

opposition	11600 Mar 09 15:39	24° 17 57'07	-0°46'15	direct	11606 Jun 09 20:05	7° 04 04'42	
min. Earth dist.	11600 Mar 09 00:56	24° 17 58'08	28.77585 AU	evening set	11606 Sep 05 01:36	8° 05 58'56	
direct	11600 May 26 21:04	23° 17 33'23					
evening set	11600 Aug 21 23:34	25° 17 27'36		conjunction	11606 Sep 20 20:50	9° 05 34'33	-0°36'34
				minimum elong	11606 Sep 20 20:50	9° 05 34'33	0°36'31
conjunction	11600 Sep 06 16:44	26° 17 03'05	-0°42'50	max. Earth dist.	11606 Sep 21 14:22	9° 05 36'12	30.77415 AU
minimum elong	11600 Sep 06 16:44	26° 17 03'05	0°42'57	morning rise	11606 Oct 06 18:36	10° 05 10'24	
max. Earth dist.	11600 Sep 07 09:11	26° 17 04'39	30.77362 AU	retrograde	11607 Jan 05 12:05	12° 05 09'02	
morning rise	11600 Sep 22 12:13	26° 17 38'49		opposition	11607 Mar 26 08:29	10° 05 44'01	-0°38'25
retrograde	11600 Dec 22 05:20	28° 17 37'23		min. Earth dist.	11607 Mar 25 16:33	10° 05 45'08	28.77589 AU
opposition	11601 Mar 12 04:25	27° 17 12'21	-0°45'20	direct	11607 Jun 12 07:38	9° 05 20'19	
min. Earth dist.	11601 Mar 11 12:45	27° 17 13'26	28.77218 AU	evening set	11607 Sep 07 14:14	11° 05 14'34	
direct	11601 May 29 10:25	25° 17 48'34					
evening set	11601 Aug 24 11:53	27° 17 42'46		conjunction	11607 Sep 23 09:55	11° 05 50'12	-0°35'19
				minimum elong	11607 Sep 23 09:55	11° 05 50'12	0°35'15
conjunction	11601 Sep 09 05:14	28° 17 18'16	-0°41'57	max. Earth dist.	11607 Sep 24 03:32	11° 05 51'52	30.77708 AU
minimum elong	11601 Sep 09 05:14	28° 17 18'16	0°42'03	morning rise	11607 Oct 09 08:00	12° 05 26'05	
max. Earth dist.	11601 Sep 09 20:57	28° 17 19'45	30.77049 AU	retrograde	11608 Jan 08 02:53	14° 05 24'42	
morning rise	11601 Sep 25 01:13	28° 17 54'01		opposition	11608 Mar 27 21:00	12° 05 59'44	-0°37'03
	11601 Oct 27 23:10	0° 05		min. Earth dist.	11608 Mar 27 04:17	13° 05 00'54	28.77859 AU
retrograde	11601 Dec 24 17:59	0° 05 52'35		direct	11608 Jun 13 20:53	11° 05 36'03	
	11602 Feb 22 19:00	30° 05 17		evening set	11608 Sep 09 03:06	13° 05 30'19	
opposition	11602 Mar 14 17:06	29° 05 17'30	-0°44'21				
min. Earth dist.	11602 Mar 14 01:35	29° 05 18'35	28.76974 AU	conjunction	11608 Sep 24 23:02	14° 05 05'59	-0°34'01
direct	11602 May 31 21:18	28° 05 03'42		minimum elong	11608 Sep 24 23:03	14° 05 05'59	0°33'53
evening set	11602 Aug 27 00:04	29° 05 17'53		max. Earth dist.	11608 Sep 25 15:43	14° 05 07'33	30.77939 AU
	11602 Aug 27 23:03	0° 05		morning rise	11608 Oct 10 21:35	14° 05 41'54	
				retrograde	11609 Jan 09 17:31	16° 05 40'30	
conjunction	11602 Sep 11 17:56	0° 05 33'24	-0°41'00	opposition	11609 Mar 30 09:42	15° 05 15'32	-0°35'37
minimum elong	11602 Sep 11 17:56	0° 05 33'24	0°41'03	min. Earth dist.	11609 Mar 29 18:13	15° 05 16'37	28.78053 AU
max. Earth dist.	11602 Sep 12 11:06	0° 05 35'01	30.76868 AU	direct	11609 Jun 16 09:09	13° 05 51'52	
morning rise	11602 Sep 27 14:07	1° 05 09'10		evening set	11609 Sep 11 15:54	15° 05 46'08	
retrograde	11602 Dec 27 05:23	3° 05 07'43					
opposition	11603 Mar 17 05:50	1° 05 42'38	-0°43'18	conjunction	11609 Sep 27 12:21	16° 05 21'49	-0°32'39
min. Earth dist.	11603 Mar 16 13:54	1° 05 43'44	28.76859 AU	minimum elong	11609 Sep 27 12:21	16° 05 21'49	0°32'31
direct	11603 Jun 03 09:29	0° 05 18'50		max. Earth dist.	11609 Sep 28 05:28	16° 05 23'26	30.78086 AU
evening set	11603 Aug 29 12:18	2° 05 12'59		morning rise	11609 Oct 13 11:05	16° 05 57'45	
				retrograde	11610 Jan 12 06:53	18° 05 56'18	
conjunction	11603 Sep 14 06:24	2° 05 48'32	-0°39'59	opposition	11610 Apr 01 22:08	17° 05 31'21	-0°34'08
minimum elong	11603 Sep 14 06:24	2° 05 48'32	0°40'02	min. Earth dist.	11610 Apr 01 06:16	17° 05 32'27	28.78144 AU
max. Earth dist.	11603 Sep 14 22:55	2° 05 50'05	30.76833 AU	direct	11610 Jun 18 23:05	16° 05 07'39	
morning rise	11603 Sep 30 03:07	3° 05 24'19		evening set	11610 Sep 14 04:49	18° 05 01'54	
retrograde	11603 Dec 29 19:45	5° 05 22'54					
opposition	11604 Mar 18 18:34	3° 05 57'47	-0°42'11	conjunction	11610 Sep 30 01:29	18° 05 37'36	-0°31'15
min. Earth dist.	11604 Mar 18 01:59	3° 05 58'57	28.76897 AU	minimum elong	11610 Sep 30 01:29	18° 05 37'36	0°31'04
direct	11604 Jun 04 19:52	2° 05 34'00		max. Earth dist.	11610 Sep 30 17:18	18° 05 39'05	30.78148 AU
evening set	11604 Aug 31 00:39	4° 05 28'10		morning rise	11610 Oct 16 00:44	19° 05 13'33	
				retrograde	11611 Jan 14 19:39	21° 05 12'03	
conjunction	11604 Sep 15 19:13	5° 05 03'44	-0°38'55	opposition	11611 Apr 04 10:41	19° 05 47'03	-0°32'36
minimum elong	11604 Sep 15 19:13	5° 05 03'44	0°38'55	min. Earth dist.	11611 Apr 03 19:32	19° 05 48'07	28.78187 AU
max. Earth dist.	11604 Sep 16 12:48	5° 05 05'23	30.76929 AU	direct	11611 Jun 21 10:24	18° 05 23'19	
morning rise	11604 Oct 01 16:13	5° 05 39'33		evening set	11611 Sep 16 17:26	20° 05 17'31	
retrograde	11604 Dec 31 07:51	7° 05 38'08					
opposition	11605 Mar 21 07:09	6° 05 13'03	-0°40'59	conjunction	11611 Oct 02 14:39	20° 05 53'15	-0°29'48
min. Earth dist.	11605 Mar 20 15:02	6° 05 14'10	28.77050 AU	minimum elong	11611 Oct 02 14:39	20° 05 53'15	0°29'36
direct	11605 Jun 07 07:27	4° 05 49'17		max. Earth dist.	11611 Oct 03 07:26	20° 05 54'49	30.78178 AU
evening set	11605 Sep 02 13:07	6° 05 43'28		morning rise	11611 Oct 18 14:06	21° 05 29'12	
				retrograde	11612 Jan 17 07:12	23° 05 27'38	
conjunction	11605 Sep 18 08:02	7° 05 19'03	-0°37'46	opposition	11612 Apr 05 23:02	22° 05 02'37	-0°31'02
minimum elong	11605 Sep 18 08:02	7° 05 19'03	0°37'46	min. Earth dist.	11612 Apr 05 07:58	22° 05 03'40	28.78211 AU
max. Earth dist.	11605 Sep 19 01:18	7° 05 20'41	30.77145 AU	direct	11612 Jun 22 23:19	20° 05 38'50	
morning rise	11605 Oct 04 05:28	7° 05 54'54		evening set	11612 Sep 18 06:20	22° 05 33'00	
retrograde	11606 Jan 02 23:01	9° 05 53'29					
opposition	11606 Mar 23 19:44	8° 05 28'27	-0°39'44	conjunction	11612 Oct 04 03:47	23° 05 08'44	-0°28'18
min. Earth dist.	11606 Mar 23 02:44	8° 05 29'38	28.77302 AU	minimum elong	11612 Oct 04 03:48	23° 05 08'44	0°28'04

max. Earth dist.	11612 Oct 04 19:22	23° <u>♂</u> 10'12	30.78227 AU	retrograde	11619 Feb 02 01:18	9° <u>♂</u> 13'02	
morning rise	11612 Oct 20 03:45	23° <u>♂</u> 44'42		opposition	11619 Apr 22 10:57	7° <u>♂</u> 48'04	-0°18'50
retrograde	11613 Jan 18 21:00	25° <u>♂</u> 43'03		min. Earth dist.	11619 Apr 21 19:45	7° <u>♂</u> 49'08	28.81425 AU
opposition	11613 Apr 08 11:08	24° <u>♂</u> 18'00	-0°29'24	direct	11619 Jul 09 11:09	6° <u>♂</u> 24'09	
min. Earth dist.	11613 Apr 07 19:55	24° <u>♂</u> 19'04	28.78295 AU	evening set	11619 Oct 05 00:06	8° <u>♂</u> 18'17	
direct	11613 Jun 25 10:01	22° <u>♂</u> 54'10					
evening set	11613 Sep 20 19:05	24° <u>♂</u> 48'18		conjunction	11619 Oct 20 23:55	8° <u>♂</u> 54'07	-0°16'48
				minimum elong	11619 Oct 20 23:55	8° <u>♂</u> 54'07	0°16'23
conjunction	11613 Oct 06 17:00	25° <u>♂</u> 24'03	-0°26'46	max. Earth dist.	11619 Oct 21 15:16	8° <u>♂</u> 55'33	30.81850 AU
minimum elong	11613 Oct 06 17:00	25° <u>♂</u> 24'03	0°26'31	morning rise	11619 Nov 06 01:59	9° <u>♂</u> 30'09	
max. Earth dist.	11613 Oct 07 09:24	25° <u>♂</u> 25'35	30.78343 AU	retrograde	11620 Feb 04 15:05	11° <u>♂</u> 28'01	
morning rise	11613 Oct 22 17:08	26° <u>♂</u> 00'02		opposition	11620 Apr 23 22:53	10° <u>♂</u> 03'06	-0°16'57
retrograde	11614 Jan 21 07:18	27° <u>♂</u> 58'18		min. Earth dist.	11620 Apr 23 08:38	10° <u>♂</u> 04'06	28.82299 AU
opposition	11614 Apr 10 23:18	26° <u>♂</u> 33'14	-0°27'44	direct	11620 Jul 10 22:10	8° <u>♂</u> 39'13	
min. Earth dist.	11614 Apr 10 08:38	26° <u>♂</u> 34'15	28.78463 AU	evening set	11620 Oct 06 13:15	10° <u>♂</u> 33'22	
direct	11614 Jun 27 22:06	25° <u>♂</u> 09'21					
evening set	11614 Sep 23 07:44	27° <u>♂</u> 03'27		conjunction	11620 Oct 22 13:33	11° <u>♂</u> 09'12	-0°15'02
				minimum elong	11620 Oct 22 13:33	11° <u>♂</u> 09'12	0°14'35
conjunction	11614 Oct 09 05:56	27° <u>♂</u> 39'12	-0°25'12	behind sun begin	11620 Oct 22 10:52	11° <u>♂</u> 08'57	
minimum elong	11614 Oct 09 05:56	27° <u>♂</u> 39'12	0°24'54	behind sun end	11620 Oct 22 16:15	11° <u>♂</u> 09'27	
max. Earth dist.	11614 Oct 09 21:52	27° <u>♂</u> 40'42	30.78583 AU	max. Earth dist.	11620 Oct 23 05:28	11° <u>♂</u> 10'41	30.82704 AU
morning rise	11614 Oct 25 06:28	28° <u>♂</u> 15'12		morning rise	11620 Nov 07 15:41	11° <u>♂</u> 45'14	
	11614 Dec 26 09:27	0° <u>♂</u>		retrograde	11621 Feb 06 03:47	13° <u>♂</u> 43'02	
retrograde	11615 Jan 23 20:37	0° <u>♂</u> 13'24		opposition	11621 Apr 26 10:36	12° <u>♂</u> 18'11	-0°15'03
	11615 Feb 21 17:53	30° <u>♂</u> 1		min. Earth dist.	11621 Apr 25 20:49	12° <u>♂</u> 19'09	28.83119 AU
opposition	11615 Apr 13 11:21	28° <u>♂</u> 48'18	-0°26'02	direct	11621 Jul 13 11:20	10° <u>♂</u> 54'18	
min. Earth dist.	11615 Apr 12 19:48	28° <u>♂</u> 49'24	28.78771 AU	evening set	11621 Oct 09 02:35	12° <u>♂</u> 48'27	
direct	11615 Jun 30 10:01	27° <u>♂</u> 24'23					
evening set	11615 Sep 25 20:32	29° <u>♂</u> 18'29		conjunction	11621 Oct 25 03:03	13° <u>♂</u> 24'18	-0°13'15
				minimum elong	11621 Oct 25 03:02	13° <u>♂</u> 24'18	0°12'47
conjunction	11615 Oct 11 19:04	29° <u>♂</u> 54'15	-0°23'35	behind sun begin	11621 Oct 24 23:01	13° <u>♂</u> 23'57	
minimum elong	11615 Oct 11 19:05	29° <u>♂</u> 54'15	0°23'17	behind sun end	11621 Oct 25 07:04	13° <u>♂</u> 24'40	
max. Earth dist.	11615 Oct 12 11:22	29° <u>♂</u> 55'46	30.78958 AU	max. Earth dist.	11621 Oct 25 17:10	13° <u>♂</u> 25'38	30.83493 AU
	11615 Oct 14 08:07	0° <u>♂</u>		morning rise	11621 Nov 10 05:34	14° <u>♂</u> 00'21	
morning rise	11615 Oct 27 19:53	0° <u>♂</u> 30'14			11621 Dec 09 19:03	15° <u>♂</u>	
retrograde	11616 Jan 26 08:25	2° <u>♂</u> 28'22		retrograde	11622 Feb 08 17:29	15° <u>♂</u> 58'04	
opposition	11616 Apr 14 23:21	1° <u>♂</u> 03'17	-0°24'17		11622 Apr 12 19:04	15° <u>♂</u> 1	
min. Earth dist.	11616 Apr 14 08:45	1° <u>♂</u> 04'18	28.79229 AU	opposition	11622 Apr 28 22:28	14° <u>♂</u> 33'15	-0°13'07
	11616 May 27 10:16	30° <u>♂</u> 1		min. Earth dist.	11622 Apr 28 08:58	14° <u>♂</u> 34'12	28.83869 AU
direct	11616 Jul 01 20:29	29° <u>♂</u> 39'20		direct	11622 Jul 15 22:31	13° <u>♂</u> 09'21	
	11616 Aug 05 19:18	0° <u>♂</u>			11622 Oct 10 01:11	15° <u>♂</u>	
evening set	11616 Sep 27 09:17	1° <u>♂</u> 33'26		evening set	11622 Oct 11 15:37	15° <u>♂</u> 03'30	
conjunction	11616 Oct 13 08:16	2° <u>♂</u> 09'12	-0°21'56	conjunction	11622 Oct 27 16:30	15° <u>♂</u> 39'22	-0°11'26
minimum elong	11616 Oct 13 08:16	2° <u>♂</u> 09'12	0°21'35	minimum elong	11622 Oct 27 16:30	15° <u>♂</u> 39'22	0°10'57
max. Earth dist.	11616 Oct 14 00:41	2° <u>♂</u> 10'44	30.79502 AU	behind sun begin	11622 Oct 27 11:35	15° <u>♂</u> 38'55	
morning rise	11616 Oct 29 09:22	2° <u>♂</u> 45'12		behind sun end	11622 Oct 27 21:25	15° <u>♂</u> 39'48	
retrograde	11617 Jan 27 22:23	4° <u>♂</u> 43'15		max. Earth dist.	11622 Oct 28 06:57	15° <u>♂</u> 40'42	30.84193 AU
opposition	11617 Apr 17 11:12	3° <u>♂</u> 18'12	-0°22'30	morning rise	11622 Nov 12 19:08	16° <u>♂</u> 15'25	
min. Earth dist.	11617 Apr 16 19:34	3° <u>♂</u> 19'18	28.79840 AU	retrograde	11623 Feb 11 04:01	18° <u>♂</u> 13'01	
direct	11617 Jul 04 09:51	1° <u>♂</u> 54'15		opposition	11623 May 01 10:17	16° <u>♂</u> 48'14	-0°11'10
evening set	11617 Sep 29 22:12	3° <u>♂</u> 48'21		min. Earth dist.	11623 Apr 30 21:50	16° <u>♂</u> 49'07	28.84529 AU
				direct	11623 Jul 18 10:42	15° <u>♂</u> 24'18	
conjunction	11617 Oct 15 21:23	4° <u>♂</u> 24'08	-0°20'15	evening set	11623 Oct 14 04:51	17° <u>♂</u> 18'27	
minimum elong	11617 Oct 15 21:23	4° <u>♂</u> 24'08	0°19'54				
max. Earth dist.	11617 Oct 16 13:15	4° <u>♂</u> 25'37	30.80178 AU	conjunction	11623 Oct 30 05:59	17° <u>♂</u> 54'18	-0°09'37
morning rise	11617 Oct 31 22:50	5° <u>♂</u> 00'09		minimum elong	11623 Oct 30 05:59	17° <u>♂</u> 54'18	0°09'08
retrograde	11618 Jan 30 12:00	6° <u>♂</u> 58'08		behind sun begin	11623 Oct 30 00:26	17° <u>♂</u> 53'49	
opposition	11618 Apr 19 23:08	5° <u>♂</u> 33'06	-0°20'41	behind sun end	11623 Oct 30 11:31	17° <u>♂</u> 54'48	
min. Earth dist.	11618 Apr 19 08:29	5° <u>♂</u> 34'08	28.80586 AU	max. Earth dist.	11623 Oct 30 19:10	17° <u>♂</u> 55'32	30.84839 AU
direct	11618 Jul 06 21:40	4° <u>♂</u> 09'10		morning rise	11623 Nov 15 08:58	18° <u>♂</u> 30'22	
evening set	11618 Oct 02 11:02	6° <u>♂</u> 03'17		retrograde	11624 Feb 13 17:03	20° <u>♂</u> 27'51	
				opposition	11624 May 02 21:46	19° <u>♂</u> 03'05	-0°09'13
conjunction	11618 Oct 18 10:42	6° <u>♂</u> 39'05	-0°18'32	min. Earth dist.	11624 May 02 09:05	19° <u>♂</u> 03'58	28.85156 AU
minimum elong	11618 Oct 18 10:42	6° <u>♂</u> 39'05	0°18'08	direct	11624 Jul 19 22:15	17° <u>♂</u> 39'06	
max. Earth dist.	11618 Oct 19 03:16	6° <u>♂</u> 40'39	30.80986 AU	evening set	11624 Oct 15 18:02	19° <u>♂</u> 33'15	
morning rise	11618 Nov 03 12:19	7° <u>♂</u> 15'07					

conjunction	11624 Oct 31 19:28	20°M.09'07	-0°07'48	behind sun end	11629 Nov 12 20:38	1°♂21'45	
minimum elong	11624 Oct 31 19:29	20°M.09'07	0°07'15	max. Earth dist.	11629 Nov 13 02:18	1°♂22'18	30.89698 AU
behind sun begin	11624 Oct 31 13:28	20°M.08'34		morning rise	11629 Nov 28 17:59	1°♂57'11	
behind sun end	11624 Nov 01 01:30	20°M.09'39		retrograde	11630 Feb 26 20:22	3°♂54'00	
max. Earth dist.	11624 Nov 01 08:34	20°M.10'19	30.85453 AU	opposition	11630 May 16 17:45	2°♂29'27	0°02'41
morning rise	11624 Nov 16 22:38	20°M.45'10		min. Earth dist.	11630 May 16 07:06	2°♂30'12	28.90301 AU
retrograde	11625 Feb 15 04:10	22°M.42'32		direct	11630 Aug 02 23:24	1°♂05'22	
opposition	11625 May 05 09:22	21°M.17'47	-0°07'15	evening set	11630 Oct 30 00:20	2°♂59'32	
min. Earth dist.	11625 May 04 22:06	21°M.18'34	28.85778 AU				
direct	11625 Jul 22 08:34	19°M.53'46		conjunction	11630 Nov 15 03:09	3°♂35'25	0°03'28
evening set	11625 Oct 18 07:04	21°M.47'53		minimum elong	11630 Nov 15 03:08	3°♂35'25	0°04'07
				behind sun begin	11630 Nov 14 20:40	3°♂34'50	
conjunction	11625 Nov 03 08:48	22°M.23'45	-0°05'58	behind sun end	11630 Nov 15 09:37	3°♂36'00	
minimum elong	11625 Nov 03 08:48	22°M.23'45	0°05'25	max. Earth dist.	11630 Nov 15 14:01	3°♂36'25	30.90928 AU
behind sun begin	11625 Nov 03 02:29	22°M.23'11		morning rise	11630 Dec 01 07:22	4°♂11'26	
behind sun end	11625 Nov 03 15:07	22°M.24'19		retrograde	11631 Mar 01 09:22	6°♂08'10	
max. Earth dist.	11625 Nov 03 21:34	22°M.24'56	30.86101 AU	opposition	11631 May 19 04:55	4°♂43'41	0°04'40
morning rise	11625 Nov 19 12:08	22°M.59'48		min. Earth dist.	11631 May 18 18:22	4°♂44'26	28.91581 AU
retrograde	11626 Feb 17 16:57	24°M.57'03		direct	11631 Aug 05 10:36	3°♂19'38	
opposition	11626 May 07 20:42	23°M.32'19	-0°05'16	evening set	11631 Nov 01 13:28	5°♂13'50	
min. Earth dist.	11626 May 07 08:43	23°M.33'10	28.86451 AU				
direct	11626 Jul 24 21:58	22°M.08'16		conjunction	11631 Nov 17 16:36	5°♂49'43	0°05'18
evening set	11626 Oct 20 20:12	24°M.02'23		minimum elong	11631 Nov 17 16:37	5°♂49'43	0°05'57
				behind sun begin	11631 Nov 17 10:21	5°♂49'10	
conjunction	11626 Nov 05 22:04	24°M.38'15	-0°04'07	behind sun end	11631 Nov 17 22:52	5°♂50'17	
minimum elong	11626 Nov 05 22:05	24°M.38'15	0°03'32	max. Earth dist.	11631 Nov 18 03:59	5°♂50'46	30.92233 AU
behind sun begin	11626 Nov 05 15:34	24°M.37'40		morning rise	11631 Dec 03 20:48	6°♂25'45	
behind sun end	11626 Nov 06 04:36	24°M.38'50		retrograde	11632 Mar 02 20:14	8°♂22'22	
max. Earth dist.	11626 Nov 06 10:09	24°M.39'22	30.86812 AU	opposition	11632 May 20 15:59	6°♂58'00	0°06'39
morning rise	11626 Nov 22 01:39	25°M.14'18		min. Earth dist.	11632 May 20 06:33	6°♂58'40	28.92896 AU
retrograde	11627 Feb 20 05:25	27°M.11'27		direct	11632 Aug 06 22:23	5°♂33'58	
opposition	11627 May 10 08:07	25°M.46'43	-0°03'17	evening set	11632 Nov 03 02:50	7°♂28'12	
min. Earth dist.	11627 May 09 21:16	25°M.47'29	28.87223 AU				
direct	11627 Jul 27 09:30	24°M.22'38		conjunction	11632 Nov 19 06:05	8°♂04'06	0°07'09
evening set	11627 Oct 23 09:08	26°M.16'45		minimum elong	11632 Nov 19 06:04	8°♂04'06	0°07'49
				behind sun begin	11632 Nov 19 00:10	8°♂03'34	
conjunction	11627 Nov 08 11:26	26°M.52'38	-0°02'14	behind sun end	11632 Nov 19 11:57	8°♂04'37	
minimum elong	11627 Nov 08 11:26	26°M.52'38	0°01'39	max. Earth dist.	11632 Nov 19 15:57	8°♂05'00	30.93551 AU
behind sun begin	11627 Nov 08 04:52	26°M.52'03		morning rise	11632 Dec 05 10:27	8°♂40'06	
behind sun end	11627 Nov 08 17:59	26°M.53'13		retrograde	11633 Mar 05 09:44	10°♂36'38	
max. Earth dist.	11627 Nov 08 23:57	26°M.53'47	30.87645 AU	opposition	11633 May 23 03:03	9°♂12'21	0°08'37
morning rise	11627 Nov 24 15:05	27°M.28'40		min. Earth dist.	11633 May 22 17:33	9°♂13'01	28.94190 AU
retrograde	11628 Feb 22 17:59	29°M.25'42		direct	11633 Aug 09 09:28	7°♂48'19	
opposition	11628 May 11 19:21	28°M.01'01	-0°01'18	evening set	11633 Nov 05 16:06	9°♂42'35	
min. Earth dist.	11628 May 11 07:55	28°M.01'49	28.88109 AU				
direct	11628 Jul 28 22:50	26°M.36'54		conjunction	11633 Nov 21 19:29	10°♂18'28	0°08'58
evening set	11628 Oct 24 22:19	28°M.31'03		minimum elong	11633 Nov 21 19:30	10°♂18'28	0°09'39
				behind sun begin	11633 Nov 21 14:06	10°♂17'59	
conjunction	11628 Nov 10 00:42	29°M.06'55	-0°00'19	behind sun end	11633 Nov 22 00:53	10°♂18'57	
minimum elong	11628 Nov 10 00:41	29°M.06'55	0°00'18	max. Earth dist.	11633 Nov 22 05:04	10°♂19'21	30.94792 AU
behind sun begin	11628 Nov 09 18:10	29°M.06'20		morning rise	11633 Dec 07 23:51	10°♂54'28	
behind sun end	11628 Nov 10 07:13	29°M.07'30		retrograde	11634 Mar 07 20:21	12°♂50'54	
max. Earth dist.	11628 Nov 10 12:01	29°M.07'58	30.88598 AU	opposition	11634 May 25 14:16	11°♂26'40	0°10'34
morning rise	11628 Nov 26 04:38	29°M.42'57		min. Earth dist.	11634 May 25 06:30	11°♂27'13	28.95388 AU
	11628 Dec 04 02:34	0°♂		direct	11634 Aug 11 19:34	10°♂02'38	
asc. node	11629 Jan 14 07:37	1°♂12'30		evening set	11634 Nov 08 05:26	11°♂56'54	
retrograde	11629 Feb 24 07:22	1°♂39'52					
opposition	11629 May 14 06:32	0°♂15'14	0°00'42	conjunction	11634 Nov 24 09:02	12°♂32'47	0°10'47
min. Earth dist.	11629 May 13 19:50	0°♂15'59	28.89141 AU	minimum elong	11634 Nov 24 09:02	12°♂32'47	0°11'29
	11629 May 23 08:07	30°K.M.		behind sun begin	11634 Nov 24 04:21	12°♂32'22	
direct	11629 Jul 31 09:49	28°M.51'08		behind sun end	11634 Nov 24 13:42	12°♂33'12	
	11629 Oct 05 11:53	0°♂		max. Earth dist.	11634 Nov 24 17:37	12°♂33'34	30.95944 AU
evening set	11629 Oct 27 11:19	0°♂45'17		morning rise	11634 Dec 10 13:29	13°♂08'47	
				retrograde	11635 Mar 10 07:58	15°♂05'04	
conjunction	11629 Nov 12 14:04	1°♂21'10	0°01'36	opposition	11635 May 28 01:14	13°♂40'53	0°12'30
minimum elong	11629 Nov 12 14:04	1°♂21'10	0°02'13	min. Earth dist.	11635 May 27 17:16	13°♂41'27	28.96480 AU
behind sun begin	11629 Nov 12 07:30	1°♂20'35		direct	11635 Aug 14 08:40	12°♂16'49	

evening set	11635 Nov 10 18:47	14° \mathring{A} 11'05		minimum elong	11641 Dec 10 05:31	28° \mathring{A} 07'24	0°23'33
				max. Earth dist.	11641 Dec 10 09:25	28° \mathring{A} 07'45	31.02924 AU
conjunction	11635 Nov 26 22:29	14° \mathring{A} 46'57	0°12'34	morning rise	11641 Dec 26 10:06	28° \mathring{A} 43'14	
minimum elong	11635 Nov 26 22:29	14° \mathring{A} 46'57	0°13'17		11642 Feb 04 21:35	0° \mathring{B}	
behind sun begin	11635 Nov 26 18:46	14° \mathring{A} 46'37		retrograde	11642 Mar 25 19:07	0° \mathring{B} 38'31	
behind sun end	11635 Nov 27 02:11	14° \mathring{A} 47'17			11642 May 14 16:11	30° \mathring{R} \mathring{A}	
max. Earth dist.	11635 Nov 27 05:50	14° \mathring{A} 47'38	30.96980 AU	opposition	11642 Jun 12 04:27	29° \mathring{A} 14'34	0°25'15
morning rise	11635 Dec 13 03:03	15° \mathring{A} 22'56		min. Earth dist.	11642 Jun 12 00:00	29° \mathring{A} 14'52	29.03553 AU
retrograde	11636 Mar 11 19:12	17° \mathring{A} 19'05		direct	11642 Aug 29 20:45	27° \mathring{A} 50'13	
opposition	11636 May 29 12:20	15° \mathring{A} 54'55	0°14'24	evening set	11642 Nov 26 14:12	29° \mathring{A} 44'29	
min. Earth dist.	11636 May 29 06:00	15° \mathring{A} 55'22	28.97475 AU		11642 Dec 03 15:53	0° \mathring{B}	
direct	11636 Aug 15 19:25	14° \mathring{A} 30'48					
evening set	11636 Nov 12 08:02	16° \mathring{A} 25'04		conjunction	11642 Dec 12 18:34	0° \mathring{B} 20'17	0°24'24
				minimum elong	11642 Dec 12 18:34	0° \mathring{B} 20'17	0°25'09
conjunction	11636 Nov 28 11:58	17° \mathring{A} 00'55	0°14'20	max. Earth dist.	11642 Dec 12 22:38	0° \mathring{B} 20'39	31.04194 AU
minimum elong	11636 Nov 28 11:58	17° \mathring{A} 00'55	0°15'04	morning rise	11642 Dec 28 23:01	0° \mathring{B} 56'07	
behind sun begin	11636 Nov 28 09:53	17° \mathring{A} 00'44		retrograde	11643 Mar 28 05:10	2° \mathring{B} 51'17	
behind sun end	11636 Nov 28 14:03	17° \mathring{A} 01'06		opposition	11643 Jun 14 15:00	1° \mathring{B} 27'26	0°26'57
max. Earth dist.	11636 Nov 28 19:07	17° \mathring{A} 01'34	30.97939 AU	min. Earth dist.	11643 Jun 14 11:58	1° \mathring{B} 27'38	29.04878 AU
morning rise	11636 Dec 14 16:28	17° \mathring{A} 36'52		direct	11643 Sep 01 06:35	0° \mathring{B} 03'07	
retrograde	11637 Mar 14 06:57	19° \mathring{A} 32'52		evening set	11643 Nov 29 03:10	1° \mathring{B} 57'25	
opposition	11637 May 31 23:05	18° \mathring{A} 08'44	0°16'18				
min. Earth dist.	11637 May 31 16:42	18° \mathring{A} 09'11	28.98397 AU	conjunction	11643 Dec 15 07:36	2° \mathring{B} 33'12	0°25'57
direct	11637 Aug 18 08:26	16° \mathring{A} 44'33		minimum elong	11643 Dec 15 07:36	2° \mathring{B} 33'12	0°26'43
evening set	11637 Nov 14 21:18	18° \mathring{A} 38'48		max. Earth dist.	11643 Dec 15 11:00	2° \mathring{B} 33'31	31.05567 AU
				morning rise	11643 Dec 31 12:03	3° \mathring{B} 09'01	
conjunction	11637 Dec 01 01:12	19° \mathring{A} 14'39	0°16'05	retrograde	11644 Mar 29 16:26	5° \mathring{B} 04'05	
minimum elong	11637 Dec 01 01:12	19° \mathring{A} 14'39	0°16'49	opposition	11644 Jun 16 01:27	3° \mathring{B} 40'21	0°28'35
max. Earth dist.	11637 Dec 01 06:47	19° \mathring{A} 15'09	30.98849 AU	min. Earth dist.	11644 Jun 15 21:59	3° \mathring{B} 40'35	29.06265 AU
morning rise	11637 Dec 17 05:51	19° \mathring{A} 50'34		direct	11644 Sep 02 18:42	2° \mathring{B} 16'03	
retrograde	11638 Mar 16 19:26	21° \mathring{A} 46'25		evening set	11644 Nov 30 16:15	4° \mathring{B} 10'25	
opposition	11638 Jun 03 09:58	20° \mathring{A} 22'18	0°18'09				
min. Earth dist.	11638 Jun 03 04:38	20° \mathring{A} 22'40	28.99313 AU	conjunction	11644 Dec 16 20:37	4° \mathring{B} 46'12	0°27'28
direct	11638 Aug 20 19:53	18° \mathring{A} 58'04		minimum elong	11644 Dec 16 20:37	4° \mathring{B} 46'12	0°28'14
evening set	11638 Nov 17 10:12	20° \mathring{A} 52'17		max. Earth dist.	11644 Dec 16 23:06	4° \mathring{B} 46'25	31.06952 AU
				morning rise	11645 Jan 02 00:58	5° \mathring{B} 22'00	
conjunction	11638 Dec 03 14:23	21° \mathring{A} 28'08	0°17'49	retrograde	11645 Apr 01 03:17	7° \mathring{B} 16'59	
minimum elong	11638 Dec 03 14:23	21° \mathring{A} 28'08	0°18'33	opposition	11645 Jun 18 11:59	5° \mathring{B} 53'21	0°30'11
max. Earth dist.	11638 Dec 03 20:33	21° \mathring{A} 28'41	30.99768 AU	min. Earth dist.	11645 Jun 18 10:07	5° \mathring{B} 53'28	29.07647 AU
morning rise	11638 Dec 19 18:55	22° \mathring{A} 04'02		direct	11645 Sep 05 04:05	4° \mathring{B} 29'04	
retrograde	11639 Mar 19 07:11	23° \mathring{A} 59'43		evening set	11645 Dec 03 05:14	6° \mathring{B} 23'29	
opposition	11639 Jun 05 20:42	22° \mathring{A} 35'37	0°19'59				
min. Earth dist.	11639 Jun 05 15:45	22° \mathring{A} 35'58	29.00241 AU	conjunction	11645 Dec 19 09:42	6° \mathring{B} 59'15	0°28'57
direct	11639 Aug 23 09:46	21° \mathring{A} 11'20		minimum elong	11645 Dec 19 09:42	6° \mathring{B} 59'15	0°29'43
evening set	11639 Nov 19 23:23	23° \mathring{A} 05'33		max. Earth dist.	11645 Dec 19 11:54	6° \mathring{B} 59'28	31.08305 AU
				morning rise	11646 Jan 04 13:52	7° \mathring{B} 35'02	
conjunction	11639 Dec 06 03:30	23° \mathring{A} 41'23	0°19'30	retrograde	11646 Apr 03 14:45	9° \mathring{B} 29'56	
minimum elong	11639 Dec 06 03:30	23° \mathring{A} 41'23	0°20'14	opposition	11646 Jun 20 22:28	8° \mathring{B} 06'23	0°31'45
max. Earth dist.	11639 Dec 06 08:02	23° \mathring{A} 41'48	31.00728 AU	min. Earth dist.	11646 Jun 20 20:38	8° \mathring{B} 06'31	29.08952 AU
morning rise	11639 Dec 22 08:12	24° \mathring{A} 17'16		direct	11646 Sep 07 15:57	6° \mathring{B} 42'07	
retrograde	11640 Mar 20 19:30	26° \mathring{A} 12'48		evening set	11646 Dec 05 18:16	8° \mathring{B} 36'34	
opposition	11640 Jun 07 07:13	24° \mathring{A} 48'44	0°21'46				
min. Earth dist.	11640 Jun 07 02:29	24° \mathring{A} 49'04	29.01244 AU	conjunction	11646 Dec 21 22:35	9° \mathring{B} 12'19	0°30'23
direct	11640 Aug 24 21:13	23° \mathring{A} 24'24		minimum elong	11646 Dec 21 22:35	9° \mathring{B} 12'19	0°31'09
evening set	11640 Nov 21 12:22	25° \mathring{A} 18'38		max. Earth dist.	11646 Dec 21 23:00	9° \mathring{B} 12'22	31.09556 AU
				morning rise	11647 Jan 07 02:47	9° \mathring{B} 48'05	
conjunction	11640 Dec 07 16:41	25° \mathring{A} 54'27	0°21'10	retrograde	11647 Apr 06 02:54	11° \mathring{B} 42'53	
minimum elong	11640 Dec 07 16:41	25° \mathring{A} 54'27	0°21'55	opposition	11647 Jun 23 09:03	10° \mathring{B} 19'24	0°33'15
max. Earth dist.	11640 Dec 07 21:46	25° \mathring{A} 54'55	31.01767 AU	min. Earth dist.	11647 Jun 23 08:30	10° \mathring{B} 19'26	29.10151 AU
morning rise	11640 Dec 23 21:11	26° \mathring{A} 30'19		direct	11647 Sep 10 03:06	8° \mathring{B} 55'07	
retrograde	11641 Mar 23 06:11	28° \mathring{A} 25'43		evening set	11647 Dec 08 07:15	10° \mathring{B} 49'36	
opposition	11641 Jun 09 17:54	27° \mathring{A} 01'42	0°23'32				
min. Earth dist.	11641 Jun 09 14:00	27° \mathring{A} 01'58	29.02335 AU	conjunction	11647 Dec 24 11:43	11° \mathring{B} 25'20	0°31'46
direct	11641 Aug 27 09:26	25° \mathring{A} 37'21		minimum elong	11647 Dec 24 11:43	11° \mathring{B} 25'20	0°32'31
evening set	11641 Nov 24 01:16	27° \mathring{A} 31'35		max. Earth dist.	11647 Dec 24 12:14	11° \mathring{B} 25'23	31.10689 AU
				morning rise	11648 Jan 09 15:38	12° \mathring{B} 01'04	
conjunction	11641 Dec 10 05:32	28° \mathring{A} 07'24	0°22'48	retrograde	11648 Apr 07 14:12	13° \mathring{B} 55'44	

opposition	11648 Jun 24 19:24	12°33'21.8" 0°34'42"	max. Earth dist.	11655 Jan 09 00:05	26°35'02.5" 31.17573 AU
min. Earth dist.	11648 Jun 24 19:39	12°33'21.7" 29.11218 AU	morning rise	11655 Jan 25 06:37	27°32'26.17"
direct	11648 Sep 11 16:45	11°30'08.00"	retrograde	11655 Apr 23 16:59	29°31'19.59"
evening set	11648 Dec 09 20:19	13°30'02.29"	opposition	11655 Jul 10 18:51	27°35'56.47" 0°43'19"
			min. Earth dist.	11655 Jul 10 22:04	27°35'56.33" 29.18205 AU
conjunction	11648 Dec 26 00:34	13°33'38.12" 0°33'06"	direct	11655 Sep 28 01:10	26°33'32.14"
minimum elong	11648 Dec 26 00:34	13°33'38.12" 0°33'51"	evening set	11655 Dec 26 12:30	28°32'26.41"
max. Earth dist.	11648 Dec 25 23:04	13°33'38.04" 31.11708 AU			
morning rise	11649 Jan 11 04:31	14°33'13.54"	conjunction	11656 Jan 11 16:08	29°32'02.15" 0°40'59"
retrograde	11649 Apr 10 02:15	16°33'08.27"	minimum elong	11656 Jan 11 16:08	29°32'02.15" 0°41'41"
opposition	11649 Jun 27 05:48	14°34'45.02" 0°36'06"	max. Earth dist.	11656 Jan 11 11:06	29°32'01.48" 31.18833 AU
min. Earth dist.	11649 Jun 27 06:29	14°34'44.59" 29.12197 AU	morning rise	11656 Jan 27 18:48	29°33'37.45"
direct	11649 Sep 14 03:59	13°32'20.42"		11656 Feb 07 07:26	0°33'37.45"
evening set	11649 Dec 12 08:59	15°33'15.11"	retrograde	11656 Apr 25 03:46	1°33'31.22"
			opposition	11656 Jul 12 04:53	0°33'08.15" 0°44'19"
conjunction	11649 Dec 28 13:20	15°35'50.53" 0°34'23"	min. Earth dist.	11656 Jul 12 08:55	0°33'07.58" 29.19510 AU
minimum elong	11649 Dec 28 13:20	15°35'50.53" 0°35'09"		11656 Jul 17 03:03	30°33'08.15"
max. Earth dist.	11649 Dec 28 12:07	15°35'50.46" 31.12644 AU	direct	11656 Sep 29 11:13	28°33'43.43"
morning rise	11650 Jan 13 16:58	16°33'26.33"		11656 Dec 09 11:59	0°33'38.13"
retrograde	11650 Apr 12 13:04	18°33'20.57"	evening set	11656 Dec 28 00:53	0°33'38.13"
opposition	11650 Jun 29 16:12	16°33'57.34" 0°37'27"			
min. Earth dist.	11650 Jun 29 18:06	16°33'57.26" 29.13104 AU	conjunction	11657 Jan 13 04:32	1°33'13.46" 0°41'53"
direct	11650 Sep 16 16:58	15°33'33.11"	minimum elong	11657 Jan 13 04:32	1°33'13.46" 0°42'34"
evening set	11650 Dec 14 21:49	17°33'27.39"	max. Earth dist.	11657 Jan 13 00:06	1°33'13.22" 31.20160 AU
			morning rise	11657 Jan 29 06:49	1°33'49.14"
conjunction	11650 Dec 31 01:59	18°33'03.20" 0°35'38"	retrograde	11657 Apr 27 14:06	3°33'42.46"
minimum elong	11650 Dec 31 01:59	18°33'03.20" 0°36'22"	opposition	11657 Jul 14 15:02	2°33'19.44" 0°45'14"
max. Earth dist.	11650 Dec 30 23:12	18°33'03.04" 31.13544 AU	min. Earth dist.	11657 Jul 14 19:39	2°33'19.25" 29.20835 AU
morning rise	11651 Jan 16 05:38	18°33'38.58"	direct	11657 Oct 01 23:18	0°33'55.15"
retrograde	11651 Apr 15 01:44	20°33'33.12"	evening set	11657 Dec 30 13:17	2°33'49.47"
opposition	11651 Jul 02 02:16	19°33'09.51" 0°38'45"			
min. Earth dist.	11651 Jul 02 03:57	19°33'09.43" 29.14000 AU	conjunction	11658 Jan 15 16:36	3°33'25.19" 0°42'43"
direct	11651 Sep 19 05:21	17°33'45.24"	minimum elong	11658 Jan 15 16:36	3°33'25.19" 0°43'24"
evening set	11651 Dec 17 10:31	19°33'39.52"	max. Earth dist.	11658 Jan 15 10:30	3°33'24.45" 31.21476 AU
			morning rise	11658 Jan 31 18:50	4°33'00.45"
conjunction	11652 Jan 02 14:42	20°33'15.31" 0°36'49"	retrograde	11658 Apr 30 02:16	5°33'54.13"
minimum elong	11652 Jan 02 14:42	20°33'15.31" 0°37'33"	opposition	11658 Jul 17 01:11	4°33'31.16" 0°46'05"
max. Earth dist.	11652 Jan 02 11:53	20°33'15.16" 31.14436 AU	min. Earth dist.	11658 Jul 17 06:03	4°33'30.56" 29.22129 AU
morning rise	11652 Jan 18 18:04	20°33'51.08"	direct	11658 Oct 04 09:44	3°33'06.48"
retrograde	11652 Apr 16 10:49	22°33'45.13"	evening set	11659 Jan 02 01:43	5°33'01.23"
opposition	11652 Jul 03 12:33	21°33'21.53" 0°39'59"			
min. Earth dist.	11652 Jul 03 15:44	21°33'21.39" 29.14914 AU	conjunction	11659 Jan 18 05:02	5°33'36.54" 0°43'29"
direct	11652 Sep 20 16:20	19°33'57.23"	minimum elong	11659 Jan 18 05:02	5°33'36.54" 0°44'09"
evening set	11652 Dec 18 23:05	21°33'51.50"	max. Earth dist.	11659 Jan 17 23:08	5°33'36.21" 31.22715 AU
			morning rise	11659 Feb 03 06:51	6°33'12.18"
conjunction	11653 Jan 04 03:08	22°33'27.28" 0°37'56"	retrograde	11659 May 02 12:59	8°33'05.41"
minimum elong	11653 Jan 04 03:08	22°33'27.28" 0°38'40"	opposition	11659 Jul 19 11:19	6°33'42.49" 0°46'53"
max. Earth dist.	11653 Jan 03 23:44	22°33'27.09" 31.15382 AU	min. Earth dist.	11659 Jul 19 17:38	6°33'42.22" 29.23314 AU
morning rise	11653 Jan 20 06:21	23°33'03.02"	direct	11659 Oct 06 22:14	5°33'18.21"
retrograde	11653 Apr 18 21:01	24°33'56.59"	evening set	11660 Jan 04 14:18	7°33'12.58"
opposition	11653 Jul 05 22:35	23°33'33.40" 0°41'09"			
min. Earth dist.	11653 Jul 06 01:07	23°33'33.30" 29.15897 AU	conjunction	11660 Jan 20 17:19	7°33'48.27" 0°44'12"
direct	11653 Sep 23 04:25	22°33'09.08"	minimum elong	11660 Jan 20 17:19	7°33'48.27" 0°44'51"
evening set	11653 Dec 21 11:37	24°33'03.34"	max. Earth dist.	11660 Jan 20 09:37	7°33'47.45" 31.23843 AU
			morning rise	11660 Feb 05 19:01	8°33'23.50"
conjunction	11654 Jan 06 15:31	24°33'39.11" 0°39'01"	retrograde	11660 May 04 01:38	10°33'17.08"
minimum elong	11654 Jan 06 15:31	24°33'39.11" 0°39'44"	opposition	11660 Jul 20 21:28	8°33'54.19" 0°47'36"
max. Earth dist.	11654 Jan 06 11:33	24°33'38.49" 31.16411 AU	min. Earth dist.	11660 Jul 21 03:39	8°33'53.53" 29.24378 AU
morning rise	11654 Jan 22 18:31	25°33'14.44"	direct	11660 Oct 08 10:34	7°33'29.51"
retrograde	11654 Apr 21 07:05	27°33'08.33"	evening set	11661 Jan 06 02:38	9°33'24.30"
opposition	11654 Jul 08 08:47	25°33'45.17" 0°42'16"			
min. Earth dist.	11654 Jul 08 12:24	25°33'45.02" 29.16997 AU	conjunction	11661 Jan 22 05:31	9°33'59.58" 0°44'50"
direct	11654 Sep 25 13:29	24°33'20.44"	minimum elong	11661 Jan 22 05:31	9°33'59.58" 0°45'28"
evening set	11654 Dec 23 23:56	26°33'15.10"	max. Earth dist.	11661 Jan 21 21:34	9°33'59.14" 31.24832 AU
			morning rise	11661 Feb 07 06:49	10°33'35.19"
conjunction	11655 Jan 09 03:51	26°33'50.45" 0°40'01"	retrograde	11661 May 06 11:01	12°33'28.31"
minimum elong	11655 Jan 09 03:51	26°33'50.45" 0°40'44"	opposition	11661 Jul 23 07:44	11°33'05.45" 0°48'15"

min. Earth dist.	11661 Jul 23 15:38	11°05'12	29.25311 AU	conjunction	11668 Feb 07 16:06	25°16'51	0°47'30
direct	11661 Oct 10 21:35	9°41'17		minimum elong	11668 Feb 07 16:06	25°16'51	0°48'00
evening set	11662 Jan 08 14:56	11°35'56		max. Earth dist.	11668 Feb 07 05:23	25°15'52	31.30490 AU
				morning rise	11668 Feb 23 15:24	25°52'00	
conjunction	11662 Jan 24 17:37	12°11'22	0°45'25	retrograde	11668 May 21 09:17	27°44'36	
minimum elong	11662 Jan 24 17:37	12°11'22	0°46'02	opposition	11668 Aug 07 06:02	26°22'06	0°50'50
max. Earth dist.	11662 Jan 24 08:45	12°10'33	31.25717 AU	min. Earth dist.	11668 Aug 07 16:26	26°21'22	29.31014 AU
morning rise	11662 Feb 09 18:43	12°46'41		direct	11668 Oct 26 02:38	24°57'34	
retrograde	11662 May 08 21:28	14°39'47		evening set	11669 Jan 24 02:25	26°52'16	
opposition	11662 Jul 25 17:44	13°17'04	0°48'50				
min. Earth dist.	11662 Jul 26 01:20	13°16'32	29.26141 AU	conjunction	11669 Feb 09 03:27	27°27'32	0°47'36
direct	11662 Oct 13 09:42	11°52'35		minimum elong	11669 Feb 09 03:27	27°27'32	0°48'04
evening set	11663 Jan 11 03:06	13°47'13		max. Earth dist.	11669 Feb 08 15:39	27°26'27	31.31500 AU
				morning rise	11669 Feb 25 02:35	28°02'39	
conjunction	11663 Jan 27 05:35	14°22'39	0°45'56	retrograde	11669 May 23 21:33	29°55'13	
minimum elong	11663 Jan 27 05:35	14°22'39	0°46'31	opposition	11669 Aug 09 16:04	28°32'47	0°50'54
max. Earth dist.	11663 Jan 26 19:50	14°21'45	31.26500 AU	min. Earth dist.	11669 Aug 10 01:51	28°32'06	29.32033 AU
morning rise	11663 Feb 12 06:27	14°57'56		direct	11669 Oct 28 14:50	27°08'18	
	11663 Feb 13 05:25	15°		evening set	11670 Jan 26 14:09	29°03'02	
retrograde	11663 May 11 07:25	16°50'56					
opposition	11663 Jul 28 03:52	15°28'14	0°49'21	conjunction	11670 Feb 11 15:00	29°38'17	0°47'39
min. Earth dist.	11663 Jul 28 12:52	15°27'37	29.26897 AU	minimum elong	11670 Feb 11 15:00	29°38'17	0°48'06
	11663 Aug 14 09:35	15°		max. Earth dist.	11670 Feb 11 03:20	29°37'13	31.32507 AU
direct	11663 Oct 15 18:59	14°03'44			11670 Feb 21 10:26	0°	
	11663 Dec 15 03:06	15°		morning rise	11670 Feb 27 13:43	0°13'23	
evening set	11664 Jan 13 15:11	15°58'22		retrograde	11670 May 26 07:12	2°05'55	
				opposition	11670 Aug 12 02:12	0°43'33	0°50'54
conjunction	11664 Jan 29 17:32	16°33'46	0°46'23	min. Earth dist.	11670 Aug 12 13:33	0°42'46	29.33025 AU
minimum elong	11664 Jan 29 17:32	16°33'46	0°46'57		11670 Sep 08 15:03	30°	
max. Earth dist.	11664 Jan 29 07:45	16°32'52	31.27233 AU	direct	11670 Oct 31 01:27	29°19'06	
morning rise	11664 Feb 14 18:03	17°09'01			11670 Dec 21 01:56	0°	
retrograde	11664 May 12 16:23	19°01'55		evening set	11671 Jan 29 01:57	1°13'52	
opposition	11664 Jul 29 13:49	17°39'15	0°49'47				
min. Earth dist.	11664 Jul 29 22:42	17°38'38	29.27608 AU	conjunction	11671 Feb 14 02:31	1°49'06	0°47'37
direct	11664 Oct 17 06:53	16°14'43		minimum elong	11671 Feb 14 02:31	1°49'06	0°48'02
evening set	11665 Jan 15 03:16	18°09'21		max. Earth dist.	11671 Feb 13 14:10	1°47'58	31.33462 AU
				morning rise	11671 Mar 02 00:59	2°24'10	
conjunction	11665 Jan 31 05:15	18°44'43	0°46'45	retrograde	11671 May 28 18:14	4°16'38	
minimum elong	11665 Jan 31 05:15	18°44'43	0°47'19	opposition	11671 Aug 14 12:20	2°54'21	0°50'50
max. Earth dist.	11665 Jan 30 18:12	18°43'41	31.27946 AU	min. Earth dist.	11671 Aug 14 23:19	2°53'35	29.33917 AU
morning rise	11665 Feb 16 05:35	19°19'57		direct	11671 Nov 02 13:54	1°29'55	
retrograde	11665 May 15 02:17	21°12'45		evening set	11672 Jan 31 13:48	3°24'43	
opposition	11665 Jul 31 23:54	19°50'06	0°50'09				
min. Earth dist.	11665 Aug 01 09:20	19°49'27	29.28349 AU	conjunction	11672 Feb 16 14:02	3°59'55	0°47'31
direct	11665 Oct 19 16:47	18°25'32		minimum elong	11672 Feb 16 14:02	3°59'55	0°47'55
evening set	11666 Jan 17 14:55	20°20'10		max. Earth dist.	11672 Feb 16 00:45	3°58'42	31.34281 AU
				morning rise	11672 Mar 03 12:08	4°34'58	
conjunction	11666 Feb 02 16:50	20°55'31	0°47'04	retrograde	11672 May 30 04:47	6°27'24	
minimum elong	11666 Feb 02 16:50	20°55'31	0°47'37	opposition	11672 Aug 15 22:36	5°05'08	0°50'41
max. Earth dist.	11666 Feb 02 06:40	20°54'34	31.28709 AU	min. Earth dist.	11672 Aug 16 10:58	5°04'17	29.34677 AU
morning rise	11666 Feb 18 16:45	21°30'42		direct	11672 Nov 03 23:52	3°40'44	
retrograde	11666 May 17 11:27	23°23'26		evening set	11673 Feb 02 01:29	5°35'31	
opposition	11666 Aug 03 09:59	22°00'49	0°50'27				
min. Earth dist.	11666 Aug 03 19:45	22°00'08	29.29143 AU	conjunction	11673 Feb 18 01:32	6°10'42	0°47'21
direct	11666 Oct 22 04:20	20°36'15		minimum elong	11673 Feb 18 01:32	6°10'42	0°47'43
evening set	11667 Jan 20 02:53	22°30'53		max. Earth dist.	11673 Feb 17 12:10	6°09'28	31.34967 AU
				morning rise	11673 Mar 05 23:16	6°45'43	
conjunction	11667 Feb 05 04:24	23°06'12	0°47'19	retrograde	11673 Jun 01 13:26	8°38'05	
minimum elong	11667 Feb 05 04:24	23°06'12	0°47'50	opposition	11673 Aug 18 08:53	7°15'52	0°50'28
max. Earth dist.	11667 Feb 04 16:55	23°05'08	31.29553 AU	min. Earth dist.	11673 Aug 18 21:16	7°15'00	29.35277 AU
morning rise	11667 Feb 21 04:11	23°41'22		direct	11673 Nov 06 12:06	5°51'27	
retrograde	11667 May 19 22:52	25°34'02		evening set	11674 Feb 04 13:07	7°46'13	
opposition	11667 Aug 05 19:53	24°11'27	0°50'40				
min. Earth dist.	11667 Aug 06 05:21	24°10'48	29.30041 AU	conjunction	11674 Feb 20 12:45	8°21'23	0°47'07
direct	11667 Oct 24 14:06	22°46'53		minimum elong	11674 Feb 20 12:46	8°21'23	0°47'28
evening set	11668 Jan 22 14:40	24°41'34		max. Earth dist.	11674 Feb 19 21:52	8°20'01	31.35493 AU
				morning rise	11674 Mar 08 10:18	8°56'23	

retrograde	11674 Jun 03 23:05	10° ✕ 48'41		minimum elong	11681 Mar 07 17:37	23° ✕ 32'05	0°43'48
opposition	11674 Aug 20 19:11	9° ✕ 26'28	0°50'11	max. Earth dist.	11681 Mar 07 01:41	23° ✕ 30'37	31.37430 AU
min. Earth dist.	11674 Aug 21 08:20	9° ✕ 25'34	29.35736 AU	morning rise	11681 Mar 23 12:50	24° ✕ 06'54	
direct	11674 Nov 08 21:51	8° ✕ 02'02		retrograde	11681 Jun 18 21:50	25° ✕ 58'57	
evening set	11675 Feb 07 00:40	9° ✕ 56'48		opposition	11681 Sep 04 18:59	24° ✕ 36'47	0°46'14
max. Earth dist.	11675 Feb 22 09:48	10° ✕ 30'37	31.35878 AU	min. Earth dist.	11681 Sep 05 09:32	24° ✕ 35'47	29.37675 AU
				direct	11681 Nov 24 04:52	23° ✕ 12'19	
conjunction	11675 Feb 23 00:12	10° ✕ 31'56	0°46'48	evening set	11682 Feb 22 06:52	25° ✕ 07'05	
minimum elong	11675 Feb 23 00:13	10° ✕ 31'56	0°47'07				
morning rise	11675 Mar 10 21:17	11° ✕ 06'54		conjunction	11682 Mar 10 04:17	25° ✕ 42'04	0°42'54
retrograde	11675 Jun 06 07:38	12° ✕ 59'09		minimum elong	11682 Mar 10 04:17	25° ✕ 42'04	0°43'02
opposition	11675 Aug 23 05:22	11° ✕ 36'56	0°49'49	max. Earth dist.	11682 Mar 09 12:59	25° ✕ 40'39	31.37859 AU
min. Earth dist.	11675 Aug 23 19:18	11° ✕ 35'58	29.36049 AU	morning rise	11682 Mar 25 23:09	26° ✕ 16'52	
direct	11675 Nov 11 09:09	10° ✕ 12'28		retrograde	11682 Jun 21 06:30	28° ✕ 08'57	
evening set	11676 Feb 09 12:18	12° ✕ 07'12		opposition	11682 Sep 07 05:20	26° ✕ 46'50	0°45'24
				min. Earth dist.	11682 Sep 07 19:38	26° ✕ 45'51	29.38085 AU
conjunction	11676 Feb 25 11:22	12° ✕ 42'19	0°46'26	direct	11682 Nov 26 16:49	25° ✕ 22'26	
minimum elong	11676 Feb 25 11:22	12° ✕ 42'19	0°46'45	evening set	11683 Feb 24 18:02	27° ✕ 17'13	
max. Earth dist.	11676 Feb 24 19:26	12° ✕ 40'50	31.36144 AU				
morning rise	11676 Mar 12 08:17	13° ✕ 17'15		conjunction	11683 Mar 12 14:58	27° ✕ 52'12	0°42'06
retrograde	11676 Jun 07 18:34	15° ✕ 09'26		minimum elong	11683 Mar 12 14:58	27° ✕ 52'12	0°42'11
opposition	11676 Aug 24 15:36	13° ✕ 47'12	0°49'24	max. Earth dist.	11683 Mar 11 22:29	27° ✕ 50'40	31.38250 AU
min. Earth dist.	11676 Aug 25 05:22	13° ✕ 46'15	29.36278 AU	morning rise	11683 Mar 28 09:37	28° ✕ 26'59	
direct	11676 Nov 12 19:27	12° ✕ 22'42			11683 May 20 22:51	0° ∇	
evening set	11677 Feb 10 23:28	14° ✕ 17'25		retrograde	11683 Jun 23 16:19	0° ∇ 19'05	
					11683 Jul 28 03:11	30° ℞ ✕	
conjunction	11677 Feb 26 22:24	14° ✕ 52'30	0°46'01	opposition	11683 Sep 09 15:42	28° ✕ 57'01	0°44'30
minimum elong	11677 Feb 26 22:24	14° ✕ 52'30	0°46'17	min. Earth dist.	11683 Sep 10 06:24	28° ✕ 56'01	29.38449 AU
max. Earth dist.	11677 Feb 26 07:12	14° ✕ 51'06	31.36336 AU	direct	11683 Nov 29 01:59	27° ✕ 32'40	
morning rise	11677 Mar 14 18:49	15° ✕ 27'24		evening set	11684 Feb 27 05:02	29° ✕ 27'28	
retrograde	11677 Jun 10 03:52	17° ✕ 19'32			11684 Mar 12 23:23	0° ∇	
opposition	11677 Aug 27 01:57	15° ✕ 57'17	0°48'54	max. Earth dist.	11684 Mar 13 10:09	0° ∇ 01'00	31.38561 AU
min. Earth dist.	11677 Aug 27 16:41	15° ✕ 56'16	29.36455 AU				
direct	11677 Nov 15 07:45	14° ✕ 32'45		conjunction	11684 Mar 14 01:48	0° ∇ 02'27	0°41'13
evening set	11678 Feb 13 10:44	16° ✕ 27'27		minimum elong	11684 Mar 14 01:49	0° ∇ 02'27	0°41'18
				morning rise	11684 Mar 29 19:58	0° ∇ 37'13	
conjunction	11678 Mar 01 09:15	17° ✕ 02'31	0°45'31	retrograde	11684 Jun 25 01:07	2° ∇ 29'20	
minimum elong	11678 Mar 01 09:15	17° ✕ 02'31	0°45'46	opposition	11684 Sep 11 02:22	1° ∇ 07'19	0°43'32
max. Earth dist.	11678 Feb 28 17:09	17° ✕ 01'01	31.36521 AU	min. Earth dist.	11684 Sep 11 17:41	1° ∇ 06'16	29.38698 AU
morning rise	11678 Mar 17 05:31	17° ✕ 37'23			11684 Oct 28 10:32	30° ℞ ✕	
retrograde	11678 Jun 12 15:13	19° ✕ 29'28		direct	11684 Nov 30 12:25	29° ✕ 43'00	
opposition	11678 Aug 29 12:00	18° ✕ 07'12	0°48'20		11685 Jan 02 02:20	0° ∇	
min. Earth dist.	11678 Aug 30 01:52	18° ✕ 06'15	29.36655 AU	evening set	11685 Feb 28 16:01	1° ∇ 37'49	
direct	11678 Nov 17 19:48	16° ✕ 42'39					
evening set	11679 Feb 15 21:53	18° ✕ 37'21		conjunction	11685 Mar 16 12:18	2° ∇ 12'46	0°40'18
				minimum elong	11685 Mar 16 12:18	2° ∇ 12'46	0°40'20
conjunction	11679 Mar 03 20:10	19° ✕ 12'23	0°44'57	max. Earth dist.	11685 Mar 15 19:20	2° ∇ 11'12	31.38752 AU
minimum elong	11679 Mar 03 20:11	19° ✕ 12'23	0°45'10	morning rise	11685 Apr 01 06:18	2° ∇ 47'32	
max. Earth dist.	11679 Mar 03 04:29	19° ✕ 10'56	31.36740 AU	retrograde	11685 Jun 27 12:12	4° ∇ 39'41	
morning rise	11679 Mar 19 16:00	19° ✕ 47'14		opposition	11685 Sep 13 12:56	3° ∇ 17'40	0°42'31
retrograde	11679 Jun 15 00:37	21° ✕ 39'18		min. Earth dist.	11685 Sep 14 03:54	3° ∇ 16'39	29.38825 AU
opposition	11679 Aug 31 22:23	20° ✕ 17'02	0°47'42	direct	11685 Dec 02 22:17	1° ∇ 53'22	
min. Earth dist.	11679 Sep 01 13:15	20° ✕ 16'01	29.36917 AU	evening set	11686 Mar 03 02:57	3° ∇ 48'12	
direct	11679 Nov 20 06:34	18° ✕ 52'30					
evening set	11680 Feb 18 08:58	20° ✕ 47'12		conjunction	11686 Mar 18 23:04	4° ∇ 23'08	0°39'18
				minimum elong	11686 Mar 18 23:04	4° ∇ 23'08	0°39'20
conjunction	11680 Mar 05 06:54	21° ✕ 22'13	0°44'20	max. Earth dist.	11686 Mar 18 06:40	4° ∇ 21'37	31.38797 AU
minimum elong	11680 Mar 05 06:55	21° ✕ 22'13	0°44'32	morning rise	11686 Apr 03 16:36	4° ∇ 57'52	
max. Earth dist.	11680 Mar 04 15:15	21° ✕ 20'46	31.37049 AU	retrograde	11686 Jun 29 21:38	6° ∇ 50'02	
morning rise	11680 Mar 21 02:26	21° ✕ 57'02		opposition	11686 Sep 15 23:32	5° ∇ 28'01	0°41'26
retrograde	11680 Jun 16 11:10	23° ✕ 49'05		min. Earth dist.	11686 Sep 16 15:42	5° ∇ 26'55	29.38796 AU
opposition	11680 Sep 02 08:36	22° ✕ 26'52	0°47'00	direct	11686 Dec 05 10:09	4° ∇ 03'43	
min. Earth dist.	11680 Sep 02 22:28	22° ✕ 25'55	29.37259 AU	evening set	11687 Mar 05 13:59	5° ∇ 58'33	
direct	11680 Nov 21 19:05	21° ✕ 02'21					
evening set	11681 Feb 19 20:01	22° ✕ 57'05		conjunction	11687 Mar 21 09:41	6° ∇ 33'28	0°38'16
				minimum elong	11687 Mar 21 09:41	6° ∇ 33'28	0°38'15
conjunction	11681 Mar 07 17:36	23° ✕ 32'05	0°43'39	max. Earth dist.	11687 Mar 20 16:11	6° ∇ 31'51	31.38704 AU

morning rise	11687 Apr 06 03:02	7° Υ 08'11	conjunction	11694 Apr 05 09:25	21° Υ 42'34	0°29'37
retrograde	11687 Jul 02 09:00	9° Υ 00'21	minimum elong	11694 Apr 05 09:25	21° Υ 42'34	0°29'25
opposition	11687 Sep 18 10:08	7° Υ 38'19 0°40'18	max. Earth dist.	11694 Apr 04 16:54	21° Υ 41'02	31.36879 AU
min. Earth dist.	11687 Sep 19 01:35	7° Υ 37'15 29.38628 AU	morning rise	11694 Apr 21 00:46	22° Υ 17'11	
direct	11687 Dec 07 21:55	6° Υ 14'00	retrograde	11694 Jul 17 05:18	24° Υ 09'25	
evening set	11688 Mar 07 00:47	8° Υ 08'49	opposition	11694 Oct 03 13:12	22° Υ 47'14	0°30'52
			min. Earth dist.	11694 Oct 04 03:41	22° Υ 46'15	29.36860 AU
conjunction	11688 Mar 22 20:13	8° Υ 43'43 0°37'11	direct	11694 Dec 23 04:42	21° Υ 22'55	
minimum elong	11688 Mar 22 20:13	8° Υ 43'43 0°37'09	evening set	11695 Mar 23 02:18	23° Υ 17'37	
max. Earth dist.	11688 Mar 22 02:51	8° Υ 42'06 31.38465 AU				
morning rise	11688 Apr 07 13:09	9° Υ 18'25	conjunction	11695 Apr 07 19:38	23° Υ 52'24	0°28'12
retrograde	11688 Jul 03 18:38	11° Υ 10'34	minimum elong	11695 Apr 07 19:38	23° Υ 52'25	0°27'57
opposition	11688 Sep 19 20:54	9° Υ 48'30 0°39'06	max. Earth dist.	11695 Apr 07 04:09	23° Υ 50'58	31.36796 AU
min. Earth dist.	11688 Sep 20 13:34	9° Υ 47'22 29.38340 AU	morning rise	11695 Apr 23 10:33	24° Υ 27'01	
direct	11688 Dec 09 08:50	8° Υ 24'10	retrograde	11695 Jul 19 14:39	26° Υ 19'19	
evening set	11689 Mar 09 11:31	10° Υ 18'57	opposition	11695 Oct 06 00:16	24° Υ 57'10	0°29'19
			min. Earth dist.	11695 Oct 06 15:32	24° Υ 56'08	29.36765 AU
conjunction	11689 Mar 25 06:38	10° Υ 53'49 0°36'02	direct	11695 Dec 25 15:22	23° Υ 32'54	
minimum elong	11689 Mar 25 06:38	10° Υ 53'49 0°35'58	evening set	11696 Mar 24 12:43	25° Υ 27'38	
max. Earth dist.	11689 Mar 24 13:19	10° Υ 52'13 31.38144 AU				
morning rise	11689 Apr 09 23:19	11° Υ 28'30	conjunction	11696 Apr 09 05:36	26° Υ 02'24	0°26'44
retrograde	11689 Jul 06 05:25	13° Υ 20'38	minimum elong	11696 Apr 09 05:36	26° Υ 02'24	0°26'28
opposition	11689 Sep 22 07:28	11° Υ 58'32 0°37'51	max. Earth dist.	11696 Apr 08 13:40	26° Υ 00'56	31.36684 AU
min. Earth dist.	11689 Sep 22 23:18	11° Υ 57'27 29.37982 AU	morning rise	11696 Apr 24 20:21	26° Υ 37'01	
direct	11689 Dec 11 22:27	10° Υ 34'09	retrograde	11696 Jul 21 02:08	28° Υ 29'23	
evening set	11690 Mar 11 22:06	12° Υ 28'54	opposition	11696 Oct 07 11:18	27° Υ 07'15	0°27'44
			min. Earth dist.	11696 Oct 08 01:29	27° Υ 06'17	29.36613 AU
conjunction	11690 Mar 27 16:53	13° Υ 03'45 0°34'51	direct	11696 Dec 27 02:16	25° Υ 43'02	
minimum elong	11690 Mar 27 16:53	13° Υ 03'46 0°34'45	evening set	11697 Mar 26 23:10	27° Υ 37'47	
max. Earth dist.	11690 Mar 26 23:12	13° Υ 02'07 31.37770 AU				
morning rise	11690 Apr 12 09:20	13° Υ 38'25	conjunction	11697 Apr 11 15:47	28° Υ 12'33	0°25'14
retrograde	11690 Jul 08 16:08	15° Υ 30'33	minimum elong	11697 Apr 11 15:47	28° Υ 12'33	0°24'56
opposition	11690 Sep 24 18:11	14° Υ 08'23 0°36'33	max. Earth dist.	11697 Apr 11 00:06	28° Υ 11'06	31.36481 AU
min. Earth dist.	11690 Sep 25 10:32	14° Υ 07'16 29.37618 AU	morning rise	11697 Apr 27 06:12	28° Υ 47'10	
direct	11690 Dec 14 09:39	12° Υ 43'59		11697 Jun 04 08:03	0° \mathcal{B}	
evening set	11691 Mar 14 08:36	14° Υ 38'42	retrograde	11697 Jul 23 12:37	0° \mathcal{B} 39'37	
max. Earth dist.	11691 Mar 29 10:28	15° Υ 11'59 31.37422 AU		11697 Sep 12 15:55	30° $\mathcal{R}\Upsilon$	
			opposition	11697 Oct 09 22:28	29° Υ 17'30	0°26'06
conjunction	11691 Mar 30 03:10	15° Υ 13'32 0°33'37	min. Earth dist.	11697 Oct 10 13:44	29° Υ 16'27	29.36365 AU
minimum elong	11691 Mar 30 03:10	15° Υ 13'32 0°33'28	direct	11697 Dec 29 12:34	27° Υ 53'19	
morning rise	11691 Apr 14 19:13	15° Υ 48'11	evening set	11698 Mar 29 09:35	29° Υ 48'05	
retrograde	11691 Jul 11 00:07	17° Υ 40'18		11698 Apr 03 20:02	0° \mathcal{B}	
opposition	11691 Sep 27 04:51	16° Υ 18'06 0°35'12	max. Earth dist.	11698 Apr 13 10:27	0° \mathcal{B} 21'24	31.36174 AU
min. Earth dist.	11691 Sep 27 20:34	16° Υ 17'02 29.37294 AU				
direct	11691 Dec 16 22:09	14° Υ 53'41	conjunction	11698 Apr 14 01:58	0° \mathcal{B} 22'51	0°23'42
evening set	11692 Mar 15 19:12	16° Υ 48'23	minimum elong	11698 Apr 14 01:58	0° \mathcal{B} 22'51	0°23'23
			morning rise	11698 Apr 29 16:09	0° \mathcal{B} 57'27	
conjunction	11692 Mar 31 13:17	17° Υ 23'12 0°32'20	retrograde	11698 Jul 26 00:02	2° \mathcal{B} 49'58	
minimum elong	11692 Mar 31 13:17	17° Υ 23'12 0°32'11	opposition	11698 Oct 12 09:40	1° \mathcal{B} 27'51	0°24'26
max. Earth dist.	11692 Mar 30 19:56	17° Υ 21'36 31.37147 AU	min. Earth dist.	11698 Oct 13 00:09	1° \mathcal{B} 26'52	29.35977 AU
morning rise	11692 Apr 16 05:10	17° Υ 57'50	direct	11699 Jan 01 01:55	0° \mathcal{B} 03'43	
retrograde	11692 Jul 12 09:58	19° Υ 49'58	evening set	11699 Mar 31 20:09	1° \mathcal{B} 58'29	
opposition	11692 Sep 28 15:40	18° Υ 27'46 0°33'48				
min. Earth dist.	11692 Sep 29 06:57	18° Υ 26'43 29.37077 AU	conjunction	11699 Apr 16 12:08	2° \mathcal{B} 33'14	0°22'07
direct	11692 Dec 18 08:04	17° Υ 03'22	minimum elong	11699 Apr 16 12:08	2° \mathcal{B} 33'14	0°21'46
evening set	11693 Mar 18 05:25	18° Υ 58'02	max. Earth dist.	11699 Apr 15 19:59	2° \mathcal{B} 31'44	31.35709 AU
			morning rise	11699 May 02 02:05	3° \mathcal{B} 07'50	
conjunction	11693 Apr 02 23:21	19° Υ 32'51 0°31'00	retrograde	11699 Jul 28 11:38	5° \mathcal{B} 00'25	
minimum elong	11693 Apr 02 23:22	19° Υ 32'51 0°30'48	opposition	11699 Oct 14 21:00	3° \mathcal{B} 38'17	0°22'44
max. Earth dist.	11693 Apr 02 07:33	19° Υ 31'23 31.36976 AU	min. Earth dist.	11699 Oct 15 12:05	3° \mathcal{B} 37'16	29.35448 AU
morning rise	11693 Apr 18 14:48	20° Υ 07'28	direct	11700 Jan 03 13:06	2° \mathcal{B} 14'10	
retrograde	11693 Jul 14 18:30	21° Υ 59'39	evening set	11700 Apr 03 06:33	4° \mathcal{B} 08'56	
opposition	11693 Oct 01 02:32	20° Υ 37'27 0°32'22				
min. Earth dist.	11693 Oct 01 17:54	20° Υ 36'24 29.36939 AU	conjunction	11700 Apr 18 22:22	4° \mathcal{B} 43'41	0°20'31
direct	11693 Dec 20 18:53	19° Υ 13'05	minimum elong	11700 Apr 18 22:23	4° \mathcal{B} 43'41	0°20'09
evening set	11694 Mar 20 15:55	21° Υ 07'46	max. Earth dist.	11700 Apr 18 07:02	4° \mathcal{B} 42'16	31.35111 AU
			morning rise	11700 May 04 11:59	5° \mathcal{B} 18'17	

retrograde	11700 Jul 30 20:30	7°8'10"55		behind sun begin	11706 May 02 04:38	17°8'45"32	
opposition	11700 Oct 17 08:24	5°8'48"46	0°21'01	behind sun end	11706 May 02 15:09	17°8'46"28	
min. Earth dist.	11700 Oct 17 23:08	5°8'47"46	29.34773 AU	max. Earth dist.	11706 May 01 20:32	17°8'44"46	31.30619 AU
direct	11701 Jan 06 01:50	4°8'24"39		morning rise	11706 May 17 22:18	18°8'20"35	
evening set	11701 Apr 05 16:54	6°8'19"24		retrograde	11706 Aug 13 09:05	20°8'13"39	
				opposition	11706 Oct 31 05:05	18°8'51"17	0°10'06
conjunction	11701 Apr 21 08:18	6°8'54"08	0°18'53	min. Earth dist.	11706 Oct 31 17:52	18°8'50"24	29.30341 AU
minimum elong	11701 Apr 21 08:18	6°8'54"08	0°18'29	direct	11707 Jan 19 17:47	17°8'27"12	
max. Earth dist.	11701 Apr 20 16:01	6°8'52"38	31.34383 AU	evening set	11707 Apr 19 05:52	19°8'21"53	
morning rise	11701 May 06 21:51	7°8'28"44					
retrograde	11701 Aug 02 06:53	9°8'21"25		conjunction	11707 May 04 19:46	19°8'56"35	0°08'39
opposition	11701 Oct 19 19:45	7°8'59"14	0°19'15	minimum elong	11707 May 04 19:46	19°8'56"35	0°08'06
min. Earth dist.	11701 Oct 20 10:19	7°8'58"14	29.33999 AU	behind sun begin	11707 May 04 14:02	19°8'56"05	
direct	11702 Jan 08 12:39	6°8'35"06		behind sun end	11707 May 05 01:31	19°8'57"06	
evening set	11702 Apr 08 03:07	8°8'29"49		max. Earth dist.	11707 May 04 07:17	19°8'55"26	31.30048 AU
				morning rise	11707 May 20 07:57	20°8'31"11	
conjunction	11702 Apr 23 18:25	9°8'04"33	0°17'14	retrograde	11707 Aug 15 20:58	22°8'24"20	
minimum elong	11702 Apr 23 18:25	9°8'04"33	0°16'49	opposition	11707 Nov 02 16:41	21°8'01"58	0°08'13
max. Earth dist.	11702 Apr 23 03:29	9°8'03"10	31.33569 AU	min. Earth dist.	11707 Nov 03 04:15	21°8'01"11	29.29764 AU
morning rise	11702 May 09 07:35	9°8'39"08		direct	11708 Jan 22 06:52	19°8'37"57	
retrograde	11702 Aug 04 15:39	11°8'31"53		evening set	11708 Apr 20 16:06	21°8'32"39	
opposition	11702 Oct 22 07:03	10°8'09"38	0°17'28				
min. Earth dist.	11702 Oct 22 21:54	10°8'08"37	29.33158 AU	conjunction	11708 May 06 05:40	22°8'07"21	0°06'53
direct	11703 Jan 11 00:16	8°8'45"29		minimum elong	11708 May 06 05:40	22°8'07"21	0°06'20
evening set	11703 Apr 10 13:27	10°8'40"11		behind sun begin	11708 May 05 23:34	22°8'06"48	
				behind sun end	11708 May 06 11:45	22°8'07"54	
conjunction	11703 Apr 26 04:18	11°8'14"54	0°15'34	max. Earth dist.	11708 May 05 16:56	22°8'06"10	31.29466 AU
minimum elong	11703 Apr 26 04:18	11°8'14"54	0°15'06	morning rise	11708 May 21 17:44	22°8'41"56	
behind sun begin	11703 Apr 26 01:59	11°8'14"42		retrograde	11708 Aug 17 09:21	24°8'35"13	
behind sun end	11703 Apr 26 06:38	11°8'15"07		opposition	11708 Nov 04 04:32	23°8'12"50	0°06'19
max. Earth dist.	11703 Apr 25 12:51	11°8'13"28	31.32734 AU	min. Earth dist.	11708 Nov 04 16:16	23°8'12"02	29.29175 AU
morning rise	11703 May 11 17:24	11°8'49"30		direct	11709 Jan 23 17:32	21°8'48"51	
retrograde	11703 Aug 07 02:10	13°8'42"17		evening set	11709 Apr 23 02:09	23°8'43"34	
opposition	11703 Oct 24 18:28	12°8'19"59	0°15'40				
min. Earth dist.	11703 Oct 25 08:04	12°8'19"03	29.32342 AU	conjunction	11709 May 08 15:38	24°8'18"16	0°05'07
direct	11704 Jan 13 10:55	10°8'55"50		minimum elong	11709 May 08 15:38	24°8'18"16	0°04'31
evening set	11704 Apr 11 23:28	12°8'50"30		behind sun begin	11709 May 08 09:19	24°8'17"42	
				behind sun end	11709 May 08 21:57	24°8'18"50	
conjunction	11704 Apr 27 14:09	13°8'25"13	0°13'52	max. Earth dist.	11709 May 08 04:07	24°8'17"12	31.28844 AU
minimum elong	11704 Apr 27 14:09	13°8'25"13	0°13'24	morning rise	11709 May 24 03:26	24°8'52"52	
behind sun begin	11704 Apr 27 10:26	13°8'24"53		retrograde	11709 Aug 19 19:08	26°8'46"15	
behind sun end	11704 Apr 27 17:52	13°8'25"33		opposition	11709 Nov 06 16:23	25°8'23"51	0°04'24
max. Earth dist.	11704 Apr 27 00:03	13°8'23"55	31.31939 AU	min. Earth dist.	11709 Nov 07 03:39	25°8'23"05	29.28500 AU
morning rise	11704 May 13 02:53	13°8'59"48		direct	11710 Jan 26 06:10	23°8'59"55	
	11704 Jun 12 07:47	15°8'		evening set	11710 Apr 25 12:32	25°8'54"38	
retrograde	11704 Aug 08 11:03	15°8'52"41					
	11704 Oct 07 16:26	15°8'		conjunction	11710 May 11 01:37	26°8'29"20	0°03'19
opposition	11704 Oct 26 06:05	14°8'30"20	0°13'50	minimum elong	11710 May 11 01:36	26°8'29"20	0°02'43
min. Earth dist.	11704 Oct 26 19:57	14°8'29"23	29.31591 AU	behind sun begin	11710 May 10 19:11	26°8'28"46	
direct	11705 Jan 14 21:29	13°8'06"12		behind sun end	11710 May 11 08:01	26°8'29"54	
evening set	11705 Apr 14 09:38	15°8'00"51		max. Earth dist.	11710 May 10 13:13	26°8'28"11	31.28119 AU
	11705 Apr 14 00:17	15°8'		morning rise	11710 May 26 13:23	27°8'03"56	
				retrograde	11710 Aug 22 07:03	28°8'57"24	
conjunction	11705 Apr 29 23:59	15°8'35"34	0°12'09	opposition	11710 Nov 09 04:13	27°8'35"00	0°02'28
minimum elong	11705 Apr 29 23:59	15°8'35"34	0°11'38	min. Earth dist.	11710 Nov 09 15:13	27°8'34"15	29.27722 AU
behind sun begin	11705 Apr 29 19:22	15°8'35"09		direct	11711 Jan 28 17:43	26°8'11"05	
behind sun end	11705 Apr 30 04:36	15°8'35"58		evening set	11711 Apr 27 22:48	28°8'05"48	
max. Earth dist.	11705 Apr 29 10:00	15°8'34"16	31.31242 AU				
morning rise	11705 May 15 12:37	16°8'10"09		conjunction	11711 May 13 11:48	28°8'40"30	0°01'29
retrograde	11705 Aug 10 22:14	18°8'03"06		minimum elong	11711 May 13 11:48	28°8'40"30	0°00'51
opposition	11705 Oct 28 17:25	16°8'40"44	0°11'59	behind sun begin	11711 May 13 05:23	28°8'39"56	
min. Earth dist.	11705 Oct 29 05:40	16°8'39"54	29.30933 AU	behind sun end	11711 May 13 18:14	28°8'41"05	
direct	11706 Jan 17 07:32	15°8'16"37		max. Earth dist.	11711 May 13 00:41	28°8'39"29	31.27268 AU
evening set	11706 Apr 16 19:45	17°8'11"18		morning rise	11711 May 28 23:15	29°8'15"07	
					11711 Jun 19 15:31	0°II	
conjunction	11706 May 02 09:54	17°8'46"00	0°10'24	retrograde	11711 Aug 24 16:58	1°II08'41	
minimum elong	11706 May 02 09:53	17°8'46"00	0°09'54		11711 Nov 03 04:56	30°8'	

opposition	11711 Nov 11 16:24	29° 8 46'14	0°00'33	conjunction	11717 May 25 23:36	11° II 47'28	-0°09'19
min. Earth dist.	11711 Nov 12 03:43	29° 8 45'28	29.26795 AU	minimum elong	11717 May 25 23:36	11° II 47'28	0°10'03
direct	11712 Jan 31 06:13	28° 8 22'20		behind sun begin	11717 May 25 18:23	11° II 47'00	
desc. node	11712 Feb 26 17:50	28° 8 33'50		behind sun end	11717 May 26 04:48	11° II 47'56	
	11712 Apr 21 11:24	0° II		max. Earth dist.	11717 May 25 14:21	11° II 46'37	31.20075 AU
evening set	11712 Apr 29 09:05	0° II 17'02		morning rise	11717 Jun 10 10:33	12° II 22'07	
				retrograde	11717 Sep 06 11:19	14° II 16'15	
conjunction	11712 May 14 21:42	0° II 51'44	-0°00'23	opposition	11717 Nov 24 17:22	12° II 53'22	-0°10'54
minimum elong	11712 May 14 21:43	0° II 51'44	0°01'01	min. Earth dist.	11717 Nov 25 01:33	12° II 52'49	29.19522 AU
behind sun begin	11712 May 14 15:18	0° II 51'09		direct	11718 Feb 13 01:39	11° II 29'23	
behind sun end	11712 May 15 04:08	0° II 52'18		evening set	11718 May 12 21:55	13° II 23'58	
max. Earth dist.	11712 May 14 09:54	0° II 50'38	31.26275 AU				
morning rise	11712 May 30 09:11	1° II 26'21		conjunction	11718 May 28 09:37	13° II 58'40	-0°11'04
retrograde	11712 Aug 26 03:59	3° II 20'01		minimum elong	11718 May 28 09:37	13° II 58'40	0°11'47
opposition	11712 Nov 13 04:29	1° II 57'30	-0°01'22	behind sun begin	11718 May 28 05:04	13° II 58'16	
min. Earth dist.	11712 Nov 13 14:48	1° II 56'48	29.25728 AU	behind sun end	11718 May 28 14:10	13° II 59'05	
direct	11713 Feb 01 17:30	0° II 33'36		max. Earth dist.	11718 May 28 02:03	13° II 57'59	31.18973 AU
evening set	11713 May 01 19:20	2° II 28'16		morning rise	11718 Jun 12 20:19	14° II 33'20	
				retrograde	11718 Sep 08 21:42	16° II 27'35	
conjunction	11713 May 17 07:53	3° II 02'58	-0°02'13	opposition	11718 Nov 27 05:33	15° II 04'41	-0°12'46
minimum elong	11713 May 17 07:53	3° II 02'58	0°02'53	min. Earth dist.	11718 Nov 27 12:43	15° II 04'12	29.18458 AU
behind sun begin	11713 May 17 01:28	3° II 02'24		direct	11719 Feb 15 14:14	13° II 40'44	
behind sun end	11713 May 17 14:18	3° II 03'33		evening set	11719 May 15 08:08	15° II 35'20	
max. Earth dist.	11713 May 16 20:55	3° II 01'57	31.25131 AU				
morning rise	11713 Jun 01 19:07	3° II 37'36		conjunction	11719 May 30 19:30	16° II 10'03	-0°12'48
retrograde	11713 Aug 28 13:10	5° II 31'20		minimum elong	11719 May 30 19:30	16° II 10'03	0°13'33
opposition	11713 Nov 15 16:36	4° II 08'46	-0°03'18	behind sun begin	11719 May 30 15:52	16° II 09'43	
min. Earth dist.	11713 Nov 16 03:37	4° II 08'01	29.24522 AU	behind sun end	11719 May 30 23:08	16° II 10'22	
direct	11714 Feb 04 04:35	2° II 44'50		max. Earth dist.	11719 May 30 11:38	16° II 09'19	31.17960 AU
evening set	11714 May 04 05:36	4° II 39'28		morning rise	11719 Jun 15 06:19	16° II 44'43	
				retrograde	11719 Sep 11 10:44	18° II 39'06	
conjunction	11714 May 19 17:55	5° II 14'10	-0°04'01	opposition	11719 Nov 29 17:56	17° II 16'12	-0°14'37
minimum elong	11714 May 19 17:55	5° II 14'10	0°04'41	min. Earth dist.	11719 Nov 30 00:13	17° II 15'46	29.17483 AU
behind sun begin	11714 May 19 11:38	5° II 13'36		direct	11720 Feb 18 01:51	15° II 52'17	
behind sun end	11714 May 20 00:13	5° II 14'44		evening set	11720 May 16 18:05	17° II 46'54	
max. Earth dist.	11714 May 19 06:54	5° II 13'09	31.23883 AU				
morning rise	11714 Jun 04 05:08	5° II 48'48		conjunction	11720 Jun 01 05:29	18° II 21'38	-0°14'32
retrograde	11714 Aug 31 00:24	7° II 42'37		minimum elong	11720 Jun 01 05:28	18° II 21'38	0°15'16
opposition	11714 Nov 18 04:40	6° II 19'58	-0°05'13	behind sun begin	11720 Jun 01 03:16	18° II 21'26	
min. Earth dist.	11714 Nov 18 14:17	6° II 19'18	29.23229 AU	behind sun end	11720 Jun 01 07:41	18° II 21'50	
direct	11715 Feb 06 15:42	4° II 55'59		max. Earth dist.	11720 May 31 23:25	18° II 21'05	31.17003 AU
evening set	11715 May 06 15:43	6° II 50'36		morning rise	11720 Jun 16 16:04	18° II 56'20	
				retrograde	11720 Sep 12 21:37	20° II 50'52	
conjunction	11715 May 22 03:50	7° II 25'18	-0°05'48	opposition	11720 Dec 01 06:26	19° II 27'56	-0°16'27
minimum elong	11715 May 22 03:50	7° II 25'18	0°06'30	min. Earth dist.	11720 Dec 01 12:38	19° II 27'31	29.16534 AU
behind sun begin	11715 May 21 21:46	7° II 24'45		direct	11721 Feb 19 14:19	18° II 04'05	
behind sun end	11715 May 22 09:53	7° II 25'50		evening set	11721 May 19 04:22	19° II 58'44	
max. Earth dist.	11715 May 21 17:20	7° II 24'19	31.22564 AU				
morning rise	11715 Jun 06 14:54	7° II 59'56		conjunction	11721 Jun 03 15:29	20° II 33'28	-0°16'14
retrograde	11715 Sep 02 11:10	9° II 53'50		minimum elong	11721 Jun 03 15:29	20° II 33'28	0°16'59
opposition	11715 Nov 20 16:58	8° II 31'06	-0°07'07	max. Earth dist.	11721 Jun 03 09:11	20° II 32'53	31.16065 AU
min. Earth dist.	11715 Nov 21 03:00	8° II 30'25	29.21921 AU	morning rise	11721 Jun 19 02:12	21° II 08'11	
direct	11716 Feb 09 02:29	7° II 07'06		retrograde	11721 Sep 15 09:15	23° II 02'51	
evening set	11716 May 08 01:49	9° II 01'41		opposition	11721 Dec 03 18:44	21° II 39'55	-0°18'16
				min. Earth dist.	11721 Dec 03 23:41	21° II 39'35	29.15588 AU
conjunction	11716 May 23 13:47	9° II 36'22	-0°07'34	direct	11722 Feb 22 01:26	20° II 16'06	
minimum elong	11716 May 23 13:47	9° II 36'22	0°08'15	evening set	11722 May 21 14:39	22° II 10'46	
behind sun begin	11716 May 23 08:05	9° II 35'52					
behind sun end	11716 May 23 19:29	9° II 36'53		conjunction	11722 Jun 06 01:44	22° II 45'32	-0°17'55
max. Earth dist.	11716 May 23 04:31	9° II 35'31	31.21282 AU	minimum elong	11722 Jun 06 01:44	22° II 45'31	0°18'40
morning rise	11716 Jun 08 00:42	10° II 11'01		max. Earth dist.	11722 Jun 05 20:27	22° II 45'02	31.15087 AU
retrograde	11716 Sep 03 22:50	12° II 05'01		morning rise	11722 Jun 21 12:17	23° II 20'15	
opposition	11716 Nov 22 05:07	10° II 42'12	-0°09'01	retrograde	11722 Sep 17 19:12	25° II 15'04	
min. Earth dist.	11716 Nov 22 13:34	10° II 41'38	29.20670 AU	opposition	11722 Dec 06 07:26	23° II 52'07	-0°20'03
direct	11717 Feb 10 15:14	9° II 18'12		min. Earth dist.	11722 Dec 06 12:54	23° II 51'45	29.14583 AU
evening set	11717 May 10 11:53	11° II 12'46		direct	11723 Feb 24 12:33	22° II 28'21	
				evening set	11723 May 24 00:58	24° II 23'02	

conjunction	11723 Jun 08 11:53	24°II57'47	-0°19'34	retrograde	11729 Oct 03 06:56	10° 5 42'49	
minimum elong	11723 Jun 08 11:52	24°II57'47	0°20'21	opposition	11729 Dec 22 00:40	9° 5 19'19	-0°31'37
max. Earth dist.	11723 Jun 08 06:47	24°II57'19	31.14048 AU	min. Earth dist.	11729 Dec 22 02:06	9° 5 19'13	29.05440 AU
morning rise	11723 Jun 23 22:26	25°II32'32		direct	11730 Mar 11 23:10	7° 5 55'25	
retrograde	11723 Sep 20 07:22	27°II27'30		evening set	11730 Jun 08 01:36	9° 5 49'57	
opposition	11723 Dec 08 20:06	26°II04'31	-0°21'49				
min. Earth dist.	11723 Dec 09 00:05	26°II04'15	29.13492 AU	conjunction	11730 Jun 23 12:02	10° 5 24'45	-0°30'15
direct	11724 Feb 26 23:36	24°II40'46		minimum elong	11730 Jun 23 12:02	10° 5 24'45	0°31'01
evening set	11724 May 25 11:26	26°II35'27		max. Earth dist.	11730 Jun 23 10:48	10° 5 24'38	31.04840 AU
				morning rise	11730 Jul 08 22:50	10° 5 59'36	
conjunction	11724 Jun 09 22:13	27°II10'12	-0°21'12	retrograde	11730 Oct 05 19:30	12° 5 55'17	
minimum elong	11724 Jun 09 22:13	27°II10'12	0°21'58	opposition	11730 Dec 24 13:28	11° 5 31'44	-0°33'07
max. Earth dist.	11724 Jun 09 17:19	27°II09'45	31.12897 AU	min. Earth dist.	11730 Dec 24 13:13	11° 5 31'45	29.04285 AU
morning rise	11724 Jun 25 08:45	27°II44'59		direct	11731 Mar 14 10:57	10° 5 07'50	
retrograde	11724 Sep 21 18:36	29°II40'04		evening set	11731 Jun 10 11:50	12° 5 02'21	
opposition	11724 Dec 10 08:54	28°II17'02	-0°23'33				
min. Earth dist.	11724 Dec 10 13:34	28°II16'43	29.12294 AU	conjunction	11731 Jun 25 22:20	12° 5 37'10	-0°31'37
direct	11725 Feb 28 10:20	26°II53'17		minimum elong	11731 Jun 25 22:20	12° 5 37'10	0°32'24
evening set	11725 May 27 21:48	28°II47'57		max. Earth dist.	11731 Jun 25 22:32	12° 5 37'12	31.03737 AU
				morning rise	11731 Jul 11 09:06	13° 5 12'03	
conjunction	11725 Jun 12 08:36	29°II22'43	-0°22'48	retrograde	11731 Oct 08 06:23	15° 5 07'51	
minimum elong	11725 Jun 12 08:36	29°II22'43	0°23'35	opposition	11731 Dec 27 02:30	13° 5 44'16	-0°34'33
max. Earth dist.	11725 Jun 12 04:34	29°II22'21	31.11640 AU	min. Earth dist.	11731 Dec 27 02:15	13° 5 44'17	29.03244 AU
morning rise	11725 Jun 27 19:06	29°II57'30		direct	11732 Mar 15 22:54	12° 5 20'25	
	11725 Jun 28 22:15	0° 5		evening set	11732 Jun 11 22:16	14° 5 14'55	
retrograde	11725 Sep 24 06:27	1° 5 52'42					
opposition	11725 Dec 12 21:36	0° 5 29'36	-0°25'14	conjunction	11732 Jun 27 08:45	14° 5 49'45	-0°32'57
min. Earth dist.	11725 Dec 13 01:06	0° 5 29'21	29.10966 AU	minimum elong	11732 Jun 27 08:44	14° 5 49'45	0°33'42
	11725 Dec 31 09:30	30° 8 II		max. Earth dist.	11732 Jun 27 09:36	14° 5 49'50	31.02755 AU
direct	11726 Mar 02 22:44	29°II05'49		morning rise	11732 Jul 12 19:39	15° 5 24'39	
	11726 Apr 30 07:31	0° 5		retrograde	11732 Oct 09 19:08	17° 5 20'36	
evening set	11726 May 30 08:19	1° 5 00'28		opposition	11732 Dec 28 15:16	15° 5 56'59	-0°35'57
				min. Earth dist.	11732 Dec 28 13:13	15° 5 57'07	29.02299 AU
conjunction	11726 Jun 14 18:55	1° 5 35'15	-0°24'22	direct	11733 Mar 18 10:33	14° 5 33'10	
minimum elong	11726 Jun 14 18:55	1° 5 35'15	0°25'08	evening set	11733 Jun 14 08:46	16° 5 27'41	
max. Earth dist.	11726 Jun 14 14:25	1° 5 34'49	31.10260 AU				
morning rise	11726 Jun 30 05:32	2° 5 10'02		conjunction	11733 Jun 29 19:14	17° 5 02'32	-0°34'13
retrograde	11726 Sep 26 19:04	4° 5 05'20		minimum elong	11733 Jun 29 19:14	17° 5 02'32	0°35'00
opposition	11726 Dec 15 10:22	2° 5 42'08	-0°26'54	max. Earth dist.	11733 Jun 29 20:35	17° 5 02'40	31.01836 AU
min. Earth dist.	11726 Dec 15 13:59	2° 5 41'53	29.09554 AU	morning rise	11733 Jul 15 06:17	17° 5 37'28	
direct	11727 Mar 05 08:52	1° 5 18'19		retrograde	11733 Oct 12 06:33	19° 5 33'33	
evening set	11727 Jun 01 18:36	3° 5 12'55		opposition	11733 Dec 31 04:21	18° 5 09'56	-0°37'17
				min. Earth dist.	11733 Dec 31 02:41	18° 5 10'02	29.01405 AU
conjunction	11727 Jun 17 05:18	3° 5 47'42	-0°25'53	direct	11734 Mar 20 20:59	16° 5 46'09	
minimum elong	11727 Jun 17 05:17	3° 5 47'42	0°26'41	evening set	11734 Jun 16 19:18	18° 5 40'42	
max. Earth dist.	11727 Jun 17 02:22	3° 5 47'26	31.08827 AU				
morning rise	11727 Jul 02 15:48	4° 5 22'31		conjunction	11734 Jul 02 05:51	19° 5 15'34	-0°35'27
retrograde	11727 Sep 29 06:16	6° 5 17'54		minimum elong	11734 Jul 02 05:50	19° 5 15'34	0°36'12
opposition	11727 Dec 17 23:10	4° 5 54'35	-0°28'31	max. Earth dist.	11734 Jul 02 08:28	19° 5 15'49	31.00951 AU
min. Earth dist.	11727 Dec 18 01:51	4° 5 54'24	29.08111 AU	morning rise	11734 Jul 17 16:53	19° 5 50'31	
direct	11728 Mar 06 22:22	3° 5 30'44		retrograde	11734 Oct 14 18:39	21° 5 46'45	
evening set	11728 Jun 03 04:53	5° 5 25'18		opposition	11735 Jan 02 17:20	20° 5 23'07	-0°38'34
				min. Earth dist.	11735 Jan 02 14:18	20° 5 23'20	29.00512 AU
conjunction	11728 Jun 18 15:22	6° 5 00'05	-0°27'23	direct	11735 Mar 23 08:45	18° 5 59'24	
minimum elong	11728 Jun 18 15:22	6° 5 00'05	0°28'09	evening set	11735 Jun 19 06:05	20° 5 53'58	
max. Earth dist.	11728 Jun 18 12:11	5° 5 59'47	31.07405 AU				
morning rise	11728 Jul 04 02:06	6° 5 34'54		conjunction	11735 Jul 04 16:31	21° 5 28'51	-0°36'38
retrograde	11728 Sep 30 20:07	8° 5 30'23		minimum elong	11735 Jul 04 16:31	21° 5 28'51	0°37'23
opposition	11728 Dec 19 11:58	7° 5 06'58	-0°30'05	max. Earth dist.	11735 Jul 04 18:49	21° 5 29'04	31.00045 AU
min. Earth dist.	11728 Dec 19 13:44	7° 5 06'51	29.06730 AU	morning rise	11735 Jul 20 03:48	22° 5 03'49	
direct	11729 Mar 09 10:27	5° 5 43'05		retrograde	11735 Oct 17 08:12	24° 5 00'14	
evening set	11729 Jun 05 15:10	7° 5 37'37		opposition	11736 Jan 05 06:35	22° 5 36'34	-0°39'48
				min. Earth dist.	11736 Jan 05 03:40	22° 5 36'46	28.99594 AU
conjunction	11729 Jun 21 01:46	8° 5 12'25	-0°28'50	direct	11736 Mar 24 18:15	21° 5 12'53	
minimum elong	11729 Jun 21 01:46	8° 5 12'25	0°29'37	evening set	11736 Jun 20 16:44	23° 5 07'28	
max. Earth dist.	11729 Jun 21 00:26	8° 5 12'17	31.06059 AU				
morning rise	11729 Jul 06 12:23	8° 5 47'15		conjunction	11736 Jul 06 03:23	23° 5 42'22	-0°37'45

minimum elong	11736 Jul 06 03:23	23° $\mathring{\text{O}}$ 42'22	0°38'29	opposition	11743 Jan 21 03:02	8° $\mathring{\text{O}}$ 13'34	-0°46'39
max. Earth dist.	11736 Jul 06 07:06	23° $\mathring{\text{O}}$ 42'43	30.99086 AU	min. Earth dist.	11743 Jan 20 20:37	8° $\mathring{\text{O}}$ 14'01	28.91420 AU
morning rise	11736 Jul 21 14:39	24° $\mathring{\text{O}}$ 17'22		direct	11743 Apr 10 09:23	6° $\mathring{\text{O}}$ 49'50	
retrograde	11736 Oct 18 20:39	26° $\mathring{\text{O}}$ 13'55		evening set	11743 Jul 06 21:03	8° $\mathring{\text{O}}$ 44'19	
opposition	11737 Jan 06 19:48	24° $\mathring{\text{O}}$ 50'14	-0°40'58				
min. Earth dist.	11737 Jan 06 16:12	24° $\mathring{\text{O}}$ 50'29	28.98581 AU	conjunction	11743 Jul 22 08:22	9° $\mathring{\text{O}}$ 19'20	-0°43'56
direct	11737 Mar 27 07:25	23° $\mathring{\text{O}}$ 26'34		minimum elong	11743 Jul 22 08:22	9° $\mathring{\text{O}}$ 19'20	0°44'36
evening set	11737 Jun 23 03:46	25° $\mathring{\text{O}}$ 21'11		max. Earth dist.	11743 Jul 22 15:59	9° $\mathring{\text{O}}$ 20'03	30.90909 AU
				morning rise	11743 Aug 06 20:55	9° $\mathring{\text{O}}$ 54'29	
conjunction	11737 Jul 08 14:18	25° $\mathring{\text{O}}$ 56'06	-0°38'49	retrograde	11743 Nov 04 13:05	11° $\mathring{\text{O}}$ 51'44	
minimum elong	11737 Jul 08 14:18	25° $\mathring{\text{O}}$ 56'06	0°39'33	opposition	11744 Jan 23 16:09	10° $\mathring{\text{O}}$ 27'34	-0°47'22
max. Earth dist.	11737 Jul 08 17:11	25° $\mathring{\text{O}}$ 56'22	30.98022 AU	min. Earth dist.	11744 Jan 23 08:04	10° $\mathring{\text{O}}$ 28'08	28.90471 AU
morning rise	11737 Jul 24 01:53	26° $\mathring{\text{O}}$ 31'07		direct	11744 Apr 11 21:23	9° $\mathring{\text{O}}$ 03'50	
retrograde	11737 Oct 21 11:41	28° $\mathring{\text{O}}$ 27'47		evening set	11744 Jul 08 08:01	10° $\mathring{\text{O}}$ 58'19	
opposition	11738 Jan 09 08:55	27° $\mathring{\text{O}}$ 04'03	-0°42'05				
min. Earth dist.	11738 Jan 09 04:57	27° $\mathring{\text{O}}$ 04'19	28.97466 AU	conjunction	11744 Jul 23 19:22	11° $\mathring{\text{O}}$ 33'21	-0°44'34
direct	11738 Mar 29 19:07	25° $\mathring{\text{O}}$ 40'24		minimum elong	11744 Jul 23 19:22	11° $\mathring{\text{O}}$ 33'21	0°45'12
evening set	11738 Jun 25 14:40	27° $\mathring{\text{O}}$ 35'00		max. Earth dist.	11744 Jul 24 02:55	11° $\mathring{\text{O}}$ 34'04	30.90020 AU
				morning rise	11744 Aug 08 08:19	12° $\mathring{\text{O}}$ 08'32	
conjunction	11738 Jul 11 01:26	28° $\mathring{\text{O}}$ 09'57	-0°39'49	retrograde	11744 Nov 06 02:24	14° $\mathring{\text{O}}$ 05'54	
minimum elong	11738 Jul 11 01:26	28° $\mathring{\text{O}}$ 09'57	0°40'32	opposition	11745 Jan 25 05:24	12° $\mathring{\text{O}}$ 41'41	-0°48'00
max. Earth dist.	11738 Jul 11 05:38	28° $\mathring{\text{O}}$ 10'20	30.96845 AU	min. Earth dist.	11745 Jan 24 21:16	12° $\mathring{\text{O}}$ 42'15	28.89643 AU
morning rise	11738 Jul 26 13:00	28° $\mathring{\text{O}}$ 44'59		direct	11745 Apr 14 06:58	11° $\mathring{\text{O}}$ 17'59	
	11738 Sep 03 00:11	0° $\mathring{\text{O}}$		evening set	11745 Jul 10 19:00	13° $\mathring{\text{O}}$ 12'27	
retrograde	11738 Oct 23 23:28	0° $\mathring{\text{O}}$ 41'46					
	11738 Dec 16 02:42	30° $\mathring{\text{R}}$ $\mathring{\text{O}}$		conjunction	11745 Jul 26 06:41	13° $\mathring{\text{O}}$ 47'30	-0°45'08
opposition	11739 Jan 11 22:17	29° $\mathring{\text{O}}$ 17'58	-0°43'07	minimum elong	11745 Jul 26 06:41	13° $\mathring{\text{O}}$ 47'30	0°45'45
min. Earth dist.	11739 Jan 11 18:23	29° $\mathring{\text{O}}$ 18'14	28.96235 AU	max. Earth dist.	11745 Jul 26 15:54	13° $\mathring{\text{O}}$ 48'23	30.89236 AU
direct	11739 Apr 01 07:53	27° $\mathring{\text{O}}$ 54'18		morning rise	11745 Aug 10 19:42	14° $\mathring{\text{O}}$ 22'43	
evening set	11739 Jun 28 01:31	29° $\mathring{\text{O}}$ 48'53			11745 Aug 28 07:58	15° $\mathring{\text{O}}$	
	11739 Jul 03 00:50	0° $\mathring{\text{O}}$		retrograde	11745 Nov 08 14:22	16° $\mathring{\text{O}}$ 20'12	
					11746 Jan 25 07:46	15° $\mathring{\text{R}}$ $\mathring{\text{O}}$	
conjunction	11739 Jul 13 12:16	0° $\mathring{\text{O}}$ 23'50	-0°40'46	opposition	11746 Jan 27 18:30	14° $\mathring{\text{O}}$ 55'58	-0°48'34
minimum elong	11739 Jul 13 12:16	0° $\mathring{\text{O}}$ 23'50	0°41'29	min. Earth dist.	11746 Jan 27 09:23	14° $\mathring{\text{O}}$ 56'35	28.88891 AU
max. Earth dist.	11739 Jul 13 16:14	0° $\mathring{\text{O}}$ 24'12	30.95588 AU	direct	11746 Apr 16 19:55	13° $\mathring{\text{O}}$ 32'16	
morning rise	11739 Jul 29 00:09	0° $\mathring{\text{O}}$ 58'54			11746 Jun 30 20:44	15° $\mathring{\text{O}}$	
retrograde	11739 Oct 26 13:15	2° $\mathring{\text{O}}$ 55'46		evening set	11746 Jul 13 06:15	15° $\mathring{\text{O}}$ 26'46	
opposition	11740 Jan 14 11:31	1° $\mathring{\text{O}}$ 31'53	-0°44'06				
min. Earth dist.	11740 Jan 14 06:25	1° $\mathring{\text{O}}$ 32'14	28.94957 AU	conjunction	11746 Jul 28 17:55	16° $\mathring{\text{O}}$ 01'50	-0°45'38
direct	11740 Apr 02 20:29	0° $\mathring{\text{O}}$ 08'11		minimum elong	11746 Jul 28 17:56	16° $\mathring{\text{O}}$ 01'50	0°46'13
evening set	11740 Jun 29 12:23	2° $\mathring{\text{O}}$ 02'44		max. Earth dist.	11746 Jul 29 02:41	16° $\mathring{\text{O}}$ 02'40	30.88523 AU
				morning rise	11746 Aug 13 07:21	16° $\mathring{\text{O}}$ 37'04	
conjunction	11740 Jul 14 23:18	2° $\mathring{\text{O}}$ 37'42	-0°41'39	retrograde	11746 Nov 11 05:10	18° $\mathring{\text{O}}$ 34'40	
minimum elong	11740 Jul 14 23:18	2° $\mathring{\text{O}}$ 37'42	0°42'21	opposition	11747 Jan 30 07:50	17° $\mathring{\text{O}}$ 10'24	-0°49'04
max. Earth dist.	11740 Jul 15 04:21	2° $\mathring{\text{O}}$ 38'11	30.94298 AU	min. Earth dist.	11747 Jan 29 22:08	17° $\mathring{\text{O}}$ 11'04	28.88207 AU
morning rise	11740 Jul 30 11:19	3° $\mathring{\text{O}}$ 12'47		direct	11747 Apr 19 06:19	15° $\mathring{\text{O}}$ 46'44	
retrograde	11740 Oct 28 01:16	5° $\mathring{\text{O}}$ 09'45		evening set	11747 Jul 15 17:20	17° $\mathring{\text{O}}$ 41'14	
opposition	11741 Jan 16 00:41	3° $\mathring{\text{O}}$ 45'46	-0°45'01				
min. Earth dist.	11741 Jan 15 19:54	3° $\mathring{\text{O}}$ 46'06	28.93688 AU	conjunction	11747 Jul 31 05:20	18° $\mathring{\text{O}}$ 16'20	-0°46'03
direct	11741 Apr 05 09:33	2° $\mathring{\text{O}}$ 22'03		minimum elong	11747 Jul 31 05:20	18° $\mathring{\text{O}}$ 16'20	0°46'38
evening set	11741 Jul 01 23:17	4° $\mathring{\text{O}}$ 16'34		max. Earth dist.	11747 Jul 31 15:41	18° $\mathring{\text{O}}$ 17'19	30.87840 AU
				morning rise	11747 Aug 15 18:52	18° $\mathring{\text{O}}$ 51'35	
conjunction	11741 Jul 17 10:19	4° $\mathring{\text{O}}$ 51'33	-0°42'29	retrograde	11747 Nov 13 17:26	20° $\mathring{\text{O}}$ 49'18	
minimum elong	11741 Jul 17 10:19	4° $\mathring{\text{O}}$ 51'33	0°43'10	opposition	11748 Feb 01 21:15	19° $\mathring{\text{O}}$ 25'01	-0°49'29
max. Earth dist.	11741 Jul 17 15:55	4° $\mathring{\text{O}}$ 52'05	30.93065 AU	min. Earth dist.	11748 Feb 01 11:32	19° $\mathring{\text{O}}$ 25'41	28.87518 AU
morning rise	11741 Aug 01 22:32	5° $\mathring{\text{O}}$ 26'40		direct	11748 Apr 20 18:17	18° $\mathring{\text{O}}$ 01'23	
retrograde	11741 Oct 30 14:33	7° $\mathring{\text{O}}$ 23'43		evening set	11748 Jul 17 04:49	19° $\mathring{\text{O}}$ 55'53	
opposition	11742 Jan 18 13:46	5° $\mathring{\text{O}}$ 59'39	-0°45'52				
min. Earth dist.	11742 Jan 18 07:09	6° $\mathring{\text{O}}$ 00'06	28.92497 AU	conjunction	11748 Aug 01 16:55	20° $\mathring{\text{O}}$ 31'00	-0°46'25
direct	11742 Apr 07 22:21	4° $\mathring{\text{O}}$ 35'55		minimum elong	11748 Aug 01 16:55	20° $\mathring{\text{O}}$ 31'00	0°46'57
evening set	11742 Jul 04 10:09	6° $\mathring{\text{O}}$ 30'25		max. Earth dist.	11748 Aug 02 02:51	20° $\mathring{\text{O}}$ 31'56	30.87143 AU
				morning rise	11748 Aug 17 06:50	21° $\mathring{\text{O}}$ 06'17	
conjunction	11742 Jul 19 21:13	7° $\mathring{\text{O}}$ 05'25	-0°43'14	retrograde	11748 Nov 15 08:44	23° $\mathring{\text{O}}$ 04'06	
minimum elong	11742 Jul 19 21:13	7° $\mathring{\text{O}}$ 05'25	0°43'54	opposition	11749 Feb 03 10:26	21° $\mathring{\text{O}}$ 39'47	-0°49'49
max. Earth dist.	11742 Jul 20 03:23	7° $\mathring{\text{O}}$ 06'00	30.91917 AU	min. Earth dist.	11749 Feb 02 23:53	21° $\mathring{\text{O}}$ 40'30	28.86795 AU
morning rise	11742 Aug 04 09:39	7° $\mathring{\text{O}}$ 40'33		direct	11749 Apr 23 06:44	20° $\mathring{\text{O}}$ 16'09	
retrograde	11742 Nov 02 01:13	9° $\mathring{\text{O}}$ 37'42		evening set	11749 Jul 19 16:21	22° $\mathring{\text{O}}$ 10'40	

conjunction	11749 Aug 04 04:42	22°045'48	-0°46'42	retrograde	11755 Dec 02 03:15	8°04'48"15	
minimum elong	11749 Aug 04 04:42	22°045'48	0°47'14	opposition	11756 Feb 20 07:21	7°04'23"28	-0°50'05
max. Earth dist.	11749 Aug 04 15:17	22°046'49	30.86366 AU	min. Earth dist.	11756 Feb 19 18:18	7°04'24"22	28.80513 AU
morning rise	11749 Aug 19 18:49	23°021'08		direct	11756 May 08 19:56	5°04'59"41	
retrograde	11749 Nov 17 22:06	25°019'01		evening set	11756 Aug 04 01:11	7°04'54"01	
opposition	11750 Feb 05 23:55	23°054'39	-0°50'05				
min. Earth dist.	11750 Feb 05 14:03	23°055'20	28.85972 AU	conjunction	11756 Aug 19 15:23	8°04'29"18	-0°46'42
direct	11750 Apr 25 19:51	22°031'02		minimum elong	11756 Aug 19 15:24	8°04'29"18	0°47'03
evening set	11750 Jul 22 03:51	24°025'32		max. Earth dist.	11756 Aug 20 05:25	8°04'30"38	30.80177 AU
				morning rise	11756 Sep 04 07:39	9°04'04"48	
conjunction	11750 Aug 06 16:25	25°000'41	-0°46'54	retrograde	11756 Dec 03 15:17	11°04'03"06	
minimum elong	11750 Aug 06 16:25	25°000'41	0°47'25	opposition	11757 Feb 21 20:17	9°04'38"17	-0°49'49
max. Earth dist.	11750 Aug 07 03:01	25°001'42	30.85497 AU	min. Earth dist.	11757 Feb 21 06:59	9°04'39"13	28.79941 AU
morning rise	11750 Aug 22 06:49	25°036'02		direct	11757 May 11 07:24	8°04'14"32	
retrograde	11750 Nov 20 12:09	27°034'00		evening set	11757 Aug 06 12:54	10°04'08"52	
opposition	11751 Feb 08 13:17	26°009'34	-0°50'16				
min. Earth dist.	11751 Feb 08 02:08	26°010'20	28.85046 AU	conjunction	11757 Aug 22 03:19	10°04'44"11	-0°46'25
direct	11751 Apr 28 09:12	24°045'56		minimum elong	11757 Aug 22 03:19	10°04'44"11	0°46'46
evening set	11751 Jul 24 15:29	26°040'23		max. Earth dist.	11757 Aug 22 17:09	10°04'45"29	30.79686 AU
				morning rise	11757 Sep 06 20:02	11°04'19"42	
conjunction	11751 Aug 09 04:14	27°015'34	-0°47'03	retrograde	11757 Dec 06 06:35	13°04'18"04	
minimum elong	11751 Aug 09 04:14	27°015'34	0°47'33	opposition	11758 Feb 24 09:19	11°04'53"15	-0°49'29
max. Earth dist.	11751 Aug 09 14:48	27°016'34	30.84524 AU	min. Earth dist.	11758 Feb 23 18:56	11°04'54"15	28.79517 AU
morning rise	11751 Aug 24 19:00	27°050'56		direct	11758 May 13 19:32	10°04'29"31	
retrograde	11751 Nov 23 00:13	29°048'57		evening set	11758 Aug 09 00:32	12°04'23"52	
opposition	11752 Feb 11 02:42	28°024'27	-0°50'23				
min. Earth dist.	11752 Feb 10 16:19	28°025'10	28.84048 AU	conjunction	11758 Aug 24 15:17	12°04'59"12	-0°46'04
direct	11752 Apr 29 21:04	27°000'46		minimum elong	11758 Aug 24 15:17	12°04'59"12	0°46'22
evening set	11752 Jul 26 02:55	28°055'11		max. Earth dist.	11758 Aug 25 06:13	13°04'00"37	30.79312 AU
				morning rise	11758 Sep 09 08:16	13°04'34"45	
conjunction	11752 Aug 10 16:04	29°030'23	-0°47'07	retrograde	11758 Dec 08 20:04	15°04'33"12	
minimum elong	11752 Aug 10 16:05	29°030'23	0°47'35	opposition	11759 Feb 26 22:29	14°04'08"22	-0°49'04
max. Earth dist.	11752 Aug 11 03:39	29°031'29	30.83515 AU	min. Earth dist.	11759 Feb 26 08:29	14°04'09"21	28.79198 AU
	11752 Aug 23 16:56	0°04'00"00		direct	11759 May 16 08:02	12°04'44"40	
morning rise	11752 Aug 26 07:05	0°04'05"47		evening set	11759 Aug 11 12:22	14°04'39"03	
retrograde	11752 Nov 24 12:59	2°04'03"50					
opposition	11753 Feb 12 15:52	0°04'39"15	-0°50'25	conjunction	11759 Aug 27 03:26	15°04'14"24	-0°45'39
min. Earth dist.	11753 Feb 12 04:15	0°04'40"03	28.83030 AU	minimum elong	11759 Aug 27 03:26	15°04'14"24	0°45'56
	11753 Mar 09 06:08	30°04'00"00		max. Earth dist.	11759 Aug 27 18:37	15°04'15"50	30.79047 AU
direct	11753 May 02 10:18	29°015'32		morning rise	11759 Sep 11 20:48	15°04'49"59	
	11753 Jun 23 04:48	0°04'00"00		retrograde	11759 Dec 11 10:44	17°04'48"30	
evening set	11753 Jul 28 14:33	1°04'09"55		opposition	11760 Feb 29 11:25	16°04'23"41	-0°48'34
				min. Earth dist.	11760 Feb 28 20:07	16°04'24"45	28.78960 AU
conjunction	11753 Aug 13 03:48	1°04'45"08	-0°47'07	direct	11760 May 17 20:30	15°04'00"00	
minimum elong	11753 Aug 13 03:48	1°04'45"08	0°47'34	evening set	11760 Aug 13 00:22	16°04'54"24	
max. Earth dist.	11753 Aug 13 15:01	1°04'46"12	30.82512 AU				
morning rise	11753 Aug 28 19:14	2°04'20"33		conjunction	11760 Aug 28 15:43	17°04'29"47	-0°45'09
retrograde	11753 Nov 27 01:44	4°04'18"40		minimum elong	11760 Aug 28 15:43	17°04'29"47	0°45'23
opposition	11754 Feb 15 05:03	2°04'54"00	-0°50'23	max. Earth dist.	11760 Aug 29 06:55	17°04'31"14	30.78817 AU
min. Earth dist.	11754 Feb 14 17:41	2°04'54"47	28.82072 AU	morning rise	11760 Sep 13 09:29	18°04'05"25	
direct	11754 May 04 20:51	1°04'30"15		retrograde	11760 Dec 13 00:18	20°04'03"59	
evening set	11754 Jul 31 02:02	3°04'24"36		min. Earth dist.	11761 Mar 02 10:11	18°04'40"10	28.78736 AU
				opposition	11761 Mar 03 00:34	18°04'39"10	-0°48'00
conjunction	11754 Aug 15 15:41	3°04'59"50	-0°47'03	direct	11761 May 20 08:36	17°04'15"32	
minimum elong	11754 Aug 15 15:41	3°04'59"50	0°47'27	evening set	11761 Aug 15 12:25	19°04'09"56	
max. Earth dist.	11754 Aug 16 04:32	4°04'01"03	30.81601 AU				
morning rise	11754 Aug 31 07:16	4°04'35"17		conjunction	11761 Aug 31 04:10	19°04'45"20	-0°44'35
retrograde	11754 Nov 29 13:14	6°04'33"27		minimum elong	11761 Aug 31 04:10	19°04'45"20	0°44'48
opposition	11755 Feb 17 18:11	5°04'08'43	-0°50'16	max. Earth dist.	11761 Aug 31 20:02	19°04'46"51	30.78580 AU
min. Earth dist.	11755 Feb 17 05:43	5°04'09'35	28.81217 AU	morning rise	11761 Sep 15 22:09	20°04'20"59	
direct	11755 May 07 09:51	3°04'44'57		retrograde	11761 Dec 15 15:03	22°04'19"36	
evening set	11755 Aug 02 13:35	5°04'39'17		opposition	11762 Mar 05 13:33	20°04'54"47	-0°47'21
				min. Earth dist.	11762 Mar 04 22:14	20°04'55"51	28.78467 AU
conjunction	11755 Aug 18 03:22	6°04'14"32	-0°46'55	direct	11762 May 22 22:26	19°04'31"09	
minimum elong	11755 Aug 18 03:22	6°04'14"32	0°47'18	evening set	11762 Aug 18 00:44	21°04'25"33	
max. Earth dist.	11755 Aug 18 15:47	6°04'15"43	30.80818 AU				
morning rise	11755 Sep 02 19:27	6°04'50"00		conjunction	11762 Sep 02 16:40	22°04'00"59	-0°43'57

minimum elong	11762 Sep 02 16:40	22° 00 '59	0°44'07	opposition	11769 Mar 21 07:32	6° 42 '22	-0°40'54
max. Earth dist.	11762 Sep 03 07:41	22° 00 '25	30.78276 AU	min. Earth dist.	11769 Mar 20 15:04	6° 43 '31	28.76261 AU
morning rise	11762 Sep 18 11:08	22° 00 '36'40		direct	11769 Jun 07 09:49	5° 48 '18'30	
retrograde	11762 Dec 18 03:49	24° 00 '35'18		evening set	11769 Sep 02 14:17	7° 48 '12'40	
opposition	11763 Mar 08 02:46	23° 00 '10'27	-0°46'38				
min. Earth dist.	11763 Mar 07 12:15	23° 00 '11'28	28.78131 AU	conjunction	11769 Sep 18 08:45	7° 48 '14	-0°37'43
direct	11763 May 25 09:37	21° 00 '46'49		minimum elong	11769 Sep 18 08:45	7° 48 '14	0°37'42
evening set	11763 Aug 20 12:50	23° 00 '41'11		max. Earth dist.	11769 Sep 19 01:33	7° 49 '49	30.76258 AU
				morning rise	11769 Oct 04 05:46	8° 49 '24'03	
conjunction	11763 Sep 05 05:18	24° 00 '16'38	-0°43'15	retrograde	11770 Jan 02 22:15	10° 49 '22'35	
minimum elong	11763 Sep 05 05:18	24° 00 '16'38	0°43'24	opposition	11770 Mar 23 20:14	8° 49 '57'26	-0°39'43
max. Earth dist.	11763 Sep 05 21:17	24° 00 '18'09	30.77900 AU	min. Earth dist.	11770 Mar 23 04:26	8° 49 '58'32	28.76358 AU
morning rise	11763 Sep 21 00:01	24° 00 '52'20		direct	11770 Jun 09 22:03	7° 49 '33'35	
retrograde	11763 Dec 20 15:30	26° 00 '50'59		evening set	11770 Sep 05 02:34	9° 49 '27'45	
opposition	11764 Mar 09 15:47	25° 00 '26'05	-0°45'51				
min. Earth dist.	11764 Mar 09 00:47	25° 00 '27'08	28.77709 AU	conjunction	11770 Sep 20 21:31	10° 49 '03'21	-0°36'35
direct	11764 May 26 23:01	24° 00 '02'25		minimum elong	11770 Sep 20 21:32	10° 49 '03'21	0°36'31
evening set	11764 Aug 22 01:12	25° 00 '56'44		max. Earth dist.	11770 Sep 21 15:09	10° 49 '05'01	30.76438 AU
				morning rise	11770 Oct 06 18:50	10° 49 '39'11	
conjunction	11764 Sep 06 17:52	26° 00 '32'13	-0°42'29	retrograde	11771 Jan 05 12:58	12° 49 '37'43	
minimum elong	11764 Sep 06 17:52	26° 00 '32'13	0°42'36	opposition	11771 Mar 26 08:45	11° 49 '12'35	-0°38'28
max. Earth dist.	11764 Sep 07 08:43	26° 00 '33'37	30.77461 AU	min. Earth dist.	11771 Mar 25 15:46	11° 49 '13'46	28.76599 AU
morning rise	11764 Sep 22 13:07	27° 00 '07'56		direct	11771 Jun 12 11:40	9° 49 '48'46	
retrograde	11764 Dec 22 05:00	29° 00 '06'33		evening set	11771 Sep 07 15:02	11° 49 '42'57	
opposition	11765 Mar 12 04:36	27° 00 '41'36	-0°44'59				
min. Earth dist.	11765 Mar 11 13:44	27° 00 '42'38	28.77265 AU	conjunction	11771 Sep 23 10:14	12° 49 '18'33	-0°35'24
direct	11765 May 29 09:31	26° 00 '17'52		minimum elong	11771 Sep 23 10:14	12° 49 '18'33	0°35'18
evening set	11765 Aug 24 13:22	28° 00 '12'09		max. Earth dist.	11771 Sep 24 03:20	12° 49 '20'10	30.76739 AU
				morning rise	11771 Oct 09 08:03	12° 49 '54'25	
conjunction	11765 Sep 09 06:32	28° 00 '47'39	-0°41'39	retrograde	11772 Jan 08 02:10	14° 49 '52'58	
minimum elong	11765 Sep 09 06:32	28° 00 '47'39	0°41'45	opposition	11772 Mar 27 21:25	13° 49 '27'52	-0°37'10
max. Earth dist.	11765 Sep 09 22:36	28° 00 '49'10	30.77018 AU	min. Earth dist.	11772 Mar 27 05:11	13° 49 '29'00	28.76954 AU
morning rise	11765 Sep 25 02:00	29° 00 '23'23		direct	11772 Jun 13 22:37	12° 49 '04'05	
	11765 Oct 12 07:07	0° 49 '		evening set	11772 Sep 09 03:33	13° 49 '58'17	
retrograde	11765 Dec 24 16:31	1° 49 '21'59					
	11766 Mar 12 21:55	30° 49 ' 00 '		conjunction	11772 Sep 24 23:17	14° 49 '33'56	-0°34'09
opposition	11766 Mar 14 17:29	29° 49 '56'57	-0°44'04	minimum elong	11772 Sep 24 23:17	14° 49 '33'56	0°34'01
min. Earth dist.	11766 Mar 14 02:37	29° 49 '58'00	28.76841 AU	max. Earth dist.	11772 Sep 25 17:24	14° 49 '35'38	30.77129 AU
direct	11766 May 31 21:57	28° 49 '33'11		morning rise	11772 Oct 10 21:17	15° 49 '09'49	
	11766 Aug 14 07:32	0° 49 '		retrograde	11773 Jan 09 15:05	17° 49 '08'21	
evening set	11766 Aug 27 01:31	0° 49 '27'25		opposition	11773 Mar 30 09:48	15° 49 '43'19	-0°35'48
				min. Earth dist.	11773 Mar 29 17:09	15° 49 '44'29	28.77354 AU
conjunction	11766 Sep 11 18:54	1° 49 '02'55	-0°40'46	direct	11773 Jun 16 11:41	14° 49 '19'35	
minimum elong	11766 Sep 11 18:55	1° 49 '02'55	0°40'49	evening set	11773 Sep 11 16:22	16° 49 '13'49	
max. Earth dist.	11766 Sep 12 10:31	1° 49 '04'24	30.76641 AU				
morning rise	11766 Sep 27 14:52	1° 49 '38'41		conjunction	11773 Sep 27 12:16	16° 49 '49'28	-0°32'51
retrograde	11766 Dec 27 06:13	3° 49 '37'16		minimum elong	11773 Sep 27 12:16	16° 49 '49'28	0°32'41
opposition	11767 Mar 17 06:17	2° 49 '12'11	-0°43'05	max. Earth dist.	11773 Sep 28 05:08	16° 49 '51'04	30.77538 AU
min. Earth dist.	11767 Mar 16 14:38	2° 49 '13'16	28.76517 AU	morning rise	11773 Oct 13 10:46	17° 49 '25'23	
direct	11767 Jun 03 09:45	0° 49 '48'22		retrograde	11774 Jan 12 05:31	19° 49 '23'56	
evening set	11767 Aug 29 13:44	2° 49 '42'34		opposition	11774 Apr 01 22:24	17° 49 '58'56	-0°34'22
				min. Earth dist.	11774 Apr 01 06:09	18° 49 '00'05	28.77759 AU
conjunction	11767 Sep 14 07:33	3° 49 '18'05	-0°39'48	direct	11774 Jun 18 22:04	16° 49 '35'14	
minimum elong	11767 Sep 14 07:33	3° 49 '18'05	0°39'51	evening set	11774 Sep 14 05:00	18° 49 '29'29	
max. Earth dist.	11767 Sep 15 00:07	3° 49 '19'39	30.76366 AU				
morning rise	11767 Sep 30 03:48	3° 49 '53'51		conjunction	11774 Sep 30 01:24	19° 49 '05'10	-0°31'29
retrograde	11767 Dec 29 18:20	5° 49 '52'25		minimum elong	11774 Sep 30 01:24	19° 49 '05'10	0°31'18
opposition	11768 Mar 18 18:58	4° 49 '27'18	-0°42'01	max. Earth dist.	11774 Sep 30 19:04	19° 49 '06'50	30.77908 AU
min. Earth dist.	11768 Mar 18 03:49	4° 49 '28'21	28.76314 AU	morning rise	11774 Oct 16 00:05	19° 49 '41'06	
direct	11768 Jun 04 21:30	3° 49 '03'27		retrograde	11775 Jan 14 17:14	21° 49 '39'39	
evening set	11768 Aug 31 02:00	4° 49 '57'38		opposition	11775 Apr 04 11:00	20° 49 '14'41	-0°32'54
				min. Earth dist.	11775 Apr 03 19:12	20° 49 '15'47	28.78085 AU
conjunction	11768 Sep 15 20:11	5° 49 '33'10	-0°38'48	direct	11775 Jun 21 10:33	18° 49 '50'59	
minimum elong	11768 Sep 15 20:12	5° 49 '33'10	0°38'48	evening set	11775 Sep 16 18:00	20° 49 '45'14	
max. Earth dist.	11768 Sep 16 12:47	5° 49 '34'44	30.76243 AU				
morning rise	11768 Oct 01 16:51	6° 49 '08'58		conjunction	11775 Oct 02 14:41	21° 49 '20'56	-0°30'05
retrograde	11768 Dec 31 08:48	8° 49 '07'30		minimum elong	11775 Oct 02 14:41	21° 49 '20'56	0°29'53

max. Earth dist.	11775 Oct 03 07:01	21° <u>0</u> 22'28	30.78199 AU	opposition	11782 Apr 20 00:27	6° <u>0</u> 02'45	-0°21'20
morning rise	11775 Oct 18 13:52	21° <u>0</u> 56'53		direct	11782 Jul 07 01:14	4° <u>0</u> 38'50	
retrograde	11776 Jan 17 06:42	23° <u>0</u> 55'24		evening set	11782 Oct 02 11:53	6° <u>0</u> 32'58	
opposition	11776 Apr 05 23:24	22° <u>0</u> 30'26	-0°31'22				
min. Earth dist.	11776 Apr 05 07:34	22° <u>0</u> 31'33	28.78331 AU	conjunction	11782 Oct 18 11:00	7° <u>0</u> 08'46	-0°19'11
direct	11776 Jun 22 21:53	21° <u>0</u> 06'44		minimum elong	11782 Oct 18 11:00	7° <u>0</u> 08'46	0°18'46
evening set	11776 Sep 18 06:54	23° <u>0</u> 00'59		max. Earth dist.	11782 Oct 19 02:22	7° <u>0</u> 10'13	30.80233 AU
				morning rise	11782 Nov 03 12:27	7° <u>0</u> 44'47	
conjunction	11776 Oct 04 04:02	23° <u>0</u> 36'42	-0°28'39	retrograde	11783 Feb 02 03:44	9° <u>0</u> 42'47	
minimum elong	11776 Oct 04 04:02	23° <u>0</u> 36'42	0°28'24	opposition	11783 Apr 22 12:28	8° <u>0</u> 17'47	-0°19'32
max. Earth dist.	11776 Oct 04 20:40	23° <u>0</u> 38'16	30.78395 AU	min. Earth dist.	11783 Apr 21 21:42	8° <u>0</u> 18'49	28.80591 AU
morning rise	11776 Oct 20 03:27	24° <u>0</u> 12'39		direct	11783 Jul 09 12:40	6° <u>0</u> 53'52	
retrograde	11777 Jan 18 18:29	26° <u>0</u> 11'07		evening set	11783 Oct 05 00:46	8° <u>0</u> 48'00	
opposition	11777 Apr 08 11:52	24° <u>0</u> 46'09	-0°29'48				
min. Earth dist.	11777 Apr 07 21:08	24° <u>0</u> 47'11	28.78493 AU	conjunction	11783 Oct 21 00:24	9° <u>0</u> 23'49	-0°17'29
direct	11777 Jun 25 09:12	23° <u>0</u> 22'25		minimum elong	11783 Oct 21 00:24	9° <u>0</u> 23'49	0°17'03
evening set	11777 Sep 20 19:41	25° <u>0</u> 16'38		max. Earth dist.	11783 Oct 21 16:45	9° <u>0</u> 25'21	30.80943 AU
				morning rise	11783 Nov 06 01:57	9° <u>0</u> 59'51	
conjunction	11777 Oct 06 17:09	25° <u>0</u> 52'22	-0°27'09	retrograde	11784 Feb 04 14:50	11° <u>0</u> 57'46	
minimum elong	11777 Oct 06 17:09	25° <u>0</u> 52'22	0°26'53	min. Earth dist.	11784 Apr 23 09:44	10° <u>0</u> 33'50	28.81352 AU
max. Earth dist.	11777 Oct 07 09:11	25° <u>0</u> 53'52	30.78549 AU	opposition	11784 Apr 24 00:16	10° <u>0</u> 32'49	-0°17'43
morning rise	11777 Oct 22 16:57	26° <u>0</u> 28'20		direct	11784 Jul 11 01:13	9° <u>0</u> 08'55	
retrograde	11778 Jan 21 08:25	28° <u>0</u> 26'44		evening set	11784 Oct 06 13:51	11° <u>0</u> 03'03	
min. Earth dist.	11778 Apr 10 08:38	27° <u>0</u> 02'50	28.78638 AU				
opposition	11778 Apr 11 00:08	27° <u>0</u> 01'45	-0°28'11	conjunction	11784 Oct 22 13:40	11° <u>0</u> 38'53	-0°15'46
direct	11778 Jun 27 21:28	25° <u>0</u> 37'57		minimum elong	11784 Oct 22 13:40	11° <u>0</u> 38'53	0°15'18
evening set	11778 Sep 23 08:34	27° <u>0</u> 32'09		behind sun begin	11784 Oct 22 11:51	11° <u>0</u> 38'43	
				behind sun end	11784 Oct 22 15:29	11° <u>0</u> 39'03	
conjunction	11778 Oct 09 06:20	28° <u>0</u> 07'54	-0°25'38	max. Earth dist.	11784 Oct 23 04:52	11° <u>0</u> 40'18	30.81763 AU
minimum elong	11778 Oct 09 06:20	28° <u>0</u> 07'54	0°25'20	morning rise	11784 Nov 07 15:39	12° <u>0</u> 14'55	
max. Earth dist.	11778 Oct 09 22:12	28° <u>0</u> 09'23	30.78700 AU	retrograde	11785 Feb 06 04:13	14° <u>0</u> 12'46	
morning rise	11778 Oct 25 06:29	28° <u>0</u> 43'53		opposition	11785 Apr 26 12:07	12° <u>0</u> 47'53	-0°15'51
	11778 Dec 03 12:31	0° <u>0</u>		min. Earth dist.	11785 Apr 25 21:27	12° <u>0</u> 48'55	28.82206 AU
retrograde	11779 Jan 23 21:16	0° <u>0</u> 42'12		direct	11785 Jul 13 12:06	11° <u>0</u> 24'00	
	11779 Mar 17 20:04	30° <u>0</u> 8'0		evening set	11785 Oct 09 02:48	13° <u>0</u> 18'09	
opposition	11779 Apr 13 12:25	29° <u>0</u> 17'11	-0°26'32				
min. Earth dist.	11779 Apr 12 22:02	29° <u>0</u> 18'12	28.78818 AU	conjunction	11785 Oct 25 03:00	13° <u>0</u> 54'00	-0°14'01
direct	11779 Jun 30 10:09	27° <u>0</u> 53'21		minimum elong	11785 Oct 25 02:59	13° <u>0</u> 54'00	0°13'32
evening set	11779 Sep 25 21:19	29° <u>0</u> 47'32		behind sun begin	11785 Oct 24 23:26	13° <u>0</u> 53'41	
	11779 Oct 01 12:03	0° <u>0</u>		behind sun end	11785 Oct 25 06:33	13° <u>0</u> 54'19	
conjunction	11779 Oct 11 19:34	0° <u>0</u> 23'17	-0°24'04	max. Earth dist.	11785 Oct 25 18:45	13° <u>0</u> 55'28	30.82627 AU
minimum elong	11779 Oct 11 19:35	0° <u>0</u> 23'18	0°23'44	morning rise	11785 Nov 10 05:06	14° <u>0</u> 30'02	
max. Earth dist.	11779 Oct 12 11:45	0° <u>0</u> 24'49	30.78920 AU		11785 Nov 24 06:46	15° <u>0</u>	
morning rise	11779 Oct 27 20:00	0° <u>0</u> 59'17		retrograde	11786 Feb 08 15:59	16° <u>0</u> 27'50	
retrograde	11780 Jan 26 11:13	2° <u>0</u> 57'31		min. Earth dist.	11786 Apr 28 10:33	15° <u>0</u> 03'57	28.83072 AU
min. Earth dist.	11780 Apr 14 09:11	1° <u>0</u> 33'34	28.79073 AU	opposition	11786 Apr 29 00:04	15° <u>0</u> 03'00	-0°13'58
opposition	11780 Apr 15 00:27	1° <u>0</u> 32'29	-0°24'50		11786 Apr 30 18:50	15° <u>0</u> 18'0	
direct	11780 Jul 02 00:05	0° <u>0</u> 08'37		direct	11786 Jul 15 22:58	13° <u>0</u> 39'08	
evening set	11780 Sep 27 10:17	2° <u>0</u> 02'47			11786 Sep 25 21:35	15° <u>0</u>	
				evening set	11786 Oct 11 16:01	15° <u>0</u> 33'19	
conjunction	11780 Oct 13 08:43	2° <u>0</u> 38'33	-0°22'28	conjunction	11786 Oct 27 16:29	16° <u>0</u> 09'10	-0°12'16
minimum elong	11780 Oct 13 08:43	2° <u>0</u> 38'33	0°22'06	minimum elong	11786 Oct 27 16:29	16° <u>0</u> 09'10	0°11'45
max. Earth dist.	11780 Oct 14 00:11	2° <u>0</u> 40'00	30.79221 AU	behind sun begin	11786 Oct 27 11:55	16° <u>0</u> 08'45	
morning rise	11780 Oct 29 09:32	3° <u>0</u> 14'33		behind sun end	11786 Oct 27 21:02	16° <u>0</u> 09'34	
retrograde	11781 Jan 28 00:05	5° <u>0</u> 12'42		max. Earth dist.	11786 Oct 28 07:14	16° <u>0</u> 10'32	30.83486 AU
opposition	11781 Apr 17 12:29	3° <u>0</u> 47'40	-0°23'06	morning rise	11786 Nov 12 18:54	16° <u>0</u> 45'13	
min. Earth dist.	11781 Apr 16 22:07	3° <u>0</u> 48'41	28.79442 AU	retrograde	11787 Feb 11 05:13	18° <u>0</u> 42'56	
direct	11781 Jul 04 11:15	2° <u>0</u> 23'46		opposition	11787 May 01 11:48	17° <u>0</u> 18'10	-0°12'04
evening set	11781 Sep 29 23:03	4° <u>0</u> 17'55		min. Earth dist.	11787 Apr 30 21:56	17° <u>0</u> 19'08	28.83900 AU
				direct	11787 Jul 18 10:52	15° <u>0</u> 54'17	
conjunction	11781 Oct 15 21:59	4° <u>0</u> 53'42	-0°20'50	evening set	11787 Oct 14 05:20	17° <u>0</u> 48'29	
minimum elong	11781 Oct 15 21:59	4° <u>0</u> 53'42	0°20'27				
max. Earth dist.	11781 Oct 16 14:25	4° <u>0</u> 55'14	30.79658 AU	conjunction	11787 Oct 30 06:06	18° <u>0</u> 24'20	-0°10'29
morning rise	11781 Oct 31 22:56	5° <u>0</u> 29'42		minimum elong	11787 Oct 30 06:05	18° <u>0</u> 24'20	0°09'56
retrograde	11782 Jan 30 13:40	7° <u>0</u> 27'46		behind sun begin	11787 Oct 30 00:48	18° <u>0</u> 23'51	
min. Earth dist.	11782 Apr 19 09:27	6° <u>0</u> 03'48	28.79942 AU	behind sun end	11787 Oct 30 11:23	18° <u>0</u> 24'48	

max. Earth dist.	11787 Oct 30 20:11	18° $\overline{\text{M}}$ 25'39	30.84261 AU	direct	11793 Jul 31 14:12	29° $\overline{\text{M}}$ 22'30	
morning rise	11787 Nov 15 08:44	19° $\overline{\text{M}}$ 00'23		asc. node	11793 Aug 08 18:35	29° $\overline{\text{M}}$ 23'40	
retrograde	11788 Feb 13 17:03	20° $\overline{\text{M}}$ 58'02			11793 Sep 17 05:26	0° $\overline{\text{A}}$	
opposition	11788 May 02 23:43	19° $\overline{\text{M}}$ 33'17	-0°10'09	evening set	11793 Oct 27 12:16	1° $\overline{\text{A}}$ 16'38	
min. Earth dist.	11788 May 02 11:26	19° $\overline{\text{M}}$ 34'08	28.84628 AU				
direct	11788 Jul 19 22:40	18° $\overline{\text{M}}$ 09'23		conjunction	11793 Nov 12 14:33	1° $\overline{\text{A}}$ 52'31	0°00'29
evening set	11788 Oct 15 18:35	20° $\overline{\text{M}}$ 03'34		minimum elong	11793 Nov 12 14:33	1° $\overline{\text{A}}$ 52'31	0°01'08
				behind sun begin	11793 Nov 12 08:00	1° $\overline{\text{A}}$ 51'56	
conjunction	11788 Oct 31 19:40	20° $\overline{\text{M}}$ 39'26	-0°08'42	behind sun end	11793 Nov 12 21:07	1° $\overline{\text{A}}$ 53'06	
minimum elong	11788 Oct 31 19:41	20° $\overline{\text{M}}$ 39'26	0°08'08	max. Earth dist.	11793 Nov 13 01:25	1° $\overline{\text{A}}$ 53'31	30.88062 AU
behind sun begin	11788 Oct 31 13:53	20° $\overline{\text{M}}$ 38'55		morning rise	11793 Nov 28 18:24	2° $\overline{\text{A}}$ 28'33	
behind sun end	11788 Nov 01 01:29	20° $\overline{\text{M}}$ 39'57		retrograde	11794 Feb 26 21:42	4° $\overline{\text{A}}$ 25'28	
max. Earth dist.	11788 Nov 01 09:19	20° $\overline{\text{M}}$ 40'42	30.84945 AU	opposition	11794 May 16 20:21	3° $\overline{\text{A}}$ 00'48	0°01'30
morning rise	11788 Nov 16 22:29	21° $\overline{\text{M}}$ 15'29		min. Earth dist.	11794 May 16 09:42	3° $\overline{\text{A}}$ 01'33	28.88487 AU
retrograde	11789 Feb 15 06:15	23° $\overline{\text{M}}$ 13'01		direct	11794 Aug 03 01:28	1° $\overline{\text{A}}$ 36'40	
opposition	11789 May 05 11:18	21° $\overline{\text{M}}$ 48'17	-0°08'13	evening set	11794 Oct 30 01:18	3° $\overline{\text{A}}$ 30'49	
min. Earth dist.	11789 May 04 22:39	21° $\overline{\text{M}}$ 49'11	28.85258 AU				
direct	11789 Jul 22 11:54	20° $\overline{\text{M}}$ 24'21		conjunction	11794 Nov 15 03:57	4° $\overline{\text{A}}$ 06'42	0°02'20
evening set	11789 Oct 18 07:53	22° $\overline{\text{M}}$ 18'32		minimum elong	11794 Nov 15 03:55	4° $\overline{\text{A}}$ 06'42	0°02'59
				behind sun begin	11794 Nov 14 21:23	4° $\overline{\text{A}}$ 06'07	
conjunction	11789 Nov 03 09:09	22° $\overline{\text{M}}$ 54'24	-0°06'54	behind sun end	11794 Nov 15 10:28	4° $\overline{\text{A}}$ 07'17	
minimum elong	11789 Nov 03 09:08	22° $\overline{\text{M}}$ 54'24	0°06'18	max. Earth dist.	11794 Nov 15 15:27	4° $\overline{\text{A}}$ 07'46	30.88929 AU
behind sun begin	11789 Nov 03 02:57	22° $\overline{\text{M}}$ 53'51		morning rise	11794 Dec 01 07:47	4° $\overline{\text{A}}$ 42'44	
behind sun end	11789 Nov 03 15:20	22° $\overline{\text{M}}$ 54'57		retrograde	11795 Mar 01 08:51	6° $\overline{\text{A}}$ 39'32	
max. Earth dist.	11789 Nov 03 21:35	22° $\overline{\text{M}}$ 55'33	30.85541 AU	opposition	11795 May 19 07:31	5° $\overline{\text{A}}$ 14'55	0°03'26
morning rise	11789 Nov 19 12:15	23° $\overline{\text{M}}$ 30'27		min. Earth dist.	11795 May 18 21:49	5° $\overline{\text{A}}$ 15'36	28.89427 AU
retrograde	11790 Feb 17 19:00	25° $\overline{\text{M}}$ 27'52		direct	11795 Aug 05 12:12	3° $\overline{\text{A}}$ 50'46	
opposition	11790 May 07 23:01	24° $\overline{\text{M}}$ 03'08	-0°06'17	evening set	11795 Nov 01 14:24	5° $\overline{\text{A}}$ 44'56	
min. Earth dist.	11790 May 07 11:45	24° $\overline{\text{M}}$ 03'56	28.85837 AU				
direct	11790 Jul 24 23:12	22° $\overline{\text{M}}$ 39'09		conjunction	11795 Nov 17 17:13	6° $\overline{\text{A}}$ 20'49	0°04'08
evening set	11790 Oct 20 20:54	24° $\overline{\text{M}}$ 33'19		minimum elong	11795 Nov 17 17:13	6° $\overline{\text{A}}$ 20'49	0°04'50
				behind sun begin	11795 Nov 17 10:49	6° $\overline{\text{A}}$ 20'15	
conjunction	11790 Nov 05 22:36	25° $\overline{\text{M}}$ 09'11	-0°05'05	behind sun end	11795 Nov 17 23:37	6° $\overline{\text{A}}$ 21'23	
minimum elong	11790 Nov 05 22:37	25° $\overline{\text{M}}$ 09'11	0°04'29	max. Earth dist.	11795 Nov 18 03:54	6° $\overline{\text{A}}$ 21'48	30.89951 AU
behind sun begin	11790 Nov 05 16:11	25° $\overline{\text{M}}$ 08'37		morning rise	11795 Dec 03 21:18	6° $\overline{\text{A}}$ 56'51	
behind sun end	11790 Nov 06 05:03	25° $\overline{\text{M}}$ 09'46		retrograde	11796 Mar 02 20:52	8° $\overline{\text{A}}$ 53'33	
max. Earth dist.	11790 Nov 06 11:30	25° $\overline{\text{M}}$ 10'23	30.86111 AU	opposition	11796 May 20 18:36	7° $\overline{\text{A}}$ 29'01	0°05'22
morning rise	11790 Nov 22 01:49	25° $\overline{\text{M}}$ 45'14		min. Earth dist.	11796 May 20 08:12	7° $\overline{\text{A}}$ 29'45	28.90515 AU
retrograde	11791 Feb 20 08:13	27° $\overline{\text{M}}$ 42'31		direct	11796 Aug 06 23:46	6° $\overline{\text{A}}$ 04'52	
opposition	11791 May 10 10:29	26° $\overline{\text{M}}$ 17'48	-0°04'21	evening set	11796 Nov 03 03:29	7° $\overline{\text{A}}$ 59'03	
min. Earth dist.	11791 May 09 23:05	26° $\overline{\text{M}}$ 18'36	28.86396 AU				
direct	11791 Jul 27 13:31	24° $\overline{\text{M}}$ 53'46		conjunction	11796 Nov 19 06:28	8° $\overline{\text{A}}$ 34'56	0°05'56
evening set	11791 Oct 23 10:11	26° $\overline{\text{M}}$ 47'55		minimum elong	11796 Nov 19 06:27	8° $\overline{\text{A}}$ 34'56	0°06'39
				behind sun begin	11796 Nov 19 00:19	8° $\overline{\text{A}}$ 34'23	
conjunction	11791 Nov 08 12:00	27° $\overline{\text{M}}$ 23'48	-0°03'16	behind sun end	11796 Nov 19 12:36	8° $\overline{\text{A}}$ 35'29	
minimum elong	11791 Nov 08 12:00	27° $\overline{\text{M}}$ 23'48	0°02'39	max. Earth dist.	11796 Nov 19 17:03	8° $\overline{\text{A}}$ 35'55	30.91094 AU
behind sun begin	11791 Nov 08 05:27	27° $\overline{\text{M}}$ 23'13		morning rise	11796 Dec 05 10:36	9° $\overline{\text{A}}$ 10'58	
behind sun end	11791 Nov 08 18:33	27° $\overline{\text{M}}$ 24'23		retrograde	11797 Mar 05 07:30	11° $\overline{\text{A}}$ 07'35	
max. Earth dist.	11791 Nov 08 23:20	27° $\overline{\text{M}}$ 24'51	30.86686 AU	opposition	11797 May 23 05:46	9° $\overline{\text{A}}$ 43'07	0°07'18
morning rise	11791 Nov 24 15:33	27° $\overline{\text{M}}$ 59'50		min. Earth dist.	11797 May 22 20:37	9° $\overline{\text{A}}$ 43'46	28.91716 AU
retrograde	11792 Feb 22 21:30	29° $\overline{\text{M}}$ 57'00		direct	11797 Aug 09 10:17	8° $\overline{\text{A}}$ 19'00	
opposition	11792 May 11 21:47	28° $\overline{\text{M}}$ 32'17	-0°02'24	evening set	11797 Nov 05 16:34	10° $\overline{\text{A}}$ 13'14	
min. Earth dist.	11792 May 11 11:03	28° $\overline{\text{M}}$ 33'02	28.87003 AU				
direct	11792 Jul 29 01:19	27° $\overline{\text{M}}$ 08'12		conjunction	11797 Nov 21 19:47	10° $\overline{\text{A}}$ 49'07	0°07'44
evening set	11792 Oct 24 23:16	29° $\overline{\text{M}}$ 02'21		minimum elong	11797 Nov 21 19:47	10° $\overline{\text{A}}$ 49'07	0°08'28
				behind sun begin	11797 Nov 21 14:03	10° $\overline{\text{A}}$ 48'36	
conjunction	11792 Nov 10 01:30	29° $\overline{\text{M}}$ 38'14	-0°01'25	behind sun end	11797 Nov 22 01:31	10° $\overline{\text{A}}$ 49'38	
minimum elong	11792 Nov 10 01:28	29° $\overline{\text{M}}$ 38'14	0°00'47	max. Earth dist.	11797 Nov 22 06:08	10° $\overline{\text{A}}$ 50'04	30.92348 AU
behind sun begin	11792 Nov 09 18:56	29° $\overline{\text{M}}$ 37'39		morning rise	11797 Dec 08 00:01	11° $\overline{\text{A}}$ 25'08	
behind sun end	11792 Nov 10 08:01	29° $\overline{\text{M}}$ 38'49		retrograde	11798 Mar 07 20:18	13° $\overline{\text{A}}$ 21'39	
max. Earth dist.	11792 Nov 10 13:34	29° $\overline{\text{M}}$ 39'21	30.87322 AU	opposition	11798 May 25 16:45	11° $\overline{\text{A}}$ 57'18	0°09'13
	11792 Nov 19 18:14	0° $\overline{\text{A}}$		min. Earth dist.	11798 May 25 07:08	11° $\overline{\text{A}}$ 57'59	28.92988 AU
morning rise	11792 Nov 26 05:00	0° $\overline{\text{A}}$ 14'16		direct	11798 Aug 11 21:45	10° $\overline{\text{A}}$ 33'11	
retrograde	11793 Feb 24 08:34	2° $\overline{\text{A}}$ 11'18		evening set	11798 Nov 08 05:48	12° $\overline{\text{A}}$ 27'28	
opposition	11793 May 14 09:06	0° $\overline{\text{A}}$ 46'37	-0°00'27				
min. Earth dist.	11793 May 13 22:40	0° $\overline{\text{A}}$ 47'21	28.87680 AU	conjunction	11798 Nov 24 09:06	13° $\overline{\text{A}}$ 03'21	0°09'31
	11793 Jun 12 14:48	30° $\overline{\text{R}}$ $\overline{\text{M}}$		minimum elong	11798 Nov 24 09:05	13° $\overline{\text{A}}$ 03'21	0°10'14

behind sun begin	11798 Nov 24 03:54	13° \mathring{A} 02'53		minimum elong	11804 Dec 08 17:06	26° \mathring{A} 26'51	0°20'34
behind sun end	11798 Nov 24 14:16	13° \mathring{A} 03'49		max. Earth dist.	11804 Dec 08 21:56	26° \mathring{A} 27'17	30.99897 AU
max. Earth dist.	11798 Nov 24 18:20	13° \mathring{A} 04'12	30.93621 AU	morning rise	11804 Dec 24 21:40	27° \mathring{A} 02'45	
morning rise	11798 Dec 10 13:29	13° \mathring{A} 39'22		retrograde	11805 Mar 24 09:12	28° \mathring{A} 58'20	
retrograde	11799 Mar 10 08:32	15° \mathring{A} 35'48		opposition	11805 Jun 10 21:05	27° \mathring{A} 34'16	0°22'03
opposition	11799 May 28 03:55	14° \mathring{A} 11'32	0°11'08	min. Earth dist.	11805 Jun 10 16:05	27° \mathring{A} 34'37	29.00389 AU
min. Earth dist.	11799 May 27 19:50	14° \mathring{A} 12'06	28.94254 AU	direct	11805 Aug 28 11:37	26° \mathring{A} 09'56	
direct	11799 Aug 14 08:30	12° \mathring{A} 47'26		evening set	11805 Nov 25 02:02	28° \mathring{A} 04'11	
evening set	11799 Nov 10 19:06	14° \mathring{A} 41'44					
conjunction	11799 Nov 26 22:41	15° \mathring{A} 17'37	0°11'17	conjunction	11805 Dec 11 06:11	28° \mathring{A} 40'01	0°21'24
minimum elong	11799 Nov 26 22:41	15° \mathring{A} 17'37	0°12'01	minimum elong	11805 Dec 11 06:11	28° \mathring{A} 40'01	0°22'12
behind sun begin	11799 Nov 26 18:15	15° \mathring{A} 17'14		max. Earth dist.	11805 Dec 11 10:49	28° \mathring{A} 40'26	31.00888 AU
behind sun end	11799 Nov 27 03:06	15° \mathring{A} 18'01		morning rise	11805 Dec 27 10:40	29° \mathring{A} 15'53	
max. Earth dist.	11799 Nov 27 07:56	15° \mathring{A} 18'28	30.94854 AU		11806 Jan 17 21:10	0° \mathring{B}	
morning rise	11799 Dec 13 03:00	15° \mathring{A} 53'37		retrograde	11806 Mar 26 19:08	1° \mathring{B} 11'19	
retrograde	11800 Mar 12 21:21	17° \mathring{A} 49'56			11806 Jun 05 17:56	30° \mathring{R} \mathring{A}	
opposition	11800 May 30 14:50	16° \mathring{A} 25'44	0°13'01	opposition	11806 Jun 13 07:43	29° \mathring{A} 47'17	0°23'46
min. Earth dist.	11800 May 30 06:58	16° \mathring{A} 26'17	28.95438 AU	min. Earth dist.	11806 Jun 13 04:04	29° \mathring{A} 47'32	29.01430 AU
direct	11800 Aug 16 22:29	15° \mathring{A} 01'38		direct	11806 Aug 30 21:58	28° \mathring{A} 22'54	
evening set	11800 Nov 13 08:31	16° \mathring{A} 55'58		evening set	11806 Nov 19 14:02	0° \mathring{B}	
conjunction	11800 Nov 29 12:05	17° \mathring{A} 31'50	0°13'02	conjunction	11806 Nov 27 14:54	0° \mathring{B} 17'09	
minimum elong	11800 Nov 29 12:04	17° \mathring{A} 31'50	0°13'46	minimum elong	11806 Dec 13 19:11	0° \mathring{B} 52'58	0°23'00
behind sun begin	11800 Nov 29 08:43	17° \mathring{A} 31'32		max. Earth dist.	11806 Dec 13 19:11	0° \mathring{B} 52'58	0°23'47
behind sun end	11800 Nov 29 15:26	17° \mathring{A} 32'08		morning rise	11806 Dec 13 23:29	0° \mathring{B} 53'22	31.01983 AU
max. Earth dist.	11800 Nov 29 19:23	17° \mathring{A} 32'30	30.95992 AU	retrograde	11806 Dec 29 23:39	1° \mathring{B} 28'49	
morning rise	11800 Dec 15 16:35	18° \mathring{A} 07'49		opposition	11807 Mar 29 06:44	3° \mathring{B} 24'07	
retrograde	11801 Mar 15 10:18	20° \mathring{A} 04'01		min. Earth dist.	11807 Jun 15 18:12	2° \mathring{B} 00'07	0°25'27
opposition	11801 Jun 02 01:55	18° \mathring{A} 39'51	0°14'53	direct	11807 Jun 15 13:54	2° \mathring{B} 00'25	29.02572 AU
min. Earth dist.	11801 Jun 01 19:01	18° \mathring{A} 40'21	28.96536 AU	evening set	11807 Sep 02 09:27	0° \mathring{B} 35'43	
direct	11801 Aug 19 10:12	17° \mathring{A} 15'43			11807 Nov 30 03:58	2° \mathring{B} 29'59	
evening set	11801 Nov 15 21:34	19° \mathring{A} 10'03		conjunction	11807 Dec 16 08:11	3° \mathring{B} 05'47	0°24'33
conjunction	11801 Dec 02 01:26	19° \mathring{A} 45'55	0°14'45	minimum elong	11807 Dec 16 08:10	3° \mathring{B} 05'47	0°25'21
minimum elong	11801 Dec 02 01:25	19° \mathring{A} 45'55	0°15'31	max. Earth dist.	11807 Dec 16 11:37	3° \mathring{B} 06'05	31.03181 AU
behind sun begin	11801 Dec 02 00:06	19° \mathring{A} 45'48		morning rise	11808 Jan 01 12:37	3° \mathring{B} 41'37	
behind sun end	11801 Dec 02 02:44	19° \mathring{A} 46'02		retrograde	11808 Mar 30 17:21	5° \mathring{B} 36'47	
max. Earth dist.	11801 Dec 02 09:01	19° \mathring{A} 46'37	30.97039 AU	opposition	11808 Jun 17 04:44	4° \mathring{B} 12'52	0°27'05
morning rise	11801 Dec 18 05:49	20° \mathring{A} 21'53		min. Earth dist.	11808 Jun 17 01:35	4° \mathring{B} 13'05	29.03844 AU
retrograde	11802 Mar 17 21:47	22° \mathring{A} 17'57		direct	11808 Sep 03 19:47	2° \mathring{B} 48'27	
opposition	11802 Jun 04 12:55	20° \mathring{A} 53'49	0°16'43	evening set	11808 Dec 01 16:48	4° \mathring{B} 42'45	
min. Earth dist.	11802 Jun 04 06:46	20° \mathring{A} 54'15	28.97534 AU	conjunction	11808 Dec 17 21:11	5° \mathring{B} 18'32	0°26'04
direct	11802 Aug 21 23:12	19° \mathring{A} 29'38		minimum elong	11808 Dec 17 21:11	5° \mathring{B} 18'32	0°26'51
evening set	11802 Nov 18 10:52	21° \mathring{A} 23'57		max. Earth dist.	11808 Dec 18 01:05	5° \mathring{B} 18'53	31.04518 AU
conjunction	11802 Dec 04 14:43	21° \mathring{A} 59'49	0°16'28	morning rise	11809 Jan 03 01:27	5° \mathring{B} 54'20	
minimum elong	11802 Dec 04 14:43	21° \mathring{A} 59'49	0°17'13	retrograde	11809 Apr 02 04:52	7° \mathring{B} 49'24	
max. Earth dist.	11802 Dec 04 20:27	22° \mathring{A} 00'20	30.98015 AU	opposition	11809 Jun 19 15:14	6° \mathring{B} 25'34	0°28'41
morning rise	11802 Dec 20 19:19	22° \mathring{A} 35'45		min. Earth dist.	11809 Jun 19 11:51	6° \mathring{B} 25'49	29.05230 AU
retrograde	11803 Mar 20 11:22	24° \mathring{A} 31'39		direct	11809 Sep 06 08:28	5° \mathring{B} 01'12	
opposition	11803 Jun 06 23:38	23° \mathring{A} 07'32	0°18'32	evening set	11809 Dec 04 05:41	6° \mathring{B} 55'32	
min. Earth dist.	11803 Jun 06 17:47	23° \mathring{A} 07'57	28.98491 AU	conjunction	11809 Dec 20 09:56	7° \mathring{B} 31'18	0°27'32
direct	11803 Aug 24 11:37	21° \mathring{A} 43'19		minimum elong	11809 Dec 20 09:56	7° \mathring{B} 31'18	0°28'20
evening set	11803 Nov 21 00:01	23° \mathring{A} 37'36		max. Earth dist.	11809 Dec 20 12:25	7° \mathring{B} 31'32	31.05956 AU
conjunction	11803 Dec 07 04:05	24° \mathring{A} 13'28	0°18'08	morning rise	11810 Jan 05 14:17	8° \mathring{B} 07'06	
minimum elong	11803 Dec 07 04:05	24° \mathring{A} 13'28	0°18'56	retrograde	11810 Apr 04 17:23	10° \mathring{B} 02'05	
max. Earth dist.	11803 Dec 07 10:04	24° \mathring{A} 14'00	30.98950 AU	opposition	11810 Jun 22 01:46	8° \mathring{B} 38'21	0°30'14
morning rise	11803 Dec 23 08:33	24° \mathring{A} 49'23		min. Earth dist.	11810 Jun 21 23:05	8° \mathring{B} 38'32	29.06705 AU
retrograde	11804 Mar 21 21:41	26° \mathring{A} 45'07		direct	11810 Sep 08 19:04	7° \mathring{B} 14'00	
opposition	11804 Jun 08 10:27	25° \mathring{A} 21'01	0°20'18	evening set	11810 Dec 06 18:37	9° \mathring{B} 08'24	
min. Earth dist.	11804 Jun 08 05:56	25° \mathring{A} 21'20	28.99422 AU	conjunction	11810 Dec 22 23:03	9° \mathring{B} 44'10	0°28'58
direct	11804 Aug 25 23:35	23° \mathring{A} 56'45		minimum elong	11810 Dec 22 23:03	9° \mathring{B} 44'10	0°29'45
evening set	11804 Nov 22 13:02	25° \mathring{A} 51'01		max. Earth dist.	11810 Dec 23 01:58	9° \mathring{B} 44'26	31.07438 AU
conjunction	11804 Dec 08 17:06	26° \mathring{A} 26'51	0°19'47	morning rise	11811 Jan 08 03:09	10° \mathring{B} 19'56	
				retrograde	11811 Apr 07 04:55	12° \mathring{B} 14'49	

opposition	11811 Jun 24 12:09	10°35'12" 0°31'45"	max. Earth dist.	11818 Jan 07 14:01	25°31'08" 31.15440 AU
min. Earth dist.	11811 Jun 24 10:20	10°35'12" 29.08173 AU	morning rise	11818 Jan 23 20:07	25°34'59"
direct	11811 Sep 11 07:20	9°32'54"	retrograde	11818 Apr 22 09:27	27°34'02"
evening set	11811 Dec 09 07:48	11°32'21"	opposition	11818 Jul 09 12:56	26°31'47" 0°40'50"
			min. Earth dist.	11818 Jul 09 15:52	26°31'35" 29.15916 AU
conjunction	11811 Dec 25 12:02	11°35'06" 0°30'22"	direct	11818 Sep 26 16:03	24°35'52"
minimum elong	11811 Dec 25 12:02	11°35'06" 0°31'10"	evening set	11818 Dec 25 01:38	26°34'50"
max. Earth dist.	11811 Dec 25 12:59	11°35'12" 31.08885 AU			
morning rise	11812 Jan 10 16:11	12°33'51"	conjunction	11819 Jan 10 05:27	27°32'52" 0°38'41"
retrograde	11812 Apr 08 18:52	14°32'39"	minimum elong	11819 Jan 10 05:27	27°32'52" 0°39'25"
opposition	11812 Jun 25 22:39	13°30'40" 0°33'13"	max. Earth dist.	11819 Jan 10 00:58	27°32'50" 31.16382 AU
min. Earth dist.	11812 Jun 25 21:10	13°30'41" 29.09584 AU	morning rise	11819 Jan 26 08:31	28°30'00"
direct	11812 Sep 12 19:30	11°33'51"	retrograde	11819 Apr 24 20:45	29°35'45"
evening set	11812 Dec 10 20:42	13°34'21"	opposition	11819 Jul 11 23:02	28°31'42" 0°41'54"
			min. Earth dist.	11819 Jul 12 02:32	28°31'27" 29.16897 AU
conjunction	11812 Dec 27 01:02	14°31'06" 0°31'42"	direct	11819 Sep 29 02:04	27°30'11"
minimum elong	11812 Dec 27 01:01	14°31'06" 0°32'29"	evening set	11819 Dec 27 14:06	29°30'14"
max. Earth dist.	11812 Dec 27 02:03	14°31'11" 31.10230 AU			
morning rise	11813 Jan 12 04:52	14°34'59"	conjunction	11820 Jan 12 17:58	29°33'17" 0°39'39"
retrograde	11813 Apr 11 05:17	16°34'03"	minimum elong	11820 Jan 12 17:58	29°33'17" 0°40'23"
opposition	11813 Jun 28 09:17	15°31'05" 0°34'37"	max. Earth dist.	11820 Jan 12 14:10	29°33'56" 31.17395 AU
min. Earth dist.	11813 Jun 28 09:22	15°31'05" 29.10871 AU		11820 Jan 22 23:47	0°00'00"
direct	11813 Sep 15 07:25	13°35'24"	morning rise	11820 Jan 28 20:39	0°00'12'49"
evening set	11813 Dec 13 09:45	15°34'20"	retrograde	11820 Apr 26 07:01	2°00'06'36"
			opposition	11820 Jul 13 09:16	0°00'43'25" 0°42'54"
conjunction	11813 Dec 29 13:58	16°32'03" 0°33'00"	min. Earth dist.	11820 Jul 13 13:13	0°00'43'08" 29.17953 AU
minimum elong	11813 Dec 29 13:58	16°32'03" 0°33'48"		11820 Aug 09 13:36	30°00'00"
max. Earth dist.	11813 Dec 29 13:22	16°32'00" 31.11462 AU	direct	11820 Sep 30 14:35	29°31'8"54"
morning rise	11814 Jan 14 17:48	16°35'8"46"		11820 Nov 20 11:34	0°00'00"
retrograde	11814 Apr 13 17:09	18°35'20"	evening set	11820 Dec 29 02:30	1°00'13'24"
opposition	11814 Jun 30 19:37	17°32'58" 0°35'59"			
min. Earth dist.	11814 Jun 30 19:37	17°32'58" 29.12041 AU	conjunction	11821 Jan 14 06:04	1°00'48'58" 0°40'34"
direct	11814 Sep 17 19:23	16°30'54"0"	minimum elong	11821 Jan 14 06:04	1°00'48'58" 0°41'16"
evening set	11814 Dec 15 22:43	18°30'01"2"	max. Earth dist.	11821 Jan 14 00:50	1°00'48'29" 31.18508 AU
			morning rise	11821 Jan 30 08:42	2°00'24'28"
conjunction	11815 Jan 01 02:56	18°33'55" 0°34'15"	retrograde	11821 Apr 28 19:49	4°00'18'08"
minimum elong	11815 Jan 01 02:56	18°33'55" 0°35'01"	opposition	11821 Jul 15 19:25	2°00'55'01" 0°43'51"
max. Earth dist.	11815 Jan 01 01:43	18°33'54"8" 31.12565 AU	min. Earth dist.	11821 Jul 15 23:04	2°00'54'45" 29.19122 AU
morning rise	11815 Jan 17 06:35	19°31'13"6"	direct	11821 Oct 03 02:48	1°00'30'29"
retrograde	11815 Apr 16 03:23	21°30'06"0"	evening set	11821 Dec 31 14:51	3°00'25'01"
opposition	11815 Jul 03 06:09	19°34'24"3" 0°37'17"			
min. Earth dist.	11815 Jul 03 07:54	19°34'23"6" 29.13093 AU	conjunction	11822 Jan 16 18:25	4°00'00'34" 0°41'25"
direct	11815 Sep 20 05:51	18°31'8"24"	minimum elong	11822 Jan 16 18:25	4°00'00'34" 0°42'08"
evening set	11815 Dec 18 11:36	20°31'25"6"	max. Earth dist.	11822 Jan 16 13:49	4°00'00'09" 31.19719 AU
			morning rise	11822 Feb 01 20:42	4°00'36'02"
conjunction	11816 Jan 03 15:47	20°34'37"7" 0°35'26"	retrograde	11822 May 01 05:34	6°00'29'37"
minimum elong	11816 Jan 03 15:47	20°34'37"7" 0°36'13"	opposition	11822 Jul 18 05:33	5°00'06'34" 0°44'43"
max. Earth dist.	11816 Jan 03 13:42	20°34'37"2" 31.13575 AU	min. Earth dist.	11822 Jul 18 10:28	5°00'06'13" 29.20367 AU
morning rise	11816 Jan 19 19:16	21°32'41"6"	direct	11822 Oct 05 14:18	3°00'42'04"
retrograde	11816 Apr 17 14:21	23°31'8"35"	evening set	11823 Jan 03 03:21	5°00'36'37"
opposition	11816 Jul 04 16:22	21°35'51"8" 0°38'31"			
min. Earth dist.	11816 Jul 04 17:53	21°35'51"2" 29.14058 AU	conjunction	11823 Jan 19 06:42	6°00'12'09" 0°42'13"
direct	11816 Sep 21 17:11	20°33'05"6"	minimum elong	11823 Jan 19 06:42	6°00'12'09" 0°42'54"
evening set	11816 Dec 20 00:26	22°32'25"7"	max. Earth dist.	11823 Jan 19 00:54	6°00'11'37" 31.20993 AU
			morning rise	11823 Feb 04 08:53	6°00'47'36"
conjunction	11817 Jan 05 04:27	23°30'17"0" 0°36'34"	retrograde	11823 May 03 17:48	8°00'41'05"
minimum elong	11817 Jan 05 04:27	23°30'17"0" 0°37'20"	opposition	11823 Jul 20 15:37	7°00'18'07" 0°45'32"
max. Earth dist.	11817 Jan 05 01:14	23°30'00"50" 31.14511 AU	min. Earth dist.	11823 Jul 20 20:09	7°00'17'48" 29.21640 AU
morning rise	11817 Jan 21 07:48	23°33'6"45"	direct	11823 Oct 08 02:14	5°00'53'39"
retrograde	11817 Apr 19 23:36	25°33'05"5"	evening set	11824 Jan 05 15:47	7°00'48'15"
opposition	11817 Jul 07 02:44	24°30'7"40" 0°39'42"			
min. Earth dist.	11817 Jul 07 05:38	24°30'7"28" 29.14991 AU	conjunction	11824 Jan 21 18:59	8°00'23'45" 0°42'56"
direct	11817 Sep 24 03:46	22°34'31"5"	minimum elong	11824 Jan 21 18:59	8°00'23'46" 0°43'37"
evening set	11817 Dec 22 12:55	24°33'7"45"	max. Earth dist.	11824 Jan 21 12:53	8°00'23'12" 31.22238 AU
			morning rise	11824 Feb 06 20:48	8°00'59'10"
conjunction	11818 Jan 07 16:59	25°31'32"4" 0°37'39"	retrograde	11824 May 05 04:20	10°00'52'35"
minimum elong	11818 Jan 07 16:59	25°31'32"4" 0°38'25"	opposition	11824 Jul 22 01:52	9°00'29'42" 0°46'16"

min. Earth dist.	11824 Jul 22 08:02	9° \approx 29'16	29.22861 AU	evening set	11831 Jan 21 05:28	23° \approx 07'33	
direct	11824 Oct 09 12:50	8° \approx 05'15					
evening set	11825 Jan 07 04:14	9° \approx 59'52		conjunction	11831 Feb 06 07:22	23° \approx 42'54	0°46'14
				minimum elong	11831 Feb 06 07:22	23° \approx 42'54	0°46'46
conjunction	11825 Jan 23 07:15	10° \approx 35'22	0°43'36	max. Earth dist.	11831 Feb 05 20:41	23° \approx 41'55	31.28103 AU
minimum elong	11825 Jan 23 07:15	10° \approx 35'22	0°44'15	morning rise	11831 Feb 22 07:17	24° \approx 18'06	
max. Earth dist.	11825 Jan 23 00:23	10° \approx 34'44	31.23418 AU	retrograde	11831 May 21 03:49	26° \approx 10'53	
morning rise	11825 Feb 08 08:51	11° \approx 10'45		opposition	11831 Aug 07 00:48	24° \approx 48'13	0°49'33
retrograde	11825 May 07 15:09	13° \approx 04'04		min. Earth dist.	11831 Aug 07 11:16	24° \approx 47'30	29.28443 AU
opposition	11825 Jul 24 12:00	11° \approx 41'16	0°46'57	direct	11831 Oct 25 20:04	23° \approx 23'38	
min. Earth dist.	11825 Jul 24 17:58	11° \approx 40'51	29.23981 AU	evening set	11832 Jan 23 17:20	25° \approx 18'17	
direct	11825 Oct 12 00:30	10° \approx 16'49					
evening set	11826 Jan 09 16:37	12° \approx 11'27		conjunction	11832 Feb 08 18:51	25° \approx 53'36	0°46'27
				minimum elong	11832 Feb 08 18:51	25° \approx 53'36	0°46'58
conjunction	11826 Jan 25 19:24	12° \approx 46'56	0°44'12	max. Earth dist.	11832 Feb 08 07:19	25° \approx 52'32	31.28750 AU
minimum elong	11826 Jan 25 19:25	12° \approx 46'56	0°44'51	morning rise	11832 Feb 24 18:35	26° \approx 28'46	
max. Earth dist.	11826 Jan 25 11:16	12° \approx 46'11	31.24469 AU	retrograde	11832 May 22 15:20	28° \approx 21'27	
morning rise	11826 Feb 10 20:48	13° \approx 22'17		opposition	11832 Aug 08 10:46	26° \approx 58'50	0°49'44
	11826 Apr 09 13:53	15° \approx		min. Earth dist.	11832 Aug 08 20:24	26° \approx 58'10	29.29128 AU
retrograde	11826 May 10 00:36	15° \approx 15'32		direct	11832 Oct 27 08:23	25° \approx 34'13	
	11826 Jun 09 21:34	15° \approx		evening set	11833 Jan 25 05:04	27° \approx 28'53	
opposition	11826 Jul 26 22:18	13° \approx 52'46	0°47'33				
min. Earth dist.	11826 Jul 27 05:46	13° \approx 52'15	29.24973 AU	conjunction	11833 Feb 10 06:24	28° \approx 04'11	0°46'36
direct	11826 Oct 14 10:35	12° \approx 28'19		minimum elong	11833 Feb 10 06:24	28° \approx 04'11	0°47'05
evening set	11827 Jan 12 04:59	14° \approx 22'58		max. Earth dist.	11833 Feb 09 19:00	28° \approx 03'08	31.29475 AU
				morning rise	11833 Feb 26 05:44	28° \approx 39'19	
conjunction	11827 Jan 28 07:43	14° \approx 58'25	0°44'44		11833 Apr 10 22:55	0° \approx	
minimum elong	11827 Jan 28 07:43	14° \approx 58'25	0°45'21	retrograde	11833 May 25 01:47	0° \approx 31'57	
max. Earth dist.	11827 Jan 27 23:28	14° \approx 57'40	31.25391 AU		11833 Jul 09 02:55	30° \approx	
	11827 Jan 29 00:49	15° \approx		opposition	11833 Aug 10 20:52	29° \approx 09'21	0°49'51
morning rise	11827 Feb 13 08:44	15° \approx 33'45		min. Earth dist.	11833 Aug 11 07:32	29° \approx 08'36	29.29916 AU
retrograde	11827 May 12 10:01	17° \approx 26'53		direct	11833 Oct 29 19:12	27° \approx 44'46	
opposition	11827 Jul 29 08:23	16° \approx 04'10	0°48'05	evening set	11834 Jan 27 16:41	29° \approx 39'26	
min. Earth dist.	11827 Jul 29 16:13	16° \approx 03'38	29.25818 AU		11834 Feb 06 02:35	0° \approx	
	11827 Sep 11 00:37	15° \approx					
direct	11827 Oct 16 22:20	14° \approx 39'42		conjunction	11834 Feb 12 17:49	0° \approx 14'43	0°46'41
	11827 Nov 21 08:14	15° \approx		minimum elong	11834 Feb 12 17:49	0° \approx 14'43	0°47'09
evening set	11828 Jan 14 17:25	16° \approx 34'22		max. Earth dist.	11834 Feb 12 06:19	0° \approx 13'39	31.30323 AU
				morning rise	11834 Feb 28 16:55	0° \approx 49'50	
conjunction	11828 Jan 30 19:46	17° \approx 09'47	0°45'13	retrograde	11834 May 27 11:54	2° \approx 42'24	
minimum elong	11828 Jan 30 19:47	17° \approx 09'47	0°45'49	opposition	11834 Aug 13 06:52	1° \approx 19'52	0°49'54
max. Earth dist.	11828 Jan 30 09:47	17° \approx 08'52	31.26178 AU	min. Earth dist.	11834 Aug 13 16:48	1° \approx 19'11	29.30797 AU
morning rise	11828 Feb 15 20:39	17° \approx 45'05			11834 Oct 15 04:15	30° \approx	
retrograde	11828 May 13 21:02	19° \approx 38'08		direct	11834 Nov 01 07:00	29° \approx 55'18	
opposition	11828 Jul 30 18:35	18° \approx 15'27	0°48'33		11834 Nov 18 03:34	0° \approx	
min. Earth dist.	11828 Jul 31 03:06	18° \approx 14'51	29.26560 AU	evening set	11835 Jan 30 04:28	1° \approx 50'01	
direct	11828 Oct 18 08:02	16° \approx 50'56					
evening set	11829 Jan 16 05:22	18° \approx 45'36		conjunction	11835 Feb 15 05:15	2° \approx 25'16	0°46'41
				minimum elong	11835 Feb 15 05:15	2° \approx 25'16	0°47'07
conjunction	11829 Feb 01 07:42	19° \approx 21'00	0°45'37	max. Earth dist.	11835 Feb 14 17:02	2° \approx 24'09	31.31238 AU
minimum elong	11829 Feb 01 07:42	19° \approx 21'00	0°46'11	morning rise	11835 Mar 03 04:04	3° \approx 00'22	
max. Earth dist.	11829 Jan 31 22:10	19° \approx 20'07	31.26868 AU	retrograde	11835 May 29 20:56	4° \approx 52'53	
morning rise	11829 Feb 17 08:09	19° \approx 56'16		opposition	11835 Aug 15 16:55	3° \approx 30'26	0°49'52
retrograde	11829 May 16 06:33	21° \approx 49'13		min. Earth dist.	11835 Aug 16 03:51	3° \approx 29'41	29.31742 AU
opposition	11829 Aug 02 04:45	20° \approx 26'33	0°48'57	direct	11835 Nov 03 16:28	2° \approx 05'55	
min. Earth dist.	11829 Aug 02 14:05	20° \approx 25'54	29.27207 AU	evening set	11836 Feb 01 16:05	4° \approx 00'39	
direct	11829 Oct 20 20:27	19° \approx 02'01					
evening set	11830 Jan 18 17:32	20° \approx 56'40		conjunction	11836 Feb 17 16:43	4° \approx 35'54	0°46'38
				minimum elong	11836 Feb 17 16:43	4° \approx 35'54	0°47'03
conjunction	11830 Feb 03 19:30	21° \approx 32'02	0°45'58	max. Earth dist.	11836 Feb 17 05:00	4° \approx 34'49	31.32188 AU
minimum elong	11830 Feb 03 19:30	21° \approx 32'02	0°46'32	morning rise	11836 Mar 04 15:07	5° \approx 10'58	
max. Earth dist.	11830 Feb 03 08:18	21° \approx 31'00	31.27497 AU	retrograde	11836 May 31 05:57	7° \approx 03'28	
morning rise	11830 Feb 19 19:51	22° \approx 07'16		opposition	11836 Aug 17 03:03	5° \approx 41'06	0°49'46
retrograde	11830 May 18 18:39	24° \approx 00'08		min. Earth dist.	11836 Aug 17 14:04	5° \approx 40'20	29.32671 AU
opposition	11830 Aug 04 14:39	22° \approx 37'28	0°49'17	direct	11836 Nov 05 03:13	4° \approx 16'37	
min. Earth dist.	11830 Aug 04 23:55	22° \approx 36'49	29.27825 AU	evening set	11837 Feb 03 03:41	6° \approx 11'22	
direct	11830 Oct 23 08:31	21° \approx 12'54					

conjunction	11837 Feb 19 03:54	6° ✕ 46'36	0°46'31	direct	11843 Nov 21 11:36	19° ✕ 29'53	
minimum elong	11837 Feb 19 03:54	6° ✕ 46'36	0°46'53	evening set	11844 Feb 19 12:01	21° ✕ 24'35	
max. Earth dist.	11837 Feb 18 14:47	6° ✕ 45'23	31.33091 AU				
morning rise	11837 Mar 07 02:08	7° ✕ 21'39		conjunction	11844 Mar 06 10:14	21° ✕ 59'38	0°43'49
retrograde	11837 Jun 02 16:55	9° ✕ 14'07		minimum elong	11844 Mar 06 10:14	21° ✕ 59'38	0°44'01
opposition	11837 Aug 19 13:16	7° ✕ 51'48	0°49'36	max. Earth dist.	11844 Mar 05 18:09	21° ✕ 58'09	31.36284 AU
min. Earth dist.	11837 Aug 20 00:43	7° ✕ 51'01	29.33541 AU	morning rise	11844 Mar 22 06:10	22° ✕ 34'30	
direct	11837 Nov 07 12:11	6° ✕ 27'21		retrograde	11844 Jun 17 15:15	24° ✕ 26'35	
evening set	11838 Feb 05 15:18	8° ✕ 22'08		opposition	11844 Sep 03 13:02	23° ✕ 04'18	0°46'29
				min. Earth dist.	11844 Sep 04 03:31	23° ✕ 03'18	29.36444 AU
conjunction	11838 Feb 21 15:24	8° ✕ 57'20	0°46'19	direct	11844 Nov 22 21:34	21° ✕ 39'45	
minimum elong	11838 Feb 21 15:24	8° ✕ 57'20	0°46'41	evening set	11845 Feb 20 22:54	23° ✕ 34'26	
max. Earth dist.	11838 Feb 21 02:46	8° ✕ 56'10	31.33900 AU				
morning rise	11838 Mar 09 13:10	9° ✕ 32'21		conjunction	11845 Mar 08 20:57	24° ✕ 09'28	0°43'11
retrograde	11838 Jun 05 01:44	11° ✕ 24'47		minimum elong	11845 Mar 08 20:57	24° ✕ 09'28	0°43'20
opposition	11838 Aug 21 23:26	10° ✕ 02'31	0°49'22	max. Earth dist.	11845 Mar 08 05:49	24° ✕ 08'04	31.36556 AU
min. Earth dist.	11838 Aug 22 11:50	10° ✕ 01'39	29.34284 AU	morning rise	11845 Mar 24 16:29	24° ✕ 44'18	
direct	11838 Nov 10 00:04	8° ✕ 38'05		retrograde	11845 Jun 19 23:42	26° ✕ 36'21	
evening set	11839 Feb 08 03:05	10° ✕ 32'52		opposition	11845 Sep 05 23:21	25° ✕ 14'05	0°45'46
				min. Earth dist.	11845 Sep 06 13:32	25° ✕ 13'06	29.36745 AU
conjunction	11839 Feb 24 02:44	11° ✕ 08'02	0°46'04	direct	11845 Nov 25 09:02	23° ✕ 49'33	
minimum elong	11839 Feb 24 02:44	11° ✕ 08'02	0°46'23	evening set	11846 Feb 23 10:04	25° ✕ 44'13	
max. Earth dist.	11839 Feb 23 12:22	11° ✕ 06'43	31.34580 AU				
morning rise	11839 Mar 12 00:20	11° ✕ 43'02		conjunction	11846 Mar 11 07:39	26° ✕ 19'13	0°42'29
retrograde	11839 Jun 07 13:24	13° ✕ 35'25		minimum elong	11846 Mar 11 07:40	26° ✕ 19'14	0°42'38
opposition	11839 Aug 24 09:41	12° ✕ 13'10	0°49'03	max. Earth dist.	11846 Mar 10 15:34	26° ✕ 17'44	31.36904 AU
min. Earth dist.	11839 Aug 24 21:57	12° ✕ 12'19	29.34897 AU	morning rise	11846 Mar 27 03:01	26° ✕ 54'03	
direct	11839 Nov 12 11:22	10° ✕ 48'44		retrograde	11846 Jun 22 10:14	28° ✕ 46'05	
evening set	11840 Feb 10 14:33	12° ✕ 43'31		opposition	11846 Sep 08 09:33	27° ✕ 23'51	0°44'59
				min. Earth dist.	11846 Sep 08 23:31	27° ✕ 22'53	29.37145 AU
conjunction	11840 Feb 26 14:03	13° ✕ 18'40	0°45'44	direct	11846 Nov 27 18:05	25° ✕ 59'20	
minimum elong	11840 Feb 26 14:03	13° ✕ 18'40	0°46'03	evening set	11847 Feb 25 21:03	27° ✕ 54'02	
max. Earth dist.	11840 Feb 26 00:01	13° ✕ 17'23	31.35114 AU				
morning rise	11840 Mar 13 11:08	13° ✕ 53'38		conjunction	11847 Mar 13 18:30	28° ✕ 29'02	0°41'44
retrograde	11840 Jun 08 22:32	15° ✕ 45'58		minimum elong	11847 Mar 13 18:30	28° ✕ 29'02	0°41'50
opposition	11840 Aug 25 20:04	14° ✕ 23'44	0°48'40	max. Earth dist.	11847 Mar 13 03:31	28° ✕ 27'39	31.37339 AU
min. Earth dist.	11840 Aug 26 09:46	14° ✕ 22'47	29.35366 AU	morning rise	11847 Mar 29 13:22	29° ✕ 03'50	
direct	11840 Nov 13 22:19	12° ✕ 59'17			11847 Apr 26 18:08	0° °	
evening set	11841 Feb 12 02:06	14° ✕ 54'03		retrograde	11847 Jun 24 18:50	0° ° 55'53	
max. Earth dist.	11841 Feb 27 10:07	15° ✕ 27'47	31.35530 AU		11847 Aug 25 14:46	30° ° R ✕	
				opposition	11847 Sep 10 20:00	29° ✕ 33'42	0°44'09
conjunction	11841 Feb 28 01:12	15° ✕ 29'10	0°45'21	min. Earth dist.	11847 Sep 11 10:26	29° ✕ 32'43	29.37599 AU
minimum elong	11841 Feb 28 01:13	15° ✕ 29'10	0°45'38	direct	11847 Nov 30 05:15	28° ✕ 09'15	
morning rise	11841 Mar 15 22:07	16° ✕ 04'07			11848 Feb 26 11:39	0° °	
retrograde	11841 Jun 11 10:07	17° ✕ 56'23		evening set	11848 Feb 28 08:01	0° ° 03'59	
opposition	11841 Aug 28 06:11	16° ✕ 34'08	0°48'13				
min. Earth dist.	11841 Aug 28 19:21	16° ✕ 33'14	29.35721 AU	conjunction	11848 Mar 15 04:59	0° ° 38'57	0°40'55
direct	11841 Nov 16 11:11	15° ✕ 09'40		minimum elong	11848 Mar 15 04:59	0° ° 38'57	0°40'59
evening set	11842 Feb 14 13:28	17° ✕ 04'25		max. Earth dist.	11848 Mar 14 12:59	0° ° 37'28	31.37817 AU
				morning rise	11848 Mar 30 23:41	1° ° 13'44	
conjunction	11842 Mar 02 12:22	17° ✕ 39'31	0°44'54	retrograde	11848 Jun 26 06:23	3° ° 05'50	
minimum elong	11842 Mar 02 12:22	17° ✕ 39'31	0°45'10	opposition	11848 Sep 12 06:23	1° ° 43'42	0°43'14
max. Earth dist.	11842 Mar 01 21:04	17° ✕ 38'06	31.35830 AU	min. Earth dist.	11848 Sep 12 20:10	1° ° 42'45	29.38076 AU
morning rise	11842 Mar 18 08:55	18° ✕ 14'26		direct	11848 Dec 01 15:32	0° ° 19'18	
retrograde	11842 Jun 13 20:31	20° ✕ 06'38		evening set	11849 Mar 01 18:56	2° ° 14'04	
opposition	11842 Aug 30 16:32	18° ✕ 44'23	0°47'42				
min. Earth dist.	11842 Aug 31 07:01	18° ✕ 43'23	29.35985 AU	conjunction	11849 Mar 17 15:43	2° ° 49'02	0°40'02
direct	11842 Nov 18 22:50	17° ✕ 19'52		minimum elong	11849 Mar 17 15:44	2° ° 49'02	0°40'04
evening set	11843 Feb 17 00:46	19° ✕ 14'36		max. Earth dist.	11849 Mar 17 00:26	2° ° 47'37	31.38269 AU
				morning rise	11849 Apr 02 09:58	3° ° 23'49	
conjunction	11843 Mar 04 23:23	19° ✕ 49'40	0°44'24	retrograde	11849 Jun 28 15:54	5° ° 15'56	
minimum elong	11843 Mar 04 23:23	19° ✕ 49'40	0°44'36	opposition	11849 Sep 14 16:53	3° ° 53'52	0°42'16
max. Earth dist.	11843 Mar 04 07:55	19° ✕ 48'15	31.36068 AU	min. Earth dist.	11849 Sep 15 07:56	3° ° 52'50	29.38499 AU
morning rise	11843 Mar 20 19:36	20° ✕ 24'33		direct	11849 Dec 01 01:27	2° ° 29'31	
retrograde	11843 Jun 16 06:02	22° ✕ 16'41		evening set	11850 Mar 04 06:00	4° ° 24'20	
opposition	11843 Sep 02 02:41	20° ✕ 54'25	0°47'08	max. Earth dist.	11850 Mar 19 10:19	4° ° 57'47	31.38650 AU
min. Earth dist.	11843 Sep 02 16:33	20° ✕ 53'28	29.36199 AU				

conjunction	11850 Mar 20 02:24	4°♈59'16	0°39'06	evening set	11857 Mar 19 09:32	19°♈36'20	
minimum elong	11850 Mar 20 02:24	4°♈59'16	0°39'07	max. Earth dist.	11857 Apr 03 10:17	20°♈09'34	31.37579 AU
morning rise	11850 Apr 04 20:27	5°♈34'02					
retrograde	11850 Jul 01 03:53	7°♈26'11		conjunction	11857 Apr 04 03:42	20°♈11'10	0°31'06
opposition	11850 Sep 17 03:24	6°♈04'09	0°41'14	minimum elong	11857 Apr 04 03:42	20°♈11'10	0°30'54
min. Earth dist.	11850 Sep 17 17:45	6°♈03'10	29.38814 AU	morning rise	11857 Apr 19 19:41	20°♈45'49	
direct	11850 Dec 06 14:08	4°♈39'52		retrograde	11857 Jul 15 23:52	22°♈38'01	
evening set	11851 Mar 06 17:00	6°♈34'42		opposition	11857 Oct 02 06:34	21°♈15'52	0°32'30
				min. Earth dist.	11857 Oct 02 21:47	21°♈14'49	29.37421 AU
				direct	11857 Dec 21 21:01	19°♈51'31	
conjunction	11851 Mar 22 13:05	7°♈09'37	0°38'06	evening set	11858 Mar 21 20:00	21°♈46'12	
minimum elong	11851 Mar 22 13:05	7°♈09'37	0°38'04				
max. Earth dist.	11851 Mar 21 20:48	7°♈08'07	31.38889 AU				
morning rise	11851 Apr 07 06:44	7°♈44'22		conjunction	11858 Apr 06 13:59	22°♈21'01	0°29'46
retrograde	11851 Jul 03 15:11	9°♈36'33		minimum elong	11858 Apr 06 13:59	22°♈21'01	0°29'33
opposition	11851 Sep 19 14:08	8°♈14'33	0°40'08	max. Earth dist.	11858 Apr 05 21:36	22°♈19'30	31.37231 AU
min. Earth dist.	11851 Sep 20 05:44	8°♈13'28	29.38989 AU	morning rise	11858 Apr 22 05:32	22°♈55'39	
direct	11851 Dec 09 01:38	6°♈50'17		retrograde	11858 Jul 18 08:57	24°♈47'52	
evening set	11852 Mar 08 03:57	8°♈45'08		opposition	11858 Oct 04 17:31	23°♈25'41	0°31'03
				min. Earth dist.	11858 Oct 05 09:24	23°♈24'36	29.37114 AU
conjunction	11852 Mar 23 23:45	9°♈20'03	0°37'04	direct	11858 Dec 24 06:50	22°♈01'21	
minimum elong	11852 Mar 23 23:45	9°♈20'03	0°37'01	evening set	11859 Mar 24 06:27	23°♈56'01	
max. Earth dist.	11852 Mar 23 07:22	9°♈18'32	31.38991 AU	max. Earth dist.	11859 Apr 08 07:40	24°♈29'18	31.36974 AU
morning rise	11852 Apr 08 17:05	9°♈54'46					
retrograde	11852 Jul 05 01:06	11°♈46'58		conjunction	11859 Apr 09 00:02	24°♈30'49	0°28'24
opposition	11852 Sep 21 00:50	10°♈24'58	0°38'59	minimum elong	11859 Apr 09 00:02	24°♈30'49	0°28'08
min. Earth dist.	11852 Sep 21 15:55	10°♈23'56	29.39004 AU	morning rise	11859 Apr 24 15:23	25°♈05'27	
direct	11852 Dec 10 14:26	9°♈00'44		retrograde	11859 Jul 20 20:18	26°♈57'42	
evening set	11853 Mar 10 14:48	10°♈55'34		opposition	11859 Oct 07 04:21	25°♈35'31	0°29'34
				min. Earth dist.	11859 Oct 07 18:51	25°♈34'32	29.36887 AU
conjunction	11853 Mar 26 10:13	11°♈30'28	0°35'58	direct	11859 Dec 26 19:26	24°♈11'12	
minimum elong	11853 Mar 26 10:14	11°♈30'28	0°35'52	evening set	11860 Mar 25 16:52	26°♈05'53	
max. Earth dist.	11853 Mar 25 16:53	11°♈28'52	31.38926 AU				
morning rise	11853 Apr 11 03:20	12°♈05'11		conjunction	11860 Apr 10 10:09	26°♈40'41	0°27'00
retrograde	11853 Jul 07 10:55	13°♈57'23		minimum elong	11860 Apr 10 10:09	26°♈40'41	0°26'43
opposition	11853 Sep 23 11:36	12°♈35'23	0°37'47	max. Earth dist.	11860 Apr 09 18:08	26°♈39'12	31.36775 AU
min. Earth dist.	11853 Sep 24 03:31	12°♈34'18	29.38868 AU	morning rise	11860 Apr 26 01:12	27°♈15'18	
direct	11853 Dec 13 00:54	11°♈11'08		retrograde	11860 Jul 22 07:33	29°♈07'37	
evening set	11854 Mar 13 01:37	13°♈05'57		opposition	11860 Oct 08 15:21	27°♈45'26	0°28'02
				min. Earth dist.	11860 Oct 09 06:30	27°♈44'24	29.36715 AU
conjunction	11854 Mar 28 20:51	13°♈40'51	0°34'49	direct	11860 Dec 28 06:04	26°♈21'09	
minimum elong	11854 Mar 28 20:52	13°♈40'51	0°34'42	evening set	11861 Mar 28 03:09	28°♈15'51	
max. Earth dist.	11854 Mar 28 04:10	13°♈39'18	31.38716 AU				
morning rise	11854 Apr 13 13:33	14°♈15'32		conjunction	11861 Apr 12 20:13	28°♈50'38	0°25'33
retrograde	11854 Jul 09 19:34	16°♈07'44		minimum elong	11861 Apr 12 20:13	28°♈50'38	0°25'13
opposition	11854 Sep 25 22:17	14°♈45'43	0°36'32	max. Earth dist.	11861 Apr 12 04:47	28°♈49'12	31.36611 AU
min. Earth dist.	11854 Sep 26 14:19	14°♈44'37	29.38580 AU	morning rise	11861 Apr 28 11:00	29°♈25'15	
direct	11854 Dec 15 13:17	13°♈21'27			11861 May 15 02:15	0°♈	
evening set	11855 Mar 15 12:30	15°♈16'14		retrograde	11861 Jul 24 17:41	1°♈17'37	
					11861 Oct 08 07:47	30°♈	
conjunction	11855 Mar 31 07:16	15°♈51'06	0°33'37	opposition	11861 Oct 11 02:19	29°♈55'27	0°26'28
minimum elong	11855 Mar 31 07:16	15°♈51'06	0°33'28	min. Earth dist.	11861 Oct 11 16:38	29°♈54'29	29.36524 AU
max. Earth dist.	11855 Mar 30 13:25	15°♈49'27	31.38381 AU	direct	11861 Dec 30 18:35	28°♈31'14	
morning rise	11855 Apr 15 23:49	16°♈25'47			11862 Mar 18 06:53	0°♈	
retrograde	11855 Jul 12 05:58	18°♈17'59		evening set	11862 Mar 30 13:41	0°♈25'57	
opposition	11855 Sep 28 09:04	16°♈55'55	0°35'14				
min. Earth dist.	11855 Sep 29 00:56	16°♈54'50	29.38210 AU	conjunction	11862 Apr 15 06:20	1°♈00'43	0°24'03
direct	11855 Dec 17 23:27	15°♈31'37		minimum elong	11862 Apr 15 06:20	1°♈00'43	0°23'43
evening set	11856 Mar 16 22:55	17°♈26'22		max. Earth dist.	11862 Apr 14 14:16	0°♈59'14	31.36395 AU
				morning rise	11862 Apr 30 20:55	1°♈35'19	
conjunction	11856 Apr 01 17:33	18°♈01'13	0°32'23	retrograde	11862 Jul 27 04:36	3°♈27'46	
minimum elong	11856 Apr 01 17:33	18°♈01'13	0°32'13	opposition	11862 Oct 13 13:24	2°♈05'37	0°24'51
max. Earth dist.	11856 Apr 01 00:53	17°♈59'40	31.37979 AU	min. Earth dist.	11862 Oct 14 04:10	2°♈04'36	29.36281 AU
morning rise	11856 Apr 17 09:39	18°♈35'53		direct	11863 Jan 02 05:08	0°♈41'26	
retrograde	11856 Jul 13 13:19	20°♈28'04		evening set	11863 Apr 02 00:07	2°♈36'09	
opposition	11856 Sep 29 19:57	19°♈05'58	0°33'53				
min. Earth dist.	11856 Sep 30 12:12	19°♈04'51	29.37795 AU	conjunction	11863 Apr 17 16:35	3°♈10'55	0°22'32
direct	11856 Dec 19 11:02	17°♈41'38		minimum elong	11863 Apr 17 16:35	3°♈10'55	0°22'09

max. Earth dist.	11863 Apr 17 01:34	3°09'32	31.36103 AU	behind sun begin	11869 Apr 30 00:33	16°08'12'46	
morning rise	11863 May 03 06:46	3°08'45'31		behind sun end	11869 Apr 30 09:10	16°08'13'32	
retrograde	11863 Jul 29 14:05	5°08'38'02		max. Earth dist.	11869 Apr 29 13:55	16°08'11'46	31.31778 AU
opposition	11863 Oct 16 00:42	4°08'15'53	0°23'12	morning rise	11869 May 15 17:47	16°08'47'44	
min. Earth dist.	11863 Oct 16 15:23	4°08'14'53	29.35926 AU	retrograde	11869 Aug 11 04:29	18°08'40'37	
direct	11864 Jan 04 17:46	2°08'51'45		opposition	11869 Oct 28 20:54	17°08'18'14	0°12'45
evening set	11864 Apr 03 10:33	4°08'46'28		min. Earth dist.	11869 Oct 29 11:05	17°08'17'16	29.31343 AU
max. Earth dist.	11864 Apr 18 10:31	5°08'19'45	31.35691 AU	direct	11870 Jan 17 11:20	15°08'54'04	
				evening set	11870 Apr 17 00:13	17°08'48'42	
conjunction	11864 Apr 19 02:33	5°08'21'14	0°20'59				
minimum elong	11864 Apr 19 02:33	5°08'21'14	0°20'35	conjunction	11870 May 02 14:43	18°08'23'25	0°11'09
morning rise	11864 May 04 16:38	5°08'55'50		minimum elong	11870 May 02 14:44	18°08'23'25	0°10'36
retrograde	11864 Jul 31 01:11	7°08'48'25		behind sun begin	11870 May 02 09:42	18°08'22'58	
opposition	11864 Oct 17 11:59	6°08'26'16	0°21'32	behind sun end	11870 May 02 19:45	18°08'23'52	
min. Earth dist.	11864 Oct 18 02:22	6°08'25'17	29.35454 AU	max. Earth dist.	11870 May 02 00:50	18°08'22'08	31.30896 AU
direct	11865 Jan 06 04:07	5°08'02'08		morning rise	11870 May 18 03:22	18°08'58'00	
evening set	11865 Apr 05 20:57	6°08'56'52		retrograde	11870 Aug 13 14:23	20°08'50'57	
				opposition	11870 Oct 31 08:19	19°08'28'32	0°10'56
conjunction	11865 Apr 21 12:50	7°08'31'37	0°19'24	min. Earth dist.	11870 Oct 31 21:09	19°08'27'39	29.30495 AU
minimum elong	11865 Apr 21 12:50	7°08'31'37	0°18'58	direct	11871 Jan 19 23:50	18°08'04'21	
max. Earth dist.	11865 Apr 20 21:46	7°08'30'13	31.35140 AU	evening set	11871 Apr 19 10:23	19°08'59'00	
morning rise	11865 May 07 02:31	8°08'06'13		max. Earth dist.	11871 May 04 10:27	20°08'32'24	31.30104 AU
retrograde	11865 Aug 02 09:20	9°08'58'51					
opposition	11865 Oct 19 23:16	8°08'36'42	0°19'49	conjunction	11871 May 05 00:30	20°08'33'43	0°09'27
min. Earth dist.	11865 Oct 20 14:18	8°08'35'40	29.34825 AU	minimum elong	11871 May 05 00:30	20°08'33'43	0°08'53
direct	11866 Jan 08 15:35	7°08'12'35		behind sun begin	11871 May 04 18:57	20°08'33'13	
evening set	11866 Apr 08 07:29	9°08'07'18		behind sun end	11871 May 05 06:04	20°08'34'12	
				morning rise	11871 May 20 13:03	21°08'08'18	
conjunction	11866 Apr 23 22:58	9°08'42'03	0°17'47	retrograde	11871 Aug 16 02:02	23°08'01'20	
minimum elong	11866 Apr 23 22:58	9°08'42'03	0°17'21	opposition	11871 Nov 02 19:57	21°08'38'53	0°09'06
max. Earth dist.	11866 Apr 23 06:55	9°08'40'33	31.34448 AU	min. Earth dist.	11871 Nov 03 08:29	21°08'38'02	29.29765 AU
morning rise	11866 May 09 12:34	10°08'16'39		direct	11872 Jan 22 10:48	20°08'14'45	
retrograde	11866 Aug 04 20:22	12°08'09'20		evening set	11872 Apr 20 20:15	22°08'09'23	
opposition	11866 Oct 22 10:36	10°08'47'09	0°18'05				
min. Earth dist.	11866 Oct 23 00:46	10°08'46'11	29.34062 AU	conjunction	11872 May 06 10:18	22°08'44'06	0°07'44
direct	11867 Jan 11 01:51	9°08'23'01		minimum elong	11872 May 06 10:17	22°08'44'06	0°07'09
evening set	11867 Apr 10 17:46	11°08'17'44		behind sun begin	11872 May 06 04:21	22°08'43'34	
				behind sun end	11872 May 06 16:14	22°08'44'38	
conjunction	11867 Apr 26 09:03	11°08'52'28	0°16'10	max. Earth dist.	11872 May 05 21:58	22°08'42'58	31.29420 AU
minimum elong	11867 Apr 26 09:03	11°08'52'28	0°15'41	morning rise	11872 May 21 22:31	23°08'18'41	
behind sun begin	11867 Apr 26 07:31	11°08'52'20		retrograde	11872 Aug 17 12:13	25°08'11'49	
behind sun end	11867 Apr 26 10:35	11°08'52'36		opposition	11872 Nov 04 07:34	23°08'49'22	0°07'15
max. Earth dist.	11867 Apr 25 17:45	11°08'51'03	31.33617 AU	min. Earth dist.	11872 Nov 04 19:32	23°08'48'33	29.29110 AU
morning rise	11867 May 11 22:18	12°08'27'04		direct	11873 Jan 23 23:57	22°08'25'16	
retrograde	11867 Aug 07 05:43	14°08'19'49		evening set	11873 Apr 23 06:26	24°08'19'56	
opposition	11867 Oct 24 22:07	12°08'57'34	0°16'20				
min. Earth dist.	11867 Oct 25 13:11	12°08'56'33	29.33184 AU	conjunction	11873 May 08 20:03	24°08'54'38	0°06'00
direct	11868 Jan 13 11:54	11°08'33'26		minimum elong	11873 May 08 20:04	24°08'54'38	0°05'24
evening set	11868 Apr 12 04:01	13°08'28'07		behind sun begin	11873 May 08 13:51	24°08'54'05	
				behind sun end	11873 May 09 02:17	24°08'55'12	
conjunction	11868 Apr 27 18:59	14°08'02'50	0°14'31	max. Earth dist.	11873 May 08 07:14	24°08'53'27	31.28802 AU
minimum elong	11868 Apr 27 19:00	14°08'02'50	0°14'01	morning rise	11873 May 24 08:18	25°08'29'14	
behind sun begin	11868 Apr 27 15:42	14°08'02'33		retrograde	11873 Aug 19 23:35	27°08'22'28	
behind sun end	11868 Apr 27 22:17	14°08'03'08		opposition	11873 Nov 06 19:03	26°08'00'01	0°05'23
max. Earth dist.	11868 Apr 27 03:45	14°08'01'26	31.32713 AU	min. Earth dist.	11873 Nov 07 06:14	25°08'59'16	29.28512 AU
morning rise	11868 May 13 08:07	14°08'37'26		direct	11874 Jan 26 10:17	24°08'35'58	
	11868 May 23 21:54	15°08'		evening set	11874 Apr 25 16:31	26°08'30'39	
retrograde	11868 Aug 08 16:59	16°08'30'15					
opposition	11868 Oct 26 09:22	15°08'07'56	0°14'33	conjunction	11874 May 11 06:05	27°08'05'22	0°04'16
min. Earth dist.	11868 Oct 26 23:09	15°08'07'00	29.32255 AU	minimum elong	11874 May 11 06:04	27°08'05'22	0°03'38
	11868 Oct 31 05:53	15°08'		behind sun begin	11874 May 10 23:41	27°08'04'48	
direct	11869 Jan 15 00:38	13°08'43'46		behind sun end	11874 May 11 12:27	27°08'05'56	
	11869 Mar 27 02:35	15°08'		max. Earth dist.	11874 May 10 18:41	27°08'04'19	31.28202 AU
evening set	11869 Apr 14 14:08	15°08'38'26		morning rise	11874 May 26 17:57	27°08'39'58	
				retrograde	11874 Aug 22 08:01	29°08'33'18	
conjunction	11869 Apr 30 04:52	16°08'13'09	0°12'50	opposition	11874 Nov 09 06:56	28°08'10'52	0°03'30
minimum elong	11869 Apr 30 04:51	16°08'13'09	0°12'18	min. Earth dist.	11874 Nov 09 18:21	28°08'10'05	29.27900 AU

direct	11875 Jan 28 21:58	26° 8 46'52		conjunction	11880 May 23 18:03	10° II 12'20	-0°06'26
evening set	11875 Apr 28 02:40	28° 8 41'33		minimum elong	11880 May 23 18:03	10° II 12'20	0°07'09
				behind sun begin	11880 May 23 12:07	10° II 11'48	
conjunction	11875 May 13 15:50	29° 8 16'16	0°02'29	behind sun end	11880 May 23 24:00	10° II 12'52	
minimum elong	11875 May 13 15:50	29° 8 16'16	0°01'50	max. Earth dist.	11880 May 23 07:23	10° II 11'21	31.22900 AU
behind sun begin	11875 May 13 09:24	29° 8 15'42		morning rise	11880 Jun 08 05:17	10° II 46'58	
behind sun end	11875 May 13 22:16	29° 8 16'51		retrograde	11880 Sep 04 03:46	12° II 40'54	
max. Earth dist.	11875 May 13 04:02	29° 8 15'11	31.27579 AU	opposition	11880 Nov 22 07:19	11° II 18'12	-0°07'47
morning rise	11875 May 29 03:41	29° 8 50'53		min. Earth dist.	11880 Nov 22 16:47	11° II 17'33	29.22292 AU
	11875 Jun 02 08:22	0° II		direct	11881 Feb 10 17:02	9° II 54'14	
retrograde	11875 Aug 24 19:36	1° II 44'20		evening set	11881 May 10 16:02	11° II 48'49	
opposition	11875 Nov 11 18:47	0° II 21'53	0°01'37				
min. Earth dist.	11875 Nov 12 04:58	0° II 21'11	29.27248 AU	conjunction	11881 May 26 04:09	12° II 23'32	-0°08'09
	11875 Nov 25 08:17	30° R 8		minimum elong	11881 May 26 04:09	12° II 23'32	0°08'54
direct	11876 Jan 31 08:20	28° 8 57'56		behind sun begin	11881 May 25 22:36	12° II 23'02	
	11876 Apr 03 15:37	0° II		behind sun end	11881 May 26 09:41	12° II 24'02	
evening set	11876 Apr 29 12:52	0° II 52'37		max. Earth dist.	11881 May 25 19:03	12° II 22'41	31.21665 AU
				morning rise	11881 Jun 10 15:07	12° II 58'10	
conjunction	11876 May 15 01:55	1° II 27'19	0°00'40	retrograde	11881 Sep 06 14:14	14° II 52'10	
minimum elong	11876 May 15 01:53	1° II 27'20	0°00'01	opposition	11881 Nov 24 19:24	13° II 29'23	-0°09'38
behind sun begin	11876 May 14 22:42	1° II 27'05		min. Earth dist.	11881 Nov 25 04:23	13° II 28'46	29.21047 AU
behind sun end	11876 May 15 05:05	1° II 27'34		direct	11882 Feb 13 06:39	12° II 05'24	
max. Earth dist.	11876 May 14 14:55	1° II 26'19	31.26879 AU	evening set	11882 May 13 02:17	13° II 59'58	
morning rise	11876 May 30 13:29	2° II 01'57					
retrograde	11876 Aug 26 05:28	3° II 55'31		conjunction	11882 May 28 14:03	14° II 34'40	-0°09'53
desc. node	11876 Sep 26 04:15	3° II 40'16		minimum elong	11882 May 28 14:02	14° II 34'40	0°10'38
opposition	11876 Nov 13 06:46	2° II 33'03	-0°00'16	behind sun begin	11882 May 28 09:02	14° II 34'13	
min. Earth dist.	11876 Nov 13 17:48	2° II 32'18	29.26506 AU	behind sun end	11882 May 28 19:03	14° II 35'07	
direct	11877 Feb 01 18:26	1° II 09'07		max. Earth dist.	11882 May 28 04:37	14° II 33'48	31.20443 AU
evening set	11877 May 01 23:09	3° II 03'48		morning rise	11882 Jun 13 01:04	15° II 09'19	
				retrograde	11882 Sep 09 02:04	17° II 03'24	
conjunction	11877 May 17 11:56	3° II 38'31	-0°01'09	opposition	11882 Nov 27 07:38	15° II 40'33	-0°11'29
minimum elong	11877 May 17 11:56	3° II 38'31	0°01'51	min. Earth dist.	11882 Nov 27 15:29	15° II 40'01	29.19865 AU
behind sun begin	11877 May 17 05:30	3° II 37'56		direct	11883 Feb 15 17:37	14° II 16'33	
behind sun end	11877 May 17 18:22	3° II 39'05		evening set	11883 May 15 12:13	16° II 11'06	
max. Earth dist.	11877 May 17 01:03	3° II 37'30	31.26085 AU				
morning rise	11877 Jun 01 23:27	4° II 13'09		conjunction	11883 May 30 23:57	16° II 45'49	-0°11'35
retrograde	11877 Aug 28 16:50	6° II 06'48		minimum elong	11883 May 30 23:57	16° II 45'49	0°12'22
opposition	11877 Nov 15 18:45	4° II 44'18	-0°02'09	behind sun begin	11883 May 30 19:39	16° II 45'25	
min. Earth dist.	11877 Nov 16 04:34	4° II 43'38	29.25639 AU	behind sun end	11883 May 31 04:14	16° II 46'12	
direct	11878 Feb 04 06:37	3° II 20'24		max. Earth dist.	11883 May 30 16:16	16° II 45'06	31.19295 AU
evening set	11878 May 04 09:28	5° II 15'05		morning rise	11883 Jun 15 10:43	17° II 20'28	
				retrograde	11883 Sep 11 11:17	19° II 14'40	
conjunction	11878 May 19 21:59	5° II 49'47	-0°02'56	opposition	11883 Nov 29 20:01	17° II 51'46	-0°13'18
minimum elong	11878 May 19 22:00	5° II 49'47	0°03'38	min. Earth dist.	11883 Nov 30 03:39	17° II 51'14	29.18768 AU
behind sun begin	11878 May 19 15:37	5° II 49'13		direct	11884 Feb 18 06:01	16° II 27'47	
behind sun end	11878 May 20 04:23	5° II 50'21		evening set	11884 May 16 22:23	18° II 22'20	
max. Earth dist.	11878 May 19 11:02	5° II 48'46	31.25143 AU				
morning rise	11878 Jun 04 09:22	6° II 24'25		conjunction	11884 Jun 01 09:52	18° II 57'03	-0°13'17
retrograde	11878 Aug 31 04:30	8° II 18'11		minimum elong	11884 Jun 01 09:52	18° II 57'03	0°14'04
opposition	11878 Nov 18 06:57	6° II 55'38	-0°04'02	behind sun begin	11884 Jun 01 06:35	18° II 56'45	
min. Earth dist.	11878 Nov 18 17:25	6° II 54'55	29.24636 AU	behind sun end	11884 Jun 01 13:09	18° II 57'21	
direct	11879 Feb 06 16:39	5° II 31'42		max. Earth dist.	11884 Jun 01 02:14	18° II 56'21	31.18259 AU
evening set	11879 May 06 19:44	7° II 26'22		morning rise	11884 Jun 16 20:43	19° II 31'43	
				retrograde	11884 Sep 12 23:22	21° II 26'02	
conjunction	11879 May 22 08:10	8° II 01'05	-0°04'41	opposition	11884 Dec 01 08:07	20° II 03'07	-0°15'07
minimum elong	11879 May 22 08:10	8° II 01'05	0°05'24	min. Earth dist.	11884 Dec 01 14:06	20° II 02'42	29.17779 AU
behind sun begin	11879 May 22 01:57	8° II 00'31		direct	11885 Feb 19 16:48	18° II 39'10	
behind sun end	11879 May 22 14:22	8° II 01'38		evening set	11885 May 19 08:29	20° II 33'44	
max. Earth dist.	11879 May 21 22:00	8° II 00'08	31.24080 AU				
morning rise	11879 Jun 06 19:20	8° II 35'43		conjunction	11885 Jun 03 19:54	21° II 08'27	-0°14'58
retrograde	11879 Sep 02 15:19	10° II 29'34		minimum elong	11885 Jun 03 19:54	21° II 08'27	0°15'45
opposition	11879 Nov 20 19:07	9° II 06'56	-0°05'55	behind sun begin	11885 Jun 03 18:24	21° II 08'19	
min. Earth dist.	11879 Nov 21 04:34	9° II 06'18	29.23503 AU	behind sun end	11885 Jun 03 21:25	21° II 08'36	
direct	11880 Feb 09 05:29	7° II 43'00		max. Earth dist.	11885 Jun 03 13:24	21° II 07'51	31.17303 AU
evening set	11880 May 08 05:56	9° II 37'38		morning rise	11885 Jun 19 06:38	21° II 43'09	
				retrograde	11885 Sep 15 09:37	23° II 37'37	

opposition	11885 Dec 03 20:34	22° Π 14'40	-0°16'54	direct	11892 Mar 07 00:00	4° \mathfrak{D} 05'06	
min. Earth dist.	11885 Dec 04 02:56	22° Π 14'14	29.16857 AU	evening set	11892 Jun 03 08:57	5° \mathfrak{D} 59'46	
direct	11886 Feb 22 03:08	20° Π 50'47					
evening set	11886 May 21 18:37	22° Π 45'22		conjunction	11892 Jun 18 19:43	6° \mathfrak{D} 34'33	-0°26'02
				minimum elong	11892 Jun 18 19:43	6° \mathfrak{D} 34'33	0°26'50
conjunction	11886 Jun 06 05:53	23° Π 20'06	-0°16'38	max. Earth dist.	11892 Jun 18 16:41	6° \mathfrak{D} 34'16	31.09899 AU
minimum elong	11886 Jun 06 05:52	23° Π 20'06	0°17'25	morning rise	11892 Jul 04 06:19	7° \mathfrak{D} 09'22	
max. Earth dist.	11886 Jun 06 00:06	23° Π 19'34	31.16410 AU	retrograde	11892 Sep 30 22:38	9° \mathfrak{D} 04'46	
morning rise	11886 Jun 21 16:34	23° Π 54'48		opposition	11892 Dec 19 13:28	7° \mathfrak{D} 41'34	-0°28'38
retrograde	11886 Sep 17 21:17	25° Π 49'25		min. Earth dist.	11892 Dec 19 16:43	7° \mathfrak{D} 41'21	29.09186 AU
opposition	11886 Dec 06 09:00	24° Π 26'28	-0°18'41	direct	11893 Mar 09 13:48	6° \mathfrak{D} 17'50	
min. Earth dist.	11886 Dec 06 13:42	24° Π 26'09	29.15967 AU	evening set	11893 Jun 05 19:29	8° \mathfrak{D} 12'27	
direct	11887 Feb 24 14:46	23° Π 02'38					
evening set	11887 May 24 04:54	24° Π 57'15		conjunction	11893 Jun 21 06:06	8° \mathfrak{D} 47'15	-0°27'28
				minimum elong	11893 Jun 21 06:06	8° \mathfrak{D} 47'15	0°28'17
conjunction	11887 Jun 08 15:59	25° Π 32'00	-0°18'16	max. Earth dist.	11893 Jun 21 02:52	8° \mathfrak{D} 46'57	31.08454 AU
minimum elong	11887 Jun 08 15:59	25° Π 32'00	0°19'04	morning rise	11893 Jul 06 16:51	9° \mathfrak{D} 22'04	
max. Earth dist.	11887 Jun 08 10:27	25° Π 31'29	31.15519 AU	retrograde	11893 Oct 03 11:48	11° \mathfrak{D} 17'34	
morning rise	11887 Jun 24 02:40	26° Π 06'43		opposition	11893 Dec 22 02:15	9° \mathfrak{D} 54'16	-0°30'10
retrograde	11887 Sep 20 09:38	28° Π 01'30		min. Earth dist.	11893 Dec 22 04:02	9° \mathfrak{D} 54'09	29.07722 AU
opposition	11887 Dec 08 21:39	26° Π 38'32	-0°20'25	direct	11894 Mar 12 02:21	8° \mathfrak{D} 30'29	
min. Earth dist.	11887 Dec 09 02:42	26° Π 38'12	29.15078 AU	evening set	11894 Jun 08 05:49	10° \mathfrak{D} 25'03	
direct	11888 Feb 26 23:46	25° Π 14'45					
evening set	11888 May 25 15:04	27° Π 09'23		conjunction	11894 Jun 23 16:24	10° \mathfrak{D} 59'52	-0°28'53
				minimum elong	11894 Jun 23 16:24	10° \mathfrak{D} 59'52	0°29'42
conjunction	11888 Jun 10 02:10	27° Π 44'09	-0°19'53	max. Earth dist.	11894 Jun 23 14:15	10° \mathfrak{D} 59'40	31.06982 AU
minimum elong	11888 Jun 10 02:09	27° Π 44'09	0°20'41	morning rise	11894 Jul 09 03:08	11° \mathfrak{D} 34'42	
max. Earth dist.	11888 Jun 09 21:47	27° Π 43'44	31.14609 AU	retrograde	11894 Oct 05 21:31	13° \mathfrak{D} 30'18	
morning rise	11888 Jun 25 12:45	28° Π 18'53		opposition	11894 Dec 24 15:15	12° \mathfrak{D} 06'54	-0°31'39
	11888 Aug 24 02:47	0° \mathfrak{D}		min. Earth dist.	11894 Dec 24 17:19	12° \mathfrak{D} 06'45	29.06279 AU
retrograde	11888 Sep 21 21:22	0° \mathfrak{D} 13'49		direct	11895 Mar 14 14:01	10° \mathfrak{D} 43'04	
	11888 Oct 21 09:29	30° \mathfrak{R} Π		evening set	11895 Jun 10 16:13	12° \mathfrak{D} 37'37	
opposition	11888 Dec 10 10:16	28° Π 50'51	-0°22'08				
min. Earth dist.	11888 Dec 10 14:11	28° Π 50'35	29.14125 AU	conjunction	11895 Jun 26 02:47	13° \mathfrak{D} 12'25	-0°30'15
direct	11889 Feb 28 12:07	27° Π 27'06		minimum elong	11895 Jun 26 02:47	13° \mathfrak{D} 12'25	0°31'03
evening set	11889 May 28 01:35	29° Π 21'46		max. Earth dist.	11895 Jun 26 01:35	13° \mathfrak{D} 12'18	31.05585 AU
				morning rise	11895 Jul 11 13:34	13° \mathfrak{D} 47'17	
conjunction	11889 Jun 12 12:25	29° Π 56'32	-0°21'28	retrograde	11895 Oct 08 08:33	15° \mathfrak{D} 42'58	
minimum elong	11889 Jun 12 12:24	29° Π 56'32	0°22'17	opposition	11895 Dec 27 04:00	14° \mathfrak{D} 19'28	-0°33'05
max. Earth dist.	11889 Jun 12 07:27	29° Π 56'04	31.13611 AU	min. Earth dist.	11895 Dec 27 04:11	14° \mathfrak{D} 19'28	29.04930 AU
	11889 Jun 14 01:09	0° \mathfrak{D}		direct	11896 Mar 16 02:03	12° \mathfrak{D} 55'37	
morning rise	11889 Jun 27 23:06	0° \mathfrak{D} 31'18		evening set	11896 Jun 12 02:37	14° \mathfrak{D} 50'08	
retrograde	11889 Sep 24 11:15	2° \mathfrak{D} 26'22					
opposition	11889 Dec 12 22:56	1° \mathfrak{D} 03'22	-0°23'49	conjunction	11896 Jun 27 13:07	15° \mathfrak{D} 24'58	-0°31'34
min. Earth dist.	11889 Dec 13 02:56	1° \mathfrak{D} 03'06	29.13083 AU	minimum elong	11896 Jun 27 13:07	15° \mathfrak{D} 24'58	0°32'22
	11890 Jan 25 21:36	30° \mathfrak{R} Π		max. Earth dist.	11896 Jun 27 12:19	15° \mathfrak{D} 24'54	31.04285 AU
direct	11890 Mar 02 23:21	29° Π 39'39		morning rise	11896 Jul 13 00:03	15° \mathfrak{D} 59'50	
	11890 Apr 07 04:43	0° \mathfrak{D}		retrograde	11896 Oct 09 20:20	17° \mathfrak{D} 55'39	
evening set	11890 May 30 12:01	1° \mathfrak{D} 34'20		opposition	11896 Dec 28 16:56	16° \mathfrak{D} 32'05	-0°34'28
				min. Earth dist.	11896 Dec 28 17:09	16° \mathfrak{D} 32'04	29.03696 AU
conjunction	11890 Jun 14 22:54	2° \mathfrak{D} 09'07	-0°23'02	direct	11897 Mar 18 11:34	15° \mathfrak{D} 08'14	
minimum elong	11890 Jun 14 22:54	2° \mathfrak{D} 09'07	0°23'50	evening set	11897 Jun 14 12:59	17° \mathfrak{D} 02'44	
max. Earth dist.	11890 Jun 14 19:21	2° \mathfrak{D} 08'47	31.12505 AU				
morning rise	11890 Jun 30 09:25	2° \mathfrak{D} 43'53		conjunction	11897 Jun 29 23:36	17° \mathfrak{D} 37'34	-0°32'50
retrograde	11890 Sep 26 23:17	4° \mathfrak{D} 39'06		minimum elong	11897 Jun 29 23:36	17° \mathfrak{D} 37'34	0°33'38
opposition	11890 Dec 15 11:50	3° \mathfrak{D} 16'03	-0°25'28	max. Earth dist.	11897 Jun 30 00:20	17° \mathfrak{D} 37'38	31.03107 AU
min. Earth dist.	11890 Dec 15 15:30	3° \mathfrak{D} 15'48	29.11906 AU	morning rise	11897 Jul 15 10:29	18° \mathfrak{D} 12'28	
direct	11891 Mar 05 12:51	1° \mathfrak{D} 52'21		retrograde	11897 Oct 12 07:58	20° \mathfrak{D} 08'23	
evening set	11891 Jun 01 22:31	3° \mathfrak{D} 47'02		opposition	11897 Dec 31 05:42	18° \mathfrak{D} 44'47	-0°35'48
				min. Earth dist.	11897 Dec 31 04:21	18° \mathfrak{D} 44'52	29.02563 AU
conjunction	11891 Jun 17 09:10	4° \mathfrak{D} 21'49	-0°24'33	direct	11898 Mar 21 00:10	17° \mathfrak{D} 20'56	
minimum elong	11891 Jun 17 09:10	4° \mathfrak{D} 21'49	0°25'21	evening set	11898 Jun 16 23:33	19° \mathfrak{D} 15'27	
max. Earth dist.	11891 Jun 17 04:55	4° \mathfrak{D} 21'25	31.11267 AU				
morning rise	11891 Jul 02 19:52	4° \mathfrak{D} 56'36		conjunction	11898 Jul 02 10:00	19° \mathfrak{D} 50'18	-0°34'04
retrograde	11891 Sep 29 12:06	6° \mathfrak{D} 51'56		minimum elong	11898 Jul 02 10:00	19° \mathfrak{D} 50'18	0°34'51
opposition	11891 Dec 18 00:42	5° \mathfrak{D} 28'49	-0°27'04	max. Earth dist.	11898 Jul 02 10:36	19° \mathfrak{D} 50'21	31.02027 AU
min. Earth dist.	11891 Dec 18 03:40	5° \mathfrak{D} 28'37	29.10607 AU	morning rise	11898 Jul 17 21:08	20° \mathfrak{D} 25'13	

retrograde	11898 Oct 14 21:41	22° Ω 21'16	evening set	11905 Jul 03 02:57	4° Ω 49'30
opposition	11899 Jan 02 18:44	20° Ω 57'37 -0°37'06			
min. Earth dist.	11899 Jan 02 16:59	20° Ω 57'44 29.01534 AU	conjunction	11905 Jul 18 13:51	5° Ω 24'29 -0°41'10
direct	11899 Mar 23 10:26	19° Ω 33'48	minimum elong	11905 Jul 18 13:51	5° Ω 24'29 0°41'52
evening set	11899 Jun 19 09:54	21° Ω 28'20	max. Earth dist.	11905 Jul 18 18:07	5° Ω 24'53 30.94412 AU
			morning rise	11905 Aug 03 01:59	5° Ω 59'34
conjunction	11899 Jul 04 20:33	22° Ω 03'11 -0°35'15	retrograde	11905 Oct 31 13:59	7° Ω 56'31
minimum elong	11899 Jul 04 20:33	22° Ω 03'11 0°36'01	opposition	11906 Jan 19 14:47	6° Ω 32'32 -0°44'28
max. Earth dist.	11899 Jul 04 23:03	22° Ω 03'25 31.01027 AU	min. Earth dist.	11906 Jan 19 10:14	6° Ω 32'51 28.93766 AU
morning rise	11899 Jul 20 07:39	22° Ω 38'08	direct	11906 Apr 08 22:16	5° Ω 08'49
retrograde	11899 Oct 17 09:46	24° Ω 34'19	evening set	11906 Jul 05 13:47	7° Ω 03'20
opposition	11900 Jan 05 07:45	23° Ω 10'39 -0°38'20			
min. Earth dist.	11900 Jan 05 05:20	23° Ω 10'49 29.00550 AU	conjunction	11906 Jul 21 00:56	7° Ω 38'19 -0°41'57
direct	11900 Mar 25 22:53	21° Ω 46'52	minimum elong	11906 Jul 21 00:56	7° Ω 38'19 0°42'38
evening set	11900 Jun 21 20:37	23° Ω 41'25	max. Earth dist.	11906 Jul 21 06:34	7° Ω 38'51 30.93092 AU
			morning rise	11906 Aug 05 13:08	8° Ω 13'26
conjunction	11900 Jul 07 07:09	24° Ω 16'17 -0°36'22	retrograde	11906 Nov 03 01:37	10° Ω 10'27
minimum elong	11900 Jul 07 07:09	24° Ω 16'17 0°37'08	opposition	11907 Jan 22 03:56	8° Ω 46'24 -0°45'17
max. Earth dist.	11900 Jul 07 09:15	24° Ω 16'29 31.00062 AU	min. Earth dist.	11907 Jan 21 21:56	8° Ω 46'49 28.92459 AU
morning rise	11900 Jul 22 18:32	24° Ω 51'15	direct	11907 Apr 11 11:26	7° Ω 22'38
retrograde	11900 Oct 19 23:45	26° Ω 47'35	evening set	11907 Jul 08 00:40	9° Ω 17'08
opposition	11901 Jan 07 20:38	25° Ω 23'53 -0°39'30			
min. Earth dist.	11901 Jan 07 17:25	25° Ω 24'06 28.99592 AU	conjunction	11907 Jul 23 11:47	9° Ω 52'08 -0°42'40
direct	11901 Mar 28 09:37	24° Ω 00'08	minimum elong	11907 Jul 23 11:47	9° Ω 52'08 0°43'20
evening set	11901 Jun 24 07:19	25° Ω 54'42	max. Earth dist.	11907 Jul 23 17:13	9° Ω 52'38 30.91819 AU
			morning rise	11907 Aug 08 00:22	10° Ω 27'16
conjunction	11901 Jul 09 18:01	26° Ω 29'36 -0°37'27	retrograde	11907 Nov 05 14:52	12° Ω 24'24
minimum elong	11901 Jul 09 18:01	26° Ω 29'36 0°38'12	opposition	11908 Jan 24 17:09	11° Ω 00'15 -0°46'01
max. Earth dist.	11901 Jul 09 21:29	26° Ω 29'56 30.99083 AU	min. Earth dist.	11908 Jan 24 10:50	11° Ω 00'41 28.91245 AU
morning rise	11901 Jul 25 05:23	27° Ω 04'35	direct	11908 Apr 12 21:36	9° Ω 36'28
retrograde	11901 Oct 22 12:04	29° Ω 01'04	evening set	11908 Jul 09 11:32	11° Ω 30'56
opposition	11902 Jan 10 09:52	27° Ω 37'20 -0°40'37			
min. Earth dist.	11902 Jan 10 06:48	27° Ω 37'33 28.98592 AU	conjunction	11908 Jul 24 22:57	12° Ω 05'57 -0°43'19
direct	11902 Mar 30 23:00	26° Ω 13'38	minimum elong	11908 Jul 24 22:57	12° Ω 05'58 0°43'58
evening set	11902 Jun 26 18:07	28° Ω 08'12	max. Earth dist.	11908 Jul 25 06:15	12° Ω 06'39 30.90656 AU
			morning rise	11908 Aug 09 11:33	12° Ω 41'07
conjunction	11902 Jul 12 04:46	28° Ω 43'07 -0°38'28	retrograde	11908 Nov 07 02:38	14° Ω 38'20
minimum elong	11902 Jul 12 04:46	28° Ω 43'07 0°39'13	opposition	11909 Jan 26 06:08	13° Ω 14'08 -0°46'41
max. Earth dist.	11902 Jul 12 08:02	28° Ω 43'26 30.98058 AU	min. Earth dist.	11909 Jan 25 22:58	13° Ω 14'38 28.90145 AU
morning rise	11902 Jul 27 16:21	29° Ω 18'08	direct	11909 Apr 15 09:29	11° Ω 50'20
	11902 Aug 16 12:47	0° Ω	evening set	11909 Jul 11 22:35	13° Ω 44'49
retrograde	11902 Oct 25 02:35	1° Ω 14'45			
	11903 Jan 07 11:09	30° Ω 00'00	conjunction	11909 Jul 27 09:59	14° Ω 19'51 -0°43'55
opposition	11903 Jan 12 23:04	29° Ω 50'59 -0°41'41	minimum elong	11909 Jul 27 09:59	14° Ω 19'51 0°44'33
min. Earth dist.	11903 Jan 12 18:41	29° Ω 51'17 28.97527 AU	max. Earth dist.	11909 Jul 27 17:06	14° Ω 20'31 30.89634 AU
direct	11903 Apr 02 11:30	28° Ω 27'18	morning rise	11909 Aug 11 22:58	14° Ω 55'02
	11903 Jun 19 02:57	0° Ω		11909 Aug 14 04:50	15° Ω
evening set	11903 Jun 29 05:04	0° Ω 21'53	retrograde	11909 Nov 09 17:02	16° Ω 52'22
			opposition	11910 Jan 28 19:18	15° Ω 28'06 -0°47'17
conjunction	11903 Jul 14 15:48	0° Ω 56'49 -0°39'25	min. Earth dist.	11910 Jan 28 11:03	15° Ω 28'40 28.89199 AU
minimum elong	11903 Jul 14 15:49	0° Ω 56'49 0°40'10		11910 Feb 15 03:25	15° Ω 00'00
max. Earth dist.	11903 Jul 14 19:42	0° Ω 57'11 30.96936 AU	direct	11910 Apr 17 20:17	14° Ω 04'19
morning rise	11903 Jul 30 03:30	1° Ω 31'52		11910 Jun 15 11:50	15° Ω
retrograde	11903 Oct 27 13:42	3° Ω 28'36	evening set	11910 Jul 14 09:24	15° Ω 58'48
opposition	11904 Jan 15 12:21	2° Ω 04'47 -0°42'40			
min. Earth dist.	11904 Jan 15 08:41	2° Ω 05'02 28.96360 AU	conjunction	11910 Jul 29 21:05	16° Ω 33'51 -0°44'27
direct	11904 Apr 03 23:20	0° Ω 41'06	minimum elong	11910 Jul 29 21:05	16° Ω 33'51 0°45'04
evening set	11904 Jun 30 15:59	2° Ω 35'41	max. Earth dist.	11910 Jul 30 05:55	16° Ω 34'41 30.88748 AU
			morning rise	11910 Aug 14 10:10	17° Ω 09'03
conjunction	11904 Jul 16 02:53	3° Ω 10'38 -0°40'19	retrograde	11910 Nov 12 06:11	19° Ω 06'30
minimum elong	11904 Jul 16 02:53	3° Ω 10'38 0°41'03	opposition	11911 Jan 31 08:34	17° Ω 42'12 -0°47'49
max. Earth dist.	11904 Jul 16 07:12	3° Ω 11'02 30.95723 AU	min. Earth dist.	11911 Jan 31 00:04	17° Ω 42'47 28.88379 AU
morning rise	11904 Jul 31 14:46	3° Ω 45'42	direct	11911 Apr 20 09:44	16° Ω 18'27
retrograde	11904 Oct 29 01:51	5° Ω 42'32	evening set	11911 Jul 16 20:30	18° Ω 12'55
opposition	11905 Jan 17 01:31	4° Ω 18'39 -0°43'36			
min. Earth dist.	11905 Jan 16 20:29	4° Ω 19'00 28.95090 AU	conjunction	11911 Aug 01 08:18	18° Ω 48'00 -0°44'54
direct	11905 Apr 06 12:04	2° Ω 54'57	minimum elong	11911 Aug 01 08:18	18° Ω 48'00 0°45'30

max. Earth dist.	11911 Aug 01 17:15	18°048'51	30.87999 AU	retrograde	11917 Nov 28 01:17	4°049'44	
morning rise	11911 Aug 16 21:44	19°023'14		opposition	11918 Feb 16 05:22	3°025'12	-0°49'26
retrograde	11911 Nov 14 21:00	21°020'47		min. Earth dist.	11918 Feb 15 18:03	3°025'59	28.83437 AU
opposition	11912 Feb 02 21:36	19°056'27	-0°48'16	direct	11918 May 05 22:04	2°001'31	
min. Earth dist.	11912 Feb 02 11:36	19°057'09	28.87681 AU	evening set	11918 Aug 01 04:38	3°055'56	
direct	11912 Apr 21 21:46	18°032'44					
evening set	11912 Jul 18 07:39	20°027'13		conjunction	11918 Aug 16 17:56	4°031'09	-0°46'11
				minimum elong	11918 Aug 16 17:56	4°031'09	0°46'36
conjunction	11912 Aug 02 19:40	21°002'19	-0°45'18	max. Earth dist.	11918 Aug 17 05:08	4°032'13	30.82968 AU
minimum elong	11912 Aug 02 19:40	21°002'19	0°45'53	morning rise	11918 Sep 01 09:24	5°006'34	
max. Earth dist.	11912 Aug 03 05:31	21°003'15	30.87333 AU	retrograde	11918 Nov 30 15:24	7°004'41	
morning rise	11912 Aug 18 09:20	21°037'35		opposition	11919 Feb 18 18:40	5°040'04	-0°49'22
retrograde	11912 Nov 16 09:10	23°035'14		min. Earth dist.	11919 Feb 18 06:52	5°040'53	28.82547 AU
opposition	11913 Feb 04 10:54	22°010'54	-0°48'39	direct	11919 May 08 09:27	4°016'21	
min. Earth dist.	11913 Feb 04 01:22	22°011'34	28.87049 AU	evening set	11919 Aug 03 16:13	6°010'44	
direct	11913 Apr 24 09:40	20°047'13					
evening set	11913 Jul 20 18:52	22°041'43		conjunction	11919 Aug 19 05:55	6°045'58	-0°46'05
				minimum elong	11919 Aug 19 05:55	6°045'58	0°46'29
conjunction	11913 Aug 05 07:05	23°016'50	-0°45'37	max. Earth dist.	11919 Aug 19 18:29	6°047'09	30.82082 AU
minimum elong	11913 Aug 05 07:05	23°016'50	0°46'10	morning rise	11919 Sep 03 21:34	7°021'24	
max. Earth dist.	11913 Aug 05 17:38	23°017'50	30.86726 AU	retrograde	11919 Dec 03 03:56	9°019'34	
morning rise	11913 Aug 20 20:58	23°052'07		opposition	11920 Feb 21 07:46	7°054'52	-0°49'13
retrograde	11913 Nov 18 23:05	25°049'53		min. Earth dist.	11920 Feb 20 20:02	7°055'41	28.81692 AU
opposition	11914 Feb 07 00:05	24°025'32	-0°48'57	direct	11920 May 09 22:21	6°031'07	
min. Earth dist.	11914 Feb 06 13:08	24°026'17	28.86444 AU	evening set	11920 Aug 05 03:54	8°025'28	
direct	11914 Apr 26 23:00	23°001'53					
evening set	11914 Jul 23 06:21	24°056'23		conjunction	11920 Aug 20 17:47	9°000'43	-0°45'55
				minimum elong	11920 Aug 20 17:47	9°000'43	0°46'17
conjunction	11914 Aug 07 18:39	25°031'32	-0°45'52	max. Earth dist.	11920 Aug 21 06:12	9°001'54	30.81279 AU
minimum elong	11914 Aug 07 18:40	25°031'32	0°46'24	morning rise	11920 Sep 05 09:51	9°036'11	
max. Earth dist.	11914 Aug 08 05:08	25°032'31	30.86111 AU	retrograde	11920 Dec 04 18:27	11°034'24	
morning rise	11914 Aug 23 08:53	26°006'51		opposition	11921 Feb 22 20:50	10°009'38	-0°49'00
retrograde	11914 Nov 21 12:27	28°004'43		min. Earth dist.	11921 Feb 22 07:45	10°010'32	28.80944 AU
opposition	11915 Feb 09 13:29	26°040'20	-0°49'11	direct	11921 May 12 10:18	8°045'51	
min. Earth dist.	11915 Feb 09 03:13	26°041'03	28.85823 AU	evening set	11921 Aug 07 15:29	10°040'12	
direct	11915 Apr 29 10:02	25°016'43					
evening set	11915 Jul 25 17:44	27°011'13		conjunction	11921 Aug 23 05:38	11°015'29	-0°45'41
				minimum elong	11921 Aug 23 05:38	11°015'29	0°46'01
conjunction	11915 Aug 10 06:25	27°046'23	-0°46'03	max. Earth dist.	11921 Aug 23 18:59	11°016'45	30.80580 AU
minimum elong	11915 Aug 10 06:26	27°046'23	0°46'33	morning rise	11921 Sep 07 21:58	11°050'58	
max. Earth dist.	11915 Aug 10 17:53	27°047'28	30.85457 AU	retrograde	11921 Dec 07 07:12	13°049'14	
morning rise	11915 Aug 25 20:49	28°021'44		opposition	11922 Feb 25 10:03	12°024'26	-0°48'43
	11915 Oct 20 08:07	0°000		min. Earth dist.	11922 Feb 24 21:18	12°025'19	28.80317 AU
retrograde	11915 Nov 24 00:17	0°019'41		direct	11922 May 14 22:35	11°000'39	
	11915 Dec 29 12:07	30°000		evening set	11922 Aug 10 03:08	12°054'59	
opposition	11916 Feb 12 02:46	28°055'16	-0°49'20				
min. Earth dist.	11916 Feb 11 15:29	28°056'03	28.85119 AU	conjunction	11922 Aug 25 17:38	13°030'17	-0°45'23
direct	11916 Apr 30 23:13	27°031'39		minimum elong	11922 Aug 25 17:39	13°030'17	0°45'42
evening set	11916 Jul 27 05:30	29°026'08		max. Earth dist.	11922 Aug 26 07:42	13°031'37	30.80033 AU
				morning rise	11922 Sep 10 10:17	14°005'49	
conjunction	11916 Aug 11 18:16	0°001'19	-0°46'10	retrograde	11922 Dec 09 22:03	16°004'07	
minimum elong	11916 Aug 11 18:16	0°001'19	0°46'38	opposition	11923 Feb 27 23:02	14°039'18	-0°48'21
	11916 Aug 11 04:27	0°000		min. Earth dist.	11923 Feb 27 08:43	14°040'17	28.79838 AU
max. Earth dist.	11916 Aug 12 04:48	0°002'19	30.84703 AU	direct	11923 May 17 12:04	13°015'33	
morning rise	11916 Aug 27 09:05	0°036'41		evening set	11923 Aug 12 14:53	15°009'53	
retrograde	11916 Nov 25 13:16	2°034'42					
opposition	11917 Feb 13 16:02	1°010'15	-0°49'25	conjunction	11923 Aug 28 05:38	15°045'13	-0°45'00
min. Earth dist.	11917 Feb 13 05:08	1°011'00	28.84322 AU	minimum elong	11923 Aug 28 05:38	15°045'13	0°45'16
	11917 Apr 04 19:58	30°000		max. Earth dist.	11923 Aug 28 19:49	15°046'33	30.79615 AU
direct	11917 May 03 09:39	29°046'36		morning rise	11923 Sep 12 22:43	16°020'46	
	11917 May 31 10:12	0°000		retrograde	11923 Dec 12 11:32	18°019'09	
evening set	11917 Jul 29 17:04	1°041'03		opposition	11924 Mar 01 12:11	16°054'19	-0°47'54
				min. Earth dist.	11924 Feb 29 22:23	16°055'16	28.79487 AU
conjunction	11917 Aug 14 06:15	2°016'16	-0°46'13	direct	11924 May 18 23:27	15°030'35	
minimum elong	11917 Aug 14 06:15	2°016'16	0°46'39	evening set	11924 Aug 14 02:39	17°024'56	
max. Earth dist.	11917 Aug 14 18:04	2°017'23	30.83861 AU				
morning rise	11917 Aug 29 21:12	2°051'39		conjunction	11924 Aug 29 17:50	18°000'17	-0°44'33

minimum elong	11924 Aug 29 17:50	18° 00 '17	0°44'48	opposition	11931 Mar 18 07:30	2° 43 '30	-0°42'46
max. Earth dist.	11924 Aug 30 09:12	18° 01 '45	30.79322 AU	min. Earth dist.	11931 Mar 17 17:11	2° 44 '30	28.77525 AU
morning rise	11924 Sep 14 11:08	18° 35 '52		direct	11931 Jun 04 10:15	1° 19 '49	
retrograde	11924 Dec 13 23:48	20° 34 '19		evening set	11931 Aug 30 16:04	3° 14 '07	
min. Earth dist.	11925 Mar 03 10:03	19° 10 '32	28.79234 AU				
opposition	11925 Mar 04 01:05	19° 09 '30	-0°47'23	conjunction	11931 Sep 15 09:34	3° 49 '38	-0°39'33
direct	11925 May 21 12:24	17° 45 '49		minimum elong	11931 Sep 15 09:35	3° 49 '38	0°39'34
evening set	11925 Aug 16 14:40	19° 40 '11		max. Earth dist.	11931 Sep 16 01:11	3° 51 '07	30.77280 AU
				morning rise	11931 Oct 01 05:27	4° 25 '23	
conjunction	11925 Sep 01 05:59	20° 15 '33	-0°44'02	retrograde	11931 Dec 30 22:19	6° 24 '01	
minimum elong	11925 Sep 01 06:00	20° 15 '33	0°44'15	opposition	11932 Mar 19 20:14	4° 59 '01	-0°41'46
max. Earth dist.	11925 Sep 01 20:46	20° 16 '57	30.79112 AU	min. Earth dist.	11932 Mar 19 04:51	5° 00 '06	28.77087 AU
morning rise	11925 Sep 16 23:48	20° 51 '10		direct	11932 Jun 06 00:21	3° 35 '17	
retrograde	11925 Dec 16 13:24	22° 49 '41		evening set	11932 Sep 01 04:25	5° 29 '33	
opposition	11926 Mar 06 14:16	21° 24 '53	-0°46'48				
min. Earth dist.	11926 Mar 05 23:30	21° 25 '54	28.79060 AU	conjunction	11932 Sep 16 22:09	6° 05 '05	-0°38'35
direct	11926 May 23 22:39	20° 01 '15		minimum elong	11932 Sep 16 22:09	6° 05 '05	0°38'35
evening set	11926 Aug 19 02:33	21° 55 '37		max. Earth dist.	11932 Sep 17 13:37	6° 06 '33	30.76860 AU
				morning rise	11932 Oct 02 18:26	6° 40 '51	
conjunction	11926 Sep 03 18:21	22° 31 '02	-0°43'27	retrograde	11933 Jan 01 11:03	8° 39 '27	
minimum elong	11926 Sep 03 18:22	22° 31 '02	0°43'39	opposition	11933 Mar 22 09:00	7° 14 '24	-0°40'43
max. Earth dist.	11926 Sep 04 10:31	22° 32 '34	30.78949 AU	min. Earth dist.	11933 Mar 21 18:27	7° 15 '25	28.76715 AU
morning rise	11926 Sep 19 12:21	23° 06 '40		direct	11933 Jun 08 12:19	5° 50 '36	
retrograde	11926 Dec 19 02:02	25° 05 '15		evening set	11933 Sep 03 16:40	7° 44 '50	
opposition	11927 Mar 09 03:22	23° 40 '28	-0°46'08				
min. Earth dist.	11927 Mar 08 12:16	23° 41 '31	28.78888 AU	conjunction	11933 Sep 19 10:53	8° 20 '23	-0°37'34
direct	11927 May 26 10:43	22° 16 '52		minimum elong	11933 Sep 19 10:54	8° 20 '23	0°37'31
evening set	11927 Aug 21 14:52	24° 11 '15		max. Earth dist.	11933 Sep 20 03:20	8° 21 '56	30.76547 AU
				morning rise	11933 Oct 05 07:25	8° 56 '10	
conjunction	11927 Sep 06 06:51	24° 46 '41	-0°42'48	retrograde	11934 Jan 04 00:16	10° 54 '44	
minimum elong	11927 Sep 06 06:51	24° 46 '41	0°42'57	opposition	11934 Mar 24 21:37	9° 29 '38	-0°39'35
max. Earth dist.	11927 Sep 06 22:02	24° 48 '07	30.78766 AU	min. Earth dist.	11934 Mar 24 05:52	9° 30 '44	28.76459 AU
morning rise	11927 Sep 22 01:22	25° 22 '22		direct	11934 Jun 11 01:59	8° 05 '48	
retrograde	11927 Dec 21 15:50	27° 21 '00		evening set	11934 Sep 06 04:59	10° 00 '00	
opposition	11928 Mar 10 16:21	25° 56 '12	-0°45'23				
min. Earth dist.	11928 Mar 10 01:17	25° 57 '15	28.78681 AU	conjunction	11934 Sep 21 23:25	10° 35 '34	-0°36'29
direct	11928 May 27 21:44	24° 32 '37		minimum elong	11934 Sep 21 23:25	10° 35 '34	0°36'25
evening set	11928 Aug 23 03:10	26° 27 '01		max. Earth dist.	11934 Sep 22 15:15	10° 37 '04	30.76359 AU
				morning rise	11934 Oct 07 20:29	11° 11 '23	
conjunction	11928 Sep 07 19:37	27° 02 '28	-0°42'05	retrograde	11935 Jan 06 14:20	13° 09 '55	
minimum elong	11928 Sep 07 19:37	27° 02 '28	0°42'13	opposition	11935 Mar 27 10:20	11° 44 '46	-0°38'24
max. Earth dist.	11928 Sep 08 11:35	27° 03 '59	30.78506 AU	min. Earth dist.	11935 Mar 26 18:53	11° 45 '51	28.76351 AU
morning rise	11928 Sep 23 14:20	27° 38 '10		direct	11935 Jun 13 13:34	10° 20 '56	
retrograde	11928 Dec 23 04:03	29° 36 '50		evening set	11935 Sep 08 17:19	12° 15 '06	
opposition	11929 Mar 13 05:30	28° 12 '01	-0°44'35				
min. Earth dist.	11929 Mar 12 14:57	28° 13 '02	28.78370 AU	conjunction	11935 Sep 24 12:18	12° 50 '42	-0°35'22
direct	11929 May 30 09:56	26° 48 '25		minimum elong	11935 Sep 24 12:18	12° 50 '42	0°35'15
evening set	11929 Aug 25 15:27	28° 42 '48		max. Earth dist.	11935 Sep 25 05:28	12° 52 '19	30.76322 AU
				morning rise	11935 Oct 10 09:33	13° 26 '32	
conjunction	11929 Sep 10 08:09	29° 18 '17	-0°41'18	retrograde	11936 Jan 09 02:07	15° 25 '02	
minimum elong	11929 Sep 10 08:09	29° 18 '17	0°41'23	opposition	11936 Mar 28 22:44	13° 59 '53	-0°37'10
max. Earth dist.	11929 Sep 10 23:19	29° 19 '43	30.78157 AU	min. Earth dist.	11936 Mar 28 06:44	14° 01 '00	28.76381 AU
morning rise	11929 Sep 26 03:19	29° 54 '00		direct	11936 Jun 15 02:23	12° 36 '02	
	11929 Sep 28 20:31	0° 52 '41		evening set	11936 Sep 10 05:49	14° 30 '12	
retrograde	11929 Dec 25 18:35	0° 27 '49	-0°43'43				
opposition	11930 Mar 15 18:32	0° 28 '53	28.77976 AU	conjunction	11936 Sep 26 01:00	15° 05 '48	-0°34'10
min. Earth dist.	11930 Mar 15 03:17	30° 04 '11		minimum elong	11936 Sep 26 01:01	15° 05 '48	0°34'03
	11930 Apr 01 17:38	29° 04 '11		max. Earth dist.	11936 Sep 26 17:24	15° 07 '21	30.76433 AU
direct	11930 Jun 01 21:20	0° 58 '32		morning rise	11936 Oct 11 22:47	15° 41 '40	
	11930 Jul 30 08:46			retrograde	11937 Jan 10 15:20	17° 40 '10	
evening set	11930 Aug 28 03:47			opposition	11937 Mar 31 11:19	16° 15 '01	-0°35'51
				min. Earth dist.	11937 Mar 30 19:06	16° 16 '09	28.76566 AU
conjunction	11930 Sep 12 20:52	1° 34 '01	-0°40'27	direct	11937 Jun 17 13:08	14° 51 '11	
minimum elong	11930 Sep 12 20:52	1° 34 '01	0°40'32	evening set	11937 Sep 12 18:06	16° 45 '21	
max. Earth dist.	11930 Sep 13 12:22	1° 35 '29	30.77724 AU				
morning rise	11930 Sep 28 16:23	2° 09 '46		conjunction	11937 Sep 28 13:47	17° 20 '59	-0°32'56
retrograde	11930 Dec 28 07:27	4° 08 '26		minimum elong	11937 Sep 28 13:47	17° 20 '59	0°32'46

max. Earth dist.	11937 Sep 29 07:27	17° <u>♁</u> 22'39	30.76675 AU	opposition	11944 Apr 16 02:16	2° <u>♁</u> 03'16	-0°25'19
morning rise	11937 Oct 14 11:46	17° <u>♁</u> 56'51		direct	11944 Jul 03 02:23	0° <u>♁</u> 39'25	
retrograde	11938 Jan 13 02:58	19° <u>♁</u> 55'21		evening set	11944 Sep 28 11:46	2° <u>♁</u> 33'37	
opposition	11938 Apr 02 23:55	18° <u>♁</u> 30'15	-0°34'30				
min. Earth dist.	11938 Apr 02 07:55	18° <u>♁</u> 31'22	28.76858 AU	conjunction	11944 Oct 14 10:00	3° <u>♁</u> 09'24	-0°22'57
direct	11938 Jun 20 00:40	17° <u>♁</u> 06'26		minimum elong	11944 Oct 14 10:00	3° <u>♁</u> 09'24	0°22'35
evening set	11938 Sep 15 06:44	19° <u>♁</u> 00'37		max. Earth dist.	11944 Oct 15 02:08	3° <u>♁</u> 10'54	30.78566 AU
				morning rise	11944 Oct 30 10:18	3° <u>♁</u> 45'23	
conjunction	11938 Oct 01 02:42	19° <u>♁</u> 36'16	-0°31'38	retrograde	11945 Jan 29 01:56	5° <u>♁</u> 43'36	
minimum elong	11938 Oct 01 02:42	19° <u>♁</u> 36'16	0°31'27	opposition	11945 Apr 18 14:23	4° <u>♁</u> 18'35	-0°23'39
max. Earth dist.	11938 Oct 01 19:39	19° <u>♁</u> 37'52	30.77022 AU	min. Earth dist.	11945 Apr 17 23:42	4° <u>♁</u> 19'36	28.78681 AU
morning rise	11938 Oct 17 01:10	20° <u>♁</u> 12'10		direct	11945 Jul 05 15:51	2° <u>♁</u> 54'42	
retrograde	11939 Jan 15 17:31	22° <u>♁</u> 10'40		evening set	11945 Oct 01 00:33	4° <u>♁</u> 48'52	
opposition	11939 Apr 05 12:17	20° <u>♁</u> 45'36	-0°33'05				
min. Earth dist.	11939 Apr 04 19:43	20° <u>♁</u> 46'45	28.77234 AU	conjunction	11945 Oct 16 22:57	5° <u>♁</u> 24'38	-0°21'22
direct	11939 Jun 22 11:19	19° <u>♁</u> 21'48		minimum elong	11945 Oct 16 22:57	5° <u>♁</u> 24'39	0°20'57
evening set	11939 Sep 17 19:28	21° <u>♁</u> 16'01		max. Earth dist.	11945 Oct 17 14:01	5° <u>♁</u> 26'03	30.78796 AU
				morning rise	11945 Nov 01 23:44	6° <u>♁</u> 00'39	
conjunction	11939 Oct 03 15:49	21° <u>♁</u> 51'41	-0°30'18	retrograde	11946 Jan 31 15:00	7° <u>♁</u> 58'48	
minimum elong	11939 Oct 03 15:49	21° <u>♁</u> 51'41	0°30'04	min. Earth dist.	11946 Apr 20 11:56	6° <u>♁</u> 34'46	28.78966 AU
max. Earth dist.	11939 Oct 04 09:05	21° <u>♁</u> 53'19	30.77398 AU	opposition	11946 Apr 21 02:30	6° <u>♁</u> 33'45	-0°21'56
morning rise	11939 Oct 19 14:34	22° <u>♁</u> 27'37		direct	11946 Jul 08 03:08	5° <u>♁</u> 09'50	
retrograde	11940 Jan 18 05:58	24° <u>♁</u> 26'07		evening set	11946 Oct 03 13:20	7° <u>♁</u> 03'59	
min. Earth dist.	11940 Apr 06 09:22	23° <u>♁</u> 02'10	28.77605 AU				
opposition	11940 Apr 07 00:50	23° <u>♁</u> 01'05	-0°31'37	conjunction	11946 Oct 19 12:13	7° <u>♁</u> 39'47	-0°19'46
direct	11940 Jun 23 23:23	21° <u>♁</u> 37'19		minimum elong	11946 Oct 19 12:13	7° <u>♁</u> 39'47	0°19'21
evening set	11940 Sep 19 08:15	23° <u>♁</u> 31'33		max. Earth dist.	11946 Oct 20 04:21	7° <u>♁</u> 41'18	30.79129 AU
				morning rise	11946 Nov 04 13:09	8° <u>♁</u> 15'48	
conjunction	11940 Oct 05 04:58	24° <u>♁</u> 07'15	-0°28'54	retrograde	11947 Feb 03 02:20	10° <u>♁</u> 13'51	
minimum elong	11940 Oct 05 04:58	24° <u>♁</u> 07'15	0°28'39	opposition	11947 Apr 23 14:21	8° <u>♁</u> 48'49	-0°20'12
max. Earth dist.	11940 Oct 05 21:50	24° <u>♁</u> 08'50	30.77754 AU	min. Earth dist.	11947 Apr 23 00:10	8° <u>♁</u> 49'49	28.79362 AU
morning rise	11940 Oct 21 04:01	24° <u>♁</u> 43'11		direct	11947 Jul 10 14:52	7° <u>♁</u> 24'53	
retrograde	11941 Jan 19 20:41	26° <u>♁</u> 41'40		evening set	11947 Oct 06 02:13	9° <u>♁</u> 19'01	
opposition	11941 Apr 09 13:13	25° <u>♁</u> 16'40	-0°30'07				
min. Earth dist.	11941 Apr 08 21:07	25° <u>♁</u> 17'47	28.77924 AU	conjunction	11947 Oct 22 01:21	9° <u>♁</u> 54'49	-0°18'08
direct	11941 Jun 26 12:33	23° <u>♁</u> 52'54		minimum elong	11947 Oct 22 01:21	9° <u>♁</u> 54'49	0°17'39
evening set	11941 Sep 21 21:13	25° <u>♁</u> 47'09		max. Earth dist.	11947 Oct 22 16:34	9° <u>♁</u> 56'14	30.79604 AU
				morning rise	11947 Nov 07 02:42	10° <u>♁</u> 30'50	
conjunction	11941 Oct 07 18:12	26° <u>♁</u> 22'52	-0°27'29	retrograde	11948 Feb 05 15:45	12° <u>♁</u> 28'49	
minimum elong	11941 Oct 07 18:12	26° <u>♁</u> 22'52	0°27'10	min. Earth dist.	11948 Apr 24 11:22	11° <u>♁</u> 04'50	28.79910 AU
max. Earth dist.	11941 Oct 08 10:26	26° <u>♁</u> 24'24	30.78030 AU	opposition	11948 Apr 25 02:12	11° <u>♁</u> 03'48	-0°18'26
morning rise	11941 Oct 23 17:38	26° <u>♁</u> 58'49		direct	11948 Jul 12 01:43	9° <u>♁</u> 39'50	
retrograde	11942 Jan 22 09:46	28° <u>♁</u> 57'16		evening set	11948 Oct 07 15:01	11° <u>♁</u> 33'58	
min. Earth dist.	11942 Apr 11 11:02	27° <u>♁</u> 33'19	28.78166 AU				
opposition	11942 Apr 12 01:47	27° <u>♁</u> 32'17	-0°28'33	conjunction	11948 Oct 23 14:29	12° <u>♁</u> 09'47	-0°16'28
direct	11942 Jun 29 00:06	26° <u>♁</u> 08'30		minimum elong	11948 Oct 23 14:29	12° <u>♁</u> 09'47	0°15'59
evening set	11942 Sep 24 09:59	28° <u>♁</u> 02'44		max. Earth dist.	11948 Oct 24 06:16	12° <u>♁</u> 11'15	30.80216 AU
				morning rise	11948 Nov 08 16:00	12° <u>♁</u> 45'49	
conjunction	11942 Oct 10 07:30	28° <u>♁</u> 38'28	-0°26'00	retrograde	11949 Feb 07 02:11	14° <u>♁</u> 43'44	
minimum elong	11942 Oct 10 07:30	28° <u>♁</u> 38'28	0°25'41	opposition	11949 Apr 27 14:08	13° <u>♁</u> 18'44	-0°16'38
max. Earth dist.	11942 Oct 10 23:58	28° <u>♁</u> 40'01	30.78242 AU	min. Earth dist.	11949 Apr 27 00:04	13° <u>♁</u> 19'44	28.80600 AU
morning rise	11942 Oct 26 07:12	29° <u>♁</u> 14'27		direct	11949 Jul 14 13:18	11° <u>♁</u> 54'47	
	11942 Nov 17 02:54	0° <u>♁</u>		evening set	11949 Oct 10 03:53	13° <u>♁</u> 48'55	
retrograde	11943 Jan 24 23:52	1° <u>♁</u> 12'50					
	11943 Apr 07 07:54	30° <u>♁</u>		conjunction	11949 Oct 26 03:42	14° <u>♁</u> 24'44	-0°14'46
opposition	11943 Apr 14 14:05	29° <u>♁</u> 47'50	-0°26'57	minimum elong	11949 Oct 26 03:42	14° <u>♁</u> 24'44	0°14'15
min. Earth dist.	11943 Apr 13 22:45	29° <u>♁</u> 48'54	28.78337 AU	behind sun begin	11949 Oct 26 00:42	14° <u>♁</u> 24'28	
direct	11943 Jul 01 14:10	28° <u>♁</u> 24'02		behind sun end	11949 Oct 26 06:42	14° <u>♁</u> 25'00	
	11943 Sep 18 12:44	0° <u>♁</u>		max. Earth dist.	11949 Oct 26 19:14	14° <u>♁</u> 26'12	30.80994 AU
evening set	11943 Sep 26 23:00	0° <u>♁</u> 18'15			11949 Nov 10 21:07	15° <u>♁</u>	
				morning rise	11949 Nov 11 05:31	15° <u>♁</u> 00'46	
conjunction	11943 Oct 12 20:43	0° <u>♁</u> 54'00	-0°24'30	retrograde	11950 Feb 09 15:48	16° <u>♁</u> 58'37	
minimum elong	11943 Oct 12 20:43	0° <u>♁</u> 54'00	0°24'08	min. Earth dist.	11950 Apr 29 10:54	15° <u>♁</u> 34'44	28.81441 AU
max. Earth dist.	11943 Oct 13 11:57	0° <u>♁</u> 55'26	30.78397 AU	opposition	11950 Apr 30 01:51	15° <u>♁</u> 33'41	-0°14'48
morning rise	11943 Oct 28 20:52	1° <u>♁</u> 29'59			11950 May 20 14:40	15° <u>♁</u>	
retrograde	11944 Jan 27 14:20	3° <u>♁</u> 28'17		direct	11950 Jul 17 01:00	14° <u>♁</u> 09'44	
min. Earth dist.	11944 Apr 15 11:53	2° <u>♁</u> 04'16	28.78495 AU		11950 Sep 10 13:14	15° <u>♁</u>	

evening set	11950 Oct 12 16:53	16° \mathcal{M} 03'53		morning rise	11955 Nov 25 15:44	28° \mathcal{M} 31'04	
					11956 Jan 13 03:44	0° \mathcal{A}	
conjunction	11950 Oct 28 16:58	16° \mathcal{M} 39'43	-0°13'03	retrograde	11956 Feb 23 22:18	0° \mathcal{A} 28'22	
minimum elong	11950 Oct 28 16:58	16° \mathcal{M} 39'43	0°12'32		11956 Apr 06 10:43	30° $\mathcal{R}\mathcal{M}$	
behind sun begin	11950 Oct 28 12:48	16° \mathcal{M} 39'21		opposition	11956 May 13 00:13	29° \mathcal{M} 03'42	-0°03'28
behind sun end	11950 Oct 28 21:09	16° \mathcal{M} 40'06		min. Earth dist.	11956 May 12 13:08	29° \mathcal{M} 04'29	28.86602 AU
max. Earth dist.	11950 Oct 29 08:15	16° \mathcal{M} 41'09	30.81888 AU	direct	11956 Jul 30 03:15	27° \mathcal{M} 39'43	
morning rise	11950 Nov 13 19:06	17° \mathcal{M} 15'46		evening set	11956 Oct 26 00:11	29° \mathcal{M} 33'54	
retrograde	11951 Feb 12 04:15	19° \mathcal{M} 13'33			11956 Nov 06 17:48	0° \mathcal{A}	
opposition	11951 May 02 13:45	17° \mathcal{M} 48'40	-0°12'57				
min. Earth dist.	11951 May 02 00:05	17° \mathcal{M} 49'38	28.82380 AU	conjunction	11956 Nov 11 01:58	0° \mathcal{A} 09'47	-0°02'27
direct	11951 Jul 19 11:28	16° \mathcal{M} 24'44		minimum elong	11956 Nov 11 01:56	0° \mathcal{A} 09'47	0°01'47
evening set	11951 Oct 15 05:58	18° \mathcal{M} 18'56		behind sun begin	11956 Nov 10 19:23	0° \mathcal{A} 09'11	
				behind sun end	11956 Nov 11 08:29	0° \mathcal{A} 10'22	
conjunction	11951 Oct 31 06:27	18° \mathcal{M} 54'46	-0°11'20	max. Earth dist.	11956 Nov 11 13:34	0° \mathcal{A} 10'51	30.86933 AU
minimum elong	11951 Oct 31 06:27	18° \mathcal{M} 54'46	0°10'45	morning rise	11956 Nov 27 05:21	0° \mathcal{A} 45'49	
behind sun begin	11951 Oct 31 01:27	18° \mathcal{M} 54'19		retrograde	11957 Feb 25 11:07	2° \mathcal{A} 43'00	
behind sun end	11951 Oct 31 11:26	18° \mathcal{M} 55'13		opposition	11957 May 15 11:42	1° \mathcal{A} 18'21	-0°01'33
max. Earth dist.	11951 Oct 31 21:55	18° \mathcal{M} 56'13	30.82858 AU	min. Earth dist.	11957 May 15 00:27	1° \mathcal{A} 19'08	28.87272 AU
morning rise	11951 Nov 16 08:43	19° \mathcal{M} 30'49			11957 Jul 14 05:40	30° $\mathcal{R}\mathcal{M}$	
retrograde	11952 Feb 14 18:07	21° \mathcal{M} 28'32		direct	11957 Aug 01 14:58	29° \mathcal{M} 54'18	
min. Earth dist.	11952 May 03 11:14	20° \mathcal{M} 04'43	28.83351 AU		11957 Aug 19 20:12	0° \mathcal{A}	
opposition	11952 May 04 01:20	20° \mathcal{M} 03'43	-0°11'05	evening set	11957 Oct 28 13:20	1° \mathcal{A} 48'29	
direct	11952 Jul 21 01:18	18° \mathcal{M} 39'49					
evening set	11952 Oct 16 19:16	20° \mathcal{M} 34'02		conjunction	11957 Nov 13 15:24	2° \mathcal{A} 24'21	-0°00'36
				minimum elong	11957 Nov 13 15:24	2° \mathcal{A} 24'21	0°00'06
conjunction	11952 Nov 01 19:52	21° \mathcal{M} 09'53	-0°09'34	behind sun begin	11957 Nov 13 09:08	2° \mathcal{A} 23'48	
minimum elong	11952 Nov 01 19:52	21° \mathcal{M} 09'53	0°09'00	behind sun end	11957 Nov 13 21:41	2° \mathcal{A} 24'55	
behind sun begin	11952 Nov 01 14:17	21° \mathcal{M} 09'23		max. Earth dist.	11957 Nov 14 03:14	2° \mathcal{A} 25'27	30.87602 AU
behind sun end	11952 Nov 02 01:27	21° \mathcal{M} 10'23		morning rise	11957 Nov 29 18:54	3° \mathcal{A} 00'24	
max. Earth dist.	11952 Nov 02 09:59	21° \mathcal{M} 11'12	30.83820 AU	retrograde	11958 Feb 27 21:13	4° \mathcal{A} 57'27	
morning rise	11952 Nov 17 22:29	21° \mathcal{M} 45'56		asc. node	11958 Mar 14 17:01	4° \mathcal{A} 53'50	
retrograde	11953 Feb 16 08:16	23° \mathcal{M} 43'35		opposition	11958 May 17 23:06	3° \mathcal{A} 32'48	0°00'22
opposition	11953 May 06 13:13	22° \mathcal{M} 18'49	-0°09'11	min. Earth dist.	11958 May 17 13:04	3° \mathcal{A} 33'31	28.87960 AU
min. Earth dist.	11953 May 06 00:18	22° \mathcal{M} 19'44	28.84299 AU	direct	11958 Aug 04 02:27	2° \mathcal{A} 08'44	
direct	11953 Jul 23 13:12	20° \mathcal{M} 54'55		evening set	11958 Oct 31 02:29	4° \mathcal{A} 02'53	
evening set	11953 Oct 19 08:21	22° \mathcal{M} 49'09					
				conjunction	11958 Nov 16 04:49	4° \mathcal{A} 38'46	0°01'14
conjunction	11953 Nov 04 09:25	23° \mathcal{M} 25'01	-0°07'49	minimum elong	11958 Nov 16 04:48	4° \mathcal{A} 38'46	0°01'57
minimum elong	11953 Nov 04 09:25	23° \mathcal{M} 25'01	0°07'12	behind sun begin	11958 Nov 15 22:14	4° \mathcal{A} 38'11	
behind sun begin	11953 Nov 04 03:24	23° \mathcal{M} 24'28		behind sun end	11958 Nov 16 11:21	4° \mathcal{A} 39'21	
behind sun end	11953 Nov 04 15:26	23° \mathcal{M} 25'33		max. Earth dist.	11958 Nov 16 15:53	4° \mathcal{A} 39'47	30.88326 AU
max. Earth dist.	11953 Nov 04 23:54	23° \mathcal{M} 26'22	30.84727 AU	morning rise	11958 Dec 02 08:31	5° \mathcal{A} 14'48	
morning rise	11953 Nov 20 12:05	24° \mathcal{M} 01'04		retrograde	11959 Mar 02 10:08	7° \mathcal{A} 11'43	
retrograde	11954 Feb 18 20:37	25° \mathcal{M} 58'37		opposition	11959 May 20 10:20	5° \mathcal{A} 47'06	0°02'16
opposition	11954 May 09 00:59	24° \mathcal{M} 33'54	-0°07'17	min. Earth dist.	11959 May 19 23:40	5° \mathcal{A} 47'51	28.88716 AU
min. Earth dist.	11954 May 08 12:15	24° \mathcal{M} 34'48	28.85151 AU	direct	11959 Aug 06 14:04	4° \mathcal{A} 22'59	
direct	11954 Jul 26 02:39	23° \mathcal{M} 09'59		evening set	11959 Nov 02 15:40	6° \mathcal{A} 17'09	
evening set	11954 Oct 21 21:46	25° \mathcal{M} 04'12					
				conjunction	11959 Nov 18 18:07	6° \mathcal{A} 53'01	0°03'02
conjunction	11954 Nov 06 22:57	25° \mathcal{M} 40'04	-0°06'03	minimum elong	11959 Nov 18 18:07	6° \mathcal{A} 53'01	0°03'46
minimum elong	11954 Nov 06 22:58	25° \mathcal{M} 40'05	0°05'26	behind sun begin	11959 Nov 18 11:38	6° \mathcal{A} 52'26	
behind sun begin	11954 Nov 06 16:39	25° \mathcal{M} 39'30		behind sun end	11959 Nov 19 00:37	6° \mathcal{A} 53'36	
behind sun end	11954 Nov 07 05:17	25° \mathcal{M} 40'39		max. Earth dist.	11959 Nov 19 04:52	6° \mathcal{A} 54'01	30.89116 AU
max. Earth dist.	11954 Nov 07 11:37	25° \mathcal{M} 41'15	30.85536 AU	morning rise	11959 Dec 04 21:58	7° \mathcal{A} 29'03	
morning rise	11954 Nov 23 02:02	26° \mathcal{M} 16'08		retrograde	11960 Mar 03 21:05	9° \mathcal{A} 25'52	
retrograde	11955 Feb 21 10:37	28° \mathcal{M} 13'34		opposition	11960 May 21 21:35	8° \mathcal{A} 01'17	0°04'11
opposition	11955 May 11 12:36	26° \mathcal{M} 48'53	-0°05'23	min. Earth dist.	11960 May 21 12:13	8° \mathcal{A} 01'56	28.89566 AU
min. Earth dist.	11955 May 11 00:38	26° \mathcal{M} 49'43	28.85917 AU	direct	11960 Aug 08 00:18	6° \mathcal{A} 37'08	
direct	11955 Jul 28 14:28	25° \mathcal{M} 24'55		evening set	11960 Nov 04 04:42	8° \mathcal{A} 31'18	
evening set	11955 Oct 24 11:01	27° \mathcal{M} 19'08					
				conjunction	11960 Nov 20 07:28	9° \mathcal{A} 07'11	0°04'49
conjunction	11955 Nov 09 12:38	27° \mathcal{M} 55'01	-0°04'16	minimum elong	11960 Nov 20 07:28	9° \mathcal{A} 07'11	0°05'32
minimum elong	11955 Nov 09 12:38	27° \mathcal{M} 55'01	0°03'36	behind sun begin	11960 Nov 20 01:09	9° \mathcal{A} 06'37	
behind sun begin	11955 Nov 09 06:08	27° \mathcal{M} 54'26		behind sun end	11960 Nov 20 13:47	9° \mathcal{A} 07'45	
behind sun end	11955 Nov 09 19:09	27° \mathcal{M} 55'36		max. Earth dist.	11960 Nov 20 18:24	9° \mathcal{A} 08'11	30.90032 AU
max. Earth dist.	11955 Nov 10 01:43	27° \mathcal{M} 56'14	30.86257 AU	morning rise	11960 Dec 06 11:22	9° \mathcal{A} 43'12	

retrograde	11961 Mar 06 09:46	11° $\mathring{\text{A}}$ 39'54		minimum elong	11966 Dec 04 15:37	22° $\mathring{\text{A}}$ 32'23	0°15'59
opposition	11961 May 24 08:44	10° $\mathring{\text{A}}$ 15'22	0°06'05	max. Earth dist.	11966 Dec 04 23:07	22° $\mathring{\text{A}}$ 33'04	30.97093 AU
min. Earth dist.	11961 May 23 22:38	10° $\mathring{\text{A}}$ 16'05	28.90541 AU	morning rise	11966 Dec 20 19:58	23° $\mathring{\text{A}}$ 08'21	
direct	11961 Aug 10 13:46	8° $\mathring{\text{A}}$ 51'13		retrograde	11967 Mar 20 12:36	25° $\mathring{\text{A}}$ 04'27	
evening set	11961 Nov 06 17:45	10° $\mathring{\text{A}}$ 45'24		opposition	11967 Jun 07 03:11	23° $\mathring{\text{A}}$ 40'23	0°17'09
				min. Earth dist.	11967 Jun 06 21:20	23° $\mathring{\text{A}}$ 40'48	28.97617 AU
conjunction	11961 Nov 22 20:35	11° $\mathring{\text{A}}$ 21'17	0°06'34	direct	11967 Aug 24 13:28	22° $\mathring{\text{A}}$ 16'17	
minimum elong	11961 Nov 22 20:35	11° $\mathring{\text{A}}$ 21'17	0°07'20	evening set	11967 Nov 21 01:13	24° $\mathring{\text{A}}$ 10'39	
behind sun begin	11961 Nov 22 14:35	11° $\mathring{\text{A}}$ 20'45					
behind sun end	11961 Nov 23 02:35	11° $\mathring{\text{A}}$ 21'49		conjunction	11967 Dec 07 05:01	24° $\mathring{\text{A}}$ 46'32	0°16'51
max. Earth dist.	11961 Nov 23 06:30	11° $\mathring{\text{A}}$ 22'12	30.91073 AU	minimum elong	11967 Dec 07 05:00	24° $\mathring{\text{A}}$ 46'32	0°17'40
morning rise	11961 Dec 09 00:44	11° $\mathring{\text{A}}$ 57'17		max. Earth dist.	11967 Dec 07 11:09	24° $\mathring{\text{A}}$ 47'05	30.98102 AU
retrograde	11962 Mar 08 22:44	13° $\mathring{\text{A}}$ 53'55		morning rise	11967 Dec 23 09:26	25° $\mathring{\text{A}}$ 22'28	
opposition	11962 May 26 19:57	12° $\mathring{\text{A}}$ 29'26	0°07'58	retrograde	11968 Mar 22 01:36	27° $\mathring{\text{A}}$ 18'26	
min. Earth dist.	11962 May 26 10:46	12° $\mathring{\text{A}}$ 30'05	28.91652 AU	opposition	11968 Jun 08 14:02	25° $\mathring{\text{A}}$ 54'24	0°18'55
direct	11962 Aug 13 01:02	11° $\mathring{\text{A}}$ 05'17		min. Earth dist.	11968 Jun 08 07:57	25° $\mathring{\text{A}}$ 54'50	28.98571 AU
evening set	11962 Nov 09 06:49	12° $\mathring{\text{A}}$ 59'31		direct	11968 Aug 26 00:58	24° $\mathring{\text{A}}$ 30'15	
				evening set	11968 Nov 22 14:29	26° $\mathring{\text{A}}$ 24'37	
conjunction	11962 Nov 25 10:01	13° $\mathring{\text{A}}$ 35'24	0°08'19				
minimum elong	11962 Nov 25 10:01	13° $\mathring{\text{A}}$ 35'24	0°09'04	conjunction	11968 Dec 08 18:21	27° $\mathring{\text{A}}$ 00'29	0°18'29
behind sun begin	11962 Nov 25 04:27	13° $\mathring{\text{A}}$ 34'54		minimum elong	11968 Dec 08 18:21	27° $\mathring{\text{A}}$ 00'29	0°19'18
behind sun end	11962 Nov 25 15:35	13° $\mathring{\text{A}}$ 35'54		max. Earth dist.	11968 Dec 08 23:45	27° $\mathring{\text{A}}$ 00'58	30.99014 AU
max. Earth dist.	11962 Nov 25 20:32	13° $\mathring{\text{A}}$ 36'22	30.92242 AU	morning rise	11968 Dec 24 22:46	27° $\mathring{\text{A}}$ 36'24	
morning rise	11962 Dec 11 14:07	14° $\mathring{\text{A}}$ 11'24		retrograde	11969 Mar 24 11:07	29° $\mathring{\text{A}}$ 32'14	
retrograde	11963 Mar 11 10:50	16° $\mathring{\text{A}}$ 07'55		opposition	11969 Jun 11 00:58	28° $\mathring{\text{A}}$ 08'13	0°20'39
opposition	11963 May 29 06:55	14° $\mathring{\text{A}}$ 43'32	0°09'50	min. Earth dist.	11969 Jun 10 20:35	28° $\mathring{\text{A}}$ 08'31	28.99461 AU
min. Earth dist.	11963 May 28 21:42	14° $\mathring{\text{A}}$ 44'11	28.92859 AU	direct	11969 Aug 28 11:24	26° $\mathring{\text{A}}$ 44'00	
direct	11963 Aug 15 13:36	13° $\mathring{\text{A}}$ 19'24		evening set	11969 Nov 25 03:31	28° $\mathring{\text{A}}$ 38'20	
evening set	11963 Nov 11 20:06	15° $\mathring{\text{A}}$ 13'41					
conjunction	11963 Nov 27 23:18	15° $\mathring{\text{A}}$ 49'34	0°10'04	conjunction	11969 Dec 11 07:36	29° $\mathring{\text{A}}$ 14'11	0°20'05
minimum elong	11963 Nov 27 23:18	15° $\mathring{\text{A}}$ 49'34	0°10'51	minimum elong	11969 Dec 11 07:35	29° $\mathring{\text{A}}$ 14'11	0°20'55
behind sun begin	11963 Nov 27 18:21	15° $\mathring{\text{A}}$ 49'08		max. Earth dist.	11969 Dec 11 12:41	29° $\mathring{\text{A}}$ 14'39	30.99889 AU
behind sun end	11963 Nov 28 04:15	15° $\mathring{\text{A}}$ 50'01		morning rise	11969 Dec 27 12:00	29° $\mathring{\text{A}}$ 50'06	
max. Earth dist.	11963 Nov 28 08:16	15° $\mathring{\text{A}}$ 50'23	30.93491 AU		11970 Jan 01 02:12	0° $\mathring{\text{B}}$	
morning rise	11963 Dec 14 03:38	16° $\mathring{\text{A}}$ 25'34		retrograde	11970 Mar 26 22:05	1° $\mathring{\text{B}}$ 45'45	
retrograde	11964 Mar 13 01:16	18° $\mathring{\text{A}}$ 22'00		opposition	11970 Jun 13 11:40	0° $\mathring{\text{B}}$ 21'45	0°22'21
opposition	11964 May 30 18:00	16° $\mathring{\text{A}}$ 57'42	0°11'42	min. Earth dist.	11970 Jun 13 07:02	0° $\mathring{\text{B}}$ 22'05	29.00316 AU
min. Earth dist.	11964 May 30 09:23	16° $\mathring{\text{A}}$ 58'19	28.94133 AU		11970 Jun 26 12:54	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$	
direct	11964 Aug 17 01:18	15° $\mathring{\text{A}}$ 33'37		direct	11970 Aug 31 00:39	28° $\mathring{\text{A}}$ 57'28	
evening set	11964 Nov 13 09:09	17° $\mathring{\text{A}}$ 27'56			11970 Nov 02 02:20	0° $\mathring{\text{B}}$	
				evening set	11970 Nov 27 16:44	0° $\mathring{\text{B}}$ 51'48	
conjunction	11964 Nov 29 12:37	18° $\mathring{\text{A}}$ 03'49	0°11'47	conjunction	11970 Dec 13 20:46	1° $\mathring{\text{B}}$ 27'38	0°21'39
minimum elong	11964 Nov 29 12:37	18° $\mathring{\text{A}}$ 03'49	0°12'34	minimum elong	11970 Dec 13 20:46	1° $\mathring{\text{B}}$ 27'38	0°22'28
behind sun begin	11964 Nov 29 08:29	18° $\mathring{\text{A}}$ 03'27		max. Earth dist.	11970 Dec 14 00:30	1° $\mathring{\text{B}}$ 27'58	31.00743 AU
behind sun end	11964 Nov 29 16:45	18° $\mathring{\text{A}}$ 04'11		morning rise	11970 Dec 30 01:14	2° $\mathring{\text{B}}$ 03'31	
max. Earth dist.	11964 Nov 29 22:10	18° $\mathring{\text{A}}$ 04'42	30.94758 AU	retrograde	11971 Mar 29 09:22	3° $\mathring{\text{B}}$ 59'01	
morning rise	11964 Dec 15 16:51	18° $\mathring{\text{A}}$ 39'48		opposition	11971 Jun 15 22:17	2° $\mathring{\text{B}}$ 35'02	0°24'01
retrograde	11965 Mar 15 13:16	20° $\mathring{\text{A}}$ 36'09		min. Earth dist.	11971 Jun 15 18:51	2° $\mathring{\text{B}}$ 35'16	29.01193 AU
opposition	11965 Jun 02 05:07	19° $\mathring{\text{A}}$ 11'57	0°13'33	direct	11971 Sep 02 11:07	1° $\mathring{\text{B}}$ 10'41	
min. Earth dist.	11965 Jun 01 21:29	19° $\mathring{\text{A}}$ 12'29	28.95380 AU	evening set	11971 Nov 30 05:41	3° $\mathring{\text{B}}$ 05'00	
direct	11965 Aug 19 14:13	17° $\mathring{\text{A}}$ 47'53					
evening set	11965 Nov 15 22:33	19° $\mathring{\text{A}}$ 42'14		conjunction	11971 Dec 16 09:55	3° $\mathring{\text{B}}$ 40'49	0°23'12
				minimum elong	11971 Dec 16 09:55	3° $\mathring{\text{B}}$ 40'49	0°24'01
conjunction	11965 Dec 02 02:03	20° $\mathring{\text{A}}$ 18'07	0°13'30	max. Earth dist.	11971 Dec 16 14:05	3° $\mathring{\text{B}}$ 41'12	31.01643 AU
minimum elong	11965 Dec 02 02:03	20° $\mathring{\text{A}}$ 18'07	0°14'18	morning rise	11972 Jan 01 14:13	4° $\mathring{\text{B}}$ 16'40	
behind sun begin	11965 Dec 01 23:08	20° $\mathring{\text{A}}$ 17'51		retrograde	11972 Mar 30 20:26	6° $\mathring{\text{B}}$ 12'01	
behind sun end	11965 Dec 02 04:57	20° $\mathring{\text{A}}$ 18'22		opposition	11972 Jun 17 08:52	4° $\mathring{\text{B}}$ 48'03	0°25'38
max. Earth dist.	11965 Dec 02 09:47	20° $\mathring{\text{A}}$ 18'49	30.95979 AU	min. Earth dist.	11972 Jun 17 05:24	4° $\mathring{\text{B}}$ 48'18	29.02123 AU
morning rise	11965 Dec 18 06:28	20° $\mathring{\text{A}}$ 54'06		direct	11972 Sep 03 23:52	3° $\mathring{\text{B}}$ 23'39	
retrograde	11966 Mar 18 02:10	22° $\mathring{\text{A}}$ 50'20		evening set	11972 Dec 01 18:34	5° $\mathring{\text{B}}$ 17'57	
opposition	11966 Jun 04 16:04	21° $\mathring{\text{A}}$ 26'12	0°15'22				
min. Earth dist.	11966 Jun 04 08:37	21° $\mathring{\text{A}}$ 26'44	28.96560 AU	conjunction	11972 Dec 17 22:40	5° $\mathring{\text{B}}$ 53'45	0°24'42
direct	11966 Aug 22 01:55	20° $\mathring{\text{A}}$ 02'07		minimum elong	11972 Dec 17 22:40	5° $\mathring{\text{B}}$ 53'45	0°25'31
evening set	11966 Nov 18 11:54	21° $\mathring{\text{A}}$ 56'30		max. Earth dist.	11972 Dec 18 01:24	5° $\mathring{\text{B}}$ 54'00	31.02622 AU
				morning rise	11973 Jan 03 03:05	6° $\mathring{\text{B}}$ 29'35	
conjunction	11966 Dec 04 15:37	22° $\mathring{\text{A}}$ 32'23	0°15'11	retrograde	11973 Apr 02 09:24	8° $\mathring{\text{B}}$ 24'48	

opposition	11973 Jun 19 19:28	7°30'51	0°27'13	max. Earth dist.	11980 Jan 03 15:41	21°32'36	31.11566 AU
min. Earth dist.	11973 Jun 19 16:21	7°30'1'04	29.03165 AU	morning rise	11980 Jan 19 20:42	21°35'8'25	
direct	11973 Sep 06 11:44	5°33'6'25		retrograde	11980 Apr 17 15:56	23°35'2'53	
evening set	11973 Dec 04 07:24	7°33'0'44		opposition	11980 Jul 04 20:40	22°32'9'32	0°37'03
				min. Earth dist.	11980 Jul 04 21:54	22°32'9'26	29.12139 AU
conjunction	11973 Dec 20 11:43	8°30'6'31	0°26'10	direct	11980 Sep 21 18:07	21°30'5'09	
minimum elong	11973 Dec 20 11:43	8°30'6'31	0°26'59	evening set	11980 Dec 20 01:41	22°35'9'42	
max. Earth dist.	11973 Dec 20 15:14	8°30'6'50	31.03718 AU				
morning rise	11974 Jan 05 15:54	8°34'2'19		conjunction	11981 Jan 05 05:50	23°33'5'24	0°35'12
retrograde	11974 Apr 04 20:10	10°33'7'24		minimum elong	11981 Jan 05 05:50	23°33'5'24	0°35'59
opposition	11974 Jun 22 05:55	9°31'3'30	0°28'46	max. Earth dist.	11981 Jan 05 04:29	23°33'5'16	31.12656 AU
min. Earth dist.	11974 Jun 22 03:28	9°31'3'40	29.04323 AU	morning rise	11981 Jan 21 09:13	24°31'1'03	
direct	11974 Sep 09 00:31	7°34'9'03		retrograde	11981 Apr 20 02:29	26°30'5'25	
evening set	11974 Dec 06 20:23	9°34'3'23		opposition	11981 Jul 07 07:04	24°34'2'06	0°38'15
				min. Earth dist.	11981 Jul 07 08:41	24°34'1'59	29.13171 AU
conjunction	11974 Dec 23 00:36	10°31'9'10	0°27'35	direct	11981 Sep 24 06:30	23°31'7'43	
minimum elong	11974 Dec 23 00:36	10°31'9'10	0°28'24	evening set	11981 Dec 22 14:36	25°31'2'16	
max. Earth dist.	11974 Dec 23 02:43	10°31'9'21	31.04949 AU				
morning rise	11975 Jan 08 04:53	10°35'4'57		conjunction	11982 Jan 07 18:32	25°34'7'56	0°36'18
retrograde	11975 Apr 07 08:53	12°34'9'54		minimum elong	11982 Jan 07 18:32	25°34'7'56	0°37'05
opposition	11975 Jun 24 16:23	11°32'6'05	0°30'16	max. Earth dist.	11982 Jan 07 15:16	25°34'7'38	31.13651 AU
min. Earth dist.	11975 Jun 24 13:35	11°32'6'17	29.05614 AU	morning rise	11982 Jan 23 21:55	26°32'3'34	
direct	11975 Sep 11 11:58	10°30'1'39		retrograde	11982 Apr 22 14:58	28°31'7'48	
evening set	11975 Dec 09 09:11	11°35'6'01		opposition	11982 Jul 09 17:16	26°35'4'31	0°39'23
				min. Earth dist.	11982 Jul 09 19:37	26°35'4'21	29.14141 AU
conjunction	11975 Dec 25 13:28	12°33'1'47	0°28'58	direct	11982 Sep 26 18:20	25°33'0'05	
minimum elong	11975 Dec 25 13:28	12°33'1'47	0°29'48	evening set	11982 Dec 25 03:18	27°32'4'38	
max. Earth dist.	11975 Dec 25 15:58	12°33'2'01	31.06282 AU				
morning rise	11976 Jan 10 17:31	13°30'7'33		conjunction	11983 Jan 10 07:20	28°30'0'18	0°37'20
retrograde	11976 Apr 08 19:28	15°30'2'25		minimum elong	11983 Jan 10 07:19	28°30'0'18	0°38'06
opposition	11976 Jun 26 02:55	13°33'8'42	0°31'44	max. Earth dist.	11983 Jan 10 04:29	28°30'0'02	31.14591 AU
min. Earth dist.	11976 Jun 26 01:23	13°33'8'48	29.06986 AU	morning rise	11983 Jan 26 10:21	28°33'5'53	
direct	11976 Sep 12 23:13	12°31'4'18			11983 Mar 13 07:47	0°33'0'00	
evening set	11976 Dec 10 22:05	14°30'8'42		retrograde	11983 Apr 25 01:03	0°32'9'59	
					11983 Jun 07 16:04	30°31'0'00	
conjunction	11976 Dec 27 02:19	14°34'4'27	0°30'19	opposition	11983 Jul 12 03:35	29°30'6'44	0°40'28
minimum elong	11976 Dec 27 02:19	14°34'4'27	0°31'08	min. Earth dist.	11983 Jul 12 06:57	29°30'6'30	29.15062 AU
max. Earth dist.	11976 Dec 27 03:45	14°34'4'35	31.07687 AU	direct	11983 Sep 29 07:12	27°34'2'16	
morning rise	11977 Jan 12 06:20	15°32'0'12		evening set	11983 Dec 27 15:55	29°33'6'49	
retrograde	11977 Apr 11 08:25	17°31'4'58			11984 Jan 07 05:21	0°33'0'00	
opposition	11977 Jun 28 13:14	15°35'1'22	0°33'08				
min. Earth dist.	11977 Jun 28 11:21	15°35'1'30	29.08392 AU	conjunction	11984 Jan 12 19:40	0°32'12'27	0°38'19
direct	11977 Sep 15 10:22	14°32'6'59		minimum elong	11984 Jan 12 19:40	0°32'12'27	0°39'05
evening set	11977 Dec 13 11:01	16°32'1'27		max. Earth dist.	11984 Jan 12 15:18	0°32'12'03	31.15516 AU
				morning rise	11984 Jan 28 22:39	0°34'8'00	
conjunction	11977 Dec 29 15:13	16°35'7'12	0°31'37	retrograde	11984 Apr 26 13:14	2°34'1'59	
minimum elong	11977 Dec 29 15:13	16°35'7'12	0°32'26	opposition	11984 Jul 13 13:45	1°31'8'45	0°41'29
max. Earth dist.	11977 Dec 29 16:01	16°35'7'16	31.09067 AU	min. Earth dist.	11984 Jul 13 16:51	1°31'8'32	29.16002 AU
morning rise	11978 Jan 14 19:07	17°33'2'56			11984 Sep 12 01:17	30°31'0'00	
retrograde	11978 Apr 13 18:05	19°32'7'37		direct	11984 Sep 30 18:52	29°35'4'14	
opposition	11978 Jun 30 23:49	18°30'4'06	0°34'30		11984 Oct 19 09:18	0°33'0'00	
min. Earth dist.	11978 Jun 30 23:43	18°30'4'06	29.09747 AU	evening set	11984 Dec 29 04:23	1°34'8'47	
direct	11978 Sep 17 20:20	16°33'9'45					
evening set	11978 Dec 15 24:00	18°33'4'15		conjunction	11985 Jan 14 08:08	2°32'4'24	0°39'15
				minimum elong	11985 Jan 14 08:08	2°32'4'24	0°40'00
conjunction	11979 Jan 01 04:13	19°30'9'58	0°32'51	max. Earth dist.	11985 Jan 14 04:07	2°32'4'01	31.16469 AU
minimum elong	11979 Jan 01 04:13	19°30'9'58	0°33'39	morning rise	11985 Jan 30 10:48	2°35'9'55	
max. Earth dist.	11979 Jan 01 04:24	19°30'9'59	31.10376 AU	retrograde	11985 Apr 28 23:42	4°35'3'46	
morning rise	11979 Jan 17 07:56	19°34'5'41		opposition	11985 Jul 15 23:56	3°33'0'33	0°42'27
retrograde	11979 Apr 16 04:51	21°34'0'15		min. Earth dist.	11985 Jul 16 04:16	3°33'0'15	29.16994 AU
opposition	11979 Jul 03 10:08	20°31'6'50	0°35'48	direct	11985 Oct 03 07:03	2°36'0'01	
min. Earth dist.	11979 Jul 03 10:01	20°31'6'51	29.10995 AU	evening set	11985 Dec 31 16:50	4°36'0'34	
direct	11979 Sep 20 08:34	18°35'2'29					
evening set	11979 Dec 18 13:01	20°34'7'01		conjunction	11986 Jan 16 20:25	4°36'3'09	0°40'07
				minimum elong	11986 Jan 16 20:25	4°36'3'09	0°40'51
conjunction	11980 Jan 03 17:04	21°32'2'44	0°34'03	max. Earth dist.	11986 Jan 16 15:30	4°35'3'42	31.17510 AU
minimum elong	11980 Jan 03 17:04	21°32'2'44	0°34'51	morning rise	11986 Feb 01 23:00	5°31'1'39	

retrograde	11986 May 01 11:52	7° \approx 05'22		evening set	11993 Jan 16 07:27	19° \approx 21'39	
opposition	11986 Jul 18 10:00	5° \approx 42'12	0°43'21				
min. Earth dist.	11986 Jul 18 13:37	5° \approx 41'57	29.18080 AU	conjunction	11993 Feb 01 09:47	19° \approx 57'04	0°44'31
direct	11986 Oct 05 19:14	4° \approx 17'39		minimum elong	11993 Feb 01 09:48	19° \approx 57'04	0°45'07
evening set	11987 Jan 03 05:18	6° \approx 12'12		max. Earth dist.	11993 Feb 01 00:32	19° \approx 56'13	31.25923 AU
				morning rise	11993 Feb 17 10:40	20° \approx 32'23	
conjunction	11987 Jan 19 08:44	6° \approx 47'46	0°40'56	retrograde	11993 May 16 12:47	22° \approx 25'30	
minimum elong	11987 Jan 19 08:44	6° \approx 47'46	0°41'39	opposition	11993 Aug 02 09:15	21° \approx 02'49	0°47'47
max. Earth dist.	11987 Jan 19 03:35	6° \approx 47'17	31.18641 AU	min. Earth dist.	11993 Aug 02 16:55	21° \approx 02'17	29.26393 AU
morning rise	11987 Feb 04 11:00	7° \approx 23'14		direct	11993 Oct 20 23:38	19° \approx 38'21	
retrograde	11987 May 03 20:35	9° \approx 16'51		evening set	11994 Jan 18 19:40	21° \approx 33'03	
opposition	11987 Jul 20 20:11	7° \approx 53'45	0°44'11				
min. Earth dist.	11987 Jul 21 01:04	7° \approx 53'24	29.19276 AU	conjunction	11994 Feb 03 21:57	22° \approx 08'28	0°44'53
direct	11987 Oct 08 05:17	6° \approx 29'12		minimum elong	11994 Feb 03 21:57	22° \approx 08'28	0°45'27
evening set	11988 Jan 05 17:37	8° \approx 23'46		max. Earth dist.	11994 Feb 03 12:39	22° \approx 07'36	31.26778 AU
				morning rise	11994 Feb 19 22:26	22° \approx 43'44	
conjunction	11988 Jan 21 20:58	8° \approx 59'18	0°41'41	retrograde	11994 May 18 23:10	24° \approx 36'45	
minimum elong	11988 Jan 21 20:58	8° \approx 59'18	0°42'23	opposition	11994 Aug 04 19:33	23° \approx 14'06	0°48'09
max. Earth dist.	11988 Jan 21 15:49	8° \approx 58'50	31.19898 AU	min. Earth dist.	11994 Aug 05 04:48	23° \approx 13'27	29.27185 AU
morning rise	11988 Feb 06 23:01	9° \approx 34'45		direct	11994 Oct 23 12:00	21° \approx 49'37	
retrograde	11988 May 05 06:51	11° \approx 28'16		evening set	11995 Jan 21 07:52	23° \approx 44'19	
opposition	11988 Jul 22 06:17	10° \approx 05'15	0°44'57				
min. Earth dist.	11988 Jul 22 10:39	10° \approx 04'57	29.20567 AU	conjunction	11995 Feb 06 09:51	24° \approx 19'42	0°45'11
direct	11988 Oct 09 16:49	8° \approx 40'44		minimum elong	11995 Feb 06 09:51	24° \approx 19'42	0°45'44
evening set	11989 Jan 07 05:54	10° \approx 35'19		max. Earth dist.	11995 Feb 05 23:20	24° \approx 18'43	31.27520 AU
				morning rise	11995 Feb 22 10:09	24° \approx 54'56	
conjunction	11989 Jan 23 09:01	11° \approx 10'51	0°42'23	retrograde	11995 May 21 10:48	26° \approx 47'51	
minimum elong	11989 Jan 23 09:01	11° \approx 10'51	0°43'03	opposition	11995 Aug 07 05:37	25° \approx 25'13	0°48'26
max. Earth dist.	11989 Jan 23 02:51	11° \approx 10'17	31.21218 AU	min. Earth dist.	11995 Aug 07 14:28	25° \approx 24'37	29.27875 AU
morning rise	11989 Feb 08 10:55	11° \approx 46'16		direct	11995 Oct 26 00:42	24° \approx 00'43	
retrograde	11989 May 07 17:31	13° \approx 39'43		evening set	11996 Jan 23 19:56	25° \approx 55'24	
opposition	11989 Jul 24 16:28	12° \approx 16'47	0°45'39				
min. Earth dist.	11989 Jul 24 21:54	12° \approx 16'24	29.21905 AU	conjunction	11996 Feb 08 21:42	26° \approx 30'46	0°45'26
direct	11989 Oct 12 01:29	10° \approx 52'17		minimum elong	11996 Feb 08 21:42	26° \approx 30'46	0°45'57
evening set	11990 Jan 09 18:16	12° \approx 46'55		max. Earth dist.	11996 Feb 08 10:43	26° \approx 29'45	31.28170 AU
				morning rise	11996 Feb 24 21:39	27° \approx 05'58	
conjunction	11990 Jan 25 21:21	13° \approx 22'25	0°43'01	retrograde	11996 May 22 19:43	28° \approx 58'48	
minimum elong	11990 Jan 25 21:21	13° \approx 22'25	0°43'40	opposition	11996 Aug 08 15:50	27° \approx 36'11	0°48'39
max. Earth dist.	11990 Jan 25 15:25	13° \approx 21'52	31.22545 AU	min. Earth dist.	11996 Aug 09 02:08	27° \approx 35'28	29.28511 AU
morning rise	11990 Feb 10 22:53	13° \approx 57'49		direct	11996 Oct 27 11:07	26° \approx 11'39	
	11990 Mar 14 14:53	15° \approx		evening set	11997 Jan 25 07:42	28° \approx 06'19	
retrograde	11990 May 10 03:08	15° \approx 51'10					
	11990 Jul 07 15:42	15° \approx		conjunction	11997 Feb 10 09:19	28° \approx 41'39	0°45'36
opposition	11990 Jul 27 02:33	14° \approx 28'20	0°46'18	minimum elong	11997 Feb 10 09:19	28° \approx 41'39	0°46'06
min. Earth dist.	11990 Jul 27 08:25	14° \approx 27'56	29.23196 AU	max. Earth dist.	11997 Feb 09 22:17	28° \approx 40'38	31.28796 AU
direct	11990 Oct 14 13:31	13° \approx 03'52		morning rise	11997 Feb 26 09:01	29° \approx 16'50	
evening set	11991 Jan 12 06:50	14° \approx 58'32			11997 Mar 19 11:47	0° \approx	
	11991 Jan 12 23:07	15° \approx		retrograde	11997 May 25 05:22	1° \approx 09'34	
					11997 Aug 03 05:27	30° \approx	
conjunction	11991 Jan 28 09:33	15° \approx 34'00	0°43'34	opposition	11997 Aug 11 01:53	29° \approx 46'58	0°48'48
minimum elong	11991 Jan 28 09:33	15° \approx 34'00	0°44'13	min. Earth dist.	11997 Aug 11 11:48	29° \approx 46'17	29.29126 AU
max. Earth dist.	11991 Jan 28 01:45	15° \approx 33'17	31.23794 AU	direct	11997 Oct 29 23:12	28° \approx 22'24	
morning rise	11991 Feb 13 10:58	16° \approx 09'23			11998 Jan 19 18:26	0° \approx	
retrograde	11991 May 12 14:49	18° \approx 02'40		evening set	11998 Jan 27 19:40	0° \approx 17'04	
opposition	11991 Jul 29 12:48	16° \approx 39'54	0°46'52				
min. Earth dist.	11991 Jul 29 19:17	16° \approx 39'26	29.24401 AU	conjunction	11998 Feb 12 20:56	0° \approx 52'23	0°45'43
direct	11991 Oct 17 00:07	15° \approx 15'26		minimum elong	11998 Feb 12 20:57	0° \approx 52'23	0°46'11
evening set	11992 Jan 14 19:02	17° \approx 10'07		max. Earth dist.	11998 Feb 12 08:56	0° \approx 51'16	31.29421 AU
				morning rise	11998 Feb 28 20:23	1° \approx 27'32	
conjunction	11992 Jan 30 21:43	17° \approx 45'35	0°44'04	retrograde	11998 May 27 15:19	3° \approx 20'11	
minimum elong	11992 Jan 30 21:43	17° \approx 45'35	0°44'41	opposition	11998 Aug 13 11:56	1° \approx 57'37	0°48'53
max. Earth dist.	11992 Jan 30 14:16	17° \approx 44'54	31.24925 AU	min. Earth dist.	11998 Aug 13 22:34	1° \approx 56'52	29.29789 AU
morning rise	11992 Feb 15 22:41	18° \approx 20'54		direct	11998 Nov 01 08:01	0° \approx 33'02	
retrograde	11992 May 14 00:33	20° \approx 14'07		evening set	11999 Jan 30 07:25	2° \approx 27'42	
opposition	11992 Jul 30 23:09	18° \approx 51'24	0°47'21				
min. Earth dist.	11992 Jul 31 06:50	18° \approx 50'52	29.25461 AU	conjunction	11999 Feb 15 08:34	3° \approx 02'59	0°45'46
direct	11992 Oct 18 12:03	17° \approx 26'57		minimum elong	11999 Feb 15 08:34	3° \approx 02'59	0°46'13

max. Earth dist.	11999 Feb 14 21:15	3° ✕ 01'57	31.30117 AU	conjunction	12006 Mar 02 16:06	18° ✕ 17'57	0°44'15
morning rise	11999 Mar 03 07:35	3° ✕ 38'07		minimum elong	12006 Mar 02 16:06	18° ✕ 17'57	0°44'29
retrograde	11999 May 29 23:57	5° ✕ 30'43		max. Earth dist.	12006 Mar 02 01:40	18° ✕ 16'37	31.35247 AU
opposition	11999 Aug 15 22:07	4° ✕ 08'11	0°48'54	morning rise	12006 Mar 18 12:58	18° ✕ 52'54	
min. Earth dist.	11999 Aug 16 08:39	4° ✕ 07'27	29.30520 AU	retrograde	12006 Jun 14 02:16	20° ✕ 45'15	
direct	11999 Nov 03 19:57	2° ✕ 43'37		opposition	12006 Aug 30 21:38	19° ✕ 23'03	0°47'01
evening set	12000 Feb 01 19:05	4° ✕ 38'18		min. Earth dist.	12006 Aug 31 10:54	19° ✕ 22'08	29.35441 AU
				direct	12006 Nov 19 03:46	17° ✕ 58'38	
conjunction	12000 Feb 17 19:48	5° ✕ 13'33	0°45'45	evening set	12007 Feb 17 04:29	19° ✕ 53'26	
minimum elong	12000 Feb 17 19:48	5° ✕ 13'33	0°46'10	max. Earth dist.	12007 Mar 04 11:39	20° ✕ 27'07	31.35550 AU
max. Earth dist.	12000 Feb 17 07:17	5° ✕ 12'24	31.30899 AU				
morning rise	12000 Mar 04 18:40	5° ✕ 48'39		conjunction	12007 Mar 05 03:17	20° ✕ 28'33	0°43'46
retrograde	12000 May 31 10:53	7° ✕ 41'13		minimum elong	12007 Mar 05 03:18	20° ✕ 28'33	0°44'00
opposition	12000 Aug 17 08:15	6° ✕ 18'44	0°48'51	morning rise	12007 Mar 20 23:54	21° ✕ 03'29	
min. Earth dist.	12000 Aug 17 18:42	6° ✕ 18'00	29.31351 AU	retrograde	12007 Jun 16 12:18	22° ✕ 55'46	
direct	12000 Nov 05 05:43	4° ✕ 54'12		opposition	12007 Sep 02 08:03	21° ✕ 33'33	0°46'29
evening set	12001 Feb 03 06:40	6° ✕ 48'55		min. Earth dist.	12007 Sep 02 22:08	21° ✕ 32'35	29.35693 AU
				direct	12007 Nov 21 13:34	20° ✕ 09'07	
conjunction	12001 Feb 19 07:19	7° ✕ 24'09	0°45'39	evening set	12008 Feb 19 15:39	22° ✕ 03'53	
minimum elong	12001 Feb 19 07:19	7° ✕ 24'09	0°46'04				
max. Earth dist.	12001 Feb 18 19:43	7° ✕ 23'05	31.31759 AU	conjunction	12008 Mar 06 14:19	22° ✕ 38'59	0°43'14
morning rise	12001 Mar 07 05:43	7° ✕ 59'14		minimum elong	12008 Mar 06 14:20	22° ✕ 38'59	0°43'26
retrograde	12001 Jun 02 20:08	9° ✕ 51'46		max. Earth dist.	12008 Mar 05 23:14	22° ✕ 37'35	31.35748 AU
opposition	12001 Aug 19 18:20	8° ✕ 29'21	0°48'43	morning rise	12008 Mar 22 10:31	23° ✕ 13'53	
min. Earth dist.	12001 Aug 20 05:42	8° ✕ 28'34	29.32224 AU	retrograde	12008 Jun 17 20:02	25° ✕ 06'06	
direct	12001 Nov 07 16:18	7° ✕ 04'51		opposition	12008 Sep 03 18:23	23° ✕ 43'53	0°45'53
evening set	12002 Feb 05 18:27	8° ✕ 59'37		min. Earth dist.	12008 Sep 04 08:43	23° ✕ 42'53	29.35837 AU
				direct	12008 Nov 23 01:59	22° ✕ 19'24	
conjunction	12002 Feb 21 18:41	9° ✕ 34'50	0°45'30	evening set	12009 Feb 21 03:00	24° ✕ 14'08	
minimum elong	12002 Feb 21 18:42	9° ✕ 34'50	0°45'52	max. Earth dist.	12009 Mar 08 08:45	24° ✕ 47'41	31.35866 AU
max. Earth dist.	12002 Feb 21 05:47	9° ✕ 33'39	31.32642 AU				
morning rise	12002 Mar 09 16:58	10° ✕ 09'54		conjunction	12009 Mar 09 01:13	24° ✕ 49'12	0°42'39
retrograde	12002 Jun 05 08:18	12° ✕ 02'24		minimum elong	12009 Mar 09 01:13	24° ✕ 49'12	0°42'49
opposition	12002 Aug 22 04:28	10° ✕ 40'03	0°48'31	morning rise	12009 Mar 24 21:17	25° ✕ 24'05	
min. Earth dist.	12002 Aug 22 15:26	10° ✕ 39'18	29.33091 AU	retrograde	12009 Jun 20 05:52	27° ✕ 16'14	
direct	12002 Nov 10 03:23	9° ✕ 15'36		opposition	12009 Sep 06 04:31	25° ✕ 53'59	0°45'13
evening set	12003 Feb 08 06:03	11° ✕ 10'24		min. Earth dist.	12009 Sep 06 18:50	25° ✕ 53'00	29.35943 AU
				direct	12009 Nov 25 11:40	24° ✕ 29'27	
conjunction	12003 Feb 24 06:06	11° ✕ 45'36	0°45'17	evening set	12010 Feb 23 14:06	26° ✕ 24'10	
minimum elong	12003 Feb 24 06:07	11° ✕ 45'36	0°45'38				
max. Earth dist.	12003 Feb 23 17:30	11° ✕ 44'26	31.33466 AU	conjunction	12010 Mar 11 12:12	26° ✕ 59'12	0°42'00
morning rise	12003 Mar 12 03:53	12° ✕ 20'38		minimum elong	12010 Mar 11 12:12	26° ✕ 59'12	0°42'07
retrograde	12003 Jun 07 18:59	14° ✕ 13'07		max. Earth dist.	12010 Mar 10 20:43	26° ✕ 57'47	31.35962 AU
opposition	12003 Aug 24 14:48	12° ✕ 50'50	0°48'15	morning rise	12010 Mar 27 07:46	27° ✕ 34'03	
min. Earth dist.	12003 Aug 25 03:12	12° ✕ 49'58	29.33876 AU	retrograde	12010 Jun 22 14:20	29° ✕ 26'10	
direct	12003 Nov 12 15:40	11° ✕ 26'25		opposition	12010 Sep 08 14:56	28° ✕ 03'53	0°44'30
evening set	12004 Feb 10 17:44	13° ✕ 21'14		min. Earth dist.	12010 Sep 09 05:58	28° ✕ 02'51	29.36048 AU
				direct	12010 Nov 27 22:22	26° ✕ 39'20	
conjunction	12004 Feb 26 17:26	13° ✕ 56'25	0°45'00	evening set	12011 Feb 26 01:08	28° ✕ 34'01	
minimum elong	12004 Feb 26 17:26	13° ✕ 56'25	0°45'19				
max. Earth dist.	12004 Feb 26 03:48	13° ✕ 55'10	31.34202 AU	conjunction	12011 Mar 13 22:45	29° ✕ 09'01	0°41'18
morning rise	12004 Mar 13 14:59	14° ✕ 31'25		minimum elong	12011 Mar 13 22:45	29° ✕ 09'01	0°41'24
retrograde	12004 Jun 09 06:40	16° ✕ 23'52		max. Earth dist.	12011 Mar 13 06:28	29° ✕ 07'31	31.36098 AU
opposition	12004 Aug 26 01:00	15° ✕ 01'37	0°47'54	morning rise	12011 Mar 29 18:08	29° ✕ 43'51	
min. Earth dist.	12004 Aug 26 12:54	15° ✕ 00'48	29.34545 AU		12011 Apr 06 08:02	0° ° °	
direct	12004 Nov 14 04:20	13° ✕ 37'14		retrograde	12011 Jun 25 01:19	1° ° ° 35'56	
evening set	12005 Feb 12 05:18	15° ✕ 32'04		opposition	12011 Sep 11 01:12	0° ° ° 13'38	0°43'42
				min. Earth dist.	12011 Sep 11 15:12	0° ° ° 12'41	29.36227 AU
conjunction	12005 Feb 28 04:45	16° ✕ 07'13	0°44'39		12011 Sep 19 07:59	30° ° ° ° °	
minimum elong	12005 Feb 28 04:45	16° ✕ 07'13	0°44'56	direct	12011 Nov 30 09:33	28° ✕ 49'05	
max. Earth dist.	12005 Feb 27 14:33	16° ✕ 05'55	31.34794 AU		12012 Feb 07 01:37	0° ° °	
morning rise	12005 Mar 16 01:58	16° ✕ 42'12		evening set	12012 Feb 28 12:02	0° ° ° 43'45	
retrograde	12005 Jun 11 16:08	18° ✕ 34'36					
opposition	12005 Aug 28 11:25	17° ✕ 12'23	0°47'30	conjunction	12012 Mar 15 09:27	1° ° ° 18'45	0°40'32
min. Earth dist.	12005 Aug 29 00:50	17° ✕ 11'28	29.35071 AU	minimum elong	12012 Mar 15 09:28	1° ° ° 18'45	0°40'35
direct	12005 Nov 16 14:55	15° ✕ 47'59		max. Earth dist.	12012 Mar 14 17:59	1° ° ° 17'19	31.36318 AU
evening set	12006 Feb 14 16:54	17° ✕ 42'49		morning rise	12012 Mar 31 04:23	1° ° ° 53'33	

retrograde	12012 Jun 26 11:14	3°♈45'38		minimum elong	12019 Mar 31 11:32	16°♈29'09	0°33'28
opposition	12012 Sep 12 11:36	2°♈23'20	0°42'51	max. Earth dist.	12019 Mar 30 19:22	16°♈27'39	31.37965 AU
min. Earth dist.	12012 Sep 13 02:25	2°♈22'19	29.36502 AU	morning rise	12019 Apr 16 04:15	17°♈03'51	
direct	12012 Dec 01 20:55	0°♈58'48		retrograde	12019 Jul 12 08:43	18°♈56'06	
evening set	12013 Mar 01 22:55	2°♈53'29		opposition	12019 Sep 28 13:44	17°♈34'03	0°35'15
				min. Earth dist.	12019 Sep 29 05:40	17°♈32'57	29.37907 AU
conjunction	12013 Mar 17 20:01	3°♈28'28	0°39'42	direct	12019 Dec 18 01:06	16°♈09'47	
minimum elong	12013 Mar 17 20:01	3°♈28'28	0°39'45	evening set	12020 Mar 17 03:08	18°♈04'34	
max. Earth dist.	12013 Mar 17 04:17	3°♈27'01	31.36648 AU				
morning rise	12013 Apr 02 14:45	4°♈03'15		conjunction	12020 Apr 01 21:57	18°♈39'27	0°32'25
retrograde	12013 Jun 28 22:30	5°♈55'20		minimum elong	12020 Apr 01 21:57	18°♈39'27	0°32'14
opposition	12013 Sep 14 21:54	4°♈33'05	0°41'57	max. Earth dist.	12020 Apr 01 04:46	18°♈37'51	31.37775 AU
min. Earth dist.	12013 Sep 15 11:39	4°♈32'08	29.36855 AU	morning rise	12020 Apr 17 14:33	19°♈14'09	
direct	12013 Dec 04 09:05	3°♈08'36		retrograde	12020 Jul 13 19:42	21°♈06'24	
evening set	12014 Mar 04 09:52	5°♈03'19		opposition	12020 Sep 30 00:20	19°♈44'20	0°33'57
				min. Earth dist.	12020 Sep 30 15:33	19°♈43'17	29.37657 AU
conjunction	12014 Mar 20 06:38	5°♈38'16	0°38'49	direct	12020 Dec 19 12:26	18°♈20'03	
minimum elong	12014 Mar 20 06:38	5°♈38'16	0°38'49	evening set	12021 Mar 19 13:47	20°♈14'49	
max. Earth dist.	12014 Mar 19 14:52	5°♈36'49	31.37020 AU				
morning rise	12014 Apr 05 01:00	6°♈13'03		conjunction	12021 Apr 04 08:26	20°♈49'41	0°31'11
retrograde	12014 Jul 01 08:23	8°♈05'09		minimum elong	12021 Apr 04 08:26	20°♈49'41	0°30'58
opposition	12014 Sep 17 08:22	6°♈42'57	0°40'58	max. Earth dist.	12021 Apr 03 15:41	20°♈48'08	31.37468 AU
min. Earth dist.	12014 Sep 17 23:07	6°♈41'57	29.37241 AU	morning rise	12021 Apr 20 00:38	21°♈24'22	
direct	12014 Dec 06 19:15	5°♈18'31		retrograde	12021 Jul 16 05:43	23°♈16'37	
evening set	12015 Mar 06 20:46	7°♈13'16		opposition	12021 Oct 02 11:12	21°♈54'31	0°32'37
				min. Earth dist.	12021 Oct 03 03:29	21°♈53'24	29.37311 AU
conjunction	12015 Mar 22 17:16	7°♈48'13	0°37'53	direct	12021 Dec 21 23:57	20°♈30'13	
minimum elong	12015 Mar 22 17:17	7°♈48'13	0°37'52	evening set	12022 Mar 22 00:23	22°♈24'57	
max. Earth dist.	12015 Mar 22 01:56	7°♈46'48	31.37405 AU				
morning rise	12015 Apr 07 11:18	8°♈22'59		conjunction	12022 Apr 06 18:40	22°♈59'48	0°29'55
retrograde	12015 Jul 03 18:46	10°♈15'06		minimum elong	12022 Apr 06 18:40	22°♈59'48	0°29'39
opposition	12015 Sep 19 18:54	8°♈52'58	0°39'56	max. Earth dist.	12022 Apr 06 01:46	22°♈58'14	31.37103 AU
min. Earth dist.	12015 Sep 20 09:09	8°♈51'59	29.37595 AU	morning rise	12022 Apr 22 10:39	23°♈34'28	
direct	12015 Dec 09 07:48	7°♈28'36		retrograde	12022 Jul 18 16:28	25°♈26'43	
evening set	12016 Mar 08 07:37	9°♈23'22		opposition	12022 Oct 04 21:56	24°♈04'34	0°31'13
max. Earth dist.	12016 Mar 23 11:28	9°♈56'48	31.37723 AU	min. Earth dist.	12022 Oct 05 13:05	24°♈03'32	29.36930 AU
				direct	12022 Dec 24 12:09	22°♈40'15	
conjunction	12016 Mar 24 03:42	9°♈58'18	0°36'54	evening set	12023 Mar 24 10:56	24°♈34'58	
minimum elong	12016 Mar 24 03:42	9°♈58'18	0°36'49				
morning rise	12016 Apr 08 21:31	10°♈33'03		conjunction	12023 Apr 09 04:52	25°♈09'47	0°28'35
retrograde	12016 Jul 05 05:28	12°♈25'13		minimum elong	12023 Apr 09 04:52	25°♈09'47	0°28'19
opposition	12016 Sep 21 05:32	11°♈03'08	0°38'51	max. Earth dist.	12023 Apr 08 12:03	25°♈08'14	31.36728 AU
min. Earth dist.	12016 Sep 21 20:19	11°♈02'07	29.37876 AU	morning rise	12023 Apr 24 20:33	25°♈44'27	
direct	12016 Dec 10 17:28	9°♈38'48		retrograde	12023 Jul 21 02:36	27°♈36'43	
evening set	12017 Mar 10 18:30	11°♈33'36		opposition	12023 Oct 07 08:53	26°♈14'31	0°29'47
				min. Earth dist.	12023 Oct 08 00:35	26°♈13'27	29.36592 AU
conjunction	12017 Mar 26 14:25	12°♈08'31	0°35'51	direct	12023 Dec 26 22:59	24°♈50'11	
minimum elong	12017 Mar 26 14:25	12°♈08'31	0°35'46	evening set	12024 Mar 25 21:12	26°♈44'53	
max. Earth dist.	12017 Mar 25 22:51	12°♈07'05	31.37942 AU				
morning rise	12017 Apr 11 07:47	12°♈43'15		conjunction	12024 Apr 10 14:55	27°♈19'41	0°27'14
retrograde	12017 Jul 07 13:37	14°♈35'27		minimum elong	12024 Apr 10 14:56	27°♈19'41	0°26'55
opposition	12017 Sep 23 16:07	13°♈13'23	0°37'42	max. Earth dist.	12024 Apr 09 23:07	27°♈18'14	31.36429 AU
min. Earth dist.	12017 Sep 24 07:14	13°♈12'21	29.38024 AU	morning rise	12024 Apr 26 06:18	27°♈54'19	
direct	12017 Dec 13 05:29	11°♈49'06		retrograde	12024 Jul 22 13:11	29°♈46'37	
evening set	12018 Mar 13 05:34	13°♈43'54		opposition	12024 Oct 08 19:45	28°♈24'24	0°28'19
max. Earth dist.	12018 Mar 28 07:59	14°♈17'15	31.38026 AU	min. Earth dist.	12024 Oct 09 10:29	28°♈23'24	29.36325 AU
				direct	12024 Dec 28 12:31	27°♈00'05	
conjunction	12018 Mar 29 00:59	14°♈18'49	0°34'45	evening set	12025 Mar 28 07:43	28°♈54'46	
minimum elong	12018 Mar 29 01:00	14°♈18'49	0°34'37	max. Earth dist.	12025 Apr 12 08:43	29°♈28'04	31.36207 AU
morning rise	12018 Apr 13 18:12	14°♈53'32					
retrograde	12018 Jul 09 23:58	16°♈45'45		conjunction	12025 Apr 13 01:01	29°♈29'34	0°25'50
opposition	12018 Sep 26 02:51	15°♈23'43	0°36'30	minimum elong	12025 Apr 13 01:02	29°♈29'34	0°25'30
min. Earth dist.	12018 Sep 26 17:51	15°♈22'41	29.38042 AU		12025 Apr 26 18:02	0°♈	
direct	12018 Dec 15 14:55	13°♈59'26		morning rise	12025 Apr 28 16:13	0°♈04'12	
evening set	12019 Mar 15 16:16	15°♈54'15		retrograde	12025 Jul 24 23:50	1°♈56'32	
				opposition	12025 Oct 11 06:34	0°♈34'19	0°26'48
conjunction	12019 Mar 31 11:32	16°♈29'09	0°33'37	min. Earth dist.	12025 Oct 11 21:12	0°♈33'19	29.36151 AU

	12025 Nov 01 19:28	30° κ Υ		behind sun begin	12032 Apr 27 21:00	14° \mathcal{B} 41'15	
direct	12025 Dec 30 22:51	29° Υ 10'01		behind sun end	12032 Apr 28 02:42	14° \mathcal{B} 41'46	
	12026 Feb 25 16:25	0° \mathcal{B}		max. Earth dist.	12032 Apr 27 08:33	14° \mathcal{B} 40'05	31.34077 AU
evening set	12026 Mar 30 18:03	1° \mathcal{B} 04'43			12032 May 06 06:06	15° \mathcal{B}	
				morning rise	12032 May 13 13:16	15° \mathcal{B} 16'07	
conjunction	12026 Apr 15 11:13	1° \mathcal{B} 39'31	0°24'24	retrograde	12032 Aug 08 23:19	17° \mathcal{B} 08'55	
minimum elong	12026 Apr 15 11:13	1° \mathcal{B} 39'31	0°24'02	opposition	12032 Oct 26 13:30	15° \mathcal{B} 46'42	0°15'12
max. Earth dist.	12026 Apr 14 20:15	1° \mathcal{B} 38'07	31.36066 AU	min. Earth dist.	12032 Oct 27 04:00	15° \mathcal{B} 45'43	29.33712 AU
morning rise	12026 May 01 02:00	2° \mathcal{B} 14'08			12032 Nov 25 20:11	15° κ \mathcal{B}	
retrograde	12026 Jul 27 08:06	4° \mathcal{B} 06'30		direct	12033 Jan 15 03:29	14° \mathcal{B} 22'37	
opposition	12026 Oct 13 17:37	2° \mathcal{B} 44'19	0°25'15		12033 Mar 04 19:57	15° \mathcal{B}	
min. Earth dist.	12026 Oct 14 08:05	2° \mathcal{B} 43'20	29.36019 AU	evening set	12033 Apr 14 18:57	16° \mathcal{B} 17'20	
direct	12027 Jan 02 10:50	1° \mathcal{B} 20'05					
evening set	12027 Apr 02 04:24	3° \mathcal{B} 14'46		conjunction	12033 Apr 30 10:04	16° \mathcal{B} 52'04	0°13'28
				minimum elong	12033 Apr 30 10:04	16° \mathcal{B} 52'04	0°12'56
conjunction	12027 Apr 17 21:05	3° \mathcal{B} 49'33	0°22'56	behind sun begin	12033 Apr 30 06:05	16° \mathcal{B} 51'42	
minimum elong	12027 Apr 17 21:05	3° \mathcal{B} 49'33	0°22'32	behind sun end	12033 Apr 30 14:03	16° \mathcal{B} 52'25	
max. Earth dist.	12027 Apr 17 05:21	3° \mathcal{B} 48'06	31.35950 AU	max. Earth dist.	12033 Apr 29 19:28	16° \mathcal{B} 50'42	31.33281 AU
morning rise	12027 May 03 11:47	4° \mathcal{B} 24'10		morning rise	12033 May 15 23:11	17° \mathcal{B} 26'39	
retrograde	12027 Jul 29 18:42	6° \mathcal{B} 16'37		retrograde	12033 Aug 11 10:10	19° \mathcal{B} 19'30	
opposition	12027 Oct 16 04:43	4° \mathcal{B} 54'27	0°23'39	opposition	12033 Oct 29 00:53	17° \mathcal{B} 57'14	0°13'27
min. Earth dist.	12027 Oct 16 18:31	4° \mathcal{B} 53'30	29.35900 AU	min. Earth dist.	12033 Oct 29 14:49	17° \mathcal{B} 56'17	29.32842 AU
direct	12028 Jan 04 20:41	3° \mathcal{B} 30'15		direct	12034 Jan 17 17:17	16° \mathcal{B} 33'09	
evening set	12028 Apr 03 14:44	5° \mathcal{B} 24'57		evening set	12034 Apr 17 05:22	18° \mathcal{B} 27'50	
conjunction	12028 Apr 19 07:17	5° \mathcal{B} 59'44	0°21'25	conjunction	12034 May 02 20:04	19° \mathcal{B} 02'34	0°11'49
minimum elong	12028 Apr 19 07:17	5° \mathcal{B} 59'44	0°20'59	minimum elong	12034 May 02 20:05	19° \mathcal{B} 02'34	0°11'14
max. Earth dist.	12028 Apr 18 16:43	5° \mathcal{B} 58'23	31.35802 AU	behind sun begin	12034 May 02 15:18	19° \mathcal{B} 02'08	
morning rise	12028 May 04 21:33	6° \mathcal{B} 34'21		behind sun end	12034 May 03 00:52	19° \mathcal{B} 03'00	
retrograde	12028 Jul 31 03:51	8° \mathcal{B} 26'52		max. Earth dist.	12034 May 02 04:48	19° \mathcal{B} 01'09	31.32370 AU
opposition	12028 Oct 17 15:51	7° \mathcal{B} 04'43	0°22'01	morning rise	12034 May 18 09:07	19° \mathcal{B} 37'10	
min. Earth dist.	12028 Oct 18 06:27	7° \mathcal{B} 03'43	29.35717 AU	retrograde	12034 Aug 13 21:22	21° \mathcal{B} 30'04	
direct	12029 Jan 06 07:02	5° \mathcal{B} 40'34		opposition	12034 Oct 31 12:28	20° \mathcal{B} 07'44	0°11'40
evening set	12029 Apr 06 01:15	7° \mathcal{B} 35'17		min. Earth dist.	12034 Nov 01 02:18	20° \mathcal{B} 06'48	29.31907 AU
				direct	12035 Jan 20 04:18	18° \mathcal{B} 43'38	
conjunction	12029 Apr 21 17:23	8° \mathcal{B} 10'03	0°19'53	evening set	12035 Apr 19 15:22	20° \mathcal{B} 38'17	
minimum elong	12029 Apr 21 17:23	8° \mathcal{B} 10'03	0°19'26				
max. Earth dist.	12029 Apr 21 02:06	8° \mathcal{B} 08'37	31.35580 AU	conjunction	12035 May 05 06:00	21° \mathcal{B} 13'00	0°10'09
morning rise	12029 May 07 07:34	8° \mathcal{B} 44'40		minimum elong	12035 May 05 05:59	21° \mathcal{B} 13'00	0°09'34
retrograde	12029 Aug 02 14:50	10° \mathcal{B} 37'14		behind sun begin	12035 May 05 00:38	21° \mathcal{B} 12'32	
opposition	12029 Oct 20 03:04	9° \mathcal{B} 15'06	0°20'21	behind sun end	12035 May 05 11:21	21° \mathcal{B} 13'29	
min. Earth dist.	12029 Oct 20 16:43	9° \mathcal{B} 14'10	29.35434 AU	max. Earth dist.	12035 May 04 16:12	21° \mathcal{B} 11'44	31.31417 AU
direct	12030 Jan 08 18:02	7° \mathcal{B} 50'59		morning rise	12035 May 20 18:40	21° \mathcal{B} 47'36	
evening set	12030 Apr 08 11:41	9° \mathcal{B} 45'42		retrograde	12035 Aug 16 05:50	23° \mathcal{B} 40'33	
				opposition	12035 Nov 03 00:04	22° \mathcal{B} 18'11	0°09'52
conjunction	12030 Apr 24 03:35	10° \mathcal{B} 20'28	0°18'19	min. Earth dist.	12035 Nov 03 13:35	22° \mathcal{B} 17'15	29.30954 AU
minimum elong	12030 Apr 24 03:35	10° \mathcal{B} 20'28	0°17'49	direct	12036 Jan 22 17:01	20° \mathcal{B} 54'04	
max. Earth dist.	12030 Apr 23 12:45	10° \mathcal{B} 19'05	31.35222 AU	evening set	12036 Apr 21 01:38	22° \mathcal{B} 48'42	
morning rise	12030 May 09 17:22	10° \mathcal{B} 55'04					
retrograde	12030 Aug 05 01:04	12° \mathcal{B} 47'44		conjunction	12036 May 06 15:49	23° \mathcal{B} 23'25	0°08'29
opposition	12030 Oct 22 14:34	11° \mathcal{B} 25'35	0°18'40	minimum elong	12036 May 06 15:49	23° \mathcal{B} 23'25	0°07'51
min. Earth dist.	12030 Oct 23 05:12	11° \mathcal{B} 24'35	29.35012 AU	behind sun begin	12036 May 06 10:01	23° \mathcal{B} 22'53	
direct	12031 Jan 11 04:36	10° \mathcal{B} 01'30		behind sun end	12036 May 06 21:37	23° \mathcal{B} 23'56	
evening set	12031 Apr 10 22:10	11° \mathcal{B} 56'13		max. Earth dist.	12036 May 06 01:30	23° \mathcal{B} 22'05	31.30491 AU
				morning rise	12036 May 22 04:28	23° \mathcal{B} 58'00	
conjunction	12031 Apr 26 13:45	12° \mathcal{B} 30'58	0°16'43	retrograde	12036 Aug 17 16:31	25° \mathcal{B} 51'01	
minimum elong	12031 Apr 26 13:45	12° \mathcal{B} 30'58	0°16'13	opposition	12036 Nov 04 11:28	24° \mathcal{B} 28'36	0°08'04
max. Earth dist.	12031 Apr 25 22:47	12° \mathcal{B} 29'35	31.34732 AU	min. Earth dist.	12036 Nov 04 23:55	24° \mathcal{B} 27'45	29.30067 AU
morning rise	12031 May 12 03:21	13° \mathcal{B} 05'34		direct	12037 Jan 24 03:34	23° \mathcal{B} 04'29	
retrograde	12031 Aug 07 12:18	14° \mathcal{B} 58'18		evening set	12037 Apr 23 11:44	24° \mathcal{B} 59'07	
opposition	12031 Oct 25 01:57	13° \mathcal{B} 36'07	0°16'57				
min. Earth dist.	12031 Oct 25 15:35	13° \mathcal{B} 35'12	29.34438 AU	conjunction	12037 May 09 01:50	25° \mathcal{B} 33'50	0°06'48
direct	12032 Jan 13 16:26	12° \mathcal{B} 12'03		minimum elong	12037 May 09 01:49	25° \mathcal{B} 33'50	0°06'10
evening set	12032 Apr 12 08:34	14° \mathcal{B} 06'46		behind sun begin	12037 May 08 19:42	25° \mathcal{B} 33'17	
				behind sun end	12037 May 09 07:56	25° \mathcal{B} 34'23	
conjunction	12032 Apr 27 23:51	14° \mathcal{B} 41'31	0°15'06	max. Earth dist.	12037 May 08 13:02	25° \mathcal{B} 32'39	31.29638 AU
minimum elong	12032 Apr 27 23:51	14° \mathcal{B} 41'31	0°14'34	morning rise	12037 May 24 14:07	26° \mathcal{B} 08'26	

retrograde	12037 Aug 20 01:51	28° 8 01'32		opposition	12042 Nov 18 10:22	7° II 33'57	-0°02'57
opposition	12037 Nov 06 23:11	26° 8 39'06	0°06'15	min. Earth dist.	12042 Nov 18 20:20	7° II 33'17	29.25592 AU
min. Earth dist.	12037 Nov 07 11:51	26° 8 38'14	29.29257 AU	direct	12043 Feb 06 21:53	6° II 10'03	
direct	12038 Jan 26 14:23	25° 8 15'00		evening set	12043 May 07 00:42	8° II 04'46	
evening set	12038 Apr 25 21:51	27° 8 09'38					
conjunction	12038 May 11 11:34	27° 8 44'21	0°05'06	conjunction	12043 May 22 13:16	8° II 39'28	-0°03'40
minimum elong	12038 May 11 11:34	27° 8 44'21	0°04'26	minimum elong	12043 May 22 13:16	8° II 39'28	0°04'24
behind sun begin	12038 May 11 05:15	27° 8 43'47		behind sun begin	12043 May 22 06:56	8° II 38'54	
behind sun end	12038 May 11 17:53	27° 8 44'55		behind sun end	12043 May 22 19:35	8° II 40'02	
max. Earth dist.	12038 May 10 22:47	27° 8 43'10	31.28880 AU	max. Earth dist.	12043 May 22 02:15	8° II 38'27	31.25131 AU
morning rise	12038 May 26 23:48	28° 8 18'57		morning rise	12043 Jun 07 00:47	9° II 14'06	
	12038 Jul 26 15:25	0° II		retrograde	12043 Sep 02 22:18	11° II 07'54	
retrograde	12038 Aug 22 12:31	0° II 12'10		opposition	12043 Nov 20 22:30	9° II 45'22	-0°04'48
	12038 Sep 19 00:30	30° 8		min. Earth dist.	12043 Nov 21 08:22	9° II 44'42	29.24652 AU
opposition	12038 Nov 09 10:49	28° 8 49'43	0°04'25	direct	12044 Feb 09 08:39	8° II 21'28	
min. Earth dist.	12038 Nov 09 21:52	28° 8 48'58	29.28530 AU	evening set	12044 May 08 10:56	10° II 16'10	
direct	12039 Jan 29 01:15	27° 8 25'40					
evening set	12039 Apr 28 07:56	29° 8 20'18		conjunction	12044 May 23 23:28	10° II 50'53	-0°05'22
				minimum elong	12044 May 23 23:28	10° II 50'53	0°06'08
conjunction	12039 May 13 21:28	29° 8 55'01	0°03'23	behind sun begin	12044 May 23 17:22	10° II 50'20	
minimum elong	12039 May 13 21:29	29° 8 55'01	0°02'42	behind sun end	12044 May 24 05:35	10° II 51'26	
behind sun begin	12039 May 13 15:03	29° 8 54'27		max. Earth dist.	12044 May 23 13:39	10° II 49'59	31.24117 AU
behind sun end	12039 May 14 03:55	29° 8 55'36		morning rise	12044 Jun 08 10:42	11° II 25'32	
max. Earth dist.	12039 May 13 09:37	29° 8 53'55	31.28177 AU	retrograde	12044 Sep 04 08:09	13° II 19'25	
	12039 May 16 02:32	0° II		opposition	12044 Nov 22 10:34	11° II 56'49	-0°06'38
morning rise	12039 May 29 09:29	0° II 29'38		min. Earth dist.	12044 Nov 22 20:27	11° II 56'09	29.23563 AU
retrograde	12039 Aug 24 22:56	2° II 22'58		direct	12045 Feb 10 21:54	10° II 32'55	
opposition	12039 Nov 11 22:37	1° II 00'30	0°02'35	evening set	12045 May 10 21:22	12° II 27'36	
min. Earth dist.	12039 Nov 12 10:11	0° II 59'43	29.27850 AU				
	12039 Dec 23 06:42	30° 8		conjunction	12045 May 26 09:34	13° II 02'19	-0°07'04
direct	12040 Jan 31 10:46	29° 8 36'30		minimum elong	12045 May 26 09:33	13° II 02'19	0°07'50
	12040 Mar 09 16:10	0° II		behind sun begin	12045 May 26 03:46	13° II 01'48	
evening set	12040 Apr 29 18:01	1° II 31'10		behind sun end	12045 May 26 15:21	13° II 02'50	
				max. Earth dist.	12045 May 25 22:52	13° II 01'20	31.22969 AU
conjunction	12040 May 15 07:22	2° II 05'53	0°01'37	morning rise	12045 Jun 10 20:51	13° II 36'58	
minimum elong	12040 May 15 07:21	2° II 05'53	0°00'54	retrograde	12045 Sep 06 20:11	15° II 30'55	
behind sun begin	12040 May 15 00:56	2° II 05'18		opposition	12045 Nov 24 22:45	14° II 08'16	-0°08'27
behind sun end	12040 May 15 13:47	2° II 06'27		min. Earth dist.	12045 Nov 25 07:49	14° II 07'39	29.22354 AU
max. Earth dist.	12040 May 14 19:58	2° II 04'50	31.27507 AU	direct	12046 Feb 13 09:59	12° II 44'20	
morning rise	12040 May 30 19:15	2° II 40'30		evening set	12046 May 13 07:28	14° II 38'59	
retrograde	12040 Aug 26 10:21	4° II 33'57					
opposition	12040 Nov 13 10:22	3° II 11'29	0°00'44	conjunction	12046 May 28 19:36	15° II 13'42	-0°08'46
min. Earth dist.	12040 Nov 13 20:34	3° II 10'48	29.27160 AU	minimum elong	12046 May 28 19:37	15° II 13'42	0°09'34
direct	12041 Feb 01 21:36	1° II 47'31		behind sun begin	12046 May 28 14:15	15° II 13'13	
desc. node	12041 Apr 16 03:41	3° II 08'29		behind sun end	12046 May 29 00:58	15° II 14'11	
evening set	12041 May 02 04:15	3° II 42'13		max. Earth dist.	12046 May 28 10:12	15° II 12'50	31.21702 AU
				morning rise	12046 Jun 13 06:39	15° II 48'21	
conjunction	12041 May 17 17:17	4° II 16'55	-0°00'10	retrograde	12046 Sep 09 05:47	17° II 42'23	
minimum elong	12041 May 17 17:17	4° II 16'55	0°00'53	opposition	12046 Nov 27 11:06	16° II 19'38	-0°10'16
behind sun begin	12041 May 17 10:52	4° II 16'21		min. Earth dist.	12046 Nov 27 20:36	16° II 18'59	29.21047 AU
behind sun end	12041 May 17 23:43	4° II 17'30		direct	12047 Feb 15 22:10	14° II 55'41	
max. Earth dist.	12041 May 17 05:51	4° II 15'52	31.26792 AU	evening set	12047 May 15 17:40	16° II 50'16	
morning rise	12041 Jun 02 05:02	4° II 51'33					
retrograde	12041 Aug 28 22:14	6° II 45'07		conjunction	12047 May 31 05:34	17° II 24'59	-0°10'27
opposition	12041 Nov 15 22:18	5° II 22'39	-0°01'07	minimum elong	12047 May 31 05:34	17° II 24'59	0°11'14
min. Earth dist.	12041 Nov 16 09:02	5° II 21'55	29.26423 AU	behind sun begin	12047 May 31 00:47	17° II 24'33	
direct	12042 Feb 04 08:33	3° II 58'43		behind sun end	12047 May 31 10:21	17° II 25'25	
evening set	12042 May 04 14:28	5° II 53'25		max. Earth dist.	12047 May 30 20:10	17° II 24'06	31.20385 AU
				morning rise	12047 Jun 15 16:39	17° II 59'39	
conjunction	12042 May 20 03:24	6° II 28'08	-0°01'56	retrograde	12047 Sep 11 16:12	19° II 53'45	
minimum elong	12042 May 20 03:23	6° II 28'08	0°02'41	opposition	12047 Nov 29 23:11	18° II 30'54	-0°12'04
behind sun begin	12042 May 19 20:58	6° II 27'34		min. Earth dist.	12047 Nov 30 07:09	18° II 30'22	29.19728 AU
behind sun end	12042 May 20 09:48	6° II 28'43		direct	12048 Feb 18 09:44	17° II 06'54	
max. Earth dist.	12042 May 19 17:03	6° II 27'11	31.26017 AU	evening set	12048 May 17 03:45	19° II 01'27	
morning rise	12042 Jun 04 14:53	7° II 02'46					
retrograde	12042 Aug 31 10:20	8° II 56'27		conjunction	12048 Jun 01 15:32	19° II 36'10	-0°12'07
				minimum elong	12048 Jun 01 15:32	19° II 36'10	0°12'56

behind sun begin	12048 Jun 01 11:32	19°II35'49		max. Earth dist.	12054 Jun 14 22:57	2°☾44'55	31.13010 AU
behind sun end	12048 Jun 01 19:31	19°II36'32		morning rise	12054 Jun 30 14:19	3°☾20'06	
max. Earth dist.	12048 Jun 01 07:02	19°II35'23	31.19073 AU	retrograde	12054 Sep 27 03:08	5°☾15'06	
morning rise	12048 Jun 17 02:29	20°II10'50		opposition	12054 Dec 15 14:05	3°☾52'02	-0°24'03
retrograde	12048 Sep 13 02:16	22°II05'02		min. Earth dist.	12054 Dec 15 17:15	3°☾51'49	29.12550 AU
opposition	12048 Dec 01 11:32	20°II42'06	-0°13'50	direct	12055 Mar 05 17:19	2°☾28'14	
min. Earth dist.	12048 Dec 01 19:45	20°II41'33	29.18455 AU	evening set	12055 Jun 02 03:00	4°☾22'53	
direct	12049 Feb 19 20:01	19°II18'05					
evening set	12049 May 19 13:50	21°II12'37		conjunction	12055 Jun 17 13:56	4°☾57'40	-0°23'13
				minimum elong	12055 Jun 17 13:56	4°☾57'40	0°24'03
conjunction	12049 Jun 04 01:28	21°II47'20	-0°13'46	max. Earth dist.	12055 Jun 17 10:37	4°☾57'21	31.12056 AU
minimum elong	12049 Jun 04 01:27	21°II47'20	0°14'34	morning rise	12055 Jul 03 00:34	5°☾32'27	
behind sun begin	12049 Jun 03 22:34	21°II47'04		retrograde	12055 Sep 29 14:02	7°☾27'36	
behind sun end	12049 Jun 04 04:21	21°II47'35		opposition	12055 Dec 18 02:47	6°☾04'30	-0°25'39
max. Earth dist.	12049 Jun 03 17:53	21°II46'38	31.17849 AU	min. Earth dist.	12055 Dec 18 06:27	6°☾04'15	29.11558 AU
morning rise	12049 Jun 19 12:19	22°II22'00		direct	12056 Mar 07 05:16	4°☾40'45	
retrograde	12049 Sep 15 13:25	24°II16'18		evening set	12056 Jun 03 13:30	6°☾35'25	
opposition	12049 Dec 03 23:43	22°II53'19	-0°15'36				
min. Earth dist.	12049 Dec 04 06:06	22°II52'53	29.17278 AU	conjunction	12056 Jun 19 00:18	7°☾10'12	-0°24'42
direct	12050 Feb 22 07:23	21°II29'18		minimum elong	12056 Jun 19 00:18	7°☾10'12	0°25'33
evening set	12050 May 21 24:00	23°II23'49		max. Earth dist.	12056 Jun 18 20:49	7°☾09'53	31.11021 AU
				morning rise	12056 Jul 04 11:03	7°☾45'00	
conjunction	12050 Jun 06 11:24	23°II58'32	-0°15'24	retrograde	12056 Oct 01 01:28	9°☾40'17	
minimum elong	12050 Jun 06 11:23	23°II58'32	0°16'14	opposition	12056 Dec 19 15:30	8°☾17'10	-0°27'12
max. Earth dist.	12050 Jun 06 04:08	23°II57'52	31.16729 AU	min. Earth dist.	12056 Dec 19 17:51	8°☾17'00	29.10462 AU
morning rise	12050 Jun 21 22:15	24°II33'14		direct	12057 Mar 09 17:09	6°☾53'26	
retrograde	12050 Sep 18 01:30	26°II27'39		evening set	12057 Jun 06 00:01	8°☾48'06	
opposition	12050 Dec 06 12:09	25°II04'37	-0°17'20				
min. Earth dist.	12050 Dec 06 18:28	25°II04'12	29.16226 AU	conjunction	12057 Jun 21 10:45	9°☾22'54	-0°26'08
direct	12051 Feb 24 17:50	23°II40'38		minimum elong	12057 Jun 21 10:45	9°☾22'54	0°26'58
evening set	12051 May 24 09:55	25°II35'10		max. Earth dist.	12057 Jun 21 07:41	9°☾22'37	31.09853 AU
				morning rise	12057 Jul 06 21:27	9°☾57'43	
conjunction	12051 Jun 08 21:20	26°II09'54	-0°17'00	retrograde	12057 Oct 03 12:21	11°☾53'07	
minimum elong	12051 Jun 08 21:20	26°II09'54	0°17'50	opposition	12057 Dec 22 04:27	10°☾29'57	-0°28'43
max. Earth dist.	12051 Jun 08 15:47	26°II09'23	31.15730 AU	min. Earth dist.	12057 Dec 22 07:27	10°☾29'45	29.09239 AU
morning rise	12051 Jun 24 08:03	26°II44'36		direct	12058 Mar 12 03:47	9°☾06'13	
retrograde	12051 Sep 20 13:34	28°II39'09		evening set	12058 Jun 08 10:30	11°☾00'52	
opposition	12051 Dec 09 00:30	27°II16'06	-0°19'03				
min. Earth dist.	12051 Dec 09 05:35	27°II15'46	29.15259 AU	conjunction	12058 Jun 23 21:14	11°☾35'40	-0°27'32
direct	12052 Feb 27 06:19	25°II52'09		minimum elong	12058 Jun 23 21:14	11°☾35'40	0°28'23
evening set	12052 May 25 20:11	27°II46'43		max. Earth dist.	12058 Jun 23 18:46	11°☾35'26	31.08582 AU
				morning rise	12058 Jul 09 07:58	12°☾10'30	
conjunction	12052 Jun 10 07:19	28°II21'27	-0°18'36	retrograde	12058 Oct 06 00:01	14°☾06'01	
minimum elong	12052 Jun 10 07:19	28°II21'27	0°19'26	opposition	12058 Dec 24 17:15	12°☾42'46	-0°30'12
max. Earth dist.	12052 Jun 10 01:28	28°II20'55	31.14801 AU	min. Earth dist.	12058 Dec 24 18:48	12°☾42'40	29.07913 AU
morning rise	12052 Jun 25 18:09	28°II56'11		direct	12059 Mar 14 15:40	11°☾19'01	
	12052 Jul 27 17:23	0°☾		evening set	12059 Jun 10 20:56	13°☾13'37	
retrograde	12052 Sep 22 02:19	0°☾50'53					
	12052 Nov 20 07:43	30°☾II		conjunction	12059 Jun 26 07:34	13°☾48'26	-0°28'54
opposition	12052 Dec 10 12:49	29°II27'49	-0°20'45	minimum elong	12059 Jun 26 07:34	13°☾48'26	0°29'44
min. Earth dist.	12052 Dec 10 17:26	29°II27'31	29.14360 AU	max. Earth dist.	12059 Jun 26 05:00	13°☾48'12	31.07222 AU
direct	12053 Feb 28 16:22	28°II03'55		morning rise	12059 Jul 11 18:27	14°☾23'17	
evening set	12053 May 28 06:21	29°II58'31		retrograde	12059 Oct 08 11:55	16°☾18'54	
	12053 May 28 22:26	0°☾		opposition	12059 Dec 27 06:10	14°☾55'33	-0°31'38
				min. Earth dist.	12059 Dec 27 08:02	14°☾55'26	29.06542 AU
conjunction	12053 Jun 12 17:32	0°☾33'16	-0°20'10	direct	12060 Mar 16 02:36	13°☾31'46	
minimum elong	12053 Jun 12 17:32	0°☾33'16	0°21'00	evening set	12060 Jun 12 07:19	15°☾26'21	
max. Earth dist.	12053 Jun 12 13:22	0°☾32'53	31.13908 AU				
morning rise	12053 Jun 28 04:10	1°☾08'00		conjunction	12060 Jun 27 18:03	16°☾01'10	-0°30'13
retrograde	12053 Sep 24 13:32	3°☾02'51		minimum elong	12060 Jun 27 18:03	16°☾01'10	0°31'03
opposition	12053 Dec 13 01:26	1°☾39'48	-0°22'25	max. Earth dist.	12060 Jun 27 17:04	16°☾01'04	31.05849 AU
min. Earth dist.	12053 Dec 13 05:39	1°☾39'31	29.13463 AU	morning rise	12060 Jul 13 04:52	16°☾36'01	
direct	12054 Mar 03 05:21	0°☾15'57		retrograde	12060 Oct 09 23:35	18°☾31'44	
evening set	12054 May 30 16:39	2°☾10'35		opposition	12060 Dec 28 18:52	17°☾08'18	-0°33'02
				min. Earth dist.	12060 Dec 28 19:33	17°☾08'15	29.05181 AU
conjunction	12054 Jun 15 03:33	2°☾45'20	-0°21'42	direct	12061 Mar 18 14:45	15°☾44'28	
minimum elong	12054 Jun 15 03:33	2°☾45'20	0°22'33	evening set	12061 Jun 14 17:51	17°☾39'01	

conjunction	12061 Jun 30 04:23	18°☾13'51	-0°31'30	retrograde	12067 Oct 26 15:29	4°♊03'30	
minimum elong	12061 Jun 30 04:23	18°☾13'51	0°32'18	opposition	12068 Jan 14 13:53	2°♊39'45	-0°41'18
max. Earth dist.	12061 Jun 30 03:12	18°☾13'44	31.04527 AU	min. Earth dist.	12068 Jan 14 09:15	2°♊40'04	28.98078 AU
morning rise	12061 Jul 15 15:25	18°☾48'44		direct	12068 Apr 03 02:23	1°♊16'05	
retrograde	12061 Oct 12 12:33	20°☾44'32		evening set	12068 Jun 29 20:07	3°♊10'39	
opposition	12061 Dec 31 07:49	19°☾21'01	-0°34'22				
min. Earth dist.	12061 Dec 31 07:48	19°☾21'01	29.03918 AU	conjunction	12068 Jul 15 06:52	3°♊45'34	-0°39'02
direct	12062 Mar 21 00:58	17°☾57'10		minimum elong	12068 Jul 15 06:52	3°♊45'34	0°39'47
evening set	12062 Jun 17 04:07	19°☾51'42		max. Earth dist.	12068 Jul 15 10:36	3°♊45'55	30.97574 AU
				morning rise	12068 Jul 30 18:42	4°♊20'37	
conjunction	12062 Jul 02 14:48	20°☾26'32	-0°32'43	retrograde	12068 Oct 28 03:44	6°♊17'19	
minimum elong	12062 Jul 02 14:48	20°☾26'32	0°33'33	opposition	12069 Jan 16 03:07	4°♊53'33	-0°42'15
max. Earth dist.	12062 Jul 02 15:34	20°☾26'37	31.03311 AU	min. Earth dist.	12069 Jan 15 23:01	4°♊53'49	28.97084 AU
morning rise	12062 Jul 18 01:45	21°☾01'26		direct	12069 Apr 05 12:50	3°♊29'53	
retrograde	12062 Oct 15 00:32	22°☾57'22		evening set	12069 Jul 02 07:05	5°♊24'27	
opposition	12063 Jan 02 20:47	21°☾33'46	-0°35'40				
min. Earth dist.	12063 Jan 02 20:00	21°☾33'49	29.02758 AU	conjunction	12069 Jul 17 18:04	5°♊59'24	-0°39'54
direct	12063 Mar 23 14:27	20°☾09'56		minimum elong	12069 Jul 17 18:04	5°♊59'24	0°40'37
evening set	12063 Jun 19 14:40	22°☾04'27		max. Earth dist.	12069 Jul 17 23:01	5°♊59'53	30.96527 AU
				morning rise	12069 Aug 02 05:54	6°♊34'28	
conjunction	12063 Jul 05 01:14	22°☾39'18	-0°33'54	retrograde	12069 Oct 30 15:52	8°♊31'18	
minimum elong	12063 Jul 05 01:14	22°☾39'18	0°34'42	opposition	12070 Jan 18 16:26	7°♊07'29	-0°43'08
max. Earth dist.	12063 Jul 05 01:51	22°☾39'21	31.02218 AU	min. Earth dist.	12070 Jan 18 11:26	7°♊07'49	28.95972 AU
morning rise	12063 Jul 20 12:27	23°☾14'13		direct	12070 Apr 08 00:56	5°♊43'49	
retrograde	12063 Oct 17 14:53	25°☾10'15		evening set	12070 Jul 04 18:07	7°♊38'23	
opposition	12064 Jan 05 09:32	23°☾46'36	-0°36'54				
min. Earth dist.	12064 Jan 05 07:25	23°☾46'45	29.01724 AU	conjunction	12070 Jul 20 05:03	8°♊13'21	-0°40'42
direct	12064 Mar 25 02:24	22°☾22'47		minimum elong	12070 Jul 20 05:03	8°♊13'21	0°41'25
evening set	12064 Jun 21 01:10	24°☾17'19		max. Earth dist.	12070 Jul 20 09:16	8°♊13'45	30.95360 AU
				morning rise	12070 Aug 04 17:15	8°♊48'26	
conjunction	12064 Jul 06 11:52	24°☾52'11	-0°35'02	retrograde	12070 Nov 02 05:39	10°♊45'23	
minimum elong	12064 Jul 06 11:52	24°☾52'11	0°35'51	opposition	12071 Jan 21 05:47	9°♊21'29	-0°43'57
max. Earth dist.	12064 Jul 06 14:01	24°☾52'23	31.01222 AU	min. Earth dist.	12071 Jan 21 00:44	9°♊21'50	28.94755 AU
morning rise	12064 Jul 21 23:04	25°☾27'07		direct	12071 Apr 10 11:24	7°♊57'49	
retrograde	12064 Oct 19 02:08	27°☾23'17		evening set	12071 Jul 07 05:06	9°♊52'22	
opposition	12065 Jan 06 22:35	25°☾59'36	-0°38'05				
min. Earth dist.	12065 Jan 06 20:34	25°☾59'45	29.00768 AU	conjunction	12071 Jul 22 16:20	10°♊27'21	-0°41'26
direct	12065 Mar 27 14:22	24°☾35'49		minimum elong	12071 Jul 22 16:20	10°♊27'21	0°42'07
evening set	12065 Jun 23 11:43	26°☾30'21		max. Earth dist.	12071 Jul 22 21:55	10°♊27'52	30.94091 AU
				morning rise	12071 Aug 07 04:34	11°♊02'27	
conjunction	12065 Jul 08 22:23	27°☾05'14	-0°36'07	retrograde	12071 Nov 04 18:03	12°♊59'29	
minimum elong	12065 Jul 08 22:23	27°☾05'14	0°36'54	opposition	12072 Jan 23 18:54	11°♊35'30	-0°44'42
max. Earth dist.	12065 Jul 09 00:54	27°☾05'28	31.00307 AU	min. Earth dist.	12072 Jan 23 13:35	11°♊35'52	28.93448 AU
morning rise	12065 Jul 24 09:46	27°☾40'11		direct	12072 Apr 12 00:53	10°♊11'48	
retrograde	12065 Oct 21 14:57	29°☾36'29		evening set	12072 Jul 08 16:12	12°♊06'20	
opposition	12066 Jan 09 11:36	28°☾12'47	-0°39'13				
min. Earth dist.	12066 Jan 09 07:55	28°☾13'02	28.99872 AU	conjunction	12072 Jul 24 03:25	12°♊41'20	-0°42'06
direct	12066 Mar 30 02:51	26°☾49'02		minimum elong	12072 Jul 24 03:25	12°♊41'20	0°42'48
evening set	12066 Jun 25 22:25	28°☾43'34		max. Earth dist.	12072 Jul 24 08:32	12°♊41'49	30.92779 AU
				morning rise	12072 Aug 08 16:02	13°♊16'27	
conjunction	12066 Jul 11 09:07	29°☾18'28	-0°37'09		12072 Oct 08 15:00	15°♊	
minimum elong	12066 Jul 11 09:07	29°☾18'28	0°37'56	retrograde	12072 Nov 06 08:46	15°♊13'34	
max. Earth dist.	12066 Jul 11 12:21	29°☾18'47	30.99418 AU		12072 Dec 05 13:43	15°♊♊	
morning rise	12066 Jul 26 20:37	29°☾53'27		opposition	12073 Jan 25 08:04	13°♊49'30	-0°45'24
	12066 Jul 29 19:48	0°♊		min. Earth dist.	12073 Jan 25 01:45	13°♊49'56	28.92143 AU
retrograde	12066 Oct 24 03:10	1°♊49'53		direct	12073 Apr 14 13:00	12°♊25'46	
opposition	12067 Jan 12 00:48	0°♊26'10	-0°40'17	evening set	12073 Jul 11 03:03	14°♊20'16	
min. Earth dist.	12067 Jan 11 21:36	0°♊26'23	28.98994 AU				
	12067 Jan 28 05:20	30°♊☾		conjunction	12073 Jul 26 14:29	14°♊55'17	-0°42'43
direct	12067 Apr 01 14:03	29°☾02'27		minimum elong	12073 Jul 26 14:29	14°♊55'17	0°43'22
	12067 May 31 10:11	0°♊		max. Earth dist.	12073 Jul 26 21:05	14°♊55'54	30.91485 AU
evening set	12067 Jun 28 09:07	0°♊57'00			12073 Jul 28 16:08	15°♊	
				morning rise	12073 Aug 11 03:10	15°♊30'26	
conjunction	12067 Jul 13 19:57	1°♊31'55	-0°38'08	retrograde	12073 Nov 08 20:22	17°♊27'39	
minimum elong	12067 Jul 13 19:57	1°♊31'55	0°38'53	opposition	12074 Jan 27 21:22	16°♊03'29	-0°46'01
max. Earth dist.	12067 Jul 13 23:58	1°♊32'18	30.98533 AU	min. Earth dist.	12074 Jan 27 15:03	16°♊03'55	28.90892 AU
morning rise	12067 Jul 29 07:34	2°♊06'56			12074 Mar 12 10:45	15°♊♊	

direct	12074 Apr 17 01:13	14°Ω39'44		conjunction	12080 Aug 10 21:56	0°♊35'27	-0°45'10
	12074 May 21 18:02	15°Ω		minimum elong	12080 Aug 10 21:57	0°♊35'27	0°45'40
evening set	12074 Jul 13 14:06	16°Ω34'13		max. Earth dist.	12080 Aug 11 09:22	0°♊36'32	30.85405 AU
				morning rise	12080 Aug 26 12:22	1°♊10'48	
conjunction	12074 Jul 29 01:38	17°Ω09'15	-0°43'16	retrograde	12080 Nov 24 13:44	3°♊08'44	
minimum elong	12074 Jul 29 01:38	17°Ω09'15	0°43'55	opposition	12081 Feb 12 17:37	1°♊44'20	-0°48'23
max. Earth dist.	12074 Jul 29 08:37	17°Ω09'55	30.90294 AU	min. Earth dist.	12081 Feb 12 06:52	1°♊45'05	28.85085 AU
morning rise	12074 Aug 13 14:36	17°Ω44'25		direct	12081 May 02 12:16	0°♊20'42	
retrograde	12074 Nov 11 10:14	19°Ω41'43		evening set	12081 Jul 28 20:44	2°♊15'12	
opposition	12075 Jan 30 10:24	18°Ω17'30	-0°46'34				
min. Earth dist.	12075 Jan 30 02:25	18°Ω18'03	28.89763 AU	conjunction	12081 Aug 13 09:34	2°♊50'23	-0°45'15
direct	12075 Apr 19 14:24	16°Ω53'44		minimum elong	12081 Aug 13 09:34	2°♊50'23	0°45'42
evening set	12075 Jul 16 01:06	18°Ω48'12		max. Earth dist.	12081 Aug 13 20:17	2°♊51'24	30.84704 AU
				morning rise	12081 Aug 29 00:25	3°♊25'45	
conjunction	12075 Jul 31 12:48	19°Ω23'16	-0°43'45	retrograde	12081 Nov 27 04:33	5°♊23'47	
minimum elong	12075 Jul 31 12:48	19°Ω23'16	0°44'22	opposition	12082 Feb 15 06:59	3°♊59'20	-0°48'26
max. Earth dist.	12075 Jul 31 20:35	19°Ω24'00	30.89218 AU	min. Earth dist.	12082 Feb 14 19:35	4°♊00'07	28.84351 AU
morning rise	12075 Aug 16 02:01	19°Ω58'28		direct	12082 May 04 23:25	2°♊35'42	
retrograde	12075 Nov 13 23:19	21°Ω55'52		evening set	12082 Jul 31 08:23	4°♊30'11	
opposition	12076 Feb 01 23:37	20°Ω31'35	-0°47'03				
min. Earth dist.	12076 Feb 01 15:54	20°Ω32'07	28.88758 AU	conjunction	12082 Aug 15 21:33	5°♊05'24	-0°45'16
direct	12076 Apr 21 02:25	19°Ω07'50		minimum elong	12082 Aug 15 21:34	5°♊05'24	0°45'43
evening set	12076 Jul 17 12:06	21°Ω02'18		max. Earth dist.	12082 Aug 16 09:11	5°♊06'30	30.83916 AU
				morning rise	12082 Aug 31 12:36	5°♊40'48	
conjunction	12076 Aug 02 00:02	21°Ω37'23	-0°44'10	retrograde	12082 Nov 29 17:00	7°♊38'53	
minimum elong	12076 Aug 02 00:02	21°Ω37'23	0°44'46	opposition	12083 Feb 17 20:18	6°♊14'22	-0°48'24
max. Earth dist.	12076 Aug 02 08:52	21°Ω38'13	30.88281 AU	min. Earth dist.	12083 Feb 17 09:27	6°♊15'07	28.83519 AU
morning rise	12076 Aug 17 13:25	22°Ω12'37		direct	12083 May 07 11:33	4°♊50'43	
retrograde	12076 Nov 15 11:26	24°Ω10'07		evening set	12083 Aug 02 20:04	6°♊45'10	
opposition	12077 Feb 03 12:39	22°Ω45'48	-0°47'28				
min. Earth dist.	12077 Feb 03 03:09	22°Ω46'27	28.87875 AU	conjunction	12083 Aug 18 09:30	7°♊20'24	-0°45'12
direct	12077 Apr 23 15:09	21°Ω22'04		minimum elong	12083 Aug 18 09:30	7°♊20'24	0°45'36
evening set	12077 Jul 19 23:18	23°Ω16'32		max. Earth dist.	12083 Aug 18 20:51	7°♊21'28	30.83053 AU
				morning rise	12083 Sep 03 00:56	7°♊55'49	
conjunction	12077 Aug 04 11:17	23°Ω51'38	-0°44'32	retrograde	12083 Dec 02 08:02	9°♊53'57	
minimum elong	12077 Aug 04 11:18	23°Ω51'38	0°45'05	opposition	12084 Feb 20 09:29	8°♊29'21	-0°48'18
max. Earth dist.	12077 Aug 04 20:12	23°Ω52'29	30.87456 AU	min. Earth dist.	12084 Feb 19 21:36	8°♊30'11	28.82616 AU
morning rise	12077 Aug 20 01:02	24°Ω26'54		direct	12084 May 09 01:22	7°♊05'39	
retrograde	12077 Nov 17 23:30	26°Ω24'31		evening set	12084 Aug 04 07:42	9°♊00'04	
opposition	12078 Feb 06 01:58	25°Ω00'10	-0°47'48				
min. Earth dist.	12078 Feb 05 16:38	25°Ω00'49	28.87112 AU	conjunction	12084 Aug 19 21:22	9°♊35'19	-0°45'05
direct	12078 Apr 26 01:36	23°Ω36'28		minimum elong	12084 Aug 19 21:22	9°♊35'19	0°45'28
evening set	12078 Jul 22 10:20	25°Ω30'56		max. Earth dist.	12084 Aug 20 09:06	9°♊36'26	30.82121 AU
				morning rise	12084 Sep 04 13:05	10°♊10'46	
conjunction	12078 Aug 06 22:41	26°Ω06'04	-0°44'49	retrograde	12084 Dec 03 21:05	12°♊08'56	
minimum elong	12078 Aug 06 22:41	26°Ω06'04	0°45'22	opposition	12085 Feb 21 22:45	10°♊44'14	-0°48'08
max. Earth dist.	12078 Aug 07 09:14	26°Ω07'04	30.86737 AU	min. Earth dist.	12085 Feb 21 11:33	10°♊45'01	28.81687 AU
morning rise	12078 Aug 22 12:35	26°Ω41'21		direct	12085 May 11 13:59	9°♊20'30	
retrograde	12078 Nov 20 11:38	28°Ω39'05		evening set	12085 Aug 06 19:17	11°♊14'52	
opposition	12079 Feb 08 15:10	27°Ω14'43	-0°48'04				
min. Earth dist.	12079 Feb 08 04:42	27°Ω15'26	28.86417 AU	conjunction	12085 Aug 22 09:18	11°♊50'08	-0°44'53
direct	12079 Apr 28 13:22	25°Ω51'03		minimum elong	12085 Aug 22 09:18	11°♊50'08	0°45'13
evening set	12079 Jul 24 21:47	27°Ω45'32		max. Earth dist.	12085 Aug 22 21:47	11°♊51'19	30.81219 AU
				morning rise	12085 Sep 07 01:18	12°♊25'36	
conjunction	12079 Aug 09 10:10	28°Ω20'40	-0°45'02	retrograde	12085 Dec 06 10:04	14°♊23'47	
minimum elong	12079 Aug 09 10:10	28°Ω20'40	0°45'32	opposition	12086 Feb 24 11:49	12°♊59'01	-0°47'53
max. Earth dist.	12079 Aug 09 20:11	28°Ω21'37	30.86067 AU	min. Earth dist.	12086 Feb 23 23:05	12°♊59'54	28.80815 AU
morning rise	12079 Aug 25 00:30	28°Ω56'00		direct	12086 May 14 03:25	11°♊35'14	
	12079 Sep 25 17:33	0°♊		evening set	12086 Aug 09 06:56	13°♊29'34	
retrograde	12079 Nov 23 01:30	0°♊53'50					
	12080 Jan 23 06:40	30°♋Ω		conjunction	12086 Aug 24 21:06	14°♊04'51	-0°44'38
opposition	12080 Feb 11 04:18	29°Ω29'27	-0°48'16	minimum elong	12086 Aug 24 21:06	14°♊04'51	0°44'57
min. Earth dist.	12080 Feb 10 17:50	29°Ω30'10	28.85765 AU	max. Earth dist.	12086 Aug 25 09:31	14°♊06'02	30.80389 AU
direct	12080 Apr 29 23:40	28°Ω05'48		morning rise	12086 Sep 09 13:33	14°♊40'21	
evening set	12080 Jul 26 09:11	0°♊00'17		retrograde	12086 Dec 08 22:48	16°♊38'34	
	12080 Jul 26 06:02	0°♊		opposition	12087 Feb 27 00:59	15°♊13'44	-0°47'34
				min. Earth dist.	12087 Feb 26 12:36	15°♊14'35	28.80051 AU

direct	12087 May 16 14:52	13° <u>17</u> 49'55		max. Earth dist.	12093 Sep 10 02:18	29° <u>17</u> 51'31	30.78175 AU
evening set	12087 Aug 11 18:34	15° <u>17</u> 44'14			12093 Sep 13 19:35	0° <u>17</u>	
				morning rise	12093 Sep 25 05:10	0° <u>17</u> 25'42	
conjunction	12087 Aug 27 09:10	16° <u>17</u> 19'32	-0°44'18	retrograde	12093 Dec 24 20:21	2° <u>17</u> 24'21	
minimum elong	12087 Aug 27 09:10	16° <u>17</u> 19'32	0°44'34	opposition	12094 Mar 14 19:51	0° <u>17</u> 59'29	-0°43'21
max. Earth dist.	12087 Aug 27 23:04	16° <u>17</u> 20'51	30.79689 AU	min. Earth dist.	12094 Mar 14 05:11	1° <u>17</u> 00'30	28.78153 AU
morning rise	12087 Sep 12 01:48	16° <u>17</u> 55'03			12094 Apr 23 09:15	30° <u>17</u>	
retrograde	12087 Dec 11 11:08	18° <u>17</u> 53'19		direct	12094 Jun 01 00:43	29° <u>17</u> 35'51	
opposition	12088 Feb 29 13:48	17° <u>17</u> 28'26	-0°47'11		12094 Jul 08 17:59	0° <u>17</u>	
min. Earth dist.	12088 Feb 29 00:13	17° <u>17</u> 29'23	28.79418 AU	evening set	12094 Aug 27 06:16	1° <u>17</u> 30'15	
direct	12088 May 18 03:30	16° <u>17</u> 04'37					
evening set	12088 Aug 13 06:22	17° <u>17</u> 58'55		conjunction	12094 Sep 11 23:04	2° <u>17</u> 05'44	-0°40'08
				minimum elong	12094 Sep 11 23:05	2° <u>17</u> 05'44	0°40'12
conjunction	12088 Aug 28 21:06	18° <u>17</u> 34'14	-0°43'55	max. Earth dist.	12094 Sep 12 15:07	2° <u>17</u> 07'15	30.78053 AU
minimum elong	12088 Aug 28 21:06	18° <u>17</u> 34'14	0°44'10	morning rise	12094 Sep 27 18:11	2° <u>17</u> 41'27	
max. Earth dist.	12088 Aug 29 10:35	18° <u>17</u> 35'31	30.79136 AU	retrograde	12094 Dec 27 10:46	4° <u>17</u> 40'06	
morning rise	12088 Sep 13 14:13	19° <u>17</u> 09'47		opposition	12095 Mar 17 08:48	3° <u>17</u> 15'15	-0°42'28
retrograde	12088 Dec 13 00:19	21° <u>17</u> 08'06		min. Earth dist.	12095 Mar 16 17:12	3° <u>17</u> 16'20	28.77980 AU
opposition	12089 Mar 03 02:53	19° <u>17</u> 43'12	-0°46'43	direct	12095 Jun 03 14:10	1° <u>17</u> 51'37	
min. Earth dist.	12089 Mar 02 13:07	19° <u>17</u> 44'09	28.78950 AU	evening set	12095 Aug 29 18:45	3° <u>17</u> 46'01	
direct	12089 May 20 14:04	18° <u>17</u> 19'23					
evening set	12089 Aug 15 17:56	20° <u>17</u> 13'41		conjunction	12095 Sep 14 11:47	4° <u>17</u> 21'31	-0°39'17
				minimum elong	12095 Sep 14 11:47	4° <u>17</u> 21'31	0°39'18
conjunction	12089 Aug 31 09:08	20° <u>17</u> 49'02	-0°43'27	max. Earth dist.	12095 Sep 15 03:01	4° <u>17</u> 22'57	30.77828 AU
minimum elong	12089 Aug 31 09:08	20° <u>17</u> 49'02	0°43'40	morning rise	12095 Sep 30 07:21	4° <u>17</u> 57'15	
max. Earth dist.	12089 Sep 01 00:19	20° <u>17</u> 50'28	30.78739 AU	retrograde	12095 Dec 30 00:55	6° <u>17</u> 55'55	
morning rise	12089 Sep 16 02:26	21° <u>17</u> 24'37		opposition	12096 Mar 18 21:47	5° <u>17</u> 31'02	-0°41'31
retrograde	12089 Dec 15 11:58	23° <u>17</u> 22'59		min. Earth dist.	12096 Mar 18 07:13	5° <u>17</u> 32'03	28.77718 AU
opposition	12090 Mar 05 15:54	21° <u>17</u> 58'05	-0°46'12	direct	12096 Jun 05 02:32	4° <u>17</u> 07'23	
min. Earth dist.	12090 Mar 05 01:31	21° <u>17</u> 59'05	28.78621 AU	evening set	12096 Aug 31 07:04	6° <u>17</u> 01'44	
direct	12090 May 23 02:09	20° <u>17</u> 34'18					
evening set	12090 Aug 18 05:51	22° <u>17</u> 28'36		conjunction	12096 Sep 16 00:37	6° <u>17</u> 37'16	-0°38'22
				minimum elong	12096 Sep 16 00:37	6° <u>17</u> 37'16	0°38'22
conjunction	12090 Sep 02 21:14	23° <u>17</u> 03'58	-0°42'55	max. Earth dist.	12096 Sep 16 16:41	6° <u>17</u> 38'47	30.77540 AU
minimum elong	12090 Sep 02 21:14	23° <u>17</u> 03'58	0°43'07	morning rise	12096 Oct 01 20:24	7° <u>17</u> 13'02	
max. Earth dist.	12090 Sep 03 11:54	23° <u>17</u> 05'22	30.78487 AU	retrograde	12096 Dec 31 14:20	9° <u>17</u> 11'40	
morning rise	12090 Sep 18 15:03	23° <u>17</u> 39'35		opposition	12097 Mar 21 10:40	7° <u>17</u> 46'44	-0°40'30
retrograde	12090 Dec 18 02:32	25° <u>17</u> 38'01		min. Earth dist.	12097 Mar 20 19:22	7° <u>17</u> 47'48	28.77399 AU
opposition	12091 Mar 08 04:45	24° <u>17</u> 13'07	-0°45'35	direct	12097 Jun 07 16:29	6° <u>17</u> 23'04	
min. Earth dist.	12091 Mar 07 13:39	24° <u>17</u> 14'10	28.78433 AU	evening set	12097 Sep 02 19:24	8° <u>17</u> 17'22	
direct	12091 May 25 12:14	22° <u>17</u> 49'22					
evening set	12091 Aug 20 17:46	24° <u>17</u> 43'42		conjunction	12097 Sep 18 13:08	8° <u>17</u> 52'55	-0°37'24
				minimum elong	12097 Sep 18 13:09	8° <u>17</u> 52'55	0°37'21
conjunction	12091 Sep 05 09:35	25° <u>17</u> 19'06	-0°42'19	max. Earth dist.	12097 Sep 19 04:20	8° <u>17</u> 54'21	30.77220 AU
minimum elong	12091 Sep 05 09:35	25° <u>17</u> 19'06	0°42'28	morning rise	12097 Oct 04 09:29	9° <u>17</u> 28'42	
max. Earth dist.	12091 Sep 06 01:24	25° <u>17</u> 20'36	30.78339 AU	retrograde	12098 Jan 03 02:48	11° <u>17</u> 27'19	
morning rise	12091 Sep 21 03:38	25° <u>17</u> 54'45		opposition	12098 Mar 23 23:34	10° <u>17</u> 02'20	-0°39'26
retrograde	12091 Dec 20 15:10	27° <u>17</u> 53'15		min. Earth dist.	12098 Mar 23 08:42	10° <u>17</u> 03'22	28.77095 AU
opposition	12092 Mar 09 17:47	26° <u>17</u> 28'22	-0°44'55	direct	12098 Jun 10 03:49	8° <u>17</u> 38'36	
min. Earth dist.	12092 Mar 09 03:03	26° <u>17</u> 29'24	28.78320 AU	evening set	12098 Sep 05 07:43	10° <u>17</u> 32'52	
direct	12092 May 26 23:43	25° <u>17</u> 04'41					
evening set	12092 Aug 22 05:46	26° <u>17</u> 59'02		conjunction	12098 Sep 21 01:59	11° <u>17</u> 08'26	-0°36'23
				minimum elong	12098 Sep 21 02:00	11° <u>17</u> 08'26	0°36'18
conjunction	12092 Sep 06 21:50	27° <u>17</u> 34'27	-0°41'40	max. Earth dist.	12098 Sep 21 18:27	11° <u>17</u> 09'59	30.76934 AU
minimum elong	12092 Sep 06 21:51	27° <u>17</u> 34'27	0°41'47	morning rise	12098 Oct 06 22:32	11° <u>17</u> 44'14	
max. Earth dist.	12092 Sep 07 13:31	27° <u>17</u> 35'56	30.78259 AU	retrograde	12099 Jan 05 13:59	13° <u>17</u> 42'49	
morning rise	12092 Sep 22 16:17	28° <u>17</u> 10'07		opposition	12099 Mar 26 12:09	12° <u>17</u> 17'47	-0°38'18
	12092 Nov 29 07:51	0° <u>17</u>		min. Earth dist.	12099 Mar 25 21:02	12° <u>17</u> 18'50	28.76842 AU
retrograde	12092 Dec 22 06:46	0° <u>17</u> 08'42		direct	12099 Jun 12 16:33	10° <u>17</u> 54'01	
	12093 Jan 14 12:04	30° <u>17</u>		evening set	12099 Sep 07 20:12	12° <u>17</u> 48'14	
opposition	12093 Mar 12 06:44	28° <u>17</u> 43'50	-0°44'10				
min. Earth dist.	12093 Mar 11 15:02	28° <u>17</u> 44'56	28.78249 AU	conjunction	12099 Sep 23 14:40	13° <u>17</u> 23'49	-0°35'18
direct	12093 May 29 12:48	27° <u>17</u> 20'10		minimum elong	12099 Sep 23 14:40	13° <u>17</u> 23'49	0°35'11
evening set	12093 Aug 24 18:00	29° <u>17</u> 14'34		max. Earth dist.	12099 Sep 24 06:17	13° <u>17</u> 25'18	30.76735 AU
				morning rise	12099 Oct 09 11:43	13° <u>17</u> 59'38	
conjunction	12093 Sep 09 10:23	29° <u>17</u> 50'01	-0°40'56	retrograde	12100 Jan 08 04:04	15° <u>17</u> 58'11	
minimum elong	12093 Sep 09 10:23	29° <u>17</u> 50'01	0°41'01	min. Earth dist.	12100 Mar 28 09:11	14° <u>17</u> 34'12	28.76704 AU

opposition	12100 Mar 29 00:48	14° <u>0</u> 33'06	-0°37'07
direct	12100 Jun 15 03:07	13° <u>0</u> 09'18	
evening set	12100 Sep 10 08:26	15° <u>0</u> 03'30	
conjunction	12100 Sep 26 03:21	15° <u>0</u> 39'06	-0°34'10
minimum elong	12100 Sep 26 03:21	15° <u>0</u> 39'06	0°34'01
max. Earth dist.	12100 Sep 26 20:07	15° <u>0</u> 40'41	30.76650 AU
morning rise	12100 Oct 12 00:36	16° <u>0</u> 14'56	
retrograde	12101 Jan 10 15:03	18° <u>0</u> 13'27	
opposition	12101 Mar 31 13:28	16° <u>0</u> 48'21	-0°35'53
min. Earth dist.	12101 Mar 30 22:05	16° <u>0</u> 49'26	28.76687 AU
direct	12101 Jun 17 15:12	15° <u>0</u> 24'32	
evening set	12101 Sep 12 20:53	17° <u>0</u> 18'43	
conjunction	12101 Sep 28 16:07	17° <u>0</u> 54'19	-0°32'59
minimum elong	12101 Sep 28 16:07	17° <u>0</u> 54'19	0°32'48
max. Earth dist.	12101 Sep 29 08:37	17° <u>0</u> 55'52	30.76718 AU
morning rise	12101 Oct 14 13:48	18° <u>0</u> 30'10	
retrograde	12102 Jan 13 05:07	20° <u>0</u> 28'40	