	3°  32'21'13	
opposition	15240 May 30 09:55	21°  35'53	-0°08'24				
min. Earth dist.	15240 May 29 20:30	21°  36'50	28.80742 AU	conjunction	15245 Dec 09 17:14	3°  35'6'56	-0°02'09
direct	15240 Aug 16 16:26	20°  12'05		minimum elong	15245 Dec 09 17:14	3°  35'6'56	0°01'13
evening set	15240 Nov 12 04:32	22°  06'28		behind sun begin	15245 Dec 09 10:43	3°  35'6'21	
				behind sun end	15245 Dec 09 23:45	3°  35'7'31	
conjunction	15240 Nov 28 00:58	22°  42'09	-0°07'28	max. Earth dist.	15245 Dec 10 07:04	3°  35'8'13	30.83132 AU
minimum elong	15240 Nov 28 00:57	22°  42'09	0°06'32	morning rise	15245 Dec 25 16:58	4°  33'2'50	
behind sun begin	15240 Nov 27 18:50	22°  41'36		retrograde	15246 Mar 25 22:30	6°  33'0'23	
behind sun end	15240 Nov 28 07:04	22°  42'42		opposition	15246 Jun 13 10:52	5°  35'0'36	-0°01'37
max. Earth dist.	15240 Nov 28 14:24	22°  43'24	30.80905 AU	min. Earth dist.	15246 Jun 12 22:09	5°  35'0'6'29	28.83531 AU
morning rise	15240 Dec 13 23:30	23°  18'02		direct	15246 Aug 30 15:57	3°  34'1'35	
retrograde	15241 Mar 14 09:29	25°  16'00		evening set	15246 Nov 26 07:49	5°  33'5'46	

conjunction	15246 Dec 12 06:02	6°31'28" -0°01'03"	retrograde	15252 Apr 08 05:18	19°35'23"	
minimum elong	15246 Dec 12 06:01	6°31'28" 0°00'05"	opposition	15252 Jun 26 09:58	18°33'55"	0°05'16"
behind sun begin	15246 Dec 11 23:50	6°31'05"	min. Earth dist.	15252 Jun 25 21:41	18°33'46"	28.89689 AU
behind sun end	15246 Dec 12 12:11	6°31'20"	direct	15252 Sep 12 17:21	17°30'59"	
max. Earth dist.	15246 Dec 12 20:34	6°31'25" 30.83941 AU	evening set	15252 Dec 09 12:30	19°30'11"	
morning rise	15246 Dec 28 05:52	6°34'22"				
retrograde	15247 Mar 28 10:25	8°34'51"	conjunction	15252 Dec 25 12:07	19°33'55"	0°05'27"
opposition	15247 Jun 15 22:42	7°32'06" -0°00'28"	minimum elong	15252 Dec 25 12:07	19°33'55"	0°06'22"
min. Earth dist.	15247 Jun 15 08:59	7°32'10" 28.84406 AU	behind sun begin	15252 Dec 25 05:57	19°33'22"	
direct	15247 Sep 02 05:14	5°35'06"	behind sun end	15252 Dec 25 18:17	19°33'28"	
evening set	15247 Nov 28 20:31	7°35'01" 16	max. Earth dist.	15252 Dec 26 00:39	19°34'05"	30.90126 AU
asc. node	15247 Dec 02 19:21	7°35'01"	morning rise	15253 Jan 10 13:14	20°31'44"	
			retrograde	15253 Apr 10 16:39	22°31'51"	
conjunction	15247 Dec 14 18:48	8°32'59" 0°00'04"	opposition	15253 Jun 28 21:40	20°34'25"	0°06'23"
minimum elong	15247 Dec 14 18:48	8°32'59" 0°01'01"	min. Earth dist.	15253 Jun 28 10:49	20°34'11"	28.90565 AU
behind sun begin	15247 Dec 14 12:17	8°32'53"	direct	15253 Sep 15 05:18	19°32'29"	
behind sun end	15247 Dec 15 01:20	8°32'34"	evening set	15253 Dec 12 01:23	21°31'73"	
max. Earth dist.	15247 Dec 15 08:31	8°32'15" 30.84890 AU				
morning rise	15247 Dec 30 19:02	9°30'15"	conjunction	15253 Dec 28 01:16	21°35'23"	0°06'29"
retrograde	15248 Mar 29 23:38	10°35'17"	minimum elong	15253 Dec 28 01:15	21°35'23"	0°07'24"
opposition	15248 Jun 17 10:39	9°34'35" 0°00'41"	behind sun begin	15253 Dec 27 19:17	21°35'20"	
min. Earth dist.	15248 Jun 16 21:30	9°35'31" 28.85426 AU	behind sun end	15253 Dec 28 07:13	21°35'55"	
direct	15248 Sep 03 15:35	8°31'03"	max. Earth dist.	15253 Dec 28 13:03	21°35'42"	30.90975 AU
evening set	15248 Nov 30 09:01	10°30'47"	morning rise	15254 Jan 13 02:35	22°32'15"	
			retrograde	15254 Apr 13 06:04	24°32'12"	
conjunction	15248 Dec 16 07:47	10°34'30" 0°01'10"	opposition	15254 Jul 01 09:13	23°30'14"	0°07'30"
minimum elong	15248 Dec 16 07:46	10°34'30" 0°02'08"	min. Earth dist.	15254 Jun 30 21:52	23°30'23"	28.91378 AU
behind sun begin	15248 Dec 16 01:14	10°33'55"	direct	15254 Sep 17 17:36	21°33'48"	
behind sun end	15248 Dec 16 14:18	10°34'10"	evening set	15254 Dec 14 14:08	23°33'15"	
max. Earth dist.	15248 Dec 16 22:30	10°34'15" 30.85960 AU				
morning rise	15249 Jan 01 08:04	11°31'6"	conjunction	15254 Dec 30 14:08	24°30'41"	0°07'31"
retrograde	15249 Apr 01 12:02	13°31'34"	minimum elong	15254 Dec 30 14:09	24°30'41"	0°08'25"
opposition	15249 Jun 19 22:29	11°34'07" 0°01'50"	behind sun begin	15254 Dec 30 08:25	24°30'10"	
min. Earth dist.	15249 Jun 19 09:13	11°35'03" 28.86520 AU	behind sun end	15254 Dec 30 19:52	24°30'12"	
direct	15249 Sep 06 04:08	10°32'50"	max. Earth dist.	15254 Dec 31 01:25	24°30'43"	30.91766 AU
evening set	15249 Dec 02 21:55	12°31'9"	morning rise	15255 Jan 15 15:39	24°34'33"	
			retrograde	15255 Apr 15 17:00	26°34'02"	
conjunction	15249 Dec 18 20:43	12°35'50" 0°02'15"	opposition	15255 Jul 03 20:52	25°31'59"	0°08'36"
minimum elong	15249 Dec 18 20:44	12°35'50" 0°03'12"	min. Earth dist.	15255 Jul 03 10:51	25°31'64"	28.92174 AU
behind sun begin	15249 Dec 18 14:14	12°35'29"	direct	15255 Sep 20 03:44	23°35'19"	
behind sun end	15249 Dec 19 03:14	12°35'39"	evening set	15255 Dec 17 02:49	25°34'06"	
max. Earth dist.	15249 Dec 19 10:08	12°35'19" 30.87077 AU				
morning rise	15250 Jan 03 21:24	13°33'08"	conjunction	15256 Jan 02 03:10	26°32'14"	0°08'32"
retrograde	15250 Apr 04 02:33	15°32'16"	minimum elong	15256 Jan 02 03:10	26°32'14"	0°09'25"
opposition	15250 Jun 22 10:14	14°30'34" 0°02'59"	behind sun begin	15256 Jan 01 21:43	26°32'12"	
min. Earth dist.	15250 Jun 21 21:21	14°30'43" 28.87644 AU	behind sun end	15256 Jan 02 08:36	26°32'18"	
direct	15250 Sep 08 15:37	12°33'45"	max. Earth dist.	15256 Jan 02 14:42	26°32'25"	30.92576 AU
evening set	15250 Dec 05 10:44	14°33'38"	morning rise	15256 Jan 18 04:45	26°35'41"	
			retrograde	15256 Apr 17 04:10	28°35'42"	
conjunction	15250 Dec 21 09:55	15°30'42" 0°03'20"	opposition	15256 Jul 05 08:11	27°33'01"	0°09'41"
minimum elong	15250 Dec 21 09:55	15°30'42" 0°04'16"	min. Earth dist.	15256 Jul 04 21:34	27°33'04"	28.92998 AU
behind sun begin	15250 Dec 21 03:29	15°30'07"	direct	15256 Sep 21 16:44	26°30'59"	
behind sun end	15250 Dec 21 16:21	15°31'01"	evening set	15256 Dec 18 15:35	28°30'04"	
max. Earth dist.	15250 Dec 21 23:56	15°31'10" 30.88175 AU				
morning rise	15251 Jan 06 10:35	15°34'53"	conjunction	15257 Jan 03 16:00	28°35'47"	0°09'32"
retrograde	15251 Apr 06 15:20	17°34'24"	minimum elong	15257 Jan 03 16:00	28°35'47"	0°10'25"
opposition	15251 Jun 24 22:08	16°31'18" 0°04'07"	behind sun begin	15257 Jan 03 10:53	28°35'20"	
min. Earth dist.	15251 Jun 24 10:05	16°31'09" 28.88709 AU	behind sun end	15257 Jan 03 21:07	28°36'15"	
direct	15251 Sep 11 05:01	14°35'42"	max. Earth dist.	15257 Jan 04 02:25	28°36'45"	30.93428 AU
evening set	15251 Dec 07 23:34	16°34'8"	morning rise	15257 Jan 19 17:54	29°31'13"	
				15257 Feb 12 06:24	0°00'	
conjunction	15251 Dec 23 22:52	17°32'42" 0°04'24"	retrograde	15257 Apr 19 16:09	1°00'08"17"	
minimum elong	15251 Dec 23 22:53	17°32'42" 0°05'19"		15257 Jun 28 04:07	30°00'	
behind sun begin	15251 Dec 23 16:34	17°32'34"	opposition	15257 Jul 07 19:36	29°34'35"	0°10'45"
behind sun end	15251 Dec 24 05:12	17°32'45"	min. Earth dist.	15257 Jul 07 09:46	29°34'43"	28.93895 AU
max. Earth dist.	15251 Dec 24 11:31	17°32'53" 30.89205 AU	direct	15257 Sep 24 02:37	28°31'50"	
morning rise	15252 Jan 08 23:54	18°30'13"		15257 Dec 14 17:26	0°00'	

evening set	15257 Dec 21 04:13	0°13'55		opposition	15263 Jul 21 14:32	13°06'03	0°16'44
				min. Earth dist.	15263 Jul 21 05:40	13°06'40	29.01229 AU
conjunction	15258 Jan 06 04:59	0°49'38	0°10'31	direct	15263 Oct 08 02:55	11°42'04	
minimum elong	15258 Jan 06 04:58	0°49'38	0°11'23	evening set	15264 Jan 04 08:26	13°36'13	
behind sun begin	15258 Jan 06 00:14	0°49'12					
behind sun end	15258 Jan 06 09:42	0°50'03		conjunction	15264 Jan 20 10:02	14°11'55	0°16'04
max. Earth dist.	15258 Jan 06 16:12	0°50'40	30.94366 AU	minimum elong	15264 Jan 20 10:02	14°11'55	0°16'49
morning rise	15258 Jan 22 06:48	1°25'28		max. Earth dist.	15264 Jan 20 18:31	14°12'42	31.01844 AU
retrograde	15258 Apr 22 03:28	3°22'00		morning rise	15264 Feb 05 12:33	14°47'42	
opposition	15258 Jul 10 06:46	1°57'39	0°11'48		15264 Feb 11 05:28	15°	
min. Earth dist.	15258 Jul 09 20:46	1°58'21	28.94879 AU	retrograde	15264 May 05 07:19	16°43'42	
direct	15258 Sep 26 14:32	0°33'34		opposition	15264 Jul 23 01:39	15°19'45	0°17'39
evening set	15258 Dec 23 16:56	2°27'40		min. Earth dist.	15264 Jul 22 18:31	15°20'15	29.02451 AU
					15264 Aug 03 22:24	15°R	
conjunction	15259 Jan 08 17:42	3°03'22	0°11'30	direct	15264 Oct 09 13:23	13°55'46	
minimum elong	15259 Jan 08 17:42	3°03'22	0°12'21		15264 Dec 12 08:47	15°	
behind sun begin	15259 Jan 08 13:26	3°02'59		evening set	15265 Jan 05 21:16	15°49'54	
behind sun end	15259 Jan 08 21:58	3°03'45					
max. Earth dist.	15259 Jan 09 03:44	3°04'17	30.95416 AU	conjunction	15265 Jan 21 23:08	16°25'35	0°16'55
morning rise	15259 Jan 24 19:50	3°39'12		minimum elong	15265 Jan 21 23:08	16°25'35	0°17'38
retrograde	15259 Apr 24 17:01	5°35'38		max. Earth dist.	15265 Jan 22 07:15	16°26'20	31.03007 AU
opposition	15259 Jul 12 18:02	4°11'20	0°12'49	morning rise	15265 Feb 07 01:40	17°01'22	
min. Earth dist.	15259 Jul 12 08:05	4°12'01	28.96000 AU	retrograde	15265 May 07 18:24	18°57'14	
direct	15259 Sep 29 01:48	2°47'15		opposition	15265 Jul 25 12:40	17°33'19	0°18'33
evening set	15259 Dec 26 05:23	4°41'20		min. Earth dist.	15265 Jul 25 05:22	17°33'50	29.03541 AU
				direct	15265 Oct 12 02:07	16°09'19	
conjunction	15260 Jan 11 06:30	5°17'02	0°12'27	evening set	15266 Jan 08 10:10	18°03'26	
minimum elong	15260 Jan 11 06:30	5°17'02	0°13'16				
behind sun begin	15260 Jan 11 02:46	5°16'42		conjunction	15266 Jan 24 12:00	18°39'07	0°17'44
behind sun end	15260 Jan 11 10:13	5°17'22		minimum elong	15266 Jan 24 12:00	18°39'07	0°18'26
max. Earth dist.	15260 Jan 11 17:31	5°18'03	30.96592 AU	max. Earth dist.	15266 Jan 24 18:30	18°39'42	31.04036 AU
morning rise	15260 Jan 27 08:36	5°52'51		morning rise	15266 Feb 09 14:40	19°14'52	
retrograde	15260 Apr 26 05:03	7°49'12		retrograde	15266 May 10 05:48	21°10'37	
opposition	15260 Jul 14 05:18	6°24'58	0°13'50	opposition	15266 Jul 27 23:39	19°46'43	0°19'24
min. Earth dist.	15260 Jul 13 19:53	6°25'37	28.97228 AU	min. Earth dist.	15266 Jul 27 17:34	19°47'08	29.04527 AU
direct	15260 Sep 30 14:52	5°00'55		direct	15266 Oct 14 11:45	18°22'40	
evening set	15260 Dec 27 18:07	6°55'00		evening set	15267 Jan 10 22:49	20°16'45	
conjunction	15261 Jan 12 19:18	7°30'42	0°13'23	conjunction	15267 Jan 27 00:56	20°52'25	0°18'31
minimum elong	15261 Jan 12 19:19	7°30'42	0°14'12	minimum elong	15267 Jan 27 00:56	20°52'25	0°19'12
behind sun begin	15261 Jan 12 16:16	7°30'26		max. Earth dist.	15267 Jan 27 07:45	20°53'02	31.04982 AU
behind sun end	15261 Jan 12 22:21	7°30'59		morning rise	15267 Feb 12 03:30	21°28'08	
max. Earth dist.	15261 Jan 13 05:10	7°31'37	30.97882 AU	retrograde	15267 May 12 16:06	23°23'45	
morning rise	15261 Jan 28 21:40	8°06'31		opposition	15267 Jul 30 10:30	21°59'52	0°20'14
retrograde	15261 Apr 28 18:28	10°02'47		min. Earth dist.	15267 Jul 30 04:41	22°00'16	29.05433 AU
opposition	15261 Jul 16 16:15	8°38'37	0°14'50	direct	15267 Oct 16 23:53	20°35'46	
min. Earth dist.	15261 Jul 16 06:27	8°39'18	28.98557 AU	evening set	15268 Jan 13 11:28	22°29'49	
direct	15261 Oct 03 02:19	7°14'35					
evening set	15261 Dec 30 06:51	9°08'43		conjunction	15268 Jan 29 13:33	23°05'27	0°19'17
				minimum elong	15268 Jan 29 13:33	23°05'27	0°19'55
conjunction	15262 Jan 15 08:15	9°44'25	0°14'18	max. Earth dist.	15268 Jan 29 18:45	23°05'56	31.05875 AU
minimum elong	15262 Jan 15 08:15	9°44'25	0°15'05	morning rise	15268 Feb 14 16:21	23°41'10	
behind sun begin	15262 Jan 15 06:09	9°44'14		retrograde	15268 May 14 03:52	25°36'39	
behind sun end	15262 Jan 15 10:21	9°44'36		opposition	15268 Jul 31 21:17	24°12'45	0°21'01
max. Earth dist.	15262 Jan 15 18:18	9°45'20	30.99227 AU	min. Earth dist.	15268 Jul 31 15:57	24°13'08	29.06321 AU
morning rise	15262 Jan 31 10:35	10°20'13		direct	15268 Oct 18 10:56	22°48'36	
retrograde	15262 May 01 06:32	12°16'24		evening set	15269 Jan 15 00:02	24°42'37	
opposition	15262 Jul 19 03:28	10°52'19	0°15'48				
min. Earth dist.	15262 Jul 18 19:00	10°52'55	28.99911 AU	conjunction	15269 Jan 31 02:22	25°18'15	0°20'01
direct	15262 Oct 05 14:16	9°28'20		minimum elong	15269 Jan 31 02:22	25°18'15	0°20'37
evening set	15263 Jan 01 19:31	11°22'28		max. Earth dist.	15269 Jan 31 08:10	25°18'47	31.06755 AU
				morning rise	15269 Feb 16 05:01	25°53'56	
conjunction	15263 Jan 17 21:02	11°58'10	0°15'12	retrograde	15269 May 16 14:12	27°49'16	
minimum elong	15263 Jan 17 21:02	11°58'10	0°15'58	opposition	15269 Aug 03 07:53	26°25'23	0°21'47
max. Earth dist.	15263 Jan 18 06:20	11°59'01	31.00577 AU	min. Earth dist.	15269 Aug 03 03:25	26°25'42	29.07210 AU
morning rise	15263 Feb 02 23:29	12°33'57		direct	15269 Oct 20 23:14	25°01'11	
retrograde	15263 May 03 20:36	14°30'03		evening set	15270 Jan 17 12:38	26°55'11	

conjunction	15270 Feb 02 14:54	27° \approx 30'48	0°20'43	max. Earth dist.	15276 Feb 16 20:45	10° \approx 44'32	31.15000 AU
minimum elong	15270 Feb 02 14:55	27° \approx 30'48	0°21'18	morning rise	15276 Mar 03 20:09	11° \approx 19'49	
max. Earth dist.	15270 Feb 02 19:25	27° \approx 31'12	31.07676 AU	retrograde	15276 May 31 22:12	13° \approx 14'30	
morning rise	15270 Feb 18 17:43	28° \approx 06'28		opposition	15276 Aug 18 09:27	11° \approx 51'03	0°26'10
	15270 May 09 03:36	0° \approx		min. Earth dist.	15276 Aug 18 07:13	11° \approx 51'13	29.15626 AU
retrograde	15270 May 19 02:50	0° \approx 01'40		direct	15276 Nov 05 05:37	10° \approx 26'58	
	15270 May 29 03:14	30° \approx		evening set	15277 Feb 02 03:36	12° \approx 21'03	
opposition	15270 Aug 05 18:28	28° \approx 37'48	0°22'31				
min. Earth dist.	15270 Aug 05 13:32	28° \approx 38'08	29.08168 AU	conjunction	15277 Feb 18 06:08	12° \approx 56'36	0°24'43
direct	15270 Oct 23 10:36	27° \approx 13'34		minimum elong	15277 Feb 18 06:08	12° \approx 56'36	0°25'04
evening set	15271 Jan 20 00:54	29° \approx 07'32		max. Earth dist.	15277 Feb 18 07:17	12° \approx 56'42	31.16216 AU
				morning rise	15277 Mar 06 08:42	13° \approx 32'10	
conjunction	15271 Feb 05 03:20	29° \approx 43'08	0°21'23	retrograde	15277 Jun 03 09:27	15° \approx 26'46	
minimum elong	15271 Feb 05 03:19	29° \approx 43'08	0°21'56	opposition	15277 Aug 20 19:51	14° \approx 03'22	0°26'39
max. Earth dist.	15271 Feb 05 08:13	29° \approx 43'35	31.08668 AU	min. Earth dist.	15277 Aug 20 18:15	14° \approx 03'29	29.16789 AU
	15271 Feb 12 16:56	0° \approx		direct	15277 Nov 07 15:53	12° \approx 39'17	
morning rise	15271 Feb 21 06:01	0° \approx 18'47		evening set	15278 Feb 04 16:00	14° \approx 33'23	
retrograde	15271 May 21 13:56	2° \approx 13'53					
opposition	15271 Aug 08 05:09	0° \approx 50'02	0°23'13	conjunction	15278 Feb 20 18:41	15° \approx 08'55	0°25'08
min. Earth dist.	15271 Aug 08 01:17	0° \approx 50'18	29.09216 AU	minimum elong	15278 Feb 20 18:41	15° \approx 08'55	0°25'29
	15271 Sep 09 02:08	30° \approx		max. Earth dist.	15278 Feb 20 20:07	15° \approx 09'03	31.17310 AU
direct	15271 Oct 25 22:40	29° \approx 25'48		morning rise	15278 Mar 08 21:00	15° \approx 44'27	
	15271 Dec 10 18:34	0° \approx		retrograde	15278 Jun 05 19:18	17° \approx 38'57	
evening set	15272 Jan 22 13:20	1° \approx 19'45		opposition	15278 Aug 23 06:20	16° \approx 15'36	0°27'05
				min. Earth dist.	15278 Aug 23 05:55	16° \approx 15'38	29.17820 AU
conjunction	15272 Feb 07 15:48	1° \approx 55'21	0°22'01	direct	15278 Nov 10 03:15	14° \approx 51'30	
minimum elong	15272 Feb 07 15:48	1° \approx 55'21	0°22'33	evening set	15279 Feb 07 04:18	16° \approx 45'36	
max. Earth dist.	15272 Feb 07 20:08	1° \approx 55'45	31.09783 AU				
morning rise	15272 Feb 23 18:33	2° \approx 30'59		conjunction	15279 Feb 23 06:51	17° \approx 21'07	0°25'32
retrograde	15272 May 23 03:00	4° \approx 25'58		minimum elong	15279 Feb 23 06:52	17° \approx 21'07	0°25'50
opposition	15272 Aug 09 15:31	3° \approx 02'10	0°23'53	max. Earth dist.	15279 Feb 23 06:39	17° \approx 21'05	31.18296 AU
min. Earth dist.	15272 Aug 09 10:53	3° \approx 02'29	29.10386 AU	morning rise	15279 Mar 11 09:15	17° \approx 56'38	
direct	15272 Oct 27 11:11	1° \approx 37'56		retrograde	15279 Jun 08 07:29	19° \approx 51'02	
evening set	15273 Jan 24 01:48	3° \approx 31'55		opposition	15279 Aug 25 16:40	18° \approx 27'42	0°27'29
				min. Earth dist.	15279 Aug 25 16:06	18° \approx 27'44	29.18757 AU
conjunction	15273 Feb 09 04:18	4° \approx 07'30	0°22'38	direct	15279 Nov 12 14:07	17° \approx 03'34	
minimum elong	15273 Feb 09 04:18	4° \approx 07'30	0°23'08	evening set	15280 Feb 09 16:38	18° \approx 57'39	
max. Earth dist.	15273 Feb 09 08:16	4° \approx 07'52	31.11005 AU				
morning rise	15273 Feb 25 07:02	4° \approx 43'07		conjunction	15280 Feb 25 19:16	19° \approx 33'09	0°25'53
retrograde	15273 May 25 13:32	6° \approx 38'01		minimum elong	15280 Feb 25 19:16	19° \approx 33'09	0°26'10
opposition	15273 Aug 12 02:07	5° \approx 14'18	0°24'30	max. Earth dist.	15280 Feb 25 18:59	19° \approx 33'07	31.19185 AU
min. Earth dist.	15273 Aug 11 22:45	5° \approx 14'32	29.11664 AU	morning rise	15280 Mar 12 21:28	20° \approx 08'38	
direct	15273 Oct 29 21:24	3° \approx 50'06		retrograde	15280 Jun 09 18:13	22° \approx 02'55	
evening set	15274 Jan 26 14:06	5° \approx 44'06		opposition	15280 Aug 27 02:55	20° \approx 39'36	0°27'50
				min. Earth dist.	15280 Aug 27 03:55	20° \approx 39'32	29.19616 AU
conjunction	15274 Feb 11 16:44	6° \approx 19'40	0°23'12	direct	15280 Nov 14 02:37	19° \approx 15'26	
minimum elong	15274 Feb 11 16:44	6° \approx 19'40	0°23'40	evening set	15281 Feb 11 04:56	21° \approx 09'29	
max. Earth dist.	15274 Feb 11 20:51	6° \approx 20'03	31.12328 AU				
morning rise	15274 Feb 27 19:21	6° \approx 55'16		conjunction	15281 Feb 27 07:31	21° \approx 44'58	0°26'12
retrograde	15274 May 28 00:35	8° \approx 50'06		minimum elong	15281 Feb 27 07:31	21° \approx 44'58	0°26'26
opposition	15274 Aug 14 12:29	7° \approx 26'28	0°25'06	max. Earth dist.	15281 Feb 27 06:17	21° \approx 44'51	31.20030 AU
min. Earth dist.	15274 Aug 14 08:42	7° \approx 26'44	29.13004 AU	morning rise	15281 Mar 15 09:41	22° \approx 20'26	
direct	15274 Nov 01 09:23	6° \approx 02'19		retrograde	15281 Jun 12 06:30	24° \approx 14'35	
evening set	15275 Jan 29 02:37	7° \approx 56'21		opposition	15281 Aug 29 13:04	22° \approx 51'16	0°28'09
				min. Earth dist.	15281 Aug 29 13:35	22° \approx 51'14	29.20444 AU
conjunction	15275 Feb 14 05:07	8° \approx 31'55	0°23'44	direct	15281 Nov 16 15:47	21° \approx 27'04	
minimum elong	15275 Feb 14 05:07	8° \approx 31'55	0°24'11	evening set	15282 Feb 13 17:03	23° \approx 21'06	
max. Earth dist.	15275 Feb 14 07:57	8° \approx 32'11	31.13679 AU				
morning rise	15275 Mar 02 07:48	9° \approx 07'31		conjunction	15282 Mar 01 19:33	23° \approx 56'34	0°26'29
retrograde	15275 May 30 12:13	11° \approx 02'16		minimum elong	15282 Mar 01 19:33	23° \approx 56'34	0°26'41
opposition	15275 Aug 16 22:59	9° \approx 38'44	0°25'39	max. Earth dist.	15282 Mar 01 17:50	23° \approx 56'25	31.20850 AU
min. Earth dist.	15275 Aug 16 20:17	9° \approx 38'55	29.14358 AU	morning rise	15282 Mar 17 21:34	24° \approx 32'00	
direct	15275 Nov 03 18:08	8° \approx 14'37		retrograde	15282 Jun 14 16:28	26° \approx 26'02	
evening set	15276 Jan 31 14:57	10° \approx 08'41		opposition	15282 Aug 31 23:19	25° \approx 02'44	0°28'26
				min. Earth dist.	15282 Sep 01 01:10	25° \approx 02'36	29.21286 AU
conjunction	15276 Feb 16 17:39	10° \approx 44'15	0°24'15	direct	15282 Nov 19 02:30	23° \approx 38'29	
minimum elong	15276 Feb 16 17:40	10° \approx 44'15	0°24'39	evening set	15283 Feb 16 05:04	25° \approx 32'30	

conjunction	15283 Mar 04 07:36	26° $\mathbf{\text{X}}$ 07'56	0°26'44	retrograde	15289 Jun 29 17:12	11° $\mathbf{\text{P}}$ 43'04	
minimum elong	15283 Mar 04 07:36	26° $\mathbf{\text{X}}$ 07'56	0°26'54	opposition	15289 Sep 15 22:04	10° $\mathbf{\text{P}}$ 20'09	0°29'12
max. Earth dist.	15283 Mar 04 06:02	26° $\mathbf{\text{X}}$ 07'48	31.21721 AU	min. Earth dist.	15289 Sep 16 02:44	10° $\mathbf{\text{P}}$ 19'50	29.28867 AU
morning rise	15283 Mar 20 09:27	26° $\mathbf{\text{X}}$ 43'21		direct	15289 Dec 04 06:03	8° $\mathbf{\text{P}}$ 56'01	
retrograde	15283 Jun 17 03:19	28° $\mathbf{\text{X}}$ 37'15		evening set	15290 Mar 03 17:00	10° $\mathbf{\text{P}}$ 50'07	
opposition	15283 Sep 03 09:20	27° $\mathbf{\text{X}}$ 13'58	0°28'40				
min. Earth dist.	15283 Sep 03 10:41	27° $\mathbf{\text{X}}$ 13'52	29.22187 AU	conjunction	15290 Mar 19 18:51	11° $\mathbf{\text{P}}$ 25'27	0°27'20
direct	15283 Nov 21 15:08	25° $\mathbf{\text{X}}$ 49'42		minimum elong	15290 Mar 19 18:51	11° $\mathbf{\text{P}}$ 25'27	0°27'15
evening set	15284 Feb 18 17:07	27° $\mathbf{\text{X}}$ 43'41		max. Earth dist.	15290 Mar 19 13:33	11° $\mathbf{\text{P}}$ 24'58	31.29327 AU
				morning rise	15290 Apr 04 19:39	12° $\mathbf{\text{P}}$ 00'43	
conjunction	15284 Mar 05 19:29	28° $\mathbf{\text{X}}$ 19'07	0°26'56	retrograde	15290 Jul 02 05:08	13° $\mathbf{\text{P}}$ 54'06	
minimum elong	15284 Mar 05 19:29	28° $\mathbf{\text{X}}$ 19'07	0°27'04	opposition	15290 Sep 18 08:13	12° $\mathbf{\text{P}}$ 31'15	0°29'08
max. Earth dist.	15284 Mar 05 16:49	28° $\mathbf{\text{X}}$ 18'52	31.22664 AU	min. Earth dist.	15290 Sep 18 12:33	12° $\mathbf{\text{P}}$ 30'56	29.29764 AU
morning rise	15284 Mar 21 21:20	28° $\mathbf{\text{X}}$ 54'30		direct	15290 Dec 06 18:41	11° $\mathbf{\text{P}}$ 07'07	
	15284 Apr 24 12:47	0° $\mathbf{\text{P}}$		evening set	15291 Mar 06 05:01	13° $\mathbf{\text{P}}$ 01'13	
retrograde	15284 Jun 18 14:29	0° $\mathbf{\text{P}}$ 48'18					
	15284 Aug 14 05:40	30° $\mathbf{\text{R}}$ $\mathbf{\text{X}}$		conjunction	15291 Mar 22 06:43	13° $\mathbf{\text{P}}$ 36'32	0°27'15
opposition	15284 Sep 04 19:29	29° $\mathbf{\text{X}}$ 25'02	0°28'52	minimum elong	15291 Mar 22 06:43	13° $\mathbf{\text{P}}$ 36'33	0°27'08
min. Earth dist.	15284 Sep 04 21:29	29° $\mathbf{\text{X}}$ 24'54	29.23189 AU	max. Earth dist.	15291 Mar 22 00:34	13° $\mathbf{\text{P}}$ 35'59	31.30148 AU
direct	15284 Nov 23 00:57	28° $\mathbf{\text{X}}$ 00'45		morning rise	15291 Apr 07 07:19	14° $\mathbf{\text{P}}$ 11'47	
evening set	15285 Feb 20 05:03	29° $\mathbf{\text{X}}$ 54'44		retrograde	15291 Jul 04 15:30	16° $\mathbf{\text{P}}$ 05'06	
	15285 Feb 22 15:20	0° $\mathbf{\text{P}}$		opposition	15291 Sep 20 18:24	14° $\mathbf{\text{P}}$ 42'17	0°29'02
				min. Earth dist.	15291 Sep 21 00:22	14° $\mathbf{\text{P}}$ 41'52	29.30524 AU
conjunction	15285 Mar 08 07:30	0° $\mathbf{\text{P}}$ 30'09	0°27'06	direct	15291 Dec 09 05:09	13° $\mathbf{\text{P}}$ 18'09	
minimum elong	15285 Mar 08 07:30	0° $\mathbf{\text{P}}$ 30'09	0°27'11	evening set	15292 Mar 07 16:54	15° $\mathbf{\text{P}}$ 12'15	
max. Earth dist.	15285 Mar 08 05:31	0° $\mathbf{\text{P}}$ 29'58	31.23715 AU				
morning rise	15285 Mar 24 09:02	1° $\mathbf{\text{P}}$ 05'31		conjunction	15292 Mar 23 18:35	15° $\mathbf{\text{P}}$ 47'34	0°27'08
retrograde	15285 Jun 20 23:09	2° $\mathbf{\text{P}}$ 59'13		minimum elong	15292 Mar 23 18:35	15° $\mathbf{\text{P}}$ 47'34	0°26'59
opposition	15285 Sep 07 05:31	1° $\mathbf{\text{P}}$ 36'01	0°29'01	max. Earth dist.	15292 Mar 23 12:11	15° $\mathbf{\text{P}}$ 46'58	31.30845 AU
min. Earth dist.	15285 Sep 07 07:35	1° $\mathbf{\text{P}}$ 35'52	29.24283 AU	morning rise	15292 Apr 08 18:58	16° $\mathbf{\text{P}}$ 22'47	
direct	15285 Nov 25 12:36	0° $\mathbf{\text{P}}$ 11'45		retrograde	15292 Jul 06 02:28	18° $\mathbf{\text{P}}$ 16'00	
evening set	15286 Feb 22 17:06	2° $\mathbf{\text{P}}$ 05'44		opposition	15292 Sep 22 04:29	16° $\mathbf{\text{P}}$ 53'13	0°28'53
				min. Earth dist.	15292 Sep 22 10:24	16° $\mathbf{\text{P}}$ 52'48	29.31149 AU
conjunction	15286 Mar 10 19:18	2° $\mathbf{\text{P}}$ 41'08	0°27'14	direct	15292 Dec 10 18:10	15° $\mathbf{\text{P}}$ 29'04	
minimum elong	15286 Mar 10 19:18	2° $\mathbf{\text{P}}$ 41'08	0°27'17	evening set	15293 Mar 10 04:49	17° $\mathbf{\text{P}}$ 23'10	
max. Earth dist.	15286 Mar 10 15:57	2° $\mathbf{\text{P}}$ 40'50	31.24866 AU				
morning rise	15286 Mar 26 20:51	3° $\mathbf{\text{P}}$ 16'29		conjunction	15293 Mar 26 06:13	17° $\mathbf{\text{P}}$ 58'28	0°26'59
retrograde	15286 Jun 23 09:43	5° $\mathbf{\text{P}}$ 10'06		minimum elong	15293 Mar 26 06:13	17° $\mathbf{\text{P}}$ 58'28	0°26'47
opposition	15286 Sep 09 15:37	3° $\mathbf{\text{P}}$ 46'59	0°29'08	max. Earth dist.	15293 Mar 25 22:20	17° $\mathbf{\text{P}}$ 57'45	31.31414 AU
min. Earth dist.	15286 Sep 09 17:45	3° $\mathbf{\text{P}}$ 46'50	29.25475 AU	morning rise	15293 Apr 11 06:29	18° $\mathbf{\text{P}}$ 33'40	
direct	15286 Nov 27 21:57	2° $\mathbf{\text{P}}$ 22'45		retrograde	15293 Jul 08 13:32	20° $\mathbf{\text{P}}$ 26'48	
evening set	15287 Feb 25 04:51	4° $\mathbf{\text{P}}$ 16'45		opposition	15293 Sep 24 14:33	19° $\mathbf{\text{P}}$ 04'02	0°28'42
				min. Earth dist.	15293 Sep 24 21:23	19° $\mathbf{\text{P}}$ 03'33	29.31684 AU
conjunction	15287 Mar 13 07:08	4° $\mathbf{\text{P}}$ 52'09	0°27'19	direct	15293 Dec 13 04:26	17° $\mathbf{\text{P}}$ 39'51	
minimum elong	15287 Mar 13 07:08	4° $\mathbf{\text{P}}$ 52'09	0°27'19	evening set	15294 Mar 12 16:27	19° $\mathbf{\text{P}}$ 33'57	
max. Earth dist.	15287 Mar 13 04:34	4° $\mathbf{\text{P}}$ 51'54	31.26073 AU				
morning rise	15287 Mar 29 08:23	5° $\mathbf{\text{P}}$ 27'28		conjunction	15294 Mar 28 17:52	20° $\mathbf{\text{P}}$ 09'14	0°26'48
retrograde	15287 Jun 25 19:05	7° $\mathbf{\text{P}}$ 21'02		minimum elong	15294 Mar 28 17:52	20° $\mathbf{\text{P}}$ 09'14	0°26'34
opposition	15287 Sep 12 01:48	5° $\mathbf{\text{P}}$ 57'59	0°29'12	max. Earth dist.	15294 Mar 28 10:29	20° $\mathbf{\text{P}}$ 08'33	31.31917 AU
min. Earth dist.	15287 Sep 12 05:00	5° $\mathbf{\text{P}}$ 57'46	29.26677 AU	morning rise	15294 Apr 13 17:48	20° $\mathbf{\text{P}}$ 44'25	
direct	15287 Nov 30 08:13	4° $\mathbf{\text{P}}$ 33'48		retrograde	15294 Jul 10 21:50	22° $\mathbf{\text{P}}$ 37'28	
evening set	15288 Feb 27 16:58	6° $\mathbf{\text{P}}$ 27'50		opposition	15294 Sep 27 00:38	21° $\mathbf{\text{P}}$ 14'42	0°28'28
				min. Earth dist.	15294 Sep 27 07:48	21° $\mathbf{\text{P}}$ 14'12	29.32159 AU
conjunction	15288 Mar 14 19:02	7° $\mathbf{\text{P}}$ 03'12	0°27'22	direct	15294 Dec 15 16:31	19° $\mathbf{\text{P}}$ 50'31	
minimum elong	15288 Mar 14 19:02	7° $\mathbf{\text{P}}$ 03'12	0°27'21	evening set	15295 Mar 15 04:04	21° $\mathbf{\text{P}}$ 44'35	
max. Earth dist.	15288 Mar 14 14:56	7° $\mathbf{\text{P}}$ 02'50	31.27262 AU				
morning rise	15288 Mar 30 20:16	7° $\mathbf{\text{P}}$ 38'31		conjunction	15295 Mar 31 05:10	22° $\mathbf{\text{P}}$ 19'51	0°26'34
retrograde	15288 Jun 27 06:52	9° $\mathbf{\text{P}}$ 32'01		minimum elong	15295 Mar 31 05:10	22° $\mathbf{\text{P}}$ 19'51	0°26'17
opposition	15288 Sep 13 11:46	8° $\mathbf{\text{P}}$ 09'03	0°29'13	max. Earth dist.	15295 Mar 30 20:21	22° $\mathbf{\text{P}}$ 19'02	31.32390 AU
min. Earth dist.	15288 Sep 13 14:48	8° $\mathbf{\text{P}}$ 08'51	29.27831 AU	morning rise	15295 Apr 16 05:05	22° $\mathbf{\text{P}}$ 55'01	
direct	15288 Dec 01 18:31	6° $\mathbf{\text{P}}$ 44'54		retrograde	15295 Jul 13 07:40	24° $\mathbf{\text{P}}$ 47'59	
evening set	15289 Mar 01 05:03	8° $\mathbf{\text{P}}$ 38'58		opposition	15295 Sep 29 10:39	23° $\mathbf{\text{P}}$ 25'14	0°28'12
				min. Earth dist.	15295 Sep 29 17:51	23° $\mathbf{\text{P}}$ 24'44	29.32642 AU
conjunction	15289 Mar 17 07:04	9° $\mathbf{\text{P}}$ 14'19	0°27'22	direct	15295 Dec 18 02:15	22° $\mathbf{\text{P}}$ 01'00	
minimum elong	15289 Mar 17 07:04	9° $\mathbf{\text{P}}$ 14'19	0°27'18	evening set	15296 Mar 16 15:36	23° $\mathbf{\text{P}}$ 55'05	
max. Earth dist.	15289 Mar 17 02:50	9° $\mathbf{\text{P}}$ 13'56	31.28355 AU				
morning rise	15289 Apr 02 08:00	9° $\mathbf{\text{P}}$ 49'37		conjunction	15296 Apr 01 16:42	24° $\mathbf{\text{P}}$ 30'20	0°26'18

minimum elong	15296 Apr 01 16:42	24° Υ 30'20	0°26'00	opposition	15302 Oct 15 09:18	8° \mathcal{B} 38'20	0°25'14
max. Earth dist.	15296 Apr 01 08:41	24° Υ 29'36	31.32879 AU	min. Earth dist.	15302 Oct 15 19:03	8° \mathcal{B} 37'40	29.36874 AU
morning rise	15296 Apr 17 16:12	25° Υ 05'28		direct	15303 Jan 03 06:59	7° \mathcal{B} 14'13	
retrograde	15296 Jul 14 16:11	26° Υ 58'22		evening set	15303 Apr 02 23:57	9° \mathcal{B} 08'28	
opposition	15296 Sep 30 20:39	25° Υ 35'38	0°27'54				
min. Earth dist.	15296 Oct 01 04:43	25° Υ 35'05	29.33157 AU	conjunction	15303 Apr 18 23:41	9° \mathcal{B} 43'36	0°23'25
direct	15296 Dec 19 12:11	24° Υ 11'24		minimum elong	15303 Apr 18 23:42	9° \mathcal{B} 43'36	0°22'53
evening set	15297 Mar 19 03:14	26° Υ 05'29		max. Earth dist.	15303 Apr 18 13:04	9° \mathcal{B} 42'38	31.37028 AU
				morning rise	15303 May 04 21:32	10° \mathcal{B} 18'37	
conjunction	15297 Apr 04 04:01	26° Υ 40'42	0°26'00	retrograde	15303 Jul 31 17:51	12° \mathcal{B} 11'16	
minimum elong	15297 Apr 04 04:01	26° Υ 40'42	0°25'39	opposition	15303 Oct 17 19:35	10° \mathcal{B} 48'50	0°24'40
max. Earth dist.	15297 Apr 03 18:58	26° Υ 39'52	31.33440 AU	min. Earth dist.	15303 Oct 18 05:57	10° \mathcal{B} 48'08	29.37167 AU
morning rise	15297 Apr 20 03:26	27° Υ 15'50		direct	15304 Jan 05 19:13	9° \mathcal{B} 24'43	
retrograde	15297 Jul 17 02:58	29° Υ 08'40		evening set	15304 Apr 04 11:33	11° \mathcal{B} 18'57	
opposition	15297 Oct 03 06:41	27° Υ 45'59	0°27'33				
min. Earth dist.	15297 Oct 03 13:55	27° Υ 45'29	29.33761 AU	conjunction	15304 Apr 20 10:54	11° \mathcal{B} 54'05	0°22'52
direct	15297 Dec 21 22:15	26° Υ 21'45		minimum elong	15304 Apr 20 10:54	11° \mathcal{B} 54'05	0°22'19
evening set	15298 Mar 21 14:33	28° Υ 15'51		max. Earth dist.	15304 Apr 19 22:31	11° \mathcal{B} 52'57	31.37250 AU
				morning rise	15304 May 06 08:38	12° \mathcal{B} 29'05	
conjunction	15298 Apr 06 15:14	28° Υ 51'03	0°25'40	retrograde	15304 Aug 02 04:09	14° \mathcal{B} 21'40	
minimum elong	15298 Apr 06 15:14	28° Υ 51'03	0°25'18	opposition	15304 Oct 19 05:43	12° \mathcal{B} 59'15	0°24'03
max. Earth dist.	15298 Apr 06 06:38	28° Υ 50'16	31.34078 AU	min. Earth dist.	15304 Oct 19 16:17	12° \mathcal{B} 58'31	29.37320 AU
morning rise	15298 Apr 22 14:18	29° Υ 26'10		direct	15305 Jan 07 05:41	11° \mathcal{B} 35'06	
	15298 May 08 21:29	0° \mathcal{B}		evening set	15305 Apr 06 22:54	13° \mathcal{B} 29'19	
retrograde	15298 Jul 19 12:28	1° \mathcal{B} 18'59					
	15298 Oct 03 11:43	30° $\mathcal{R}\Upsilon$		conjunction	15305 Apr 22 22:11	14° \mathcal{B} 04'26	0°22'17
opposition	15298 Oct 05 16:52	29° Υ 56'20	0°27'10	minimum elong	15305 Apr 22 22:11	14° \mathcal{B} 04'26	0°21'42
min. Earth dist.	15298 Oct 06 01:11	29° Υ 55'45	29.34439 AU	max. Earth dist.	15305 Apr 22 10:20	14° \mathcal{B} 03'21	31.37329 AU
direct	15298 Dec 24 09:16	28° Υ 32'08		morning rise	15305 May 08 19:30	14° \mathcal{B} 39'25	
	15299 Mar 11 13:10	0° \mathcal{B}			15305 May 18 13:02	15° \mathcal{B}	
evening set	15299 Mar 24 02:02	0° \mathcal{B} 26'15		retrograde	15305 Aug 04 12:44	16° \mathcal{B} 31'56	
				opposition	15305 Oct 21 16:05	15° \mathcal{B} 09'31	0°23'25
conjunction	15299 Apr 09 02:30	1° \mathcal{B} 01'27	0°25'17	min. Earth dist.	15305 Oct 22 03:48	15° \mathcal{B} 08'42	29.37337 AU
minimum elong	15299 Apr 09 02:30	1° \mathcal{B} 01'27	0°24'53		15305 Oct 27 10:14	15° $\mathcal{R}\mathcal{B}$	
max. Earth dist.	15299 Apr 08 17:26	1° \mathcal{B} 00'37	31.34791 AU	direct	15306 Jan 09 16:21	13° \mathcal{B} 45'20	
morning rise	15299 Apr 25 01:26	1° \mathcal{B} 36'32			15306 Mar 21 04:07	15° \mathcal{B}	
retrograde	15299 Jul 21 23:49	3° \mathcal{B} 29'19		evening set	15306 Apr 09 10:06	15° \mathcal{B} 39'31	
opposition	15299 Oct 08 02:45	2° \mathcal{B} 06'44	0°26'45				
min. Earth dist.	15299 Oct 08 10:26	2° \mathcal{B} 06'12	29.35153 AU	conjunction	15306 Apr 25 09:02	16° \mathcal{B} 14'37	0°21'40
direct	15299 Dec 26 20:52	0° \mathcal{B} 42'34		minimum elong	15306 Apr 25 09:02	16° \mathcal{B} 14'37	0°21'04
evening set	15300 Mar 26 13:35	2° \mathcal{B} 36'45		max. Earth dist.	15306 Apr 24 20:02	16° \mathcal{B} 13'25	31.37304 AU
				morning rise	15306 May 11 06:16	16° \mathcal{B} 49'35	
conjunction	15300 Apr 11 13:50	3° \mathcal{B} 11'56	0°24'52	retrograde	15306 Aug 06 22:44	18° \mathcal{B} 42'03	
minimum elong	15300 Apr 11 13:50	3° \mathcal{B} 11'56	0°24'27	opposition	15306 Oct 24 02:15	17° \mathcal{B} 19'37	0°22'45
max. Earth dist.	15300 Apr 11 04:13	3° \mathcal{B} 11'03	31.35492 AU	min. Earth dist.	15306 Oct 24 13:21	17° \mathcal{B} 18'51	29.37270 AU
morning rise	15300 Apr 27 12:31	3° \mathcal{B} 47'00		direct	15307 Jan 12 03:13	15° \mathcal{B} 55'23	
retrograde	15300 Jul 24 10:28	5° \mathcal{B} 39'46		evening set	15307 Apr 11 21:16	17° \mathcal{B} 49'34	
opposition	15300 Oct 10 12:57	4° \mathcal{B} 17'14	0°26'17				
min. Earth dist.	15300 Oct 10 22:00	4° \mathcal{B} 16'37	29.35835 AU	conjunction	15307 Apr 27 20:04	18° \mathcal{B} 24'38	0°21'02
direct	15300 Dec 29 06:51	2° \mathcal{B} 53'06		minimum elong	15307 Apr 27 20:04	18° \mathcal{B} 24'38	0°20'23
evening set	15301 Mar 29 01:02	4° \mathcal{B} 47'18		max. Earth dist.	15307 Apr 27 07:16	18° \mathcal{B} 23'28	31.37202 AU
				morning rise	15307 May 13 16:56	18° \mathcal{B} 59'35	
conjunction	15301 Apr 14 01:09	5° \mathcal{B} 22'29	0°24'25	retrograde	15307 Aug 09 07:24	20° \mathcal{B} 52'00	
minimum elong	15301 Apr 14 01:09	5° \mathcal{B} 22'29	0°23'57	opposition	15307 Oct 26 12:25	19° \mathcal{B} 29'32	0°22'03
max. Earth dist.	15301 Apr 13 15:36	5° \mathcal{B} 21'36	31.36131 AU	min. Earth dist.	15307 Oct 27 00:46	19° \mathcal{B} 28'41	29.37160 AU
morning rise	15301 Apr 29 23:30	5° \mathcal{B} 57'32		direct	15308 Jan 14 13:47	18° \mathcal{B} 05'15	
retrograde	15301 Jul 26 21:46	7° \mathcal{B} 50'15		evening set	15308 Apr 13 08:23	19° \mathcal{B} 59'26	
opposition	15301 Oct 12 23:04	6° \mathcal{B} 27'47	0°25'47				
min. Earth dist.	15301 Oct 13 08:01	6° \mathcal{B} 27'10	29.36414 AU	conjunction	15308 Apr 29 06:56	20° \mathcal{B} 34'30	0°20'22
direct	15301 Dec 31 20:08	5° \mathcal{B} 03'40		minimum elong	15308 Apr 29 06:56	20° \mathcal{B} 34'30	0°19'43
evening set	15302 Mar 31 12:38	6° \mathcal{B} 57'54		max. Earth dist.	15308 Apr 28 17:50	20° \mathcal{B} 33'18	31.37100 AU
				morning rise	15308 May 15 03:36	21° \mathcal{B} 09'25	
conjunction	15302 Apr 16 12:23	7° \mathcal{B} 33'03	0°23'56	retrograde	15308 Aug 10 17:48	23° \mathcal{B} 01'48	
minimum elong	15302 Apr 16 12:23	7° \mathcal{B} 33'03	0°23'27	opposition	15308 Oct 27 22:34	21° \mathcal{B} 39'19	0°21'19
max. Earth dist.	15302 Apr 16 01:23	7° \mathcal{B} 32'03	31.36647 AU	min. Earth dist.	15308 Oct 28 10:01	21° \mathcal{B} 38'31	29.37068 AU
morning rise	15302 May 02 10:36	8° \mathcal{B} 08'05		direct	15309 Jan 16 01:22	20° \mathcal{B} 15'00	
retrograde	15302 Jul 29 09:20	10° \mathcal{B} 00'47		evening set	15309 Apr 15 19:23	22° \mathcal{B} 09'11	

conjunction	15309 May 01 17:36	22° 8 44'14	0°19'40	conjunction	15315 May 15 09:46	5° II 44'17	0°14'56
minimum elong	15309 May 01 17:36	22° 8 44'14	0°18'58	minimum elong	15315 May 15 09:46	5° II 44'17	0°14'07
max. Earth dist.	15309 May 01 04:20	22° 8 43'01	31.37031 AU	behind sun begin	15315 May 15 06:37	5° II 44'01	
morning rise	15309 May 17 13:59	23° 8 19'08		behind sun end	15315 May 15 12:55	5° II 44'34	
retrograde	15309 Aug 13 03:58	25° 8 11'30		max. Earth dist.	15315 May 14 19:50	5° II 43'00	31.37580 AU
opposition	15309 Oct 30 08:55	23° 8 49'01	0°20'33	morning rise	15315 May 31 04:38	6° II 19'09	
min. Earth dist.	15309 Oct 30 21:04	23° 8 48'11	29.37054 AU	retrograde	15315 Aug 26 17:32	8° II 11'37	
direct	15310 Jan 18 11:17	22° 8 24'42		opposition	15315 Nov 12 23:09	6° II 49'24	0°15'25
evening set	15310 Apr 18 06:15	24° 8 18'54		min. Earth dist.	15315 Nov 13 11:22	6° II 48'34	29.37527 AU
				direct	15316 Feb 01 05:49	5° II 25'17	
conjunction	15310 May 04 04:21	24° 8 53'56	0°18'57	evening set	15316 May 01 00:06	7° II 19'44	
minimum elong	15310 May 04 04:21	24° 8 53'56	0°18'15				
max. Earth dist.	15310 May 03 15:50	24° 8 52'47	31.37069 AU	conjunction	15316 May 16 20:36	7° II 54'43	0°14'04
morning rise	15310 May 20 00:24	25° 8 28'50		minimum elong	15316 May 16 20:37	7° II 54'43	0°13'15
retrograde	15310 Aug 15 14:44	27° 8 21'11		behind sun begin	15316 May 16 16:51	7° II 54'23	
opposition	15310 Nov 01 19:05	25° 8 58'44	0°19'46	behind sun end	15316 May 17 00:23	7° II 55'04	
min. Earth dist.	15310 Nov 02 06:35	25° 8 57'56	29.37131 AU	max. Earth dist.	15316 May 16 06:39	7° II 53'26	31.37413 AU
direct	15311 Jan 21 00:08	24° 8 34'26		morning rise	15316 Jun 01 15:06	8° II 29'34	
evening set	15311 Apr 20 17:12	26° 8 28'41		retrograde	15316 Aug 28 02:25	10° II 22'04	
				opposition	15316 Nov 14 09:54	8° II 59'51	0°14'28
conjunction	15311 May 06 14:56	27° 8 03'42	0°18'12	min. Earth dist.	15316 Nov 14 23:25	8° II 58'55	29.37295 AU
minimum elong	15311 May 06 14:56	27° 8 03'42	0°17'27	direct	15317 Feb 02 15:55	7° II 35'44	
max. Earth dist.	15311 May 06 01:33	27° 8 02'29	31.37192 AU	evening set	15317 May 03 10:59	9° II 30'11	
morning rise	15311 May 22 10:53	27° 8 38'35					
retrograde	15311 Aug 18 02:26	29° 8 30'58		conjunction	15317 May 19 07:13	10° II 05'10	0°13'11
opposition	15311 Nov 04 05:24	28° 8 08'33	0°18'57	minimum elong	15317 May 19 07:13	10° II 05'10	0°12'20
min. Earth dist.	15311 Nov 04 17:04	28° 8 07'45	29.37288 AU	behind sun begin	15317 May 19 02:56	10° II 04'47	
direct	15312 Jan 23 10:42	26° 8 44'18		behind sun end	15317 May 19 11:30	10° II 05'33	
evening set	15312 Apr 22 04:06	28° 8 38'36		max. Earth dist.	15317 May 18 16:55	10° II 03'51	31.37115 AU
				morning rise	15317 Jun 04 01:28	10° II 40'00	
conjunction	15312 May 08 01:44	29° 8 13'37	0°17'25	retrograde	15317 Aug 30 12:44	12° II 32'30	
minimum elong	15312 May 08 01:44	29° 8 13'37	0°16'40	opposition	15317 Nov 16 20:32	11° II 10'17	0°13'30
max. Earth dist.	15312 May 07 13:19	29° 8 12'29	31.37361 AU	min. Earth dist.	15317 Nov 17 09:21	11° II 09'24	29.36922 AU
morning rise	15312 May 23 21:15	29° 8 48'29		direct	15318 Feb 05 02:50	9° II 46'08	
	15312 May 29 06:15	0° II		evening set	15318 May 05 21:56	11° II 40'36	
retrograde	15312 Aug 19 11:14	1° II 40'53					
opposition	15312 Nov 05 15:43	0° II 18'32	0°18'06	conjunction	15318 May 21 17:51	12° II 15'34	0°12'17
min. Earth dist.	15312 Nov 06 03:43	0° II 17'43	29.37450 AU	minimum elong	15318 May 21 17:51	12° II 15'34	0°11'26
	15312 Nov 16 23:33	30° 8		behind sun begin	15318 May 21 13:09	12° II 15'09	
direct	15313 Jan 24 22:26	28° 8 54'20		behind sun end	15318 May 21 22:33	12° II 15'59	
	15313 Mar 31 13:35	0° II		max. Earth dist.	15318 May 21 02:57	12° II 14'11	31.36680 AU
evening set	15313 Apr 24 15:11	0° II 48'41		morning rise	15318 Jun 06 11:52	12° II 50'23	
				retrograde	15318 Sep 01 23:10	14° II 42'54	
conjunction	15313 May 10 12:22	1° II 23'42	0°16'37	opposition	15318 Nov 19 07:10	13° II 20'38	0°12'32
minimum elong	15313 May 10 12:22	1° II 23'42	0°15'50	min. Earth dist.	15318 Nov 19 21:02	13° II 19'41	29.36444 AU
behind sun begin	15313 May 10 11:28	1° II 23'37		direct	15319 Feb 07 12:59	11° II 56'27	
behind sun end	15313 May 10 13:16	1° II 23'47		evening set	15319 May 08 08:41	13° II 50'55	
max. Earth dist.	15313 May 09 22:43	1° II 22'26	31.37517 AU				
morning rise	15313 May 26 07:46	1° II 58'34		conjunction	15319 May 24 04:29	14° II 25'52	0°11'21
retrograde	15313 Aug 21 22:08	3° II 50'59		minimum elong	15319 May 24 04:29	14° II 25'52	0°10'28
opposition	15313 Nov 08 02:09	2° II 28'42	0°17'14	behind sun begin	15319 May 23 23:24	14° II 25'25	
min. Earth dist.	15313 Nov 08 13:52	2° II 27'54	29.37583 AU	behind sun end	15319 May 24 09:33	14° II 26'19	
direct	15314 Jan 27 08:45	1° II 04'32		max. Earth dist.	15319 May 23 14:11	14° II 24'33	31.36161 AU
evening set	15314 Apr 27 01:58	2° II 58'55		morning rise	15319 Jun 08 22:12	15° II 00'40	
				retrograde	15319 Sep 04 09:53	16° II 53'10	
conjunction	15314 May 12 23:03	3° II 33'56	0°15'47	opposition	15319 Nov 21 17:49	15° II 30'52	0°11'32
minimum elong	15314 May 12 23:03	3° II 33'56	0°15'00	min. Earth dist.	15319 Nov 22 07:18	15° II 29'57	29.35880 AU
behind sun begin	15314 May 12 20:44	3° II 33'44		direct	15320 Feb 10 02:29	14° II 06'39	
behind sun end	15314 May 13 01:22	3° II 34'08		evening set	15320 May 09 19:31	16° II 01'06	
max. Earth dist.	15314 May 12 10:13	3° II 32'45	31.37601 AU				
morning rise	15314 May 28 18:02	4° II 08'48		conjunction	15320 May 25 14:54	16° II 36'02	0°10'25
retrograde	15314 Aug 24 07:26	6° II 01'15		minimum elong	15320 May 25 14:54	16° II 36'02	0°09'32
opposition	15314 Nov 10 12:46	4° II 39'00	0°16'20	behind sun begin	15320 May 25 09:30	16° II 35'33	
min. Earth dist.	15314 Nov 11 01:36	4° II 38'07	29.37616 AU	behind sun end	15320 May 25 20:17	16° II 36'31	
direct	15315 Jan 29 19:06	3° II 14'53		max. Earth dist.	15320 May 24 23:40	16° II 34'38	31.35582 AU
evening set	15315 Apr 29 13:03	5° II 09'17		morning rise	15320 Jun 10 08:28	17° II 10'50	
				retrograde	15320 Sep 05 21:14	19° II 03'19	

opposition	15320 Nov 23 04:29	17° Π 40'58	0°10'31	behind sun begin	15326 Jun 07 22:35	29° Π 36'05	
min. Earth dist.	15320 Nov 23 17:58	17° Π 40'03	29.35313 AU	behind sun end	15326 Jun 08 11:25	29° Π 37'14	
direct	15321 Feb 11 13:33	16° Π 16'42		max. Earth dist.	15326 Jun 07 15:46	29° Π 35'26	31.33263 AU
evening set	15321 May 12 06:07	18° Π 11'09			15326 Jun 18 16:18	0° \mathfrak{G}	
max. Earth dist.	15321 May 27 11:25	18° Π 44'47	31.35029 AU	morning rise	15326 Jun 23 21:03	0° \mathfrak{G} 11'25	
				retrograde	15326 Sep 19 08:57	2° \mathfrak{G} 04'10	
conjunction	15321 May 28 01:23	18° Π 46'05	0°09'28	opposition	15326 Dec 06 21:43	0° \mathfrak{G} 41'52	0°04'10
minimum elong	15321 May 28 01:23	18° Π 46'05	0°08'34	min. Earth dist.	15326 Dec 07 09:47	0° \mathfrak{G} 41'03	29.33080 AU
behind sun begin	15321 May 27 19:43	18° Π 45'34			15327 Jan 02 14:19	30° \mathfrak{R} Π	
behind sun end	15321 May 28 07:02	18° Π 46'35		direct	15327 Feb 25 07:30	29° Π 17'43	
morning rise	15321 Jun 12 18:32	19° Π 20'51			15327 Apr 18 04:10	0° \mathfrak{G}	
retrograde	15321 Sep 08 06:07	21° Π 13'21		evening set	15327 May 25 21:53	1° \mathfrak{G} 12'19	
opposition	15321 Nov 25 15:18	19° Π 50'58	0°09'29				
min. Earth dist.	15321 Nov 26 04:44	19° Π 50'03	29.34789 AU	conjunction	15327 Jun 10 15:28	1° \mathfrak{G} 47'13	0°03'31
direct	15322 Feb 14 01:41	18° Π 26'41		minimum elong	15327 Jun 10 15:28	1° \mathfrak{G} 47'13	0°02'34
evening set	15322 May 14 16:43	20° Π 21'07		behind sun begin	15327 Jun 10 09:00	1° \mathfrak{G} 46'39	
				behind sun end	15327 Jun 10 21:56	1° \mathfrak{G} 47'47	
conjunction	15322 May 30 11:33	20° Π 56'02	0°08'30	max. Earth dist.	15327 Jun 10 01:41	1° \mathfrak{G} 45'57	31.32855 AU
minimum elong	15322 May 30 11:33	20° Π 56'02	0°07'37	morning rise	15327 Jun 26 07:20	2° \mathfrak{G} 21'59	
behind sun begin	15322 May 30 05:40	20° Π 55'31		retrograde	15327 Sep 21 20:04	4° \mathfrak{G} 14'48	
behind sun end	15322 May 30 17:26	20° Π 56'33		opposition	15327 Dec 09 08:58	2° \mathfrak{G} 52'31	0°03'04
max. Earth dist.	15322 May 29 20:52	20° Π 54'41	31.34555 AU	min. Earth dist.	15327 Dec 09 21:53	2° \mathfrak{G} 51'39	29.32623 AU
morning rise	15322 Jun 15 04:39	21° Π 30'48		direct	15328 Feb 27 17:21	1° \mathfrak{G} 28'24	
retrograde	15322 Sep 10 17:27	23° Π 23'19		evening set	15328 May 27 08:35	3° \mathfrak{G} 23'03	
opposition	15322 Nov 28 02:03	22° Π 00'56	0°08'27				
min. Earth dist.	15322 Nov 28 14:36	22° Π 00'04	29.34367 AU	conjunction	15328 Jun 12 02:01	3° \mathfrak{G} 57'56	0°02'28
direct	15323 Feb 16 13:12	20° Π 36'38		minimum elong	15328 Jun 12 02:00	3° \mathfrak{G} 57'56	0°01'32
evening set	15323 May 17 03:17	22° Π 31'05		behind sun begin	15328 Jun 11 19:31	3° \mathfrak{G} 57'22	
				behind sun end	15328 Jun 12 08:28	3° \mathfrak{G} 58'31	
conjunction	15323 Jun 01 22:00	23° Π 06'00	0°07'32	max. Earth dist.	15328 Jun 11 12:55	3° \mathfrak{G} 56'44	31.32329 AU
minimum elong	15323 Jun 01 22:01	23° Π 06'00	0°06'37	morning rise	15328 Jun 27 17:30	4° \mathfrak{G} 32'41	
behind sun begin	15323 Jun 01 15:57	23° Π 05'28		retrograde	15328 Sep 23 07:07	6° \mathfrak{G} 25'35	
behind sun end	15323 Jun 02 04:06	23° Π 06'33		opposition	15328 Dec 10 20:15	5° \mathfrak{G} 03'19	0°01'58
max. Earth dist.	15323 Jun 01 08:33	23° Π 04'46	31.34172 AU	min. Earth dist.	15328 Dec 11 08:51	5° \mathfrak{G} 02'27	29.32018 AU
morning rise	15323 Jun 17 14:42	23° Π 40'46		direct	15329 Mar 01 06:08	3° \mathfrak{G} 39'12	
retrograde	15323 Sep 13 02:49	25° Π 33'19		evening set	15329 May 29 19:27	5° \mathfrak{G} 33'54	
opposition	15323 Nov 30 12:50	24° Π 10'56	0°07'24				
min. Earth dist.	15323 Dec 01 02:01	24° Π 10'02	29.34022 AU	conjunction	15329 Jun 14 12:27	6° \mathfrak{G} 08'47	0°01'24
direct	15324 Feb 19 00:17	22° Π 46'41		minimum elong	15329 Jun 14 12:27	6° \mathfrak{G} 08'47	0°00'28
evening set	15324 May 18 13:59	24° Π 41'10		behind sun begin	15329 Jun 14 06:00	6° \mathfrak{G} 08'12	
				behind sun end	15329 Jun 14 18:54	6° \mathfrak{G} 09'21	
conjunction	15324 Jun 03 08:22	25° Π 16'04	0°06'33	max. Earth dist.	15329 Jun 13 22:14	6° \mathfrak{G} 07'28	31.31657 AU
minimum elong	15324 Jun 03 08:21	25° Π 16'04	0°05'38	morning rise	15329 Jun 30 03:52	6° \mathfrak{G} 43'32	
behind sun begin	15324 Jun 03 02:08	25° Π 15'31		retrograde	15329 Sep 25 19:23	8° \mathfrak{G} 36'30	
behind sun end	15324 Jun 03 14:35	25° Π 16'37		opposition	15329 Dec 13 07:37	7° \mathfrak{G} 14'13	0°00'52
max. Earth dist.	15324 Jun 02 18:30	25° Π 14'47	31.33870 AU	min. Earth dist.	15329 Dec 13 20:18	7° \mathfrak{G} 13'21	29.31283 AU
morning rise	15324 Jun 19 00:56	25° Π 50'50		direct	15330 Mar 03 16:49	5° \mathfrak{G} 50'06	
retrograde	15324 Sep 14 13:05	27° Π 43'25		evening set	15330 Jun 01 06:01	7° \mathfrak{G} 44'49	
opposition	15324 Dec 01 23:41	26° Π 21'05	0°06'20				
min. Earth dist.	15324 Dec 02 11:41	26° Π 20'15	29.33732 AU	conjunction	15330 Jun 16 22:56	8° \mathfrak{G} 19'42	0°00'20
direct	15325 Feb 20 11:12	24° Π 56'51		minimum elong	15330 Jun 16 22:58	8° \mathfrak{G} 19'42	0°00'35
evening set	15325 May 21 00:28	26° Π 51'22		behind sun begin	15330 Jun 16 16:31	8° \mathfrak{G} 19'07	
				behind sun end	15330 Jun 17 05:25	8° \mathfrak{G} 20'16	
conjunction	15325 Jun 05 18:37	27° Π 26'16	0°05'33	max. Earth dist.	15330 Jun 16 09:41	8° \mathfrak{G} 18'28	31.30842 AU
minimum elong	15325 Jun 05 18:37	27° Π 26'16	0°04'37	morning rise	15330 Jul 02 14:02	8° \mathfrak{G} 54'27	
behind sun begin	15325 Jun 05 12:16	27° Π 25'43		retrograde	15330 Sep 28 05:11	10° \mathfrak{G} 47'29	
behind sun end	15325 Jun 06 00:58	27° Π 26'50		desc. node	15330 Oct 07 18:58	10° \mathfrak{G} 45'56	
max. Earth dist.	15325 Jun 05 05:15	27° Π 25'02	31.33577 AU	opposition	15330 Dec 15 19:02	9° \mathfrak{G} 25'10	-0°00'13
morning rise	15325 Jun 21 10:52	28° Π 01'02		min. Earth dist.	15330 Dec 16 08:07	9° \mathfrak{G} 24'16	29.30387 AU
retrograde	15325 Sep 16 22:21	29° Π 53'42		direct	15331 Mar 06 05:14	8° \mathfrak{G} 01'03	
opposition	15325 Dec 04 10:47	28° Π 31'23	0°05'15	evening set	15331 Jun 03 16:50	9° \mathfrak{G} 55'46	
min. Earth dist.	15325 Dec 04 23:41	28° Π 30'30	29.33437 AU				
direct	15326 Feb 22 20:51	27° Π 07'12		conjunction	15331 Jun 19 09:23	10° \mathfrak{G} 30'38	-0°00'43
evening set	15326 May 23 11:07	29° Π 01'45		minimum elong	15331 Jun 19 09:23	10° \mathfrak{G} 30'38	0°01'40
				behind sun begin	15331 Jun 19 02:55	10° \mathfrak{G} 30'04	
conjunction	15326 Jun 08 05:01	29° Π 36'40	0°04'32	behind sun end	15331 Jun 19 15:51	10° \mathfrak{G} 31'13	
minimum elong	15326 Jun 08 05:00	29° Π 36'39	0°03'37	max. Earth dist.	15331 Jun 18 19:01	10° \mathfrak{G} 29'19	31.29891 AU

morning rise	15331 Jul 05 00:25	11°☾05'23	conjunction	15337 Jul 01 23:09	23°☾36'12	-0°06'48
retrograde	15331 Sep 30 17:16	12°☾58'28	minimum elong	15337 Jul 01 23:09	23°☾36'12	0°07'43
opposition	15331 Dec 18 06:17	11°☾36'06 -0°01'19	behind sun begin	15337 Jul 01 17:18	23°☾35'41	
min. Earth dist.	15331 Dec 18 18:48	11°☾35'15 29.29384 AU	behind sun end	15337 Jul 02 04:59	23°☾36'43	
direct	15332 Mar 07 17:35	10°☾11'57	max. Earth dist.	15337 Jul 01 12:17	23°☾35'12	31.24177 AU
evening set	15332 Jun 05 03:26	12°☾06'41	morning rise	15337 Jul 17 12:55	24°☾10'58	
			retrograde	15337 Oct 13 06:32	26°☾04'29	
conjunction	15332 Jun 20 19:52	12°☾41'34 -0°01'46	opposition	15337 Dec 31 03:30	24°☾41'57 -0°07'48	
minimum elong	15332 Jun 20 19:53	12°☾41'34 0°02'41	min. Earth dist.	15337 Dec 31 13:54	24°☾41'14 29.23794 AU	
behind sun begin	15332 Jun 20 13:25	12°☾40'59	direct	15338 Mar 21 12:06	23°☾17'48	
behind sun end	15332 Jun 21 02:20	12°☾42'08	evening set	15338 Jun 18 18:24	25°☾12'37	
max. Earth dist.	15332 Jun 20 06:33	12°☾40'20 31.28843 AU				
morning rise	15332 Jul 06 10:33	13°☾16'18	conjunction	15338 Jul 04 09:21	25°☾47'29 -0°07'48	
retrograde	15332 Oct 02 03:17	15°☾09'26	minimum elong	15338 Jul 04 09:21	25°☾47'29 0°08'40	
opposition	15332 Dec 19 17:50	13°☾47'01 -0°02'25	behind sun begin	15338 Jul 04 03:44	25°☾46'59	
min. Earth dist.	15332 Dec 20 07:03	13°☾46'07 29.28315 AU	behind sun end	15338 Jul 04 14:58	25°☾48'00	
direct	15333 Mar 10 05:40	12°☾22'51	max. Earth dist.	15338 Jul 03 21:47	25°☾46'25 31.23402 AU	
evening set	15333 Jun 07 13:54	14°☾17'33	morning rise	15338 Jul 19 23:08	26°☾22'15	
			retrograde	15338 Oct 15 19:02	28°☾15'54	
conjunction	15333 Jun 23 06:00	14°☾52'25 -0°02'47	opposition	15339 Jan 02 15:16	26°☾53'21 -0°08'51	
minimum elong	15333 Jun 23 06:00	14°☾52'25 0°03'43	min. Earth dist.	15339 Jan 03 01:23	26°☾52'39 29.23012 AU	
behind sun begin	15333 Jun 22 23:36	14°☾51'51	direct	15339 Mar 23 21:52	25°☾29'13	
behind sun end	15333 Jun 23 12:24	14°☾52'59	evening set	15339 Jun 21 04:58	27°☾24'05	
max. Earth dist.	15333 Jun 22 16:32	14°☾51'10 31.27779 AU				
morning rise	15333 Jul 08 20:36	15°☾27'10	conjunction	15339 Jul 06 19:51	27°☾58'57 -0°08'46	
retrograde	15333 Oct 04 13:14	17°☾20'21	minimum elong	15339 Jul 06 19:52	27°☾58'57 0°09'39	
opposition	15333 Dec 22 05:14	15°☾57'53 -0°03'30	behind sun begin	15339 Jul 06 14:31	27°☾58'28	
min. Earth dist.	15333 Dec 22 17:01	15°☾57'04 29.27263 AU	behind sun end	15339 Jul 07 01:12	27°☾59'25	
direct	15334 Mar 12 17:30	14°☾33'41	max. Earth dist.	15339 Jul 06 09:33	27°☾58'00 31.22588 AU	
evening set	15334 Jun 10 00:24	16°☾28'23	morning rise	15339 Jul 22 09:18	28°☾33'43	
				15339 Sep 07 11:50	0°☾	
conjunction	15334 Jun 25 16:18	17°☾03'15 -0°03'48	retrograde	15339 Oct 18 05:42	0°☾27'27	
minimum elong	15334 Jun 25 16:18	17°☾03'15 0°04'43		15339 Nov 29 07:30	30°☾	
behind sun begin	15334 Jun 25 09:59	17°☾02'42	opposition	15340 Jan 05 03:05	29°☾04'54 -0°09'54	
behind sun end	15334 Jun 25 22:37	17°☾03'49	min. Earth dist.	15340 Jan 05 13:25	29°☾04'11 29.22159 AU	
max. Earth dist.	15334 Jun 25 03:27	17°☾02'04 31.26747 AU	direct	15340 Mar 25 10:13	27°☾40'48	
morning rise	15334 Jul 11 06:39	17°☾38'00	evening set	15340 Jun 22 15:43	29°☾35'41	
retrograde	15334 Oct 06 22:19	19°☾31'15		15340 Jul 03 13:50	0°☾	
opposition	15334 Dec 24 16:42	18°☾08'45 -0°04'35				
min. Earth dist.	15334 Dec 25 04:59	18°☾07'54 29.26281 AU	conjunction	15340 Jul 08 06:15	0°☾10'33 -0°09'44	
direct	15335 Mar 15 03:36	16°☾44'32	minimum elong	15340 Jul 08 06:14	0°☾10'33 0°10'34	
evening set	15335 Jun 12 10:54	18°☾39'15	behind sun begin	15340 Jul 08 01:12	0°☾10'06	
			behind sun end	15340 Jul 08 11:16	0°☾11'00	
conjunction	15335 Jun 28 02:38	19°☾14'07 -0°04'49	max. Earth dist.	15340 Jul 07 19:07	0°☾09'31 31.21702 AU	
minimum elong	15335 Jun 28 02:37	19°☾14'07 0°05'44	morning rise	15340 Jul 23 19:41	0°☾45'20	
behind sun begin	15335 Jun 27 20:25	19°☾13'34	retrograde	15340 Oct 19 19:09	2°☾39'10	
behind sun end	15335 Jun 28 08:48	19°☾14'41	opposition	15341 Jan 06 15:03	1°☾16'35 -0°10'55	
max. Earth dist.	15335 Jun 27 14:25	19°☾13'00 31.25817 AU	min. Earth dist.	15341 Jan 07 00:34	1°☾15'56 29.21227 AU	
morning rise	15335 Jul 13 16:47	19°☾48'52		15341 Mar 06 07:06	30°☾	
retrograde	15335 Oct 09 08:46	21°☾42'11	direct	15341 Mar 27 22:38	29°☾52'29	
opposition	15335 Dec 27 04:11	20°☾19'40 -0°05'40		15341 Apr 18 07:18	0°☾	
min. Earth dist.	15335 Dec 27 15:04	20°☾18'56 29.25386 AU	evening set	15341 Jun 25 02:14	1°☾47'24	
direct	15336 Mar 16 14:21	18°☾55'28				
evening set	15336 Jun 13 21:24	20°☾50'13	conjunction	15341 Jul 10 16:42	2°☾22'16 -0°10'41	
			minimum elong	15341 Jul 10 16:42	2°☾22'16 0°11'31	
conjunction	15336 Jun 29 12:47	21°☾25'05 -0°05'49	behind sun begin	15341 Jul 10 12:02	2°☾21'51	
minimum elong	15336 Jun 29 12:47	21°☾25'05 0°06'42	behind sun end	15341 Jul 10 21:22	2°☾22'41	
behind sun begin	15336 Jun 29 06:45	21°☾24'33	max. Earth dist.	15341 Jul 10 06:33	2°☾21'20 31.20703 AU	
behind sun end	15336 Jun 29 18:50	21°☾25'37	morning rise	15341 Jul 26 05:52	2°☾57'03	
max. Earth dist.	15336 Jun 29 00:35	21°☾23'57 31.24962 AU	retrograde	15341 Oct 22 05:55	4°☾50'59	
morning rise	15336 Jul 15 02:50	21°☾59'51	opposition	15342 Jan 09 03:13	3°☾28'21 -0°11'56	
retrograde	15336 Oct 10 19:41	23°☾53'16	min. Earth dist.	15342 Jan 09 13:33	3°☾27'39 29.20168 AU	
opposition	15336 Dec 28 15:52	22°☾30'44 -0°06'44	direct	15342 Mar 30 10:48	2°☾04'16	
min. Earth dist.	15336 Dec 29 02:59	22°☾29'58 29.24574 AU	evening set	15342 Jun 27 13:00	3°☾59'11	
direct	15337 Mar 19 00:20	21°☾06'33				
evening set	15337 Jun 16 07:51	23°☾01'20	conjunction	15342 Jul 13 03:13	4°☾34'03 -0°11'37	
			minimum elong	15342 Jul 13 03:12	4°☾34'03 0°12'25	

behind sun begin	15342 Jul 12 22:57	4°Ω33'40		min. Earth dist.	15348 Jan 23 11:13	16°Ω38'19	29.12406 AU
behind sun end	15342 Jul 13 07:27	4°Ω34'26		direct	15348 Apr 12 07:00	15°Ω14'35	
max. Earth dist.	15342 Jul 12 16:40	4°Ω33'04	31.19586 AU	evening set	15348 Jul 10 04:27	17°Ω09'28	
morning rise	15342 Jul 28 16:22	5°Ω08'50					
retrograde	15342 Oct 24 17:10	7°Ω02'51		conjunction	15348 Jul 25 17:48	17°Ω44'21	-0°16'49
opposition	15343 Jan 11 15:05	5°Ω40'10	-0°12'55	minimum elong	15348 Jul 25 17:48	17°Ω44'21	0°17'30
min. Earth dist.	15343 Jan 12 00:19	5°Ω39'33	29.18980 AU	max. Earth dist.	15348 Jul 25 10:47	17°Ω43'42	31.11842 AU
direct	15343 Apr 01 23:15	4°Ω16'04		morning rise	15348 Aug 10 06:16	18°Ω19'11	
evening set	15343 Jun 29 23:45	6°Ω10'59		retrograde	15348 Nov 06 10:44	20°Ω13'45	
				opposition	15349 Jan 24 16:21	18°Ω50'41	-0°18'25
conjunction	15343 Jul 15 13:48	6°Ω45'51	-0°12'32	min. Earth dist.	15349 Jan 24 23:10	18°Ω50'13	29.11323 AU
minimum elong	15343 Jul 15 13:48	6°Ω45'51	0°13'20	direct	15349 Apr 14 19:10	17°Ω26'30	
behind sun begin	15343 Jul 15 10:03	6°Ω45'31		evening set	15349 Jul 12 14:56	19°Ω21'24	
behind sun end	15343 Jul 15 17:33	6°Ω46'11					
max. Earth dist.	15343 Jul 15 03:24	6°Ω44'53	31.18329 AU	conjunction	15349 Jul 28 04:02	19°Ω56'17	-0°17'37
morning rise	15343 Jul 31 02:48	7°Ω20'38		minimum elong	15349 Jul 28 04:02	19°Ω56'17	0°18'17
retrograde	15343 Oct 27 03:30	9°Ω14'44		max. Earth dist.	15349 Jul 27 20:48	19°Ω55'37	31.10823 AU
opposition	15344 Jan 14 03:21	7°Ω51'59	-0°13'53	morning rise	15349 Aug 12 16:37	20°Ω31'08	
min. Earth dist.	15344 Jan 14 13:23	7°Ω51'18	29.17672 AU	retrograde	15349 Nov 09 00:47	22°Ω25'50	
direct	15344 Apr 03 10:39	6°Ω27'51		opposition	15350 Jan 27 04:37	21°Ω02'45	-0°19'15
evening set	15344 Jul 01 10:18	8°Ω22'44		min. Earth dist.	15350 Jan 27 10:10	21°Ω02'23	29.10346 AU
				direct	15350 Apr 17 07:07	19°Ω38'36	
conjunction	15344 Jul 17 00:13	8°Ω57'36	-0°13'26	evening set	15350 Jul 15 01:30	21°Ω33'33	
minimum elong	15344 Jul 17 00:13	8°Ω57'36	0°14'12				
behind sun begin	15344 Jul 16 21:04	8°Ω57'19		conjunction	15350 Jul 30 14:35	22°Ω08'27	-0°18'23
behind sun end	15344 Jul 17 03:23	8°Ω57'53		minimum elong	15350 Jul 30 14:35	22°Ω08'27	0°19'01
max. Earth dist.	15344 Jul 16 14:25	8°Ω56'42	31.16983 AU	max. Earth dist.	15350 Jul 30 08:41	22°Ω07'55	31.09870 AU
morning rise	15344 Aug 01 13:06	9°Ω32'24		morning rise	15350 Aug 15 02:59	22°Ω43'19	
retrograde	15344 Oct 28 14:09	11°Ω26'34		retrograde	15350 Nov 11 12:13	24°Ω38'10	
opposition	15345 Jan 15 15:29	10°Ω03'44	-0°14'50	opposition	15351 Jan 29 16:58	23°Ω15'04	-0°20'04
min. Earth dist.	15345 Jan 16 00:16	10°Ω03'08	29.16287 AU	min. Earth dist.	15351 Jan 29 22:58	23°Ω14'40	29.09415 AU
direct	15345 Apr 05 23:00	8°Ω39'33		direct	15351 Apr 19 18:43	21°Ω50'58	
evening set	15345 Jul 03 20:56	10°Ω34'25		evening set	15351 Jul 17 12:14	23°Ω45'58	
conjunction	15345 Jul 19 10:36	11°Ω09'17	-0°14'18	conjunction	15351 Aug 02 01:08	24°Ω20'53	-0°19'07
minimum elong	15345 Jul 19 10:36	11°Ω09'17	0°15'05	minimum elong	15351 Aug 02 01:08	24°Ω20'53	0°19'45
behind sun begin	15345 Jul 19 08:14	11°Ω09'05		max. Earth dist.	15351 Aug 01 19:22	24°Ω20'21	31.08959 AU
behind sun end	15345 Jul 19 12:58	11°Ω09'30		morning rise	15351 Aug 17 13:34	24°Ω55'45	
max. Earth dist.	15345 Jul 19 00:39	11°Ω08'22	31.15589 AU	retrograde	15351 Nov 14 00:40	26°Ω50'44	
morning rise	15345 Aug 03 23:27	11°Ω44'06		opposition	15352 Feb 01 05:25	25°Ω27'38	-0°20'50
retrograde	15345 Oct 31 00:53	13°Ω38'20		min. Earth dist.	15352 Feb 01 09:57	25°Ω27'20	29.08500 AU
opposition	15346 Jan 18 03:39	12°Ω15'25	-0°15'46	direct	15352 Apr 21 07:12	24°Ω03'35	
min. Earth dist.	15346 Jan 18 12:40	12°Ω14'48	29.14915 AU	evening set	15352 Jul 18 22:54	25°Ω58'37	
direct	15346 Apr 08 09:23	10°Ω51'13					
evening set	15346 Jul 06 07:21	12°Ω46'04		conjunction	15352 Aug 03 11:41	26°Ω33'32	-0°19'50
				minimum elong	15352 Aug 03 11:41	26°Ω33'32	0°20'25
conjunction	15346 Jul 21 21:01	13°Ω20'56	-0°15'10	max. Earth dist.	15352 Aug 03 06:22	26°Ω33'03	31.08025 AU
minimum elong	15346 Jul 21 21:01	13°Ω20'56	0°15'54	morning rise	15352 Aug 19 00:02	27°Ω08'26	
behind sun begin	15346 Jul 21 19:54	13°Ω20'50		retrograde	15352 Nov 15 12:34	29°Ω03'34	
behind sun end	15346 Jul 21 22:09	13°Ω21'02		opposition	15353 Feb 02 18:10	27°Ω40'27	-0°21'35
max. Earth dist.	15346 Jul 21 12:38	13°Ω20'09	31.14240 AU	min. Earth dist.	15353 Feb 02 23:17	27°Ω40'06	29.07554 AU
morning rise	15346 Aug 06 09:41	13°Ω55'45		direct	15353 Apr 23 18:56	26°Ω16'27	
	15346 Sep 07 17:32	15°Ω		evening set	15353 Jul 21 09:42	28°Ω11'29	
retrograde	15346 Nov 02 11:13	15°Ω50'05					
	15346 Dec 31 00:54	15°Ω		conjunction	15353 Aug 05 22:26	28°Ω46'26	-0°20'31
opposition	15347 Jan 20 15:49	14°Ω27'05	-0°16'41	minimum elong	15353 Aug 05 22:27	28°Ω46'26	0°21'06
min. Earth dist.	15347 Jan 20 23:49	14°Ω26'33	29.13599 AU	max. Earth dist.	15353 Aug 05 17:49	28°Ω46'00	31.07052 AU
direct	15347 Apr 10 21:22	13°Ω02'51		morning rise	15353 Aug 21 10:45	29°Ω21'21	
evening set	15347 Jul 08 17:59	14°Ω57'43			15353 Sep 08 18:38	0°Ω	
	15347 Jul 09 18:53	15°Ω		retrograde	15353 Nov 18 00:28	1°Ω16'35	
					15354 Feb 01 07:09	30°Ω	
conjunction	15347 Jul 24 07:19	15°Ω32'35	-0°16'00	opposition	15354 Feb 05 06:42	29°Ω53'28	-0°22'18
minimum elong	15347 Jul 24 07:19	15°Ω32'35	0°16'44	min. Earth dist.	15354 Feb 05 10:39	29°Ω53'11	29.06535 AU
max. Earth dist.	15347 Jul 23 22:33	15°Ω31'47	31.12978 AU	direct	15354 Apr 26 07:38	28°Ω29'29	
morning rise	15347 Aug 08 20:01	16°Ω07'25			15354 Jul 12 10:48	0°Ω	
retrograde	15347 Nov 04 23:40	18°Ω01'51		evening set	15354 Jul 23 20:40	0°Ω24'33	
opposition	15348 Jan 23 03:59	16°Ω38'49	-0°17'34				

conjunction	15354 Aug 08 09:14	0° \mathring{M} 59'29	-0°21'11	direct	15361 May 11 17:50	14° \mathring{M} 01'17	
minimum elong	15354 Aug 08 09:14	0° \mathring{M} 59'29	0°21'42	evening set	15361 Aug 08 00:33	15° \mathring{M} 56'13	
max. Earth dist.	15354 Aug 08 04:07	0° \mathring{M} 59'01	31.05982 AU				
morning rise	15354 Aug 23 21:37	1° \mathring{M} 34'26		conjunction	15361 Aug 23 12:52	16° \mathring{M} 31'13	-0°24'51
retrograde	15354 Nov 20 11:31	3° \mathring{M} 29'48		minimum elong	15361 Aug 23 12:53	16° \mathring{M} 31'13	0°25'10
opposition	15355 Feb 07 19:30	2° \mathring{M} 06'37	-0°22'59	max. Earth dist.	15361 Aug 23 12:02	16° \mathring{M} 31'08	30.97459 AU
min. Earth dist.	15355 Feb 07 23:57	2° \mathring{M} 06'19	29.05418 AU	morning rise	15361 Sep 08 01:27	17° \mathring{M} 06'15	
direct	15355 Apr 28 18:17	0° \mathring{M} 42'39		retrograde	15361 Dec 06 00:33	19° \mathring{M} 02'16	
evening set	15355 Jul 26 07:31	2° \mathring{M} 37'42		opposition	15362 Feb 23 13:13	17° \mathring{M} 38'34	-0°26'46
				min. Earth dist.	15362 Feb 23 13:47	17° \mathring{M} 38'32	28.97010 AU
conjunction	15355 Aug 10 20:08	3° \mathring{M} 12'39	-0°21'48	direct	15362 May 14 05:51	16° \mathring{M} 14'30	
minimum elong	15355 Aug 10 20:08	3° \mathring{M} 12'39	0°22'19	evening set	15362 Aug 10 11:26	18° \mathring{M} 09'27	
max. Earth dist.	15355 Aug 10 16:13	3° \mathring{M} 12'18	31.04804 AU				
morning rise	15355 Aug 26 08:22	3° \mathring{M} 47'36		conjunction	15362 Aug 25 23:50	18° \mathring{M} 44'27	-0°25'14
retrograde	15355 Nov 22 21:47	5° \mathring{M} 43'05		minimum elong	15362 Aug 25 23:50	18° \mathring{M} 44'27	0°25'30
opposition	15356 Feb 10 08:17	4° \mathring{M} 19'51	-0°23'38	max. Earth dist.	15362 Aug 26 00:03	18° \mathring{M} 44'28	30.96568 AU
min. Earth dist.	15356 Feb 10 12:05	4° \mathring{M} 19'35	29.04175 AU	morning rise	15362 Sep 10 12:27	19° \mathring{M} 19'30	
direct	15356 Apr 30 06:33	2° \mathring{M} 55'51		retrograde	15362 Dec 08 12:57	21° \mathring{M} 15'39	
evening set	15356 Jul 27 18:33	4° \mathring{M} 50'54		opposition	15363 Feb 26 02:06	19° \mathring{M} 51'56	-0°27'09
				min. Earth dist.	15363 Feb 26 01:04	19° \mathring{M} 52'00	28.96149 AU
conjunction	15356 Aug 12 06:57	5° \mathring{M} 25'51	-0°22'24	direct	15363 May 16 19:03	18° \mathring{M} 27'54	
minimum elong	15356 Aug 12 06:57	5° \mathring{M} 25'51	0°22'52	evening set	15363 Aug 12 22:26	20° \mathring{M} 22'52	
max. Earth dist.	15356 Aug 12 02:15	5° \mathring{M} 25'25	31.03522 AU				
morning rise	15356 Aug 27 19:22	6° \mathring{M} 00'49		conjunction	15363 Aug 28 10:42	20° \mathring{M} 57'53	-0°25'34
retrograde	15356 Nov 24 10:44	7° \mathring{M} 56'23		minimum elong	15363 Aug 28 10:42	20° \mathring{M} 57'53	0°25'49
opposition	15357 Feb 11 21:06	6° \mathring{M} 33'03	-0°24'15	max. Earth dist.	15363 Aug 28 10:53	20° \mathring{M} 57'54	30.95736 AU
min. Earth dist.	15357 Feb 12 00:32	6° \mathring{M} 32'49	29.02864 AU	morning rise	15363 Sep 12 23:29	21° \mathring{M} 32'58	
direct	15357 May 02 16:36	5° \mathring{M} 09'02		retrograde	15363 Dec 11 00:58	23° \mathring{M} 29'15	
evening set	15357 Jul 30 05:12	7° \mathring{M} 04'02		opposition	15364 Feb 28 15:13	22° \mathring{M} 05'31	-0°27'30
				min. Earth dist.	15364 Feb 28 14:21	22° \mathring{M} 05'34	28.95348 AU
conjunction	15357 Aug 14 17:45	7° \mathring{M} 39'00	-0°22'57	direct	15364 May 18 05:47	20° \mathring{M} 41'32	
minimum elong	15357 Aug 14 17:45	7° \mathring{M} 39'00	0°23'24	evening set	15364 Aug 14 09:26	22° \mathring{M} 36'30	
max. Earth dist.	15357 Aug 14 14:33	7° \mathring{M} 38'42	31.02183 AU				
morning rise	15357 Aug 30 06:03	8° \mathring{M} 13'59		conjunction	15364 Aug 29 21:52	23° \mathring{M} 11'33	-0°25'53
retrograde	15357 Nov 26 21:26	10° \mathring{M} 09'37		minimum elong	15364 Aug 29 21:52	23° \mathring{M} 11'33	0°26'05
opposition	15358 Feb 14 09:54	8° \mathring{M} 46'12	-0°24'50	max. Earth dist.	15364 Aug 29 23:35	23° \mathring{M} 11'42	30.94947 AU
min. Earth dist.	15358 Feb 14 13:10	8° \mathring{M} 45'58	29.01513 AU	morning rise	15364 Sep 14 10:35	23° \mathring{M} 46'39	
direct	15358 May 05 05:34	7° \mathring{M} 22'08		retrograde	15364 Dec 12 12:18	25° \mathring{M} 43'04	
evening set	15358 Aug 01 16:07	9° \mathring{M} 17'06		opposition	15365 Mar 02 04:18	24° \mathring{M} 19'19	-0°27'48
				min. Earth dist.	15365 Mar 02 02:35	24° \mathring{M} 19'26	28.94553 AU
conjunction	15358 Aug 17 04:28	9° \mathring{M} 52'04	-0°23'29	direct	15365 May 20 18:14	22° \mathring{M} 55'24	
minimum elong	15358 Aug 17 04:28	9° \mathring{M} 52'04	0°23'52	evening set	15365 Aug 16 20:37	24° \mathring{M} 50'23	
max. Earth dist.	15358 Aug 17 00:57	9° \mathring{M} 51'45	31.00854 AU				
morning rise	15358 Sep 01 16:57	10° \mathring{M} 27'03		conjunction	15365 Sep 01 08:56	25° \mathring{M} 25'27	-0°26'08
retrograde	15358 Nov 29 11:03	12° \mathring{M} 22'47		minimum elong	15365 Sep 01 08:56	25° \mathring{M} 25'27	0°26'19
opposition	15359 Feb 16 22:33	10° \mathring{M} 59'16	-0°25'22	max. Earth dist.	15365 Sep 01 10:00	25° \mathring{M} 25'33	30.94144 AU
min. Earth dist.	15359 Feb 17 00:33	10° \mathring{M} 59'07	29.00219 AU	morning rise	15365 Sep 16 21:56	26° \mathring{M} 00'34	
direct	15359 May 07 17:11	9° \mathring{M} 35'09		retrograde	15365 Dec 15 02:00	27° \mathring{M} 57'08	
evening set	15359 Aug 04 02:56	11° \mathring{M} 30'07		opposition	15366 Mar 04 17:28	26° \mathring{M} 33'22	-0°28'04
				min. Earth dist.	15366 Mar 04 15:29	26° \mathring{M} 33'30	28.93731 AU
conjunction	15359 Aug 19 15:20	12° \mathring{M} 05'05	-0°23'58	direct	15366 May 23 04:27	25° \mathring{M} 09'29	
minimum elong	15359 Aug 19 15:20	12° \mathring{M} 05'05	0°24'21	evening set	15366 Aug 19 07:51	27° \mathring{M} 04'29	
max. Earth dist.	15359 Aug 19 13:17	12° \mathring{M} 04'54	30.99596 AU				
morning rise	15359 Sep 04 03:44	12° \mathring{M} 40'05		conjunction	15366 Sep 03 20:20	27° \mathring{M} 39'34	-0°26'22
retrograde	15359 Dec 01 22:18	14° \mathring{M} 35'54		minimum elong	15366 Sep 03 20:21	27° \mathring{M} 39'34	0°26'29
opposition	15360 Feb 19 11:31	13° \mathring{M} 12'18	-0°25'52	max. Earth dist.	15366 Sep 03 22:41	27° \mathring{M} 39'47	30.93274 AU
min. Earth dist.	15360 Feb 19 13:38	13° \mathring{M} 12'09	28.99021 AU	morning rise	15366 Sep 19 09:16	28° \mathring{M} 14'43	
direct	15360 May 09 04:41	11° \mathring{M} 48'12			15366 Nov 21 10:53	0° \mathring{A}	
evening set	15360 Aug 05 13:40	13° \mathring{M} 43'08		retrograde	15366 Dec 17 13:14	0° \mathring{A} 11'24	
					15367 Jan 13 06:37	30° \mathring{R} \mathring{M}	
conjunction	15360 Aug 21 02:00	14° \mathring{M} 18'06	-0°24'25	opposition	15367 Mar 07 06:38	28° \mathring{M} 47'37	-0°28'17
minimum elong	15360 Aug 21 02:00	14° \mathring{M} 18'06	0°24'45	min. Earth dist.	15367 Mar 07 04:41	28° \mathring{M} 47'45	28.92811 AU
max. Earth dist.	15360 Aug 21 00:27	14° \mathring{M} 17'58	30.98469 AU	direct	15367 May 25 17:04	27° \mathring{M} 23'46	
morning rise	15360 Sep 05 14:31	14° \mathring{M} 53'07		evening set	15367 Aug 21 19:18	29° \mathring{M} 18'47	
retrograde	15360 Dec 03 11:45	16° \mathring{M} 49'02					
opposition	15361 Feb 21 00:21	15° \mathring{M} 25'23	-0°26'20	conjunction	15367 Sep 06 07:43	29° \mathring{M} 53'52	-0°26'33
min. Earth dist.	15361 Feb 21 00:37	15° \mathring{M} 25'22	28.97956 AU	minimum elong	15367 Sep 06 07:43	29° \mathring{M} 53'52	0°26'39

max. Earth dist.	15367 Sep 06 09:19	29° <u>17</u> 54'01	30.92311 AU	min. Earth dist.	15374 Mar 22 21:19	14° <u>0</u> 29'00	28.85353 AU
	15367 Sep 09 00:08	0° <u>0</u>		direct	15374 Jun 10 09:15	13° <u>0</u> 04'40	
morning rise	15367 Sep 21 20:53	0° <u>0</u> 29'03		evening set	15374 Sep 06 02:29	14° <u>0</u> 59'32	
retrograde	15367 Dec 20 03:28	2° <u>0</u> 25'51					
opposition	15368 Mar 08 19:56	1° <u>0</u> 02'01	-0°28'27	conjunction	15374 Sep 21 15:33	15° <u>0</u> 34'44	-0°26'43
min. Earth dist.	15368 Mar 08 17:07	1° <u>0</u> 02'13	28.91793 AU	minimum elong	15374 Sep 21 15:33	15° <u>0</u> 34'44	0°26'33
	15368 Apr 20 01:57	30° <u>8</u> 17		max. Earth dist.	15374 Sep 21 20:57	15° <u>0</u> 35'14	30.84968 AU
direct	15368 May 27 04:18	29° <u>17</u> 38'10		morning rise	15374 Oct 07 05:55	16° <u>0</u> 10'04	
	15368 Jul 02 09:13	0° <u>0</u>		retrograde	15375 Jan 04 21:36	18° <u>0</u> 07'25	
evening set	15368 Aug 23 06:33	1° <u>0</u> 33'11		opposition	15375 Mar 25 16:17	16° <u>0</u> 43'08	-0°28'29
				min. Earth dist.	15375 Mar 25 09:56	16° <u>0</u> 43'34	28.84633 AU
conjunction	15368 Sep 07 19:08	2° <u>0</u> 08'17	-0°26'42	direct	15375 Jun 12 20:11	15° <u>0</u> 19'13	
minimum elong	15368 Sep 07 19:08	2° <u>0</u> 08'17	0°26'45	evening set	15375 Sep 08 13:49	17° <u>0</u> 14'05	
max. Earth dist.	15368 Sep 07 21:41	2° <u>0</u> 08'32	30.91229 AU				
morning rise	15368 Sep 23 08:21	2° <u>0</u> 43'29		conjunction	15375 Sep 24 03:11	17° <u>0</u> 49'18	-0°26'35
retrograde	15368 Dec 21 15:15	4° <u>0</u> 40'23		minimum elong	15375 Sep 24 03:11	17° <u>0</u> 49'18	0°26'24
opposition	15369 Mar 11 09:21	3° <u>0</u> 16'30	-0°28'35	max. Earth dist.	15375 Sep 24 10:16	17° <u>0</u> 49'58	30.84301 AU
min. Earth dist.	15369 Mar 11 07:09	3° <u>0</u> 16'39	28.90660 AU	morning rise	15375 Oct 09 17:34	18° <u>0</u> 24'39	
direct	15369 May 29 15:44	1° <u>0</u> 52'38		retrograde	15376 Jan 07 08:13	20° <u>0</u> 22'07	
evening set	15369 Aug 25 17:57	3° <u>0</u> 47'37		opposition	15376 Mar 27 05:34	18° <u>0</u> 57'48	-0°28'18
				min. Earth dist.	15376 Mar 26 22:46	18° <u>0</u> 58'16	28.84011 AU
conjunction	15369 Sep 10 06:35	4° <u>0</u> 22'44	-0°26'48	direct	15376 Jun 14 08:44	17° <u>0</u> 33'55	
minimum elong	15369 Sep 10 06:35	4° <u>0</u> 22'44	0°26'50	evening set	15376 Sep 10 01:16	19° <u>0</u> 28'47	
max. Earth dist.	15369 Sep 10 09:09	4° <u>0</u> 22'59	30.90069 AU				
morning rise	15369 Sep 25 20:02	4° <u>0</u> 57'57		conjunction	15376 Sep 25 14:39	20° <u>0</u> 04'01	-0°26'24
retrograde	15369 Dec 24 05:29	6° <u>0</u> 54'55		minimum elong	15376 Sep 25 14:40	20° <u>0</u> 04'01	0°26'11
opposition	15370 Mar 13 22:22	5° <u>0</u> 30'57	-0°28'41	max. Earth dist.	15376 Sep 25 21:26	20° <u>0</u> 04'39	30.83729 AU
min. Earth dist.	15370 Mar 13 18:52	5° <u>0</u> 31'12	28.89472 AU	morning rise	15376 Oct 11 05:25	20° <u>0</u> 39'23	
direct	15370 Jun 01 05:28	4° <u>0</u> 07'03		retrograde	15377 Jan 08 22:04	22° <u>0</u> 36'56	
evening set	15370 Aug 28 05:18	6° <u>0</u> 02'01		opposition	15377 Mar 29 18:49	21° <u>0</u> 12'37	-0°28'06
				min. Earth dist.	15377 Mar 29 10:59	21° <u>0</u> 13'09	28.83470 AU
conjunction	15370 Sep 12 18:01	6° <u>0</u> 37'09	-0°26'52	direct	15377 Jun 16 19:19	19° <u>0</u> 48'45	
minimum elong	15370 Sep 12 18:01	6° <u>0</u> 37'09	0°26'51	evening set	15377 Sep 12 12:51	21° <u>0</u> 43'37	
max. Earth dist.	15370 Sep 12 20:59	6° <u>0</u> 37'26	30.88867 AU				
morning rise	15370 Sep 28 07:37	7° <u>0</u> 12'23		conjunction	15377 Sep 28 02:29	22° <u>0</u> 18'52	-0°26'11
retrograde	15370 Dec 26 18:59	9° <u>0</u> 09'26		minimum elong	15377 Sep 28 02:29	22° <u>0</u> 18'52	0°25'56
opposition	15371 Mar 16 11:41	7° <u>0</u> 45'22	-0°28'43	max. Earth dist.	15377 Sep 28 10:25	22° <u>0</u> 19'37	30.83196 AU
min. Earth dist.	15371 Mar 16 08:40	7° <u>0</u> 45'35	28.88290 AU	morning rise	15377 Oct 13 17:21	22° <u>0</u> 54'16	
direct	15371 Jun 03 18:14	6° <u>0</u> 21'27		retrograde	15378 Jan 11 10:02	24° <u>0</u> 51'55	
evening set	15371 Aug 30 16:30	8° <u>0</u> 16'23		opposition	15378 Apr 01 08:03	23° <u>0</u> 27'34	-0°27'50
				min. Earth dist.	15378 Apr 01 00:46	23° <u>0</u> 28'04	28.82943 AU
conjunction	15371 Sep 15 05:21	8° <u>0</u> 51'32	-0°26'53	direct	15378 Jun 19 06:28	22° <u>0</u> 03'44	
minimum elong	15371 Sep 15 05:21	8° <u>0</u> 51'32	0°26'51	evening set	15378 Sep 15 00:37	23° <u>0</u> 58'36	
max. Earth dist.	15371 Sep 15 09:23	8° <u>0</u> 51'54	30.87719 AU				
morning rise	15371 Sep 30 19:02	9° <u>0</u> 26'47		conjunction	15378 Sep 30 14:22	24° <u>0</u> 33'52	-0°25'56
retrograde	15371 Dec 29 07:36	11° <u>0</u> 23'54		minimum elong	15378 Sep 30 14:22	24° <u>0</u> 33'52	0°25'38
opposition	15372 Mar 18 00:49	9° <u>0</u> 59'46	-0°28'44	max. Earth dist.	15378 Sep 30 22:16	24° <u>0</u> 34'37	30.82671 AU
min. Earth dist.	15372 Mar 17 20:06	10° <u>0</u> 00'05	28.87183 AU	morning rise	15378 Oct 16 05:29	25° <u>0</u> 09'18	
direct	15372 Jun 05 08:00	8° <u>0</u> 35'49		retrograde	15379 Jan 14 00:23	27° <u>0</u> 07'01	
evening set	15372 Sep 01 03:51	10° <u>0</u> 30'44		opposition	15379 Apr 03 21:20	25° <u>0</u> 42'39	-0°27'32
				min. Earth dist.	15379 Apr 03 12:53	25° <u>0</u> 43'14	28.82396 AU
conjunction	15372 Sep 16 16:41	11° <u>0</u> 05'53	-0°26'52	direct	15379 Jun 21 19:27	24° <u>0</u> 18'50	
minimum elong	15372 Sep 16 16:41	11° <u>0</u> 05'53	0°26'47	evening set	15379 Sep 17 12:22	26° <u>0</u> 13'42	
max. Earth dist.	15372 Sep 16 20:45	11° <u>0</u> 06'16	30.86667 AU				
morning rise	15372 Oct 02 06:39	11° <u>0</u> 41'10		conjunction	15379 Oct 03 02:14	26° <u>0</u> 48'59	-0°25'38
retrograde	15372 Dec 30 20:09	13° <u>0</u> 38'22		minimum elong	15379 Oct 03 02:14	26° <u>0</u> 48'59	0°25'18
opposition	15373 Mar 20 14:01	12° <u>0</u> 14'09	-0°28'41	max. Earth dist.	15379 Oct 03 10:20	26° <u>0</u> 49'45	30.82081 AU
min. Earth dist.	15373 Mar 20 09:22	12° <u>0</u> 14'28	28.86207 AU	morning rise	15379 Oct 18 17:34	27° <u>0</u> 24'26	
direct	15373 Jun 07 19:32	10° <u>0</u> 50'12		retrograde	15380 Jan 16 13:44	29° <u>0</u> 22'15	
evening set	15373 Sep 03 15:03	12° <u>0</u> 45'06		opposition	15380 Apr 05 10:52	27° <u>0</u> 57'50	-0°27'11
				min. Earth dist.	15380 Apr 05 03:13	27° <u>0</u> 58'22	28.81775 AU
conjunction	15373 Sep 19 04:11	13° <u>0</u> 20'17	-0°26'49	direct	15380 Jun 23 07:20	26° <u>0</u> 34'01	
minimum elong	15373 Sep 19 04:11	13° <u>0</u> 20'17	0°26'42	evening set	15380 Sep 19 00:12	28° <u>0</u> 28'52	
max. Earth dist.	15373 Sep 19 09:57	13° <u>0</u> 20'49	30.85756 AU				
morning rise	15373 Oct 04 18:12	13° <u>0</u> 55'34		conjunction	15380 Oct 04 14:21	29° <u>0</u> 04'10	-0°25'17
retrograde	15374 Jan 02 08:21	15° <u>0</u> 52'51		minimum elong	15380 Oct 04 14:21	29° <u>0</u> 04'10	0°24'56
opposition	15374 Mar 23 03:08	14° <u>0</u> 28'36	-0°28'36	max. Earth dist.	15380 Oct 04 22:55	29° <u>0</u> 04'58	30.81423 AU

morning rise	15380 Oct 20 05:52	29° 0 39'38	opposition	15387 Apr 22 07:06	13° 0 43'00	-0°23'41	
	15380 Oct 29 13:55	0° 0	min. Earth dist.	15387 Apr 21 20:25	13° 0 43'44	28.77462 AU	
retrograde	15381 Jan 18 03:24	1° 0 37'29	direct	15387 Jul 09 23:05	12° 0 19'05		
opposition	15381 Apr 08 00:06	0° 0 13'02	-0°26'48	evening set	15387 Oct 05 10:51	14° 0 13'43	
min. Earth dist.	15381 Apr 07 15:17	0° 0 13'38	28.81065 AU				
direct	15381 Apr 15 21:05	30° 0 39'2	conjunction	15387 Oct 21 02:26	14° 0 49'08	-0°21'55	
	15381 Jun 25 20:59	28° 0 49'11	minimum elong	15387 Oct 21 02:26	14° 0 49'08	0°21'20	
evening set	15381 Aug 31 13:21	0° 0	max. Earth dist.	15387 Oct 21 14:02	14° 0 50'14	30.77368 AU	
	15381 Sep 21 12:08	0° 0 44'00		15387 Oct 25 20:28	15° 0		
conjunction			morning rise	15387 Nov 05 19:49	15° 0 24'46		
	15381 Oct 07 02:22	1° 0 19'19	-0°24'55	retrograde	15388 Feb 03 21:24	17° 0 22'52	
minimum elong	15381 Oct 07 02:22	1° 0 19'19	0°24'32	opposition	15388 Apr 23 20:08	15° 0 58'06	-0°23'02
max. Earth dist.	15381 Oct 07 10:22	1° 0 20'04	30.80673 AU	min. Earth dist.	15388 Apr 23 07:59	15° 0 58'57	28.77326 AU
morning rise	15381 Oct 22 18:16	1° 0 54'49			15388 Jun 01 07:09	15° 0 39'00	
retrograde	15382 Jan 20 17:09	3° 0 52'42		direct	15388 Jul 11 11:16	14° 0 34'13	
opposition	15382 Apr 10 13:29	2° 0 28'10	-0°26'23		15388 Aug 19 14:05	15° 0	
min. Earth dist.	15382 Apr 10 05:18	2° 0 28'44	28.80292 AU	evening set	15388 Oct 06 22:50	16° 0 28'52	
direct	15382 Jun 28 09:24	1° 0 04'18					
evening set	15382 Sep 23 23:51	2° 0 59'04		conjunction	15388 Oct 22 14:39	17° 0 04'19	-0°21'17
conjunction			minimum elong	15388 Oct 22 14:39	17° 0 04'19	0°20'41	
	15382 Oct 09 14:26	3° 0 34'24	-0°24'30	max. Earth dist.	15388 Oct 23 02:48	17° 0 05'27	30.77291 AU
minimum elong	15382 Oct 09 14:26	3° 0 34'24	0°24'04	morning rise	15388 Nov 07 08:18	17° 0 39'57	
max. Earth dist.	15382 Oct 09 23:44	3° 0 35'17	30.79888 AU	retrograde	15389 Feb 05 10:13	19° 0 38'07	
morning rise	15382 Oct 25 06:24	4° 0 09'54		opposition	15389 Apr 26 09:10	18° 0 13'22	-0°22'21
retrograde	15383 Jan 23 06:08	6° 0 07'48		min. Earth dist.	15389 Apr 25 21:39	18° 0 14'10	28.77312 AU
opposition	15383 Apr 13 02:38	4° 0 43'12	-0°25'55	direct	15389 Jul 13 21:44	16° 0 49'31	
min. Earth dist.	15383 Apr 12 17:35	4° 0 43'50	28.79504 AU	evening set	15389 Oct 09 10:48	18° 0 44'11	
direct	15383 Jun 30 23:57	3° 0 19'18					
evening set	15383 Sep 26 11:44	5° 0 14'01		conjunction	15389 Oct 25 02:57	19° 0 19'39	-0°20'38
conjunction			minimum elong	15389 Oct 25 02:57	19° 0 19'39	0°20'00	
	15383 Oct 12 02:21	5° 0 49'23	-0°24'03	max. Earth dist.	15389 Oct 25 15:46	19° 0 20'51	30.77331 AU
minimum elong	15383 Oct 12 02:21	5° 0 49'23	0°23'36	morning rise	15389 Nov 09 20:50	19° 0 55'18	
max. Earth dist.	15383 Oct 12 11:06	5° 0 50'12	30.79130 AU	retrograde	15390 Feb 08 00:22	21° 0 53'31	
morning rise	15383 Oct 27 18:45	6° 0 24'54		opposition	15390 Apr 28 22:07	20° 0 28'48	-0°21'38
retrograde	15384 Jan 25 19:22	8° 0 22'50		min. Earth dist.	15390 Apr 28 09:18	20° 0 29'42	28.77378 AU
opposition	15384 Apr 14 15:53	6° 0 58'10	-0°25'25	direct	15390 Jul 16 10:24	19° 0 05'00	
min. Earth dist.	15384 Apr 14 06:34	6° 0 58'48	28.78799 AU	evening set	15390 Oct 11 22:57	20° 0 59'41	
direct	15384 Jul 02 11:33	5° 0 34'14					
evening set	15384 Sep 27 23:22	7° 0 28'55		conjunction	15390 Oct 27 15:12	21° 0 35'10	-0°19'56
conjunction			minimum elong	15390 Oct 27 15:12	21° 0 35'10	0°19'16	
	15384 Oct 13 14:22	8° 0 04'17	-0°23'34	max. Earth dist.	15390 Oct 28 03:38	21° 0 36'20	30.77412 AU
minimum elong	15384 Oct 13 14:22	8° 0 04'17	0°23'04	morning rise	15390 Nov 12 09:26	22° 0 10'51	
max. Earth dist.	15384 Oct 14 00:45	8° 0 05'16	30.78470 AU	retrograde	15391 Feb 10 14:59	24° 0 09'07	
morning rise	15384 Oct 29 06:52	8° 0 39'50		opposition	15391 May 01 11:18	22° 0 44'24	-0°20'52
retrograde	15385 Jan 27 06:23	10° 0 37'48		min. Earth dist.	15391 Apr 30 23:11	22° 0 45'15	28.77474 AU
opposition	15385 Apr 17 05:02	9° 0 13'04	-0°24'53	direct	15391 Jul 18 22:36	21° 0 20'38	
min. Earth dist.	15385 Apr 16 19:13	9° 0 13'45	28.78198 AU	evening set	15391 Oct 14 11:09	23° 0 15'20	
direct	15385 Jul 05 00:47	7° 0 49'08					
evening set	15385 Sep 30 11:17	9° 0 43'48		conjunction	15391 Oct 30 03:48	23° 0 50'50	-0°19'13
conjunction			minimum elong	15391 Oct 30 03:48	23° 0 50'50	0°18'32	
	15385 Oct 16 02:22	10° 0 19'11	-0°23'03	max. Earth dist.	15391 Oct 30 17:16	23° 0 52'06	30.77501 AU
minimum elong	15385 Oct 16 02:22	10° 0 19'11	0°22'32	morning rise	15391 Nov 14 22:10	24° 0 26'32	
max. Earth dist.	15385 Oct 16 12:20	10° 0 20'07	30.77948 AU	retrograde	15392 Feb 13 05:18	26° 0 24'50	
morning rise	15385 Oct 31 19:15	10° 0 54'45		min. Earth dist.	15392 May 02 11:39	25° 0 01'02	28.77535 AU
retrograde	15386 Jan 29 20:11	12° 0 52'45		opposition	15392 May 03 00:22	25° 0 00'09	-0°20'05
opposition	15386 Apr 19 17:57	11° 0 28'00	-0°24'18	direct	15392 Jul 20 12:59	23° 0 36'24	
min. Earth dist.	15386 Apr 19 07:06	11° 0 28'45	28.77756 AU	evening set	15392 Oct 15 23:33	25° 0 31'05	
direct	15386 Jul 07 11:40	10° 0 04'03					
evening set	15386 Oct 02 23:06	11° 0 58'42		conjunction	15392 Oct 31 16:18	26° 0 06'36	-0°18'28
conjunction			minimum elong	15392 Oct 31 16:18	26° 0 06'36	0°17'45	
	15386 Oct 18 14:29	12° 0 34'07	-0°22'30	max. Earth dist.	15392 Nov 01 04:42	26° 0 07'46	30.77529 AU
minimum elong	15386 Oct 18 14:29	12° 0 34'07	0°21'57	morning rise	15392 Nov 16 11:09	26° 0 42'20	
max. Earth dist.	15386 Oct 19 01:49	12° 0 35'11	30.77574 AU	retrograde	15393 Feb 14 19:04	28° 0 40'39	
morning rise	15386 Nov 03 07:31	13° 0 09'43		opposition	15393 May 05 13:32	27° 0 15'56	-0°19'15
retrograde	15387 Jan 10 18:29	15° 0		min. Earth dist.	15393 May 05 01:12	27° 0 16'48	28.77527 AU
	15387 Feb 01 07:42	15° 0 07'46		direct	15393 Jul 23 00:31	25° 0 52'11	
	15387 Feb 23 06:38	15° 0 39'00		evening set	15393 Oct 18 11:55	27° 0 46'51	

conjunction	15393 Nov 03 05:06	28° $\overline{\text{M}}$ 22'23	-0°17'41	min. Earth dist.	15399 May 19 04:32	10° $\overline{\text{A}}$ 49'13	28.77447 AU
minimum elong	15393 Nov 03 05:06	28° $\overline{\text{M}}$ 22'23	0°16'57	direct	15399 Aug 06 03:25	9° $\overline{\text{A}}$ 24'18	
max. Earth dist.	15393 Nov 03 18:25	28° $\overline{\text{M}}$ 23'38	30.77471 AU	evening set	15399 Nov 01 13:49	11° $\overline{\text{A}}$ 18'42	
morning rise	15393 Nov 19 00:03	28° $\overline{\text{M}}$ 58'07					
	15393 Dec 19 12:00	0° $\overline{\text{A}}$		conjunction	15399 Nov 17 08:30	11° $\overline{\text{A}}$ 54'18	-0°12'31
retrograde	15394 Feb 17 07:36	0° $\overline{\text{A}}$ 56'24		minimum elong	15399 Nov 17 08:30	11° $\overline{\text{A}}$ 54'18	0°11'40
	15394 Apr 20 19:00	30° $\overline{\text{R}}$ $\overline{\text{M}}$		behind sun begin	15399 Nov 17 03:54	11° $\overline{\text{A}}$ 53'53	
opposition	15394 May 08 02:29	29° $\overline{\text{M}}$ 31'41	-0°18'24	behind sun end	15399 Nov 17 13:06	11° $\overline{\text{A}}$ 54'43	
min. Earth dist.	15394 May 07 14:14	29° $\overline{\text{M}}$ 32'32	28.77424 AU	max. Earth dist.	15399 Nov 17 22:23	11° $\overline{\text{A}}$ 55'36	30.77599 AU
direct	15394 Jul 25 14:52	28° $\overline{\text{M}}$ 07'54		morning rise	15399 Dec 03 05:18	12° $\overline{\text{A}}$ 30'06	
	15394 Oct 19 21:10	0° $\overline{\text{A}}$		retrograde	15400 Mar 03 12:01	14° $\overline{\text{A}}$ 28'12	
evening set	15394 Oct 21 00:22	0° $\overline{\text{A}}$ 02'31		opposition	15400 May 22 07:13	13° $\overline{\text{A}}$ 03'17	-0°12'47
				min. Earth dist.	15400 May 21 17:48	13° $\overline{\text{A}}$ 04'14	28.77819 AU
conjunction	15394 Nov 05 17:41	0° $\overline{\text{A}}$ 38'04	-0°16'53	direct	15400 Aug 08 14:45	11° $\overline{\text{A}}$ 39'21	
minimum elong	15394 Nov 05 17:41	0° $\overline{\text{A}}$ 38'04	0°16'08	evening set	15400 Nov 04 02:04	13° $\overline{\text{A}}$ 33'45	
max. Earth dist.	15394 Nov 06 06:00	0° $\overline{\text{A}}$ 39'13	30.77354 AU				
morning rise	15394 Nov 21 13:04	1° $\overline{\text{A}}$ 13'49		conjunction	15400 Nov 19 21:13	14° $\overline{\text{A}}$ 09'21	-0°11'35
retrograde	15395 Feb 19 22:09	3° $\overline{\text{A}}$ 12'04		minimum elong	15400 Nov 19 21:14	14° $\overline{\text{A}}$ 09'21	0°10'43
opposition	15395 May 10 15:29	1° $\overline{\text{A}}$ 47'17	-0°17'32	behind sun begin	15400 Nov 19 16:14	14° $\overline{\text{A}}$ 08'54	
min. Earth dist.	15395 May 10 02:45	1° $\overline{\text{A}}$ 48'10	28.77296 AU	behind sun end	15400 Nov 20 02:13	14° $\overline{\text{A}}$ 09'49	
direct	15395 Jul 28 03:13	0° $\overline{\text{A}}$ 23'28		max. Earth dist.	15400 Nov 20 12:18	14° $\overline{\text{A}}$ 10'47	30.78041 AU
evening set	15395 Oct 23 12:32	2° $\overline{\text{A}}$ 18'01		morning rise	15400 Dec 05 18:12	14° $\overline{\text{A}}$ 45'10	
				retrograde	15401 Mar 06 01:27	16° $\overline{\text{A}}$ 43'15	
conjunction	15395 Nov 08 06:14	2° $\overline{\text{A}}$ 53'35	-0°16'03	opposition	15401 May 24 19:47	15° $\overline{\text{A}}$ 18'22	-0°11'46
minimum elong	15395 Nov 08 06:14	2° $\overline{\text{A}}$ 53'35	0°15'17	min. Earth dist.	15401 May 24 05:29	15° $\overline{\text{A}}$ 19'22	28.78314 AU
behind sun begin	15395 Nov 08 04:13	2° $\overline{\text{A}}$ 53'24		direct	15401 Aug 11 04:09	13° $\overline{\text{A}}$ 54'28	
behind sun end	15395 Nov 08 08:15	2° $\overline{\text{A}}$ 53'46		evening set	15401 Nov 06 14:37	15° $\overline{\text{A}}$ 48'51	
max. Earth dist.	15395 Nov 08 19:33	2° $\overline{\text{A}}$ 54'50	30.77221 AU				
morning rise	15395 Nov 24 01:48	3° $\overline{\text{A}}$ 29'21		conjunction	15401 Nov 22 09:52	16° $\overline{\text{A}}$ 24'29	-0°10'37
retrograde	15396 Feb 22 08:55	5° $\overline{\text{A}}$ 27'34		minimum elong	15401 Nov 22 09:52	16° $\overline{\text{A}}$ 24'29	0°09'45
opposition	15396 May 12 04:27	4° $\overline{\text{A}}$ 02'44	-0°16'37	behind sun begin	15401 Nov 22 04:32	16° $\overline{\text{A}}$ 24'00	
min. Earth dist.	15396 May 11 16:15	4° $\overline{\text{A}}$ 03'35	28.77180 AU	behind sun end	15401 Nov 22 15:11	16° $\overline{\text{A}}$ 24'58	
direct	15396 Jul 29 15:54	2° $\overline{\text{A}}$ 38'53		max. Earth dist.	15401 Nov 23 00:08	16° $\overline{\text{A}}$ 25'49	30.78595 AU
evening set	15396 Oct 25 00:53	4° $\overline{\text{A}}$ 33'22		morning rise	15401 Dec 08 07:15	17° $\overline{\text{A}}$ 00'19	
				retrograde	15402 Mar 08 15:37	18° $\overline{\text{A}}$ 58'23	
conjunction	15396 Nov 09 18:49	5° $\overline{\text{A}}$ 08'56	-0°15'12	opposition	15402 May 27 08:20	17° $\overline{\text{A}}$ 33'33	-0°10'44
minimum elong	15396 Nov 09 18:50	5° $\overline{\text{A}}$ 08'56	0°14'25	min. Earth dist.	15402 May 26 18:20	17° $\overline{\text{A}}$ 34'31	28.78921 AU
behind sun begin	15396 Nov 09 15:54	5° $\overline{\text{A}}$ 08'40		direct	15402 Aug 13 15:04	16° $\overline{\text{A}}$ 09'40	
behind sun end	15396 Nov 09 21:46	5° $\overline{\text{A}}$ 09'12		evening set	15402 Nov 09 03:04	18° $\overline{\text{A}}$ 04'05	
max. Earth dist.	15396 Nov 10 07:57	5° $\overline{\text{A}}$ 10'11	30.77146 AU				
morning rise	15396 Nov 25 14:46	5° $\overline{\text{A}}$ 44'43		conjunction	15402 Nov 24 22:44	18° $\overline{\text{A}}$ 39'44	-0°09'39
retrograde	15397 Feb 23 21:40	7° $\overline{\text{A}}$ 42'53		minimum elong	15402 Nov 24 22:45	18° $\overline{\text{A}}$ 39'44	0°08'46
opposition	15397 May 14 17:04	6° $\overline{\text{A}}$ 18'01	-0°15'42	behind sun begin	15402 Nov 24 17:08	18° $\overline{\text{A}}$ 39'13	
min. Earth dist.	15397 May 14 03:48	6° $\overline{\text{A}}$ 18'57	28.77150 AU	behind sun end	15402 Nov 25 04:22	18° $\overline{\text{A}}$ 40'14	
direct	15397 Aug 01 03:58	4° $\overline{\text{A}}$ 54'07		max. Earth dist.	15402 Nov 25 14:13	18° $\overline{\text{A}}$ 41'11	30.79234 AU
evening set	15397 Oct 27 13:14	6° $\overline{\text{A}}$ 48'34		morning rise	15402 Dec 10 20:14	19° $\overline{\text{A}}$ 15'34	
				retrograde	15403 Mar 11 05:11	21° $\overline{\text{A}}$ 13'38	
conjunction	15397 Nov 12 07:26	7° $\overline{\text{A}}$ 24'09	-0°14'19	opposition	15403 May 29 20:57	19° $\overline{\text{A}}$ 48'51	-0°09'41
minimum elong	15397 Nov 12 07:26	7° $\overline{\text{A}}$ 24'09	0°13'31	min. Earth dist.	15403 May 29 06:55	19° $\overline{\text{A}}$ 49'50	28.79573 AU
behind sun begin	15397 Nov 12 03:49	7° $\overline{\text{A}}$ 23'49		direct	15403 Aug 16 04:56	18° $\overline{\text{A}}$ 25'02	
behind sun end	15397 Nov 12 11:02	7° $\overline{\text{A}}$ 24'29		evening set	15403 Nov 11 15:41	20° $\overline{\text{A}}$ 19'27	
max. Earth dist.	15397 Nov 12 20:59	7° $\overline{\text{A}}$ 25'26	30.77158 AU				
morning rise	15397 Nov 28 03:38	7° $\overline{\text{A}}$ 59'56		conjunction	15403 Nov 27 11:30	20° $\overline{\text{A}}$ 55'07	-0°08'40
retrograde	15398 Feb 26 09:35	9° $\overline{\text{A}}$ 58'05		minimum elong	15403 Nov 27 11:29	20° $\overline{\text{A}}$ 55'07	0°07'47
opposition	15398 May 17 05:53	8° $\overline{\text{A}}$ 33'10	-0°14'45	behind sun begin	15403 Nov 27 05:38	20° $\overline{\text{A}}$ 54'35	
min. Earth dist.	15398 May 16 17:19	8° $\overline{\text{A}}$ 34'03	28.77229 AU	behind sun end	15403 Nov 27 17:21	20° $\overline{\text{A}}$ 55'38	
direct	15398 Aug 03 14:34	7° $\overline{\text{A}}$ 09'15		max. Earth dist.	15403 Nov 28 01:51	20° $\overline{\text{A}}$ 56'28	30.79897 AU
evening set	15398 Oct 30 01:25	9° $\overline{\text{A}}$ 03'40		morning rise	15403 Dec 13 09:25	21° $\overline{\text{A}}$ 30'58	
				retrograde	15404 Mar 12 20:18	23° $\overline{\text{A}}$ 29'02	
conjunction	15398 Nov 14 19:56	9° $\overline{\text{A}}$ 39'15	-0°13'26	opposition	15404 May 31 09:32	22° $\overline{\text{A}}$ 04'18	-0°08'37
minimum elong	15398 Nov 14 19:56	9° $\overline{\text{A}}$ 39'15	0°12'36	min. Earth dist.	15404 May 30 19:21	22° $\overline{\text{A}}$ 05'17	28.80227 AU
behind sun begin	15398 Nov 14 15:47	9° $\overline{\text{A}}$ 38'52		direct	15404 Aug 17 17:02	20° $\overline{\text{A}}$ 40'30	
behind sun end	15398 Nov 15 00:05	9° $\overline{\text{A}}$ 39'38		evening set	15404 Nov 13 04:26	22° $\overline{\text{A}}$ 34'56	
max. Earth dist.	15398 Nov 15 10:05	9° $\overline{\text{A}}$ 40'35	30.77310 AU				
morning rise	15398 Nov 30 16:22	10° $\overline{\text{A}}$ 15'03		conjunction	15404 Nov 29 00:38	23° $\overline{\text{A}}$ 10'37	-0°07'40
retrograde	15399 Feb 28 22:42	12° $\overline{\text{A}}$ 13'09		minimum elong	15404 Nov 29 00:37	23° $\overline{\text{A}}$ 10'37	0°06'47
opposition	15399 May 19 18:31	10° $\overline{\text{A}}$ 48'15	-0°13'46	behind sun begin	15404 Nov 28 18:33	23° $\overline{\text{A}}$ 10'04	

behind sun end	15404 Nov 29 06:42	23° \mathring{A} 11'10		morning rise	15409 Dec 26 16:55	5° \mathring{B} 03'15	
max. Earth dist.	15404 Nov 29 15:30	23° \mathring{A} 12'01	30.80508 AU	retrograde	15410 Mar 26 22:03	7° \mathring{B} 00'56	
morning rise	15404 Dec 14 22:41	23° \mathring{A} 46'29		opposition	15410 Jun 14 11:31	5° \mathring{B} 36'13	-0°02'02
retrograde	15405 Mar 15 07:55	25° \mathring{A} 44'31		min. Earth dist.	15410 Jun 13 22:33	5° \mathring{B} 37'08	28.82844 AU
opposition	15405 Jun 02 22:00	24° \mathring{A} 19'50	-0°07'32	direct	15410 Aug 31 17:05	4° \mathring{B} 12'16	
min. Earth dist.	15405 Jun 02 08:49	24° \mathring{A} 20'45	28.80795 AU	evening set	15410 Nov 27 08:42	6° \mathring{B} 06'33	
direct	15405 Aug 20 05:34	22° \mathring{A} 56'03					
evening set	15405 Nov 15 17:19	24° \mathring{A} 50'29		conjunction	15410 Dec 13 06:26	6° \mathring{B} 42'15	-0°01'29
				minimum elong	15410 Dec 13 06:25	6° \mathring{B} 42'15	0°00'33
conjunction	15405 Dec 01 13:44	25° \mathring{A} 26'10	-0°06'40	behind sun begin	15410 Dec 12 23:55	6° \mathring{B} 41'40	
minimum elong	15405 Dec 01 13:44	25° \mathring{A} 26'10	0°05'46	behind sun end	15410 Dec 13 12:55	6° \mathring{B} 42'50	
behind sun begin	15405 Dec 01 07:30	25° \mathring{A} 25'36		max. Earth dist.	15410 Dec 13 19:25	6° \mathring{B} 43'28	30.83102 AU
behind sun end	15405 Dec 01 19:58	25° \mathring{A} 26'44		morning rise	15410 Dec 29 06:07	7° \mathring{B} 18'09	
max. Earth dist.	15405 Dec 02 03:39	25° \mathring{A} 27'28	30.81035 AU	retrograde	15411 Mar 29 11:33	9° \mathring{B} 15'45	
morning rise	15405 Dec 17 12:07	26° \mathring{A} 02'03		opposition	15411 Jun 16 23:37	7° \mathring{B} 51'01	-0°00'56
retrograde	15406 Mar 17 21:31	28° \mathring{A} 00'02		min. Earth dist.	15411 Jun 16 11:01	7° \mathring{B} 51'54	28.83413 AU
opposition	15406 Jun 05 10:29	26° \mathring{A} 35'22	-0°06'27	direct	15411 Sep 03 04:02	6° \mathring{B} 27'02	
min. Earth dist.	15406 Jun 04 20:48	26° \mathring{A} 36'19	28.81268 AU	evening set	15411 Nov 29 21:08	8° \mathring{B} 21'17	
direct	15406 Aug 22 17:46	25° \mathring{A} 11'34					
evening set	15406 Nov 18 05:59	27° \mathring{A} 05'59		conjunction	15411 Dec 15 19:17	8° \mathring{B} 57'00	-0°00'24
				minimum elong	15411 Dec 15 19:18	8° \mathring{B} 57'00	0°00'32
conjunction	15406 Dec 04 02:41	27° \mathring{A} 41'41	-0°05'39	behind sun begin	15411 Dec 15 12:48	8° \mathring{B} 56'25	
minimum elong	15406 Dec 04 02:40	27° \mathring{A} 41'41	0°04'45	behind sun end	15411 Dec 16 01:48	8° \mathring{B} 57'35	
behind sun begin	15406 Dec 03 20:18	27° \mathring{A} 41'06		max. Earth dist.	15411 Dec 16 09:31	8° \mathring{B} 58'19	30.83730 AU
behind sun end	15406 Dec 04 09:02	27° \mathring{A} 42'15		morning rise	15411 Dec 31 19:05	9° \mathring{B} 32'53	
max. Earth dist.	15406 Dec 04 16:32	27° \mathring{A} 42'59	30.81456 AU	retrograde	15412 Mar 31 00:35	11° \mathring{B} 30'24	
morning rise	15406 Dec 20 01:17	28° \mathring{A} 17'34		asc. node	15412 Apr 24 03:45	11° \mathring{B} 20'58	
	15407 Feb 17 17:36	0° \mathring{B}		opposition	15412 Jun 18 11:35	10° \mathring{B} 05'41	0°00'11
retrograde	15407 Mar 20 09:37	0° \mathring{B} 15'30		min. Earth dist.	15412 Jun 17 22:49	10° \mathring{B} 06'35	28.84102 AU
	15407 Apr 20 13:11	30° \mathring{R} \mathring{A}		direct	15412 Sep 04 18:11	8° \mathring{B} 41'41	
opposition	15407 Jun 07 23:02	28° \mathring{A} 50'49	-0°05'21	evening set	15412 Dec 01 09:52	10° \mathring{B} 35'55	
min. Earth dist.	15407 Jun 07 10:36	28° \mathring{A} 51'41	28.81656 AU				
direct	15407 Aug 25 04:28	27° \mathring{A} 27'00		conjunction	15412 Dec 17 08:09	11° \mathring{B} 11'38	0°00'40
evening set	15407 Nov 20 18:41	29° \mathring{A} 21'22		minimum elong	15412 Dec 17 08:09	11° \mathring{B} 11'38	0°01'35
				behind sun begin	15412 Dec 17 01:37	11° \mathring{B} 11'03	
conjunction	15407 Dec 06 15:43	29° \mathring{A} 57'04	-0°04'38	behind sun end	15412 Dec 17 14:41	11° \mathring{B} 12'13	
minimum elong	15407 Dec 06 15:44	29° \mathring{A} 57'04	0°03'43	max. Earth dist.	15412 Dec 17 21:17	11° \mathring{B} 12'52	30.84495 AU
behind sun begin	15407 Dec 06 09:16	29° \mathring{A} 56'29		morning rise	15413 Jan 02 08:19	11° \mathring{B} 47'31	
behind sun end	15407 Dec 06 22:11	29° \mathring{A} 57'39		retrograde	15413 Apr 02 14:29	13° \mathring{B} 44'58	
max. Earth dist.	15407 Dec 07 05:30	29° \mathring{A} 58'22	30.81832 AU	opposition	15413 Jun 20 23:22	12° \mathring{B} 20'16	0°01'17
	15407 Dec 07 22:43	0° \mathring{B}		min. Earth dist.	15413 Jun 20 10:15	12° \mathring{B} 21'11	28.84941 AU
morning rise	15407 Dec 22 14:36	0° \mathring{B} 32'58		direct	15413 Sep 07 06:05	10° \mathring{B} 56'15	
retrograde	15408 Mar 21 21:49	2° \mathring{B} 30'49		evening set	15413 Dec 03 22:28	12° \mathring{B} 50'29	
opposition	15408 Jun 09 11:13	1° \mathring{B} 06'08	-0°04'15				
min. Earth dist.	15408 Jun 08 21:57	1° \mathring{B} 07'03	28.82016 AU	conjunction	15413 Dec 19 21:05	13° \mathring{B} 26'12	0°01'43
	15408 Jul 24 19:42	30° \mathring{R} \mathring{A}		minimum elong	15413 Dec 19 21:07	13° \mathring{B} 26'12	0°02'38
direct	15408 Aug 26 17:25	29° \mathring{A} 42'16		behind sun begin	15413 Dec 19 14:35	13° \mathring{B} 25'37	
	15408 Sep 28 00:49	0° \mathring{B}		behind sun end	15413 Dec 20 03:38	13° \mathring{B} 26'48	
evening set	15408 Nov 22 07:26	1° \mathring{B} 36'36		max. Earth dist.	15413 Dec 20 11:11	13° \mathring{B} 27'31	30.85394 AU
				morning rise	15414 Jan 04 21:20	14° \mathring{B} 02'06	
conjunction	15408 Dec 08 04:40	2° \mathring{B} 12'18	-0°03'35	retrograde	15414 Apr 05 02:23	15° \mathring{B} 59'27	
minimum elong	15408 Dec 08 04:40	2° \mathring{B} 12'18	0°02'40	opposition	15414 Jun 23 11:18	14° \mathring{B} 34'48	0°02'24
behind sun begin	15408 Dec 07 22:09	2° \mathring{B} 11'43		min. Earth dist.	15414 Jun 22 22:46	14° \mathring{B} 35'41	28.85898 AU
behind sun end	15408 Dec 08 11:10	2° \mathring{B} 12'53		direct	15414 Sep 09 18:24	13° \mathring{B} 10'49	
max. Earth dist.	15408 Dec 08 17:45	2° \mathring{B} 13'32	30.82192 AU	evening set	15414 Dec 06 11:02	15° \mathring{B} 05'02	
morning rise	15408 Dec 24 03:53	2° \mathring{B} 48'12					
retrograde	15409 Mar 24 09:47	4° \mathring{B} 45'58		conjunction	15414 Dec 22 09:51	15° \mathring{B} 40'46	0°02'46
opposition	15409 Jun 11 23:30	3° \mathring{B} 21'16	-0°03'09	minimum elong	15414 Dec 22 09:51	15° \mathring{B} 40'46	0°03'40
min. Earth dist.	15409 Jun 11 11:14	3° \mathring{B} 22'07	28.82399 AU	behind sun begin	15414 Dec 22 03:23	15° \mathring{B} 40'11	
direct	15409 Aug 29 04:27	1° \mathring{B} 57'21		behind sun end	15414 Dec 22 16:19	15° \mathring{B} 41'20	
evening set	15409 Nov 24 20:00	3° \mathring{B} 51'39		max. Earth dist.	15414 Dec 22 23:18	15° \mathring{B} 42'01	30.86417 AU
				morning rise	15415 Jan 07 10:23	16° \mathring{B} 16'39	
conjunction	15409 Dec 10 17:37	4° \mathring{B} 27'22	-0°02'32	retrograde	15415 Apr 07 16:46	18° \mathring{B} 13'57	
minimum elong	15409 Dec 10 17:37	4° \mathring{B} 27'22	0°01'37	opposition	15415 Jun 25 23:07	16° \mathring{B} 49'21	0°03'30
behind sun begin	15409 Dec 10 11:06	4° \mathring{B} 26'47		min. Earth dist.	15415 Jun 25 09:55	16° \mathring{B} 50'16	28.86957 AU
behind sun end	15409 Dec 11 00:08	4° \mathring{B} 27'57		direct	15415 Sep 12 06:56	15° \mathring{B} 25'23	
max. Earth dist.	15409 Dec 11 07:31	4° \mathring{B} 28'40	30.82603 AU	evening set	15415 Dec 08 23:49	17° \mathring{B} 19'36	

conjunction	15415 Dec 24 22:52	17° $\overline{3}$ 55'20	0°03'47	retrograde	15421 Apr 20 16:59	1° \approx 40'08	
minimum elong	15415 Dec 24 22:53	17° $\overline{3}$ 55'20	0°04'42	opposition	15421 Jul 08 21:06	0° \approx 15'44	0°09'55
behind sun begin	15415 Dec 24 16:29	17° $\overline{3}$ 54'46		min. Earth dist.	15421 Jul 08 11:06	0° \approx 16'26	28.92480 AU
behind sun end	15415 Dec 25 05:16	17° $\overline{3}$ 55'55			15421 Jul 18 06:42	30° \overline{R} $\overline{3}$	
max. Earth dist.	15415 Dec 25 12:29	17° $\overline{3}$ 56'36	30.87491 AU	direct	15421 Sep 25 05:24	28° $\overline{3}$ 51'39	
morning rise	15416 Jan 09 23:35	18° $\overline{3}$ 31'14			15421 Nov 29 23:54	0° \approx	
retrograde	15416 Apr 09 04:50	20° $\overline{3}$ 28'28		evening set	15421 Dec 22 04:51	0° \approx 45'47	
opposition	15416 Jun 27 10:56	19° $\overline{3}$ 03'55	0°04'36				
min. Earth dist.	15416 Jun 26 23:06	19° $\overline{3}$ 04'45	28.88043 AU	conjunction	15422 Jan 07 05:11	1° \approx 21'30	0°09'44
direct	15416 Sep 13 17:59	17° $\overline{3}$ 39'59		minimum elong	15422 Jan 07 05:10	1° \approx 21'30	0°10'35
evening set	15416 Dec 10 12:40	19° $\overline{3}$ 34'12		behind sun begin	15422 Jan 07 00:07	1° \approx 21'03	
				behind sun end	15422 Jan 07 10:14	1° \approx 21'57	
conjunction	15416 Dec 26 12:01	20° $\overline{3}$ 09'56	0°04'49	max. Earth dist.	15422 Jan 07 15:17	1° \approx 22'26	30.92878 AU
minimum elong	15416 Dec 26 12:01	20° $\overline{3}$ 09'56	0°05'42	morning rise	15422 Jan 23 06:57	1° \approx 57'21	
behind sun begin	15416 Dec 26 05:45	20° $\overline{3}$ 09'22		retrograde	15422 Apr 23 06:13	3° \approx 53'59	
behind sun end	15416 Dec 26 18:17	20° $\overline{3}$ 10'30		opposition	15422 Jul 11 08:28	2° \approx 29'35	0°10'56
max. Earth dist.	15416 Dec 27 01:12	20° $\overline{3}$ 11'10	30.88570 AU	min. Earth dist.	15422 Jul 10 22:24	2° \approx 30'17	28.93300 AU
morning rise	15417 Jan 11 12:54	20° $\overline{3}$ 45'50		direct	15422 Sep 27 16:54	1° \approx 05'28	
retrograde	15417 Apr 11 17:06	22° $\overline{3}$ 42'59		evening set	15422 Dec 24 17:20	2° \approx 59'35	
opposition	15417 Jun 29 22:39	21° $\overline{3}$ 18'30	0°05'41				
min. Earth dist.	15417 Jun 29 10:16	21° $\overline{3}$ 19'22	28.89087 AU	conjunction	15423 Jan 09 17:59	3° \approx 35'17	0°10'41
direct	15417 Sep 16 06:33	19° $\overline{3}$ 54'34		minimum elong	15423 Jan 09 17:59	3° \approx 35'17	0°11'29
evening set	15417 Dec 13 01:36	21° $\overline{3}$ 48'47		behind sun begin	15423 Jan 09 13:18	3° \approx 34'52	
				behind sun end	15423 Jan 09 22:40	3° \approx 35'42	
conjunction	15417 Dec 29 01:04	22° $\overline{3}$ 24'31	0°05'49	max. Earth dist.	15423 Jan 10 04:51	3° \approx 36'17	30.93722 AU
minimum elong	15417 Dec 29 01:03	22° $\overline{3}$ 24'31	0°06'43	morning rise	15423 Jan 25 19:45	4° \approx 11'07	
behind sun begin	15417 Dec 28 18:57	22° $\overline{3}$ 23'58		retrograde	15423 Apr 25 17:47	6° \approx 07'39	
behind sun end	15417 Dec 29 07:10	22° $\overline{3}$ 25'04		opposition	15423 Jul 13 19:49	4° \approx 43'15	0°11'57
max. Earth dist.	15417 Dec 29 13:12	22° $\overline{3}$ 25'39	30.89562 AU	min. Earth dist.	15423 Jul 13 10:29	4° \approx 43'55	28.94185 AU
morning rise	15418 Jan 14 02:08	23° $\overline{3}$ 00'25		direct	15423 Sep 30 05:20	3° \approx 19'08	
retrograde	15418 Apr 14 04:46	24° $\overline{3}$ 57'29		evening set	15423 Dec 27 06:02	5° \approx 13'13	
opposition	15418 Jul 02 10:31	23° $\overline{3}$ 33'02	0°06'46				
min. Earth dist.	15418 Jul 01 23:30	23° $\overline{3}$ 33'49	28.90041 AU	conjunction	15424 Jan 12 06:48	5° \approx 48'55	0°11'37
direct	15418 Sep 18 16:55	22° $\overline{3}$ 09'05		minimum elong	15424 Jan 12 06:47	5° \approx 48'55	0°12'25
evening set	15418 Dec 15 14:25	24° $\overline{3}$ 03'17		behind sun begin	15424 Jan 12 02:34	5° \approx 48'33	
				behind sun end	15424 Jan 12 11:01	5° \approx 49'18	
conjunction	15418 Dec 31 14:14	24° $\overline{3}$ 39'01	0°06'49	max. Earth dist.	15424 Jan 12 16:47	5° \approx 49'51	30.94667 AU
minimum elong	15418 Dec 31 14:14	24° $\overline{3}$ 39'01	0°07'41	morning rise	15424 Jan 28 08:49	6° \approx 24'45	
behind sun begin	15418 Dec 31 08:20	24° $\overline{3}$ 38'29		retrograde	15424 Apr 27 07:52	8° \approx 21'10	
behind sun end	15418 Dec 31 20:09	24° $\overline{3}$ 39'33		opposition	15424 Jul 15 06:50	6° \approx 56'48	0°12'56
max. Earth dist.	15419 Jan 01 02:34	24° $\overline{3}$ 40'10	30.90474 AU	min. Earth dist.	15424 Jul 14 20:52	6° \approx 57'30	28.95188 AU
morning rise	15419 Jan 16 15:23	25° $\overline{3}$ 14'54		direct	15424 Oct 01 18:03	5° \approx 32'39	
retrograde	15419 Apr 16 16:45	27° $\overline{3}$ 11'52		evening set	15424 Dec 28 18:41	7° \approx 26'44	
opposition	15419 Jul 04 22:08	25° $\overline{3}$ 47'27	0°07'50				
min. Earth dist.	15419 Jul 04 10:53	25° $\overline{3}$ 48'14	28.90901 AU	conjunction	15425 Jan 13 19:39	8° \approx 02'27	0°12'32
direct	15419 Sep 21 05:06	24° $\overline{3}$ 23'28		minimum elong	15425 Jan 13 19:39	8° \approx 02'27	0°13'18
evening set	15419 Dec 18 03:17	26° $\overline{3}$ 17'38		behind sun begin	15425 Jan 13 15:56	8° \approx 02'07	
				behind sun end	15425 Jan 13 23:22	8° \approx 02'47	
conjunction	15420 Jan 03 03:12	26° $\overline{3}$ 53'22	0°07'48	max. Earth dist.	15425 Jan 14 05:54	8° \approx 03'24	30.95723 AU
minimum elong	15420 Jan 03 03:11	26° $\overline{3}$ 53'22	0°08'40	morning rise	15425 Jan 29 21:43	8° \approx 38'16	
behind sun begin	15420 Jan 02 21:32	26° $\overline{3}$ 52'51		retrograde	15425 Apr 29 19:13	10° \approx 34'35	
behind sun end	15420 Jan 03 08:51	26° $\overline{3}$ 53'52		opposition	15425 Jul 17 18:05	9° \approx 10'16	0°13'54
max. Earth dist.	15420 Jan 03 14:04	26° $\overline{3}$ 54'22	30.91301 AU	min. Earth dist.	15425 Jul 17 09:12	9° \approx 10'53	28.96316 AU
morning rise	15420 Jan 19 04:41	27° $\overline{3}$ 29'14		direct	15425 Oct 04 05:19	7° \approx 46'08	
retrograde	15420 Apr 18 05:14	29° $\overline{3}$ 26'06		evening set	15425 Dec 31 07:10	9° \approx 40'12	
opposition	15420 Jul 06 09:47	28° $\overline{3}$ 01'41	0°08'53				
min. Earth dist.	15420 Jul 05 23:28	28° $\overline{3}$ 02'25	28.91705 AU	conjunction	15426 Jan 16 08:20	10° \approx 15'54	0°13'25
direct	15420 Sep 22 16:03	26° $\overline{3}$ 37'39		minimum elong	15426 Jan 16 08:19	10° \approx 15'54	0°14'11
evening set	15420 Dec 19 16:03	28° $\overline{3}$ 31'49		behind sun begin	15426 Jan 16 05:17	10° \approx 15'38	
				behind sun end	15426 Jan 16 11:22	10° \approx 16'11	
conjunction	15421 Jan 04 16:20	29° $\overline{3}$ 07'32	0°08'47	max. Earth dist.	15426 Jan 16 18:28	10° \approx 16'50	30.96926 AU
minimum elong	15421 Jan 04 16:20	29° $\overline{3}$ 07'32	0°09'37	morning rise	15426 Feb 01 10:29	10° \approx 51'43	
behind sun begin	15421 Jan 04 10:57	29° $\overline{3}$ 07'03		retrograde	15426 May 02 07:00	12° \approx 47'56	
behind sun end	15421 Jan 04 21:44	29° $\overline{3}$ 08'01		opposition	15426 Jul 20 05:08	11° \approx 23'41	0°14'50
max. Earth dist.	15421 Jan 05 03:52	29° $\overline{3}$ 08'36	30.92086 AU	min. Earth dist.	15426 Jul 19 19:18	11° \approx 24'23	28.97579 AU
morning rise	15421 Jan 20 17:48	29° $\overline{3}$ 43'23		direct	15426 Oct 06 17:30	9° \approx 59'35	
	15421 Jan 28 10:40	0° \approx		evening set	15427 Jan 02 19:49	11° \approx 53'40	

conjunction	15427 Jan 18 21:03	12° \approx 29'22	0°14'18	conjunction	15433 Feb 01 02:19	25° \approx 50'21	0°19'02
minimum elong	15427 Jan 18 21:03	12° \approx 29'22	0°15'02	minimum elong	15433 Feb 01 02:19	25° \approx 50'21	0°19'37
behind sun begin	15427 Jan 18 18:52	12° \approx 29'10		max. Earth dist.	15433 Feb 01 08:04	25° \approx 50'52	31.06005 AU
behind sun end	15427 Jan 18 23:14	12° \approx 29'33		morning rise	15433 Feb 17 05:00	26° \approx 26'03	
max. Earth dist.	15427 Jan 19 06:38	12° \approx 30'15	30.98251 AU	retrograde	15433 May 17 18:19	28° \approx 21'35	
morning rise	15427 Feb 03 23:22	13° \approx 05'10		opposition	15433 Aug 04 10:01	26° \approx 57'45	0°20'45
	15427 Apr 25 21:30	15° \approx		min. Earth dist.	15433 Aug 04 04:01	26° \approx 58'10	29.06517 AU
retrograde	15427 May 04 18:37	15° \approx 01'19		direct	15433 Oct 22 00:48	25° \approx 33'40	
	15427 May 13 15:25	15° \approx		evening set	15434 Jan 18 12:47	27° \approx 27'44	
opposition	15427 Jul 22 16:16	13° \approx 37'09	0°15'46				
min. Earth dist.	15427 Jul 22 07:31	13° \approx 37'45	28.98964 AU	conjunction	15434 Feb 03 14:56	28° \approx 03'22	0°19'44
direct	15427 Oct 09 03:01	12° \approx 13'04		minimum elong	15434 Feb 03 14:57	28° \approx 03'22	0°20'19
evening set	15428 Jan 05 08:23	14° \approx 07'10		max. Earth dist.	15434 Feb 03 20:39	28° \approx 03'53	31.07009 AU
				morning rise	15434 Feb 19 17:33	28° \approx 39'03	
conjunction	15428 Jan 21 09:55	14° \approx 42'52	0°15'09		15434 Apr 04 01:24	0° \approx	
minimum elong	15428 Jan 21 09:55	14° \approx 42'52	0°15'53	retrograde	15434 May 20 04:49	0° \approx 34'27	
max. Earth dist.	15428 Jan 21 19:53	14° \approx 43'48	30.99677 AU		15434 Jul 06 08:52	30° \approx	
	15428 Jan 29 01:27	15° \approx		opposition	15434 Aug 06 20:52	29° \approx 10'37	0°21'28
morning rise	15428 Feb 06 12:15	15° \approx 18'40		min. Earth dist.	15434 Aug 06 16:21	29° \approx 10'56	29.07513 AU
retrograde	15428 May 06 06:17	17° \approx 14'44		direct	15434 Oct 24 12:33	27° \approx 46'29	
opposition	15428 Jul 24 03:15	15° \approx 50'40	0°16'40	evening set	15435 Jan 21 01:19	29° \approx 40'31	
min. Earth dist.	15428 Jul 23 18:14	15° \approx 51'18	29.00396 AU		15435 Jan 29 22:05	0° \approx	
	15428 Aug 25 11:33	15° \approx					
direct	15428 Oct 10 14:10	14° \approx 26'38		conjunction	15435 Feb 06 03:35	0° \approx 16'08	0°20'24
	15428 Nov 24 15:21	15° \approx		minimum elong	15435 Feb 06 03:35	0° \approx 16'08	0°20'56
evening set	15429 Jan 06 21:15	16° \approx 20'46		max. Earth dist.	15435 Feb 06 08:46	0° \approx 16'36	31.08012 AU
				morning rise	15435 Feb 22 06:15	0° \approx 51'48	
conjunction	15429 Jan 22 22:44	16° \approx 56'27	0°15'59	retrograde	15435 May 22 16:53	2° \approx 47'03	
minimum elong	15429 Jan 22 22:44	16° \approx 56'27	0°16'40	opposition	15435 Aug 09 07:24	1° \approx 23'13	0°22'09
max. Earth dist.	15429 Jan 23 07:15	16° \approx 57'14	31.01107 AU	min. Earth dist.	15435 Aug 09 02:18	1° \approx 23'35	29.08519 AU
morning rise	15429 Feb 08 01:15	17° \approx 32'14			15435 Oct 19 12:12	30° \approx	
retrograde	15429 May 08 17:44	19° \approx 28'14		direct	15435 Oct 27 01:14	29° \approx 59'03	
opposition	15429 Jul 26 14:15	18° \approx 04'15	0°17'32		15435 Nov 03 11:30	0° \approx	
min. Earth dist.	15429 Jul 26 06:17	18° \approx 04'48	29.01817 AU	evening set	15436 Jan 23 13:51	1° \approx 53'03	
direct	15429 Oct 13 00:25	16° \approx 40'14					
evening set	15430 Jan 09 09:58	18° \approx 34'23		conjunction	15436 Feb 08 16:08	2° \approx 28'39	0°21'02
				minimum elong	15436 Feb 08 16:08	2° \approx 28'39	0°21'33
conjunction	15430 Jan 25 11:45	19° \approx 10'04	0°16'47	max. Earth dist.	15436 Feb 08 20:32	2° \approx 29'03	31.09030 AU
minimum elong	15430 Jan 25 11:45	19° \approx 10'04	0°17'28	morning rise	15436 Feb 24 18:51	3° \approx 04'18	
max. Earth dist.	15430 Jan 25 20:42	19° \approx 10'53	31.02487 AU	retrograde	15436 May 24 04:15	4° \approx 59'25	
morning rise	15430 Feb 10 14:08	19° \approx 45'50		opposition	15436 Aug 10 18:04	3° \approx 35'36	0°22'49
retrograde	15430 May 11 04:39	21° \approx 41'44		min. Earth dist.	15436 Aug 10 14:09	3° \approx 35'52	29.09573 AU
opposition	15430 Jul 29 01:19	20° \approx 17'49	0°18'23	direct	15436 Oct 28 11:48	2° \approx 11'24	
min. Earth dist.	15430 Jul 28 17:54	20° \approx 18'20	29.03146 AU	evening set	15437 Jan 25 02:13	4° \approx 05'22	
direct	15430 Oct 15 12:30	18° \approx 53'49					
evening set	15431 Jan 11 22:44	20° \approx 47'58		conjunction	15437 Feb 10 04:40	4° \approx 40'57	0°21'38
				minimum elong	15437 Feb 10 04:40	4° \approx 40'57	0°22'06
conjunction	15431 Jan 28 00:29	21° \approx 23'38	0°17'34	max. Earth dist.	15437 Feb 10 09:23	4° \approx 41'23	31.10118 AU
minimum elong	15431 Jan 28 00:29	21° \approx 23'38	0°18'12	morning rise	15437 Feb 26 07:14	5° \approx 16'35	
max. Earth dist.	15431 Jan 28 07:34	21° \approx 24'17	31.03768 AU	retrograde	15437 May 26 14:37	7° \approx 11'34	
morning rise	15431 Feb 13 03:07	21° \approx 59'23		opposition	15437 Aug 13 04:29	5° \approx 47'48	0°23'26
retrograde	15431 May 13 17:38	23° \approx 55'12		min. Earth dist.	15437 Aug 13 00:08	5° \approx 48'06	29.10698 AU
opposition	15431 Jul 31 12:21	22° \approx 31'19	0°19'12	direct	15437 Oct 30 23:41	4° \approx 23'35	
min. Earth dist.	15431 Jul 31 05:17	22° \approx 31'48	29.04373 AU	evening set	15438 Jan 27 14:42	6° \approx 17'32	
direct	15431 Oct 17 23:06	21° \approx 07'18					
evening set	15432 Jan 14 11:29	23° \approx 01'26		conjunction	15438 Feb 12 17:02	6° \approx 53'06	0°22'12
				minimum elong	15438 Feb 12 17:02	6° \approx 53'06	0°22'39
conjunction	15432 Jan 30 13:30	23° \approx 37'05	0°18'19	max. Earth dist.	15438 Feb 12 20:34	6° \approx 53'26	31.11299 AU
minimum elong	15432 Jan 30 13:30	23° \approx 37'05	0°18'56	morning rise	15438 Feb 28 19:42	7° \approx 28'43	
max. Earth dist.	15432 Jan 30 20:44	23° \approx 37'45	31.04931 AU	retrograde	15438 May 29 01:13	9° \approx 23'36	
morning rise	15432 Feb 15 16:02	24° \approx 12'49		opposition	15438 Aug 15 15:03	7° \approx 59'52	0°24'01
retrograde	15432 May 15 04:45	26° \approx 08'30		min. Earth dist.	15438 Aug 15 11:17	8° \approx 00'08	29.11945 AU
opposition	15432 Aug 01 23:13	24° \approx 44'39	0°19'59	direct	15438 Nov 02 09:28	6° \approx 35'40	
min. Earth dist.	15432 Aug 01 17:26	24° \approx 45'03	29.05480 AU	evening set	15439 Jan 30 02:52	8° \approx 29'37	
direct	15432 Oct 09 11:35	23° \approx 20'36					
evening set	15433 Jan 16 00:17	25° \approx 14'42		conjunction	15439 Feb 15 05:26	9° \approx 05'11	0°22'44
				minimum elong	15439 Feb 15 05:26	9° \approx 05'11	0°23'08

max. Earth dist.	15439 Feb 15 09:51	9° ✕ 05'35	31.12596 AU	conjunction	15446 Mar 02 20:25	24° ✕ 30'23	0°25'29
morning rise	15439 Mar 03 07:57	9° ✕ 40'46		minimum elong	15446 Mar 02 20:25	24° ✕ 30'23	0°25'41
retrograde	15439 May 31 11:05	11° ✕ 35'34		max. Earth dist.	15446 Mar 02 19:43	24° ✕ 30'19	31.20958 AU
opposition	15439 Aug 18 01:33	10° ✕ 11'55	0°24'35	morning rise	15446 Mar 18 22:25	25° ✕ 05'51	
min. Earth dist.	15439 Aug 17 22:02	10° ✕ 12'10	29.13279 AU	retrograde	15446 Jun 15 20:07	27° ✕ 00'01	
direct	15439 Nov 04 20:38	8° ✕ 47'44		opposition	15446 Sep 02 02:22	25° ✕ 36'48	0°27'22
evening set	15440 Feb 01 15:23	10° ✕ 41'43		min. Earth dist.	15446 Sep 02 03:03	25° ✕ 36'45	29.21366 AU
				direct	15446 Nov 20 05:24	24° ✕ 12'41	
conjunction	15440 Feb 17 17:50	11° ✕ 17'16	0°23'14	evening set	15447 Feb 17 06:04	26° ✕ 06'44	
minimum elong	15440 Feb 17 17:50	11° ✕ 17'16	0°23'37				
max. Earth dist.	15440 Feb 17 20:44	11° ✕ 17'32	31.13977 AU	conjunction	15447 Mar 05 08:28	26° ✕ 42'12	0°25'44
morning rise	15440 Mar 04 20:29	11° ✕ 52'51		minimum elong	15447 Mar 05 08:28	26° ✕ 42'12	0°25'52
retrograde	15440 Jun 01 23:29	13° ✕ 47'34		max. Earth dist.	15447 Mar 05 06:16	26° ✕ 41'59	31.21754 AU
opposition	15440 Aug 19 11:52	12° ✕ 24'00	0°25'05	morning rise	15447 Mar 21 10:32	27° ✕ 17'38	
min. Earth dist.	15440 Aug 19 08:28	12° ✕ 24'14	29.14685 AU	retrograde	15447 Jun 18 05:59	29° ✕ 11'42	
direct	15440 Nov 06 06:09	10° ✕ 59'52		opposition	15447 Sep 04 12:38	27° ✕ 48'28	0°27'36
evening set	15441 Feb 03 03:47	12° ✕ 53'53		min. Earth dist.	15447 Sep 04 14:13	27° ✕ 48'22	29.22146 AU
				direct	15447 Nov 22 15:33	26° ✕ 24'20	
conjunction	15441 Feb 19 06:23	13° ✕ 29'25	0°23'42	evening set	15448 Feb 19 18:10	28° ✕ 18'20	
minimum elong	15441 Feb 19 06:23	13° ✕ 29'25	0°24'03				
max. Earth dist.	15441 Feb 19 09:43	13° ✕ 29'44	31.15380 AU	conjunction	15448 Mar 06 20:42	28° ✕ 53'47	0°25'57
morning rise	15441 Mar 07 08:48	14° ✕ 04'59		minimum elong	15448 Mar 06 20:42	28° ✕ 53'47	0°26'04
retrograde	15441 Jun 04 10:08	15° ✕ 59'38		max. Earth dist.	15448 Mar 06 19:04	28° ✕ 53'38	31.22519 AU
opposition	15441 Aug 21 22:24	14° ✕ 36'10	0°25'34	morning rise	15448 Mar 22 22:28	29° ✕ 29'12	
min. Earth dist.	15441 Aug 21 20:13	14° ✕ 36'20	29.16073 AU		15448 Apr 06 16:16	0° ∇	
direct	15441 Nov 08 17:42	13° ✕ 12'05		retrograde	15448 Jun 19 14:39	1° ∇ 23'08	
evening set	15442 Feb 05 16:11	15° ✕ 06'08		opposition	15448 Sep 05 22:43	29° ✕ 59'55	0°27'48
					15448 Sep 05 21:36	30° ✕	
conjunction	15442 Feb 21 18:40	15° ✕ 41'40	0°24'08	min. Earth dist.	15448 Sep 06 00:48	29° ✕ 59'47	29.22906 AU
minimum elong	15442 Feb 21 18:40	15° ✕ 41'40	0°24'28	direct	15448 Nov 24 02:36	28° ✕ 35'44	
max. Earth dist.	15442 Feb 21 20:34	15° ✕ 41'50	31.16742 AU		15449 Feb 07 00:37	0° ∇	
morning rise	15442 Mar 09 21:09	16° ✕ 17'12		evening set	15449 Feb 21 06:18	0° ∇ 29'43	
retrograde	15442 Jun 06 23:26	18° ✕ 11'48					
opposition	15442 Aug 24 08:51	16° ✕ 48'24	0°26'00	conjunction	15449 Mar 09 08:36	1° ∇ 05'09	0°26'07
min. Earth dist.	15442 Aug 24 06:30	16° ✕ 48'34	29.17389 AU	minimum elong	15449 Mar 09 08:36	1° ∇ 05'09	0°26'11
direct	15442 Nov 11 06:08	15° ✕ 24'21		max. Earth dist.	15449 Mar 09 05:29	1° ∇ 04'52	31.23300 AU
evening set	15443 Feb 08 04:41	17° ✕ 18'26		morning rise	15449 Mar 25 10:24	1° ∇ 40'32	
				retrograde	15449 Jun 22 01:52	3° ∇ 34'22	
conjunction	15443 Feb 24 07:14	17° ✕ 53'57	0°24'32	opposition	15449 Sep 08 08:50	2° ∇ 11'09	0°27'58
minimum elong	15443 Feb 24 07:14	17° ✕ 53'57	0°24'48	min. Earth dist.	15449 Sep 08 10:44	2° ∇ 11'01	29.23721 AU
max. Earth dist.	15443 Feb 24 08:46	17° ✕ 54'05	31.17990 AU	direct	15449 Nov 26 12:04	0° ∇ 46'55	
morning rise	15443 Mar 12 09:32	18° ✕ 29'28		evening set	15450 Feb 23 18:03	2° ∇ 40'53	
retrograde	15443 Jun 09 10:05	20° ✕ 23'59					
opposition	15443 Aug 26 19:21	19° ✕ 00'39	0°26'24	conjunction	15450 Mar 11 20:25	3° ∇ 16'18	0°26'15
min. Earth dist.	15443 Aug 26 18:47	19° ✕ 00'42	29.18576 AU	minimum elong	15450 Mar 11 20:25	3° ∇ 16'18	0°26'18
direct	15443 Nov 13 17:16	17° ✕ 36'36		max. Earth dist.	15450 Mar 11 18:03	3° ∇ 16'05	31.24143 AU
evening set	15444 Feb 10 17:10	19° ✕ 30'42		morning rise	15450 Mar 27 21:55	3° ∇ 51'40	
				retrograde	15450 Jun 24 10:30	5° ∇ 45'23	
conjunction	15444 Feb 26 19:45	20° ✕ 06'12	0°24'53	opposition	15450 Sep 10 19:03	4° ∇ 22'12	0°28'05
minimum elong	15444 Feb 26 19:45	20° ✕ 06'12	0°25'09	min. Earth dist.	15450 Sep 10 21:48	4° ∇ 22'00	29.24611 AU
max. Earth dist.	15444 Feb 26 20:19	20° ✕ 06'16	31.19112 AU	direct	15450 Nov 28 23:31	2° ∇ 57'57	
morning rise	15444 Mar 13 22:01	20° ✕ 41'43		evening set	15451 Feb 26 06:01	4° ∇ 51'54	
retrograde	15444 Jun 10 22:26	22° ✕ 36'07					
opposition	15444 Aug 28 05:43	21° ✕ 12'51	0°26'46	conjunction	15451 Mar 14 08:13	5° ∇ 27'18	0°26'21
min. Earth dist.	15444 Aug 28 04:54	21° ✕ 12'54	29.19620 AU	minimum elong	15451 Mar 14 08:13	5° ∇ 27'18	0°26'21
direct	15444 Nov 15 06:03	19° ✕ 48'47		max. Earth dist.	15451 Mar 14 04:49	5° ∇ 26'59	31.25093 AU
evening set	15445 Feb 12 05:37	21° ✕ 42'53		morning rise	15451 Mar 30 09:43	6° ∇ 02'38	
				retrograde	15451 Jun 26 22:11	7° ∇ 56'16	
conjunction	15445 Feb 28 08:05	22° ✕ 18'22	0°25'12	opposition	15451 Sep 13 04:56	6° ∇ 33'07	0°28'10
minimum elong	15445 Feb 28 08:05	22° ✕ 18'22	0°25'25	min. Earth dist.	15451 Sep 13 07:02	6° ∇ 32'58	29.25611 AU
max. Earth dist.	15445 Feb 28 07:28	22° ✕ 18'19	31.20083 AU	direct	15451 Dec 01 10:56	5° ∇ 08'52	
morning rise	15445 Mar 16 10:15	22° ✕ 53'51		evening set	15452 Feb 28 17:56	7° ∇ 02'50	
retrograde	15445 Jun 13 10:11	24° ✕ 48'09					
opposition	15445 Aug 30 16:08	23° ✕ 24'54	0°27'05	conjunction	15452 Mar 15 20:06	7° ∇ 38'13	0°26'25
min. Earth dist.	15445 Aug 30 16:51	23° ✕ 24'51	29.20541 AU	minimum elong	15452 Mar 15 20:06	7° ∇ 38'13	0°26'24
direct	15445 Nov 17 17:02	22° ✕ 00'50		max. Earth dist.	15452 Mar 15 16:52	7° ∇ 37'55	31.26134 AU
evening set	15446 Feb 14 17:51	23° ✕ 54'54		morning rise	15452 Mar 31 21:22	8° ∇ 13'32	

retrograde	15452 Jun 28 08:12	10° Υ 07'05		minimum elong	15459 Apr 01 06:19	22° Υ 54'18	0°25'30
opposition	15452 Sep 14 15:07	8° Υ 44'00	0°28'13	max. Earth dist.	15459 Mar 31 23:01	22° Υ 53'38	31.32223 AU
min. Earth dist.	15452 Sep 14 18:32	8° Υ 43'46	29.26691 AU	morning rise	15459 Apr 17 06:14	23° Υ 29'29	
direct	15452 Dec 02 21:06	7° Υ 19'47		retrograde	15459 Jul 14 08:34	25° Υ 22'31	
evening set	15453 Mar 02 05:45	9° Υ 13'46		opposition	15459 Sep 30 13:41	23° Υ 59'44	0°27'22
				min. Earth dist.	15459 Sep 30 21:07	23° Υ 59'14	29.32469 AU
conjunction	15453 Mar 18 07:49	9° Υ 49'07	0°26'26	direct	15459 Dec 19 03:06	22° Υ 35'33	
minimum elong	15453 Mar 18 07:49	9° Υ 49'07	0°26'22	evening set	15460 Mar 17 16:43	24° Υ 29'34	
max. Earth dist.	15453 Mar 18 04:13	9° Υ 48'48	31.27244 AU				
morning rise	15453 Apr 03 08:56	10° Υ 24'25		conjunction	15460 Apr 02 17:49	25° Υ 04'49	0°25'32
retrograde	15453 Jun 30 20:11	12° Υ 17'54		minimum elong	15460 Apr 02 17:49	25° Υ 04'49	0°25'14
opposition	15453 Sep 17 01:06	10° Υ 54'53	0°28'13	max. Earth dist.	15460 Apr 02 09:15	25° Υ 04'02	31.32693 AU
min. Earth dist.	15453 Sep 17 03:57	10° Υ 54'41	29.27799 AU	morning rise	15460 Apr 18 17:40	25° Υ 39'59	
direct	15453 Dec 05 09:44	9° Υ 30'42		retrograde	15460 Jul 15 19:36	27° Υ 32'56	
evening set	15454 Mar 04 17:42	11° Υ 24'43		opposition	15460 Oct 01 23:39	26° Υ 10'10	0°27'05
				min. Earth dist.	15460 Oct 02 06:34	26° Υ 09'41	29.32917 AU
conjunction	15454 Mar 20 19:34	12° Υ 00'04	0°26'25	direct	15460 Dec 20 14:23	24° Υ 45'56	
minimum elong	15454 Mar 20 19:34	12° Υ 00'04	0°26'20	evening set	15461 Mar 20 04:10	26° Υ 39'58	
max. Earth dist.	15454 Mar 20 15:06	11° Υ 59'39	31.28338 AU				
morning rise	15454 Apr 05 20:33	12° Υ 35'20		conjunction	15461 Apr 05 05:08	27° Υ 15'12	0°25'15
retrograde	15454 Jul 03 07:55	14° Υ 28'46		minimum elong	15461 Apr 05 05:08	27° Υ 15'12	0°24'55
opposition	15454 Sep 19 11:13	13° Υ 05'49	0°28'10	max. Earth dist.	15461 Apr 04 20:42	27° Υ 14'25	31.33125 AU
min. Earth dist.	15454 Sep 19 15:26	13° Υ 05'31	29.28877 AU	morning rise	15461 Apr 21 04:40	27° Υ 50'20	
direct	15454 Dec 07 20:31	11° Υ 41'39		retrograde	15461 Jul 18 04:58	29° Υ 43'13	
evening set	15455 Mar 07 05:33	13° Υ 35'41		opposition	15461 Oct 04 09:44	28° Υ 20'27	0°26'46
				min. Earth dist.	15461 Oct 04 17:56	28° Υ 19'53	29.33365 AU
conjunction	15455 Mar 23 07:26	14° Υ 11'01	0°26'22	direct	15461 Dec 23 00:20	26° Υ 56'12	
minimum elong	15455 Mar 23 07:27	14° Υ 11'01	0°26'13	evening set	15462 Mar 22 15:36	28° Υ 50'13	
max. Earth dist.	15455 Mar 23 02:56	14° Υ 10'37	31.29371 AU				
morning rise	15455 Apr 08 08:10	14° Υ 46'17		conjunction	15462 Apr 07 16:25	29° Υ 25'26	0°24'57
retrograde	15455 Jul 05 17:57	16° Υ 39'38		minimum elong	15462 Apr 07 16:25	29° Υ 25'26	0°24'36
opposition	15455 Sep 21 21:19	15° Υ 16'44	0°28'05	max. Earth dist.	15462 Apr 07 07:49	29° Υ 24'39	31.33600 AU
min. Earth dist.	15455 Sep 22 01:39	15° Υ 16'26	29.29844 AU	morning rise	15462 Apr 23 15:46	0° \mathcal{B} 00'33	
direct	15455 Dec 10 08:57	13° Υ 52'36			15462 Apr 23 09:40	0° \mathcal{B}	
evening set	15456 Mar 08 17:37	15° Υ 46'39		retrograde	15462 Jul 20 16:14	1° \mathcal{B} 53'22	
				opposition	15462 Oct 06 19:35	0° \mathcal{B} 30'37	0°26'25
conjunction	15456 Mar 24 19:13	16° Υ 21'58	0°26'16	min. Earth dist.	15462 Oct 07 02:59	0° \mathcal{B} 30'06	29.33869 AU
minimum elong	15456 Mar 24 19:14	16° Υ 21'58	0°26'06		15462 Oct 25 16:06	30° \mathcal{R} Υ	
max. Earth dist.	15456 Mar 24 13:00	16° Υ 21'23	31.30272 AU	direct	15462 Dec 25 13:08	29° Υ 06'21	
morning rise	15456 Apr 09 19:52	16° Υ 57'12			15463 Feb 22 08:50	0° \mathcal{B}	
retrograde	15456 Jul 07 04:28	18° Υ 50'29		evening set	15463 Mar 25 03:02	1° \mathcal{B} 00'23	
opposition	15456 Sep 23 07:25	17° Υ 27'38	0°27'58				
min. Earth dist.	15456 Sep 23 12:41	17° Υ 27'16	29.30687 AU	conjunction	15463 Apr 10 03:38	1° \mathcal{B} 35'35	0°24'36
direct	15456 Dec 11 18:57	16° Υ 03'30		minimum elong	15463 Apr 10 03:38	1° \mathcal{B} 35'35	0°24'12
evening set	15457 Mar 11 05:28	17° Υ 57'33		max. Earth dist.	15463 Apr 09 18:27	1° \mathcal{B} 34'45	31.34141 AU
				morning rise	15463 Apr 26 02:48	2° \mathcal{B} 10'41	
conjunction	15457 Mar 27 07:06	18° Υ 32'51	0°26'08	retrograde	15463 Jul 23 03:52	4° \mathcal{B} 03'27	
minimum elong	15457 Mar 27 07:06	18° Υ 32'51	0°25'56	opposition	15463 Oct 09 05:39	2° \mathcal{B} 40'44	0°26'02
max. Earth dist.	15457 Mar 27 01:14	18° Υ 32'19	31.31043 AU	min. Earth dist.	15463 Oct 09 13:49	2° \mathcal{B} 40'10	29.34466 AU
morning rise	15457 Apr 12 07:23	19° Υ 08'04		direct	15463 Dec 28 00:07	1° \mathcal{B} 16'29	
retrograde	15457 Jul 09 13:23	21° Υ 01'16		evening set	15464 Mar 26 14:22	3° \mathcal{B} 10'32	
opposition	15457 Sep 25 17:37	19° Υ 38'27	0°27'48				
min. Earth dist.	15457 Sep 25 23:38	19° Υ 38'02	29.31387 AU	conjunction	15464 Apr 11 14:53	3° \mathcal{B} 45'44	0°24'13
direct	15457 Dec 14 06:10	18° Υ 14'19		minimum elong	15464 Apr 11 14:53	3° \mathcal{B} 45'44	0°23'48
evening set	15458 Mar 13 17:14	20° Υ 08'21		max. Earth dist.	15464 Apr 11 06:16	3° \mathcal{B} 44'56	31.34786 AU
				morning rise	15464 Apr 27 13:43	4° \mathcal{B} 20'48	
conjunction	15458 Mar 29 18:35	20° Υ 43'38	0°25'58	retrograde	15464 Jul 24 13:16	6° \mathcal{B} 13'32	
minimum elong	15458 Mar 29 18:35	20° Υ 43'38	0°25'45	opposition	15464 Oct 10 15:36	4° \mathcal{B} 50'52	0°25'36
max. Earth dist.	15458 Mar 29 10:59	20° Υ 42'56	31.31688 AU	min. Earth dist.	15464 Oct 10 23:25	4° \mathcal{B} 50'20	29.35144 AU
morning rise	15458 Apr 14 18:51	21° Υ 18'50		direct	15464 Dec 29 12:20	3° \mathcal{B} 26'40	
retrograde	15458 Jul 12 00:21	23° Υ 11'58		evening set	15465 Mar 29 01:48	5° \mathcal{B} 20'45	
opposition	15458 Sep 28 03:41	21° Υ 49'10	0°27'36				
min. Earth dist.	15458 Sep 28 09:47	21° Υ 48'45	29.31978 AU	conjunction	15465 Apr 14 01:59	5° \mathcal{B} 55'55	0°23'48
direct	15458 Dec 16 15:58	20° Υ 25'00		minimum elong	15465 Apr 14 01:59	5° \mathcal{B} 55'55	0°23'21
evening set	15459 Mar 16 04:57	22° Υ 19'02		max. Earth dist.	15465 Apr 13 16:16	5° \mathcal{B} 55'02	31.35506 AU
				morning rise	15465 Apr 30 00:43	6° \mathcal{B} 30'59	
conjunction	15459 Apr 01 06:19	22° Υ 54'18	0°25'46	retrograde	15465 Jul 27 00:08	8° \mathcal{B} 23'41	

opposition	15465 Oct 13 01:39	7°8'01"06	0°25'08	conjunction	15472 Apr 29 07:55	21°8'08"35	0°19'58
min. Earth dist.	15465 Oct 13 09:49	7°8'00"32	29.35892 AU	minimum elong	15472 Apr 29 07:55	21°8'08"35	0°19'20
direct	15465 Dec 31 22:07	5°8'36"56		max. Earth dist.	15472 Apr 28 18:58	21°8'07"24	31.38460 AU
evening set	15466 Mar 31 12:57	7°8'31"03		morning rise	15472 May 15 04:51	21°8'43"31	
				retrograde	15472 Aug 10 21:59	23°8'35"59	
conjunction	15466 Apr 16 13:06	8°8'06"13	0°23'21	opposition	15472 Oct 28 01:02	22°8'13"35	0°20'55
minimum elong	15466 Apr 16 13:07	8°8'06"13	0°22'53	min. Earth dist.	15472 Oct 28 12:49	22°8'12"46	29.38455 AU
max. Earth dist.	15466 Apr 16 04:16	8°8'05"25	31.36253 AU	direct	15473 Jan 16 01:59	20°8'49"24	
morning rise	15466 May 02 11:28	8°8'41"16		evening set	15473 Apr 15 20:18	22°8'43"34	
retrograde	15466 Jul 29 09:21	10°8'33"57					
opposition	15466 Oct 15 11:46	9°8'11"26	0°24'38	conjunction	15473 May 01 18:53	23°8'18"37	0°19'18
min. Earth dist.	15466 Oct 15 20:37	9°8'10"50	29.36615 AU	minimum elong	15473 May 01 18:53	23°8'18"37	0°18'38
direct	15467 Jan 03 09:20	7°8'47"19		max. Earth dist.	15473 May 01 06:25	23°8'17"29	31.38410 AU
evening set	15467 Apr 03 00:29	9°8'41"28		morning rise	15473 May 17 15:29	23°8'53"33	
				retrograde	15473 Aug 13 07:11	25°8'45"57	
conjunction	15467 Apr 19 00:16	10°8'16"38	0°22'52	opposition	15473 Oct 30 11:14	24°8'23"31	0°20'11
minimum elong	15467 Apr 19 00:16	10°8'16"38	0°22'21	min. Earth dist.	15473 Oct 30 22:53	24°8'22"43	29.38376 AU
max. Earth dist.	15467 Apr 18 13:52	10°8'15"41	31.36948 AU	direct	15474 Jan 18 14:36	22°8'59"18	
morning rise	15467 May 04 22:33	10°8'51"40		evening set	15474 Apr 18 07:19	24°8'53"28	
retrograde	15467 Jul 31 20:17	12°8'44"19					
opposition	15467 Oct 17 21:47	11°8'21"52	0°24'06	conjunction	15474 May 04 05:33	25°8'28"30	0°18'37
min. Earth dist.	15467 Oct 18 06:32	11°8'21"16	29.37268 AU	minimum elong	15474 May 04 05:32	25°8'28"30	0°17'56
direct	15468 Jan 05 19:09	9°8'57"47		max. Earth dist.	15474 May 03 15:59	25°8'27"15	31.38326 AU
evening set	15468 Apr 04 11:53	11°8'51"58		morning rise	15474 May 20 02:03	26°8'03"24	
				retrograde	15474 Aug 15 18:06	27°8'55"45	
conjunction	15468 Apr 20 11:35	12°8'27"06	0°22'21	opposition	15474 Nov 01 21:30	26°8'33"19	0°19'26
minimum elong	15468 Apr 20 11:35	12°8'27"06	0°21'49	min. Earth dist.	15474 Nov 02 09:16	26°8'32"30	29.38306 AU
max. Earth dist.	15468 Apr 20 01:31	12°8'26"11	31.37532 AU	direct	15475 Jan 21 01:23	25°8'09"04	
morning rise	15468 May 06 09:26	13°8'02"07		evening set	15475 Apr 20 18:17	27°8'03"13	
retrograde	15468 Aug 02 04:05	14°8'54"45					
opposition	15468 Oct 19 08:06	13°8'32"21	0°23'32	conjunction	15475 May 06 16:25	27°8'38"15	0°17'54
min. Earth dist.	15468 Oct 19 18:12	13°8'31"39	29.37786 AU	minimum elong	15475 May 06 16:25	27°8'38"15	0°17'11
direct	15469 Jan 07 05:43	12°8'08"17		max. Earth dist.	15475 May 06 03:57	27°8'37"06	31.38269 AU
evening set	15469 Apr 06 23:13	14°8'02"28		morning rise	15475 May 22 12:29	28°8'13"07	
					15475 Jul 31 03:53	0°II	
conjunction	15469 Apr 22 22:35	14°8'37"35	0°21'48	retrograde	15475 Aug 18 02:55	0°II05'27	
minimum elong	15469 Apr 22 22:35	14°8'37"35	0°21'14		15475 Sep 05 05:46	30°R8	
max. Earth dist.	15469 Apr 22 11:17	14°8'36"33	31.37984 AU	opposition	15475 Nov 04 07:44	28°8'43"01	0°18'39
	15469 May 03 01:44	15°8'		min. Earth dist.	15475 Nov 04 19:50	28°8'42"11	29.38276 AU
morning rise	15469 May 08 20:18	15°8'12"35		direct	15476 Jan 23 13:22	27°8'18"45	
retrograde	15469 Aug 04 14:47	17°8'05"11		evening set	15476 Apr 22 05:21	29°8'12"55	
opposition	15469 Oct 21 18:19	15°8'42"49	0°22'55				
min. Earth dist.	15469 Oct 22 03:56	15°8'42"09	29.38162 AU	conjunction	15476 May 08 03:05	29°8'47"56	0°17'10
	15469 Nov 17 22:06	15°R8		minimum elong	15476 May 08 03:04	29°8'47"56	0°16'26
direct	15470 Jan 09 16:15	14°8'18"43		max. Earth dist.	15476 May 07 13:38	29°8'46"42	31.38285 AU
	15470 Mar 01 23:39	15°8'			15476 May 13 13:35	0°II	
evening set	15470 Apr 09 10:36	16°8'12"55		morning rise	15476 May 23 23:02	0°II22'48	
				retrograde	15476 Aug 19 13:40	2°II15'07	
conjunction	15470 Apr 25 09:48	16°8'48"02	0°21'13	opposition	15476 Nov 05 18:02	0°II52'43	0°17'51
minimum elong	15470 Apr 25 09:48	16°8'48"02	0°20'38	min. Earth dist.	15476 Nov 06 05:18	0°II51'56	29.38336 AU
max. Earth dist.	15470 Apr 24 22:14	16°8'46"58	31.38278 AU		15476 Dec 10 06:19	30°R8	
morning rise	15470 May 11 07:11	17°8'23"01		direct	15477 Jan 24 23:36	29°8'28"28	
retrograde	15470 Aug 07 00:09	19°8'15"34			15477 Mar 10 12:53	0°II	
opposition	15470 Oct 24 04:33	17°8'53"12	0°22'17	evening set	15477 Apr 24 16:05	1°II22'40	
min. Earth dist.	15470 Oct 24 15:46	17°8'52"26	29.38389 AU				
direct	15471 Jan 12 01:43	16°8'29"05		conjunction	15477 May 10 13:41	1°II57'40	0°16'24
evening set	15471 Apr 11 21:55	18°8'23"17		minimum elong	15477 May 10 13:41	1°II57'40	0°15'38
				behind sun begin	15477 May 10 12:19	1°II57'33	
conjunction	15471 Apr 27 20:56	18°8'58"22	0°20'37	behind sun end	15477 May 10 15:03	1°II57'47	
minimum elong	15471 Apr 27 20:56	18°8'58"22	0°19'59	max. Earth dist.	15477 May 10 01:10	1°II56'31	31.38376 AU
max. Earth dist.	15471 Apr 27 08:55	18°8'57"16	31.38439 AU	morning rise	15477 May 26 09:14	2°II32'32	
morning rise	15471 May 13 18:07	19°8'33"20		retrograde	15477 Aug 21 21:40	4°II24'52	
retrograde	15471 Aug 09 10:55	21°8'25"50		opposition	15477 Nov 08 04:29	3°II02'30	0°17'01
opposition	15471 Oct 26 14:45	20°8'03"28	0°21'37	min. Earth dist.	15477 Nov 08 16:36	3°II01'40	29.38453 AU
min. Earth dist.	15471 Oct 27 01:32	20°8'02"43	29.38472 AU	direct	15478 Jan 27 09:48	1°II38'18	
direct	15472 Jan 14 14:59	18°8'39"19		evening set	15478 Apr 27 03:02	3°II32'32	
evening set	15472 Apr 13 09:13	20°8'33"31		max. Earth dist.	15478 May 12 11:10	4°II06'20	31.38516 AU

conjunction	15478 May 13 00:19	4°II07'32	0°15'36	min. Earth dist.	15483 Nov 22 08:56	16°II03'15	29.37707 AU
minimum elong	15478 May 13 00:19	4°II07'32	0°14'51	direct	15484 Feb 10 03:17	14°II40'04	
behind sun begin	15478 May 12 21:49	4°II07'19		evening set	15484 May 09 20:42	16°II34'32	
behind sun end	15478 May 13 02:48	4°II07'46					
morning rise	15478 May 28 19:44	4°II42'24		conjunction	15484 May 25 16:32	17°II09'29	0°10'27
retrograde	15478 Aug 24 08:23	6°II34'45		minimum elong	15484 May 25 16:32	17°II09'29	0°09'36
opposition	15478 Nov 10 14:39	5°II12'27	0°16'09	behind sun begin	15484 May 25 11:10	17°II09'00	
min. Earth dist.	15478 Nov 11 02:00	5°II11'40	29.38584 AU	behind sun end	15484 May 25 21:54	17°II09'57	
direct	15479 Jan 29 19:44	3°II48'17		max. Earth dist.	15484 May 25 02:22	17°II08'11	31.37409 AU
evening set	15479 Apr 29 14:01	5°II42'35		morning rise	15484 Jun 10 10:14	17°II44'17	
				retrograde	15484 Sep 06 00:07	19°II36'47	
conjunction	15479 May 15 11:05	6°II17'35	0°14'47	opposition	15484 Nov 23 06:30	18°II14'34	0°10'34
minimum elong	15479 May 15 11:05	6°II17'35	0°14'00	min. Earth dist.	15484 Nov 23 20:24	18°II13'37	29.37107 AU
behind sun begin	15479 May 15 07:50	6°II17'17		direct	15485 Feb 11 16:15	16°II50'27	
behind sun end	15479 May 15 14:20	6°II17'52		evening set	15485 May 12 07:26	18°II44'53	
max. Earth dist.	15479 May 14 21:58	6°II16'22	31.38622 AU	max. Earth dist.	15485 May 27 11:37	19°II18'25	31.36769 AU
morning rise	15479 May 31 06:10	6°II52'26					
retrograde	15479 Aug 26 18:11	8°II44'50		conjunction	15485 May 28 02:52	19°II19'50	0°09'32
opposition	15479 Nov 13 01:13	7°II22'35	0°15'16	minimum elong	15485 May 28 02:52	19°II19'50	0°08'40
min. Earth dist.	15479 Nov 13 13:51	7°II21'43	29.38663 AU	behind sun begin	15485 May 27 21:14	19°II19'20	
direct	15480 Feb 01 04:36	5°II58'27		behind sun end	15485 May 28 08:30	19°II20'20	
evening set	15480 May 01 00:57	7°II52'48		morning rise	15485 Jun 12 20:31	19°II54'37	
				retrograde	15485 Sep 08 10:40	21°II47'08	
conjunction	15480 May 16 21:45	8°II27'47	0°13'57	opposition	15485 Nov 25 17:09	20°II24'52	0°09'35
minimum elong	15480 May 16 21:45	8°II27'47	0°13'09	min. Earth dist.	15485 Nov 26 06:24	20°II23'58	29.36430 AU
behind sun begin	15480 May 16 17:55	8°II27'27		direct	15486 Feb 14 03:31	19°II00'41	
behind sun end	15480 May 17 01:34	8°II28'07		evening set	15486 May 14 18:05	20°II55'07	
max. Earth dist.	15480 May 16 08:37	8°II26'35	31.38656 AU				
morning rise	15480 Jun 01 16:34	9°II02'38		conjunction	15486 May 30 13:24	21°II30'03	0°08'37
retrograde	15480 Aug 28 05:09	10°II55'04		minimum elong	15486 May 30 13:24	21°II30'03	0°07'45
opposition	15480 Nov 14 11:44	9°II32'52	0°14'22	behind sun begin	15486 May 30 07:32	21°II29'32	
min. Earth dist.	15480 Nov 14 23:46	9°II32'02	29.38634 AU	behind sun end	15486 May 30 19:15	21°II30'34	
direct	15481 Feb 02 17:16	8°II08'46		max. Earth dist.	15486 May 29 22:55	21°II28'43	31.36061 AU
evening set	15481 May 03 11:59	10°II03'09		morning rise	15486 Jun 15 06:40	22°II04'50	
				retrograde	15486 Sep 10 18:09	23°II57'20	
conjunction	15481 May 19 08:26	10°II38'08	0°13'06	opposition	15486 Nov 28 03:50	22°II35'02	0°08'35
minimum elong	15481 May 19 08:25	10°II38'08	0°12'17	min. Earth dist.	15486 Nov 28 17:59	22°II34'04	29.35718 AU
behind sun begin	15481 May 19 04:07	10°II37'45		direct	15487 Feb 16 14:34	21°II10'48	
behind sun end	15481 May 19 12:44	10°II38'31		evening set	15487 May 17 04:49	23°II05'13	
max. Earth dist.	15481 May 18 18:22	10°II36'50	31.38561 AU				
morning rise	15481 Jun 04 03:01	11°II12'58		conjunction	15487 Jun 01 23:46	23°II40'09	0°07'41
retrograde	15481 Aug 30 17:02	13°II05'27		minimum elong	15487 Jun 01 23:46	23°II40'09	0°06'48
opposition	15481 Nov 16 22:22	11°II43'15	0°13'26	behind sun begin	15487 Jun 01 17:43	23°II39'36	
min. Earth dist.	15481 Nov 17 11:18	11°II42'22	29.38483 AU	behind sun end	15487 Jun 02 05:48	23°II40'41	
direct	15482 Feb 05 03:37	10°II19'10		max. Earth dist.	15487 Jun 01 09:00	23°II38'47	31.35367 AU
evening set	15482 May 05 22:49	12°II13'36		morning rise	15487 Jun 17 16:53	24°II14'55	
				retrograde	15487 Sep 13 04:26	26°II07'25	
conjunction	15482 May 21 19:10	12°II48'34	0°12'14	opposition	15487 Nov 30 14:33	24°II45'04	0°07'35
minimum elong	15482 May 21 19:10	12°II48'34	0°11'24	min. Earth dist.	15487 Dec 01 03:27	24°II44'11	29.35047 AU
behind sun begin	15482 May 21 14:27	12°II48'09		direct	15488 Feb 19 01:19	23°II20'49	
behind sun end	15482 May 21 23:53	12°II48'59		evening set	15488 May 18 15:21	25°II15'13	
max. Earth dist.	15482 May 21 05:34	12°II47'19	31.38334 AU				
morning rise	15482 Jun 06 13:26	13°II23'23		conjunction	15488 Jun 03 10:02	25°II50'08	0°06'44
retrograde	15482 Sep 02 02:40	15°II15'53		minimum elong	15488 Jun 03 10:01	25°II50'08	0°05'51
opposition	15482 Nov 19 09:03	13°II53'42	0°12'30	behind sun begin	15488 Jun 03 03:49	25°II49'35	
min. Earth dist.	15482 Nov 19 22:03	13°II52'49	29.38167 AU	behind sun end	15488 Jun 03 16:13	25°II50'41	
direct	15483 Feb 07 15:55	12°II29'38		max. Earth dist.	15488 Jun 02 19:42	25°II48'49	31.34727 AU
evening set	15483 May 08 09:53	14°II24'05		morning rise	15488 Jun 19 02:49	26°II24'54	
				retrograde	15488 Sep 14 13:30	28°II17'26	
conjunction	15483 May 24 05:48	14°II59'02	0°11'21	opposition	15488 Dec 02 01:29	26°II55'03	0°06'34
minimum elong	15483 May 24 05:48	14°II59'02	0°10'30	min. Earth dist.	15488 Dec 02 15:00	26°II54'08	29.34466 AU
behind sun begin	15483 May 24 00:44	14°II58'35		direct	15489 Feb 20 10:37	25°II30'47	
behind sun end	15483 May 24 10:52	14°II59'29		evening set	15489 May 21 01:52	27°II25'13	
max. Earth dist.	15483 May 23 14:46	14°II57'39	31.37942 AU				
morning rise	15483 Jun 08 23:56	15°II33'51		conjunction	15489 Jun 05 20:20	28°II00'06	0°05'47
retrograde	15483 Sep 04 14:28	17°II26'21		minimum elong	15489 Jun 05 20:20	28°II00'06	0°04'53
opposition	15483 Nov 21 19:39	16°II04'10	0°11'32	behind sun begin	15489 Jun 05 14:02	27°II59'33	

behind sun end	15489 Jun 06 02:39	28° Π 00'40		behind sun end	15494 Jun 17 06:13	8° \mathfrak{D} 52'14	
max. Earth dist.	15489 Jun 05 06:43	27° Π 58'51	31.34202 AU	direct	15494 Sep 28 07:22	11° \mathfrak{D} 19'20	
morning rise	15489 Jun 21 12:54	28° Π 34'52		morning rise	15494 Jul 02 15:32	9° \mathfrak{D} 26'26	
	15489 Aug 07 07:15	0° \mathfrak{D}		retrograde	15494 Sep 28 07:22	11° \mathfrak{D} 19'20	
retrograde	15489 Sep 16 23:31	0° \mathfrak{D} 27'26		opposition	15494 Dec 15 19:30	9° \mathfrak{D} 57'01	0°00'16
	15489 Oct 28 22:15	30° \mathfrak{R} Π		min. Earth dist.	15494 Dec 16 07:35	9° \mathfrak{D} 56'11	29.31469 AU
opposition	15489 Dec 04 12:12	29° Π 05'04	0°05'32	direct	15495 Mar 06 06:41	8° \mathfrak{D} 32'52	
min. Earth dist.	15489 Dec 05 00:35	29° Π 04'13	29.33978 AU	desc. node	15495 Apr 02 14:42	8° \mathfrak{D} 45'03	
direct	15490 Feb 22 22:38	27° Π 40'48		evening set	15495 Jun 03 17:38	10° \mathfrak{D} 27'31	
evening set	15490 May 23 12:26	29° Π 35'15					
	15490 Jun 03 17:30	0° \mathfrak{D}		conjunction	15495 Jun 19 10:36	11° \mathfrak{D} 02'24	-0°00'14
				minimum elong	15495 Jun 19 10:36	11° \mathfrak{D} 02'24	0°01'08
conjunction	15490 Jun 08 06:36	0° \mathfrak{D} 10'09	0°04'49	behind sun begin	15495 Jun 19 04:08	11° \mathfrak{D} 01'49	
minimum elong	15490 Jun 08 06:35	0° \mathfrak{D} 10'09	0°03'55	behind sun end	15495 Jun 19 17:03	11° \mathfrak{D} 02'58	
behind sun begin	15490 Jun 08 00:11	0° \mathfrak{D} 09'35		max. Earth dist.	15495 Jun 18 21:21	11° \mathfrak{D} 01'10	31.31073 AU
behind sun end	15490 Jun 08 13:00	0° \mathfrak{D} 10'43		morning rise	15495 Jul 05 01:45	11° \mathfrak{D} 37'08	
max. Earth dist.	15490 Jun 07 16:33	0° \mathfrak{D} 08'51	31.33752 AU	retrograde	15495 Sep 30 16:22	13° \mathfrak{D} 30'07	
morning rise	15490 Jun 23 23:00	0° \mathfrak{D} 44'54		opposition	15495 Dec 18 06:57	12° \mathfrak{D} 07'47	-0°00'47
retrograde	15490 Sep 19 11:01	2° \mathfrak{D} 37'32		min. Earth dist.	15495 Dec 18 20:04	12° \mathfrak{D} 06'53	29.30669 AU
opposition	15490 Dec 06 23:07	1° \mathfrak{D} 15'10	0°04'29	direct	15496 Mar 07 18:03	10° \mathfrak{D} 43'38	
min. Earth dist.	15490 Dec 07 11:49	1° \mathfrak{D} 14'18	29.33557 AU	evening set	15496 Jun 05 04:16	12° \mathfrak{D} 38'18	
	15491 Feb 01 11:30	30° \mathfrak{R} Π					
direct	15491 Feb 25 07:58	29° Π 50'56		conjunction	15496 Jun 20 20:53	13° \mathfrak{D} 13'11	-0°01'15
	15491 Mar 21 00:31	0° \mathfrak{D}		minimum elong	15496 Jun 20 20:54	13° \mathfrak{D} 13'11	0°02'08
evening set	15491 May 25 22:58	1° \mathfrak{D} 45'25		behind sun begin	15496 Jun 20 14:27	13° \mathfrak{D} 12'36	
				behind sun end	15496 Jun 21 03:22	13° \mathfrak{D} 13'45	
conjunction	15491 Jun 10 16:58	2° \mathfrak{D} 20'19	0°03'50	max. Earth dist.	15496 Jun 20 07:15	13° \mathfrak{D} 11'55	31.30213 AU
minimum elong	15491 Jun 10 16:59	2° \mathfrak{D} 20'19	0°02'56	morning rise	15496 Jul 06 11:56	13° \mathfrak{D} 47'55	
behind sun begin	15491 Jun 10 10:32	2° \mathfrak{D} 19'44		retrograde	15496 Oct 02 03:20	15° \mathfrak{D} 40'58	
behind sun end	15491 Jun 10 23:26	2° \mathfrak{D} 20'53		opposition	15496 Dec 19 18:17	14° \mathfrak{D} 18'36	-0°01'51
max. Earth dist.	15491 Jun 10 04:01	2° \mathfrak{D} 19'07	31.33339 AU	min. Earth dist.	15496 Dec 20 06:23	14° \mathfrak{D} 17'46	29.29739 AU
morning rise	15491 Jun 26 09:01	2° \mathfrak{D} 55'04		direct	15497 Mar 10 05:27	12° \mathfrak{D} 54'26	
retrograde	15491 Sep 21 20:56	4° \mathfrak{D} 47'46		evening set	15497 Jun 07 14:55	14° \mathfrak{D} 49'07	
opposition	15491 Dec 09 10:04	3° \mathfrak{D} 25'25	0°03'27				
min. Earth dist.	15491 Dec 09 22:29	3° \mathfrak{D} 24'34	29.33131 AU	conjunction	15497 Jun 23 07:21	15° \mathfrak{D} 23'59	-0°02'15
direct	15492 Feb 27 19:51	2° \mathfrak{D} 01'12		minimum elong	15497 Jun 23 07:21	15° \mathfrak{D} 23'59	0°03'08
evening set	15492 May 27 09:41	3° \mathfrak{D} 55'45		behind sun begin	15497 Jun 23 00:55	15° \mathfrak{D} 23'25	
				behind sun end	15497 Jun 23 13:47	15° \mathfrak{D} 24'34	
conjunction	15492 Jun 12 03:17	4° \mathfrak{D} 30'37	0°02'50	max. Earth dist.	15497 Jun 22 17:42	15° \mathfrak{D} 22'43	31.29223 AU
minimum elong	15492 Jun 12 03:16	4° \mathfrak{D} 30'37	0°01'56	morning rise	15497 Jul 08 22:10	15° \mathfrak{D} 58'44	
behind sun begin	15492 Jun 11 20:48	4° \mathfrak{D} 30'03		retrograde	15497 Oct 04 12:55	17° \mathfrak{D} 51'50	
behind sun end	15492 Jun 12 09:44	4° \mathfrak{D} 31'12		opposition	15497 Dec 22 05:38	16° \mathfrak{D} 29'25	-0°02'54
max. Earth dist.	15492 Jun 11 13:22	4° \mathfrak{D} 29'20	31.32905 AU	min. Earth dist.	15497 Dec 22 18:44	16° \mathfrak{D} 28'32	29.28710 AU
morning rise	15492 Jun 27 19:14	5° \mathfrak{D} 05'22		direct	15498 Mar 12 15:14	15° \mathfrak{D} 05'15	
retrograde	15492 Sep 23 09:32	6° \mathfrak{D} 58'09		evening set	15498 Jun 10 01:26	16° \mathfrak{D} 59'55	
opposition	15492 Dec 10 21:11	5° \mathfrak{D} 35'48	0°02'23				
min. Earth dist.	15492 Dec 11 09:24	5° \mathfrak{D} 34'58	29.32679 AU	conjunction	15498 Jun 25 17:43	17° \mathfrak{D} 34'47	-0°03'14
direct	15493 Mar 01 06:51	4° \mathfrak{D} 11'38		minimum elong	15498 Jun 25 17:43	17° \mathfrak{D} 34'47	0°04'07
evening set	15493 May 29 20:08	6° \mathfrak{D} 06'12		behind sun begin	15498 Jun 25 11:21	17° \mathfrak{D} 34'13	
				behind sun end	15498 Jun 26 00:05	17° \mathfrak{D} 35'21	
conjunction	15493 Jun 14 13:38	6° \mathfrak{D} 41'05	0°01'50	max. Earth dist.	15498 Jun 25 04:40	17° \mathfrak{D} 33'34	31.28164 AU
minimum elong	15493 Jun 14 13:38	6° \mathfrak{D} 41'05	0°00'55	morning rise	15498 Jul 11 08:21	18° \mathfrak{D} 09'32	
behind sun begin	15493 Jun 14 07:10	6° \mathfrak{D} 40'31		retrograde	15498 Oct 06 22:51	20° \mathfrak{D} 02'41	
behind sun end	15493 Jun 14 20:05	6° \mathfrak{D} 41'40		opposition	15498 Dec 24 16:59	18° \mathfrak{D} 40'13	-0°03'57
max. Earth dist.	15493 Jun 14 00:53	6° \mathfrak{D} 39'55	31.32407 AU	min. Earth dist.	15498 Dec 25 05:06	18° \mathfrak{D} 39'23	29.27619 AU
morning rise	15493 Jun 30 05:13	7° \mathfrak{D} 15'50		direct	15499 Mar 15 03:36	17° \mathfrak{D} 16'00	
retrograde	15493 Sep 25 19:49	9° \mathfrak{D} 08'41		evening set	15499 Jun 12 11:59	19° \mathfrak{D} 10'41	
opposition	15493 Dec 13 08:26	7° \mathfrak{D} 46'21	0°01'20				
min. Earth dist.	15493 Dec 13 21:14	7° \mathfrak{D} 45'28	29.32129 AU	conjunction	15499 Jun 28 03:55	19° \mathfrak{D} 45'33	-0°04'12
direct	15494 Mar 03 19:26	6° \mathfrak{D} 22'12		minimum elong	15499 Jun 28 03:54	19° \mathfrak{D} 45'33	0°05'05
evening set	15494 Jun 01 06:55	8° \mathfrak{D} 16'49		behind sun begin	15499 Jun 27 21:38	19° \mathfrak{D} 44'59	
retrograde	15494 Sep 28 07:22	11° \mathfrak{D} 19'20		behind sun end	15499 Jun 28 10:11	19° \mathfrak{D} 46'06	
max. Earth dist.	15494 Jun 16 10:14	8° \mathfrak{D} 50'25	31.31808 AU	max. Earth dist.	15499 Jun 27 14:27	19° \mathfrak{D} 44'18	31.27069 AU
				morning rise	15499 Jul 13 18:25	20° \mathfrak{D} 20'17	
conjunction	15494 Jun 17 00:01	8° \mathfrak{D} 51'41	0°00'48	retrograde	15499 Oct 09 10:18	22° \mathfrak{D} 13'31	
minimum elong	15494 Jun 17 00:01	8° \mathfrak{D} 51'41	0°00'06	opposition	15499 Dec 27 04:29	20° \mathfrak{D} 50'59	-0°05'00
behind sun begin	15494 Jun 16 17:49	8° \mathfrak{D} 51'08		min. Earth dist.	15499 Dec 27 16:39	20° \mathfrak{D} 50'09	29.26552 AU

direct	15500 Mar 17 12:53	19° \mathring{O} 26'45		minimum elong	15505 Jul 11 17:24	2° \mathring{O} 51'58	0°10'42
evening set	15500 Jun 14 22:22	21° \mathring{O} 21'26		behind sun begin	15505 Jul 11 12:25	2° \mathring{O} 51'31	
				behind sun end	15505 Jul 11 22:23	2° \mathring{O} 52'25	
conjunction	15500 Jun 30 14:12	21° \mathring{O} 56'18	-0°05'10	max. Earth dist.	15505 Jul 11 07:09	2° \mathring{O} 51'01	31.22007 AU
minimum elong	15500 Jun 30 14:12	21° \mathring{O} 56'18	0°06'02	morning rise	15505 Jul 27 06:54	3° \mathring{O} 26'44	
behind sun begin	15500 Jun 30 08:03	21° \mathring{O} 55'45		retrograde	15505 Oct 23 06:42	5° \mathring{O} 20'33	
behind sun end	15500 Jun 30 20:21	21° \mathring{O} 56'51		opposition	15506 Jan 10 02:23	3° \mathring{O} 57'58	-0°11'05
max. Earth dist.	15500 Jun 30 02:12	21° \mathring{O} 55'11	31.26034 AU	min. Earth dist.	15506 Jan 10 11:24	3° \mathring{O} 57'21	29.21607 AU
morning rise	15500 Jul 16 04:23	22° \mathring{O} 31'02		direct	15506 Mar 31 11:36	2° \mathring{O} 33'54	
retrograde	15500 Oct 11 20:16	24° \mathring{O} 24'20		evening set	15506 Jun 28 13:25	4° \mathring{O} 28'47	
opposition	15500 Dec 29 16:00	23° \mathring{O} 01'47	-0°06'02				
min. Earth dist.	15500 Dec 30 03:26	23° \mathring{O} 01'00	29.25559 AU	conjunction	15506 Jul 14 03:55	5° \mathring{O} 03'40	-0°10'49
direct	15501 Mar 20 00:42	21° \mathring{O} 37'32		minimum elong	15506 Jul 14 03:54	5° \mathring{O} 03'40	0°11'36
evening set	15501 Jun 17 08:47	23° \mathring{O} 32'15		behind sun begin	15506 Jul 13 23:16	5° \mathring{O} 03'15	
max. Earth dist.	15501 Jul 02 11:46	24° \mathring{O} 05'56	31.25098 AU	behind sun end	15506 Jul 14 08:32	5° \mathring{O} 04'05	
				max. Earth dist.	15506 Jul 13 17:41	5° \mathring{O} 02'43	31.21174 AU
conjunction	15501 Jul 03 00:14	24° \mathring{O} 07'06	-0°06'08	morning rise	15506 Jul 29 17:16	5° \mathring{O} 38'27	
minimum elong	15501 Jul 03 00:14	24° \mathring{O} 07'06	0°07'00	retrograde	15506 Oct 25 16:40	7° \mathring{O} 32'22	
behind sun begin	15501 Jul 02 18:15	24° \mathring{O} 06'34		opposition	15507 Jan 12 14:29	6° \mathring{O} 09'46	-0°12'03
behind sun end	15501 Jul 03 06:13	24° \mathring{O} 07'38		min. Earth dist.	15507 Jan 13 00:22	6° \mathring{O} 09'06	29.20733 AU
morning rise	15501 Jul 18 14:25	24° \mathring{O} 41'51		direct	15507 Apr 02 21:55	4° \mathring{O} 45'44	
retrograde	15501 Oct 14 09:20	26° \mathring{O} 35'14		evening set	15507 Jul 01 00:05	6° \mathring{O} 40'38	
opposition	15502 Jan 01 03:32	25° \mathring{O} 12'39	-0°07'04				
min. Earth dist.	15502 Jan 01 14:13	25° \mathring{O} 11'55	29.24680 AU	conjunction	15507 Jul 16 14:25	7° \mathring{O} 15'30	-0°11'43
direct	15502 Mar 22 11:56	23° \mathring{O} 48'26		minimum elong	15507 Jul 16 14:25	7° \mathring{O} 15'30	0°12'29
evening set	15502 Jun 19 19:10	25° \mathring{O} 43'10		behind sun begin	15507 Jul 16 10:12	7° \mathring{O} 15'07	
				behind sun end	15507 Jul 16 18:38	7° \mathring{O} 15'53	
conjunction	15502 Jul 05 10:35	26° \mathring{O} 18'02	-0°07'06	max. Earth dist.	15507 Jul 16 04:52	7° \mathring{O} 14'37	31.20242 AU
minimum elong	15502 Jul 05 10:35	26° \mathring{O} 18'02	0°07'56	morning rise	15507 Aug 01 03:34	7° \mathring{O} 50'18	
behind sun begin	15502 Jul 05 04:47	26° \mathring{O} 17'31		retrograde	15507 Oct 28 02:43	9° \mathring{O} 44'19	
behind sun end	15502 Jul 05 16:23	26° \mathring{O} 18'33		opposition	15508 Jan 15 02:34	8° \mathring{O} 21'42	-0°13'00
max. Earth dist.	15502 Jul 04 23:41	26° \mathring{O} 17'01	31.24261 AU	min. Earth dist.	15508 Jan 15 11:33	8° \mathring{O} 21'05	29.19730 AU
morning rise	15502 Jul 21 00:26	26° \mathring{O} 52'47		direct	15508 Apr 04 10:13	6° \mathring{O} 57'39	
retrograde	15502 Oct 16 20:10	28° \mathring{O} 46'16		evening set	15508 Jul 02 10:55	8° \mathring{O} 52'34	
opposition	15503 Jan 03 15:06	27° \mathring{O} 23'40	-0°08'05				
min. Earth dist.	15503 Jan 04 01:54	27° \mathring{O} 22'56	29.23878 AU	conjunction	15508 Jul 18 00:57	9° \mathring{O} 27'26	-0°12'36
direct	15503 Mar 25 00:24	25° \mathring{O} 59'29		minimum elong	15508 Jul 18 00:57	9° \mathring{O} 27'26	0°13'21
evening set	15503 Jun 22 05:45	27° \mathring{O} 54'17		behind sun begin	15508 Jul 17 21:12	9° \mathring{O} 27'06	
				behind sun end	15508 Jul 18 04:42	9° \mathring{O} 27'47	
conjunction	15503 Jul 07 20:47	28° \mathring{O} 29'08	-0°08'02	max. Earth dist.	15508 Jul 17 14:39	9° \mathring{O} 26'29	31.19174 AU
minimum elong	15503 Jul 07 20:48	28° \mathring{O} 29'08	0°08'52	morning rise	15508 Aug 02 14:05	10° \mathring{O} 02'14	
behind sun begin	15503 Jul 07 15:14	28° \mathring{O} 28'38		retrograde	15508 Oct 29 14:30	11° \mathring{O} 56'21	
behind sun end	15503 Jul 08 02:21	28° \mathring{O} 29'38		opposition	15509 Jan 16 14:46	10° \mathring{O} 33'41	-0°13'56
max. Earth dist.	15503 Jul 07 09:31	28° \mathring{O} 28'06	31.23502 AU	min. Earth dist.	15509 Jan 17 00:04	10° \mathring{O} 33'03	29.18605 AU
morning rise	15503 Jul 23 10:38	29° \mathring{O} 03'54		direct	15509 Apr 06 19:33	9° \mathring{O} 09'37	
	15503 Aug 20 05:41	0° \mathring{O}		evening set	15509 Jul 04 21:30	11° \mathring{O} 04'32	
retrograde	15503 Oct 19 08:19	0° \mathring{O} 57'29					
	15503 Dec 21 13:29	30° \mathring{R} \mathring{O}		conjunction	15509 Jul 20 11:34	11° \mathring{O} 39'24	-0°13'27
opposition	15504 Jan 06 02:46	29° \mathring{O} 34'54	-0°09'06	minimum elong	15509 Jul 20 11:34	11° \mathring{O} 39'24	0°14'11
min. Earth dist.	15504 Jan 06 12:18	29° \mathring{O} 34'15	29.23137 AU	behind sun begin	15509 Jul 20 08:23	11° \mathring{O} 39'07	
direct	15504 Mar 26 11:30	28° \mathring{O} 10'46		behind sun end	15509 Jul 20 14:44	11° \mathring{O} 39'41	
	15504 Jun 21 02:38	0° \mathring{O}		max. Earth dist.	15509 Jul 20 02:20	11° \mathring{O} 38'33	31.17979 AU
evening set	15504 Jun 23 16:06	0° \mathring{O} 05'35		morning rise	15509 Aug 05 00:28	12° \mathring{O} 14'13	
				retrograde	15509 Nov 01 00:55	14° \mathring{O} 08'24	
conjunction	15504 Jul 09 07:03	0° \mathring{O} 40'27	-0°08'59	opposition	15510 Jan 19 02:57	12° \mathring{O} 45'40	-0°14'51
minimum elong	15504 Jul 09 07:02	0° \mathring{O} 40'27	0°09'48	min. Earth dist.	15510 Jan 19 11:59	12° \mathring{O} 45'03	29.17335 AU
behind sun begin	15504 Jul 09 01:45	0° \mathring{O} 39'59		direct	15510 Apr 09 08:17	11° \mathring{O} 21'35	
behind sun end	15504 Jul 09 12:20	0° \mathring{O} 40'55		evening set	15510 Jul 07 08:20	13° \mathring{O} 16'28	
max. Earth dist.	15504 Jul 08 20:46	0° \mathring{O} 39'30	31.22760 AU				
morning rise	15504 Jul 24 20:37	1° \mathring{O} 15'13		conjunction	15510 Jul 22 22:03	13° \mathring{O} 51'21	-0°14'18
retrograde	15504 Oct 20 18:27	3° \mathring{O} 08'55		minimum elong	15510 Jul 22 22:03	13° \mathring{O} 51'21	0°15'00
opposition	15505 Jan 07 14:42	1° \mathring{O} 46'21	-0°10'06	behind sun begin	15510 Jul 22 19:37	13° \mathring{O} 51'07	
min. Earth dist.	15505 Jan 08 00:53	1° \mathring{O} 45'39	29.22393 AU	behind sun end	15510 Jul 23 00:30	13° \mathring{O} 51'34	
direct	15505 Mar 28 23:31	0° \mathring{O} 22'15		max. Earth dist.	15510 Jul 22 11:57	13° \mathring{O} 50'24	31.16663 AU
evening set	15505 Jun 26 02:43	2° \mathring{O} 17'06		morning rise	15510 Aug 07 11:02	14° \mathring{O} 26'09	
					15510 Aug 23 10:59	15° \mathring{O}	
conjunction	15505 Jul 11 17:24	2° \mathring{O} 51'58	-0°09'54	retrograde	15510 Nov 03 13:45	16° \mathring{O} 20'25	

	15511 Jan 20 03:52	15° κ δ Ω		evening set	15517 Jul 22 10:31	28° δ Λ 0'39	
opposition	15511 Jan 21 15:03	14° δ Λ 57'36 -0°15'44					
min. Earth dist.	15511 Jan 21 23:39	14° δ Λ 57'01 29.15982 AU		conjunction	15517 Aug 06 23:22	29° δ Λ 15'35 -0°19'32	
direct	15511 Apr 11 19:28	13° δ Λ 33'28		minimum elong	15517 Aug 06 23:23	29° δ Λ 15'35 0°20'04	
	15511 Jun 26 11:32	15° δ Λ		max. Earth dist.	15517 Aug 06 17:32	29° δ Λ 15'02 31.08384 AU	
evening set	15511 Jul 09 18:55	15° δ Λ 28'21		morning rise	15517 Aug 22 11:56	29° δ Λ 50'28	
					15517 Aug 26 20:20	0° η	
conjunction	15511 Jul 25 08:39	16° δ Λ 03'13 -0°15'07		retrograde	15517 Nov 18 22:18	1° η 45'33	
minimum elong	15511 Jul 25 08:39	16° δ Λ 03'13 0°15'48		opposition	15518 Feb 06 05:35	0° η 22'26 -0°21'14	
behind sun begin	15511 Jul 25 07:18	16° δ Λ 03'06		min. Earth dist.	15518 Feb 06 10:29	0° η 22'06 29.07898 AU	
behind sun end	15511 Jul 25 09:59	16° δ Λ 03'20			15518 Feb 20 01:14	30° κ δ Λ	
max. Earth dist.	15511 Jul 25 00:00	16° δ Λ 02'25 31.15283 AU		direct	15518 Apr 27 04:30	28° δ Λ 58'24	
morning rise	15511 Aug 09 21:22	16° δ Λ 38'02			15518 Jun 28 18:35	0° η	
retrograde	15511 Nov 06 00:28	18° δ Λ 32'23		evening set	15518 Jul 24 21:15	0° η 53'25	
opposition	15512 Jan 24 03:24	17° δ Λ 09'28 -0°16'36					
min. Earth dist.	15512 Jan 24 12:07	17° δ Λ 08'52 29.14599 AU		conjunction	15518 Aug 09 10:08	1° η 28'21 -0°20'11	
direct	15512 Apr 13 08:00	15° δ Λ 45'18		minimum elong	15518 Aug 09 10:08	1° η 28'21 0°20'41	
evening set	15512 Jul 11 05:27	17° δ Λ 40'10		max. Earth dist.	15518 Aug 09 05:41	1° η 27'56 31.07387 AU	
				morning rise	15518 Aug 24 22:29	2° η 03'16	
conjunction	15512 Jul 26 18:54	18° δ Λ 15'02 -0°15'55		retrograde	15518 Nov 21 09:15	3° η 58'29	
minimum elong	15512 Jul 26 18:54	18° δ Λ 15'02 0°16'35		opposition	15519 Feb 08 18:11	2° η 35'21 -0°21'55	
max. Earth dist.	15512 Jul 26 10:06	18° δ Λ 14'13 31.13924 AU		min. Earth dist.	15519 Feb 08 22:37	2° η 35'03 29.06870 AU	
morning rise	15512 Aug 11 07:41	18° δ Λ 49'51		direct	15519 Apr 29 17:00	1° η 11'22	
retrograde	15512 Nov 07 13:04	20° δ Λ 44'17		evening set	15519 Jul 27 08:14	3° η 06'25	
opposition	15513 Jan 25 15:36	19° δ Λ 21'17 -0°17'26					
min. Earth dist.	15513 Jan 25 22:49	19° δ Λ 20'48 29.13274 AU		conjunction	15519 Aug 11 20:51	3° η 41'21 -0°20'48	
direct	15513 Apr 15 19:41	17° δ Λ 57'06		minimum elong	15519 Aug 11 20:51	3° η 41'21 0°21'16	
evening set	15513 Jul 13 16:01	19° δ Λ 51'58		max. Earth dist.	15519 Aug 11 15:40	3° η 40'52 31.06334 AU	
				morning rise	15519 Aug 27 09:21	4° η 16'17	
conjunction	15513 Jul 29 05:25	20° δ Λ 26'50 -0°16'41		retrograde	15519 Nov 23 22:55	6° η 11'39	
minimum elong	15513 Jul 29 05:24	20° δ Λ 26'50 0°17'19		opposition	15520 Feb 11 06:59	4° η 48'29 -0°22'33	
max. Earth dist.	15513 Jul 28 21:45	20° δ Λ 26'08 31.12633 AU		min. Earth dist.	15520 Feb 11 10:53	4° η 48'13 29.05784 AU	
morning rise	15513 Aug 13 18:01	21° δ Λ 01'40		direct	15520 May 01 03:30	3° η 24'31	
retrograde	15513 Nov 09 23:58	22° δ Λ 56'12		evening set	15520 Jul 28 18:59	5° η 19'36	
opposition	15514 Jan 28 03:50	21° δ Λ 33'09 -0°18'15					
min. Earth dist.	15514 Jan 28 11:22	21° δ Λ 32'38 29.12040 AU		conjunction	15520 Aug 13 07:42	5° η 54'33 -0°21'23	
direct	15514 Apr 18 08:07	20° δ Λ 08'58		minimum elong	15520 Aug 13 07:42	5° η 54'33 0°21'50	
evening set	15514 Jul 16 02:39	22° δ Λ 03'51		max. Earth dist.	15520 Aug 13 03:49	5° η 54'11 31.05189 AU	
				morning rise	15520 Aug 28 20:02	6° η 29'30	
conjunction	15514 Jul 31 15:54	22° δ Λ 38'44 -0°17'26		retrograde	15520 Nov 25 10:17	8° η 25'00	
minimum elong	15514 Jul 31 15:54	22° δ Λ 38'44 0°18'03		opposition	15521 Feb 12 19:52	7° η 01'47 -0°23'09	
max. Earth dist.	15514 Jul 31 08:42	22° δ Λ 38'04 31.11460 AU		min. Earth dist.	15521 Feb 13 00:07	7° η 01'30 29.04581 AU	
morning rise	15514 Aug 16 04:30	23° δ Λ 13'34		direct	15521 May 03 15:19	5° η 37'50	
retrograde	15514 Nov 12 12:42	25° δ Λ 08'13		evening set	15521 Jul 31 06:03	7° η 32'54	
opposition	15515 Jan 30 16:06	23° δ Λ 45'08 -0°19'02					
min. Earth dist.	15515 Jan 30 21:55	23° δ Λ 44'44 29.10910 AU		conjunction	15521 Aug 15 18:36	8° η 07'52 -0°21'56	
direct	15515 Apr 20 20:46	22° δ Λ 20'59		minimum elong	15521 Aug 15 18:36	8° η 07'52 0°22'20	
evening set	15515 Jul 18 13:13	24° δ Λ 15'53		max. Earth dist.	15521 Aug 15 14:07	8° η 07'27 31.03936 AU	
				morning rise	15521 Aug 31 07:05	8° η 42'50	
conjunction	15515 Aug 03 02:17	24° δ Λ 50'47 -0°18'10		retrograde	15521 Nov 27 23:53	10° η 38'26	
minimum elong	15515 Aug 03 02:17	24° δ Λ 50'47 0°18'45		opposition	15522 Feb 15 08:31	9° η 15'10 -0°23'44	
max. Earth dist.	15515 Aug 02 19:36	24° δ Λ 50'10 31.10372 AU		min. Earth dist.	15522 Feb 15 11:44	9° η 14'56 29.03268 AU	
morning rise	15515 Aug 18 14:50	25° δ Λ 25'39		direct	15522 May 06 03:08	7° η 51'11	
retrograde	15515 Nov 14 23:14	27° δ Λ 20'26		evening set	15522 Aug 02 17:03	9° η 46'15	
opposition	15516 Feb 02 04:37	25° δ Λ 57'20 -0°19'48					
min. Earth dist.	15516 Feb 02 10:46	25° δ Λ 56'54 29.09869 AU		conjunction	15522 Aug 18 05:37	10° η 21'13 -0°22'27	
direct	15516 Apr 22 07:18	24° δ Λ 33'13		minimum elong	15522 Aug 18 05:37	10° η 21'13 0°22'50	
evening set	15516 Jul 19 23:48	26° δ Λ 28'09		max. Earth dist.	15522 Aug 18 01:49	10° η 20'52 31.02562 AU	
				morning rise	15522 Sep 02 18:02	10° η 56'12	
conjunction	15516 Aug 04 12:52	27° δ Λ 03'03 -0°18'52		retrograde	15522 Nov 30 12:11	12° η 51'54	
minimum elong	15516 Aug 04 12:52	27° δ Λ 03'03 0°19'26		opposition	15523 Feb 17 21:30	11° η 28'32 -0°24'16	
max. Earth dist.	15516 Aug 04 07:24	27° δ Λ 02'33 31.09367 AU		min. Earth dist.	15523 Feb 18 01:21	11° η 28'16 29.01853 AU	
morning rise	15516 Aug 20 01:18	27° δ Λ 37'56		direct	15523 May 08 16:42	10° η 04'32	
retrograde	15516 Nov 16 09:55	29° δ Λ 32'51		evening set	15523 Aug 05 03:53	11° η 59'34	
opposition	15517 Feb 03 17:00	28° δ Λ 09'45 -0°20'32					
min. Earth dist.	15517 Feb 03 21:52	28° δ Λ 09'25 29.08877 AU		conjunction	15523 Aug 20 16:24	12° η 34'32 -0°22'56	
direct	15517 Apr 24 19:26	26° δ Λ 45'41		minimum elong	15523 Aug 20 16:24	12° η 34'33 0°23'17	

max. Earth dist.	15523 Aug 20 12:56	12° <u>17</u> 34'13	31.01130 AU	conjunction	15530 Sep 04 20:46	28° <u>17</u> 07'40	-0°25'22
morning rise	15523 Sep 05 04:53	13° <u>17</u> 09'32		minimum elong	15530 Sep 04 20:47	28° <u>17</u> 07'40	0°25'29
retrograde	15523 Dec 03 01:33	15° <u>17</u> 05'18		max. Earth dist.	15530 Sep 04 21:57	28° <u>17</u> 07'47	30.93310 AU
opposition	15524 Feb 20 10:19	13° <u>17</u> 41'50	-0°24'46	morning rise	15530 Sep 20 09:48	28° <u>17</u> 42'48	
min. Earth dist.	15524 Feb 20 12:37	13° <u>17</u> 41'41	29.00406 AU		15530 Oct 30 07:35	0° <u>17</u>	
direct	15524 May 10 06:23	12° <u>17</u> 17'47		retrograde	15530 Dec 18 12:50	0° <u>17</u> 39'18	
evening set	15524 Aug 06 14:48	14° <u>17</u> 12'48			15531 Feb 07 17:22	30° <u>17</u>	
				opposition	15531 Mar 08 04:36	29° <u>17</u> 15'28	-0°27'13
conjunction	15524 Aug 22 03:14	14° <u>17</u> 47'47	-0°23'23	min. Earth dist.	15531 Mar 08 02:16	29° <u>17</u> 15'38	28.92907 AU
minimum elong	15524 Aug 22 03:14	14° <u>17</u> 47'47	0°23'43	direct	15531 May 26 15:35	27° <u>17</u> 51'29	
max. Earth dist.	15524 Aug 22 00:10	14° <u>17</u> 47'29	30.99689 AU	evening set	15531 Aug 22 19:23	29° <u>17</u> 46'28	
morning rise	15524 Sep 06 15:47	15° <u>17</u> 22'47			15531 Aug 28 20:28	0° <u>17</u>	
retrograde	15524 Dec 04 12:18	17° <u>17</u> 18'38					
opposition	15525 Feb 21 23:10	15° <u>17</u> 55'04	-0°25'13	conjunction	15531 Sep 07 07:55	0° <u>17</u> 21'32	-0°25'34
min. Earth dist.	15525 Feb 22 01:51	15° <u>17</u> 54'53	28.99007 AU	minimum elong	15531 Sep 07 07:55	0° <u>17</u> 21'32	0°25'39
direct	15525 May 12 17:52	14° <u>17</u> 30'58		max. Earth dist.	15531 Sep 07 10:02	0° <u>17</u> 21'44	30.92489 AU
evening set	15525 Aug 09 01:35	16° <u>17</u> 25'57		morning rise	15531 Sep 22 20:58	0° <u>17</u> 56'41	
				retrograde	15531 Dec 21 01:48	2° <u>17</u> 53'20	
conjunction	15525 Aug 24 14:06	17° <u>17</u> 00'56	-0°23'48	opposition	15532 Mar 09 17:54	1° <u>17</u> 29'28	-0°27'24
minimum elong	15525 Aug 24 14:07	17° <u>17</u> 00'56	0°24'05	min. Earth dist.	15532 Mar 09 16:05	1° <u>17</u> 29'35	28.92079 AU
max. Earth dist.	15525 Aug 24 12:25	17° <u>17</u> 00'47	30.98335 AU	direct	15532 May 28 04:04	0° <u>17</u> 05'32	
morning rise	15525 Sep 09 02:39	17° <u>17</u> 35'58		evening set	15532 Aug 24 06:41	2° <u>17</u> 00'32	
retrograde	15525 Dec 06 23:33	19° <u>17</u> 31'53					
opposition	15526 Feb 24 11:56	18° <u>17</u> 08'14	-0°25'39	conjunction	15532 Sep 08 19:15	2° <u>17</u> 35'37	-0°25'43
min. Earth dist.	15526 Feb 24 13:04	18° <u>17</u> 08'09	28.97701 AU	minimum elong	15532 Sep 08 19:15	2° <u>17</u> 35'37	0°25'47
direct	15526 May 15 07:29	16° <u>17</u> 44'07		max. Earth dist.	15532 Sep 08 21:36	2° <u>17</u> 35'50	30.91644 AU
evening set	15526 Aug 11 12:32	18° <u>17</u> 39'04		morning rise	15532 Sep 24 08:27	3° <u>17</u> 10'47	
				retrograde	15532 Dec 22 15:58	5° <u>17</u> 07'33	
conjunction	15526 Aug 27 00:52	19° <u>17</u> 14'05	-0°24'11	opposition	15533 Mar 12 06:55	3° <u>17</u> 43'40	-0°27'33
minimum elong	15526 Aug 27 00:52	19° <u>17</u> 14'05	0°24'27	min. Earth dist.	15533 Mar 12 03:48	3° <u>17</u> 43'53	28.91198 AU
max. Earth dist.	15526 Aug 26 23:03	19° <u>17</u> 13'55	30.97091 AU	direct	15533 May 30 17:01	2° <u>17</u> 19'45	
morning rise	15526 Sep 11 13:34	19° <u>17</u> 49'07		evening set	15533 Aug 26 18:06	4° <u>17</u> 14'46	
retrograde	15526 Dec 09 11:59	21° <u>17</u> 45'09					
opposition	15527 Feb 27 00:50	20° <u>17</u> 21'25	-0°26'03	conjunction	15533 Sep 11 06:41	4° <u>17</u> 49'53	-0°25'51
min. Earth dist.	15527 Feb 27 01:38	20° <u>17</u> 21'22	28.96535 AU	minimum elong	15533 Sep 11 06:42	4° <u>17</u> 49'53	0°25'52
direct	15527 May 17 18:01	18° <u>17</u> 57'19		max. Earth dist.	15533 Sep 11 08:58	4° <u>17</u> 50'05	30.90713 AU
evening set	15527 Aug 13 23:20	20° <u>17</u> 52'15		morning rise	15533 Sep 26 20:03	5° <u>17</u> 25'05	
				retrograde	15533 Dec 25 04:30	7° <u>17</u> 21'57	
conjunction	15527 Aug 29 11:50	21° <u>17</u> 27'16	-0°24'32	opposition	15534 Mar 14 20:17	5° <u>17</u> 58'01	-0°27'40
minimum elong	15527 Aug 29 11:50	21° <u>17</u> 27'16	0°24'45	min. Earth dist.	15534 Mar 14 17:56	5° <u>17</u> 58'11	28.90224 AU
max. Earth dist.	15527 Aug 29 11:49	21° <u>17</u> 27'16	30.95992 AU	direct	15534 Jun 02 04:49	4° <u>17</u> 34'07	
morning rise	15527 Sep 14 00:26	22° <u>17</u> 02'20		evening set	15534 Aug 29 05:25	6° <u>17</u> 29'08	
retrograde	15527 Dec 11 22:26	23° <u>17</u> 58'27					
opposition	15528 Feb 29 13:44	22° <u>17</u> 34'42	-0°26'24	conjunction	15534 Sep 13 18:11	7° <u>17</u> 04'15	-0°25'56
min. Earth dist.	15528 Feb 29 13:32	22° <u>17</u> 34'42	28.95495 AU	minimum elong	15534 Sep 13 18:11	7° <u>17</u> 04'15	0°25'55
direct	15528 May 19 06:48	21° <u>17</u> 10'36		max. Earth dist.	15534 Sep 13 21:21	7° <u>17</u> 04'33	30.89691 AU
evening set	15528 Aug 15 10:14	23° <u>17</u> 05'32		morning rise	15534 Sep 29 07:35	7° <u>17</u> 39'28	
				retrograde	15534 Dec 27 17:23	9° <u>17</u> 36'26	
conjunction	15528 Aug 30 22:36	23° <u>17</u> 40'34	-0°24'51	opposition	15535 Mar 17 09:30	8° <u>17</u> 12'27	-0°27'44
minimum elong	15528 Aug 30 22:36	23° <u>17</u> 40'34	0°25'02	min. Earth dist.	15535 Mar 17 06:03	8° <u>17</u> 12'41	28.89149 AU
max. Earth dist.	15528 Aug 30 22:18	23° <u>17</u> 40'32	30.95019 AU	direct	15535 Jun 04 19:07	6° <u>17</u> 48'33	
morning rise	15528 Sep 15 11:29	24° <u>17</u> 15'39		evening set	15535 Aug 31 16:53	8° <u>17</u> 43'32	
retrograde	15528 Dec 13 11:19	26° <u>17</u> 11'54					
opposition	15529 Mar 03 02:40	24° <u>17</u> 48'06	-0°26'43	conjunction	15535 Sep 16 05:36	9° <u>17</u> 18'40	-0°25'58
min. Earth dist.	15529 Mar 03 01:36	24° <u>17</u> 48'10	28.94576 AU	minimum elong	15535 Sep 16 05:36	9° <u>17</u> 18'40	0°25'55
direct	15529 May 21 16:51	23° <u>17</u> 24'02		max. Earth dist.	15535 Sep 16 08:13	9° <u>17</u> 18'55	30.88587 AU
evening set	15529 Aug 17 21:11	25° <u>17</u> 18'59		morning rise	15535 Oct 01 19:18	9° <u>17</u> 53'55	
				retrograde	15535 Dec 30 06:39	11° <u>17</u> 50'57	
conjunction	15529 Sep 02 09:43	25° <u>17</u> 54'01	-0°25'07	opposition	15536 Mar 18 22:49	10° <u>17</u> 26'54	-0°27'45
minimum elong	15529 Sep 02 09:44	25° <u>17</u> 54'01	0°25'16	min. Earth dist.	15536 Mar 18 19:32	10° <u>17</u> 27'07	28.88034 AU
max. Earth dist.	15529 Sep 02 11:04	25° <u>17</u> 54'09	30.94134 AU	direct	15536 Jun 06 06:36	9° <u>17</u> 02'58	
morning rise	15529 Sep 17 22:32	26° <u>17</u> 29'08		evening set	15536 Sep 02 04:03	10° <u>17</u> 57'55	
retrograde	15529 Dec 15 22:40	28° <u>17</u> 25'30					
opposition	15530 Mar 05 15:34	27° <u>17</u> 01'41	-0°26'59	conjunction	15536 Sep 17 17:03	11° <u>17</u> 33'05	-0°25'58
min. Earth dist.	15530 Mar 05 14:32	27° <u>17</u> 01'45	28.93719 AU	minimum elong	15536 Sep 17 17:04	11° <u>17</u> 33'05	0°25'53
direct	15530 May 24 04:07	25° <u>17</u> 37'39		max. Earth dist.	15536 Sep 17 21:12	11° <u>17</u> 33'28	30.87468 AU
evening set	15530 Aug 20 08:20	27° <u>17</u> 32'37		morning rise	15536 Oct 03 06:48	12° <u>17</u> 08'21	

retrograde	15536 Dec 31 17:13	14° <u>05</u> '27		minimum elong	15543 Oct 04 01:57	27° <u>05</u> '21	0°24'35
opposition	15537 Mar 21 12:00	12° <u>04</u> '19	-0°27'44	max. Earth dist.	15543 Oct 04 10:32	27° <u>05</u> '16'09	30.82442 AU
min. Earth dist.	15537 Mar 21 07:55	12° <u>04</u> '36	28.86922 AU	morning rise	15543 Oct 19 17:01	27° <u>05</u> '50'46	
direct	15537 Jun 08 20:08	11° <u>01</u> '722		retrograde	15544 Jan 17 13:29	29° <u>05</u> '48'29	
evening set	15537 Sep 04 15:30	13° <u>01</u> '12'17		opposition	15544 Apr 06 08:26	28° <u>05</u> '24'08	-0°26'26
				min. Earth dist.	15544 Apr 05 23:50	28° <u>05</u> '24'43	28.82242 AU
conjunction	15537 Sep 20 04:25	13° <u>01</u> '47'28	-0°25'56	direct	15544 Jun 24 07:48	27° <u>05</u> '00'19	
minimum elong	15537 Sep 20 04:25	13° <u>01</u> '47'28	0°25'48	evening set	15544 Sep 19 23:54	28° <u>05</u> '55'13	
max. Earth dist.	15537 Sep 20 08:06	13° <u>01</u> '47'48	30.86392 AU				
morning rise	15537 Oct 05 18:28	14° <u>01</u> '22'45		conjunction	15544 Oct 05 13:47	29° <u>05</u> '30'31	-0°24'36
retrograde	15538 Jan 03 05:46	16° <u>01</u> '19'56		minimum elong	15544 Oct 05 13:47	29° <u>05</u> '30'31	0°24'15
opposition	15538 Mar 24 01:04	14° <u>01</u> '55'43	-0°27'40	max. Earth dist.	15544 Oct 05 21:48	29° <u>05</u> '31'16	30.82023 AU
min. Earth dist.	15538 Mar 23 20:16	14° <u>01</u> '56'03	28.85900 AU		15544 Oct 18 13:11	0° <u>01</u> '00'00	
direct	15538 Jun 11 06:44	13° <u>01</u> '31'46		morning rise	15544 Oct 21 05:14	0° <u>01</u> '05'58	
evening set	15538 Sep 07 02:48	15° <u>01</u> '26'39		retrograde	15545 Jan 19 03:22	2° <u>01</u> '03'46	
				opposition	15545 Apr 08 21:49	0° <u>01</u> '39'23	-0°26'05
conjunction	15538 Sep 22 15:57	16° <u>01</u> '01'51	-0°25'52	min. Earth dist.	15545 Apr 08 13:39	0° <u>01</u> '39'57	28.81811 AU
minimum elong	15538 Sep 22 15:58	16° <u>01</u> '01'51	0°25'43		15545 May 03 14:36	30° <u>01</u> '00'00	
max. Earth dist.	15538 Sep 22 21:23	16° <u>01</u> '02'22	30.85420 AU	direct	15545 Jun 26 19:37	29° <u>05</u> '15'36	
morning rise	15538 Oct 08 06:01	16° <u>01</u> '37'09			15545 Aug 17 18:16	0° <u>01</u> '00'00	
retrograde	15539 Jan 05 17:12	18° <u>01</u> '34'26		evening set	15545 Sep 22 11:43	1° <u>01</u> '10'30	
opposition	15539 Mar 26 14:21	17° <u>01</u> '10'10	-0°27'34				
min. Earth dist.	15539 Mar 26 09:15	17° <u>01</u> '10'31	28.84994 AU	conjunction	15545 Oct 08 01:56	1° <u>01</u> '45'49	-0°24'15
direct	15539 Jun 13 18:15	15° <u>01</u> '46'12		minimum elong	15545 Oct 08 01:56	1° <u>01</u> '45'49	0°23'51
evening set	15539 Sep 09 14:06	17° <u>01</u> '41'05		max. Earth dist.	15545 Oct 08 11:03	1° <u>01</u> '46'41	30.81551 AU
				morning rise	15545 Oct 23 17:24	2° <u>01</u> '21'17	
conjunction	15539 Sep 25 03:17	18° <u>01</u> '16'17	-0°25'45	retrograde	15546 Jan 21 15:19	4° <u>01</u> '19'09	
minimum elong	15539 Sep 25 03:17	18° <u>01</u> '16'17	0°25'34	opposition	15546 Apr 11 11:05	2° <u>01</u> '54'45	-0°25'41
max. Earth dist.	15539 Sep 25 08:45	18° <u>01</u> '16'48	30.84594 AU	min. Earth dist.	15546 Apr 11 02:28	2° <u>01</u> '55'21	28.81290 AU
morning rise	15539 Oct 10 17:39	18° <u>01</u> '51'37		direct	15546 Jun 29 09:21	1° <u>01</u> '30'59	
retrograde	15540 Jan 08 06:50	20° <u>01</u> '48'59		evening set	15546 Sep 24 23:49	3° <u>01</u> '25'51	
opposition	15540 Mar 28 03:31	19° <u>01</u> '24'41	-0°27'26				
min. Earth dist.	15540 Mar 27 20:56	19° <u>01</u> '25'08	28.84240 AU	conjunction	15546 Oct 10 14:02	4° <u>01</u> '01'11	-0°23'52
direct	15540 Jun 15 05:52	18° <u>01</u> '00'44		minimum elong	15546 Oct 10 14:02	4° <u>01</u> '01'11	0°23'27
evening set	15540 Sep 11 01:30	19° <u>01</u> '55'36		max. Earth dist.	15546 Oct 10 22:08	4° <u>01</u> '01'57	30.80989 AU
				morning rise	15546 Oct 26 05:55	4° <u>01</u> '36'41	
conjunction	15540 Sep 26 14:52	20° <u>01</u> '30'49	-0°25'36	retrograde	15547 Jan 24 05:17	6° <u>01</u> '34'36	
minimum elong	15540 Sep 26 14:53	20° <u>01</u> '30'49	0°25'23	opposition	15547 Apr 14 00:32	5° <u>01</u> '10'09	-0°25'15
max. Earth dist.	15540 Sep 26 21:30	20° <u>01</u> '31'27	30.83899 AU	min. Earth dist.	15547 Apr 13 15:44	5° <u>01</u> '10'45	28.80683 AU
morning rise	15540 Oct 12 05:23	21° <u>01</u> '06'11		direct	15547 Jul 01 21:19	3° <u>01</u> '46'22	
retrograde	15541 Jan 09 19:20	23° <u>01</u> '03'38		evening set	15547 Sep 27 11:36	5° <u>01</u> '41'11	
opposition	15541 Mar 30 16:40	21° <u>01</u> '39'18	-0°27'15				
min. Earth dist.	15541 Mar 30 10:22	21° <u>01</u> '39'44	28.83613 AU	conjunction	15547 Oct 13 02:11	6° <u>01</u> '16'33	-0°23'27
direct	15541 Jun 17 17:34	20° <u>01</u> '15'23		minimum elong	15547 Oct 13 02:12	6° <u>01</u> '16'33	0°22'59
evening set	15541 Sep 13 12:58	22° <u>01</u> '10'16		max. Earth dist.	15547 Oct 13 11:28	6° <u>01</u> '17'25	30.80330 AU
				morning rise	15547 Oct 28 18:11	6° <u>01</u> '52'04	
conjunction	15541 Sep 29 02:31	22° <u>01</u> '45'30	-0°25'25	retrograde	15548 Jan 26 16:55	8° <u>01</u> '50'00	
minimum elong	15541 Sep 29 02:31	22° <u>01</u> '45'30	0°25'09	opposition	15548 Apr 15 13:56	7° <u>01</u> '25'29	-0°24'46
max. Earth dist.	15541 Sep 29 09:36	22° <u>01</u> '46'10	30.83338 AU	min. Earth dist.	15548 Apr 15 05:23	7° <u>01</u> '26'05	28.79981 AU
morning rise	15541 Oct 14 17:14	23° <u>01</u> '20'53		direct	15548 Jul 03 10:17	6° <u>01</u> '01'40	
retrograde	15542 Jan 12 09:24	25° <u>01</u> '18'25		evening set	15548 Sep 28 23:36	7° <u>01</u> '56'27	
opposition	15542 Apr 02 05:49	23° <u>01</u> '54'05	-0°27'01				
min. Earth dist.	15542 Apr 01 21:52	23° <u>01</u> '54'37	28.83096 AU	conjunction	15548 Oct 14 14:20	8° <u>01</u> '31'49	-0°22'59
direct	15542 Jun 20 05:30	22° <u>01</u> '30'11		minimum elong	15548 Oct 14 14:20	8° <u>01</u> '31'49	0°22'31
evening set	15542 Sep 16 00:29	24° <u>01</u> '25'05		max. Earth dist.	15548 Oct 14 23:04	8° <u>01</u> '32'38	30.79618 AU
				morning rise	15548 Oct 30 06:43	9° <u>01</u> '07'21	
conjunction	15542 Oct 01 14:05	25° <u>01</u> '00'20	-0°25'11	retrograde	15549 Jan 28 05:53	11° <u>01</u> '05'18	
minimum elong	15542 Oct 01 14:05	25° <u>01</u> '00'20	0°24'54	opposition	15549 Apr 18 03:02	9° <u>01</u> '40'43	-0°24'16
max. Earth dist.	15542 Oct 01 21:32	25° <u>01</u> '01'02	30.82857 AU	min. Earth dist.	15549 Apr 17 17:37	9° <u>01</u> '41'22	28.79263 AU
morning rise	15542 Oct 17 05:02	25° <u>01</u> '35'44		direct	15549 Jul 05 22:16	8° <u>01</u> '16'51	
retrograde	15543 Jan 14 22:53	27° <u>01</u> '33'23		evening set	15549 Oct 01 11:31	10° <u>01</u> '11'36	
opposition	15543 Apr 04 19:13	26° <u>01</u> '09'01	-0°26'45				
min. Earth dist.	15543 Apr 04 11:47	26° <u>01</u> '09'32	28.82654 AU	conjunction	15549 Oct 17 02:30	10° <u>01</u> '46'58	-0°22'30
direct	15543 Jun 22 17:29	24° <u>01</u> '45'10		minimum elong	15549 Oct 17 02:30	10° <u>01</u> '46'58	0°21'59
evening set	15543 Sep 18 12:05	26° <u>01</u> '40'04		max. Earth dist.	15549 Oct 17 12:07	10° <u>01</u> '47'53	30.78900 AU
				morning rise	15549 Nov 01 19:04	11° <u>01</u> '22'32	
conjunction	15543 Oct 04 01:57	27° <u>01</u> '15'21	-0°24'55	retrograde	15550 Jan 30 17:28	13° <u>01</u> '20'30	

opposition	15550 Apr 20 16:20	11° ℳ 55'51 -0°23'43	conjunction	15556 Nov 01 16:00	26° ℳ 33'27 -0°18'09
min. Earth dist.	15550 Apr 20 07:22	11° ℳ 56'28 28.78577 AU	minimum elong	15556 Nov 01 16:00	26° ℳ 33'27 0°17'29
direct	15550 Jul 08 10:01	10° ℳ 31'57	max. Earth dist.	15556 Nov 02 05:15	26° ℳ 34'42 30.77050 AU
evening set	15550 Oct 03 23:18	12° ℳ 26'39	morning rise	15556 Nov 17 10:24	27° ℳ 09'10
			retrograde	15557 Feb 15 16:41	29° ℳ 07'26
conjunction	15550 Oct 19 14:29	13° ℳ 02'02 -0°21'58	opposition	15557 May 06 11:55	27° ℳ 42'43 -0°18'57
minimum elong	15550 Oct 19 14:29	13° ℳ 02'02 0°21'26	min. Earth dist.	15557 May 05 23:49	27° ℳ 43'34 28.77085 AU
max. Earth dist.	15550 Oct 20 00:28	13° ℳ 02'59 30.78264 AU	direct	15557 Jul 24 01:50	26° ℳ 18'57
morning rise	15550 Nov 04 07:19	13° ℳ 37'37	evening set	15557 Oct 19 11:45	28° ℳ 13'39
	15550 Dec 17 10:21	15° ℳ			
retrograde	15551 Feb 02 07:11	15° ℳ 35'37	conjunction	15557 Nov 04 04:33	28° ℳ 49'11 -0°17'25
	15551 Mar 22 18:16	15° ℳ	minimum elong	15557 Nov 04 04:33	28° ℳ 49'11 0°16'42
opposition	15551 Apr 23 05:28	14° ℳ 10'55 -0°23'08	max. Earth dist.	15557 Nov 04 17:03	28° ℳ 50'22 30.77100 AU
min. Earth dist.	15551 Apr 22 18:55	14° ℳ 11'39 28.77992 AU	morning rise	15557 Nov 19 23:19	29° ℳ 24'55
direct	15551 Jul 10 22:02	12° ℳ 46'59		15557 Dec 06 09:14	0° ♂
evening set	15551 Oct 06 11:16	14° ℳ 41'40	retrograde	15558 Feb 18 06:07	1° ♂ 23'13
	15551 Oct 14 14:54	15° ℳ		15558 May 08 03:51	30° ℳ
conjunction	15551 Oct 22 02:36	15° ℳ 17'04 -0°21'25	opposition	15558 May 09 01:00	29° ℳ 58'32 -0°18'08
minimum elong	15551 Oct 22 02:36	15° ℳ 17'04 0°20'51	min. Earth dist.	15558 May 08 12:20	29° ℳ 59'25 28.77116 AU
max. Earth dist.	15551 Oct 22 12:56	15° ℳ 18'02 30.77735 AU	direct	15558 Jul 26 13:38	28° ℳ 34'47
morning rise	15551 Nov 06 19:44	15° ℳ 52'40		15558 Oct 08 06:48	0° ♂
retrograde	15552 Feb 04 20:18	17° ℳ 50'43	evening set	15558 Oct 22 00:03	0° ♂ 29'28
opposition	15552 Apr 24 18:38	16° ℳ 25'57 -0°22'31	conjunction	15558 Nov 06 17:09	1° ♂ 05'01 -0°16'39
min. Earth dist.	15552 Apr 24 08:34	16° ℳ 26'39 28.77543 AU	minimum elong	15558 Nov 06 17:09	1° ♂ 05'01 0°15'56
direct	15552 Jul 12 09:59	15° ℳ 02'02	behind sun begin	15558 Nov 06 16:23	1° ♂ 04'57
evening set	15552 Oct 07 23:06	16° ℳ 56'41	behind sun end	15558 Nov 06 17:55	1° ♂ 05'06
			max. Earth dist.	15558 Nov 07 06:12	1° ♂ 06'15 30.77085 AU
conjunction	15552 Oct 23 14:48	17° ℳ 32'07 -0°20'49	morning rise	15558 Nov 22 12:07	1° ♂ 40'46
minimum elong	15552 Oct 23 14:48	17° ℳ 32'07 0°20'14	retrograde	15559 Feb 20 17:58	3° ♂ 39'06
max. Earth dist.	15552 Oct 24 02:17	17° ℳ 33'12 30.77359 AU	opposition	15559 May 11 14:15	2° ♂ 14'24 -0°17'18
morning rise	15552 Nov 08 08:07	18° ℳ 07'44	min. Earth dist.	15559 May 11 02:25	2° ♂ 15'13 28.77063 AU
retrograde	15553 Feb 06 10:39	20° ℳ 05'49	direct	15559 Jul 29 01:11	0° ♂ 50'38
opposition	15553 Apr 27 07:38	18° ℳ 41'03 -0°21'52	evening set	15559 Oct 24 12:30	2° ♂ 45'18
min. Earth dist.	15553 Apr 26 20:10	18° ℳ 41'50 28.77229 AU			
direct	15553 Jul 14 23:51	17° ℳ 17'07	conjunction	15559 Nov 09 05:54	3° ♂ 20'52 -0°15'51
evening set	15553 Oct 10 11:07	19° ℳ 11'47	minimum elong	15559 Nov 09 05:53	3° ♂ 20'52 0°15'06
			behind sun begin	15559 Nov 09 03:38	3° ♂ 20'40
conjunction	15553 Oct 26 02:54	19° ℳ 47'14 -0°20'12	behind sun end	15559 Nov 09 08:08	3° ♂ 21'05
minimum elong	15553 Oct 26 02:54	19° ℳ 47'14 0°19'34	max. Earth dist.	15559 Nov 09 18:34	3° ♂ 22'04 30.76999 AU
max. Earth dist.	15553 Oct 26 14:04	19° ℳ 48'17 30.77113 AU	morning rise	15559 Nov 25 01:11	3° ♂ 56'38
morning rise	15553 Nov 10 20:36	20° ℳ 22'52	retrograde	15560 Feb 23 07:46	5° ♂ 54'57
retrograde	15554 Feb 09 00:23	22° ℳ 21'00	opposition	15560 May 13 03:08	4° ♂ 30'13 -0°16'26
opposition	15554 Apr 29 20:44	20° ℳ 56'14 -0°21'11	min. Earth dist.	15560 May 12 14:22	4° ♂ 31'06 28.76935 AU
min. Earth dist.	15554 Apr 29 09:29	20° ℳ 57'01 28.77058 AU	direct	15560 Jul 30 13:01	3° ♂ 06'25
direct	15554 Jul 17 11:16	19° ℳ 32'20	evening set	15560 Oct 26 00:58	5° ♂ 01'03
evening set	15554 Oct 12 23:03	21° ℳ 27'01			
			conjunction	15560 Nov 10 18:35	5° ♂ 36'38 -0°15'02
conjunction	15554 Oct 28 15:14	22° ℳ 02'29 -0°19'33	minimum elong	15560 Nov 10 18:35	5° ♂ 36'38 0°14'17
minimum elong	15554 Oct 28 15:14	22° ℳ 02'29 0°18'55	behind sun begin	15560 Nov 10 15:32	5° ♂ 36'21
max. Earth dist.	15554 Oct 29 03:54	22° ℳ 03'41 30.77006 AU	behind sun end	15560 Nov 10 21:38	5° ♂ 36'54
morning rise	15554 Nov 13 09:03	22° ℳ 38'08	max. Earth dist.	15560 Nov 11 07:03	5° ♂ 37'48 30.76836 AU
retrograde	15555 Feb 11 13:28	24° ℳ 36'19	morning rise	15560 Nov 26 14:12	6° ♂ 12'25
opposition	15555 May 02 09:49	23° ℳ 11'34 -0°20'28	retrograde	15561 Feb 24 19:38	8° ♂ 10'41
min. Earth dist.	15555 May 01 21:41	23° ℳ 12'24 28.77001 AU	opposition	15561 May 15 16:09	6° ♂ 45'55 -0°15'33
direct	15555 Jul 20 00:52	21° ℳ 47'43	min. Earth dist.	15561 May 15 04:25	6° ♂ 46'44 28.76758 AU
evening set	15555 Oct 15 11:08	23° ℳ 42'23	direct	15561 Aug 02 01:16	5° ♂ 22'04
			evening set	15561 Oct 28 13:15	7° ♂ 16'39
conjunction	15555 Oct 31 03:25	24° ℳ 17'53 -0°18'52			
minimum elong	15555 Oct 31 03:25	24° ℳ 17'53 0°18'12	conjunction	15561 Nov 13 07:14	7° ♂ 52'14 -0°14'12
max. Earth dist.	15555 Oct 31 15:25	24° ℳ 19'01 30.77003 AU	minimum elong	15561 Nov 13 07:13	7° ♂ 52'14 0°13'24
morning rise	15555 Nov 15 21:43	24° ℳ 53'34	behind sun begin	15561 Nov 13 03:33	7° ♂ 51'54
retrograde	15556 Feb 14 04:37	26° ℳ 51'47	behind sun end	15561 Nov 13 10:54	7° ♂ 52'34
opposition	15556 May 03 22:56	25° ℳ 27'03 -0°19'43	max. Earth dist.	15561 Nov 13 20:22	7° ♂ 53'28 30.76663 AU
min. Earth dist.	15556 May 03 10:35	25° ℳ 27'55 28.77035 AU	morning rise	15561 Nov 29 03:01	8° ♂ 28'01
direct	15556 Jul 21 12:57	24° ℳ 03'15	retrograde	15562 Feb 27 08:47	10° ♂ 26'15
evening set	15556 Oct 16 23:20	25° ℳ 57'56	opposition	15562 May 18 04:53	9° ♂ 01'26 -0°14'38

min. Earth dist.	15562 May 17 16:07	9° \mathring{A} 02'19	28.76594 AU	behind sun end	15567 Nov 27 16:48	21° \mathring{A} 23'37	
direct	15562 Aug 04 14:30	7° \mathring{A} 37'32		max. Earth dist.	15567 Nov 28 01:57	21° \mathring{A} 24'30	30.77879 AU
evening set	15562 Oct 31 01:40	9° \mathring{A} 32'04		morning rise	15567 Dec 13 08:29	21° \mathring{A} 58'56	
				retrograde	15568 Mar 12 16:08	23° \mathring{A} 56'57	
conjunction	15562 Nov 15 19:45	10° \mathring{A} 07'39	-0°13'21	opposition	15568 May 31 08:34	22° \mathring{A} 32'04	-0°08'48
minimum elong	15562 Nov 15 19:46	10° \mathring{A} 07'39	0°12'34	min. Earth dist.	15568 May 30 19:03	22° \mathring{A} 33'01	28.78217 AU
behind sun begin	15562 Nov 15 15:35	10° \mathring{A} 07'17		direct	15568 Aug 17 17:04	21° \mathring{A} 08'08	
behind sun end	15562 Nov 15 23:56	10° \mathring{A} 08'02		evening set	15568 Nov 13 03:54	23° \mathring{A} 02'32	
max. Earth dist.	15562 Nov 16 08:23	10° \mathring{A} 08'51	30.76532 AU				
morning rise	15562 Dec 01 15:58	10° \mathring{A} 43'27		conjunction	15568 Nov 28 23:47	23° \mathring{A} 38'12	-0°07'52
retrograde	15563 Mar 01 22:06	12° \mathring{A} 41'39		minimum elong	15568 Nov 28 23:47	23° \mathring{A} 38'12	0°07'01
opposition	15563 May 20 17:43	11° \mathring{A} 16'46	-0°13'43	behind sun begin	15568 Nov 28 17:46	23° \mathring{A} 37'39	
min. Earth dist.	15563 May 20 05:27	11° \mathring{A} 17'37	28.76519 AU	behind sun end	15568 Nov 29 05:48	23° \mathring{A} 38'45	
direct	15563 Aug 07 01:38	9° \mathring{A} 52'49		max. Earth dist.	15568 Nov 29 14:29	23° \mathring{A} 39'35	30.78558 AU
evening set	15563 Nov 02 13:51	11° \mathring{A} 47'19		morning rise	15568 Dec 14 21:37	24° \mathring{A} 14'04	
				retrograde	15569 Mar 15 05:52	26° \mathring{A} 12'04	
conjunction	15563 Nov 18 08:26	12° \mathring{A} 22'55	-0°12'29	opposition	15569 Jun 02 20:59	24° \mathring{A} 47'15	-0°07'46
minimum elong	15563 Nov 18 08:25	12° \mathring{A} 22'55	0°11'39	min. Earth dist.	15569 Jun 02 06:30	24° \mathring{A} 48'16	28.78921 AU
behind sun begin	15563 Nov 18 03:49	12° \mathring{A} 22'30		direct	15569 Aug 20 04:51	23° \mathring{A} 23'20	
behind sun end	15563 Nov 18 13:02	12° \mathring{A} 23'20		evening set	15569 Nov 15 16:29	25° \mathring{A} 17'46	
max. Earth dist.	15563 Nov 18 22:21	12° \mathring{A} 24'13	30.76511 AU				
morning rise	15563 Dec 04 04:47	12° \mathring{A} 58'43		conjunction	15569 Dec 01 12:34	25° \mathring{A} 53'26	-0°06'54
retrograde	15564 Mar 03 11:20	14° \mathring{A} 56'51		minimum elong	15569 Dec 01 12:34	25° \mathring{A} 53'26	0°06'01
opposition	15564 May 22 06:21	13° \mathring{A} 31'56	-0°12'46	behind sun begin	15569 Dec 01 06:21	25° \mathring{A} 52'53	
min. Earth dist.	15564 May 21 17:17	13° \mathring{A} 32'51	28.76555 AU	behind sun end	15569 Dec 01 18:46	25° \mathring{A} 54'00	
direct	15564 Aug 08 15:58	12° \mathring{A} 07'58		max. Earth dist.	15569 Dec 02 03:11	25° \mathring{A} 54'49	30.79267 AU
evening set	15564 Nov 04 02:20	14° \mathring{A} 02'25		morning rise	15569 Dec 17 10:38	26° \mathring{A} 29'19	
				retrograde	15570 Mar 17 17:35	28° \mathring{A} 27'19	
conjunction	15564 Nov 19 20:59	14° \mathring{A} 38'02	-0°11'35	opposition	15570 Jun 05 09:37	27° \mathring{A} 02'33	-0°06'43
minimum elong	15564 Nov 19 20:59	14° \mathring{A} 38'02	0°10'46	min. Earth dist.	15570 Jun 04 20:16	27° \mathring{A} 03'29	28.79635 AU
behind sun begin	15564 Nov 19 16:01	14° \mathring{A} 37'35		direct	15570 Aug 22 15:56	25° \mathring{A} 38'41	
behind sun end	15564 Nov 20 01:58	14° \mathring{A} 38'29		evening set	15570 Nov 18 05:11	27° \mathring{A} 33'07	
max. Earth dist.	15564 Nov 20 10:06	14° \mathring{A} 39'16	30.76619 AU				
morning rise	15564 Dec 05 17:47	15° \mathring{A} 13'50		conjunction	15570 Dec 04 01:39	28° \mathring{A} 08'48	-0°05'55
retrograde	15565 Mar 06 02:07	17° \mathring{A} 11'56		minimum elong	15570 Dec 04 01:38	28° \mathring{A} 08'48	0°05'03
opposition	15565 May 24 18:52	15° \mathring{A} 47'00	-0°11'48	behind sun begin	15570 Dec 03 19:18	28° \mathring{A} 08'14	
min. Earth dist.	15565 May 24 05:37	15° \mathring{A} 47'55	28.76747 AU	behind sun end	15570 Dec 04 07:58	28° \mathring{A} 09'22	
direct	15565 Aug 11 04:22	14° \mathring{A} 23'00		max. Earth dist.	15570 Dec 04 16:28	28° \mathring{A} 10'12	30.79968 AU
evening set	15565 Nov 06 14:38	16° \mathring{A} 17'26		morning rise	15570 Dec 19 23:53	28° \mathring{A} 44'41	
					15571 Jan 27 16:52	0° \mathring{A}	
conjunction	15565 Nov 22 09:43	16° \mathring{A} 53'04	-0°10'41	retrograde	15571 Mar 20 06:56	0° \mathring{A} 42'39	
minimum elong	15565 Nov 22 09:43	16° \mathring{A} 53'04	0°09'50		15571 May 12 15:09	30° \mathring{A}	
behind sun begin	15565 Nov 22 04:24	16° \mathring{A} 52'35		opposition	15571 Jun 07 22:02	29° \mathring{A} 17'56	-0°05'39
behind sun end	15565 Nov 22 15:01	16° \mathring{A} 53'32		min. Earth dist.	15571 Jun 07 08:03	29° \mathring{A} 18'55	28.80301 AU
max. Earth dist.	15565 Nov 23 00:14	16° \mathring{A} 54'25	30.76884 AU	direct	15571 Aug 25 04:07	27° \mathring{A} 54'05	
morning rise	15565 Dec 08 06:36	17° \mathring{A} 28'53		evening set	15571 Nov 20 18:03	29° \mathring{A} 48'31	
retrograde	15566 Mar 08 13:46	19° \mathring{A} 26'56			15571 Nov 25 21:44	0° \mathring{A}	
opposition	15566 May 27 07:30	18° \mathring{A} 02'00	-0°10'49				
min. Earth dist.	15566 May 26 18:07	18° \mathring{A} 02'56	28.77088 AU	conjunction	15571 Dec 06 14:39	0° \mathring{A} 24'13	-0°04'56
direct	15566 Aug 13 17:22	16° \mathring{A} 38'01		minimum elong	15571 Dec 06 14:39	0° \mathring{A} 24'13	0°04'02
evening set	15566 Nov 09 02:56	18° \mathring{A} 32'25		behind sun begin	15571 Dec 06 08:13	0° \mathring{A} 23'38	
				behind sun end	15571 Dec 06 21:05	0° \mathring{A} 24'48	
conjunction	15566 Nov 24 22:11	19° \mathring{A} 08'03	-0°09'45	max. Earth dist.	15571 Dec 07 04:24	0° \mathring{A} 25'30	30.80590 AU
minimum elong	15566 Nov 24 22:11	19° \mathring{A} 08'03	0°08'55	morning rise	15571 Dec 22 13:18	1° \mathring{A} 00'07	
behind sun begin	15566 Nov 24 16:37	19° \mathring{A} 07'33		retrograde	15572 Mar 21 20:15	2° \mathring{A} 58'03	
behind sun end	15566 Nov 25 03:46	19° \mathring{A} 08'33		opposition	15572 Jun 09 10:36	1° \mathring{A} 33'21	-0°04'36
max. Earth dist.	15566 Nov 25 12:14	19° \mathring{A} 09'22	30.77314 AU	min. Earth dist.	15572 Jun 08 21:45	1° \mathring{A} 34'15	28.80884 AU
morning rise	15566 Dec 10 19:30	19° \mathring{A} 43'53		direct	15572 Aug 26 14:46	0° \mathring{A} 09'29	
retrograde	15567 Mar 11 03:56	21° \mathring{A} 41'55		evening set	15572 Nov 22 06:48	2° \mathring{A} 03'55	
opposition	15567 May 29 20:04	20° \mathring{A} 17'00	-0°09'49				
min. Earth dist.	15567 May 29 05:53	20° \mathring{A} 18'00	28.77594 AU	conjunction	15572 Dec 08 03:51	2° \mathring{A} 39'37	-0°03'56
direct	15567 Aug 16 05:24	18° \mathring{A} 53'02		minimum elong	15572 Dec 08 03:50	2° \mathring{A} 39'37	0°03'03
evening set	15567 Nov 11 15:22	20° \mathring{A} 47'26		behind sun begin	15572 Dec 07 21:20	2° \mathring{A} 39'02	
				behind sun end	15572 Dec 08 10:19	2° \mathring{A} 40'12	
conjunction	15567 Nov 27 10:58	21° \mathring{A} 23'05	-0°08'49	max. Earth dist.	15572 Dec 08 18:09	2° \mathring{A} 40'58	30.81130 AU
minimum elong	15567 Nov 27 10:58	21° \mathring{A} 23'05	0°07'57	morning rise	15572 Dec 24 02:34	3° \mathring{A} 15'31	
behind sun begin	15567 Nov 27 05:09	21° \mathring{A} 22'33		retrograde	15573 Mar 24 09:21	5° \mathring{A} 13'23	

opposition	15573 Jun 11 22:51	3°348'42	-0°03'32	minimum elong	15578 Dec 22 09:13	16°309'23	0°03'05
min. Earth dist.	15573 Jun 11 09:46	3°349'37	28.81380 AU	behind sun begin	15578 Dec 22 02:43	16°308'48	
direct	15573 Aug 29 04:53	2°324'48		behind sun end	15578 Dec 22 15:44	16°309'58	
evening set	15573 Nov 24 19:38	4°319'13		max. Earth dist.	15578 Dec 22 22:44	16°310'39	30.84841 AU
				morning rise	15579 Jan 07 09:26	16°345'17	
conjunction	15573 Dec 10 16:46	4°354'55	-0°02'55	retrograde	15579 Apr 07 14:07	18°342'40	
minimum elong	15573 Dec 10 16:46	4°354'55	0°02'01	opposition	15579 Jun 25 23:13	17°318'01	0°02'54
behind sun begin	15573 Dec 10 10:15	4°354'20		min. Earth dist.	15579 Jun 25 10:55	17°318'53	28.85346 AU
behind sun end	15573 Dec 10 23:18	4°355'31		direct	15579 Sep 12 06:33	15°354'01	
max. Earth dist.	15573 Dec 11 05:45	4°356'08	30.81612 AU	evening set	15579 Dec 08 23:20	17°348'16	
morning rise	15573 Dec 26 15:56	5°330'49					
retrograde	15574 Mar 26 23:57	7°328'37		conjunction	15579 Dec 24 22:10	18°324'00	0°03'14
opposition	15574 Jun 14 11:12	6°303'55	-0°02'27	minimum elong	15579 Dec 24 22:11	18°324'00	0°04'06
min. Earth dist.	15574 Jun 13 22:26	6°304'49	28.81861 AU	behind sun begin	15579 Dec 24 15:44	18°323'25	
direct	15574 Aug 31 17:10	4°340'00		behind sun end	15579 Dec 25 04:37	18°324'35	
evening set	15574 Nov 27 08:09	6°334'22		max. Earth dist.	15579 Dec 25 12:02	18°325'18	30.85860 AU
				morning rise	15580 Jan 09 22:34	18°359'54	
conjunction	15574 Dec 13 05:44	7°310'05	-0°01'54	retrograde	15580 Apr 09 03:09	20°357'12	
minimum elong	15574 Dec 13 05:43	7°310'05	0°01'01	opposition	15580 Jun 27 10:58	19°332'37	0°03'58
behind sun begin	15574 Dec 12 23:12	7°309'30		min. Earth dist.	15580 Jun 26 21:46	19°333'32	28.86413 AU
behind sun end	15574 Dec 13 12:14	7°310'40		direct	15580 Sep 13 18:01	18°308'37	
max. Earth dist.	15574 Dec 13 19:42	7°311'24	30.82093 AU	evening set	15580 Dec 10 12:09	20°302'53	
morning rise	15574 Dec 29 04:58	7°345'59					
retrograde	15575 Mar 29 11:37	9°343'42		conjunction	15580 Dec 26 11:05	20°338'37	0°04'13
opposition	15575 Jun 16 23:25	8°319'00	-0°01'23	minimum elong	15580 Dec 26 11:04	20°338'37	0°05'04
min. Earth dist.	15575 Jun 16 10:55	8°319'52	28.82353 AU	behind sun begin	15580 Dec 26 04:43	20°338'02	
direct	15575 Sep 03 06:07	6°355'03		behind sun end	15580 Dec 26 17:25	20°339'11	
evening set	15575 Nov 29 20:54	8°349'23		max. Earth dist.	15580 Dec 27 00:13	20°339'50	30.86975 AU
				morning rise	15581 Jan 11 11:44	21°314'31	
conjunction	15575 Dec 15 18:37	9°325'06	-0°00'51	retrograde	15581 Apr 11 14:58	23°311'45	
minimum elong	15575 Dec 15 18:38	9°325'06	0°00'03	opposition	15581 Jun 29 22:48	21°347'14	0°05'02
behind sun begin	15575 Dec 15 13:01	9°324'36		min. Earth dist.	15581 Jun 29 10:36	21°348'05	28.87574 AU
behind sun end	15575 Dec 16 00:14	9°325'36		direct	15581 Sep 16 04:05	20°323'16	
max. Earth dist.	15575 Dec 16 07:39	9°326'19	30.82624 AU	evening set	15581 Dec 13 00:52	22°317'32	
morning rise	15575 Dec 31 18:16	10°301'00					
retrograde	15576 Mar 31 02:11	11°358'38		conjunction	15581 Dec 29 00:10	22°353'15	0°05'12
opposition	15576 Jun 18 11:21	10°333'55	-0°00'18	minimum elong	15581 Dec 29 00:10	22°353'15	0°06'04
min. Earth dist.	15576 Jun 17 22:28	10°334'49	28.82927 AU	behind sun begin	15581 Dec 28 17:57	22°352'42	
direct	15576 Sep 04 18:53	9°309'56		behind sun end	15581 Dec 29 06:23	22°353'49	
asc. node	15576 Oct 17 21:54	9°341'06		max. Earth dist.	15581 Dec 29 14:02	22°354'33	30.88163 AU
evening set	15576 Dec 01 09:33	11°304'15		morning rise	15582 Jan 14 00:52	23°329'09	
				retrograde	15582 Apr 14 02:59	25°326'20	
conjunction	15576 Dec 17 07:36	11°339'59	0°00'12	opposition	15582 Jul 02 10:34	24°301'53	0°06'05
minimum elong	15576 Dec 17 07:36	11°339'59	0°01'04	min. Earth dist.	15582 Jul 01 22:08	24°302'45	28.88761 AU
behind sun begin	15576 Dec 17 01:04	11°339'24		direct	15582 Sep 18 17:01	22°337'57	
behind sun end	15576 Dec 17 14:07	11°340'34		evening set	15582 Dec 15 13:45	24°332'13	
max. Earth dist.	15576 Dec 17 21:23	11°341'16	30.83234 AU				
morning rise	15577 Jan 02 07:20	12°315'52		conjunction	15582 Dec 31 13:07	25°307'57	0°06'11
retrograde	15577 Apr 02 14:24	14°313'25		minimum elong	15582 Dec 31 13:07	25°307'57	0°07'00
opposition	15577 Jun 20 23:23	12°348'42	0°00'46	behind sun begin	15582 Dec 31 07:04	25°307'24	
min. Earth dist.	15577 Jun 20 11:14	12°349'34	28.83596 AU	behind sun end	15582 Dec 31 19:10	25°308'29	
direct	15577 Sep 07 07:27	11°324'43		max. Earth dist.	15583 Jan 01 01:29	25°309'05	30.89340 AU
evening set	15577 Dec 03 22:03	13°319'00		morning rise	15583 Jan 16 14:11	25°343'50	
				retrograde	15583 Apr 16 16:45	27°340'57	
conjunction	15577 Dec 19 20:18	13°354'43	0°01'13	opposition	15583 Jul 04 22:25	26°316'33	0°07'07
minimum elong	15577 Dec 19 20:19	13°354'43	0°02'06	min. Earth dist.	15583 Jul 04 10:40	26°317'22	28.89915 AU
behind sun begin	15577 Dec 19 13:47	13°354'08		direct	15583 Sep 21 03:54	24°352'37	
behind sun end	15577 Dec 20 02:50	13°355'19		evening set	15583 Dec 18 02:42	26°346'53	
max. Earth dist.	15577 Dec 20 09:45	13°355'59	30.83974 AU				
morning rise	15578 Jan 04 20:19	14°330'37		conjunction	15584 Jan 03 02:27	27°322'37	0°07'08
retrograde	15578 Apr 05 03:15	16°328'05		minimum elong	15584 Jan 03 02:27	27°322'37	0°07'58
opposition	15578 Jun 23 11:17	15°303'24	0°01'50	behind sun begin	15584 Jan 02 20:36	27°322'06	
min. Earth dist.	15578 Jun 22 22:03	15°304'19	28.84401 AU	behind sun end	15584 Jan 03 08:17	27°323'09	
direct	15578 Sep 09 19:50	13°339'23		max. Earth dist.	15584 Jan 03 15:15	27°323'49	30.90440 AU
evening set	15578 Dec 06 10:45	15°333'39		morning rise	15584 Jan 19 03:30	27°358'30	
				retrograde	15584 Apr 18 04:43	29°355'32	
conjunction	15578 Dec 22 09:14	16°309'23	0°02'14	opposition	15584 Jul 06 10:04	28°331'10	0°08'09

min. Earth dist.	15584 Jul 05 23:03	28° 3 31'56	28.90957 AU	conjunction	15590 Jan 16 08:21	10° 4 47'20	0°12'37
direct	15584 Sep 22 16:23	27° 3 07'13		minimum elong	15590 Jan 16 08:20	10° 4 47'20	0°13'20
evening set	15584 Dec 19 15:45	29° 3 01'29		behind sun begin	15590 Jan 16 04:40	10° 4 47'00	
				behind sun end	15590 Jan 16 12:01	10° 4 47'40	
conjunction	15585 Jan 04 15:35	29° 3 37'13	0°08'06	max. Earth dist.	15590 Jan 16 17:43	10° 4 48'12	30.95708 AU
minimum elong	15585 Jan 04 15:35	29° 3 37'13	0°08'53	morning rise	15590 Feb 01 10:23	11° 4 23'09	
behind sun begin	15585 Jan 04 09:59	29° 3 36'43		retrograde	15590 May 02 06:23	13° 4 19'29	
behind sun end	15585 Jan 04 21:11	29° 3 37'43		opposition	15590 Jul 20 06:46	11° 4 55'11	0°13'57
max. Earth dist.	15585 Jan 05 02:43	29° 3 38'15	30.91434 AU	min. Earth dist.	15590 Jul 19 22:07	11° 4 55'47	28.96215 AU
	15585 Jan 14 18:58	0° 4		direct	15590 Oct 06 16:19	10° 4 31'03	
morning rise	15585 Jan 20 16:57	0° 4 13'05		evening set	15591 Jan 02 20:01	12° 4 25'08	
retrograde	15585 Apr 20 19:18	2° 4 10'00					
opposition	15585 Jul 08 21:46	0° 4 45'39	0°09'10	conjunction	15591 Jan 18 21:09	13° 4 00'49	0°13'27
min. Earth dist.	15585 Jul 08 10:51	0° 4 46'25	28.91898 AU	minimum elong	15591 Jan 18 21:10	13° 4 00'49	0°14'09
	15585 Aug 06 14:58	30° 4 3		behind sun begin	15591 Jan 18 18:05	13° 4 00'33	
direct	15585 Sep 25 05:17	29° 3 21'41		behind sun end	15591 Jan 19 00:14	13° 4 01'06	
	15585 Nov 12 10:54	0° 4		max. Earth dist.	15591 Jan 19 07:18	13° 4 01'46	30.96731 AU
evening set	15585 Dec 22 04:29	1° 4 15'55		morning rise	15591 Feb 03 23:12	13° 4 36'38	
					15591 Mar 20 17:09	15° 4	
conjunction	15586 Jan 07 04:38	1° 4 51'39	0°09'02	retrograde	15591 May 04 17:10	15° 4 32'52	
minimum elong	15586 Jan 07 04:37	1° 4 51'39	0°09'50		15591 Jun 19 19:52	15° 4 3	
behind sun begin	15586 Jan 06 23:18	1° 4 51'10		opposition	15591 Jul 22 17:53	14° 4 08'36	0°14'51
behind sun end	15586 Jan 07 09:56	1° 4 52'07		min. Earth dist.	15591 Jul 22 08:48	14° 4 09'15	28.97290 AU
max. Earth dist.	15586 Jan 07 16:04	1° 4 52'42	30.92320 AU	direct	15591 Oct 09 04:36	12° 4 44'28	
morning rise	15586 Jan 23 06:01	2° 4 27'30		evening set	15592 Jan 05 08:46	14° 4 38'33	
retrograde	15586 Apr 23 06:57	4° 4 24'19			15592 Jan 15 01:23	15° 4	
opposition	15586 Jul 11 09:29	2° 4 59'58	0°10'10				
min. Earth dist.	15586 Jul 10 23:48	3° 4 00'39	28.92745 AU	conjunction	15592 Jan 21 09:54	15° 4 14'14	0°14'17
direct	15586 Sep 27 18:10	1° 4 35'58		minimum elong	15592 Jan 21 09:54	15° 4 14'14	0°14'58
evening set	15586 Dec 24 17:20	3° 4 30'09		behind sun begin	15592 Jan 21 07:38	15° 4 14'02	
				behind sun end	15592 Jan 21 12:09	15° 4 14'26	
conjunction	15587 Jan 09 17:39	4° 4 05'53	0°09'57	max. Earth dist.	15592 Jan 21 18:45	15° 4 15'03	30.97871 AU
minimum elong	15587 Jan 09 17:40	4° 4 05'53	0°10'43	morning rise	15592 Feb 06 12:11	15° 4 50'02	
behind sun begin	15587 Jan 09 12:40	4° 4 05'26		retrograde	15592 May 06 05:40	17° 4 46'11	
behind sun end	15587 Jan 09 22:39	4° 4 06'20		opposition	15592 Jul 24 04:53	16° 4 21'59	0°15'43
max. Earth dist.	15587 Jan 10 04:08	4° 4 06'51	30.93154 AU	min. Earth dist.	15592 Jul 23 20:08	16° 4 22'35	28.98499 AU
morning rise	15587 Jan 25 19:19	4° 4 41'44			15592 Sep 29 09:24	15° 4 3	
retrograde	15587 Apr 25 20:07	6° 4 38'24		direct	15592 Oct 10 14:17	14° 4 57'51	
opposition	15587 Jul 13 20:49	5° 4 14'04	0°11'08		15592 Oct 21 21:38	15° 4	
min. Earth dist.	15587 Jul 13 10:37	5° 4 14'47	28.93562 AU	evening set	15593 Jan 06 21:18	16° 4 51'57	
direct	15587 Sep 30 06:52	3° 4 50'01					
evening set	15587 Dec 27 06:10	5° 4 44'11		conjunction	15593 Jan 22 22:45	17° 4 27'38	0°15'06
				minimum elong	15593 Jan 22 22:45	17° 4 27'38	0°15'45
conjunction	15588 Jan 12 06:41	6° 4 19'54	0°10'51	behind sun begin	15593 Jan 22 21:55	17° 4 27'34	
minimum elong	15588 Jan 12 06:41	6° 4 19'54	0°11'38	behind sun end	15593 Jan 22 23:35	17° 4 27'42	
behind sun begin	15588 Jan 12 02:03	6° 4 19'29		max. Earth dist.	15593 Jan 23 08:29	17° 4 28'32	30.99136 AU
behind sun end	15588 Jan 12 11:18	6° 4 20'18		morning rise	15593 Feb 08 00:56	18° 4 03'25	
max. Earth dist.	15588 Jan 12 16:50	6° 4 20'50	30.93959 AU	retrograde	15593 May 08 16:55	19° 4 59'29	
morning rise	15588 Jan 28 08:27	6° 4 55'44		opposition	15593 Jul 26 15:59	18° 4 35'22	0°16'35
retrograde	15588 Apr 27 07:15	8° 4 52'17		min. Earth dist.	15593 Jul 26 07:34	18° 4 35'57	28.99807 AU
opposition	15588 Jul 15 08:17	7° 4 27'57	0°12'06	direct	15593 Oct 13 01:45	17° 4 11'16	
min. Earth dist.	15588 Jul 14 23:24	7° 4 28'35	28.94380 AU	evening set	15594 Jan 09 09:52	19° 4 05'23	
direct	15588 Oct 01 18:12	6° 4 03'52					
evening set	15588 Dec 28 18:49	7° 4 57'59		conjunction	15594 Jan 25 11:18	19° 4 41'04	0°15'53
				minimum elong	15594 Jan 25 11:18	19° 4 41'04	0°16'31
conjunction	15589 Jan 13 19:33	8° 4 33'42	0°11'44	max. Earth dist.	15594 Jan 25 19:48	19° 4 41'51	31.00494 AU
minimum elong	15589 Jan 13 19:34	8° 4 33'42	0°12'29	morning rise	15594 Feb 10 13:44	20° 4 16'50	
behind sun begin	15589 Jan 13 15:22	8° 4 33'20		retrograde	15594 May 11 07:06	22° 4 12'50	
behind sun end	15589 Jan 13 23:45	8° 4 34'05		opposition	15594 Jul 29 02:59	20° 4 48'48	0°17'24
max. Earth dist.	15589 Jan 14 05:42	8° 4 34'38	30.94801 AU	min. Earth dist.	15594 Jul 28 18:30	20° 4 49'23	29.01190 AU
morning rise	15589 Jan 29 21:24	9° 4 09'32		direct	15594 Oct 15 13:58	19° 4 24'44	
retrograde	15589 Apr 29 19:44	11° 4 05'58		evening set	15595 Jan 11 22:33	21° 4 18'53	
opposition	15589 Jul 17 19:28	9° 4 41'39	0°13'02				
min. Earth dist.	15589 Jul 17 09:51	9° 4 42'19	28.95247 AU	conjunction	15595 Jan 28 00:13	21° 4 54'34	0°16'39
direct	15589 Oct 04 06:13	8° 4 17'32		minimum elong	15595 Jan 28 00:13	21° 4 54'34	0°17'15
evening set	15589 Dec 31 07:33	10° 4 11'38		max. Earth dist.	15595 Jan 28 09:07	21° 4 55'23	31.01871 AU
				morning rise	15595 Feb 13 02:35	22° 4 30'19	

retrograde	15595 May 13 18:27	24° \approx 26'15	
opposition	15595 Jul 31 13:57	23° \approx 02'17	0°18'12
min. Earth dist.	15595 Jul 31 06:51	23° \approx 02'47	29.02553 AU
direct	15595 Oct 18 02:00	21° \approx 38'15	
evening set	15596 Jan 14 11:24	23° \approx 32'26	
conjunction	15596 Jan 30 13:09	24° \approx 08'06	0°17'23
minimum elong	15596 Jan 30 13:09	24° \approx 08'06	0°17'58
max. Earth dist.	15596 Jan 30 20:45	24° \approx 08'48	31.03208 AU
morning rise	15596 Feb 15 15:39	24° \approx 43'51	
retrograde	15596 May 15 08:00	26° \approx 39'41	
opposition	15596 Aug 02 00:54	25° \approx 15'47	0°18'58
min. Earth dist.	15596 Aug 01 17:29	25° \approx 16'18	29.03843 AU
direct	15596 Oct 19 14:21	23° \approx 51'46	
evening set	15597 Jan 16 00:09	25° \approx 45'56	
conjunction	15597 Feb 01 01:58	26° \approx 21'36	0°18'05
minimum elong	15597 Feb 01 01:58	26° \approx 21'36	0°18'39
max. Earth dist.	15597 Feb 01 08:59	26° \approx 22'14	31.04432 AU
morning rise	15597 Feb 17 04:26	26° \approx 57'20	
retrograde	15597 May 17 19:50	28° \approx 53'03	
opposition	15597 Aug 04 11:57	27° \approx 29'12	0°19'43
min. Earth dist.	15597 Aug 04 06:10	27° \approx 29'36	29.05017 AU
direct	15597 Oct 22 02:06	26° \approx 05'11	
evening set	15598 Jan 18 12:51	27° \approx 59'19	
conjunction	15598 Feb 03 14:51	28° \approx 34'59	0°18'46
minimum elong	15598 Feb 03 14:51	28° \approx 34'59	0°19'18
max. Earth dist.	15598 Feb 03 21:17	28° \approx 35'34	31.05562 AU
morning rise	15598 Feb 19 17:21	29° \approx 10'42	
	15598 Mar 15 21:29	0° \propto	
retrograde	15598 May 20 08:32	1° \propto 06'17	
	15598 Jul 27 10:09	30° \propto	
opposition	15598 Aug 06 22:45	29° \approx 42'28	0°20'25
min. Earth dist.	15598 Aug 06 16:39	29° \approx 42'53	29.06090 AU
direct	15598 Oct 24 14:50	28° \approx 18'24	
	15599 Jan 15 05:39	0° \propto	
evening set	15599 Jan 21 01:34	0° \propto 12'31	
conjunction	15599 Feb 06 03:34	0° \propto 48'10	0°19'25
minimum elong	15599 Feb 06 03:34	0° \propto 48'10	0°19'55
max. Earth dist.	15599 Feb 06 08:47	0° \propto 48'38	31.06590 AU
morning rise	15599 Feb 22 06:11	1° \propto 23'52	
retrograde	15599 May 22 18:25	3° \propto 19'19	
opposition	15599 Aug 09 09:37	1° \propto 55'30	0°21'06
min. Earth dist.	15599 Aug 09 04:57	1° \propto 55'50	29.07089 AU
direct	15599 Oct 27 01:21	0° \propto 31'25	
evening set	15600 Jan 23 14:08	2° \propto 25'29	
conjunction	15600 Feb 08 16:22	3° \propto 01'07	0°20'02
minimum elong	15600 Feb 08 16:22	3° \propto 01'07	0°20'31
max. Earth dist.	15600 Feb 08 21:50	3° \propto 01'37	31.07565 AU
morning rise	15600 Feb 24 18:52	3° \propto 36'48	
retrograde	15600 May 24 04:22	5° \propto 32'06	
opposition	15600 Aug 10 20:10	4° \propto 08'18	0°21'45
min. Earth dist.	15600 Aug 10 15:31	4° \propto 08'37	29.08042 AU
direct	15600 Oct 28 13:31	2° \propto 44'09	
evening set	15601 Jan 25 02:44	4° \propto 38'11	
conjunction	15601 Feb 10 04:52	5° \propto 13'48	0°20'38
minimum elong	15601 Feb 10 04:52	5° \propto 13'48	0°21'05
max. Earth dist.	15601 Feb 10 08:48	5° \propto 14'09	31.08521 AU
morning rise	15601 Feb 26 07:31	5° \propto 49'27	
retrograde	15601 May 26 15:50	7° \propto 44'37	
opposition	15601 Aug 13 06:49	6° \propto 20'49	0°22'22
min. Earth dist.	15601 Aug 13 02:41	6° \propto 21'07	29.09018 AU
direct	15601 Oct 30 23:00	4° \propto 56'38	