

morning rise	12600 Jan 04 17:24	10°32'42"		evening set	12606 Dec 20 15:02	20°35'25"	
retrograde	12600 Apr 03 20:13	11°35'55"		max. Earth dist.	12606 Dec 31 00:57	21°31'56"	36.67079 AU
opposition	12600 Jun 22 22:43	10°34'00"	6°45'20"				
min. Earth dist.	12600 Jun 25 03:07	10°34'57"	36.33580 AU	conjunction	12607 Jan 02 13:37	21°32'42"	8°57'09"
direct	12600 Sep 11 05:25	9°33'29"		minimum elong	12607 Jan 02 13:22	21°32'41"	8°58'04"
evening set	12600 Dec 08 12:26	11°38'13"		morning rise	12607 Jan 15 11:54	21°34'58"	
max. Earth dist.	12600 Dec 20 12:55	11°39'31"	38.19562 AU	retrograde	12607 Apr 16 15:54	23°32'45"	
				opposition	12607 Jul 05 00:11	22°31'51"	9°40'26"
conjunction	12600 Dec 22 22:49	11°33'50"	6°35'58"	min. Earth dist.	12607 Jul 07 06:27	22°31'53"	34.57008 AU
minimum elong	12600 Dec 22 22:37	11°33'49"	6°36'54"	direct	12607 Sep 22 21:16	21°30'40"	
morning rise	12601 Jan 06 08:57	11°35'29"		evening set	12607 Dec 22 23:31	22°34'52"	
retrograde	12601 Apr 05 16:42	13°32'52"		max. Earth dist.	12608 Jan 02 02:16	23°30'59"	36.41848 AU
opposition	12601 Jun 24 17:37	12°32'33"	7°10'24"				
min. Earth dist.	12601 Jun 26 21:56	12°31'29"	36.08016 AU	conjunction	12608 Jan 04 14:48	23°30'47"	9°20'22"
direct	12601 Sep 13 00:08	11°30'35"		minimum elong	12608 Jan 04 14:34	23°30'46"	9°21'16"
evening set	12601 Dec 10 14:16	12°34'37"		morning rise	12608 Jan 17 05:23	23°33'42"	
max. Earth dist.	12601 Dec 22 08:58	13°30'41"	37.93878 AU	retrograde	12608 Apr 17 17:59	25°31'40"	
				opposition	12608 Jul 05 23:45	24°30'07"	10°05'08"
conjunction	12601 Dec 24 19:34	13°30'05"	6°59'35"	min. Earth dist.	12608 Jul 08 06:19	23°35'46"	34.32007 AU
minimum elong	12601 Dec 24 19:22	13°30'04"	7°00'31"	direct	12608 Sep 23 20:36	22°34'51"	
morning rise	12602 Jan 08 00:51	13°33'35"		evening set	12608 Dec 24 09:20	24°32'06"	
retrograde	12602 Apr 07 15:38	15°30'12"		max. Earth dist.	12609 Jan 03 03:02	24°34'42"	36.16624 AU
opposition	12602 Jun 26 13:06	13°35'29"	7°35'30"				
min. Earth dist.	12602 Jun 28 17:24	13°35'24"	35.82569 AU	conjunction	12609 Jan 05 16:28	24°35'23"	9°43'26"
direct	12602 Sep 14 19:34	12°34'40"		minimum elong	12609 Jan 05 16:12	24°35'23"	9°44'19"
evening set	12602 Dec 12 16:50	14°31'28"		morning rise	12609 Jan 17 23:06	25°31'60"	
max. Earth dist.	12602 Dec 24 06:03	14°33'18"	37.68299 AU	retrograde	12609 Apr 19 22:36	27°30'11"	
				opposition	12609 Jul 07 23:50	25°34'48"	10°29'40"
conjunction	12602 Dec 26 16:58	14°34'46"	7°23'13"	min. Earth dist.	12609 Jul 10 06:29	25°34'26"	34.07041 AU
minimum elong	12602 Dec 26 16:45	14°34'45"	7°24'09"	direct	12609 Sep 25 20:43	24°33'22"	
morning rise	12603 Jan 09 16:49	15°30'05"		evening set	12609 Dec 26 20:11	26°31'09"	
retrograde	12603 Apr 09 13:05	16°34'50"		max. Earth dist.	12610 Jan 05 04:59	26°33'51"	35.91435 AU
opposition	12603 Jun 28 09:20	15°32'54"	8°00'36"				
min. Earth dist.	12603 Jun 30 14:22	15°32'45"	35.57247 AU	conjunction	12610 Jan 07 18:57	26°34'13"	10°06'17"
direct	12603 Sep 16 15:21	14°32'05"		minimum elong	12610 Jan 07 18:42	26°34'12"	10°07'10"
evening set	12603 Dec 14 20:43	15°35'52"		morning rise	12610 Jan 19 17:02	27°30'15"	
max. Earth dist.	12603 Dec 26 04:32	16°31'29"	37.42865 AU	retrograde	12610 Apr 22 01:47	28°35'04"	
				opposition	12610 Jul 10 00:48	27°35'15"	10°53'58"
conjunction	12603 Dec 28 15:07	16°32'59"	7°46'49"	min. Earth dist.	12610 Jul 12 08:27	27°33'47"	33.82149 AU
minimum elong	12603 Dec 28 14:55	16°32'58"	7°47'44"	direct	12610 Sep 27 20:16	26°31'92"	
morning rise	12604 Jan 11 09:12	16°34'05"		evening set	12610 Dec 29 08:19	28°30'01"	
retrograde	12604 Apr 10 12:10	18°32'21"		max. Earth dist.	12611 Jan 07 08:21	28°32'43"	35.66363 AU
opposition	12604 Jun 29 05:53	17°31'05"	8°25'40"				
min. Earth dist.	12604 Jul 01 10:11	17°30'74"	35.32073 AU	conjunction	12611 Jan 09 22:01	28°32'34"	10°28'53"
direct	12604 Sep 17 10:34	15°35'74"		minimum elong	12611 Jan 09 21:45	28°32'32"	10°29'45"
evening set	12604 Dec 16 01:41	17°33'45"		morning rise	12611 Jan 21 11:01	28°35'20"	
max. Earth dist.	12604 Dec 27 02:09	17°35'51"	37.17543 AU		12611 Mar 01 15:41	0°30'00"	
				retrograde	12611 Apr 24 05:05	0°34'40"	
conjunction	12604 Dec 29 13:55	17°35'49"	8°10'21"		12611 Jun 18 04:37	30°30'00"	
minimum elong	12604 Dec 29 13:41	17°35'48"	8°11'16"	opposition	12611 Jul 12 02:16	29°32'52"	11°18'01"
morning rise	12605 Jan 12 01:53	18°32'42"		min. Earth dist.	12611 Jul 14 09:09	29°32'20"	33.57406 AU
retrograde	12605 Apr 12 11:39	20°30'24"		direct	12611 Sep 29 21:04	28°30'04"	
opposition	12605 Jul 01 03:22	18°35'35"	8°50'40"	evening set	12611 Dec 31 21:47	29°35'42"	
min. Earth dist.	12605 Jul 03 08:59	18°34'72"	35.07008 AU		12612 Jan 01 13:47	0°30'00"	
direct	12605 Sep 19 04:42	17°36'56"		max. Earth dist.	12612 Jan 09 11:11	0°35'31"	35.41451 AU
evening set	12605 Dec 18 07:38	19°31'54"					
max. Earth dist.	12605 Dec 29 02:23	19°33'54"	36.92298 AU	conjunction	12612 Jan 12 01:54	0°32'41"	10°51'12"
				minimum elong	12612 Jan 12 01:39	0°32'40"	10°52'03"
conjunction	12605 Dec 31 13:23	19°34'23"	8°33'48"	morning rise	12612 Jan 23 05:24	0°34'23"	
minimum elong	12605 Dec 31 13:09	19°34'22"	8°34'43"	retrograde	12612 Apr 25 08:56	2°33'08"	
morning rise	12606 Jan 13 18:34	20°30'45"		opposition	12612 Jul 13 04:29	1°31'28"	11°41'44"
retrograde	12606 Apr 14 12:30	21°34'51"		min. Earth dist.	12612 Jul 15 12:24	1°31'56"	33.32875 AU
opposition	12606 Jul 03 01:27	20°33'00"	9°15'36"	direct	12612 Sep 30 20:05	0°30'35"	
min. Earth dist.	12606 Jul 05 06:38	20°32'47"	34.81996 AU	evening set	12613 Jan 02 12:35	1°35'21"	
direct	12606 Sep 21 01:17	19°31'56"		max. Earth dist.	12613 Jan 10 17:07	2°38'31"	35.16790 AU

conjunction	12613 Jan 13 06:36	2°13'38"	11°13'09"			12619 Aug 06 23:53	15°08'00"		
minimum elong	12613 Jan 13 06:19	2°13'36"	11°13'59"	direct		12619 Oct 15 00:17	13°56'06"		
morning rise	12613 Jan 23 23:45	2°34'57"				12619 Dec 19 23:04	15°00'00"		
retrograde	12613 Apr 27 13:54	4°27'24"		evening set		12620 Jan 21 13:20	16°04'44"		
opposition	12613 Jul 15 07:30	3°11'18"	12°05'03"	max. Earth dist.		12620 Jan 26 02:31	16°14'24"	33.55474 AU	
min. Earth dist.	12613 Jul 17 14:19	3°07'48"	33.08633 AU						
direct	12613 Oct 02 21:23	1°53'55"		conjunction		12620 Jan 28 13:18	16°19'38"	13°31'53"	
evening set	12614 Jan 05 04:34	3°47'44"		minimum elong		12620 Jan 28 13:04	16°19'37"	13°32'35"	
max. Earth dist.	12614 Jan 12 21:30	4°03'11"	34.92455 AU	morning rise		12620 Feb 04 12:36	16°34'29"		
				retrograde		12620 May 12 08:29	18°43'05"		
conjunction	12614 Jan 15 11:43	4°08'24"	11°34'41"	opposition		12620 Jul 29 02:53	17°24'15"	14°32'04"	
minimum elong	12614 Jan 15 11:27	4°08'23"	11°35'31"	min. Earth dist.		12620 Jul 31 07:12	17°20'46"	31.50680 AU	
morning rise	12614 Jan 25 18:15	4°29'03"		direct		12620 Oct 16 08:27	16°03'47"		
retrograde	12614 Apr 29 21:26	6°23'32"		evening set		12621 Jan 23 16:55	18°15'14"		
opposition	12614 Jul 17 11:19	5°07'00"	12°27'56"	max. Earth dist.		12621 Jan 27 13:01	18°23'28"	33.34085 AU	
min. Earth dist.	12614 Jul 19 18:25	5°03'29"	32.84767 AU						
direct	12614 Oct 04 22:14	3°49'09"		conjunction		12621 Jan 30 00:30	18°28'48"	13°48'53"	
evening set	12615 Jan 07 22:03	5°45'11"		minimum elong		12621 Jan 30 00:16	18°28'47"	13°49'35"	
max. Earth dist.	12615 Jan 15 05:00	5°59'57"	34.68514 AU	morning rise		12621 Feb 05 07:32	18°42'20"		
				retrograde		12621 May 14 19:55	20°53'36"		
conjunction	12615 Jan 17 17:58	6°05'06"	11°55'45"	opposition		12621 Jul 31 12:32	19°34'23"	14°50'01"	
minimum elong	12615 Jan 17 17:41	6°05'05"	11°56'33"	min. Earth dist.		12621 Aug 02 17:16	19°30'51"	31.29759 AU	
morning rise	12615 Jan 27 12:59	6°24'59"		direct		12621 Oct 18 15:05	18°13'28"		
retrograde	12615 May 02 05:08	8°21'36"		evening set		12622 Jan 26 22:41	20°27'52"		
opposition	12615 Jul 19 15:50	7°04'39"	12°50'17"	max. Earth dist.		12622 Jan 30 02:44	20°34'43"	33.13131 AU	
min. Earth dist.	12615 Jul 21 22:18	7°01'09"	32.61319 AU						
direct	12615 Oct 07 03:11	5°46'20"		conjunction		12622 Feb 01 12:29	20°39'57"	14°05'02"	
evening set	12616 Jan 10 17:10	7°44'42"		minimum elong		12622 Feb 01 12:17	20°39'56"	14°05'42"	
max. Earth dist.	12616 Jan 17 11:46	7°58'34"	34.45031 AU	morning rise		12622 Feb 07 01:41	20°51'59"		
				retrograde		12622 May 17 07:44	23°06'04"		
conjunction	12616 Jan 20 00:54	8°03'48"	12°16'16"	opposition		12622 Aug 02 22:56	21°46'27"	15°07'01"	
minimum elong	12616 Jan 20 00:38	8°03'47"	12°17'04"	min. Earth dist.		12622 Aug 05 02:35	21°42'58"	31.09280 AU	
morning rise	12616 Jan 29 07:59	8°22'51"		direct		12622 Oct 21 00:27	20°25'04"		
retrograde	12616 May 03 15:25	10°21'41"		evening set		12623 Jan 30 07:08	22°42'35"		
opposition	12616 Jul 20 21:10	9°04'20"	13°12'03"	max. Earth dist.		12623 Feb 01 15:06	22°47'40"	32.92667 AU	
min. Earth dist.	12616 Jul 23 02:55	9°00'51"	32.38341 AU						
direct	12616 Oct 08 07:50	7°45'34"		conjunction		12623 Feb 04 01:15	22°52'58"	14°20'13"	
evening set	12617 Jan 12 13:33	9°46'22"		minimum elong		12623 Feb 04 01:02	22°52'57"	14°20'51"	
max. Earth dist.	12617 Jan 18 20:19	9°59'21"	34.21999 AU	morning rise		12623 Feb 08 18:54	23°03'20"		
				retrograde		12623 May 19 21:47	25°20'23"		
conjunction	12617 Jan 21 08:41	10°04'34"	12°36'12"	opposition		12623 Aug 05 09:56	24°00'22"	15°22'58"	
minimum elong	12617 Jan 21 08:25	10°04'32"	12°36'58"	min. Earth dist.		12623 Aug 07 13:17	23°56'53"	30.89324 AU	
morning rise	12617 Jan 30 03:00	10°22'42"		direct		12623 Oct 23 09:28	22°38'32"		
retrograde	12617 May 05 23:51	12°23'50"		evening set		12624 Feb 02 19:19	24°59'26"		
opposition	12617 Jul 23 03:24	11°06'07"	13°33'09"	max. Earth dist.		12624 Feb 04 06:29	25°02'39"	32.72755 AU	
min. Earth dist.	12617 Jul 25 09:20	11°02'37"	32.15809 AU						
direct	12617 Oct 10 12:41	9°46'57"		conjunction		12624 Feb 06 14:57	25°07'51"	14°34'22"	
evening set	12618 Jan 15 11:46	11°50'16"		minimum elong		12624 Feb 06 14:47	25°07'50"	14°34'59"	
max. Earth dist.	12618 Jan 21 05:39	12°02'15"	33.99426 AU	morning rise		12624 Feb 10 10:10	25°16'14"		
				retrograde		12624 May 21 11:04	27°36'30"		
conjunction	12618 Jan 23 17:17	12°07'28"	12°55'28"	opposition		12624 Aug 06 21:54	26°16'05"	15°37'47"	
minimum elong	12618 Jan 23 17:03	12°07'26"	12°56'14"	min. Earth dist.		12624 Aug 09 00:33	26°12'38"	30.69938 AU	
morning rise	12618 Jan 31 22:08	12°24'36"		direct		12624 Oct 24 21:54	24°53'50"		
retrograde	12618 May 08 11:14	14°28'08"		evening set		12625 Feb 05 13:18	27°18'35"		
opposition	12618 Jul 25 10:19	13°10'03"	13°53'34"	max. Earth dist.		12625 Feb 05 21:06	27°19'19"	32.53486 AU	
min. Earth dist.	12618 Jul 27 15:08	13°06'35"	31.93717 AU						
direct	12618 Oct 12 19:15	11°50'28"		conjunction		12625 Feb 08 05:02	27°24'30"	14°47'24"	
evening set	12619 Jan 18 11:29	13°56'23"		minimum elong		12625 Feb 08 04:52	27°24'29"	14°47'59"	
max. Earth dist.	12619 Jan 23 14:51	14°07'13"	33.77255 AU	morning rise		12625 Feb 10 20:25	27°30'22"		
				retrograde		12625 May 24 03:05	29°54'23"		
conjunction	12619 Jan 26 02:48	14°12'30"	13°14'03"	opposition		12625 Aug 09 10:31	28°33'35"	15°51'22"	
minimum elong	12619 Jan 26 02:32	14°12'28"	13°14'47"	min. Earth dist.		12625 Aug 11 11:36	28°30'13"	30.51228 AU	
morning rise	12619 Feb 02 17:26	14°28'32"		direct		12625 Oct 27 10:37	27°10'53"		
	12619 Feb 18 00:08	15°00'00"		max. Earth dist.		12626 Feb 08 13:45	29°37'50"	32.34932 AU	
retrograde	12619 May 10 22:18	16°34'34"							
opposition	12619 Jul 27 18:17	15°16'07"	14°13'13"	conjunction		12626 Feb 10 20:01	29°42'54"	14°59'14"	
min. Earth dist.	12619 Jul 29 23:53	15°12'35"	31.72009 AU	minimum elong		12626 Feb 10 19:54	29°42'53"	14°59'48"	

evening set	12626 Feb 10 11:45	29° 42 '08		conjunction	12634 Mar 02 19:25	19° 11 '40	15°42'13
morning rise	12626 Feb 11 04:05	29° 43 '39		minimum elong	12634 Mar 02 19:31	19° 11 '41	15°42'29
	12626 Feb 18 11:20	0° 13 '		retrograde	12634 Jun 15 20:33	21° 50 '33	
retrograde	12626 May 26 17:54	2° 13 '59		opposition	12634 Aug 31 12:21	20° 27 '38	16°45'13
opposition	12626 Aug 11 23:56	0° 52 '49	16°03'38	min. Earth dist.	12634 Sep 02 00:27	20° 25 '04	29.20699 AU
min. Earth dist.	12626 Aug 14 00:32	0° 49 '28	30.33264 AU	direct	12634 Nov 18 04:11	19° 02 '32	
	12626 Sep 15 14:49	30° 18 '		max. Earth dist.	12635 Mar 04 01:28	21° 40 '29	31.07524 AU
direct	12626 Oct 29 22:58	29° 29 '44					
	12626 Dec 12 06:51	0° 58 '		conjunction	12635 Mar 05 15:55	21° 44 '16	15°40'24
max. Earth dist.	12627 Feb 11 06:58	1° 58 '05	32.17203 AU	minimum elong	12635 Mar 05 16:02	21° 44 '17	15°40'38
				retrograde	12635 Jun 18 14:59	24° 23 '46	
conjunction	12627 Feb 13 11:36	2° 03 '02	15°09'48	opposition	12635 Sep 03 07:36	23° 00 '41	16°42'36
minimum elong	12627 Feb 13 11:29	2° 03 '02	15°10'19	min. Earth dist.	12635 Sep 04 18:37	22° 58 '12	29.10489 AU
retrograde	12627 May 29 11:49	4° 35 '16		direct	12635 Nov 20 23:21	21° 35 '25	
opposition	12627 Aug 14 14:02	3° 13 '47	16°14'29	max. Earth dist.	12636 Mar 05 23:28	24° 14 '07	30.97836 AU
min. Earth dist.	12627 Aug 16 12:18	3° 10 '35	30.16133 AU				
direct	12627 Nov 01 13:39	1° 50 '20		conjunction	12636 Mar 07 12:32	24° 17 '47	15°36'51
max. Earth dist.	12628 Feb 14 00:38	4° 20 '03	32.00340 AU	minimum elong	12636 Mar 07 12:43	24° 17 '48	15°37'02
				retrograde	12636 Jun 20 12:07	26° 57 '47	
conjunction	12628 Feb 16 04:00	4° 24 '55	15°18'59	opposition	12636 Sep 05 03:03	25° 34 '32	16°38'05
minimum elong	12628 Feb 16 03:55	4° 24 '55	15°19'28	min. Earth dist.	12636 Sep 06 11:28	25° 32 '14	29.01214 AU
retrograde	12628 May 31 04:32	6° 58 '17		direct	12636 Nov 22 20:54	24° 09 '06	
opposition	12628 Aug 16 04:58	5° 36 '31	16°23'50	max. Earth dist.	12637 Mar 08 23:05	26° 48 '35	30.89127 AU
min. Earth dist.	12628 Aug 18 02:44	5° 33 '20	29.99883 AU				
direct	12628 Nov 03 02:36	4° 12 '45		conjunction	12637 Mar 10 09:30	26° 52 '00	15°31'33
max. Earth dist.	12629 Feb 15 20:06	6° 43 '54	31.84415 AU	minimum elong	12637 Mar 10 09:42	26° 52 '01	15°31'42
				retrograde	12637 Jun 23 07:06	29° 32 '24	
conjunction	12629 Feb 17 21:02	6° 48 '35	15°26'44	opposition	12637 Sep 07 23:01	28° 09 '01	16°31'41
minimum elong	12629 Feb 17 20:57	6° 48 '34	15°27'11	min. Earth dist.	12637 Sep 09 06:25	28° 06 '47	28.92929 AU
retrograde	12629 Jun 02 22:06	9° 23 '01		direct	12637 Nov 25 16:45	26° 43 '26	
opposition	12629 Aug 18 20:32	8° 01 '01	16°31'36	max. Earth dist.	12638 Mar 11 22:21	29° 23 '32	30.81486 AU
min. Earth dist.	12629 Aug 20 15:43	7° 58 '00	29.84541 AU				
direct	12629 Nov 05 18:19	6° 37 '00		conjunction	12638 Mar 13 06:26	29° 26 '44	15°24'28
max. Earth dist.	12630 Feb 18 14:34	9° 09 '23	31.69408 AU	minimum elong	12638 Mar 13 06:41	29° 26 '45	15°24'33
					12638 Mar 27 06:55	0° 07 '	
conjunction	12630 Feb 20 14:34	9° 14 '00	15°32'59	retrograde	12638 Jun 26 04:44	2° 07 '25	
minimum elong	12630 Feb 20 14:33	9° 14 '00	15°33'24	opposition	12638 Sep 10 19:03	0° 43 '55	16°23'20
retrograde	12630 Jun 05 16:28	11° 49 '30		min. Earth dist.	12638 Sep 11 23:15	0° 41 '55	28.85703 AU
opposition	12630 Aug 21 12:54	10° 27 '17	16°37'45		12638 Oct 07 18:48	30° 18 '	
min. Earth dist.	12630 Aug 23 07:27	10° 24 '18	29.70090 AU	direct	12638 Nov 28 14:42	29° 18 '14	
direct	12630 Nov 08 08:01	9° 03 '01			12639 Jan 17 16:15	0° 58 '	
max. Earth dist.	12631 Feb 21 11:47	11° 36 '47	31.55301 AU	max. Earth dist.	12639 Mar 14 21:59	1° 58 '52	30.74951 AU
conjunction	12631 Feb 23 09:02	11° 41 '09	15°37'42	conjunction	12639 Mar 16 03:39	2° 01 '50	15°15'34
minimum elong	12631 Feb 23 09:02	11° 41 '09	15°38'05	minimum elong	12639 Mar 16 03:55	2° 01 '51	15°15'38
retrograde	12631 Jun 08 10:54	14° 17 '37		retrograde	12639 Jun 29 00:51	4° 42 '43	
opposition	12631 Aug 24 05:46	12° 55 '13	16°42'14	opposition	12639 Sep 13 15:24	3° 19 '08	16°13'01
min. Earth dist.	12631 Aug 25 22:21	12° 52 '22	29.56486 AU	min. Earth dist.	12639 Sep 14 18:14	3° 17 '13	28.79605 AU
direct	12631 Nov 11 00:01	11° 30 '44		direct	12639 Dec 01 11:29	1° 53 '22	
max. Earth dist.	12632 Feb 24 07:22	14° 05 '34	31.42057 AU	max. Earth dist.	12640 Mar 16 22:22	4° 34 '31	30.69617 AU
conjunction	12632 Feb 26 04:00	14° 09 '55	15°40'50	conjunction	12640 Mar 18 00:56	4° 37 '10	15°04'52
minimum elong	12632 Feb 26 04:03	14° 09 '55	15°41'11	minimum elong	12640 Mar 18 01:14	4° 37 '12	15°04'53
retrograde	12632 Jun 10 05:43	16° 47 '18		retrograde	12640 Jun 30 21:31	7° 18 '09	
opposition	12632 Aug 25 23:27	15° 24 '42	16°45'00	opposition	12640 Sep 15 11:55	5° 54 '32	16°00'45
min. Earth dist.	12632 Aug 27 14:59	15° 21 '55	29.43723 AU	min. Earth dist.	12640 Sep 16 11:15	5° 52 '52	28.74691 AU
direct	12632 Nov 12 15:54	14° 00 '01		direct	12640 Dec 03 10:03	4° 28 '44	
max. Earth dist.	12633 Feb 26 05:41	16° 36 '03	31.29667 AU	evening set	12641 Mar 18 19:59	7° 07 '39	
conjunction	12633 Feb 27 23:30	16° 40 '09	15°42'21	conjunction	12641 Mar 20 22:00	7° 12 '39	14°52'22
minimum elong	12633 Feb 27 23:34	16° 40 '09	15°42'40	minimum elong	12641 Mar 20 22:19	7° 12 '41	14°52'21
retrograde	12633 Jun 12 23:41	19° 18 '20		max. Earth dist.	12641 Mar 19 21:41	7° 10 '13	30.65508 AU
opposition	12633 Aug 28 17:45	17° 55 '34	16°46'00	morning rise	12641 Mar 23 00:38	7° 17 '42	
min. Earth dist.	12633 Aug 30 07:44	17° 52 '53	29.31779 AU	retrograde	12641 Jul 03 18:04	9° 53 '40	
direct	12633 Nov 15 10:26	16° 30 '41		opposition	12641 Sep 18 08:38	8° 30 '03	15°46'32
max. Earth dist.	12634 Mar 01 02:20	19° 07 '38	31.18151 AU	min. Earth dist.	12641 Sep 19 06:08	8° 28 '31	28.70994 AU
				direct	12641 Dec 06 06:02	7° 04 '17	

evening set	12642 Mar 20 06:44	9°♊39'46		opposition	12648 Oct 06 07:44	26°♊32'01	13°17'20
				min. Earth dist.	12648 Oct 06 13:24	26°♊31'37	28.75973 AU
conjunction	12642 Mar 23 19:16	9°♊48'13	14°38'04	direct	12648 Dec 24 10:48	25°♊07'11	
minimum elong	12642 Mar 23 19:37	9°♊48'15	14°38'00	evening set	12649 Apr 01 12:53	27°♊26'33	
max. Earth dist.	12642 Mar 22 22:38	9°♊46'09	30.62643 AU				
morning rise	12642 Mar 27 08:24	9°♊56'43		conjunction	12649 Apr 10 18:34	27°♊48'21	12°13'02
retrograde	12642 Jul 06 14:51	12°♊29'10		minimum elong	12649 Apr 10 19:02	27°♊48'24	12°12'41
opposition	12642 Sep 21 05:11	11°♊05'37	15°30'24	max. Earth dist.	12649 Apr 10 14:44	27°♊47'59	30.73422 AU
min. Earth dist.	12642 Sep 21 23:48	11°♊04'17	28.68481 AU	morning rise	12649 Apr 20 00:26	28°♊10'12	
direct	12642 Dec 09 04:09	9°♊39'55			12649 Jun 15 04:34	0°♊	
evening set	12643 Mar 22 01:44	12°♊12'42		retrograde	12649 Jul 24 01:38	0°♊26'21	
					12649 Sep 02 05:37	30°♊♊	
conjunction	12643 Mar 26 16:24	12°♊23'46	14°22'02	opposition	12649 Oct 09 03:09	29°♊03'42	12°49'49
minimum elong	12643 Mar 26 16:47	12°♊23'48	14°21'56	min. Earth dist.	12649 Oct 09 05:27	29°♊03'32	28.80770 AU
max. Earth dist.	12643 Mar 25 21:29	12°♊21'52	30.60962 AU	direct	12649 Dec 27 08:37	27°♊39'02	
morning rise	12643 Mar 31 07:41	12°♊34'52		evening set	12650 Apr 03 17:09	29°♊56'16	
retrograde	12643 Jul 09 10:40	15°♊04'35			12650 Apr 05 07:25	0°♊	
opposition	12643 Sep 24 01:54	13°♊41'07	15°12'25				
min. Earth dist.	12643 Sep 24 18:22	13°♊39'56	28.67119 AU	conjunction	12650 Apr 13 13:32	0°♊19'26	11°46'44
direct	12643 Dec 12 00:25	12°♊15'31		minimum elong	12650 Apr 13 13:59	0°♊19'28	11°46'20
evening set	12644 Mar 23 00:14	14°♊45'53		max. Earth dist.	12650 Apr 13 12:33	0°♊19'20	30.79076 AU
				morning rise	12650 Apr 23 09:53	0°♊42'36	
conjunction	12644 Mar 28 13:29	14°♊59'11	14°04'20	retrograde	12650 Jul 26 18:14	2°♊56'39	
minimum elong	12644 Mar 28 13:53	14°♊59'13	14°04'10	opposition	12650 Oct 11 22:08	1°♊34'09	12°21'00
max. Earth dist.	12644 Mar 27 22:15	14°♊57'39	30.60418 AU	min. Earth dist.	12650 Oct 11 23:01	1°♊34'05	28.86607 AU
morning rise	12644 Apr 03 03:11	15°♊12'31		direct	12650 Dec 30 05:27	0°♊09'41	
retrograde	12644 Jul 11 05:27	17°♊39'45		evening set	12651 Apr 05 21:53	2°♊24'50	
opposition	12644 Sep 25 22:37	16°♊16'24	14°52'40				
min. Earth dist.	12644 Sep 26 12:51	16°♊15'23	28.66834 AU	conjunction	12651 Apr 16 07:53	2°♊49'13	11°19'14
direct	12644 Dec 13 22:30	14°♊50'56		minimum elong	12651 Apr 16 08:20	2°♊49'16	11°18'49
evening set	12645 Mar 25 00:44	17°♊19'00		max. Earth dist.	12651 Apr 16 09:26	2°♊49'22	30.85802 AU
				morning rise	12651 Apr 26 17:47	3°♊13'37	
conjunction	12645 Mar 31 10:17	17°♊34'18	13°45'01	retrograde	12651 Jul 29 11:15	5°♊25'36	
minimum elong	12645 Mar 31 10:42	17°♊34'20	13°44'50	opposition	12651 Oct 14 16:40	4°♊03'17	11°50'56
max. Earth dist.	12645 Mar 30 20:26	17°♊32'55	30.60962 AU	min. Earth dist.	12651 Oct 14 14:13	4°♊03'27	28.93521 AU
morning rise	12645 Apr 06 20:21	17°♊49'38		direct	12652 Jan 02 03:44	2°♊39'02	
retrograde	12645 Jul 14 01:56	20°♊14'33		evening set	12652 Apr 07 02:34	4°♊52'08	
opposition	12645 Sep 28 19:09	18°♊51'18	14°31'12				
min. Earth dist.	12645 Sep 29 06:43	18°♊50'29	28.67614 AU	conjunction	12652 Apr 18 01:28	5°♊17'39	10°50'40
direct	12645 Dec 16 18:55	17°♊25'58		minimum elong	12652 Apr 18 01:54	5°♊17'41	10°50'11
evening set	12646 Mar 27 02:32	19°♊51'49		max. Earth dist.	12652 Apr 18 05:37	5°♊18'03	30.93620 AU
				morning rise	12652 Apr 29 00:12	5°♊43'09	
conjunction	12646 Apr 03 06:58	20°♊08'57	13°24'09	retrograde	12652 Jul 31 03:07	7°♊53'09	
minimum elong	12646 Apr 03 07:23	20°♊08'59	13°23'54	opposition	12652 Oct 16 10:51	6°♊31'02	11°19'45
max. Earth dist.	12646 Apr 02 20:35	20°♊07'55	30.62555 AU	min. Earth dist.	12652 Oct 16 06:16	6°♊31'21	29.01570 AU
morning rise	12646 Apr 10 11:41	20°♊26'07		direct	12653 Jan 03 22:23	5°♊07'01	
retrograde	12646 Jul 16 19:21	22°♊48'46		evening set	12653 Apr 09 07:35	7°♊18'07	
opposition	12646 Oct 01 15:39	21°♊25'40	14°08'06				
min. Earth dist.	12646 Oct 02 01:40	21°♊24'57	28.69399 AU	conjunction	12653 Apr 20 18:36	7°♊44'40	10°21'04
direct	12646 Dec 19 15:52	20°♊00'29		minimum elong	12653 Apr 20 19:02	7°♊44'43	10°20'34
evening set	12647 Mar 29 05:27	22°♊24'09		max. Earth dist.	12653 Apr 21 02:04	7°♊45'24	31.02591 AU
				morning rise	12653 May 02 05:11	8°♊11'12	
conjunction	12647 Apr 06 03:15	22°♊42'57	13°01'49	retrograde	12653 Aug 02 19:21	10°♊19'14	
minimum elong	12647 Apr 06 03:42	22°♊43'00	13°01'33	opposition	12653 Oct 19 04:20	8°♊57'22	10°47'30
max. Earth dist.	12647 Apr 05 18:16	22°♊42'04	30.65168 AU	min. Earth dist.	12653 Oct 18 20:45	8°♊57'53	29.10758 AU
morning rise	12647 Apr 14 01:27	23°♊01'49		direct	12654 Jan 06 19:33	7°♊33'39	
retrograde	12647 Jul 19 14:21	25°♊22'15		evening set	12654 Apr 11 12:42	9°♊42'48	
opposition	12647 Oct 04 11:43	23°♊59'17	13°43'27				
min. Earth dist.	12647 Oct 04 18:43	23°♊58'48	28.72188 AU	conjunction	12654 Apr 23 10:58	10°♊10'17	9°50'32
direct	12647 Dec 22 14:09	22°♊34'16		minimum elong	12654 Apr 23 11:23	10°♊10'19	9°50'00
evening set	12648 Mar 30 08:56	24°♊55'47		max. Earth dist.	12654 Apr 23 20:26	10°♊11'12	31.12689 AU
				morning rise	12654 May 05 08:56	10°♊37'44	
conjunction	12648 Apr 07 23:18	25°♊16'09	12°38'05	retrograde	12654 Aug 05 10:44	12°♊43'53	
minimum elong	12648 Apr 07 23:44	25°♊16'12	12°37'46	opposition	12654 Oct 21 21:20	11°♊22'17	10°14'20
max. Earth dist.	12648 Apr 07 17:34	25°♊15'35	30.68785 AU	min. Earth dist.	12654 Oct 21 11:03	11°♊22'59	29.21075 AU
morning rise	12648 Apr 16 13:47	25°♊36'34		direct	12655 Jan 09 13:36	9°♊58'54	
retrograde	12648 Jul 21 07:14	27°♊54'50		evening set	12655 Apr 13 17:58	12°♊06'09	

conjunction	12655 Apr 26 02:53	12° 8 34'29	9°19'12	max. Earth dist.	12661 May 10 12:49	26° 8 29'26	32.09584 AU
minimum elong	12655 Apr 26 03:18	12° 8 34'31	9°18'38	morning rise	12661 May 23 19:08	26° 8 58'37	
max. Earth dist.	12655 Apr 26 15:51	12° 8 35'43	31.23875 AU	retrograde	12661 Aug 20 19:47	28° 8 53'05	
morning rise	12655 May 08 11:06	13° 8 02'46		min. Earth dist.	12661 Nov 06 03:28	27° 8 35'15	30.18879 AU
	12655 Jul 18 15:37	15° 8		opposition	12661 Nov 07 03:53	27° 8 33'39	6°05'23
retrograde	12655 Aug 07 23:22	15° 8 07'05		direct	12662 Jan 26 06:30	26° 8 12'41	
	12655 Aug 28 13:46	15° 8		evening set	12662 Apr 27 08:55	28° 8 08'01	
opposition	12655 Oct 24 13:46	13° 8 45'48	9°40'20				
min. Earth dist.	12655 Oct 24 01:27	13° 8 46'38	29.32436 AU	conjunction	12662 May 11 22:51	28° 8 39'50	5°25'24
direct	12656 Jan 12 08:33	12° 8 22'45		minimum elong	12662 May 11 23:05	28° 8 39'52	5°24'39
evening set	12656 Apr 14 23:28	14° 8 28'09		max. Earth dist.	12662 May 13 01:44	28° 8 42'18	32.26448 AU
				morning rise	12662 May 26 11:34	29° 8 11'35	
conjunction	12656 Apr 27 17:59	14° 8 57'14	8°47'09		12662 Jun 19 11:50	0° II	
minimum elong	12656 Apr 27 18:21	14° 8 57'16	8°46'33	retrograde	12662 Aug 23 05:34	1° II 04'36	
max. Earth dist.	12656 Apr 28 08:19	14° 8 58'36	31.36067 AU		12662 Oct 31 09:01	30° R 8	
	12656 Apr 28 22:58	15° 8		opposition	12662 Nov 09 15:51	29° 8 45'27	5°28'38
morning rise	12656 May 10 12:02	15° 8 26'16		min. Earth dist.	12662 Nov 08 13:15	29° 8 47'12	30.35856 AU
retrograde	12656 Aug 09 13:39	17° 8 28'48		direct	12663 Jan 28 22:30	28° 8 24'48	
opposition	12656 Oct 26 05:39	16° 8 07'50	9°05'38		12663 Apr 20 16:29	0° II	
min. Earth dist.	12656 Oct 25 14:21	16° 8 08'52	29.44793 AU	evening set	12663 Apr 29 14:22	0° II 18'39	
	12656 Dec 14 03:42	15° R 8					
direct	12657 Jan 14 01:10	14° 8 45'08		conjunction	12663 May 14 08:58	0° II 50'40	4°51'01
	12657 Feb 13 06:08	15° 8		minimum elong	12663 May 14 09:11	0° II 50'41	4°50'14
evening set	12657 Apr 17 04:47	16° 8 48'45		max. Earth dist.	12663 May 15 13:23	0° II 53'15	32.43977 AU
				morning rise	12663 May 29 02:33	1° II 22'36	
conjunction	12657 Apr 30 08:30	17° 8 18'30	8°14'30	retrograde	12663 Aug 25 14:34	3° II 14'13	
minimum elong	12657 Apr 30 08:52	17° 8 18'32	8°13'52	min. Earth dist.	12663 Nov 10 22:32	1° II 57'13	30.53561 AU
max. Earth dist.	12657 May 01 02:16	17° 8 20'11	31.49190 AU	opposition	12663 Nov 12 03:10	1° II 55'21	4°51'51
morning rise	12657 May 13 11:19	17° 8 48'11		direct	12664 Jan 31 11:14	0° II 35'03	
retrograde	12657 Aug 12 01:13	19° 8 49'00		evening set	12664 Apr 30 19:33	2° II 27'27	
opposition	12657 Oct 28 21:03	18° 8 28'21	8°30'21				
min. Earth dist.	12657 Oct 28 04:33	18° 8 29'28	29.58047 AU	conjunction	12664 May 15 18:28	2° II 59'36	4°16'35
direct	12658 Jan 16 17:34	17° 8 06'01		minimum elong	12664 May 15 18:39	2° II 59'37	4°15'47
evening set	12658 Apr 19 10:30	19° 8 07'52		max. Earth dist.	12664 May 17 01:38	3° II 02'25	32.62231 AU
				morning rise	12664 May 30 16:01	3° II 31'40	
conjunction	12658 May 02 22:19	19° 8 38'11	7°41'20	retrograde	12664 Aug 26 21:14	5° II 21'57	
minimum elong	12658 May 02 22:39	19° 8 38'13	7°40'40	min. Earth dist.	12664 Nov 12 07:29	4° II 05'22	30.72014 AU
max. Earth dist.	12658 May 03 17:10	19° 8 39'57	31.63164 AU	opposition	12664 Nov 13 13:48	4° II 03'24	4°15'06
morning rise	12658 May 16 09:27	20° 8 08'26		direct	12665 Feb 02 01:16	2° II 43'26	
retrograde	12658 Aug 14 12:55	22° 8 07'36		evening set	12665 May 03 00:38	4° II 34'29	
opposition	12658 Oct 31 11:32	20° 8 47'15	7°54'35				
min. Earth dist.	12658 Oct 30 16:00	20° 8 48'34	29.72135 AU	conjunction	12665 May 18 02:56	5° II 06'42	3°42'12
direct	12659 Jan 19 09:59	19° 8 25'16		minimum elong	12665 May 18 03:06	5° II 06'43	3°41'23
evening set	12659 Apr 21 16:09	21° 8 25'25		max. Earth dist.	12665 May 19 11:12	5° II 09'36	32.81228 AU
				morning rise	12665 Jun 02 04:11	5° II 38'50	
conjunction	12659 May 05 11:37	21° 8 56'14	7°07'45	retrograde	12665 Aug 29 05:03	7° II 27'52	
minimum elong	12659 May 05 11:57	21° 8 56'16	7°07'04	opposition	12665 Nov 15 23:40	6° II 09'38	3°38'26
max. Earth dist.	12659 May 06 09:19	21° 8 58'16	31.77917 AU	min. Earth dist.	12665 Nov 14 14:31	6° II 11'47	30.91251 AU
morning rise	12659 May 19 06:06	22° 8 26'59		direct	12666 Feb 04 12:52	4° II 50'03	
retrograde	12659 Aug 16 22:52	24° 8 24'31		evening set	12666 May 05 05:34	6° II 39'49	
min. Earth dist.	12659 Nov 02 05:17	23° 8 05'51	29.86997 AU				
opposition	12659 Nov 03 01:46	23° 8 04'29	7°18'26	conjunction	12666 May 20 10:59	7° II 12'04	3°07'56
direct	12660 Jan 22 00:56	21° 8 42'51		minimum elong	12666 May 20 11:06	7° II 12'04	3°07'06
evening set	12660 Apr 22 21:47	23° 8 41'21		max. Earth dist.	12666 May 21 22:15	7° II 15'12	33.00979 AU
				morning rise	12666 Jun 04 14:59	7° II 44'13	
conjunction	12660 May 07 00:00	24° 8 12'34	6°33'51	retrograde	12666 Aug 31 10:01	9° II 32'04	
minimum elong	12660 May 07 00:17	24° 8 12'36	6°33'09	min. Earth dist.	12666 Nov 16 22:39	8° II 16'23	31.11239 AU
max. Earth dist.	12660 May 07 22:56	24° 8 14'42	31.93408 AU	opposition	12666 Nov 18 08:49	8° II 14'12	3°01'56
morning rise	12660 May 21 01:16	24° 8 43'43		direct	12667 Feb 07 00:01	6° II 55'01	
retrograde	12660 Aug 18 09:54	26° 8 39'42		evening set	12667 May 07 10:31	8° II 43'33	
opposition	12660 Nov 04 15:10	25° 8 19'59	6°42'01				
min. Earth dist.	12660 Nov 03 15:51	25° 8 21'31	30.02583 AU	conjunction	12667 May 22 18:10	9° II 15'46	2°33'49
direct	12661 Jan 23 16:13	23° 8 58'40		minimum elong	12667 May 22 18:16	9° II 15'47	2°32'58
evening set	12661 Apr 25 03:24	25° 8 55'34		max. Earth dist.	12667 May 24 06:21	9° II 18'58	33.21447 AU
				morning rise	12667 Jun 07 00:40	9° II 47'53	
conjunction	12661 May 09 11:47	26° 8 27'07	5°59'43	retrograde	12667 Sep 02 15:30	11° II 34'38	
minimum elong	12661 May 09 12:03	26° 8 27'09	5°58'59	min. Earth dist.	12667 Nov 19 04:11	10° II 19'31	31.31938 AU

opposition	12667 Nov 20 17:19	10° Π 17'08	2°25'41	conjunction	12674 Jun 05 02:37	22° Π 58'55	-1°15'54
direct	12668 Feb 09 09:35	8° Π 58'23		minimum elong	12674 Jun 05 02:34	22° Π 58'55	1°16'49
evening set	12668 May 08 15:06	10° Π 45'46		max. Earth dist.	12674 Jun 06 23:32	23° Π 02'41	34.78380 AU
				morning rise	12674 Jun 20 11:20	23° Π 29'35	
conjunction	12668 May 24 00:38	11° Π 17'54	1°59'56	retrograde	12674 Sep 15 16:23	25° Π 10'05	
minimum elong	12668 May 24 00:43	11° Π 17'55	1°59'04	min. Earth dist.	12674 Dec 02 13:19	23° Π 57'55	32.90061 AU
max. Earth dist.	12668 May 25 15:31	11° Π 21'19	33.42557 AU	opposition	12674 Dec 04 11:20	23° Π 55'06	-1°36'59
morning rise	12668 Jun 08 08:51	11° Π 49'57		direct	12675 Feb 23 14:10	22° Π 39'06	
retrograde	12668 Sep 03 19:45	13° Π 35'40		evening set	12675 May 22 20:26	24° Π 19'52	
min. Earth dist.	12668 Nov 20 11:22	12° Π 20'57	31.53268 AU				
opposition	12668 Nov 22 01:19	12° Π 18'33	1°49'43	conjunction	12675 Jun 07 04:47	24° Π 50'16	-1°46'56
direct	12669 Feb 10 17:20	11° Π 00'13		minimum elong	12675 Jun 07 04:43	24° Π 50'16	1°47'52
evening set	12669 May 10 19:43	12° Π 46'31		max. Earth dist.	12675 Jun 09 03:44	24° Π 54'11	35.02005 AU
				morning rise	12675 Jun 22 11:55	25° Π 20'35	
conjunction	12669 May 26 06:31	13° Π 18'31	1°26'20	retrograde	12675 Sep 17 15:44	27° Π 00'22	
minimum elong	12669 May 26 06:35	13° Π 18'32	1°25'27	min. Earth dist.	12675 Dec 04 16:53	25° Π 48'28	33.13873 AU
max. Earth dist.	12669 May 27 22:22	13° Π 22'00	33.64241 AU	opposition	12675 Dec 06 14:58	25° Π 45'40	-2°09'36
morning rise	12669 Jun 10 16:04	13° Π 50'26		direct	12676 Feb 25 19:32	24° Π 30'00	
retrograde	12669 Sep 06 00:45	15° Π 35'10		evening set	12676 May 23 23:39	26° Π 09'58	
min. Earth dist.	12669 Nov 22 16:16	14° Π 20'58	31.75136 AU				
opposition	12669 Nov 24 08:22	14° Π 18'27	1°14'07	conjunction	12676 Jun 08 06:02	26° Π 39'59	-2°17'27
direct	12670 Feb 13 00:59	13° Π 00'32		minimum elong	12676 Jun 08 05:57	26° Π 39'59	2°18'24
evening set	12670 May 13 00:18	14° Π 45'48		max. Earth dist.	12676 Jun 10 05:25	26° Π 43'54	35.25900 AU
				morning rise	12676 Jun 23 11:22	27° Π 09'55	
conjunction	12670 May 28 11:48	15° Π 17'38	0°53'04	retrograde	12676 Sep 18 14:54	28° Π 49'00	
minimum elong	12670 May 28 11:50	15° Π 17'38	0°52'10	min. Earth dist.	12676 Dec 05 17:37	27° Π 37'31	33.37983 AU
max. Earth dist.	12670 May 30 05:08	15° Π 21'13	33.86391 AU	opposition	12676 Dec 07 17:49	27° Π 34'36	-2°41'36
morning rise	12670 Jun 12 22:09	15° Π 49'23		direct	12677 Feb 26 23:59	26° Π 19'16	
retrograde	12670 Sep 08 05:51	17° Π 33'12		evening set	12677 May 26 02:46	27° Π 58'29	
min. Earth dist.	12670 Nov 24 22:01	16° Π 19'25	31.97471 AU				
opposition	12670 Nov 26 15:05	16° Π 16'51	0°38'56	conjunction	12677 Jun 10 06:49	28° Π 28'05	-2°47'25
direct	12671 Feb 15 08:22	14° Π 59'21		minimum elong	12677 Jun 10 06:43	28° Π 28'05	2°48'21
evening set	12671 May 15 04:36	16° Π 43'39		max. Earth dist.	12677 Jun 12 07:47	28° Π 32'06	35.50092 AU
				morning rise	12677 Jun 25 09:54	28° Π 57'38	
conjunction	12671 May 30 16:28	17° Π 15'16	0°20'11		12677 Aug 01 07:54	0° \mathfrak{G}	
minimum elong	12671 May 30 16:28	17° Π 15'16	0°19'17	retrograde	12677 Sep 20 14:51	0° \mathfrak{G} 36'04	
max. Earth dist.	12671 Jun 01 11:17	17° Π 18'56	34.08949 AU		12677 Nov 12 04:15	30° $\mathfrak{R}\Pi$	
morning rise	12671 Jun 15 02:57	17° Π 46'47		min. Earth dist.	12677 Dec 07 19:08	29° Π 24'54	33.62441 AU
retrograde	12671 Sep 10 10:25	19° Π 29'44		opposition	12677 Dec 09 20:02	29° Π 21'58	-3°12'59
min. Earth dist.	12671 Nov 27 02:52	18° Π 16'22	32.20176 AU	direct	12678 Mar 01 01:39	28° Π 06'58	
opposition	12671 Nov 28 21:07	18° Π 13'44	0°04'11	evening set	12678 May 28 05:36	29° Π 45'29	
desc. node	12672 Jan 12 11:33	17° Π 15'07			12678 Jun 04 18:33	0° \mathfrak{G}	
direct	12672 Feb 17 17:26	16° Π 56'39					
evening set	12672 May 16 08:59	18° Π 40'01		conjunction	12678 Jun 12 07:05	0° \mathfrak{G} 14'40	-3°16'48
				minimum elong	12678 Jun 12 06:59	0° \mathfrak{G} 14'40	3°17'45
conjunction	12672 May 31 20:27	19° Π 11'22	-0°12'21	max. Earth dist.	12678 Jun 14 09:12	0° \mathfrak{G} 18'45	35.74629 AU
minimum elong	12672 May 31 20:27	19° Π 11'22	0°13'16	morning rise	12678 Jun 27 07:27	0° \mathfrak{G} 43'46	
behind sun begin	12672 May 31 16:39	19° Π 11'04		retrograde	12678 Sep 22 14:13	2° \mathfrak{G} 21'37	
behind sun end	12672 Jun 01 00:14	19° Π 11'41		min. Earth dist.	12678 Dec 09 19:32	1° \mathfrak{G} 10'50	33.87230 AU
max. Earth dist.	12672 Jun 02 15:45	19° Π 15'03	34.31827 AU	opposition	12678 Dec 11 21:42	1° \mathfrak{G} 07'50	-3°43'43
morning rise	12672 Jun 16 06:53	19° Π 42'39			12679 Feb 09 01:46	30° $\mathfrak{R}\Pi$	
retrograde	12672 Sep 11 14:45	21° Π 24'45		direct	12679 Mar 03 04:10	29° Π 53'12	
min. Earth dist.	12672 Nov 28 06:38	20° Π 11'49	32.43217 AU		12679 Mar 25 00:39	0° \mathfrak{G}	
opposition	12672 Nov 30 02:32	20° Π 09'06	-0°30'04	evening set	12679 May 30 08:16	1° \mathfrak{G} 31'05	
direct	12673 Feb 18 23:29	18° Π 52'24					
evening set	12673 May 18 12:53	20° Π 34'52		conjunction	12679 Jun 14 06:34	1° \mathfrak{G} 59'49	-3°45'36
				minimum elong	12679 Jun 14 06:26	1° \mathfrak{G} 59'48	3°46'32
conjunction	12673 Jun 02 23:53	21° Π 05'56	-0°44'21	max. Earth dist.	12679 Jun 16 09:19	2° \mathfrak{G} 03'55	35.99474 AU
minimum elong	12673 Jun 02 23:51	21° Π 05'56	0°45'16	morning rise	12679 Jun 29 04:06	2° \mathfrak{G} 28'29	
max. Earth dist.	12673 Jun 04 21:02	21° Π 09'45	34.54989 AU	retrograde	12679 Sep 24 14:20	4° \mathfrak{G} 05'48	
morning rise	12673 Jun 18 09:32	21° Π 36'55		min. Earth dist.	12679 Dec 11 19:07	2° \mathfrak{G} 55'24	34.12344 AU
retrograde	12673 Sep 13 15:09	23° Π 18'13		opposition	12679 Dec 13 22:53	2° \mathfrak{G} 52'20	-4°13'48
min. Earth dist.	12673 Nov 30 11:16	22° Π 05'37	32.66514 AU	direct	12680 Mar 04 05:27	1° \mathfrak{G} 38'04	
opposition	12673 Dec 02 07:20	22° Π 02'54	-1°03'48	evening set	12680 May 31 10:35	3° \mathfrak{G} 15'22	
direct	12674 Feb 21 07:31	20° Π 46'34					
evening set	12674 May 20 16:52	22° Π 28'10		conjunction	12680 Jun 15 05:44	3° \mathfrak{G} 43'38	-4°13'47
				minimum elong	12680 Jun 15 05:36	3° \mathfrak{G} 43'37	4°14'44

max. Earth dist.	12680 Jun 17 10:25	3°☾47'51	36.24605 AU	conjunction	12687 Jun 27 09:52	15°☾16'47	-7°13'36
morning rise	12680 Jun 29 23:50	4°☾11'50		minimum elong	12687 Jun 27 09:41	15°☾16'46	7°14'32
retrograde	12680 Sep 25 12:05	5°☾48'38		max. Earth dist.	12687 Jun 29 17:34	15°☾21'02	38.02505 AU
min. Earth dist.	12680 Dec 12 19:29	4°☾38'35	34.37708 AU	morning rise	12687 Jul 10 21:01	15°☾41'21	
opposition	12680 Dec 14 23:28	4°☾35'31	-4°43'11	retrograde	12687 Oct 07 12:00	17°☾15'37	
direct	12681 Mar 06 08:55	3°☾21'38		min. Earth dist.	12687 Dec 25 06:43	16°☾07'49	36.16695 AU
evening set	12681 Jun 02 12:49	4°☾58'23		opposition	12687 Dec 27 13:44	16°☾04'40	-7°49'52
				direct	12688 Mar 18 05:29	14°☾53'11	
conjunction	12681 Jun 17 04:11	5°☾26'10	-4°41'21	evening set	12688 Jun 14 22:44	16°☾27'01	
minimum elong	12681 Jun 17 04:02	5°☾26'10	4°42'18				
max. Earth dist.	12681 Jun 19 08:39	5°☾30'21	36.49942 AU	conjunction	12688 Jun 28 05:01	16°☾51'04	-7°36'47
morning rise	12681 Jul 01 18:52	5°☾53'54		minimum elong	12688 Jun 28 04:49	16°☾51'03	7°37'44
retrograde	12681 Sep 27 11:07	7°☾30'15		max. Earth dist.	12688 Jun 30 12:06	16°☾55'15	38.27674 AU
min. Earth dist.	12681 Dec 14 17:42	6°☾20'38	34.63258 AU	morning rise	12688 Jul 11 10:54	17°☾15'04	
opposition	12681 Dec 16 23:29	6°☾17'28	-5°11'54	retrograde	12688 Oct 08 06:41	18°☾49'03	
direct	12682 Mar 08 10:03	5°☾03'58		min. Earth dist.	12688 Dec 26 01:45	17°☾41'35	36.42041 AU
evening set	12682 Jun 04 14:49	6°☾40'13		opposition	12688 Dec 28 10:14	17°☾38'22	-8°13'49
				direct	12689 Mar 20 02:54	16°☾27'10	
conjunction	12682 Jun 19 02:20	7°☾07'31	-5°08'17	evening set	12689 Jun 16 23:02	18°☾00'41	
minimum elong	12682 Jun 19 02:11	7°☾07'30	5°09'15				
max. Earth dist.	12682 Jun 21 08:27	7°☾11'48	36.75406 AU	conjunction	12689 Jun 29 23:46	18°☾24'08	-7°59'20
morning rise	12682 Jul 03 12:59	7°☾34'45		minimum elong	12689 Jun 29 23:35	18°☾24'07	8°00'16
retrograde	12682 Sep 29 06:29	9°☾10'41		max. Earth dist.	12689 Jul 02 08:14	18°☾28'24	38.52826 AU
min. Earth dist.	12682 Dec 16 17:45	8°☾01'22	34.88911 AU	morning rise	12689 Jul 13 00:00	18°☾47'34	
opposition	12682 Dec 18 23:05	7°☾58'15	-5°39'56	retrograde	12689 Oct 09 21:54	20°☾21'19	
direct	12683 Mar 10 11:18	6°☾45'07		min. Earth dist.	12689 Dec 27 22:25	19°☾14'03	36.67400 AU
evening set	12683 Jun 06 16:44	8°☾20'54		opposition	12689 Dec 30 06:28	19°☾10'53	-8°37'04
				direct	12690 Mar 22 01:51	17°☾59'59	
conjunction	12683 Jun 20 23:58	8°☾47'41	-5°34'36	evening set	12690 Jun 18 23:10	19°☾33'11	
minimum elong	12683 Jun 20 23:48	8°☾47'40	5°35'33				
max. Earth dist.	12683 Jun 23 05:49	8°☾51'55	37.00938 AU	conjunction	12690 Jul 01 18:00	19°☾56'04	-8°21'15
morning rise	12683 Jul 05 06:28	9°☾14'24		minimum elong	12690 Jul 01 17:48	19°☾56'03	8°22'11
retrograde	12683 Oct 01 02:46	10°☾49'58		max. Earth dist.	12690 Jul 04 02:25	20°☾00'18	38.78013 AU
min. Earth dist.	12683 Dec 18 15:28	9°☾41'03	35.14601 AU	morning rise	12690 Jul 14 12:22	20°☾18'55	
opposition	12683 Dec 20 22:10	9°☾37'52	-6°07'17	retrograde	12690 Oct 11 14:35	21°☾52'26	
direct	12684 Mar 11 11:28	8°☾25'05		min. Earth dist.	12690 Dec 29 16:44	20°☾45'30	36.92797 AU
evening set	12684 Jun 07 18:19	10°☾00'26		opposition	12691 Jan 01 02:01	20°☾42'17	-8°59'38
				direct	12691 Mar 23 22:48	19°☾31'41	
conjunction	12684 Jun 21 21:02	10°☾26'42	-6°00'18	evening set	12691 Jun 20 23:04	21°☾04'37	
minimum elong	12684 Jun 21 20:52	10°☾26'41	6°01'15				
max. Earth dist.	12684 Jun 24 03:42	10°☾30'58	37.26454 AU	conjunction	12691 Jul 03 11:48	21°☾26'55	-8°42'31
morning rise	12684 Jul 05 23:08	10°☾52'54		minimum elong	12691 Jul 03 11:37	21°☾26'54	8°43'26
retrograde	12684 Oct 02 00:21	12°☾28'07		max. Earth dist.	12691 Jul 05 20:51	21°☾31'10	39.03242 AU
min. Earth dist.	12684 Dec 19 14:15	11°☾19'29	35.40268 AU	morning rise	12691 Jul 16 00:15	21°☾49'11	
opposition	12684 Dec 21 20:53	11°☾16'20	-6°33'57	retrograde	12691 Oct 13 09:26	23°☾22'32	
direct	12685 Mar 13 08:44	10°☾03'55		min. Earth dist.	12691 Dec 31 11:39	22°☾15'52	37.18254 AU
evening set	12685 Jun 09 19:47	11°☾38'51		opposition	12692 Jan 02 21:24	22°☾12'39	-9°21'31
				direct	12692 Mar 24 16:24	21°☾02'21	
conjunction	12685 Jun 23 17:51	12°☾04'34	-6°25'21	evening set	12692 Jun 21 22:34	22°☾35'03	
minimum elong	12685 Jun 23 17:41	12°☾04'33	6°26'17				
max. Earth dist.	12685 Jun 26 00:50	12°☾08'50	37.51915 AU	conjunction	12692 Jul 04 05:12	22°☾56'45	-9°03'09
morning rise	12685 Jul 07 15:09	12°☾30'14		minimum elong	12692 Jul 04 05:00	22°☾56'45	9°04'04
retrograde	12685 Oct 03 19:59	14°☾05'07		max. Earth dist.	12692 Jul 06 15:14	23°☾01'04	39.28515 AU
min. Earth dist.	12685 Dec 21 12:02	12°☾56'48	35.65841 AU	morning rise	12692 Jul 16 11:21	23°☾18'27	
opposition	12685 Dec 23 18:50	12°☾53'39	-6°59'56	retrograde	12692 Oct 14 02:35	24°☾51'38	
direct	12686 Mar 15 08:10	11°☾41'33		min. Earth dist.	12693 Jan 01 06:20	23°☾45'15	37.43712 AU
evening set	12686 Jun 11 21:10	13°☾16'06		opposition	12693 Jan 03 16:13	23°☾42'02	-9°42'43
				direct	12693 Mar 26 12:14	22°☾32'03	
conjunction	12686 Jun 25 14:06	13°☾41'16	-6°49'48	evening set	12693 Jun 23 22:05	24°☾04'33	
minimum elong	12686 Jun 25 13:55	13°☾41'15	6°50'45				
max. Earth dist.	12686 Jun 27 20:34	13°☾45'28	37.77261 AU	conjunction	12693 Jul 05 22:10	24°☾25'40	-9°23'10
morning rise	12686 Jul 09 06:36	14°☾06'24		minimum elong	12693 Jul 05 21:59	24°☾25'39	9°24'03
retrograde	12686 Oct 05 17:39	15°☾40'58		max. Earth dist.	12693 Jul 08 07:38	24°☾29'53	39.53766 AU
min. Earth dist.	12686 Dec 23 09:00	14°☾32'56	35.91318 AU	morning rise	12693 Jul 17 22:07	24°☾46'45	
opposition	12686 Dec 25 16:32	14°☾29'46	-7°25'14	retrograde	12693 Oct 15 21:44	26°☾19'48	
direct	12687 Mar 17 05:40	13°☾17'59		min. Earth dist.	12694 Jan 02 23:39	25°☾13'44	37.69140 AU
evening set	12687 Jun 13 22:00	14°☾52'10		opposition	12694 Jan 05 10:30	25°☾10'29	-10°03'15

direct	12694 Mar 28 05:07	24°☾00'49	conjunction	12700 Jul 16 11:56	4°♈22'49 -11°26'37
evening set	12694 Jun 25 21:17	25°☾33'09	minimum elong	12700 Jul 16 11:46	4°♈22'48 11°27'27
			max. Earth dist.	12700 Jul 18 20:48	4°♈26'50 41.25636 AU
conjunction	12694 Jul 07 14:58	25°☾53'39 -9°42'33	morning rise	12700 Jul 26 10:47	4°♈39'38
minimum elong	12694 Jul 07 14:46	25°☾53'39 9°43'27	retrograde	12700 Oct 26 07:50	6°♈12'10
max. Earth dist.	12694 Jul 10 01:41	25°☾57'57 39.78951 AU	min. Earth dist.	12701 Jan 13 23:10	5°♈07'39 39.41598 AU
morning rise	12694 Jul 19 08:16	26°☾14'09	opposition	12701 Jan 16 09:24	5°♈04'32 -12°09'27
retrograde	12694 Oct 17 13:59	27°☾47'05	direct	12701 Apr 08 09:13	3°♈56'43
min. Earth dist.	12695 Jan 04 18:41	26°☾41'14 37.94466 AU	evening set	12701 Jul 08 10:55	5°♈28'12
opposition	12695 Jan 07 04:39	26°☾38'03 -10°23'08			
direct	12695 Mar 30 00:14	25°☾28'41	conjunction	12701 Jul 18 02:15	5°♈44'24 -11°42'00
evening set	12695 Jun 27 20:22	27°☾00'52	minimum elong	12701 Jul 18 02:06	5°♈44'23 11°42'50
			max. Earth dist.	12701 Jul 20 12:03	5°♈48'28 41.49208 AU
conjunction	12695 Jul 09 07:10	27°☾20'46 -10°01'20	morning rise	12701 Jul 27 17:30	6°♈00'35
minimum elong	12695 Jul 09 07:00	27°☾20'45 10°02'13	retrograde	12701 Oct 27 19:58	7°♈33'06
max. Earth dist.	12695 Jul 11 17:07	27°☾24'59 40.04009 AU	min. Earth dist.	12702 Jan 15 15:39	6°♈28'44 39.65289 AU
morning rise	12695 Jul 20 17:48	27°☾40'39	opposition	12702 Jan 18 00:50	6°♈25'40 -12°25'05
retrograde	12695 Oct 19 04:17	29°☾13'30	direct	12702 Apr 10 02:17	5°♈18'06
min. Earth dist.	12696 Jan 06 11:16	28°☾07'58 38.19634 AU	evening set	12702 Jul 10 08:43	6°♈49'31
opposition	12696 Jan 08 22:21	28°☾04'44 -10°42'22			
direct	12696 Mar 30 19:43	26°☾55'40	conjunction	12702 Jul 19 16:11	7°♈05'06 -11°56'50
evening set	12696 Jun 28 19:14	28°☾27'42	minimum elong	12702 Jul 19 16:02	7°♈05'05 11°57'38
			max. Earth dist.	12702 Jul 22 01:35	7°♈09'06 41.72650 AU
conjunction	12696 Jul 09 23:14	28°☾47'00 -10°19'31	morning rise	12702 Jul 28 23:33	7°♈20'39
minimum elong	12696 Jul 09 23:02	28°☾46'59 10°20'24	retrograde	12702 Oct 29 07:39	8°♈53'10
max. Earth dist.	12696 Jul 12 09:43	28°☾51'14 40.28870 AU	min. Earth dist.	12703 Jan 17 05:44	7°♈49'04 39.88855 AU
morning rise	12696 Jul 21 03:03	29°☾06'17	opposition	12703 Jan 19 15:55	7°♈45'58 -12°40'08
	12696 Aug 24 18:31	0°♈	direct	12703 Apr 11 19:42	6°♈38'38
retrograde	12696 Oct 19 18:36	0°♈39'03	evening set	12703 Jul 12 06:03	8°♈10'02
	12696 Dec 17 09:52	30°♈☾			
min. Earth dist.	12697 Jan 07 05:33	29°☾33'43 38.44591 AU	conjunction	12703 Jul 21 05:36	8°♈24'58 -12°11'06
opposition	12697 Jan 09 15:43	29°☾30'32 -11°00'58	minimum elong	12703 Jul 21 05:29	8°♈24'58 12°11'54
direct	12697 Apr 01 14:54	28°☾21'45	max. Earth dist.	12703 Jul 23 15:14	8°♈28'59 41.95977 AU
evening set	12697 Jun 30 18:03	29°☾53'40	morning rise	12703 Jul 30 05:13	8°♈39'55
	12697 Jul 04 11:06	0°♈	retrograde	12703 Oct 30 22:25	10°♈12'29
conjunction	12697 Jul 11 15:01	0°♈12'20 -10°37'08	min. Earth dist.	12704 Jan 18 20:46	9°♈08'35 40.12326 AU
minimum elong	12697 Jul 11 14:51	0°♈12'20 10°38'00	opposition	12704 Jan 21 06:51	9°♈05'30 -12°54'36
max. Earth dist.	12697 Jul 14 01:07	0°♈16'31 40.53496 AU	direct	12704 Apr 12 10:03	7°♈58'25
morning rise	12697 Jul 22 11:44	0°♈31'01	evening set	12704 Jul 13 03:26	9°♈29'50
retrograde	12697 Oct 21 09:26	2°♈03'43			
min. Earth dist.	12698 Jan 08 22:28	0°♈58'37 38.69263 AU	conjunction	12704 Jul 21 19:00	9°♈44'08 -12°24'49
opposition	12698 Jan 11 08:39	0°♈55'27 -11°18'59	minimum elong	12704 Jul 21 18:52	9°♈44'08 12°25'36
	12698 Mar 01 17:49	30°♈☾	max. Earth dist.	12704 Jul 24 05:12	9°♈48'10 42.19210 AU
direct	12698 Apr 03 09:01	29°☾46'56	morning rise	12704 Jul 30 10:26	9°♈58'27
	12698 May 05 04:34	0°♈	retrograde	12704 Oct 31 11:41	11°♈31'04
evening set	12698 Jul 02 16:38	1°♈18'43	min. Earth dist.	12705 Jan 19 11:21	10°♈27'23 40.35664 AU
			opposition	12705 Jan 21 21:11	10°♈24'20 -13°08'29
conjunction	12698 Jul 13 06:20	1°♈36'47 -10°54'11	direct	12705 Apr 14 00:21	9°♈17'32
minimum elong	12698 Jul 13 06:09	1°♈36'46 10°55'03	evening set	12705 Jul 15 00:39	10°♈48'58
max. Earth dist.	12698 Jul 15 15:41	1°♈40'53 40.77819 AU			
morning rise	12698 Jul 23 20:00	1°♈54'50	conjunction	12705 Jul 23 07:55	11°♈02'39 -12°37'59
retrograde	12698 Oct 23 02:01	3°♈27'29	minimum elong	12705 Jul 23 07:48	11°♈02'38 12°38'47
min. Earth dist.	12699 Jan 10 15:06	2°♈22'35 38.93645 AU	max. Earth dist.	12705 Jul 25 17:13	11°♈06'35 42.42301 AU
opposition	12699 Jan 13 01:19	2°♈19'26 -11°36'23	morning rise	12705 Jul 31 15:16	11°♈16'20
direct	12699 Apr 05 00:37	1°♈11'10	retrograde	12705 Nov 02 02:44	12°♈49'02
evening set	12699 Jul 04 14:59	2°♈42'50	min. Earth dist.	12706 Jan 21 00:50	11°♈45'37 40.58850 AU
			opposition	12706 Jan 23 11:20	11°♈42'33 -13°21'48
conjunction	12699 Jul 14 21:28	3°♈00'16 -11°10'41	direct	12706 Apr 15 12:31	10°♈36'01
minimum elong	12699 Jul 14 21:18	3°♈00'16 11°11'32	evening set	12706 Jul 16 21:38	12°♈07'30
max. Earth dist.	12699 Jul 17 07:30	3°♈04'24 41.01858 AU			
morning rise	12699 Jul 25 03:41	3°♈17'43	conjunction	12706 Jul 24 20:40	12°♈20'33 -12°50'38
retrograde	12699 Oct 24 16:40	4°♈50'18	minimum elong	12706 Jul 24 20:33	12°♈20'33 12°51'23
min. Earth dist.	12700 Jan 12 08:15	3°♈45'34 39.17736 AU	max. Earth dist.	12706 Jul 27 06:58	12°♈24'33 42.65211 AU
opposition	12700 Jan 14 17:36	3°♈42'28 -11°53'13	morning rise	12706 Aug 01 19:38	12°♈33'36
direct	12700 Apr 06 17:37	2°♈34'26	retrograde	12706 Nov 03 14:26	14°♈06'25
evening set	12700 Jul 06 13:05	4°♈05'59	min. Earth dist.	12707 Jan 22 15:56	13°♈03'11 40.81818 AU
			opposition	12707 Jan 25 01:20	13°♈00'10 -13°34'34

direct	12707 Apr 17 03:14	11°Ω53'55		conjunction	12713 Aug 02 07:23	21°Ω09'12	-14°05'45
evening set	12707 Jul 18 18:45	13°Ω25'29		minimum elong	12713 Aug 02 07:19	21°Ω09'12	14°06'26
				max. Earth dist.	12713 Aug 04 14:05	21°Ω12'49	44.16398 AU
conjunction	12707 Jul 26 09:09	13°Ω37'54	-13°02'46	morning rise	12713 Aug 07 13:42	21°Ω17'33	
minimum elong	12707 Jul 26 09:02	13°Ω37'53	13°03'32	retrograde	12713 Nov 11 22:46	22°Ω51'29	
max. Earth dist.	12707 Jul 28 18:22	13°Ω41'48	42.87891 AU	min. Earth dist.	12714 Jan 31 13:23	21°Ω49'23	42.32844 AU
morning rise	12707 Aug 02 23:33	13°Ω50'18		opposition	12714 Feb 02 19:21	21°Ω46'37	-14°50'06
	12707 Sep 22 00:27	15°Ω		direct	12714 Apr 26 00:08	20°Ω41'52	
retrograde	12707 Nov 05 01:58	15°Ω23'14		evening set	12714 Jul 29 22:31	22°Ω14'22	
	12707 Dec 20 12:11	15°℞Ω					
min. Earth dist.	12708 Jan 24 04:55	14°Ω20'16	41.04524 AU	conjunction	12714 Aug 03 18:06	22°Ω21'59	-14°14'40
opposition	12708 Jan 26 14:56	14°Ω17'14	-13°46'48	minimum elong	12714 Aug 03 18:03	22°Ω21'59	14°15'20
direct	12708 Apr 17 17:10	13°Ω11'15		max. Earth dist.	12714 Aug 06 00:27	22°Ω25'34	44.36604 AU
evening set	12708 Jul 19 15:36	14°Ω42'55		morning rise	12714 Aug 08 13:42	22°Ω29'36	
				retrograde	12714 Nov 13 07:13	24°Ω03'46	
conjunction	12708 Jul 26 21:22	14°Ω54'41	-13°14'24	min. Earth dist.	12715 Feb 02 00:44	23°Ω01'51	42.53059 AU
minimum elong	12708 Jul 26 21:16	14°Ω54'40	13°15'08	opposition	12715 Feb 04 07:05	22°Ω59'04	-14°59'00
max. Earth dist.	12708 Jul 29 06:35	14°Ω58'34	43.10270 AU	direct	12715 Apr 27 14:11	21°Ω54'30	
	12708 Jul 30 03:53	15°Ω		evening set	12715 Jul 31 20:11	23°Ω27'15	
morning rise	12708 Aug 03 03:11	15°Ω06'26					
retrograde	12708 Nov 05 13:28	16°Ω39'31		conjunction	12715 Aug 05 04:33	23°Ω34'06	-14°23'09
min. Earth dist.	12709 Jan 24 19:38	15°Ω36'43	41.26904 AU	minimum elong	12715 Aug 05 04:30	23°Ω34'05	14°23'47
opposition	12709 Jan 27 04:26	15°Ω33'46	-13°58'32	max. Earth dist.	12715 Aug 07 10:13	23°Ω37'37	44.56579 AU
	12709 Feb 24 12:50	15°℞Ω		morning rise	12715 Aug 09 12:58	23°Ω40'56	
direct	12709 Apr 19 08:17	14°Ω28'01		retrograde	12715 Nov 14 18:56	25°Ω15'25	
	12709 Jun 10 02:15	15°Ω		min. Earth dist.	12716 Feb 03 12:31	24°Ω13'38	42.73069 AU
evening set	12709 Jul 21 12:43	15°Ω59'48		opposition	12716 Feb 05 18:39	24°Ω10'53	-15°07'26
				direct	12716 Apr 28 01:42	23°Ω06'30	
conjunction	12709 Jul 28 09:34	16°Ω10'53	-13°25'35	evening set	12716 Aug 01 18:31	24°Ω39'34	
minimum elong	12709 Jul 28 09:28	16°Ω10'53	13°26'18				
max. Earth dist.	12709 Jul 30 18:26	16°Ω14'44	43.32300 AU	conjunction	12716 Aug 05 14:53	24°Ω45'35	-14°31'10
morning rise	12709 Aug 04 06:22	16°Ω22'00		minimum elong	12716 Aug 05 14:52	24°Ω45'35	14°31'48
retrograde	12709 Nov 07 00:56	17°Ω55'14		max. Earth dist.	12716 Aug 07 21:20	24°Ω49'09	44.76353 AU
min. Earth dist.	12710 Jan 26 09:02	16°Ω52'37	41.48884 AU	morning rise	12716 Aug 09 11:17	24°Ω51'38	
opposition	12710 Jan 28 17:25	16°Ω49'41	-14°09'47	retrograde	12716 Nov 15 06:06	26°Ω26'28	
direct	12710 Apr 20 23:02	15°Ω44'11		min. Earth dist.	12717 Feb 04 00:33	25°Ω24'48	42.92843 AU
evening set	12710 Jul 23 09:48	17°Ω16'04		opposition	12717 Feb 06 05:54	25°Ω22'06	-15°15'24
				direct	12717 Apr 29 12:45	24°Ω17'56	
conjunction	12710 Jul 29 21:25	17°Ω26'30	-13°36'17	evening set	12717 Aug 03 17:43	25°Ω51'24	
minimum elong	12710 Jul 29 21:20	17°Ω26'30	13°36'59				
max. Earth dist.	12710 Aug 01 04:54	17°Ω30'14	43.53917 AU	conjunction	12717 Aug 07 00:55	25°Ω56'33	-14°38'45
morning rise	12710 Aug 05 09:08	17°Ω36'57		minimum elong	12717 Aug 07 00:52	25°Ω56'32	14°39'21
retrograde	12710 Nov 08 16:01	19°Ω10'20		max. Earth dist.	12717 Aug 09 05:58	25°Ω59'59	44.95894 AU
min. Earth dist.	12711 Jan 27 22:13	18°Ω07'53	41.70453 AU	morning rise	12717 Aug 10 08:08	26°Ω01'41	
opposition	12711 Jan 30 06:24	18°Ω05'00	-14°20'34	retrograde	12717 Nov 16 18:28	27°Ω36'58	
direct	12711 Apr 22 09:13	16°Ω59'42		min. Earth dist.	12718 Feb 05 10:49	26°Ω35'31	43.12374 AU
evening set	12711 Jul 25 06:46	18°Ω31'42		opposition	12718 Feb 07 16:48	26°Ω32'48	-15°22'54
				direct	12718 Apr 30 21:07	25°Ω28'50	
conjunction	12711 Jul 31 09:02	18°Ω41'27	-13°46'33	evening set	12718 Aug 05 18:39	27°Ω02'51	
minimum elong	12711 Jul 31 08:57	18°Ω41'27	13°47'16				
max. Earth dist.	12711 Aug 02 16:53	18°Ω45'11	43.75120 AU	conjunction	12718 Aug 08 10:51	27°Ω07'00	-14°45'54
morning rise	12711 Aug 06 11:16	18°Ω51'13		minimum elong	12718 Aug 08 10:50	27°Ω07'00	14°46'30
retrograde	12711 Nov 10 03:32	20°Ω24'47		morning rise	12718 Aug 11 03:05	27°Ω11'09	
min. Earth dist.	12712 Jan 29 12:24	19°Ω22'25	41.91596 AU	max. Earth dist.	12718 Aug 10 16:24	27°Ω10'28	45.15174 AU
opposition	12712 Jan 31 19:06	19°Ω19'36	-14°30'52	retrograde	12718 Nov 18 02:57	28°Ω47'01	
direct	12712 Apr 22 22:27	18°Ω14'30		min. Earth dist.	12719 Feb 06 23:19	27°Ω45'40	43.31622 AU
evening set	12712 Jul 26 03:57	19°Ω46'38		opposition	12719 Feb 09 03:46	27°Ω43'02	-15°29'59
				direct	12719 May 02 08:37	26°Ω39'17	
conjunction	12712 Jul 31 20:20	19°Ω55'42	-13°56'22	evening set	12719 Aug 07 22:53	28°Ω14'03	
minimum elong	12712 Jul 31 20:17	19°Ω55'42	13°57'04				
max. Earth dist.	12712 Aug 03 02:44	19°Ω59'19	43.95930 AU	conjunction	12719 Aug 09 20:30	28°Ω17'00	-14°52'38
morning rise	12712 Aug 06 12:47	20°Ω04'46		minimum elong	12719 Aug 09 20:29	28°Ω17'00	14°53'13
retrograde	12712 Nov 10 13:52	21°Ω38'29		morning rise	12719 Aug 11 18:07	28°Ω19'57	
min. Earth dist.	12713 Jan 30 00:02	20°Ω36'18	42.12373 AU	max. Earth dist.	12719 Aug 12 01:18	28°Ω20'24	45.34160 AU
opposition	12713 Feb 01 07:14	20°Ω33'29	-14°40'43	retrograde	12719 Nov 19 10:23	29°Ω56'37	
direct	12713 Apr 24 10:23	19°Ω28'33		min. Earth dist.	12720 Feb 08 09:39	28°Ω55'28	43.50532 AU
evening set	12713 Jul 28 01:04	21°Ω00'51		opposition	12720 Feb 10 14:22	28°Ω52'49	-15°36'38

direct	12720 May 02 21:07	27°049'17	min. Earth dist.	12728 Feb 17 20:51	7°057'17	44.86409 AU
evening set	12720 Aug 09 18:28	29°025'50	opposition	12728 Feb 19 20:14	7°054'58	-16°16'15
			direct	12728 May 12 03:44	6°052'43	
conjunction	12720 Aug 10 06:03	29°026'35 -14°58'59				
minimum elong	12720 Aug 10 06:03	29°026'35 14°59'34	conjunction	12728 Aug 19 04:11	8°026'48	-15°36'44
evening rise	12720 Aug 10 17:41	29°027'20	minimum elong	12728 Aug 19 04:14	8°026'48	15°37'10
max. Earth dist.	12720 Aug 12 10:01	29°029'55 45.52776 AU	max. Earth dist.	12728 Aug 21 03:42	8°029'45	46.86471 AU
	12720 Sep 01 08:51	0°00	retrograde	12728 Nov 28 21:04	10°003'04	
retrograde	12720 Nov 19 20:59	1°005'49	min. Earth dist.	12729 Feb 18 06:59	9°002'52	45.01859 AU
min. Earth dist.	12721 Feb 08 21:09	0°004'48 43.69058 AU	opposition	12729 Feb 20 04:57	9°000'37	-16°19'31
opposition	12721 Feb 11 00:44	0°002'13 -15°42'53	direct	12729 May 13 11:55	7°058'32	
	12721 Feb 12 20:59	30°00				
direct	12721 May 04 07:55	28°058'52	conjunction	12729 Aug 20 12:07	9°032'16	-15°39'49
	12721 Jul 18 18:55	0°00	minimum elong	12729 Aug 20 12:12	9°032'16	15°40'15
			max. Earth dist.	12729 Aug 22 10:36	9°035'09	47.01746 AU
conjunction	12721 Aug 11 15:39	0°035'46 -15°04'57	retrograde	12729 Nov 30 03:17	11°008'12	
minimum elong	12721 Aug 11 15:39	0°035'46 15°05'30	min. Earth dist.	12730 Feb 19 15:01	10°008'09	45.17043 AU
max. Earth dist.	12721 Aug 13 19:29	0°039'05 45.70983 AU	opposition	12730 Feb 21 13:33	10°005'53	-16°22'25
retrograde	12721 Nov 21 06:20	2°014'37	direct	12730 May 14 19:37	9°003'58	
min. Earth dist.	12722 Feb 10 08:30	1°013'43 43.87122 AU				
opposition	12722 Feb 12 10:59	1°011'12 -15°48'45	conjunction	12730 Aug 21 19:45	10°037'22	-15°42'34
direct	12722 May 05 19:04	0°008'03	minimum elong	12730 Aug 21 19:49	10°037'22	15°42'58
			max. Earth dist.	12730 Aug 23 17:54	10°040'13	47.16736 AU
conjunction	12722 Aug 13 00:48	1°044'31 -15°10'33	retrograde	12730 Dec 01 09:37	12°013'00	
minimum elong	12722 Aug 13 00:49	1°044'31 15°11'06	min. Earth dist.	12731 Feb 21 00:51	11°013'02	45.31935 AU
max. Earth dist.	12722 Aug 15 02:46	1°047'42 45.88716 AU	opposition	12731 Feb 22 22:11	11°010'49	-16°24'57
retrograde	12722 Nov 22 17:57	3°023'00	direct	12731 May 16 04:47	10°009'04	
min. Earth dist.	12723 Feb 11 18:46	2°022'15 44.04706 AU				
opposition	12723 Feb 13 21:06	2°019'45 -15°54'15	conjunction	12731 Aug 23 03:29	11°042'09	-15°44'57
direct	12723 May 07 02:36	1°016'46	minimum elong	12731 Aug 23 03:35	11°042'09	15°45'22
			max. Earth dist.	12731 Aug 25 01:35	11°044'59	47.31428 AU
conjunction	12723 Aug 14 10:00	2°052'50 -15°15'49	retrograde	12731 Dec 02 15:55	13°017'29	
minimum elong	12723 Aug 14 10:01	2°052'50 15°16'20	min. Earth dist.	12732 Feb 22 09:34	12°017'39	45.46483 AU
max. Earth dist.	12723 Aug 16 12:04	2°056'00 46.05962 AU	opposition	12732 Feb 24 06:27	12°015'27	-16°27'09
retrograde	12723 Nov 24 02:43	4°030'55	direct	12732 May 16 15:26	11°013'52	
min. Earth dist.	12724 Feb 13 06:30	3°030'12 44.21799 AU				
opposition	12724 Feb 15 07:02	3°027'48 -15°59'24	conjunction	12732 Aug 23 10:57	12°046'37	-15°47'01
direct	12724 May 07 12:01	2°024'59	minimum elong	12732 Aug 23 11:02	12°046'37	15°47'23
			max. Earth dist.	12732 Aug 25 07:25	12°049'21	47.45753 AU
conjunction	12724 Aug 14 18:51	4°000'38 -15°20'43	retrograde	12732 Dec 03 02:00	14°021'40	
minimum elong	12724 Aug 14 18:52	4°000'38 15°21'14	min. Earth dist.	12733 Feb 22 18:20	13°021'56	45.60645 AU
max. Earth dist.	12724 Aug 16 19:34	4°003'43 46.22753 AU	opposition	12733 Feb 24 14:40	13°019'47	-16°29'00
retrograde	12724 Nov 24 09:27	5°038'20	direct	12733 May 17 23:10	12°018'21	
min. Earth dist.	12725 Feb 13 15:51	4°037'45 44.38447 AU				
opposition	12725 Feb 15 16:35	4°035'21 -16°04'10	conjunction	12733 Aug 24 18:30	13°050'47	-15°48'47
direct	12725 May 08 21:54	3°032'40	minimum elong	12733 Aug 24 18:36	13°050'47	15°49'08
			max. Earth dist.	12733 Aug 26 15:10	13°053'31	47.59653 AU
conjunction	12725 Aug 16 03:26	5°007'55 -15°25'16	retrograde	12733 Dec 04 11:10	15°025'32	
minimum elong	12725 Aug 16 03:29	5°007'55 15°25'45	min. Earth dist.	12734 Feb 24 04:10	14°025'51	45.74338 AU
max. Earth dist.	12725 Aug 18 03:29	5°010'56 46.39125 AU	opposition	12734 Feb 25 22:45	14°023'47	-16°30'33
retrograde	12725 Nov 25 16:57	6°045'14	direct	12734 May 19 06:14	13°022'30	
min. Earth dist.	12726 Feb 15 02:29	5°044'43 44.54728 AU				
opposition	12726 Feb 17 01:59	5°042'22 -16°08'35	conjunction	12734 Aug 26 01:54	14°054'37	-15°50'15
direct	12726 May 10 09:50	4°039'50	minimum elong	12734 Aug 26 02:00	14°054'37	15°50'34
			max. Earth dist.	12734 Aug 27 20:45	14°057'14	47.73082 AU
conjunction	12726 Aug 17 11:57	6°014'40 -15°29'27	retrograde	12734 Dec 05 19:43	16°029'04	
minimum elong	12726 Aug 17 11:59	6°014'40 15°29'56	min. Earth dist.	12735 Feb 25 12:01	15°029'30	45.87539 AU
max. Earth dist.	12726 Aug 19 12:14	6°017'42 46.55178 AU	opposition	12735 Feb 27 06:43	15°027'27	-16°31'49
retrograde	12726 Nov 27 01:00	7°051'38	direct	12735 May 20 11:43	14°026'17	
min. Earth dist.	12727 Feb 16 12:02	6°051'13 44.70696 AU				
opposition	12727 Feb 18 11:12	6°048'54 -16°12'37	conjunction	12735 Aug 27 09:05	15°058'05	-15°51'25
direct	12727 May 11 21:15	5°046'30	minimum elong	12735 Aug 27 09:12	15°058'05	15°51'45
			max. Earth dist.	12735 Aug 29 03:09	16°000'38	47.86001 AU
conjunction	12727 Aug 18 20:01	7°020'57 -15°33'17	retrograde	12735 Dec 07 01:00	17°032'14	
minimum elong	12727 Aug 18 20:05	7°020'57 15°33'44	min. Earth dist.	12736 Feb 26 21:56	16°032'40	46.00231 AU
max. Earth dist.	12727 Aug 20 18:59	7°023'53 46.70950 AU	opposition	12736 Feb 28 14:39	16°030'43	-16°32'47
retrograde	12727 Nov 28 12:38	8°057'34	direct	12736 May 20 20:55	15°029'39	

conjunction	12736 Aug 27 16:20	17° <u>01</u> '08	-15°52'19	retrograde	12744 Dec 15 15:26	26° <u>04</u> '52'24	
minimum elong	12736 Aug 27 16:28	17° <u>01</u> '08	15°52'37	min. Earth dist.	12745 Mar 07 18:34	25° <u>04</u> '46'32	46.98163 AU
max. Earth dist.	12736 Aug 29 09:54	17° <u>03</u> '39	47.98438 AU	opposition	12745 Mar 09 06:04	25° <u>04</u> '44'51	-16°27'46
retrograde	12736 Dec 07 04:59	18° <u>03</u> '45'59		direct	12745 May 30 11:05	24° <u>04</u> '44'53	
min. Earth dist.	12737 Feb 27 05:47	17° <u>03</u> '52'29	46.12443 AU				
opposition	12737 Feb 28 22:03	17° <u>03</u> '33'33	-16°33'27	conjunction	12745 Sep 06 02:18	26° <u>04</u> '14'07	-15°47'02
direct	12737 May 22 07:26	16° <u>03</u> '32'34		minimum elong	12745 Sep 06 02:28	26° <u>04</u> '14'08	15°47'12
				max. Earth dist.	12745 Sep 07 13:32	26° <u>04</u> '16'12	48.94872 AU
conjunction	12737 Aug 28 23:11	18° <u>03</u> '45	-15°52'56	retrograde	12745 Dec 16 20:38	27° <u>04</u> '45'55	
minimum elong	12737 Aug 28 23:19	18° <u>03</u> '45	15°53'14	min. Earth dist.	12746 Mar 09 03:21	26° <u>04</u> '47'04	47.07209 AU
max. Earth dist.	12737 Aug 30 15:04	18° <u>06</u> '10	48.10430 AU	opposition	12746 Mar 10 12:45	26° <u>04</u> '45'29	-16°25'46
retrograde	12737 Dec 08 13:40	19° <u>03</u> '7'18		direct	12746 May 31 16:58	25° <u>04</u> '45'37	
min. Earth dist.	12738 Feb 28 13:51	18° <u>03</u> '7'52	46.24262 AU				
opposition	12738 Mar 02 05:32	18° <u>03</u> '55'57	-16°33'50	conjunction	12746 Sep 07 08:23	27° <u>04</u> '14'39	-15°45'04
direct	12738 May 23 14:53	17° <u>03</u> '35'05		minimum elong	12746 Sep 07 08:34	27° <u>04</u> '14'40	15°45'13
				max. Earth dist.	12746 Sep 08 18:54	27° <u>04</u> '16'42	49.03692 AU
conjunction	12738 Aug 30 05:55	19° <u>05</u> '57	-15°53'14	retrograde	12746 Dec 17 23:02	28° <u>04</u> '46'17	
minimum elong	12738 Aug 30 06:04	19° <u>05</u> '57	15°53'31	min. Earth dist.	12747 Mar 10 10:14	27° <u>04</u> '47'29	47.15720 AU
max. Earth dist.	12738 Aug 31 22:15	19° <u>08</u> '23	48.22059 AU	opposition	12747 Mar 11 19:15	27° <u>04</u> '45'56	-16°23'31
retrograde	12738 Dec 09 20:58	20° <u>03</u> '9'14		direct	12747 Jun 02 01:59	26° <u>04</u> '46'10	
min. Earth dist.	12739 Mar 01 22:28	19° <u>03</u> '9'49	46.35731 AU				
opposition	12739 Mar 03 12:56	19° <u>03</u> '7'58	-16°33'53	conjunction	12747 Sep 08 14:25	28° <u>04</u> '15'00	-15°42'52
direct	12739 May 24 22:50	18° <u>03</u> '7'12		minimum elong	12747 Sep 08 14:36	28° <u>04</u> '15'01	15°42'59
				max. Earth dist.	12747 Sep 09 22:52	28° <u>04</u> '16'55	49.11966 AU
conjunction	12739 Aug 31 12:32	20° <u>07</u> '47	-15°53'15	retrograde	12747 Dec 19 05:42	29° <u>04</u> '46'25	
minimum elong	12739 Aug 31 12:39	20° <u>07</u> '47	15°53'31	min. Earth dist.	12748 Mar 10 17:55	28° <u>04</u> '47'39	47.23696 AU
max. Earth dist.	12739 Sep 02 03:34	20° <u>10</u> '08	48.33384 AU	opposition	12748 Mar 12 01:38	28° <u>04</u> '46'09	-16°21'02
retrograde	12739 Dec 11 03:58	21° <u>04</u> '0'48		direct	12748 Jun 02 09:46	27° <u>04</u> '46'28	
min. Earth dist.	12740 Mar 02 05:06	20° <u>04</u> '1'30	46.46913 AU				
opposition	12740 Mar 03 19:59	20° <u>03</u> '9'38	-16°33'38	conjunction	12748 Sep 08 20:28	29° <u>04</u> '15'05	-15°40'25
direct	12740 May 25 03:24	19° <u>03</u> '8'59		minimum elong	12748 Sep 08 20:39	29° <u>04</u> '15'05	15°40'33
				max. Earth dist.	12748 Sep 10 04:48	29° <u>04</u> '16'59	49.19713 AU
conjunction	12740 Aug 31 19:01	21° <u>09</u> '19	-15°52'56		12748 Oct 12 01:56	0° <u>04</u> '	
minimum elong	12740 Aug 31 19:11	21° <u>09</u> '19	15°53'11	retrograde	12748 Dec 19 12:02	0° <u>04</u> '46'18	
max. Earth dist.	12740 Sep 02 09:51	21° <u>11</u> '38	48.44420 AU		12749 Feb 28 21:37	30° <u>04</u> ' <u>04</u> '	
retrograde	12740 Dec 11 09:30	22° <u>04</u> '2'05		min. Earth dist.	12749 Mar 12 01:42	29° <u>04</u> '47'31	47.31142 AU
min. Earth dist.	12741 Mar 03 13:38	21° <u>04</u> '2'49	46.57808 AU	opposition	12749 Mar 13 07:55	29° <u>04</u> '46'05	-16°18'18
opposition	12741 Mar 05 03:06	21° <u>04</u> '1'02	-16°33'04	direct	12749 Jun 03 17:43	28° <u>04</u> '46'27	
direct	12741 May 26 09:57	20° <u>04</u> '0'31			12749 Aug 30 12:21	0° <u>04</u> '	
conjunction	12741 Sep 02 01:27	22° <u>10</u> '35	-15°52'20	conjunction	12749 Sep 10 02:10	0° <u>04</u> '14'50	-15°37'45
minimum elong	12741 Sep 02 01:35	22° <u>10</u> '36	15°52'33	minimum elong	12749 Sep 10 02:22	0° <u>04</u> '14'51	15°37'50
max. Earth dist.	12741 Sep 03 16:00	22° <u>12</u> '54	48.55184 AU	max. Earth dist.	12749 Sep 11 08:47	0° <u>04</u> '16'38	49.26976 AU
retrograde	12741 Dec 12 13:41	23° <u>14</u> '3'09		retrograde	12749 Dec 20 19:45	1° <u>04</u> '45'51	
min. Earth dist.	12742 Mar 04 20:23	22° <u>14</u> '44'00	46.68406 AU	min. Earth dist.	12750 Mar 13 07:46	0° <u>04</u> '47'07	47.38145 AU
opposition	12742 Mar 06 09:55	22° <u>14</u> '2'13	-16°32'11	opposition	12750 Mar 14 13:58	0° <u>04</u> '45'41	-16°15'20
direct	12742 May 27 18:38	21° <u>14</u> '41'49			12750 Apr 29 13:00	30° <u>04</u> ' <u>04</u> '	
				direct	12750 Jun 04 21:35	29° <u>04</u> '46'07	
conjunction	12742 Sep 03 07:40	23° <u>14</u> '1'40	-15°51'26		12750 Jul 10 14:11	0° <u>04</u> '	
minimum elong	12742 Sep 03 07:50	23° <u>14</u> '1'41	15°51'39				
max. Earth dist.	12742 Sep 04 20:53	23° <u>13</u> '54	48.65650 AU	conjunction	12750 Sep 11 07:50	1° <u>04</u> '14'17	-15°34'49
retrograde	12742 Dec 13 21:44	24° <u>14</u> '44'02		minimum elong	12750 Sep 11 08:01	1° <u>04</u> '14'18	15°34'54
min. Earth dist.	12743 Mar 06 04:00	23° <u>14</u> '44'59	46.78706 AU	max. Earth dist.	12750 Sep 12 14:01	1° <u>04</u> '16'03	49.33821 AU
opposition	12743 Mar 07 16:50	23° <u>14</u> '3'14	-16°31'00	retrograde	12750 Dec 22 01:41	2° <u>04</u> '45'06	
direct	12743 May 29 01:51	22° <u>14</u> '42'59		opposition	12751 Mar 15 20:06	1° <u>04</u> '44'58	-16°12'06
				min. Earth dist.	12751 Mar 14 15:35	1° <u>04</u> '46'18	47.44766 AU
conjunction	12743 Sep 04 13:54	24° <u>12</u> '36	-15°50'14	direct	12751 Jun 06 01:45	0° <u>04</u> '45'27	
minimum elong	12743 Sep 04 14:04	24° <u>12</u> '37	15°50'25				
max. Earth dist.	12743 Sep 06 03:32	24° <u>14</u> '51	48.75793 AU	conjunction	12751 Sep 12 13:24	2° <u>04</u> '13'26	-15°31'38
retrograde	12743 Dec 15 06:01	25° <u>14</u> '44'47		minimum elong	12751 Sep 12 13:37	2° <u>04</u> '13'26	15°31'41
opposition	12744 Mar 07 23:37	24° <u>14</u> '44'06	-16°29'31	max. Earth dist.	12751 Sep 13 19:13	2° <u>04</u> '15'10	49.40327 AU
min. Earth dist.	12744 Mar 06 12:03	24° <u>14</u> '45'48	46.88638 AU	retrograde	12751 Dec 23 04:16	3° <u>04</u> '44'02	
direct	12744 May 29 08:22	23° <u>14</u> '44'00		min. Earth dist.	12752 Mar 14 21:15	2° <u>04</u> '45'18	47.51048 AU
				opposition	12752 Mar 16 01:56	2° <u>04</u> '43'58	-16°08'36
conjunction	12744 Sep 04 20:06	25° <u>13</u> '25	-15°48'46	direct	12752 Jun 06 07:51	1° <u>04</u> '44'30	
minimum elong	12744 Sep 04 20:17	25° <u>13</u> '26	15°48'57				
max. Earth dist.	12744 Sep 06 08:02	25° <u>15</u> '33	48.85558 AU	conjunction	12752 Sep 12 18:51	3° <u>04</u> '12'17	-15°28'11

minimum elong	12752 Sep 12 19:03	3° <u>♁</u> 12'18	15°28'14	minimum elong	12760 Sep 20 13:39	10° <u>♁</u> 58'04	14°51'40
max. Earth dist.	12752 Sep 13 23:12	3° <u>♁</u> 13'56	49.46507 AU	max. Earth dist.	12760 Sep 21 10:47	10° <u>♁</u> 59'17	49.82716 AU
retrograde	12752 Dec 23 09:27	4° <u>♁</u> 42'44		morning rise	12760 Sep 22 16:46	11° <u>♁</u> 01'01	
min. Earth dist.	12753 Mar 16 04:00	3° <u>♁</u> 44'00	47.57027 AU	retrograde	12760 Dec 31 08:23	12° <u>♁</u> 27'33	
opposition	12753 Mar 17 07:40	3° <u>♁</u> 42'42	-16°04'49	min. Earth dist.	12761 Mar 24 08:29	11° <u>♁</u> 28'56	47.90904 AU
direct	12753 Jun 07 15:11	2° <u>♁</u> 43'18		opposition	12761 Mar 25 04:05	11° <u>♁</u> 28'01	-15°25'40
				direct	12761 Jun 15 09:18	10° <u>♁</u> 29'09	
conjunction	12753 Sep 14 00:24	4° <u>♁</u> 10'55	-15°24'29	evening set	12761 Sep 19 01:02	11° <u>♁</u> 51'59	
minimum elong	12753 Sep 14 00:37	4° <u>♁</u> 10'55	15°24'31				
max. Earth dist.	12753 Sep 15 05:09	4° <u>♁</u> 12'35	49.52389 AU	conjunction	12761 Sep 21 18:34	11° <u>♁</u> 55'46	-14°46'13
retrograde	12753 Dec 24 14:47	5° <u>♁</u> 41'12		minimum elong	12761 Sep 21 18:48	11° <u>♁</u> 55'47	14°46'08
min. Earth dist.	12754 Mar 17 10:37	4° <u>♁</u> 42'30	47.62691 AU	max. Earth dist.	12761 Sep 22 15:14	11° <u>♁</u> 56'57	49.85102 AU
opposition	12754 Mar 18 13:26	4° <u>♁</u> 41'14	-16°00'46	morning rise	12761 Sep 24 12:38	11° <u>♁</u> 59'34	
direct	12754 Jun 08 23:16	3° <u>♁</u> 41'55		retrograde	12762 Jan 01 10:53	13° <u>♁</u> 25'08	
				opposition	12762 Mar 26 09:18	12° <u>♁</u> 25'38	-15°19'47
conjunction	12754 Sep 15 05:34	5° <u>♁</u> 09'22	-15°20'31	min. Earth dist.	12762 Mar 25 13:45	12° <u>♁</u> 26'32	47.92977 AU
minimum elong	12754 Sep 15 05:46	5° <u>♁</u> 09'22	15°20'31	direct	12762 Jun 16 13:52	11° <u>♁</u> 26'47	
max. Earth dist.	12754 Sep 16 08:47	5° <u>♁</u> 10'57	49.57970 AU	evening set	12762 Sep 19 17:28	12° <u>♁</u> 48'49	
retrograde	12754 Dec 25 23:19	6° <u>♁</u> 39'31					
opposition	12755 Mar 19 19:07	5° <u>♁</u> 39'37	-15°56'28	conjunction	12762 Sep 22 23:24	12° <u>♁</u> 53'18	-14°40'28
min. Earth dist.	12755 Mar 18 16:10	5° <u>♁</u> 40'53	47.68043 AU	minimum elong	12762 Sep 22 23:38	12° <u>♁</u> 53'19	14°40'20
direct	12755 Jun 10 02:28	4° <u>♁</u> 40'23		max. Earth dist.	12762 Sep 23 18:32	12° <u>♁</u> 54'24	49.87065 AU
				morning rise	12762 Sep 26 05:57	12° <u>♁</u> 57'49	
conjunction	12755 Sep 16 10:56	6° <u>♁</u> 07'41	-15°16'17	retrograde	12763 Jan 02 15:35	14° <u>♁</u> 22'34	
minimum elong	12755 Sep 16 11:10	6° <u>♁</u> 07'42	15°16'18	opposition	12763 Mar 27 14:36	13° <u>♁</u> 23'05	-15°13'39
max. Earth dist.	12755 Sep 17 13:52	6° <u>♁</u> 09'15	49.63212 AU	min. Earth dist.	12763 Mar 26 20:18	13° <u>♁</u> 23'56	47.94676 AU
retrograde	12755 Dec 27 05:37	7° <u>♁</u> 37'42		direct	12763 Jun 17 20:23	12° <u>♁</u> 24'16	
min. Earth dist.	12756 Mar 18 23:42	6° <u>♁</u> 39'04	47.73039 AU	evening set	12763 Sep 20 11:30	13° <u>♁</u> 45'33	
opposition	12756 Mar 20 00:45	6° <u>♁</u> 37'54	-15°51'54				
direct	12756 Jun 10 06:23	5° <u>♁</u> 38'44		conjunction	12763 Sep 24 04:28	13° <u>♁</u> 50'40	-14°34'28
				minimum elong	12763 Sep 24 04:42	13° <u>♁</u> 50'41	14°34'20
conjunction	12756 Sep 16 16:19	7° <u>♁</u> 05'55	-15°11'49	max. Earth dist.	12763 Sep 24 23:53	13° <u>♁</u> 51'47	49.88679 AU
minimum elong	12756 Sep 16 16:32	7° <u>♁</u> 05'55	15°11'48	morning rise	12763 Sep 27 22:02	13° <u>♁</u> 55'49	
max. Earth dist.	12756 Sep 17 18:38	7° <u>♁</u> 07'26	49.68089 AU	retrograde	12764 Jan 03 19:38	15° <u>♁</u> 19'52	
retrograde	12756 Dec 27 08:20	8° <u>♁</u> 35'49		opposition	12764 Mar 27 19:36	14° <u>♁</u> 20'24	-15°07'16
min. Earth dist.	12757 Mar 20 05:16	7° <u>♁</u> 37'15	47.77623 AU	min. Earth dist.	12764 Mar 27 02:04	14° <u>♁</u> 21'13	47.96035 AU
opposition	12757 Mar 21 06:14	7° <u>♁</u> 36'05	-15°47'06	direct	12764 Jun 18 04:40	13° <u>♁</u> 21'36	
direct	12757 Jun 11 12:29	6° <u>♁</u> 37'00		evening set	12764 Sep 20 06:20	14° <u>♁</u> 42'15	
conjunction	12757 Sep 17 21:29	8° <u>♁</u> 04'04	-15°07'07	conjunction	12764 Sep 24 09:21	14° <u>♁</u> 47'55	-14°28'13
minimum elong	12757 Sep 17 21:43	8° <u>♁</u> 04'05	15°07'05	minimum elong	12764 Sep 24 09:36	14° <u>♁</u> 47'56	14°28'04
max. Earth dist.	12757 Sep 18 21:57	8° <u>♁</u> 05'30	49.72516 AU	max. Earth dist.	12764 Sep 25 03:12	14° <u>♁</u> 48'57	49.89989 AU
retrograde	12757 Dec 28 13:30	9° <u>♁</u> 33'53		morning rise	12764 Sep 28 13:04	14° <u>♁</u> 53'39	
opposition	12758 Mar 22 11:49	8° <u>♁</u> 34'13	-15°42'03	retrograde	12765 Jan 04 04:05	16° <u>♁</u> 17'02	
min. Earth dist.	12758 Mar 21 12:21	8° <u>♁</u> 35'19	47.81742 AU	min. Earth dist.	12765 Mar 28 07:01	15° <u>♁</u> 18'25	47.97102 AU
direct	12758 Jun 12 18:49	7° <u>♁</u> 35'13		opposition	12765 Mar 29 00:36	15° <u>♁</u> 17'36	-15°00'38
				direct	12765 Jun 19 07:39	14° <u>♁</u> 18'51	
conjunction	12758 Sep 19 02:55	9° <u>♁</u> 02'10	-15°02'13	evening set	12765 Sep 21 01:36	15° <u>♁</u> 38'52	
minimum elong	12758 Sep 19 03:08	9° <u>♁</u> 02'11	15°02'09				
max. Earth dist.	12758 Sep 20 03:14	9° <u>♁</u> 03'35	49.76452 AU	conjunction	12765 Sep 25 14:09	15° <u>♁</u> 45'05	-14°21'45
retrograde	12758 Dec 29 18:57	10° <u>♁</u> 31'53		minimum elong	12765 Sep 25 14:23	15° <u>♁</u> 45'06	14°21'35
opposition	12759 Mar 23 17:21	9° <u>♁</u> 32'17	-15°36'48	max. Earth dist.	12765 Sep 26 07:46	15° <u>♁</u> 46'06	49.90998 AU
min. Earth dist.	12759 Mar 22 19:14	9° <u>♁</u> 33'19	47.85329 AU	morning rise	12765 Sep 30 03:22	15° <u>♁</u> 51'21	
direct	12759 Jun 14 02:05	8° <u>♁</u> 33'20		retrograde	12766 Jan 05 11:30	17° <u>♁</u> 14'09	
evening set	12759 Sep 19 01:50	9° <u>♁</u> 58'26		opposition	12766 Mar 30 05:44	16° <u>♁</u> 14'44	-14°53'46
				min. Earth dist.	12766 Mar 29 13:45	16° <u>♁</u> 15'29	47.97872 AU
conjunction	12759 Sep 20 08:08	10° <u>♁</u> 00'11	-14°57'05	direct	12766 Jun 20 10:13	15° <u>♁</u> 16'02	
minimum elong	12759 Sep 20 08:22	10° <u>♁</u> 00'11	14°57'02	evening set	12766 Sep 21 21:37	16° <u>♁</u> 35'29	
morning rise	12759 Sep 21 14:55	10° <u>♁</u> 01'57					
max. Earth dist.	12759 Sep 21 06:24	10° <u>♁</u> 01'28	49.79856 AU	conjunction	12766 Sep 26 19:02	16° <u>♁</u> 42'12	-14°15'01
retrograde	12759 Dec 31 02:38	11° <u>♁</u> 29'47		minimum elong	12766 Sep 26 19:17	16° <u>♁</u> 42'13	14°14'51
opposition	12760 Mar 23 22:47	10° <u>♁</u> 30'14	-15°31'21	max. Earth dist.	12766 Sep 27 12:19	16° <u>♁</u> 43'12	49.91734 AU
min. Earth dist.	12760 Mar 23 01:09	10° <u>♁</u> 31'14	47.88379 AU	morning rise	12766 Oct 01 17:10	16° <u>♁</u> 48'58	
direct	12760 Jun 14 05:45	9° <u>♁</u> 31'20		retrograde	12767 Jan 06 13:46	18° <u>♁</u> 11'12	
evening set	12760 Sep 18 10:36	10° <u>♁</u> 55'08		opposition	12767 Mar 31 10:38	17° <u>♁</u> 11'50	-14°46'38
				min. Earth dist.	12767 Mar 30 18:20	17° <u>♁</u> 12'36	47.98349 AU
conjunction	12760 Sep 20 13:24	10° <u>♁</u> 58'03	-14°51'46	direct	12767 Jun 21 14:42	16° <u>♁</u> 13'10	

evening set	12767 Sep 22 17:48	17° <u>♁</u> 32'05	opposition	12774 Apr 06 21:16	23° <u>♁</u> 51'15	-13°50'36
			min. Earth dist.	12774 Apr 06 12:51	23° <u>♁</u> 51'39	47.89620 AU
conjunction	12767 Sep 27 23:46	17° <u>♁</u> 39'18 -14°08'04	direct	12774 Jun 28 03:28	22° <u>♁</u> 52'40	
minimum elong	12767 Sep 27 24:00	17° <u>♁</u> 39'19 14°07'51	evening set	12774 Sep 27 00:37	24° <u>♁</u> 08'26	
max. Earth dist.	12767 Sep 28 15:27	17° <u>♁</u> 40'12 49.92156 AU				
morning rise	12767 Oct 03 06:32	17° <u>♁</u> 46'33	conjunction	12774 Oct 04 10:19	24° <u>♁</u> 18'33	-13°13'26
retrograde	12768 Jan 07 17:05	19° <u>♁</u> 08'16	minimum elong	12774 Oct 04 10:34	24° <u>♁</u> 18'34	13°13'08
opposition	12768 Mar 31 15:41	18° <u>♁</u> 08'56 -14°39'16	max. Earth dist.	12774 Oct 04 18:37	24° <u>♁</u> 19'02	49.82588 AU
min. Earth dist.	12768 Mar 31 00:42	18° <u>♁</u> 09'38 47.98500 AU	morning rise	12774 Oct 11 21:04	24° <u>♁</u> 28'45	
direct	12768 Jun 21 20:16	17° <u>♁</u> 10'19	retrograde	12775 Jan 14 05:32	25° <u>♁</u> 47'18	
evening set	12768 Sep 22 14:36	18° <u>♁</u> 28'44	opposition	12775 Apr 08 02:05	24° <u>♁</u> 48'01	-13°41'45
			min. Earth dist.	12775 Apr 07 18:01	24° <u>♁</u> 48'23	47.86486 AU
conjunction	12768 Sep 28 04:46	18° <u>♁</u> 36'25 -14°00'52	direct	12775 Jun 29 07:50	23° <u>♁</u> 49'24	
minimum elong	12768 Sep 28 05:02	18° <u>♁</u> 36'26 14°00'40	evening set	12775 Sep 27 22:46	25° <u>♁</u> 04'47	
max. Earth dist.	12768 Sep 28 20:40	18° <u>♁</u> 37'19 49.92225 AU				
morning rise	12768 Oct 03 19:43	18° <u>♁</u> 44'08	conjunction	12775 Oct 05 15:11	25° <u>♁</u> 15'16	-13°04'48
retrograde	12769 Jan 07 21:04	20° <u>♁</u> 05'21	minimum elong	12775 Oct 05 15:26	25° <u>♁</u> 15'17	13°04'28
opposition	12769 Apr 01 20:30	19° <u>♁</u> 06'03 -14°31'41	max. Earth dist.	12775 Oct 05 23:02	25° <u>♁</u> 15'43	49.79382 AU
min. Earth dist.	12769 Apr 01 06:36	19° <u>♁</u> 06'42 47.98256 AU	morning rise	12775 Oct 13 08:40	25° <u>♁</u> 25'50	
direct	12769 Jun 23 03:45	18° <u>♁</u> 07'28	retrograde	12776 Jan 15 12:58	26° <u>♁</u> 44'01	
evening set	12769 Sep 23 11:41	19° <u>♁</u> 25'26	opposition	12776 Apr 08 06:59	25° <u>♁</u> 44'42	-13°32'40
			min. Earth dist.	12776 Apr 08 00:37	25° <u>♁</u> 45'00	47.82991 AU
conjunction	12769 Sep 29 09:38	19° <u>♁</u> 33'32 -13°53'28	direct	12776 Jun 29 11:05	24° <u>♁</u> 46'04	
minimum elong	12769 Sep 29 09:53	19° <u>♁</u> 33'33 13°53'14	evening set	12776 Sep 27 21:14	26° <u>♁</u> 01'05	
max. Earth dist.	12769 Sep 29 23:40	19° <u>♁</u> 34'20 49.91884 AU				
morning rise	12769 Oct 05 08:27	19° <u>♁</u> 41'43	conjunction	12776 Oct 05 20:04	26° <u>♁</u> 11'57	-12°55'57
retrograde	12770 Jan 09 04:36	21° <u>♁</u> 02'27	minimum elong	12776 Oct 05 20:19	26° <u>♁</u> 11'58	12°55'36
opposition	12770 Apr 03 01:28	20° <u>♁</u> 03'12 -14°23'52	max. Earth dist.	12776 Oct 06 03:26	26° <u>♁</u> 12'22	49.75851 AU
min. Earth dist.	12770 Apr 02 12:01	20° <u>♁</u> 03'50 47.97575 AU	morning rise	12776 Oct 13 19:57	26° <u>♁</u> 22'52	
direct	12770 Jun 24 07:44	19° <u>♁</u> 04'39	retrograde	12777 Jan 15 16:20	27° <u>♁</u> 40'41	
evening set	12770 Sep 24 08:55	20° <u>♁</u> 22'09	opposition	12777 Apr 09 11:37	26° <u>♁</u> 41'22	-13°23'22
			min. Earth dist.	12777 Apr 09 04:57	26° <u>♁</u> 41'40	47.79176 AU
conjunction	12770 Sep 30 14:32	20° <u>♁</u> 30'41 -13°45'51	direct	12777 Jun 30 14:49	25° <u>♁</u> 42'43	
minimum elong	12770 Sep 30 14:47	20° <u>♁</u> 30'42 13°45'37	evening set	12777 Sep 28 19:43	26° <u>♁</u> 57'24	
max. Earth dist.	12770 Oct 01 03:42	20° <u>♁</u> 31'26 49.91054 AU				
morning rise	12770 Oct 06 21:03	20° <u>♁</u> 39'17	conjunction	12777 Oct 07 00:51	27° <u>♁</u> 08'38	-12°46'52
retrograde	12771 Jan 10 11:34	21° <u>♁</u> 59'34	minimum elong	12777 Oct 07 01:07	27° <u>♁</u> 08'38	12°46'31
opposition	12771 Apr 04 06:35	21° <u>♁</u> 00'20 -14°15'51	max. Earth dist.	12777 Oct 07 06:40	27° <u>♁</u> 08'57	49.72007 AU
min. Earth dist.	12771 Apr 03 19:14	21° <u>♁</u> 00'52 47.96375 AU	morning rise	12777 Oct 15 07:15	27° <u>♁</u> 19'55	
direct	12771 Jun 25 11:09	20° <u>♁</u> 01'48	retrograde	12778 Jan 16 20:10	28° <u>♁</u> 37'24	
evening set	12771 Sep 25 06:43	21° <u>♁</u> 18'51	opposition	12778 Apr 10 16:34	27° <u>♁</u> 38'04	-13°13'48
			min. Earth dist.	12778 Apr 10 11:10	27° <u>♁</u> 38'19	47.75067 AU
conjunction	12771 Oct 01 19:39	21° <u>♁</u> 27'48 -13°38'03	direct	12778 Jul 01 19:47	26° <u>♁</u> 39'26	
minimum elong	12771 Oct 01 19:54	21° <u>♁</u> 27'49 13°37'47	evening set	12778 Sep 29 18:12	27° <u>♁</u> 53'48	
max. Earth dist.	12771 Oct 02 07:51	21° <u>♁</u> 28'30 49.89704 AU				
morning rise	12771 Oct 08 09:27	21° <u>♁</u> 36'49	conjunction	12778 Oct 08 05:42	28° <u>♁</u> 05'22	-12°37'33
retrograde	12772 Jan 11 15:54	22° <u>♁</u> 56'38	minimum elong	12778 Oct 08 05:56	28° <u>♁</u> 05'23	12°37'11
opposition	12772 Apr 04 11:23	21° <u>♁</u> 57'25 -14°07'38	max. Earth dist.	12778 Oct 08 11:54	28° <u>♁</u> 05'43	49.67869 AU
min. Earth dist.	12772 Apr 04 00:20	21° <u>♁</u> 57'55 47.94631 AU	morning rise	12778 Oct 16 18:15	28° <u>♁</u> 17'01	
direct	12772 Jun 25 14:05	20° <u>♁</u> 58'52	retrograde	12779 Jan 17 23:46	29° <u>♁</u> 34'11	
evening set	12772 Sep 25 04:33	22° <u>♁</u> 15'29	opposition	12779 Apr 11 21:27	28° <u>♁</u> 34'52	-13°04'01
			min. Earth dist.	12779 Apr 11 16:40	28° <u>♁</u> 35'05	47.70641 AU
conjunction	12772 Oct 02 00:36	22° <u>♁</u> 24'50 -13°30'03	direct	12779 Jul 03 03:11	27° <u>♁</u> 36'14	
minimum elong	12772 Oct 02 00:51	22° <u>♁</u> 24'51 13°29'47	evening set	12779 Sep 30 17:06	28° <u>♁</u> 50'18	
max. Earth dist.	12772 Oct 02 10:42	22° <u>♁</u> 25'25 49.87807 AU				
morning rise	12772 Oct 08 21:39	22° <u>♁</u> 34'15	conjunction	12779 Oct 09 10:35	29° <u>♁</u> 02'14	-12°28'00
retrograde	12773 Jan 11 20:24	23° <u>♁</u> 53'38	minimum elong	12779 Oct 09 10:50	29° <u>♁</u> 02'15	12°27'38
opposition	12773 Apr 05 16:23	22° <u>♁</u> 54'23 -13°59'13	max. Earth dist.	12779 Oct 09 15:10	29° <u>♁</u> 02'29	49.63419 AU
min. Earth dist.	12773 Apr 05 07:09	22° <u>♁</u> 54'49 47.92366 AU	morning rise	12779 Oct 18 05:21	29° <u>♁</u> 14'14	
direct	12773 Jun 26 19:12	21° <u>♁</u> 55'50		12779 Nov 24 06:48	0° <u>♁</u>	
evening set	12773 Sep 26 02:28	23° <u>♁</u> 12'01	retrograde	12780 Jan 19 07:14	0° <u>♁</u> 31'07	
				12780 Mar 16 17:21	30° <u>♁</u>	
conjunction	12773 Oct 03 05:30	23° <u>♁</u> 21'45 -13°21'51	opposition	12780 Apr 12 02:10	29° <u>♁</u> 31'48	-12°54'00
minimum elong	12773 Oct 03 05:46	23° <u>♁</u> 21'46 13°21'33	min. Earth dist.	12780 Apr 11 21:45	29° <u>♁</u> 32'00	47.65891 AU
max. Earth dist.	12773 Oct 03 15:33	23° <u>♁</u> 22'20 49.85412 AU	direct	12780 Jul 03 06:46	28° <u>♁</u> 33'11	
morning rise	12773 Oct 10 09:28	23° <u>♁</u> 31'34	evening set	12780 Sep 30 16:00	29° <u>♁</u> 46'59	
retrograde	12774 Jan 12 22:39	24° <u>♁</u> 50'32				

conjunction	12780 Oct 09 15:36	29° <u>♄</u> 59'15	-12°18'14	retrograde	12787 Jan 25 23:58	7° <u>♊</u> 13'35	
minimum elong	12780 Oct 09 15:50	29° <u>♄</u> 59'16	12°17'50	opposition	12787 Apr 19 13:02	6° <u>♊</u> 14'04	-11°37'58
max. Earth dist.	12780 Oct 09 19:30	29° <u>♄</u> 59'28	49.58603 AU	min. Earth dist.	12787 Apr 19 16:09	6° <u>♊</u> 13'55	47.19389 AU
	12780 Oct 10 04:43	0° <u>♊</u>		direct	12787 Jul 10 12:37	5° <u>♊</u> 15'11	
morning rise	12780 Oct 18 16:27	0° <u>♊</u> 11'37		evening set	12787 Oct 06 13:21	6° <u>♊</u> 27'15	
retrograde	12781 Jan 19 14:27	1° <u>♊</u> 28'13					
opposition	12781 Apr 13 07:08	0° <u>♊</u> 28'55	-12°43'45	conjunction	12787 Oct 17 03:50	6° <u>♊</u> 41'47	-11°04'15
min. Earth dist.	12781 Apr 13 04:33	0° <u>♊</u> 29'02	47.60747 AU	minimum elong	12787 Oct 17 04:03	6° <u>♊</u> 41'48	11°03'46
	12781 May 10 08:46	30° <u>♈</u>		max. Earth dist.	12787 Oct 16 23:13	6° <u>♊</u> 41'31	49.11365 AU
direct	12781 Jul 04 09:49	29° <u>♄</u> 30'19		morning rise	12787 Oct 27 19:56	6° <u>♊</u> 56'26	
	12781 Aug 27 00:03	0° <u>♊</u>		retrograde	12788 Jan 27 04:04	8° <u>♊</u> 11'15	
evening set	12781 Oct 01 15:07	0° <u>♊</u> 43'51		opposition	12788 Apr 19 18:00	7° <u>♊</u> 11'39	-11°26'16
				min. Earth dist.	12788 Apr 19 22:46	7° <u>♊</u> 11'26	47.10931 AU
conjunction	12781 Oct 10 20:34	0° <u>♊</u> 56'28	-12°08'16	direct	12788 Jul 10 17:23	6° <u>♊</u> 12'43	
minimum elong	12781 Oct 10 20:49	0° <u>♊</u> 56'29	12°07'52	evening set	12788 Oct 06 13:27	7° <u>♊</u> 24'33	
max. Earth dist.	12781 Oct 10 23:52	0° <u>♊</u> 56'39	49.53378 AU				
morning rise	12781 Oct 20 03:14	1° <u>♊</u> 09'10		conjunction	12788 Oct 17 09:12	7° <u>♊</u> 39'24	-10°52'51
retrograde	12782 Jan 20 19:52	2° <u>♊</u> 25'30		minimum elong	12788 Oct 17 09:27	7° <u>♊</u> 39'25	10°52'20
opposition	12782 Apr 14 12:01	1° <u>♊</u> 26'13	-12°33'18	max. Earth dist.	12788 Oct 17 04:53	7° <u>♊</u> 39'09	49.02872 AU
min. Earth dist.	12782 Apr 14 09:37	1° <u>♊</u> 26'20	47.55152 AU	morning rise	12788 Oct 28 06:22	7° <u>♊</u> 54'20	
direct	12782 Jul 05 12:02	0° <u>♊</u> 27'37		retrograde	12789 Jan 27 05:51	9° <u>♊</u> 08'57	
evening set	12782 Oct 02 14:31	1° <u>♊</u> 40'54		opposition	12789 Apr 20 23:03	8° <u>♊</u> 09'17	-11°14'19
				min. Earth dist.	12789 Apr 21 04:15	8° <u>♊</u> 09'02	47.02146 AU
conjunction	12782 Oct 12 01:40	1° <u>♊</u> 53'51	-11°58'05	direct	12789 Jul 12 01:20	7° <u>♊</u> 10'16	
minimum elong	12782 Oct 12 01:55	1° <u>♊</u> 53'52	11°57'39	evening set	12789 Oct 07 13:37	8° <u>♊</u> 21'55	
max. Earth dist.	12782 Oct 12 02:50	1° <u>♊</u> 53'55	49.47662 AU				
morning rise	12782 Oct 21 14:17	2° <u>♊</u> 06'53		conjunction	12789 Oct 18 14:19	8° <u>♊</u> 37'03	-10°41'13
retrograde	12783 Jan 22 00:58	3° <u>♊</u> 22'58		minimum elong	12789 Oct 18 14:32	8° <u>♊</u> 37'04	10°40'41
opposition	12783 Apr 15 17:03	2° <u>♊</u> 23'40	-12°22'38	max. Earth dist.	12789 Oct 18 08:25	8° <u>♊</u> 36'43	48.94081 AU
min. Earth dist.	12783 Apr 15 16:36	2° <u>♊</u> 23'42	47.49049 AU	morning rise	12789 Oct 29 16:39	8° <u>♊</u> 52'18	
direct	12783 Jul 06 16:02	1° <u>♊</u> 25'03		retrograde	12790 Jan 28 12:06	10° <u>♊</u> 06'44	
evening set	12783 Oct 03 14:02	2° <u>♊</u> 38'06		opposition	12790 Apr 22 04:10	9° <u>♊</u> 06'59	-11°02'07
				min. Earth dist.	12790 Apr 22 09:37	9° <u>♊</u> 06'44	46.93081 AU
conjunction	12783 Oct 13 07:00	2° <u>♊</u> 51'22	-11°47'43	direct	12790 Jul 13 06:18	8° <u>♊</u> 07'54	
minimum elong	12783 Oct 13 07:14	2° <u>♊</u> 51'23	11°47'17	evening set	12790 Oct 08 13:55	9° <u>♊</u> 19'22	
max. Earth dist.	12783 Oct 13 07:47	2° <u>♊</u> 51'25	49.41410 AU				
morning rise	12783 Oct 23 01:13	3° <u>♊</u> 04'44		conjunction	12790 Oct 19 19:43	9° <u>♊</u> 34'48	-10°29'21
retrograde	12784 Jan 23 03:28	4° <u>♊</u> 20'34		minimum elong	12790 Oct 19 19:57	9° <u>♊</u> 34'49	10°28'49
opposition	12784 Apr 15 22:03	3° <u>♊</u> 21'14	-12°11'47	max. Earth dist.	12790 Oct 19 13:23	9° <u>♊</u> 34'26	48.84999 AU
min. Earth dist.	12784 Apr 15 22:36	3° <u>♊</u> 21'13	47.42379 AU	morning rise	12790 Oct 31 03:06	9° <u>♊</u> 50'21	
direct	12784 Jul 07 00:18	2° <u>♊</u> 22'34		retrograde	12791 Jan 29 19:14	11° <u>♊</u> 04'36	
evening set	12784 Oct 03 13:49	3° <u>♊</u> 35'22		opposition	12791 Apr 23 09:22	10° <u>♊</u> 04'48	-10°49'41
				min. Earth dist.	12791 Apr 23 16:17	10° <u>♊</u> 04'29	46.83725 AU
conjunction	12784 Oct 13 12:11	3° <u>♊</u> 48'57	-11°37'09	direct	12791 Jul 14 11:18	9° <u>♊</u> 05'39	
minimum elong	12784 Oct 13 12:26	3° <u>♊</u> 48'58	11°36'42	evening set	12791 Oct 09 14:28	10° <u>♊</u> 16'57	
max. Earth dist.	12784 Oct 13 10:51	3° <u>♊</u> 48'53	49.34608 AU				
morning rise	12784 Oct 23 12:02	4° <u>♊</u> 02'39		conjunction	12791 Oct 21 01:11	10° <u>♊</u> 32'42	-10°17'15
retrograde	12785 Jan 23 10:04	5° <u>♊</u> 18'14		minimum elong	12791 Oct 21 01:24	10° <u>♊</u> 32'43	10°16'42
opposition	12785 Apr 17 02:57	4° <u>♊</u> 18'51	-12°00'44	max. Earth dist.	12791 Oct 20 18:30	10° <u>♊</u> 32'19	48.75640 AU
min. Earth dist.	12785 Apr 17 04:20	4° <u>♊</u> 18'47	47.35179 AU	morning rise	12791 Nov 01 13:26	10° <u>♊</u> 48'34	
direct	12785 Jul 08 06:03	3° <u>♊</u> 20'07		retrograde	12792 Jan 31 02:14	12° <u>♊</u> 02'38	
evening set	12785 Oct 04 13:31	4° <u>♊</u> 32'39		opposition	12792 Apr 23 14:31	11° <u>♊</u> 02'47	-10°37'01
				min. Earth dist.	12792 Apr 23 21:15	11° <u>♊</u> 02'28	46.74067 AU
conjunction	12785 Oct 14 17:28	4° <u>♊</u> 46'34	-11°26'24	direct	12792 Jul 14 14:01	10° <u>♊</u> 03'35	
minimum elong	12785 Oct 14 17:42	4° <u>♊</u> 46'35	11°25'56	evening set	12792 Oct 09 15:13	11° <u>♊</u> 14'45	
max. Earth dist.	12785 Oct 14 15:13	4° <u>♊</u> 46'27	49.27284 AU				
morning rise	12785 Oct 24 22:49	5° <u>♊</u> 00'35		conjunction	12792 Oct 21 06:39	11° <u>♊</u> 30'48	-10°04'56
retrograde	12786 Jan 24 18:39	6° <u>♊</u> 15'55		minimum elong	12792 Oct 21 06:53	11° <u>♊</u> 30'49	10°04'22
opposition	12786 Apr 18 08:04	5° <u>♊</u> 16'28	-11°49'28	max. Earth dist.	12792 Oct 20 22:11	11° <u>♊</u> 30'19	48.65946 AU
min. Earth dist.	12786 Apr 18 11:21	5° <u>♊</u> 16'18	47.27491 AU	morning rise	12792 Nov 01 23:53	11° <u>♊</u> 46'57	
direct	12786 Jul 09 09:42	4° <u>♊</u> 17'40		retrograde	12793 Jan 31 08:44	13° <u>♊</u> 00'53	
evening set	12786 Oct 05 13:20	5° <u>♊</u> 29'57		opposition	12793 Apr 24 19:48	12° <u>♊</u> 01'00	-10°24'07
				min. Earth dist.	12793 Apr 25 04:17	12° <u>♊</u> 00'36	46.64063 AU
conjunction	12786 Oct 15 22:36	5° <u>♊</u> 44'11	-11°15'26	direct	12793 Jul 15 17:03	11° <u>♊</u> 01'44	
minimum elong	12786 Oct 15 22:51	5° <u>♊</u> 44'12	11°14'57	evening set	12793 Oct 10 16:06	12° <u>♊</u> 12'48	
max. Earth dist.	12786 Oct 15 19:46	5° <u>♊</u> 44'01	49.19523 AU				
morning rise	12786 Oct 26 09:16	5° <u>♊</u> 58'31		conjunction	12793 Oct 22 12:24	12° <u>♊</u> 29'08	-9°52'23

minimum elong	12793 Oct 22 12:37	12° ℓ 29'09	9°51'48	morning rise	12799 Nov 11 00:51	18° ℓ 42'05	
max. Earth dist.	12793 Oct 22 03:57	12° ℓ 28'39	48.55879 AU	retrograde	12800 Feb 08 01:56	19° ℓ 55'21	
morning rise	12793 Nov 03 10:14	12° ℓ 45'35		opposition	12800 May 01 10:57	18° ℓ 54'52	-8°47'36
retrograde	12794 Feb 01 12:23	13° ℓ 59'25		min. Earth dist.	12800 May 02 02:07	18° ℓ 54'08	45.81119 AU
opposition	12794 Apr 26 01:11	12° ℓ 59'28	-10°10'59	direct	12800 Jul 22 09:28	17° ℓ 54'57	
min. Earth dist.	12794 Apr 26 10:18	12° ℓ 59'02	46.53644 AU	evening set	12800 Oct 16 03:56	19° ℓ 05'26	
direct	12794 Jul 17 00:22	12° ℓ 00'09					
evening set	12794 Oct 11 17:17	13° ℓ 11'06		conjunction	12800 Oct 29 06:38	19° ℓ 23'45	-8°18'40
				minimum elong	12800 Oct 29 06:50	19° ℓ 23'45	8°18'00
conjunction	12794 Oct 23 18:05	13° ℓ 27'44	-9°39'38	max. Earth dist.	12800 Oct 28 14:00	19° ℓ 22'46	47.72326 AU
minimum elong	12794 Oct 23 18:18	13° ℓ 27'45	9°39'03	morning rise	12800 Nov 11 11:09	19° ℓ 42'11	
max. Earth dist.	12794 Oct 23 07:42	13° ℓ 27'08	48.45371 AU	retrograde	12801 Feb 08 09:20	20° ℓ 55'24	
morning rise	12794 Nov 04 20:41	13° ℓ 44'29		opposition	12801 May 02 16:50	19° ℓ 54'48	-8°32'53
retrograde	12795 Feb 02 18:49	14° ℓ 58'12		min. Earth dist.	12801 May 03 09:21	19° ℓ 54'01	45.67691 AU
opposition	12795 Apr 27 06:42	13° ℓ 58'11	-9°57'38	direct	12801 Jul 23 15:39	18° ℓ 54'46	
min. Earth dist.	12795 Apr 27 16:48	13° ℓ 57'43	46.42756 AU	evening set	12801 Oct 17 06:20	20° ℓ 05'14	
direct	12795 Jul 18 06:16	12° ℓ 58'48					
evening set	12795 Oct 12 18:42	14° ℓ 09'40		conjunction	12801 Oct 30 13:00	20° ℓ 23'49	-8°04'23
				minimum elong	12801 Oct 30 13:12	20° ℓ 23'49	8°03'42
conjunction	12795 Oct 25 00:08	14° ℓ 26'35	-9°26'40	max. Earth dist.	12801 Oct 29 20:01	20° ℓ 22'49	47.58900 AU
minimum elong	12795 Oct 25 00:21	14° ℓ 26'36	9°26'04	morning rise	12801 Nov 12 21:26	20° ℓ 42'31	
max. Earth dist.	12795 Oct 24 12:38	14° ℓ 25'55	48.34346 AU	retrograde	12802 Feb 09 17:58	21° ℓ 55'42	
morning rise	12795 Nov 06 07:16	14° ℓ 43'37		opposition	12802 May 03 22:44	20° ℓ 55'00	-8°17'55
	12795 Nov 18 13:22	15° ℓ		min. Earth dist.	12802 May 04 14:56	20° ℓ 54'14	45.54006 AU
retrograde	12796 Feb 04 03:00	15° ℓ 57'14		direct	12802 Jul 24 18:46	19° ℓ 54'52	
	12796 Apr 25 00:01	15° κ ℓ		evening set	12802 Oct 18 08:53	21° ℓ 05'19	
opposition	12796 Apr 27 12:14	14° ℓ 57'09	-9°44'04				
min. Earth dist.	12796 Apr 28 00:18	14° ℓ 56'35	46.31337 AU	conjunction	12802 Oct 31 19:21	21° ℓ 24'10	-7°49'52
direct	12796 Jul 18 11:02	13° ℓ 57'41		minimum elong	12802 Oct 31 19:32	21° ℓ 24'11	7°49'10
	12796 Oct 06 14:22	15° ℓ		max. Earth dist.	12802 Oct 31 00:45	21° ℓ 23'04	47.45208 AU
evening set	12796 Oct 12 20:19	15° ℓ 08'27		morning rise	12802 Nov 14 07:50	21° ℓ 43'09	
				retrograde	12803 Feb 11 02:56	22° ℓ 56'18	
conjunction	12796 Oct 25 06:12	15° ℓ 25'39	-9°13'30	opposition	12803 May 05 04:56	21° ℓ 55'31	-8°02'42
minimum elong	12796 Oct 25 06:24	15° ℓ 25'40	9°12'54	min. Earth dist.	12803 May 05 22:40	21° ℓ 54'40	45.40065 AU
max. Earth dist.	12796 Oct 24 17:42	15° ℓ 24'55	48.22811 AU	direct	12803 Jul 25 21:19	20° ℓ 55'16	
morning rise	12796 Nov 06 17:44	15° ℓ 42'58		evening set	12803 Oct 19 11:41	22° ℓ 05'44	
retrograde	12797 Feb 04 10:36	16° ℓ 56'28		max. Earth dist.	12803 Nov 01 07:48	22° ℓ 23'47	47.31256 AU
opposition	12797 Apr 28 17:48	15° ℓ 56'19	-9°30'18				
min. Earth dist.	12797 Apr 29 06:00	15° ℓ 55'44	46.19411 AU	conjunction	12803 Nov 02 02:07	22° ℓ 24'51	-7°35'06
	12797 Jul 02 09:03	15° κ ℓ		minimum elong	12803 Nov 02 02:18	22° ℓ 24'52	7°34'24
direct	12797 Jul 19 14:04	14° ℓ 56'44		morning rise	12803 Nov 15 18:13	22° ℓ 44'06	
	12797 Aug 05 19:26	15° ℓ		retrograde	12804 Feb 12 07:50	23° ℓ 57'16	
evening set	12797 Oct 13 21:56	16° ℓ 07'25		opposition	12804 May 05 11:00	22° ℓ 56'22	-7°47'13
				min. Earth dist.	12804 May 06 04:55	22° ℓ 55'31	45.25845 AU
conjunction	12797 Oct 26 12:04	16° ℓ 24'54	-9°00'08	direct	12804 Jul 26 04:44	21° ℓ 56'01	
minimum elong	12797 Oct 26 12:16	16° ℓ 24'55	8°59'30	evening set	12804 Oct 19 14:53	23° ℓ 06'32	
max. Earth dist.	12797 Oct 25 21:38	16° ℓ 24'03	48.10776 AU				
morning rise	12797 Nov 08 04:06	16° ℓ 42'30		conjunction	12804 Nov 02 08:50	23° ℓ 25'55	-7°20'06
retrograde	12798 Feb 05 16:37	17° ℓ 55'55		minimum elong	12804 Nov 02 09:00	23° ℓ 25'55	7°19'22
opposition	12798 Apr 29 23:35	16° ℓ 55'39	-9°16'18	max. Earth dist.	12804 Nov 01 12:51	23° ℓ 24'44	47.17016 AU
min. Earth dist.	12798 Apr 30 13:39	16° ℓ 54'59	46.07026 AU	morning rise	12804 Nov 16 04:46	23° ℓ 45'26	
direct	12798 Jul 20 19:12	15° ℓ 55'58		retrograde	12805 Feb 12 13:34	24° ℓ 58'37	
evening set	12798 Oct 14 23:42	17° ℓ 06'34		opposition	12805 May 06 17:22	23° ℓ 57'38	-7°31'30
				min. Earth dist.	12805 May 07 12:10	23° ℓ 56'43	45.11321 AU
conjunction	12798 Oct 27 18:15	17° ℓ 24'19	-8°46'32	direct	12805 Jul 27 11:58	22° ℓ 57'10	
minimum elong	12798 Oct 27 18:27	17° ℓ 24'20	8°45'54	evening set	12805 Oct 20 18:05	24° ℓ 07'44	
max. Earth dist.	12798 Oct 27 03:52	17° ℓ 23'29	47.98314 AU				
morning rise	12798 Nov 09 14:25	17° ℓ 42'12		conjunction	12805 Nov 03 15:42	24° ℓ 27'22	-7°04'52
retrograde	12799 Feb 06 19:17	18° ℓ 55'32		minimum elong	12805 Nov 03 15:52	24° ℓ 27'23	7°04'09
opposition	12799 May 01 05:13	17° ℓ 55'09	-9°02'04	max. Earth dist.	12805 Nov 02 19:06	24° ℓ 26'09	47.02420 AU
min. Earth dist.	12799 May 01 19:46	17° ℓ 54'27	45.94239 AU	morning rise	12805 Nov 17 15:09	24° ℓ 47'09	
direct	12799 Jul 22 03:28	16° ℓ 55'21		retrograde	12806 Feb 13 21:13	26° ℓ 00'24	
evening set	12799 Oct 16 01:48	18° ℓ 05'54		opposition	12806 May 07 23:58	24° ℓ 59'19	-7°15'32
max. Earth dist.	12799 Oct 28 08:12	18° ℓ 22'59	47.85487 AU	min. Earth dist.	12806 May 08 20:21	24° ℓ 58'19	44.96408 AU
				direct	12806 Jul 28 19:23	23° ℓ 58'44	
conjunction	12799 Oct 29 00:22	18° ℓ 23'56	-8°32'43	evening set	12806 Oct 21 21:51	25° ℓ 09'21	
minimum elong	12799 Oct 29 00:34	18° ℓ 23'57	8°32'03				

conjunction	12806 Nov 04 22:55	25° \mathcal{M} 29'15	-6°49'24	max. Earth dist.	12812 Nov 09 16:02	1° \mathcal{A} 45'47	45.87554 AU
minimum elong	12806 Nov 04 23:05	25° \mathcal{M} 29'16	6°48'40	morning rise	12812 Nov 25 18:46	2° \mathcal{A} 09'04	
max. Earth dist.	12806 Nov 04 01:23	25° \mathcal{M} 27'58	46.87415 AU	retrograde	12813 Feb 21 08:54	3° \mathcal{A} 22'49	
morning rise	12806 Nov 19 01:49	25° \mathcal{M} 49'18		opposition	12813 May 15 01:23	2° \mathcal{A} 20'37	-5°17'10
retrograde	12807 Feb 15 07:22	27° \mathcal{M} 02'35		min. Earth dist.	12813 May 16 04:55	2° \mathcal{A} 19'16	43.79324 AU
opposition	12807 May 09 06:30	26° \mathcal{M} 01'23	-6°59'21	direct	12813 Aug 04 14:27	1° \mathcal{A} 18'50	
min. Earth dist.	12807 May 10 03:05	26° \mathcal{M} 00'24	44.81050 AU	evening set	12813 Oct 28 07:03	2° \mathcal{A} 30'08	
direct	12807 Jul 29 23:25	25° \mathcal{M} 00'41		max. Earth dist.	12813 Nov 11 00:32	2° \mathcal{A} 50'00	45.69652 AU
evening set	12807 Oct 23 01:57	26° \mathcal{M} 11'22					
max. Earth dist.	12807 Nov 05 06:37	26° \mathcal{M} 30'07	46.71916 AU	conjunction	12813 Nov 12 05:24	2° \mathcal{A} 51'46	-4°54'54
				minimum elong	12813 Nov 12 05:31	2° \mathcal{A} 51'46	4°54'05
conjunction	12807 Nov 06 06:19	26° \mathcal{M} 31'32	-6°33'44	morning rise	12813 Nov 27 05:25	3° \mathcal{A} 13'31	
minimum elong	12807 Nov 06 06:28	26° \mathcal{M} 31'32	6°32'59	retrograde	12814 Feb 22 16:45	4° \mathcal{A} 27'24	
morning rise	12807 Nov 20 12:43	26° \mathcal{M} 51'50		opposition	12814 May 16 09:01	3° \mathcal{A} 25'03	-4°59'15
retrograde	12808 Feb 16 16:31	28° \mathcal{M} 05'10		min. Earth dist.	12814 May 17 12:21	3° \mathcal{A} 23'42	43.61201 AU
opposition	12808 May 09 13:25	27° \mathcal{M} 03'50	-6°42'55	direct	12814 Aug 05 22:04	2° \mathcal{A} 23'04	
min. Earth dist.	12808 May 10 12:14	27° \mathcal{M} 02'44	44.65185 AU	evening set	12814 Oct 29 13:01	3° \mathcal{A} 34'34	
direct	12808 Jul 30 04:05	26° \mathcal{M} 02'58		max. Earth dist.	12814 Nov 12 07:13	3° \mathcal{A} 54'33	45.51505 AU
evening set	12808 Oct 23 06:08	27° \mathcal{M} 13'44					
				conjunction	12814 Nov 13 13:45	3° \mathcal{A} 56'25	-4°37'35
conjunction	12808 Nov 06 13:54	27° \mathcal{M} 34'08	-6°17'50	minimum elong	12814 Nov 13 13:52	3° \mathcal{A} 56'26	4°36'46
minimum elong	12808 Nov 06 14:03	27° \mathcal{M} 34'09	6°17'03	morning rise	12814 Nov 28 16:29	4° \mathcal{A} 18'25	
max. Earth dist.	12808 Nov 05 13:53	27° \mathcal{M} 32'42	46.55907 AU	retrograde	12815 Feb 24 01:08	5° \mathcal{A} 32'28	
morning rise	12808 Nov 20 23:22	27° \mathcal{M} 54'41		opposition	12815 May 17 16:48	4° \mathcal{A} 29'57	-4°41'04
retrograde	12809 Feb 16 22:27	29° \mathcal{M} 08'04		min. Earth dist.	12815 May 18 21:09	4° \mathcal{A} 28'32	43.42852 AU
opposition	12809 May 10 20:19	28° \mathcal{M} 06'35	-6°26'15	direct	12815 Aug 07 05:37	3° \mathcal{A} 27'48	
min. Earth dist.	12809 May 11 19:37	28° \mathcal{M} 05'27	44.48809 AU	evening set	12815 Oct 30 19:11	4° \mathcal{A} 39'30	
direct	12809 Jul 31 12:00	27° \mathcal{M} 05'33					
evening set	12809 Oct 24 10:43	28° \mathcal{M} 16'23		conjunction	12815 Nov 14 22:29	5° \mathcal{A} 01'36	-4°20'02
				minimum elong	12815 Nov 14 22:35	5° \mathcal{A} 01'36	4°19'12
conjunction	12809 Nov 07 21:29	28° \mathcal{M} 37'03	-6°01'43	max. Earth dist.	12815 Nov 13 15:40	4° \mathcal{A} 59'42	45.33114 AU
minimum elong	12809 Nov 07 21:37	28° \mathcal{M} 37'03	6°00'57	morning rise	12815 Nov 30 03:30	5° \mathcal{A} 23'50	
max. Earth dist.	12809 Nov 06 19:17	28° \mathcal{M} 35'28	46.39417 AU	retrograde	12816 Feb 25 08:23	6° \mathcal{A} 38'06	
morning rise	12809 Nov 22 10:15	28° \mathcal{M} 57'51		opposition	12816 May 18 00:52	5° \mathcal{A} 35'25	-4°22'38
	12810 Jan 17 01:22	0° \mathcal{A}		min. Earth dist.	12816 May 19 06:09	5° \mathcal{A} 33'57	43.24250 AU
retrograde	12810 Feb 18 05:48	0° \mathcal{A} 11'17		direct	12816 Aug 07 15:18	4° \mathcal{A} 33'06	
	12810 Mar 22 18:37	30° $\mathcal{R}\mathcal{M}$		evening set	12816 Oct 31 01:42	5° \mathcal{A} 45'02	
opposition	12810 May 12 03:24	29° \mathcal{M} 09'38	-6°09'21	max. Earth dist.	12816 Nov 13 23:40	6° \mathcal{A} 05'25	45.14475 AU
min. Earth dist.	12810 May 13 03:51	29° \mathcal{M} 08'26	44.31990 AU				
direct	12810 Aug 01 19:24	28° \mathcal{M} 08'25		conjunction	12816 Nov 15 07:14	6° \mathcal{A} 07'22	-4°02'15
evening set	12810 Oct 25 15:20	29° \mathcal{M} 19'20		minimum elong	12816 Nov 15 07:21	6° \mathcal{A} 07'22	4°01'24
max. Earth dist.	12810 Nov 08 02:30	29° \mathcal{M} 38'37	46.22486 AU	morning rise	12816 Nov 30 14:34	6° \mathcal{A} 29'50	
				retrograde	12817 Feb 25 19:20	7° \mathcal{A} 44'20	
conjunction	12810 Nov 09 05:15	29° \mathcal{M} 40'14	-5°45'22	opposition	12817 May 19 09:00	6° \mathcal{A} 41'30	-4°03'57
minimum elong	12810 Nov 09 05:24	29° \mathcal{M} 40'15	5°44'34	min. Earth dist.	12817 May 20 14:18	6° \mathcal{A} 40'02	43.05384 AU
	12810 Nov 22 23:17	0° \mathcal{A}		direct	12817 Aug 08 21:29	5° \mathcal{A} 39'01	
morning rise	12810 Nov 23 20:59	0° \mathcal{A} 01'17		evening set	12817 Nov 01 08:44	6° \mathcal{A} 51'14	
retrograde	12811 Feb 19 12:28	1° \mathcal{A} 14'48		max. Earth dist.	12817 Nov 15 07:15	7° \mathcal{A} 11'44	44.95524 AU
opposition	12811 May 13 10:40	0° \mathcal{A} 12'58	-5°52'13				
min. Earth dist.	12811 May 14 12:29	0° \mathcal{A} 11'42	44.14757 AU	conjunction	12817 Nov 16 16:21	7° \mathcal{A} 13'47	-3°44'13
	12811 May 24 12:47	30° $\mathcal{R}\mathcal{M}$		minimum elong	12817 Nov 16 16:27	7° \mathcal{A} 13'47	3°43'21
direct	12811 Aug 03 03:58	29° \mathcal{M} 11'34		morning rise	12817 Dec 02 01:52	7° \mathcal{A} 36'29	
	12811 Oct 10 04:09	0° \mathcal{A}		retrograde	12818 Feb 27 07:12	8° \mathcal{A} 51'14	
evening set	12811 Oct 26 20:24	0° \mathcal{A} 22'35		opposition	12818 May 20 17:32	7° \mathcal{A} 48'16	-3°45'00
max. Earth dist.	12811 Nov 09 09:39	0° \mathcal{A} 42'03	46.05186 AU	min. Earth dist.	12818 May 22 00:49	7° \mathcal{A} 46'41	42.86187 AU
				direct	12818 Aug 10 02:48	6° \mathcal{A} 45'36	
conjunction	12811 Nov 10 13:13	0° \mathcal{A} 43'43	-5°28'47	evening set	12818 Nov 02 16:02	7° \mathcal{A} 58'06	
minimum elong	12811 Nov 10 13:21	0° \mathcal{A} 43'44	5°27'59	max. Earth dist.	12818 Nov 16 16:33	8° \mathcal{A} 18'48	44.76210 AU
morning rise	12811 Nov 25 07:52	1° \mathcal{A} 05'01					
retrograde	12812 Feb 20 21:42	2° \mathcal{A} 18'38		conjunction	12818 Nov 18 01:50	8° \mathcal{A} 20'53	-3°25'56
opposition	12812 May 13 17:47	1° \mathcal{A} 16'37	-5°34'49	minimum elong	12818 Nov 18 01:55	8° \mathcal{A} 20'53	3°25'05
min. Earth dist.	12812 May 14 19:41	1° \mathcal{A} 15'21	43.97188 AU	morning rise	12818 Dec 03 13:13	8° \mathcal{A} 43'48	
direct	12812 Aug 03 10:05	0° \mathcal{A} 15'01		retrograde	12819 Feb 28 17:57	9° \mathcal{A} 58'49	
evening set	12812 Oct 27 01:44	1° \mathcal{A} 26'10		opposition	12819 May 22 02:12	8° \mathcal{A} 55'40	-3°25'48
				min. Earth dist.	12819 May 23 09:45	8° \mathcal{A} 54'05	42.66585 AU
conjunction	12812 Nov 10 21:15	1° \mathcal{A} 47'33	-5°11'58	direct	12819 Aug 11 10:50	7° \mathcal{A} 52'49	
minimum elong	12812 Nov 10 21:23	1° \mathcal{A} 47'33	5°11'09	evening set	12819 Nov 04 00:03	9° \mathcal{A} 05'38	

max. Earth dist.	12819 Nov 17 23:50	9°♂26'24	44.56454 AU	min. Earth dist.	12826 May 31 11:26	17°♂01'52	41.18488 AU
				direct	12826 Aug 19 03:31	15°♂59'11	
conjunction	12819 Nov 19 11:33	9°♂28'38	-3°07'26	evening set	12826 Nov 11 17:36	17°♂14'29	
minimum elong	12819 Nov 19 11:38	9°♂28'38	3°06'34	max. Earth dist.	12826 Nov 25 20:02	17°♂36'08	43.07586 AU
morning rise	12819 Dec 05 00:56	9°♂51'46					
retrograde	12820 Mar 01 04:56	11°♂07'03		conjunction	12826 Nov 27 13:58	17°♂38'51	-0°51'21
opposition	12820 May 22 11:05	10°♂03'44	-3°06'21	minimum elong	12826 Nov 27 13:59	17°♂38'51	0°50'26
min. Earth dist.	12820 May 23 20:18	10°♂02'03	42.46536 AU	morning rise	12826 Dec 13 11:51	18°♂03'21	
direct	12820 Aug 11 19:07	9°♂00'40		retrograde	12827 Mar 10 09:17	19°♂21'00	
evening set	12820 Nov 04 08:15	10°♂13'46		opposition	12827 May 31 07:55	18°♂15'57	-0°43'03
max. Earth dist.	12820 Nov 18 09:20	10°♂34'43	44.36231 AU	min. Earth dist.	12827 Jun 01 22:10	18°♂13'58	40.96358 AU
				direct	12827 Aug 20 14:02	17°♂11'01	
conjunction	12820 Nov 19 21:38	10°♂37'00	-2°48'42	evening set	12827 Nov 13 04:49	18°♂26'47	
minimum elong	12820 Nov 19 21:42	10°♂37'00	2°47'50	max. Earth dist.	12827 Nov 27 06:59	18°♂48'33	42.85388 AU
morning rise	12820 Dec 05 12:33	11°♂00'21					
retrograde	12821 Mar 02 13:10	12°♂15'55		conjunction	12827 Nov 29 01:46	18°♂51'20	-0°30'58
opposition	12821 May 23 20:19	11°♂12'23	-2°46'39	minimum elong	12827 Nov 29 01:46	18°♂51'20	0°30'02
min. Earth dist.	12821 May 25 06:38	11°♂10'38	42.26024 AU	morning rise	12827 Dec 15 00:04	19°♂16'00	
direct	12821 Aug 13 05:41	10°♂09'05		retrograde	12828 Mar 10 20:46	20°♂34'06	
evening set	12821 Nov 05 16:44	11°♂22'30		opposition	12828 May 31 18:48	19°♂28'49	-0°21'34
max. Earth dist.	12821 Nov 19 18:02	11°♂43'33	44.15577 AU	min. Earth dist.	12828 Jun 02 10:23	19°♂26'44	40.74074 AU
				direct	12828 Aug 21 00:08	18°♂23'36	
conjunction	12821 Nov 21 07:38	11°♂45'55	-2°29'44	evening set	12828 Nov 13 16:27	19°♂39'53	
minimum elong	12821 Nov 21 07:42	11°♂45'55	2°28'51	max. Earth dist.	12828 Nov 27 19:08	20°♂01'48	42.63047 AU
morning rise	12821 Dec 07 00:13	12°♂09'29					
retrograde	12822 Mar 03 22:45	13°♂25'21		conjunction	12828 Nov 29 13:51	20°♂04'35	-0°10'23
opposition	12822 May 25 05:40	12°♂21'35	-2°26'41	minimum elong	12828 Nov 29 13:51	20°♂04'35	0°09'27
min. Earth dist.	12822 May 26 16:28	12°♂19'48	42.05109 AU	behind sun begin	12828 Nov 29 08:28	20°♂04'16	
direct	12822 Aug 14 15:25	11°♂18'01		behind sun end	12828 Nov 29 19:13	20°♂04'55	
evening set	12822 Nov 07 01:44	12°♂31'46		morning rise	12828 Dec 15 12:27	20°♂29'25	
max. Earth dist.	12822 Nov 21 02:51	12°♂52'54	43.94520 AU	retrograde	12829 Mar 12 10:34	21°♂48'01	
				asc. node	12829 May 30 03:02	20°♂46'27	
conjunction	12822 Nov 22 18:03	12°♂55'23	-2°10'32	opposition	12829 Jun 02 05:58	20°♂42'30	0°00'11
minimum elong	12822 Nov 22 18:07	12°♂55'23	2°09'39	min. Earth dist.	12829 Jun 03 21:12	20°♂40'26	40.51633 AU
morning rise	12822 Dec 08 12:02	13°♂19'09		direct	12829 Aug 22 09:25	19°♂37'01	
retrograde	12823 Mar 05 11:15	14°♂35'20		evening set	12829 Nov 15 04:39	20°♂53'51	
opposition	12823 May 26 15:14	13°♂31'19	-2°06'29	max. Earth dist.	12829 Nov 29 05:33	21°♂15'47	42.40507 AU
min. Earth dist.	12823 May 28 03:52	13°♂29'26	41.83835 AU				
direct	12823 Aug 15 22:41	12°♂27'29		conjunction	12829 Dec 01 02:05	21°♂18'43	0°10'32
evening set	12823 Nov 08 11:03	13°♂41'34		minimum elong	12829 Dec 01 02:04	21°♂18'43	0°11'29
max. Earth dist.	12823 Nov 22 13:33	14°♂02'54	43.73142 AU	behind sun begin	12829 Nov 30 21:26	21°♂18'26	
				behind sun end	12829 Dec 01 06:42	21°♂19'00	
conjunction	12823 Nov 24 04:46	14°♂05'23	-1°51'06	morning rise	12829 Dec 17 00:56	21°♂43'42	
minimum elong	12823 Nov 24 04:49	14°♂05'24	1°50'11	retrograde	12830 Mar 14 03:03	23°♂02'50	
morning rise	12823 Dec 09 23:53	14°♂29'20		opposition	12830 Jun 03 17:37	21°♂57'05	0°22'11
retrograde	12824 Mar 05 23:40	15°♂45'51		min. Earth dist.	12830 Jun 05 10:32	21°♂54'55	40.28978 AU
opposition	12824 May 27 00:58	14°♂41'35	-1°46'01	direct	12830 Aug 23 17:20	20°♂51'20	
min. Earth dist.	12824 May 28 13:22	14°♂39'42	41.62269 AU	evening set	12830 Nov 16 17:29	22°♂08'45	
direct	12824 Aug 16 06:09	13°♂37'28		max. Earth dist.	12830 Nov 30 18:35	22°♂30'50	42.17706 AU
evening set	12824 Nov 08 20:50	14°♂51'56					
max. Earth dist.	12824 Nov 22 22:26	15°♂13'19	43.51487 AU	conjunction	12830 Dec 02 15:03	22°♂33'46	0°31'35
				minimum elong	12830 Dec 02 15:02	22°♂33'46	0°32'32
conjunction	12824 Nov 24 15:27	15°♂15'57	-1°31'25	morning rise	12830 Dec 18 13:40	22°♂58'54	
minimum elong	12824 Nov 24 15:29	15°♂15'57	1°30'30	retrograde	12831 Mar 15 16:08	24°♂18'36	
morning rise	12824 Dec 10 11:45	15°♂40'05		opposition	12831 Jun 05 05:23	23°♂12'35	0°44'25
retrograde	12825 Mar 07 12:06	16°♂56'57		min. Earth dist.	12831 Jun 06 22:44	23°♂10'23	40.06029 AU
opposition	12825 May 28 11:03	15°♂52'25	-1°25'17	direct	12831 Aug 25 05:20	22°♂06'34	
min. Earth dist.	12825 May 30 00:50	15°♂50'28	41.40473 AU	evening set	12831 Nov 18 07:07	23°♂24'36	
direct	12825 Aug 17 15:05	14°♂48'01		max. Earth dist.	12831 Dec 02 05:59	23°♂46'40	41.94585 AU
evening set	12825 Nov 10 06:57	16°♂02'53					
max. Earth dist.	12825 Nov 24 09:46	16°♂24'27	43.29617 AU	conjunction	12831 Dec 04 04:19	23°♂49'46	0°52'51
				minimum elong	12831 Dec 04 04:17	23°♂49'46	0°53'48
conjunction	12825 Nov 26 02:38	16°♂27'05	-1°11'30	morning rise	12831 Dec 20 02:46	24°♂15'03	
minimum elong	12825 Nov 26 02:40	16°♂27'05	1°10'35	retrograde	12832 Mar 16 06:13	25°♂35'18	
morning rise	12825 Dec 11 23:40	16°♂51'24		opposition	12832 Jun 05 17:39	24°♂29'02	1°06'53
retrograde	12826 Mar 08 21:30	18°♂08'38		min. Earth dist.	12832 Jun 07 12:06	24°♂26'46	39.82749 AU
opposition	12826 May 29 21:21	17°♂03'51	-1°04'18	direct	12832 Aug 25 17:25	23°♂22'44	

evening set	12832 Nov 18 21:09	24° \nearrow 41'23		conjunction	12838 Dec 13 11:46	3° \searrow 07'56	3°27'28
max. Earth dist.	12832 Dec 02 18:32	25° \nearrow 03'30	41.71093 AU	minimum elong	12838 Dec 13 11:40	3° \searrow 07'56	3°28'27
				morning rise	12838 Dec 29 01:32	3° \searrow 33'52	
conjunction	12832 Dec 04 17:57	25° \nearrow 06'41	1°14'21	retrograde	12839 Mar 26 18:44	4° \searrow 59'01	
minimum elong	12832 Dec 04 17:55	25° \nearrow 06'41	1°15'18	opposition	12839 Jun 15 17:32	3° \searrow 50'35	3°50'26
morning rise	12832 Dec 20 15:45	25° \nearrow 32'06		min. Earth dist.	12839 Jun 17 16:30	3° \searrow 47'58	38.12592 AU
retrograde	12833 Mar 17 18:43	26° \nearrow 52'58		direct	12839 Sep 04 12:20	2° \searrow 41'51	
opposition	12833 Jun 07 06:24	25° \nearrow 46'25	1°29'35	evening set	12839 Nov 29 17:24	4° \searrow 05'52	
min. Earth dist.	12833 Jun 09 02:16	25° \nearrow 44'03	39.59106 AU	max. Earth dist.	12839 Dec 12 23:11	4° \searrow 28'01	39.99934 AU
direct	12833 Aug 27 06:29	24° \nearrow 39'48					
evening set	12833 Nov 20 11:50	25° \nearrow 59'06		conjunction	12839 Dec 15 04:16	4° \searrow 31'46	3°50'17
max. Earth dist.	12833 Dec 04 07:54	26° \nearrow 21'17	41.47269 AU	minimum elong	12839 Dec 15 04:10	4° \searrow 31'45	3°51'14
				morning rise	12839 Dec 30 15:43	4° \searrow 57'44	
conjunction	12833 Dec 06 07:58	26° \nearrow 24'31	1°36'03	retrograde	12840 Mar 27 11:38	6° \searrow 23'45	
minimum elong	12833 Dec 06 07:56	26° \nearrow 24'31	1°37'00	opposition	12840 Jun 16 09:01	5° \searrow 15'00	4°14'35
morning rise	12833 Dec 22 05:05	26° \nearrow 50'03		min. Earth dist.	12840 Jun 18 09:15	5° \searrow 12'18	37.87864 AU
retrograde	12834 Mar 19 09:32	28° \nearrow 11'33		direct	12840 Sep 05 00:44	4° \searrow 05'55	
opposition	12834 Jun 08 19:15	27° \nearrow 04'43	1°52'32	evening set	12840 Nov 30 12:41	5° \searrow 30'53	
min. Earth dist.	12834 Jun 10 15:09	27° \nearrow 02'20	39.35157 AU	max. Earth dist.	12840 Dec 13 16:32	5° \searrow 53'04	39.75101 AU
direct	12834 Aug 28 17:43	25° \nearrow 57'45					
evening set	12834 Nov 22 03:10	27° \nearrow 17'45		conjunction	12840 Dec 15 21:08	5° \searrow 56'48	4°13'13
max. Earth dist.	12834 Dec 05 20:24	27° \nearrow 39'53	41.23135 AU	minimum elong	12840 Dec 15 21:01	5° \searrow 56'47	4°14'12
				morning rise	12840 Dec 31 05:56	6° \searrow 22'47	
conjunction	12834 Dec 07 22:21	27° \nearrow 43'17	1°57'57	retrograde	12841 Mar 29 05:57	7° \searrow 49'44	
minimum elong	12834 Dec 07 22:18	27° \nearrow 43'16	1°58'56	opposition	12841 Jun 18 00:49	6° \searrow 40'40	4°38'54
morning rise	12834 Dec 23 18:34	28° \nearrow 08'55		min. Earth dist.	12841 Jun 20 00:26	6° \searrow 37'59	37.63108 AU
retrograde	12835 Mar 21 02:03	29° \nearrow 31'04		direct	12841 Sep 06 14:31	5° \searrow 31'14	
opposition	12835 Jun 10 08:39	28° \nearrow 23'55	2°15'42	evening set	12841 Dec 02 09:04	6° \searrow 57'12	
min. Earth dist.	12835 Jun 12 06:23	28° \nearrow 21'26	39.10938 AU	max. Earth dist.	12841 Dec 15 08:21	7° \searrow 19'15	39.50210 AU
direct	12835 Aug 30 04:28	27° \nearrow 16'37					
evening set	12835 Nov 23 19:03	28° \nearrow 37'20		conjunction	12841 Dec 17 14:34	7° \searrow 23'08	4°36'18
max. Earth dist.	12835 Dec 07 11:27	28° \nearrow 59'33	40.98754 AU	minimum elong	12841 Dec 17 14:27	7° \searrow 23'07	4°37'16
				morning rise	12842 Jan 01 20:38	7° \searrow 49'07	
conjunction	12835 Dec 09 13:13	29° \nearrow 02'58	2°20'03	retrograde	12842 Mar 31 03:18	9° \searrow 17'02	
minimum elong	12835 Dec 09 13:09	29° \nearrow 02'57	2°21'01	opposition	12842 Jun 19 17:08	8° \searrow 07'39	5°03'22
morning rise	12835 Dec 25 08:04	29° \nearrow 28'41		min. Earth dist.	12842 Jun 21 18:11	8° \searrow 04'53	37.38288 AU
	12836 Jan 15 00:19	0° \searrow		direct	12842 Sep 08 03:53	6° \searrow 57'53	
retrograde	12836 Mar 21 18:45	0° \searrow 51'32		evening set	12842 Dec 04 06:12	8° \searrow 24'54	
	12836 May 29 15:45	30° \nwarrow		max. Earth dist.	12842 Dec 17 02:44	8° \searrow 46'55	39.25204 AU
opposition	12836 Jun 10 22:11	29° \nearrow 44'04	2°39'04				
min. Earth dist.	12836 Jun 12 19:50	29° \nearrow 41'34	38.86508 AU	conjunction	12842 Dec 19 08:47	8° \searrow 50'49	4°59'30
direct	12836 Aug 30 17:35	28° \nearrow 36'24		minimum elong	12842 Dec 19 08:38	8° \searrow 50'48	5°00'29
evening set	12836 Nov 24 11:41	29° \nearrow 57'53		morning rise	12843 Jan 03 11:30	9° \searrow 16'47	
	12836 Nov 25 19:12	0° \searrow		retrograde	12843 Apr 01 23:41	10° \searrow 45'42	
max. Earth dist.	12836 Dec 08 00:47	0° \searrow 20'03	40.74193 AU	opposition	12843 Jun 21 10:02	9° \searrow 36'00	5°27'58
				min. Earth dist.	12843 Jun 23 11:27	9° \searrow 33'11	37.13323 AU
conjunction	12836 Dec 10 04:16	0° \searrow 23'36	2°42'21	direct	12843 Sep 09 20:59	8° \searrow 25'52	
minimum elong	12836 Dec 10 04:12	0° \searrow 23'36	2°43'20	evening set	12843 Dec 06 04:27	9° \searrow 53'59	
morning rise	12836 Dec 25 21:49	0° \searrow 49'24		max. Earth dist.	12843 Dec 18 19:48	10° \searrow 15'49	39.00026 AU
retrograde	12837 Mar 23 12:59	2° \searrow 12'59					
opposition	12837 Jun 12 12:16	1° \searrow 05'11	3°02'40	conjunction	12843 Dec 21 03:25	10° \searrow 19'52	5°22'48
min. Earth dist.	12837 Jun 14 10:53	1° \searrow 02'37	38.61948 AU	minimum elong	12843 Dec 21 03:16	10° \searrow 19'51	5°23'46
	12837 Aug 17 10:36	30° \nwarrow		morning rise	12844 Jan 05 02:44	10° \searrow 45'48	
direct	12837 Sep 01 06:17	29° \nearrow 57'10		retrograde	12844 Apr 02 20:58	12° \searrow 15'45	
	12837 Sep 16 02:26	0° \searrow		opposition	12844 Jun 22 03:21	11° \searrow 05'42	5°52'42
evening set	12837 Nov 26 04:42	1° \searrow 19'27		min. Earth dist.	12844 Jun 24 05:32	11° \searrow 02'50	36.88179 AU
max. Earth dist.	12837 Dec 09 16:20	1° \searrow 41'40	40.49502 AU	direct	12844 Sep 10 13:07	9° \searrow 55'10	
				evening set	12844 Dec 07 03:26	11° \searrow 24'26	
conjunction	12837 Dec 11 19:46	1° \searrow 45'14	3°04'50	max. Earth dist.	12844 Dec 19 14:11	11° \searrow 46'07	38.74630 AU
minimum elong	12837 Dec 11 19:41	1° \searrow 45'14	3°05'47				
morning rise	12837 Dec 27 11:26	2° \searrow 11'07		conjunction	12844 Dec 21 22:44	11° \searrow 50'16	5°46'13
retrograde	12838 Mar 25 03:16	3° \searrow 35'27		minimum elong	12844 Dec 21 22:34	11° \searrow 50'15	5°47'11
opposition	12838 Jun 14 02:48	2° \searrow 27'20	3°26'28	morning rise	12845 Jan 05 18:06	12° \searrow 16'08	
min. Earth dist.	12838 Jun 16 01:52	2° \searrow 24'44	38.37288 AU	retrograde	12845 Apr 04 14:53	13° \searrow 47'10	
direct	12838 Sep 02 21:29	1° \searrow 18'58		opposition	12845 Jun 23 21:25	12° \searrow 36'45	6°17'33
evening set	12838 Nov 27 22:41	2° \searrow 42'05		min. Earth dist.	12845 Jun 26 00:51	12° \searrow 33'47	36.62826 AU
max. Earth dist.	12838 Dec 11 07:47	3° \searrow 04'18	40.24745 AU	direct	12845 Sep 12 07:28	11° \searrow 25'49	

evening set	12845 Dec 09 03:16	12°♁56'13		opposition	12852 Jul 04 18:22	23°♁52'08	9°12'44
max. Earth dist.	12845 Dec 21 09:32	13°♁17'45	38.49046 AU	min. Earth dist.	12852 Jul 07 00:28	23°♁48'52	34.83874 AU
				direct	12852 Sep 22 20:11	22°♁38'02	
conjunction	12845 Dec 23 18:26	13°♁21'58	6°09'42	evening set	12852 Dec 22 05:55	24°♁18'16	
minimum elong	12845 Dec 23 18:16	13°♁21'57	6°10'40	max. Earth dist.	12853 Jan 01 17:41	24°♁37'53	36.68918 AU
morning rise	12846 Jan 07 09:39	13°♁47'45					
retrograde	12846 Apr 06 10:48	15°♁19'54		conjunction	12853 Jan 04 05:20	24°♁42'34	8°54'26
opposition	12846 Jun 25 15:50	14°♁09'06	6°42'30	minimum elong	12853 Jan 04 05:05	24°♁42'33	8°55'21
min. Earth dist.	12846 Jun 27 19:09	14°♁06'07	36.37305 AU	morning rise	12853 Jan 17 04:14	25°♁06'52	
direct	12846 Sep 14 01:17	12°♁57'43		retrograde	12853 Apr 18 06:07	26°♁48'26	
evening set	12846 Dec 11 04:10	14°♁29'21		opposition	12853 Jul 06 16:56	25°♁34'49	9°37'32
max. Earth dist.	12846 Dec 23 04:08	14°♁50'37	38.23289 AU	min. Earth dist.	12853 Jul 08 22:03	25°♁31'34	34.58800 AU
				direct	12853 Sep 24 16:44	24°♁20'17	
conjunction	12846 Dec 25 14:50	14°♁54'59	6°33'16	evening set	12853 Dec 24 14:00	26°♁02'13	
minimum elong	12846 Dec 25 14:38	14°♁54'58	6°34'13	max. Earth dist.	12854 Jan 03 17:17	26°♁21'21	36.43710 AU
morning rise	12847 Jan 09 01:33	15°♁20'39					
retrograde	12847 Apr 08 07:51	16°♁53'58		conjunction	12854 Jan 06 05:58	26°♁26'10	9°17'37
opposition	12847 Jun 27 10:49	15°♁42'46	7°07'31	minimum elong	12854 Jan 06 05:44	26°♁26'09	9°18'32
min. Earth dist.	12847 Jun 29 15:51	15°♁39'40	36.11657 AU	morning rise	12854 Jan 18 21:34	26°♁50'07	
direct	12847 Sep 15 16:45	14°♁30'56		retrograde	12854 Apr 20 08:05	28°♁33'19	
evening set	12847 Dec 13 05:56	16°♁03'49		opposition	12854 Jul 08 16:19	27°♁19'20	10°02'12
max. Earth dist.	12847 Dec 25 01:32	16°♁24'56	37.97432 AU	min. Earth dist.	12854 Jul 10 22:37	27°♁16'00	34.33914 AU
				direct	12854 Sep 26 12:23	26°♁04'23	
conjunction	12847 Dec 27 11:51	16°♁29'19	6°56'52	evening set	12854 Dec 26 23:27	27°♁48'05	
minimum elong	12847 Dec 27 11:40	16°♁29'18	6°57'49	max. Earth dist.	12855 Jan 05 19:47	28°♁06'52	36.18662 AU
morning rise	12848 Jan 10 17:30	16°♁54'50					
retrograde	12848 Apr 09 05:26	18°♁29'21		conjunction	12855 Jan 08 07:38	28°♁11'39	9°40'38
opposition	12848 Jun 28 06:18	17°♁17'45	7°32'35	minimum elong	12855 Jan 08 07:23	28°♁11'38	9°41'31
min. Earth dist.	12848 Jun 30 10:55	17°♁14'39	35.85947 AU	morning rise	12855 Jan 20 15:07	28°♁35'12	
direct	12848 Sep 16 12:05	16°♁05'28			12855 Mar 16 01:30	0°♁	
evening set	12848 Dec 14 08:36	17°♁39'40		retrograde	12855 Apr 22 10:58	0°♁20'07	
max. Earth dist.	12848 Dec 25 21:19	18°♁00'28	37.71540 AU		12855 May 30 12:43	30°♁	
				opposition	12855 Jul 10 16:13	29°♁05'45	10°26'39
conjunction	12848 Dec 28 09:05	18°♁05'00	7°20'28	min. Earth dist.	12855 Jul 12 22:03	29°♁02'26	34.09168 AU
minimum elong	12848 Dec 28 08:53	18°♁04'59	7°21'26	direct	12855 Sep 28 11:19	27°♁50'23	
morning rise	12849 Jan 11 09:35	18°♁30'20		evening set	12855 Dec 29 10:17	29°♁35'56	
retrograde	12849 Apr 11 06:18	20°♁06'08		max. Earth dist.	12856 Jan 07 20:39	29°♁54'07	35.93729 AU
opposition	12849 Jun 30 02:26	18°♁54'06	7°57'41				
min. Earth dist.	12849 Jul 02 07:56	18°♁50'56	35.60256 AU	conjunction	12856 Jan 10 09:55	29°♁59'04	10°03'26
direct	12849 Sep 18 06:05	17°♁41'21		minimum elong	12856 Jan 10 09:41	29°♁59'03	10°04'19
evening set	12849 Dec 16 12:15	19°♁16'58			12856 Jan 10 21:26	0°♁	
max. Earth dist.	12849 Dec 27 19:57	19°♁37'33	37.45677 AU	morning rise	12856 Jan 22 09:08	0°♁22'11	
				retrograde	12856 Apr 23 16:52	2°♁08'51	
conjunction	12849 Dec 30 07:16	19°♁42'05	7°44'04	opposition	12856 Jul 11 17:03	0°♁54'06	10°50'54
minimum elong	12849 Dec 30 07:04	19°♁42'04	7°45'01	min. Earth dist.	12856 Jul 13 23:39	0°♁50'43	33.84533 AU
morning rise	12850 Jan 13 01:52	20°♁07'13			12856 Aug 21 01:43	30°♁	
retrograde	12850 Apr 13 05:08	21°♁44'21		direct	12856 Sep 29 09:38	29°♁38'17	
opposition	12850 Jul 01 23:06	20°♁31'54	8°22'46		12856 Nov 07 04:54	0°♁	
min. Earth dist.	12850 Jul 04 04:42	20°♁28'42	35.34637 AU	evening set	12856 Dec 30 22:07	1°♁25'46	
direct	12850 Sep 20 02:49	19°♁18'41		max. Earth dist.	12857 Jan 09 00:08	1°♁43'26	35.68876 AU
evening set	12850 Dec 18 17:07	20°♁55'45					
max. Earth dist.	12850 Dec 29 18:01	21°♁16'01	37.19926 AU	conjunction	12857 Jan 11 13:00	1°♁48'24	10°25'59
				minimum elong	12857 Jan 11 12:44	1°♁48'23	10°26'51
conjunction	12851 Jan 01 05:56	21°♁20'38	8°07'37	morning rise	12857 Jan 23 03:05	2°♁11'00	
minimum elong	12851 Jan 01 05:42	21°♁20'37	8°08'34	retrograde	12857 Apr 25 20:43	3°♁59'30	
morning rise	12851 Jan 14 18:32	21°♁45'32		opposition	12857 Jul 13 18:42	2°♁44'21	11°14'53
retrograde	12851 Apr 15 05:54	23°♁24'03		min. Earth dist.	12857 Jul 16 01:29	2°♁40'56	33.59978 AU
opposition	12851 Jul 03 20:21	22°♁11'12	8°47'47	direct	12857 Oct 01 10:17	1°♁28'05	
min. Earth dist.	12851 Jul 06 01:46	22°♁08'00	35.09167 AU	evening set	12858 Jan 02 11:35	3°♁17'32	
direct	12851 Sep 21 23:23	20°♁57'32		max. Earth dist.	12858 Jan 11 03:20	3°♁34'33	35.44127 AU
evening set	12851 Dec 20 22:55	22°♁36'09					
max. Earth dist.	12851 Dec 31 17:01	22°♁56'04	36.94317 AU	conjunction	12858 Jan 13 16:51	3°♁39'37	10°48'15
				minimum elong	12858 Jan 13 16:35	3°♁39'36	10°49'07
conjunction	12852 Jan 03 05:18	23°♁00'46	8°31'05	morning rise	12858 Jan 24 21:32	4°♁01'40	
minimum elong	12852 Jan 03 05:05	23°♁00'45	8°32'01	retrograde	12858 Apr 28 03:57	5°♁52'02	
morning rise	12852 Jan 16 11:16	23°♁25'23		opposition	12858 Jul 15 20:50	4°♁36'28	11°38'34
retrograde	12852 Apr 16 04:55	25°♁05'23		min. Earth dist.	12858 Jul 18 03:33	4°♁33'02	33.35550 AU

direct	12858 Oct 03 12:52	3° \approx 19'43		conjunction	12865 Jan 27 16:56	17° \approx 29'49	13°11'30
evening set	12859 Jan 05 02:13	5° \approx 11'14		minimum elong	12865 Jan 27 16:40	17° \approx 29'48	13°12'13
max. Earth dist.	12859 Jan 13 07:37	5° \approx 27'33	35.19498 AU	morning rise	12865 Feb 04 09:35	17° \approx 46'02	
				retrograde	12865 May 12 10:02	19° \approx 51'39	
conjunction	12859 Jan 15 21:35	5° \approx 32'42	11°10'11	opposition	12865 Jul 29 09:53	18° \approx 33'03	14°10'31
minimum elong	12859 Jan 15 21:19	5° \approx 32'41	11°11'02	min. Earth dist.	12865 Jul 31 14:14	18° \approx 29'36	31.73091 AU
morning rise	12859 Jan 26 16:12	5° \approx 54'07		direct	12865 Oct 16 15:57	17° \approx 12'55	
retrograde	12859 Apr 30 09:56	7° \approx 46'27		evening set	12866 Jan 23 00:48	19° \approx 21'03	
opposition	12859 Jul 17 23:57	6° \approx 30'26	12°01'53	max. Earth dist.	12866 Jan 27 16:41	19° \approx 30'56	33.56626 AU
min. Earth dist.	12859 Jul 20 07:33	6° \approx 26'55	33.11273 AU				
direct	12859 Oct 05 15:09	5° \approx 13'12		conjunction	12866 Jan 30 03:07	19° \approx 36'07	13°29'21
evening set	12860 Jan 07 18:17	7° \approx 06'49		minimum elong	12866 Jan 30 02:53	19° \approx 36'06	13°30'04
max. Earth dist.	12860 Jan 15 13:26	7° \approx 22'26	34.95066 AU	morning rise	12866 Feb 06 04:44	19° \approx 51'09	
				retrograde	12866 May 14 20:37	21° \approx 59'20	
conjunction	12860 Jan 18 02:54	7° \approx 27'36	11°31'44	opposition	12866 Jul 31 18:21	20° \approx 40'22	14°29'23
minimum elong	12860 Jan 18 02:39	7° \approx 27'35	11°32'34	min. Earth dist.	12866 Aug 02 22:36	20° \approx 36'54	31.51875 AU
morning rise	12860 Jan 28 10:49	7° \approx 48'20		direct	12866 Oct 18 23:02	19° \approx 19'49	
retrograde	12860 May 01 15:44	9° \approx 42'40		evening set	12867 Jan 26 04:00	21° \approx 30'45	
opposition	12860 Jul 19 03:36	8° \approx 26'14	12°24'48	max. Earth dist.	12867 Jan 30 04:27	21° \approx 39'22	33.35445 AU
min. Earth dist.	12860 Jul 21 10:12	8° \approx 22'44	32.87230 AU				
direct	12860 Oct 06 18:24	7° \approx 08'30		conjunction	12867 Feb 01 14:06	21° \approx 44'32	13°46'22
evening set	12861 Jan 09 11:35	9° \approx 04'18		minimum elong	12867 Feb 01 13:52	21° \approx 44'31	13°47'03
max. Earth dist.	12861 Jan 16 18:45	9° \approx 19'03	34.70892 AU	morning rise	12867 Feb 07 23:37	21° \approx 58'16	
				retrograde	12867 May 17 10:43	24° \approx 09'07	
conjunction	12861 Jan 19 08:58	9° \approx 24'20	11°52'51	opposition	12867 Aug 03 03:38	22° \approx 49'49	14°47'19
minimum elong	12861 Jan 19 08:42	9° \approx 24'18	11°53'39	min. Earth dist.	12867 Aug 05 06:33	22° \approx 46'25	31.31220 AU
morning rise	12861 Jan 29 05:42	9° \approx 44'19		direct	12867 Oct 21 08:11	21° \approx 28'52	
retrograde	12861 May 03 21:15	11° \approx 40'44		evening set	12868 Jan 29 09:05	23° \approx 42'45	
opposition	12861 Jul 21 08:07	10° \approx 23'51	12°47'13	max. Earth dist.	12868 Feb 01 16:32	23° \approx 49'55	33.14790 AU
min. Earth dist.	12861 Jul 23 15:30	10° \approx 20'17	32.63496 AU				
direct	12861 Oct 08 20:02	9° \approx 05'36		conjunction	12868 Feb 04 01:53	23° \approx 55'06	14°02'29
evening set	12862 Jan 12 06:19	11° \approx 03'40		minimum elong	12868 Feb 04 01:41	23° \approx 55'05	14°03'09
max. Earth dist.	12862 Jan 19 03:05	11° \approx 17'41	34.47066 AU	morning rise	12868 Feb 09 18:09	24° \approx 07'23	
				retrograde	12868 May 18 23:56	26° \approx 21'03	
conjunction	12862 Jan 21 15:50	11° \approx 22'53	12°13'26	opposition	12868 Aug 04 13:57	25° \approx 01'24	15°04'16
minimum elong	12862 Jan 21 15:35	11° \approx 22'52	12°14'15	min. Earth dist.	12868 Aug 06 17:17	24° \approx 57'57	31.11076 AU
morning rise	12862 Jan 31 00:31	11° \approx 42'03		direct	12868 Oct 22 16:24	23° \approx 40'04	
retrograde	12862 May 06 04:02	13° \approx 40'37		evening set	12869 Jan 31 16:55	25° \approx 57'03	
opposition	12862 Jul 23 13:21	12° \approx 23'17	13°09'04	max. Earth dist.	12869 Feb 03 06:37	26° \approx 02'40	32.94665 AU
min. Earth dist.	12862 Jul 25 19:30	12° \approx 19'46	32.40138 AU				
direct	12862 Oct 10 23:41	11° \approx 04'33		conjunction	12869 Feb 05 14:36	26° \approx 07'46	14°17'38
evening set	12863 Jan 15 02:36	13° \approx 04'58		minimum elong	12869 Feb 05 14:24	26° \approx 07'45	14°18'16
max. Earth dist.	12863 Jan 21 10:01	13° \approx 17'59	34.23654 AU	morning rise	12869 Feb 10 11:47	26° \approx 18'27	
				retrograde	12869 May 21 13:36	28° \approx 35'04	
conjunction	12863 Jan 23 23:25	13° \approx 23'17	12°33'28	opposition	12869 Aug 07 00:55	27° \approx 15'05	15°20'11
minimum elong	12863 Jan 23 23:09	13° \approx 23'15	12°34'14	min. Earth dist.	12869 Aug 09 02:38	27° \approx 11'43	30.91437 AU
morning rise	12863 Feb 01 19:36	13° \approx 41'33		direct	12869 Oct 25 02:52	25° \approx 53'22	
	12863 Mar 16 09:33	15° \approx		evening set	12870 Feb 04 03:54	28° \approx 13'40	
retrograde	12863 May 08 13:06	15° \approx 42'23		max. Earth dist.	12870 Feb 05 19:49	28° \approx 17'20	32.75049 AU
	12863 Jul 02 07:19	15° \approx					
opposition	12863 Jul 25 19:18	14° \approx 24'36	13°30'18	conjunction	12870 Feb 08 04:06	28° \approx 22'30	14°31'47
min. Earth dist.	12863 Jul 28 01:36	14° \approx 21'03	32.17247 AU	minimum elong	12870 Feb 08 03:56	28° \approx 22'29	14°32'23
direct	12863 Oct 13 02:31	13° \approx 05'21		morning rise	12870 Feb 12 03:55	28° \approx 31'18	
	12864 Jan 14 00:36	15° \approx			12870 Mar 28 04:57	0° \approx	
evening set	12864 Jan 18 00:23	15° \approx 08'15		retrograde	12870 May 24 03:21	0° \approx 51'06	
max. Earth dist.	12864 Jan 23 20:08	15° \approx 20'22	34.00738 AU		12870 Jul 22 04:48	30° \approx	
				opposition	12870 Aug 09 12:54	29° \approx 30'47	15°34'59
conjunction	12864 Jan 26 07:55	15° \approx 25'34	12°52'50	min. Earth dist.	12870 Aug 11 14:55	29° \approx 27'23	30.72310 AU
minimum elong	12864 Jan 26 07:40	15° \approx 25'33	12°53'36	direct	12870 Oct 27 12:10	28° \approx 08'40	
morning rise	12864 Feb 03 14:39	15° \approx 42'52			12871 Jan 23 22:05	0° \approx	
retrograde	12864 May 09 21:51	17° \approx 46'01		evening set	12871 Feb 07 20:17	0° \approx 32'43	
opposition	12864 Jul 27 02:13	16° \approx 27'50	13°50'48	max. Earth dist.	12871 Feb 08 12:08	0° \approx 34'11	32.55974 AU
min. Earth dist.	12864 Jul 29 07:31	16° \approx 24'19	31.94876 AU				
direct	12864 Oct 14 09:13	15° \approx 08'08		conjunction	12871 Feb 10 18:31	0° \approx 39'13	14°44'50
evening set	12865 Jan 19 23:40	17° \approx 13'34		minimum elong	12871 Feb 10 18:21	0° \approx 39'12	14°45'23
max. Earth dist.	12865 Jan 25 05:16	17° \approx 24'35	33.78393 AU	morning rise	12871 Feb 13 16:24	0° \approx 45'42	
				retrograde	12871 May 26 17:37	3° \approx 09'05	

opposition	12871 Aug 12 01:30	1° ✕ 48'25	15°48'36	min. Earth dist.	12879 Sep 01 21:53	21° ✕ 07'14	29.32665 AU
min. Earth dist.	12871 Aug 14 02:06	1° ✕ 45'06	30.53722 AU	direct	12879 Nov 18 02:11	19° ✕ 45'01	
direct	12871 Oct 29 23:49	0° ✕ 25'55		max. Earth dist.	12880 Mar 02 16:54	22° ✕ 21'57	31.19120 AU
max. Earth dist.	12872 Feb 11 02:58	2° ✕ 52'45	32.37489 AU				
evening set	12872 Feb 12 02:56	2° ✕ 54'59		conjunction	12880 Mar 04 08:21	22° ✕ 25'50	15°40'59
				minimum elong	12880 Mar 04 08:29	22° ✕ 25'50	15°41'12
conjunction	12872 Feb 13 09:30	2° ✕ 57'50	14°56'43	retrograde	12880 Jun 17 12:21	25° ✕ 04'38	
minimum elong	12872 Feb 13 09:23	2° ✕ 57'50	14°57'15	opposition	12880 Sep 02 02:42	23° ✕ 41'41	16°43'55
morning rise	12872 Feb 14 15:51	3° ✕ 00'40		min. Earth dist.	12880 Sep 03 13:55	23° ✕ 39'11	29.21716 AU
retrograde	12872 May 28 09:24	5° ✕ 28'55		direct	12880 Nov 19 21:05	22° ✕ 16'38	
opposition	12872 Aug 13 14:58	4° ✕ 07'55	16°00'57	max. Earth dist.	12881 Mar 05 14:05	24° ✕ 54'26	31.08656 AU
min. Earth dist.	12872 Aug 15 15:08	4° ✕ 04'37	30.35749 AU				
direct	12872 Oct 31 10:36	2° ✕ 45'02		conjunction	12881 Mar 07 04:30	24° ✕ 58'13	15°39'14
max. Earth dist.	12873 Feb 12 20:52	5° ✕ 13'20	32.19657 AU	minimum elong	12881 Mar 07 04:37	24° ✕ 58'14	15°39'25
				retrograde	12881 Jun 20 07:45	27° ✕ 37'41	
conjunction	12873 Feb 15 01:13	5° ✕ 18'16	15°07'22	opposition	12881 Sep 04 21:53	26° ✕ 14'36	16°41'22
minimum elong	12873 Feb 15 01:06	5° ✕ 18'15	15°07'52	min. Earth dist.	12881 Sep 06 08:07	26° ✕ 12'10	29.11688 AU
retrograde	12873 May 31 00:09	7° ✕ 50'31		direct	12881 Nov 22 14:55	24° ✕ 49'24	
opposition	12873 Aug 16 05:10	6° ✕ 29'11	16°11'56	max. Earth dist.	12882 Mar 08 13:57	27° ✕ 28'10	30.99128 AU
min. Earth dist.	12873 Aug 18 04:10	6° ✕ 25'56	30.18435 AU				
direct	12873 Nov 03 01:00	5° ✕ 05'56		conjunction	12882 Mar 10 01:20	27° ✕ 31'40	15°35'47
max. Earth dist.	12874 Feb 15 13:42	7° ✕ 35'30	32.02553 AU	minimum elong	12882 Mar 10 01:32	27° ✕ 31'41	15°35'55
					12882 May 28 12:00	0° ∇	
conjunction	12874 Feb 17 17:35	7° ✕ 40'25	15°16'43	retrograde	12882 Jun 23 03:43	0° ∇ 11'39	
minimum elong	12874 Feb 17 17:31	7° ✕ 40'25	15°17'11		12882 Jul 19 03:31	30° ✕	
retrograde	12874 Jun 02 17:53	10° ✕ 13'47		opposition	12882 Sep 07 17:22	28° ✕ 48'28	16°36'58
opposition	12874 Aug 18 19:52	8° ✕ 52'08	16°21'28	min. Earth dist.	12882 Sep 09 01:35	28° ✕ 46'10	29.02550 AU
min. Earth dist.	12874 Aug 20 17:25	8° ✕ 48'58	30.01875 AU	direct	12882 Nov 25 10:58	27° ✕ 23'09	
direct	12874 Nov 05 15:34	7° ✕ 28'30			12883 Mar 10 10:20	0° ∇	
max. Earth dist.	12875 Feb 18 09:04	9° ✕ 59'29	31.86245 AU	max. Earth dist.	12883 Mar 11 11:44	0° ∇ 02'31	30.90529 AU
conjunction	12875 Feb 20 10:45	10° ✕ 04'13	15°24'40	conjunction	12883 Mar 12 22:20	0° ∇ 05'57	15°30'34
minimum elong	12875 Feb 20 10:41	10° ✕ 04'13	15°25'05	minimum elong	12883 Mar 12 22:32	0° ∇ 05'59	15°30'41
retrograde	12875 Jun 05 10:11	12° ✕ 38'39		retrograde	12883 Jun 26 00:37	2° ∇ 46'23	
opposition	12875 Aug 21 11:32	11° ✕ 16'41	16°29'29	opposition	12883 Sep 10 13:21	1° ∇ 23'04	16°30'40
min. Earth dist.	12875 Aug 23 08:12	11° ✕ 13'34	29.86130 AU	min. Earth dist.	12883 Sep 11 19:50	1° ∇ 20'54	28.94332 AU
direct	12875 Nov 08 06:06	9° ✕ 52'44			12883 Nov 16 11:49	30° ✕	
max. Earth dist.	12876 Feb 21 04:06	12° ✕ 24'58	31.70835 AU	direct	12883 Nov 28 05:41	29° ✕ 57'38	
					12883 Dec 09 23:35	0° ∇	
conjunction	12876 Feb 23 04:12	12° ✕ 29'35	15°31'08				
minimum elong	12876 Feb 23 04:11	12° ✕ 29'35	15°31'31	conjunction	12884 Mar 14 19:32	2° ∇ 40'53	15°23'37
retrograde	12876 Jun 07 05:54	15° ✕ 05'01		minimum elong	12884 Mar 14 19:48	2° ∇ 40'55	15°23'41
opposition	12876 Aug 23 03:43	13° ✕ 42'46	16°35'52	max. Earth dist.	12884 Mar 13 12:08	2° ∇ 37'46	30.82880 AU
min. Earth dist.	12876 Aug 24 21:55	13° ✕ 39'49	29.71299 AU	retrograde	12884 Jun 27 19:06	5° ∇ 21'38	
direct	12876 Nov 09 23:22	12° ✕ 18'31		opposition	12884 Sep 12 09:41	3° ∇ 58'14	16°22'29
max. Earth dist.	12877 Feb 23 00:20	14° ✕ 52'01	31.56383 AU	min. Earth dist.	12884 Sep 13 14:27	3° ∇ 56'11	28.87035 AU
				direct	12884 Nov 30 02:33	2° ∇ 32'42	
conjunction	12877 Feb 24 22:27	14° ✕ 56'28	15°36'03	max. Earth dist.	12885 Mar 16 10:34	5° ∇ 13'15	30.76213 AU
minimum elong	12877 Feb 24 22:26	14° ✕ 56'28	15°36'25				
retrograde	12877 Jun 09 23:42	17° ✕ 32'51		conjunction	12885 Mar 17 16:51	5° ∇ 16'16	15°14'55
opposition	12877 Aug 25 20:37	16° ✕ 10'22	16°40'33	minimum elong	12885 Mar 17 17:06	5° ∇ 16'17	15°14'56
min. Earth dist.	12877 Aug 27 14:00	16° ✕ 07'28	29.57434 AU	retrograde	12885 Jun 30 15:51	7° ∇ 57'13	
direct	12877 Nov 12 15:37	14° ✕ 45'52		opposition	12885 Sep 15 05:56	6° ∇ 33'44	16°12'24
max. Earth dist.	12878 Feb 25 21:24	17° ✕ 20'35	31.42959 AU	min. Earth dist.	12885 Sep 16 08:19	6° ∇ 31'52	28.80719 AU
				direct	12885 Dec 02 23:49	5° ∇ 08'06	
conjunction	12878 Feb 27 17:13	17° ✕ 24'50	15°39'22	max. Earth dist.	12886 Mar 19 11:21	7° ∇ 49'11	30.70559 AU
minimum elong	12878 Feb 27 17:16	17° ✕ 24'50	15°39'41				
retrograde	12878 Jun 12 19:47	20° ✕ 02'06		conjunction	12886 Mar 20 14:25	7° ∇ 51'53	15°04'27
opposition	12878 Aug 28 14:00	18° ✕ 39'26	16°43'29	minimum elong	12886 Mar 20 14:43	7° ∇ 51'55	15°04'24
min. Earth dist.	12878 Aug 30 04:33	18° ✕ 36'43	29.44560 AU	retrograde	12886 Jul 03 10:49	10° ∇ 32'58	
direct	12878 Nov 15 09:43	17° ✕ 14'43		opposition	12886 Sep 18 02:36	9° ∇ 09'24	16°00'25
max. Earth dist.	12879 Feb 28 18:10	19° ✕ 50'31	31.30538 AU	min. Earth dist.	12886 Sep 19 03:39	9° ∇ 07'37	28.75407 AU
				direct	12886 Dec 05 20:30	7° ∇ 43'42	
conjunction	12879 Mar 02 12:31	19° ✕ 54'39	15°41'01	evening set	12887 Mar 21 09:01	10° ∇ 22'31	
minimum elong	12879 Mar 02 12:34	19° ✕ 54'39	15°41'17	max. Earth dist.	12887 Mar 22 10:28	10° ∇ 25'04	30.65981 AU
retrograde	12879 Jun 15 15:45	22° ✕ 32'44					
opposition	12879 Aug 31 08:07	21° ✕ 09'54	16°44'37	conjunction	12887 Mar 23 11:42	10° ∇ 27'35	14°52'13

minimum elong	12887 Mar 23 12:01	10° Υ 27'37	14°52'08	conjunction	12894 Apr 10 12:25	28° Υ 30'01	12°39'26
morning rise	12887 Mar 25 15:01	10° Υ 32'43		minimum elong	12894 Apr 10 12:51	28° Υ 30'04	12°39'03
retrograde	12887 Jul 06 07:31	13° Υ 08'40		max. Earth dist.	12894 Apr 10 06:21	28° Υ 29'25	30.67402 AU
opposition	12887 Sep 20 23:09	11° Υ 45'04	15°46'31	morning rise	12894 Apr 19 02:15	28° Υ 50'21	
min. Earth dist.	12887 Sep 21 21:01	11° Υ 43'30	28.71178 AU		12894 May 20 15:41	0° \mathcal{B}	
direct	12887 Dec 08 19:03	10° Υ 19'19		retrograde	12894 Jul 24 01:15	1° \mathcal{B} 08'50	
evening set	12888 Mar 21 20:36	12° Υ 54'46			12894 Sep 30 12:36	30° $\mathcal{R}\Upsilon$	
max. Earth dist.	12888 Mar 24 10:59	13° Υ 00'59	30.62532 AU	opposition	12894 Oct 08 21:40	29° Υ 45'58	13°18'50
				min. Earth dist.	12894 Oct 09 02:13	29° Υ 45'39	28.74679 AU
conjunction	12888 Mar 25 09:01	13° Υ 03'11	14°38'14	direct	12894 Dec 27 02:01	28° Υ 21'07	
minimum elong	12888 Mar 25 09:23	13° Υ 03'14	14°38'06		12895 Mar 17 06:41	0° \mathcal{B}	
morning rise	12888 Mar 28 22:02	13° Υ 11'41		evening set	12895 Apr 04 02:48	0° \mathcal{B} 40'39	
retrograde	12888 Jul 08 02:31	15° Υ 44'12					
opposition	12888 Sep 22 19:55	14° Υ 20'34	15°30'44	conjunction	12895 Apr 13 07:54	1° \mathcal{B} 02'25	12°14'28
min. Earth dist.	12888 Sep 23 16:13	14° Υ 19'07	28.68096 AU	minimum elong	12895 Apr 13 08:21	1° \mathcal{B} 02'28	12°14'03
direct	12888 Dec 10 16:43	12° Υ 54'49		max. Earth dist.	12895 Apr 13 05:22	1° \mathcal{B} 02'10	30.72176 AU
evening set	12889 Mar 23 15:57	15° Υ 27'36		morning rise	12895 Apr 22 13:02	1° \mathcal{B} 24'12	
max. Earth dist.	12889 Mar 27 10:38	15° Υ 36'39	30.60298 AU	retrograde	12895 Jul 26 17:20	3° \mathcal{B} 40'35	
				opposition	12895 Oct 11 17:14	2° \mathcal{B} 17'55	12°51'24
conjunction	12889 Mar 28 06:03	15° Υ 38'36	14°22'30	min. Earth dist.	12895 Oct 11 19:53	2° \mathcal{B} 17'44	28.79612 AU
minimum elong	12889 Mar 28 06:26	15° Υ 38'38	14°22'20	direct	12895 Dec 29 23:22	0° \mathcal{B} 53'17	
morning rise	12889 Apr 01 20:45	15° Υ 49'39		evening set	12896 Apr 05 07:16	3° \mathcal{B} 10'44	
retrograde	12889 Jul 10 23:13	18° Υ 19'26					
opposition	12889 Sep 25 16:30	16° Υ 55'50	15°13'05	conjunction	12896 Apr 15 02:50	3° \mathcal{B} 33'50	11°48'15
min. Earth dist.	12889 Sep 26 09:08	16° Υ 54'39	28.66216 AU	minimum elong	12896 Apr 15 03:17	3° \mathcal{B} 33'53	11°47'47
direct	12889 Dec 13 15:49	15° Υ 30'08		max. Earth dist.	12896 Apr 15 01:35	3° \mathcal{B} 33'43	30.77959 AU
evening set	12890 Mar 25 14:34	18° Υ 00'31		morning rise	12896 Apr 24 22:34	3° \mathcal{B} 56'57	
max. Earth dist.	12890 Mar 30 10:27	18° Υ 12'04	30.59297 AU	retrograde	12896 Jul 28 10:40	6° \mathcal{B} 11'15	
				opposition	12896 Oct 13 12:17	4° \mathcal{B} 48'47	12°22'41
conjunction	12890 Mar 31 03:06	18° Υ 13'43	14°05'04	min. Earth dist.	12896 Oct 13 12:03	4° \mathcal{B} 48'48	28.85548 AU
minimum elong	12890 Mar 31 03:30	18° Υ 13'46	14°04'50	direct	12896 Dec 31 19:27	3° \mathcal{B} 24'22	
morning rise	12890 Apr 05 16:11	18° Υ 27'00		evening set	12897 Apr 07 11:57	5° \mathcal{B} 39'45	
retrograde	12890 Jul 13 18:51	20° Υ 54'19					
opposition	12890 Sep 28 13:05	19° Υ 30'48	14°53'35	conjunction	12897 Apr 17 21:26	6° \mathcal{B} 04'06	11°20'52
min. Earth dist.	12890 Sep 29 04:00	19° Υ 29'44	28.65570 AU	minimum elong	12897 Apr 17 21:53	6° \mathcal{B} 04'09	11°20'22
direct	12890 Dec 16 12:20	18° Υ 05'12		max. Earth dist.	12897 Apr 17 23:37	6° \mathcal{B} 04'19	30.84725 AU
evening set	12891 Mar 27 15:10	20° Υ 33'18		morning rise	12897 Apr 28 06:42	6° \mathcal{B} 28'27	
				retrograde	12897 Jul 31 02:03	8° \mathcal{B} 40'42	
conjunction	12891 Apr 02 23:54	20° Υ 48'31	13°45'58	opposition	12897 Oct 16 07:03	7° \mathcal{B} 18'26	11°52'45
minimum elong	12891 Apr 03 00:19	20° Υ 48'34	13°45'43	min. Earth dist.	12897 Oct 16 05:28	7° \mathcal{B} 18'32	28.92444 AU
max. Earth dist.	12891 Apr 02 10:31	20° Υ 47'11	30.59562 AU	direct	12898 Jan 03 14:56	5° \mathcal{B} 54'14	
morning rise	12891 Apr 09 09:06	21° Υ 03'47		evening set	12898 Apr 09 17:06	8° \mathcal{B} 07'34	
retrograde	12891 Jul 16 15:39	23° Υ 28'47					
opposition	12891 Oct 01 09:32	22° Υ 05'24	14°32'20	conjunction	12898 Apr 20 15:19	8° \mathcal{B} 33'03	10°52'24
min. Earth dist.	12891 Oct 01 21:05	22° Υ 04'35	28.66141 AU	minimum elong	12898 Apr 20 15:45	8° \mathcal{B} 33'05	10°51'52
direct	12891 Dec 19 11:33	20° Υ 39'57		max. Earth dist.	12898 Apr 20 18:53	8° \mathcal{B} 33'23	30.92459 AU
evening set	12892 Mar 28 16:41	23° Υ 05'51		morning rise	12898 May 01 13:28	8° \mathcal{B} 58'31	
				retrograde	12898 Aug 02 18:06	11° \mathcal{B} 08'45	
conjunction	12892 Apr 04 20:15	23° Υ 22'54	13°25'16	opposition	12898 Oct 19 01:07	9° \mathcal{B} 46'41	11°21'42
minimum elong	12892 Apr 04 20:40	23° Υ 22'57	13°24'58	min. Earth dist.	12898 Oct 18 20:14	9° \mathcal{B} 47'01	29.00312 AU
max. Earth dist.	12892 Apr 04 09:12	23° Υ 21'48	30.61035 AU	direct	12899 Jan 06 10:44	8° \mathcal{B} 22'43	
morning rise	12892 Apr 12 00:14	23° Υ 40'00		evening set	12899 Apr 11 22:13	10° \mathcal{B} 34'01	
retrograde	12892 Jul 18 10:36	26° Υ 02'47					
opposition	12892 Oct 03 05:53	24° Υ 39'33	14°09'23	conjunction	12899 Apr 23 08:42	11° \mathcal{B} 00'32	10°22'58
min. Earth dist.	12892 Oct 03 15:26	24° Υ 38'52	28.67895 AU	minimum elong	12899 Apr 23 09:08	11° \mathcal{B} 00'34	10°22'24
direct	12892 Dec 21 07:53	23° Υ 14'17		max. Earth dist.	12899 Apr 23 15:29	11° \mathcal{B} 01'11	31.01160 AU
evening set	12893 Mar 30 19:26	25° Υ 38'02		morning rise	12899 May 04 18:48	11° \mathcal{B} 27'01	
				retrograde	12899 Aug 05 07:34	13° \mathcal{B} 35'17	
conjunction	12893 Apr 07 16:32	25° Υ 56'47	13°03'04	opposition	12899 Oct 21 18:54	12° \mathcal{B} 13'24	10°49'38
minimum elong	12893 Apr 07 16:59	25° Υ 56'50	13°02'44	min. Earth dist.	12899 Oct 21 12:40	12° \mathcal{B} 13'50	29.09169 AU
max. Earth dist.	12893 Apr 07 08:57	25° Υ 56'02	30.63674 AU	direct	12900 Jan 09 06:27	10° \mathcal{B} 49'41	
morning rise	12893 Apr 15 13:53	26° Υ 15'34		evening set	12900 Apr 14 03:26	12° \mathcal{B} 58'59	
retrograde	12893 Jul 21 05:32	28° Υ 36'10					
opposition	12893 Oct 06 01:48	27° Υ 13'07	13°44'52	conjunction	12900 Apr 26 01:08	13° \mathcal{B} 26'26	9°52'37
min. Earth dist.	12893 Oct 06 08:46	27° Υ 12'38	28.70752 AU	minimum elong	12900 Apr 26 01:33	13° \mathcal{B} 26'28	9°52'00
direct	12893 Dec 24 06:08	25° Υ 48'04		max. Earth dist.	12900 Apr 26 09:54	13° \mathcal{B} 27'16	31.10870 AU
evening set	12894 Apr 01 22:52	28° Υ 09'42		morning rise	12900 May 07 22:28	13° \mathcal{B} 53'50	

	12900 Jun 08 08:45	15°♄	evening set	12907 Apr 28 17:57	29°♄10'30	
retrograde	12900 Aug 07 22:33	16°♄00'10				
	12900 Oct 11 06:50	15°♄	conjunction	12907 May 13 02:00	29°♄42'04	6°02'21
opposition	12900 Oct 24 11:53	14°♄38'30 10°16'39	minimum elong	12907 May 13 02:16	29°♄42'05	6°01'33
min. Earth dist.	12900 Oct 24 02:14	14°♄39'10 29.19048 AU	max. Earth dist.	12907 May 14 03:16	29°♄44'24	32.07207 AU
direct	12901 Jan 12 02:07	13°♄15'01		12907 May 21 04:33	0°♄	
	12901 Apr 06 07:20	15°♄	morning rise	12907 May 27 09:10	0°♄13'33	
evening set	12901 Apr 16 08:45	15°♄22'23	retrograde	12907 Aug 24 11:55	2°♄08'10	
			opposition	12907 Nov 10 18:11	0°♄48'42	6°08'12
conjunction	12901 Apr 28 17:04	15°♄50'40 9°21'27	min. Earth dist.	12907 Nov 09 16:16	0°♄50'25	30.16672 AU
minimum elong	12901 Apr 28 17:28	15°♄50'42 9°20'49		12907 Dec 13 17:25	30°♄	
max. Earth dist.	12901 Apr 29 04:42	15°♄51'47 31.21602 AU	direct	12908 Jan 29 22:22	29°♄27'42	
morning rise	12901 May 11 00:52	16°♄18'55		12908 Mar 15 12:08	0°♄	
retrograde	12901 Aug 10 12:01	18°♄23'22	evening set	12908 Apr 29 23:23	1°♄23'13	
opposition	12901 Oct 27 04:19	17°♄01'56 9°42'50				
min. Earth dist.	12901 Oct 26 16:58	17°♄02'42 29.29993 AU	conjunction	12908 May 14 13:06	1°♄55'04	5°28'02
direct	12902 Jan 14 19:29	15°♄38'43	minimum elong	12908 May 14 13:20	1°♄55'05	5°27'13
evening set	12902 Apr 18 14:15	17°♄44'12	max. Earth dist.	12908 May 15 17:12	1°♄57'39	32.24387 AU
			morning rise	12908 May 29 01:36	2°♄26'49	
conjunction	12902 May 01 08:20	18°♄13'14 8°49'32	retrograde	12908 Aug 25 19:32	4°♄20'02	
minimum elong	12902 May 01 08:43	18°♄13'16 8°48'52	min. Earth dist.	12908 Nov 11 03:43	3°♄02'40	30.33970 AU
max. Earth dist.	12902 May 01 22:42	18°♄14'37 31.33412 AU	opposition	12908 Nov 12 06:25	3°♄00'55	5°31'27
morning rise	12902 May 14 01:45	18°♄42'14	direct	12909 Jan 31 11:26	1°♄40'19	
retrograde	12902 Aug 13 02:06	20°♄44'52	evening set	12909 May 02 05:05	3°♄34'22	
opposition	12902 Oct 29 20:10	19°♄23'42 9°08'17				
min. Earth dist.	12902 Oct 29 05:37	19°♄24'41 29.42012 AU	conjunction	12909 May 16 23:33	4°♄06'25	4°53'39
direct	12903 Jan 17 15:25	18°♄00'48	minimum elong	12909 May 16 23:46	4°♄06'26	4°52'49
evening set	12903 Apr 20 19:38	20°♄04'27	max. Earth dist.	12909 May 18 04:25	4°♄09'03	32.42207 AU
			morning rise	12909 May 31 16:56	4°♄38'22	
conjunction	12903 May 03 22:43	20°♄34'10 8°16'59	retrograde	12909 Aug 28 04:38	6°♄30'13	
minimum elong	12903 May 03 23:05	20°♄34'12 8°16'18	opposition	12909 Nov 14 17:41	5°♄11'27	4°54'40
max. Earth dist.	12903 May 04 15:22	20°♄35'45 31.46278 AU	min. Earth dist.	12909 Nov 13 12:25	5°♄13'21	30.51893 AU
morning rise	12903 May 17 01:11	21°♄03'49	direct	12910 Feb 02 23:47	3°♄51'13	
retrograde	12903 Aug 15 15:41	23°♄04'43	evening set	12910 May 04 10:37	5°♄43'53	
opposition	12903 Nov 01 11:29	21°♄43'51 8°33'05				
min. Earth dist.	12903 Oct 31 18:33	21°♄44'59 29.55105 AU	conjunction	12910 May 19 09:20	6°♄16'04	4°19'14
direct	12904 Jan 20 08:05	20°♄21'18	minimum elong	12910 May 19 09:31	6°♄16'05	4°18'23
evening set	12904 Apr 22 01:05	22°♄23'13	max. Earth dist.	12910 May 20 16:14	6°♄18'52	32.60604 AU
			morning rise	12910 Jun 03 06:50	6°♄48'10	
conjunction	12904 May 05 12:37	22°♄53'30 7°43'54	retrograde	12910 Aug 30 12:17	8°♄38'43	
minimum elong	12904 May 05 12:57	22°♄53'32 7°43'11	min. Earth dist.	12910 Nov 15 22:29	7°♄22'13	30.70413 AU
max. Earth dist.	12904 May 06 08:24	22°♄55'22 31.60181 AU	opposition	12910 Nov 17 04:35	7°♄20'16	4°17'56
morning rise	12904 May 18 23:10	23°♄23'43	direct	12911 Feb 05 11:30	6°♄00'25	
retrograde	12904 Aug 17 03:03	25°♄22'57	evening set	12911 May 06 15:52	7°♄51'43	
min. Earth dist.	12904 Nov 02 06:51	24°♄03'42 29.69194 AU				
opposition	12904 Nov 03 02:01	24°♄02'25 7°57'23	conjunction	12911 May 21 18:12	8°♄23'59	3°44'53
direct	12905 Jan 22 01:26	22°♄40'14	minimum elong	12911 May 21 18:22	8°♄24'00	3°44'01
evening set	12905 Apr 24 06:41	24°♄40'28	max. Earth dist.	12911 May 23 02:35	8°♄26'54	32.79570 AU
			morning rise	12911 Jun 05 19:15	8°♄56'09	
conjunction	12905 May 08 01:41	25°♄11'16 7°10'22	retrograde	12911 Sep 01 20:21	10°♄45'26	
minimum elong	12905 May 08 02:01	25°♄11'17 7°09'37	min. Earth dist.	12911 Nov 18 06:25	9°♄29'24	30.89498 AU
max. Earth dist.	12905 May 08 22:51	25°♄13'14 31.75025 AU	opposition	12911 Nov 19 14:39	9°♄27'19	3°41'18
morning rise	12905 May 21 19:58	25°♄41'59	direct	12912 Feb 08 00:59	8°♄07'49	
retrograde	12905 Aug 19 15:49	27°♄39'36	evening set	12912 May 07 21:06	9°♄57'49	
opposition	12905 Nov 05 16:00	26°♄19'25 7°21'15				
min. Earth dist.	12905 Nov 04 18:13	26°♄20'52 29.84214 AU	conjunction	12912 May 23 02:22	10°♄30'06	3°10'38
direct	12906 Jan 24 16:51	24°♄57'38	minimum elong	12912 May 23 02:30	10°♄30'07	3°09'45
evening set	12906 Apr 26 12:13	26°♄56'14	max. Earth dist.	12912 May 24 12:11	10°♄33'07	32.99081 AU
			morning rise	12912 Jun 07 06:29	11°♄02'17	
conjunction	12906 May 10 14:15	27°♄27'27 6°36'29	retrograde	12912 Sep 03 04:04	12°♄50'22	
minimum elong	12906 May 10 14:32	27°♄27'29 6°35'42	opposition	12912 Nov 20 23:54	11°♄32'33	3°04'51
max. Earth dist.	12906 May 11 14:34	27°♄29'43 31.90727 AU	min. Earth dist.	12912 Nov 19 14:05	11°♄34'43	31.09185 AU
morning rise	12906 May 24 15:08	27°♄58'35	direct	12913 Feb 09 11:18	10°♄13'24	
retrograde	12906 Aug 22 01:33	29°♄54'41	evening set	12913 May 10 02:02	12°♄02'09	
min. Earth dist.	12906 Nov 07 06:26	28°♄36'23 30.00058 AU				
opposition	12906 Nov 08 05:27	28°♄34'51 6°44'50	conjunction	12913 May 25 09:52	12°♄34'24	2°36'34
direct	12907 Jan 27 08:23	27°♄13'28	minimum elong	12913 May 25 09:59	12°♄34'25	2°35'40

max. Earth dist.	12913 May 26 21:58	12° Π 37'36	33.19183 AU	opposition	12919 Dec 05 22:50	25° Π 22'06	-1°00'53
morning rise	12913 Jun 09 16:16	13° Π 06'33		direct	12920 Feb 24 20:51	24° Π 05'41	
retrograde	12913 Sep 05 08:57	14° Π 53'29		evening set	12920 May 23 08:25	25° Π 47'22	
min. Earth dist.	12913 Nov 21 21:18	13° Π 38'14	31.29477 AU				
opposition	12913 Nov 23 08:35	13° Π 35'59	2°28'37	conjunction	12920 Jun 07 18:35	26° Π 18'10	-1°13'08
direct	12914 Feb 11 23:12	12° Π 17'12		minimum elong	12920 Jun 07 18:32	26° Π 18'10	1°14'07
evening set	12914 May 12 06:56	14° Π 04'45		max. Earth dist.	12920 Jun 09 16:51	26° Π 22'03	34.75529 AU
				morning rise	12920 Jun 23 03:27	26° Π 48'53	
conjunction	12914 May 27 16:25	14° Π 36'55	2°02'42	retrograde	12920 Sep 18 07:50	28° Π 29'29	
minimum elong	12914 May 27 16:30	14° Π 36'56	2°01'47	min. Earth dist.	12920 Dec 05 05:13	27° Π 17'16	32.87314 AU
max. Earth dist.	12914 May 29 05:24	14° Π 40'10	33.39886 AU	opposition	12920 Dec 07 02:54	27° Π 14'28	-1°34'04
morning rise	12914 Jun 12 00:48	15° Π 08'59		direct	12921 Feb 26 03:22	25° Π 58'26	
retrograde	12914 Sep 07 15:22	16° Π 54'49		evening set	12921 May 25 12:18	27° Π 39'20	
min. Earth dist.	12914 Nov 24 02:45	15° Π 40'03	31.50425 AU				
opposition	12914 Nov 25 16:34	15° Π 37'39	1°52'41	conjunction	12921 Jun 09 20:50	28° Π 09'46	-1°44'11
direct	12915 Feb 14 09:38	14° Π 19'14		minimum elong	12921 Jun 09 20:46	28° Π 09'46	1°45'10
evening set	12915 May 14 11:32	16° Π 05'40		max. Earth dist.	12921 Jun 11 19:16	28° Π 13'39	34.99368 AU
				morning rise	12921 Jun 25 04:23	28° Π 40'08	
conjunction	12915 May 29 22:29	16° Π 37'43	1°29'07		12921 Aug 14 12:39	0° Θ	
minimum elong	12915 May 29 22:33	16° Π 37'43	1°28'11	retrograde	12921 Sep 20 11:00	0° Θ 20'02	
max. Earth dist.	12915 May 31 14:17	16° Π 41'11	33.61227 AU		12921 Oct 28 07:50	30° \mathcal{R} Π	
morning rise	12915 Jun 14 08:01	17° Π 09'39		min. Earth dist.	12921 Dec 07 07:30	29° Π 08'12	33.11311 AU
retrograde	12915 Sep 09 18:58	18° Π 54'28		opposition	12921 Dec 09 06:34	29° Π 05'20	-2°06'42
min. Earth dist.	12915 Nov 26 09:14	17° Π 40'06	31.72013 AU	direct	12922 Feb 28 07:32	27° Π 49'40	
opposition	12915 Nov 27 23:57	17° Π 37'39	1°17'06	evening set	12922 May 27 15:46	29° Π 29'48	
direct	12916 Feb 16 19:37	16° Π 19'37					
evening set	12916 May 15 16:00	18° Π 05'00		conjunction	12922 Jun 11 22:33	29° Π 59'53	-2°14'43
				minimum elong	12922 Jun 11 22:28	29° Π 59'52	2°15'42
conjunction	12916 May 31 03:39	18° Π 36'52	0°55'51		12922 Jun 12 00:03	0° Θ	
minimum elong	12916 May 31 03:41	18° Π 36'52	0°54'55	max. Earth dist.	12922 Jun 13 22:37	0° Θ 03'51	35.23381 AU
max. Earth dist.	12916 Jun 01 20:07	18° Π 40'22	33.83174 AU	morning rise	12922 Jun 27 04:04	0° Θ 29'52	
morning rise	12916 Jun 15 14:10	19° Π 08'38		retrograde	12922 Sep 22 10:02	2° Θ 09'05	
retrograde	12916 Sep 10 22:19	20° Π 52'30		min. Earth dist.	12922 Dec 09 10:41	0° Θ 57'33	33.35461 AU
min. Earth dist.	12916 Nov 27 13:03	19° Π 38'39	31.94195 AU	opposition	12922 Dec 11 09:43	0° Θ 54'43	-2°38'43
opposition	12916 Nov 29 06:31	19° Π 36'03	0°41'54		12923 Jan 22 13:03	30° \mathcal{R} Π	
direct	12917 Feb 18 03:34	18° Π 18'25		direct	12923 Mar 02 13:24	29° Π 39'24	
evening set	12917 May 17 20:19	20° Π 02'48			12923 Apr 09 12:42	0° Θ	
				evening set	12923 May 29 19:12	1° Θ 18'48	
conjunction	12917 Jun 02 08:22	20° Π 34'27	0°22'58				
minimum elong	12917 Jun 02 08:22	20° Π 34'27	0°22'02	conjunction	12923 Jun 13 23:35	1° Θ 48'28	-2°44'42
max. Earth dist.	12917 Jun 04 03:15	20° Π 38'08	34.05650 AU	minimum elong	12923 Jun 13 23:29	1° Θ 48'27	2°45'40
morning rise	12917 Jun 17 19:04	21° Π 06'01		max. Earth dist.	12923 Jun 15 23:16	1° Θ 52'22	35.47528 AU
retrograde	12917 Sep 12 23:46	22° Π 48'59		morning rise	12923 Jun 29 03:02	2° Θ 18'03	
min. Earth dist.	12917 Nov 29 18:34	21° Π 35'31	32.16897 AU	retrograde	12923 Sep 24 09:51	3° Θ 56'36	
opposition	12917 Dec 01 12:32	21° Π 32'54	0°07'09	min. Earth dist.	12923 Dec 11 11:16	2° Θ 45'29	33.59761 AU
desc. node	12918 Feb 15 18:30	20° Π 16'00		opposition	12923 Dec 13 12:05	2° Θ 42'33	-3°10'08
direct	12918 Feb 20 10:09	20° Π 15'41		direct	12924 Mar 03 18:10	1° Θ 27'34	
evening set	12918 May 20 00:33	21° Π 59'07		evening set	12924 May 30 22:10	3° Θ 06'15	
conjunction	12918 Jun 04 12:23	22° Π 30'31	-0°09'35	conjunction	12924 Jun 15 00:04	3° Θ 35'30	-3°14'07
minimum elong	12918 Jun 04 12:22	22° Π 30'31	0°10'32	minimum elong	12924 Jun 14 23:57	3° Θ 35'30	3°15'07
behind sun begin	12918 Jun 04 07:21	22° Π 30'07		max. Earth dist.	12924 Jun 17 01:31	3° Θ 39'32	35.71803 AU
behind sun end	12918 Jun 04 17:24	22° Π 30'56		morning rise	12924 Jun 30 00:51	4° Θ 04'40	
max. Earth dist.	12918 Jun 06 07:57	22° Π 34'14	34.28595 AU	retrograde	12924 Sep 25 07:37	5° Θ 42'37	
morning rise	12918 Jun 19 22:58	23° Π 01'50		min. Earth dist.	12924 Dec 12 13:20	4° Θ 31'45	33.84209 AU
retrograde	12918 Sep 15 02:34	24° Π 43'58		opposition	12924 Dec 14 13:58	4° Θ 28'51	-3°40'54
min. Earth dist.	12918 Dec 01 21:55	23° Π 30'58	32.40034 AU	direct	12925 Mar 05 22:01	3° Θ 14'11	
opposition	12918 Dec 03 17:55	23° Π 28'15	-0°27'08	evening set	12925 Jun 02 00:58	4° Θ 52'13	
direct	12919 Feb 22 15:57	22° Π 11'26					
evening set	12919 May 22 04:32	23° Π 53'58		conjunction	12925 Jun 16 23:49	5° Θ 21'00	-3°42'57
				minimum elong	12925 Jun 16 23:42	5° Θ 21'00	3°43'56
conjunction	12919 Jun 06 15:40	24° Π 25'05	-0°41'35	max. Earth dist.	12925 Jun 19 01:24	5° Θ 25'01	35.96234 AU
minimum elong	12919 Jun 06 15:38	24° Π 25'05	0°42'32	morning rise	12925 Jul 01 21:43	5° Θ 49'44	
max. Earth dist.	12919 Jun 08 12:41	24° Π 28'54	34.51906 AU	retrograde	12925 Sep 27 05:30	7° Θ 27'06	
morning rise	12919 Jun 22 01:41	24° Π 56'07		min. Earth dist.	12925 Dec 14 12:37	6° Θ 16'37	34.08842 AU
retrograde	12919 Sep 17 05:31	26° Π 37'28		opposition	12925 Dec 16 15:01	6° Θ 13'37	-4°11'02
min. Earth dist.	12919 Dec 04 02:04	25° Π 24'51	32.63540 AU	direct	12926 Mar 08 00:48	4° Θ 59'17	

evening set	12926 Jun 04 03:30	6°☾36'41		min. Earth dist.	12932 Dec 26 00:39	17°☾54'19	35.87119 AU
				opposition	12932 Dec 28 08:35	17°☾51'07	-7°22'45
conjunction	12926 Jun 18 23:00	7°☾05'01 -4°11'11		direct	12933 Mar 20 01:12	16°☾39'16	
minimum elong	12926 Jun 18 22:52	7°☾05'00 4°12'11		evening set	12933 Jun 16 14:23	18°☾13'34	
max. Earth dist.	12926 Jun 21 01:54	7°☾09'06 36.20862 AU					
morning rise	12926 Jul 03 17:40	7°☾33'17		conjunction	12933 Jun 30 02:47	18°☾38'15 -7°11'14	
retrograde	12926 Sep 29 04:11	9°☾10'08		minimum elong	12933 Jun 30 02:36	18°☾38'14 7°12'11	
min. Earth dist.	12926 Dec 16 12:48	7°☾59'57 34.33729 AU		max. Earth dist.	12933 Jul 02 10:30	18°☾42'32 37.98495 AU	
opposition	12926 Dec 18 15:48	7°☾56'56 -4°40'29		morning rise	12933 Jul 13 14:43	19°☾02'54	
direct	12927 Mar 10 01:06	6°☾42'56		retrograde	12933 Oct 10 03:46	20°☾37'15	
evening set	12927 Jun 06 05:34	8°☾19'46		min. Earth dist.	12933 Dec 27 21:54	19°☾29'30 36.12832 AU	
				opposition	12933 Dec 30 05:48	19°☾26'19 -7°47'23	
conjunction	12927 Jun 20 21:33	8°☾47'36 -4°38'48		direct	12934 Mar 21 20:54	18°☾14'48	
minimum elong	12927 Jun 20 21:24	8°☾47'36 4°39'47		evening set	12934 Jun 18 15:10	19°☾48'46	
max. Earth dist.	12927 Jun 23 01:36	8°☾51'46 36.45749 AU					
morning rise	12927 Jul 05 12:33	9°☾15'23		conjunction	12934 Jul 01 22:15	20°☾12'53 -7°34'25	
retrograde	12927 Oct 01 02:32	10°☾51'47		minimum elong	12934 Jul 01 22:04	20°☾12'53 7°35'23	
min. Earth dist.	12927 Dec 18 11:48	9°☾41'57 34.58866 AU		max. Earth dist.	12934 Jul 04 06:24	20°☾17'10 38.23968 AU	
opposition	12927 Dec 20 15:52	9°☾38'53 -5°09'16		morning rise	12934 Jul 15 04:39	20°☾36'58	
direct	12928 Mar 11 01:46	8°☾25'14		retrograde	12934 Oct 11 22:29	22°☾11'04	
evening set	12928 Jun 07 07:38	10°☾01'33		min. Earth dist.	12934 Dec 29 18:44	21°☾03'35 36.38417 AU	
				opposition	12935 Jan 01 02:35	21°☾00'25 -8°11'20	
conjunction	12928 Jun 21 19:34	10°☾28'54 -5°05'48		direct	12935 Mar 23 18:01	19°☾49'13	
minimum elong	12928 Jun 21 19:25	10°☾28'53 5°06'47		evening set	12935 Jun 20 15:43	21°☾22'52	
max. Earth dist.	12928 Jun 24 00:01	10°☾33'03 36.70874 AU					
morning rise	12928 Jul 06 06:51	10°☾56'11		conjunction	12935 Jul 03 17:02	21°☾46'25 -7°56'59	
retrograde	12928 Oct 02 01:13	12°☾32'09		minimum elong	12935 Jul 03 16:51	21°☾46'24 7°57'55	
min. Earth dist.	12928 Dec 19 09:44	11°☾22'43 34.84258 AU		max. Earth dist.	12935 Jul 06 00:32	21°☾50'36 38.49291 AU	
opposition	12928 Dec 21 15:17	11°☾19'35 -5°37'21		morning rise	12935 Jul 16 18:02	22°☾09'56	
direct	12929 Mar 13 00:33	10°☾06'17		retrograde	12935 Oct 13 18:40	23°☾43'47	
evening set	12929 Jun 09 09:21	11°☾42'08		min. Earth dist.	12935 Dec 31 14:13	22°☾36'35 36.63861 AU	
				opposition	12936 Jan 02 22:53	22°☾33'23 -8°34'37	
conjunction	12929 Jun 23 17:16	12°☾08'59 -5°32'10		direct	12936 Mar 24 14:12	21°☾22'29	
minimum elong	12929 Jun 23 17:06	12°☾08'58 5°33'08		evening set	12936 Jun 21 15:59	22°☾55'49	
max. Earth dist.	12929 Jun 25 23:29	12°☾13'14 36.96220 AU					
morning rise	12929 Jul 08 00:14	12°☾35'46		conjunction	12936 Jul 04 11:38	23°☾18'47 -8°18'55	
retrograde	12929 Oct 03 21:09	14°☾11'20		minimum elong	12936 Jul 04 11:27	23°☾18'46 8°19'52	
min. Earth dist.	12929 Dec 21 08:48	13°☾02'13 35.09837 AU		max. Earth dist.	12936 Jul 06 20:16	23°☾23'02 38.74465 AU	
opposition	12929 Dec 23 14:22	12°☾59'06 -6°04'45		morning rise	12936 Jul 17 06:43	23°☾41'43	
direct	12930 Mar 15 02:35	11°☾46'11		retrograde	12936 Oct 14 11:31	25°☾15'19	
evening set	12930 Jun 11 10:54	13°☾21'36		min. Earth dist.	12937 Jan 01 10:46	24°☾08'18 36.89154 AU	
				opposition	12937 Jan 03 18:35	24°☾05'10 -8°57'14	
conjunction	12930 Jun 25 14:10	13°☾47'55 -5°57'53		direct	12937 Mar 26 12:38	22°☾54'32	
minimum elong	12930 Jun 25 14:00	13°☾47'54 5°58'53		evening set	12937 Jun 23 16:07	24°☾27'36	
max. Earth dist.	12930 Jun 27 20:05	13°☾52'08 37.21720 AU					
morning rise	12930 Jul 09 16:52	14°☾14'11		conjunction	12937 Jul 06 05:36	24°☾49'58 -8°40'15	
retrograde	12930 Oct 05 18:03	15°☾49'24		minimum elong	12937 Jul 06 05:26	24°☾49'57 8°41'11	
min. Earth dist.	12930 Dec 23 05:38	14°☾40'43 35.35555 AU		max. Earth dist.	12937 Jul 08 13:25	24°☾54'08 38.99513 AU	
opposition	12930 Dec 25 12:55	14°☾37'31 -6°31'27		morning rise	12937 Jul 18 18:47	25°☾12'19	
direct	12931 Mar 17 02:48	13°☾24'57		retrograde	12937 Oct 16 05:01	26°☾45'41	
evening set	12931 Jun 13 12:13	14°☾59'59		min. Earth dist.	12938 Jan 03 04:44	25°☾38'58 37.14354 AU	
				opposition	12938 Jan 05 13:53	25°☾35'46 -9°19'11	
conjunction	12931 Jun 27 10:52	15°☾25'46 -6°22'58		direct	12938 Mar 28 09:13	24°☾25'23	
minimum elong	12931 Jun 27 10:41	15°☾25'45 6°23'56		evening set	12938 Jun 25 15:42	25°☾58'11	
max. Earth dist.	12931 Jun 29 18:20	15°☾30'04 37.47311 AU					
morning rise	12931 Jul 11 08:48	15°☾51'30		conjunction	12938 Jul 07 23:03	26°☾19'57 -9°00'57	
retrograde	12931 Oct 07 12:41	17°☾26'25		minimum elong	12938 Jul 07 22:51	26°☾19'56 9°01'53	
min. Earth dist.	12931 Dec 25 04:14	16°☾18'00 35.61344 AU		max. Earth dist.	12938 Jul 10 08:02	26°☾24'11 39.24486 AU	
opposition	12931 Dec 27 11:02	16°☾14'51 -6°57'27		morning rise	12938 Jul 20 06:03	26°☾41'42	
direct	12932 Mar 18 02:18	15°☾02'39		retrograde	12938 Oct 17 19:34	28°☾14'53	
evening set	12932 Jun 14 13:22	16°☾37'18		min. Earth dist.	12939 Jan 05 00:14	27°☾08'22 37.39523 AU	
				opposition	12939 Jan 07 08:56	27°☾05'12 -9°40'28	
conjunction	12932 Jun 28 07:02	17°☾02'32 -6°47'25		direct	12939 Mar 30 06:22	25°☾55'06	
minimum elong	12932 Jun 28 06:51	17°☾02'32 6°48'24		evening set	12939 Jun 27 15:15	27°☾27'39	
max. Earth dist.	12932 Jun 30 14:19	17°☾06'49 37.72933 AU					
morning rise	12932 Jul 12 00:04	17°☾27'44		conjunction	12939 Jul 09 16:12	27°☾48'49 -9°21'02	
retrograde	12932 Oct 08 07:09	19°☾02'21		minimum elong	12939 Jul 09 16:01	27°☾48'48 9°21'57	

max. Earth dist.	12939 Jul 12 01:20	27°☾53'02	39.49458 AU	opposition	12946 Jan 17 10:10	7°♂04'56	-11°51'04
morning rise	12939 Jul 21 16:46	28°☾09'58		direct	12946 Apr 09 11:02	5°♂56'54	
retrograde	12939 Oct 19 10:47	29°☾42'59		evening set	12946 Jul 09 05:51	7°♂28'35	
min. Earth dist.	12940 Jan 06 17:34	28°☾36'45	37.64691 AU				
opposition	12940 Jan 09 03:15	28°☾33'33	-10°01'04	conjunction	12946 Jul 19 05:52	7°♂45'30	-11°24'32
direct	12940 Mar 31 02:28	27°☾23'43		minimum elong	12946 Jul 19 05:42	7°♂45'29	11°25'22
evening set	12940 Jun 28 14:29	28°☾56'03		max. Earth dist.	12946 Jul 21 16:02	7°♂49'37	41.22491 AU
				morning rise	12946 Jul 29 05:39	8°♂02'24	
conjunction	12940 Jul 10 08:50	29°☾16'37	-9°40'29	retrograde	12946 Oct 29 00:11	9°♂35'01	
minimum elong	12940 Jul 10 08:39	29°☾16'36	9°41'24	min. Earth dist.	12947 Jan 16 16:19	8°♂30'35	39.38579 AU
max. Earth dist.	12940 Jul 12 18:12	29°☾20'49	39.74431 AU	opposition	12947 Jan 19 02:11	8°♂27'28	-12°07'16
morning rise	12940 Jul 22 03:02	29°☾37'10		direct	12947 Apr 11 03:08	7°♂19'43	
	12940 Aug 04 16:27	0°♂		evening set	12947 Jul 11 03:59	8°♂51'21	
retrograde	12940 Oct 20 05:01	1°♂10'04					
min. Earth dist.	12941 Jan 07 11:07	0°♂04'06	37.89874 AU	conjunction	12947 Jul 20 20:19	9°♂07'39	-11°39'54
opposition	12941 Jan 09 21:20	0°♂00'53	-10°21'01	minimum elong	12947 Jul 20 20:10	9°♂07'38	11°40'44
	12941 Jan 10 13:19	30°♂☾		max. Earth dist.	12947 Jul 23 05:24	9°♂11'40	41.46334 AU
direct	12941 Apr 01 18:43	28°☾51'20		morning rise	12947 Jul 30 12:42	9°♂23'57	
	12941 Jun 16 12:12	0°♂		retrograde	12947 Oct 30 16:45	10°♂56'34	
evening set	12941 Jun 30 13:28	0°♂23'30		min. Earth dist.	12948 Jan 18 07:48	9°♂52'20	39.62450 AU
				opposition	12948 Jan 20 17:46	9°♂49'15	-12°22'54
conjunction	12941 Jul 12 01:13	0°♂43'28	-9°59'19	direct	12948 Apr 11 16:34	8°♂41'45	
minimum elong	12941 Jul 12 01:03	0°♂43'27	10°00'12	evening set	12948 Jul 12 01:50	10°♂13'20	
max. Earth dist.	12941 Jul 14 11:36	0°♂47'43	39.99407 AU				
morning rise	12941 Jul 23 12:36	1°♂03'25		conjunction	12948 Jul 21 10:36	10°♂29'00	-11°54'44
retrograde	12941 Oct 21 20:30	2°♂36'12		minimum elong	12948 Jul 21 10:27	10°♂29'00	11°55'33
min. Earth dist.	12942 Jan 09 04:59	1°♂30'29	38.15022 AU	max. Earth dist.	12948 Jul 23 20:12	10°♂33'02	41.69838 AU
opposition	12942 Jan 11 14:57	1°♂27'18	-10°40'17	morning rise	12948 Jul 30 19:11	10°♂44'41	
direct	12942 Apr 03 13:29	0°♂18'03		retrograde	12948 Oct 31 05:53	12°♂17'18	
evening set	12942 Jul 02 12:20	1°♂50'04		min. Earth dist.	12949 Jan 19 00:25	11°♂13'13	39.85967 AU
				opposition	12949 Jan 21 09:07	11°♂10'12	-12°37'59
conjunction	12942 Jul 13 17:06	2°♂09'26	-10°17'32	direct	12949 Apr 13 09:13	10°♂02'57	
minimum elong	12942 Jul 13 16:55	2°♂09'25	10°18'25	evening set	12949 Jul 13 23:33	11°♂34'29	
max. Earth dist.	12942 Jul 16 02:45	2°♂13'36	40.24338 AU				
morning rise	12942 Jul 24 21:46	2°♂28'47		conjunction	12949 Jul 23 00:17	11°♂49'32	-12°09'03
retrograde	12942 Oct 23 13:47	4°♂01'29		minimum elong	12949 Jul 23 00:09	11°♂49'31	12°09'52
min. Earth dist.	12943 Jan 10 21:07	2°♂56'05	38.40117 AU	max. Earth dist.	12949 Jul 25 08:35	11°♂53'27	41.93016 AU
opposition	12943 Jan 13 08:15	2°♂52'51	-10°58'55	morning rise	12949 Aug 01 01:00	12°♂04'34	
direct	12943 Apr 05 05:49	1°♂43'55		retrograde	12949 Nov 01 18:28	13°♂37'12	
evening set	12943 Jul 04 10:47	3°♂15'49		min. Earth dist.	12950 Jan 20 14:34	12°♂33'21	40.09187 AU
				opposition	12950 Jan 23 00:00	12°♂30'18	-12°52'31
conjunction	12943 Jul 15 08:42	3°♂34'35	-10°35'08	direct	12950 Apr 15 01:15	11°♂23'16	
minimum elong	12943 Jul 15 08:33	3°♂34'34	10°36'01	evening set	12950 Jul 15 20:56	12°♂54'47	
max. Earth dist.	12943 Jul 17 19:38	3°♂38'49	40.49177 AU				
morning rise	12943 Jul 26 06:22	3°♂53'20		conjunction	12950 Jul 24 13:44	13°♂09'13	-12°22'51
retrograde	12943 Oct 25 04:24	5°♂25'59		minimum elong	12950 Jul 24 13:36	13°♂09'12	12°23'37
min. Earth dist.	12944 Jan 12 15:08	4°♂20'47	38.65082 AU	max. Earth dist.	12950 Jul 26 22:41	13°♂13'09	42.15929 AU
opposition	12944 Jan 15 01:18	4°♂17'37	-11°16'54	morning rise	12950 Aug 02 06:29	13°♂23'37	
direct	12944 Apr 06 00:16	3°♂09'00		retrograde	12950 Nov 03 06:05	14°♂56'17	
evening set	12944 Jul 05 09:22	4°♂40'49		min. Earth dist.	12951 Jan 22 06:13	13°♂52'34	40.32184 AU
				opposition	12951 Jan 24 14:44	13°♂49'35	-13°06'29
conjunction	12944 Jul 16 00:03	4°♂58'57	-10°52'10	direct	12951 Apr 16 17:27	12°♂42'46	
minimum elong	12944 Jul 15 23:52	4°♂58'57	10°53'02	evening set	12951 Jul 17 18:13	14°♂14'17	
max. Earth dist.	12944 Jul 18 10:08	5°♂03'07	40.73859 AU				
morning rise	12944 Jul 26 14:34	5°♂17'05		conjunction	12951 Jul 26 02:48	14°♂28'03	-12°36'06
retrograde	12944 Oct 25 18:19	6°♂49'43		minimum elong	12951 Jul 26 02:40	14°♂28'03	12°36'53
min. Earth dist.	12945 Jan 13 06:45	5°♂44'50	38.89851 AU	max. Earth dist.	12951 Jul 28 11:35	14°♂31'58	42.38655 AU
opposition	12945 Jan 15 17:42	5°♂41'38	-11°34'17	morning rise	12951 Aug 03 11:17	14°♂41'50	
direct	12945 Apr 07 18:03	4°♂33'19			12951 Aug 14 17:46	15°♂	
evening set	12945 Jul 07 07:42	6°♂05'04		retrograde	12951 Nov 04 17:13	16°♂14'33	
				min. Earth dist.	12952 Jan 23 19:53	15°♂11'03	40.54993 AU
conjunction	12945 Jul 17 15:06	6°♂22'35	-11°08'38	opposition	12952 Jan 26 04:55	15°♂08'03	-13°19'54
minimum elong	12945 Jul 17 14:57	6°♂22'35	11°09'29		12952 Feb 01 13:52	15°♂♂	
max. Earth dist.	12945 Jul 20 01:20	6°♂26'44	40.98310 AU	direct	12952 Apr 17 10:01	14°♂01'27	
morning rise	12945 Jul 27 22:27	6°♂40'07			12952 Jun 27 14:32	15°♂	
retrograde	12945 Oct 27 09:07	8°♂12'44		evening set	12952 Jul 18 15:21	15°♂33'00	
min. Earth dist.	12946 Jan 15 00:01	7°♂08'04	39.14374 AU				

conjunction	12952 Jul 26 15:33	15° Ω 46'07	-12°48'50	direct	12959 Apr 27 07:29	22° Ω 53'46	
minimum elong	12952 Jul 26 15:26	15° Ω 46'07	12°49'34	evening set	12959 Jul 30 18:00	24° Ω 26'05	
max. Earth dist.	12952 Jul 28 23:53	15° Ω 49'59	42.61209 AU				
morning rise	12952 Aug 03 15:51	15° Ω 59'16		conjunction	12959 Aug 05 02:13	24° Ω 34'33	-14°04'01
retrograde	12952 Nov 05 07:44	17° Ω 32'04		minimum elong	12959 Aug 05 02:09	24° Ω 34'33	14°04'40
min. Earth dist.	12953 Jan 24 09:45	16° Ω 28'46	40.77653 AU	max. Earth dist.	12959 Aug 07 08:03	24° Ω 38'07	44.12858 AU
opposition	12953 Jan 26 18:48	16° Ω 25'46	-13°32'45	morning rise	12959 Aug 10 10:30	24° Ω 43'03	
direct	12953 Apr 18 23:06	15° Ω 19'25		retrograde	12959 Nov 14 19:24	26° Ω 16'57	
evening set	12953 Jul 20 12:23	16° Ω 50'59		min. Earth dist.	12960 Feb 03 06:25	25° Ω 14'53	42.29310 AU
				opposition	12960 Feb 05 12:59	25° Ω 12'06	-14°48'19
conjunction	12953 Jul 28 04:11	17° Ω 03'29	-13°01'02	direct	12960 Apr 27 17:14	24° Ω 07'20	
minimum elong	12953 Jul 28 04:04	17° Ω 03'28	13°01'47	evening set	12960 Jul 31 15:28	25° Ω 39'51	
max. Earth dist.	12953 Jul 30 13:20	17° Ω 07'23	42.83622 AU				
morning rise	12953 Aug 04 19:53	17° Ω 15'59		conjunction	12960 Aug 05 13:17	25° Ω 47'36	-14°12'57
retrograde	12953 Nov 06 21:19	18° Ω 48'52		minimum elong	12960 Aug 05 13:15	25° Ω 47'36	14°13'35
min. Earth dist.	12954 Jan 26 00:05	17° Ω 45'44	41.00142 AU	max. Earth dist.	12960 Aug 07 19:24	25° Ω 51'10	44.33076 AU
opposition	12954 Jan 28 08:31	17° Ω 42'48	-13°45'04	morning rise	12960 Aug 10 11:09	25° Ω 55'22	
direct	12954 Apr 20 11:48	16° Ω 36'41		retrograde	12960 Nov 15 06:31	27° Ω 29'30	
evening set	12954 Jul 22 09:14	18° Ω 08'19		min. Earth dist.	12961 Feb 03 20:02	26° Ω 27'30	42.49443 AU
				opposition	12961 Feb 06 00:50	26° Ω 24'49	-14°57'15
conjunction	12954 Jul 29 16:15	18° Ω 20'10	-13°12'43	direct	12961 Apr 29 05:02	25° Ω 20'14	
minimum elong	12954 Jul 29 16:10	18° Ω 20'10	13°13'27	evening set	12961 Aug 02 13:15	26° Ω 52'58	
max. Earth dist.	12954 Aug 01 00:24	18° Ω 23'59	43.05861 AU				
morning rise	12954 Aug 05 23:20	18° Ω 32'02		conjunction	12961 Aug 06 23:58	26° Ω 59'59	-14°21'28
retrograde	12954 Nov 08 11:12	20° Ω 05'02		minimum elong	12961 Aug 06 23:55	26° Ω 59'58	14°22'05
min. Earth dist.	12955 Jan 27 12:35	19° Ω 02'09	41.22446 AU	max. Earth dist.	12961 Aug 09 04:44	27° Ω 03'26	44.52882 AU
opposition	12955 Jan 29 21:55	18° Ω 59'10	-13°56'50	morning rise	12961 Aug 11 10:42	27° Ω 06'59	
direct	12955 Apr 21 23:26	17° Ω 53'19		retrograde	12961 Nov 16 15:02	28° Ω 41'23	
evening set	12955 Jul 24 06:02	19° Ω 25'02		min. Earth dist.	12962 Feb 05 07:04	27° Ω 39'33	42.69183 AU
				opposition	12962 Feb 07 12:25	27° Ω 36'51	-15°05'45
conjunction	12955 Jul 31 04:19	19° Ω 36'14	-13°23'55	direct	12962 Apr 30 17:37	26° Ω 32'26	
minimum elong	12955 Jul 31 04:13	19° Ω 36'14	13°24'38	evening set	12962 Aug 04 11:17	28° Ω 05'27	
max. Earth dist.	12955 Aug 02 13:13	19° Ω 40'04	43.27889 AU				
morning rise	12955 Aug 07 02:36	19° Ω 47'26		conjunction	12962 Aug 08 10:12	28° Ω 11'39	-14°29'34
retrograde	12955 Nov 09 21:14	21° Ω 20'35		minimum elong	12962 Aug 08 10:11	28° Ω 11'39	14°30'11
min. Earth dist.	12956 Jan 29 03:02	20° Ω 17'51	41.44511 AU	max. Earth dist.	12962 Aug 10 14:53	28° Ω 15'06	44.72322 AU
opposition	12956 Jan 31 10:59	20° Ω 14'56	-14°08'05	morning rise	12962 Aug 12 09:13	28° Ω 17'52	
direct	12956 Apr 22 13:58	19° Ω 09'19		retrograde	12962 Nov 17 23:49	29° Ω 52'36	
evening set	12956 Jul 25 03:01	20° Ω 41'09		min. Earth dist.	12963 Feb 06 19:40	28° Ω 50'51	42.88605 AU
				opposition	12963 Feb 08 23:53	28° Ω 48'12	-15°13'48
conjunction	12956 Jul 31 16:09	20° Ω 51'42	-13°34'37	direct	12963 May 02 07:06	27° Ω 43'58	
minimum elong	12956 Jul 31 16:05	20° Ω 51'42	13°35'19	evening set	12963 Aug 06 10:23	29° Ω 17'21	
max. Earth dist.	12956 Aug 03 00:08	20° Ω 55'28	43.49665 AU				
morning rise	12956 Aug 07 05:19	21° Ω 02'15		conjunction	12963 Aug 09 20:26	29° Ω 22'41	-14°37'14
retrograde	12956 Nov 10 06:47	22° Ω 35'32		minimum elong	12963 Aug 09 20:25	29° Ω 22'41	14°37'49
min. Earth dist.	12957 Jan 29 15:27	21° Ω 33'02	41.66279 AU	max. Earth dist.	12963 Aug 12 01:08	29° Ω 26'07	44.91487 AU
opposition	12957 Jan 31 23:45	21° Ω 30'07	-14°18'51	morning rise	12963 Aug 13 06:30	29° Ω 28'02	
direct	12957 Apr 24 04:28	20° Ω 24'44			12963 Sep 03 08:10	0° Υ	
evening set	12957 Jul 26 23:45	21° Ω 56'42		retrograde	12963 Nov 19 08:57	1° Υ 03'10	
				min. Earth dist.	12964 Feb 08 06:42	0° Υ 01'34	43.07756 AU
conjunction	12957 Aug 02 03:37	22° Ω 06'35	-13°44'52		12964 Feb 09 13:45	30° Υ δ	
minimum elong	12957 Aug 02 03:32	22° Ω 06'35	13°45'33	opposition	12964 Feb 10 10:47	29° Ω 58'56	-15°21'25
max. Earth dist.	12957 Aug 04 11:10	22° Ω 10'18	43.71110 AU	direct	12964 May 02 20:00	28° Ω 54'52	
morning rise	12957 Aug 08 07:32	22° Ω 16'27			12964 Jul 19 12:42	0° Υ	
retrograde	12957 Nov 11 18:39	23° Ω 49'56		evening set	12964 Aug 07 10:49	0° Υ 28'45	
min. Earth dist.	12958 Jan 31 05:03	22° Ω 47'34	41.87706 AU				
opposition	12958 Feb 02 12:28	22° Ω 44'43	-14°29'07	conjunction	12964 Aug 10 06:17	0° Υ 33'07	-14°44'29
direct	12958 Apr 25 17:47	21° Ω 39'33		minimum elong	12964 Aug 10 06:17	0° Υ 33'07	14°45'04
evening set	12958 Jul 28 20:53	23° Ω 11'41		max. Earth dist.	12964 Aug 12 09:58	0° Υ 36'28	45.10409 AU
				morning rise	12964 Aug 13 01:50	0° Υ 37'30	
conjunction	12958 Aug 03 15:08	23° Ω 20'52	-13°54'39	retrograde	12964 Nov 19 20:53	2° Υ 13'11	
minimum elong	12958 Aug 03 15:05	23° Ω 20'52	13°55'20	min. Earth dist.	12965 Feb 08 17:23	1° Υ 11'45	43.26690 AU
max. Earth dist.	12958 Aug 05 22:42	23° Ω 24'34	43.92196 AU	opposition	12965 Feb 10 21:38	1° Υ 09'07	-15°28'35
morning rise	12958 Aug 09 09:22	23° Ω 30'04		direct	12965 May 04 05:18	0° Υ 05'14	
retrograde	12958 Nov 13 05:34	25° Ω 03'45		evening set	12965 Aug 09 13:58	1° Υ 39'49	
min. Earth dist.	12959 Feb 01 18:14	24° Ω 01'32	42.08725 AU				
opposition	12959 Feb 04 00:51	23° Ω 58'43	-14°38'56	conjunction	12965 Aug 11 15:58	1° Υ 43'02	-14°51'17

minimum elong	12965 Aug 11 15:57	1°14'43"02	14°51'50"	minimum elong	12973 Aug 20 15:40	10°14'47"53	15°32'10"
morning rise	12965 Aug 13 18:00	1°14'46"16		max. Earth dist.	12973 Aug 22 14:40	10°14'50"50	46.67558 AU
max. Earth dist.	12965 Aug 13 20:27	1°14'46"25	45.29120 AU	retrograde	12973 Nov 30 03:55	12°14'24"35	
retrograde	12965 Nov 21 06:58	3°14'22"41		min. Earth dist.	12974 Feb 19 15:44	11°14'24"18	44.82936 AU
min. Earth dist.	12966 Feb 10 05:02	2°14'21"22	43.45395 AU	opposition	12974 Feb 21 14:15	11°14'22"00	-16°14'42"
opposition	12966 Feb 12 08:19	2°14'18'48	-15°35'18"	direct	12974 May 14 21:59	10°14'19'46	
direct	12966 May 05 15:07	1°14'15'07					
evening set	12966 Aug 12 02:07	2°14'51'00		conjunction	12974 Aug 21 23:41	11°14'53'59	-15°35'14"
				minimum elong	12974 Aug 21 23:45	11°14'53'59	15°35'39"
conjunction	12966 Aug 13 01:25	2°14'52'30	-14°57'41"	max. Earth dist.	12974 Aug 23 21:38	11°14'56'51	46.82955 AU
minimum elong	12966 Aug 13 01:25	2°14'52'30	14°58'14"	retrograde	12974 Dec 01 12:32	13°14'30'20	
morning rise	12966 Aug 14 00:44	2°14'54'00		min. Earth dist.	12975 Feb 21 01:27	12°14'30'06	44.98221 AU
max. Earth dist.	12966 Aug 15 04:43	2°14'55'47	45.47619 AU	opposition	12975 Feb 22 23:09	12°14'27'51	-16°18'01"
retrograde	12966 Nov 22 16:44	4°14'31'45		direct	12975 May 16 07:55	11°14'25'44	
min. Earth dist.	12967 Feb 11 14:42	3°14'30'38	43.63874 AU				
opposition	12967 Feb 13 18:38	3°14'28'02	-15°41'35"	conjunction	12975 Aug 23 07:45	12°14'59'33	-15°38'23"
direct	12967 May 06 23:38	2°14'24'34		minimum elong	12975 Aug 23 07:50	12°14'59'34	15°38'47"
				max. Earth dist.	12975 Aug 25 06:09	13°14'02'26	46.98014 AU
conjunction	12967 Aug 14 10:41	4°14'01'33	-15°03'39"	retrograde	12975 Dec 02 20:31	14°14'35'33	
minimum elong	12967 Aug 14 10:42	4°14'01'33	15°04'10"	min. Earth dist.	12976 Feb 22 11:01	13°14'35'23	45.13170 AU
max. Earth dist.	12967 Aug 16 14:10	4°14'04'50	45.65868 AU	opposition	12976 Feb 24 07:50	13°14'33'11	-16°20'59"
retrograde	12967 Nov 24 01:00	5°14'40'25		direct	12976 May 16 18:23	12°14'31'11	
min. Earth dist.	12968 Feb 13 02:18	4°14'39'26	43.82082 AU				
opposition	12968 Feb 15 04:54	4°14'36'54	-15°47'26"	conjunction	12976 Aug 23 15:29	14°14'04'38	-15°41'11"
direct	12968 May 07 10:14	3°14'33'39		minimum elong	12976 Aug 23 15:34	14°14'04'38	15°41'32"
				max. Earth dist.	12976 Aug 25 12:20	14°14'07'25	47.12775 AU
conjunction	12968 Aug 14 19:53	5°14'10'13	-15°09'14"	retrograde	12976 Dec 03 06:52	15°14'40'17	
minimum elong	12968 Aug 14 19:54	5°14'10'13	15°09'45"	min. Earth dist.	12977 Feb 22 19:01	14°14'40'14	45.27843 AU
max. Earth dist.	12968 Aug 16 23:02	5°14'13'29	45.83835 AU	opposition	12977 Feb 24 16:15	14°14'38'02	-16°23'35"
retrograde	12968 Nov 24 07:59	6°14'48'44		direct	12977 May 18 00:05	13°14'36'10	
min. Earth dist.	12969 Feb 13 12:15	5°14'47'56	43.99963 AU				
opposition	12969 Feb 15 14:46	5°14'45'25	-15°52'54"	conjunction	12977 Aug 24 23:11	15°14'09'16	-15°43'37"
direct	12969 May 08 23:11	4°14'42'22		minimum elong	12977 Aug 24 23:17	15°14'09'17	15°43'59"
				max. Earth dist.	12977 Aug 26 20:25	15°14'12'04	47.27268 AU
conjunction	12969 Aug 16 04:50	6°14'18'32	-15°14'26"	retrograde	12977 Dec 04 15:06	16°14'44'35	
minimum elong	12969 Aug 16 04:52	6°14'18'32	15°14'55"	min. Earth dist.	12978 Feb 24 04:58	15°14'44'36	45.42249 AU
max. Earth dist.	12969 Aug 18 06:41	6°14'21'43	46.01454 AU	opposition	12978 Feb 26 00:45	15°14'42'28	-16°25'49"
retrograde	12969 Nov 25 19:35	7°14'56'43		direct	12978 May 19 07:15	14°14'40'45	
min. Earth dist.	12970 Feb 14 22:46	6°14'56'03	44.17483 AU				
opposition	12970 Feb 17 00:42	6°14'53'34	-15°57'58"	conjunction	12978 Aug 26 06:39	16°14'13'31	-15°45'43"
direct	12970 May 10 08:37	5°14'50'43		minimum elong	12978 Aug 26 06:45	16°14'13'31	15°46'03"
				max. Earth dist.	12978 Aug 28 03:18	16°14'16'16	47.41509 AU
conjunction	12970 Aug 17 13:44	7°14'26'30	-15°19'17"	retrograde	12978 Dec 05 19:47	17°14'48'32	
minimum elong	12970 Aug 17 13:46	7°14'26'30	15°19'45"	min. Earth dist.	12979 Feb 25 12:41	16°14'48'41	45.56374 AU
max. Earth dist.	12970 Aug 19 15:53	7°14'29'41	46.18681 AU	opposition	12979 Feb 27 08:55	16°14'46'32	-16°27'42"
retrograde	12970 Nov 27 06:07	9°14'04'20		direct	12979 May 20 16:47	15°14'44'58	
min. Earth dist.	12971 Feb 16 10:02	8°14'03'45	44.34563 AU				
opposition	12971 Feb 18 10:27	8°14'01'21	-16°02'40"	conjunction	12979 Aug 27 14:01	17°14'17'26	-15°47'29"
direct	12971 May 11 17:52	6°14'58'41		minimum elong	12979 Aug 27 14:08	17°14'17'26	15°47'49"
				max. Earth dist.	12979 Aug 29 09:40	17°14'20'06	47.55454 AU
conjunction	12971 Aug 18 22:32	8°14'34'05	-15°23'46"	retrograde	12979 Dec 07 02:56	18°14'52'09	
minimum elong	12971 Aug 18 22:35	8°14'34'05	15°24'13"	min. Earth dist.	12980 Feb 26 21:44	17°14'52'24	45.70200 AU
max. Earth dist.	12971 Aug 20 22:50	8°14'37'08	46.35454 AU	opposition	12980 Feb 28 16:55	17°14'50'19	-16°29'14"
retrograde	12971 Nov 28 16:03	10°14'11'32		direct	12980 May 21 01:52	16°14'48'54	
min. Earth dist.	12972 Feb 17 19:17	9°14'11'07	44.51168 AU				
opposition	12972 Feb 19 19:46	9°14'08'44	-16°07'01"	conjunction	12980 Aug 27 21:25	18°14'21'04	-15°48'55"
direct	12972 May 12 01:03	8°14'06'13		minimum elong	12980 Aug 27 21:33	18°14'21'04	15°49'13"
				max. Earth dist.	12980 Aug 29 17:21	18°14'23'45	47.69084 AU
conjunction	12972 Aug 19 07:13	9°14'41'14	-15°27'55"	retrograde	12980 Dec 07 10:32	19°14'55'31	
minimum elong	12972 Aug 19 07:15	9°14'41'14	15°28'22"	min. Earth dist.	12981 Feb 27 06:38	18°14'55'52	45.83663 AU
max. Earth dist.	12972 Aug 21 07:08	9°14'44'14	46.51737 AU	opposition	12981 Mar 01 00:52	18°14'53'50	-16°30'26"
retrograde	12972 Nov 28 22:50	11°14'18'19		direct	12981 May 22 11:05	17°14'52'35	
min. Earth dist.	12973 Feb 18 06:35	10°14'17'55	44.67281 AU				
opposition	12973 Feb 20 05:11	10°14'15'38	-16°11'02"	conjunction	12981 Aug 29 04:27	19°14'24'27	-15°50'02"
direct	12973 May 13 10:58	9°14'13'16		minimum elong	12981 Aug 29 04:34	19°14'24'27	15°50'20"
				max. Earth dist.	12981 Aug 30 22:42	19°14'27'02	47.82337 AU
conjunction	12973 Aug 20 15:35	10°14'47'53	-15°31'45"	retrograde	12981 Dec 08 20:24	20°14'58'40	

min. Earth dist.	12982 Feb 28 14:35	19° \mathring{M} 59'09	45.96730 AU	conjunction	12990 Sep 07 16:24	28° \mathring{M} 42'23	-15°47'36
opposition	12982 Mar 02 08:44	19° \mathring{M} 57'07	-16°31'20	minimum elong	12990 Sep 07 16:35	28° \mathring{M} 42'23	15°47'44
direct	12982 May 23 16:46	18° \mathring{M} 56'02		max. Earth dist.	12990 Sep 09 04:19	28° \mathring{M} 44'31	48.81104 AU
					12990 Nov 11 11:49	0° \mathring{A}	
conjunction	12982 Aug 30 11:39	20° \mathring{M} 27'38	-15°50'52	retrograde	12990 Dec 18 04:21	0° \mathring{A} 14'23	
minimum elong	12982 Aug 30 11:48	20° \mathring{M} 27'38	15°51'08		12991 Jan 24 18:01	30° \mathring{R} \mathring{M}	
max. Earth dist.	12982 Sep 01 05:48	20° \mathring{M} 30'11	47.95155 AU	min. Earth dist.	12991 Mar 10 14:46	29° \mathring{M} 15'21	46.93602 AU
retrograde	12982 Dec 10 03:43	22° \mathring{M} 01'35		opposition	12991 Mar 12 01:02	29° \mathring{M} 13'43	-16°26'37
min. Earth dist.	12983 Mar 02 00:19	21° \mathring{M} 02'07	46.09327 AU	direct	12991 Jun 02 11:36	28° \mathring{M} 13'37	
opposition	12983 Mar 03 16:29	21° \mathring{M} 00'11	-16°31'56				
direct	12983 May 24 23:11	19° \mathring{M} 59'15		conjunction	12991 Sep 08 22:22	29° \mathring{M} 42'53	-15°45'54
				minimum elong	12991 Sep 08 22:33	29° \mathring{M} 42'54	15°46'00
conjunction	12983 Aug 31 18:46	21° \mathring{M} 30'35	-15°51'25	max. Earth dist.	12991 Sep 10 08:40	29° \mathring{M} 44'55	48.90291 AU
minimum elong	12983 Aug 31 18:54	21° \mathring{M} 30'35	15°51'40		12991 Sep 21 00:43	0° \mathring{A}	
max. Earth dist.	12983 Sep 02 11:30	21° \mathring{M} 33'03	48.07490 AU	retrograde	12991 Dec 19 12:51	1° \mathring{A} 14'41	
retrograde	12983 Dec 11 08:53	23° \mathring{M} 04'17		min. Earth dist.	12992 Mar 10 21:25	0° \mathring{A} 15'45	47.02604 AU
min. Earth dist.	12984 Mar 02 08:02	22° \mathring{M} 04'55	46.21399 AU	opposition	12992 Mar 12 07:31	0° \mathring{A} 14'08	-16°24'37
opposition	12984 Mar 04 00:00	22° \mathring{M} 03'00	-16°32'16		12992 Mar 24 20:28	30° \mathring{R} \mathring{M}	
direct	12984 May 25 06:22	21° \mathring{M} 02'12		direct	12992 Jun 02 17:12	29° \mathring{M} 14'08	
					12992 Aug 08 10:20	0° \mathring{A}	
conjunction	12984 Sep 01 01:41	22° \mathring{M} 33'16	-15°51'42	conjunction	12992 Sep 09 04:21	0° \mathring{A} 43'11	-15°43'56
minimum elong	12984 Sep 01 01:51	22° \mathring{M} 33'16	15°51'55	minimum elong	12992 Sep 09 04:32	0° \mathring{A} 43'12	15°44'02
max. Earth dist.	12984 Sep 02 17:00	22° \mathring{M} 35'38	48.19281 AU	max. Earth dist.	12992 Sep 10 14:49	0° \mathring{A} 45'13	48.99146 AU
retrograde	12984 Dec 11 15:31	24° \mathring{M} 06'43		retrograde	12992 Dec 19 20:26	2° \mathring{A} 14'48	
min. Earth dist.	12985 Mar 03 17:11	23° \mathring{M} 07'22	46.32936 AU	min. Earth dist.	12993 Mar 12 05:31	1° \mathring{A} 15'53	47.11245 AU
opposition	12985 Mar 05 07:31	23° \mathring{M} 05'32	-16°32'19	opposition	12993 Mar 13 13:59	1° \mathring{A} 14'21	-16°22'21
direct	12985 May 26 15:02	22° \mathring{M} 04'51		direct	12993 Jun 03 22:43	0° \mathring{A} 14'28	
conjunction	12985 Sep 02 08:37	23° \mathring{M} 35'38	-15°51'43	conjunction	12993 Sep 10 10:17	1° \mathring{A} 43'19	-15°41'42
minimum elong	12985 Sep 02 08:45	23° \mathring{M} 35'38	15°51'56	minimum elong	12993 Sep 10 10:29	1° \mathring{A} 43'19	15°41'46
max. Earth dist.	12985 Sep 03 23:43	23° \mathring{M} 37'59	48.30562 AU	max. Earth dist.	12993 Sep 11 19:35	1° \mathring{A} 45'17	49.07643 AU
retrograde	12985 Dec 12 21:14	25° \mathring{M} 08'49		retrograde	12993 Dec 21 02:54	3° \mathring{A} 14'44	
min. Earth dist.	12986 Mar 05 01:24	24° \mathring{M} 09'32	46.43964 AU	min. Earth dist.	12994 Mar 13 11:43	2° \mathring{A} 15'55	47.19495 AU
opposition	12986 Mar 06 14:50	24° \mathring{M} 07'44	-16°32'06	opposition	12994 Mar 14 20:18	2° \mathring{A} 14'23	-16°19'49
direct	12986 May 28 01:16	23° \mathring{M} 07'09		direct	12994 Jun 05 02:11	1° \mathring{A} 14'36	
conjunction	12986 Sep 03 15:06	24° \mathring{M} 37'39	-15°51'28	conjunction	12994 Sep 11 16:05	2° \mathring{A} 43'16	-15°39'12
minimum elong	12986 Sep 03 15:17	24° \mathring{M} 37'39	15°51'40	minimum elong	12994 Sep 11 16:17	2° \mathring{A} 43'17	15°39'16
max. Earth dist.	12986 Sep 05 04:22	24° \mathring{M} 39'53	48.41373 AU	max. Earth dist.	12994 Sep 13 00:16	2° \mathring{A} 45'10	49.15706 AU
retrograde	12986 Dec 14 07:04	26° \mathring{M} 10'35		retrograde	12994 Dec 22 08:18	4° \mathring{A} 14'30	
min. Earth dist.	12987 Mar 06 08:49	25° \mathring{M} 11'21	46.54564 AU	min. Earth dist.	12995 Mar 14 19:59	3° \mathring{A} 15'41	47.27288 AU
opposition	12987 Mar 07 21:59	25° \mathring{M} 09'35	-16°31'35	opposition	12995 Mar 16 02:41	3° \mathring{A} 14'14	-16°17'02
direct	12987 May 29 06:35	24° \mathring{M} 09'05		direct	12995 Jun 06 07:51	2° \mathring{A} 14'34	
conjunction	12987 Sep 04 21:42	25° \mathring{M} 39'18	-15°50'56	conjunction	12995 Sep 12 22:08	3° \mathring{A} 43'02	-15°36'28
minimum elong	12987 Sep 04 21:50	25° \mathring{M} 39'19	15°51'06	minimum elong	12995 Sep 12 22:20	3° \mathring{A} 43'02	15°36'30
max. Earth dist.	12987 Sep 06 11:05	25° \mathring{M} 41'33	48.51778 AU	max. Earth dist.	12995 Sep 14 05:54	3° \mathring{A} 44'54	49.23288 AU
retrograde	12987 Dec 15 15:36	27° \mathring{M} 11'59		retrograde	12995 Dec 23 11:24	5° \mathring{A} 14'05	
min. Earth dist.	12988 Mar 06 17:25	26° \mathring{M} 12'45	46.64785 AU	min. Earth dist.	12996 Mar 15 02:50	4° \mathring{A} 15'19	47.34555 AU
opposition	12988 Mar 08 04:53	26° \mathring{M} 11'04	-16°30'48	opposition	12996 Mar 16 08:43	4° \mathring{A} 13'54	-16°14'01
direct	12988 May 29 11:57	25° \mathring{M} 10'40		direct	12996 Jun 06 17:21	3° \mathring{A} 14'18	
conjunction	12988 Sep 05 04:05	26° \mathring{M} 40'38	-15°50'07	conjunction	12996 Sep 13 03:55	4° \mathring{A} 42'34	-15°33'31
minimum elong	12988 Sep 05 04:16	26° \mathring{M} 40'38	15°50'17	minimum elong	12996 Sep 13 04:07	4° \mathring{A} 42'35	15°33'32
max. Earth dist.	12988 Sep 06 16:34	26° \mathring{M} 42'48	48.61853 AU	max. Earth dist.	12996 Sep 14 09:26	4° \mathring{A} 44'18	49.30339 AU
retrograde	12988 Dec 15 19:35	28° \mathring{M} 13'03		retrograde	12996 Dec 23 18:53	6° \mathring{A} 13'27	
min. Earth dist.	12989 Mar 07 23:44	27° \mathring{M} 13'56	46.74686 AU	min. Earth dist.	12997 Mar 16 09:50	5° \mathring{A} 14'41	47.41296 AU
opposition	12989 Mar 09 11:40	27° \mathring{M} 12'14	-16°29'42	opposition	12997 Mar 17 14:54	5° \mathring{A} 13'19	-16°10'46
direct	12989 May 30 18:01	26° \mathring{M} 11'55		direct	12997 Jun 07 23:54	4° \mathring{A} 13'47	
conjunction	12989 Sep 06 10:09	27° \mathring{M} 41'38	-15°49'00	conjunction	12997 Sep 14 09:36	5° \mathring{A} 41'51	-15°30'20
minimum elong	12989 Sep 06 10:18	27° \mathring{M} 41'39	15°49'08	minimum elong	12997 Sep 14 09:49	5° \mathring{A} 41'52	15°30'20
max. Earth dist.	12989 Sep 07 21:45	27° \mathring{M} 43'46	48.71617 AU	max. Earth dist.	12997 Sep 15 15:01	5° \mathring{A} 43'34	49.36866 AU
retrograde	12989 Dec 16 23:41	29° \mathring{M} 13'51		retrograde	12997 Dec 25 02:26	7° \mathring{A} 12'33	
min. Earth dist.	12990 Mar 09 07:45	28° \mathring{M} 14'45	46.84295 AU	opposition	12998 Mar 18 21:02	6° \mathring{A} 12'27	-16°07'16
opposition	12990 Mar 10 18:31	28° \mathring{M} 13'06	-16°28'18	min. Earth dist.	12998 Mar 17 17:47	6° \mathring{A} 13'44	47.47520 AU
direct	12990 Jun 01 02:10	27° \mathring{M} 12'54					

direct	12998 Jun 09 05:49	5° <u>♂</u> 12'59		evening set	13006 Sep 22 02:33	14° <u>♂</u> 23'10	
conjunction	12998 Sep 15 15:12	6° <u>♂</u> 40'50 -15°26'55		conjunction	13006 Sep 24 09:05	14° <u>♂</u> 26'19 -14°50'32	
minimum elong	12998 Sep 15 15:24	6° <u>♂</u> 40'51 15°26'54		minimum elong	13006 Sep 24 09:19	14° <u>♂</u> 26'20 14°50'23	
max. Earth dist.	12998 Sep 16 19:15	6° <u>♂</u> 42'29 49.42925 AU		max. Earth dist.	13006 Sep 25 06:58	14° <u>♂</u> 27'35 49.79257 AU	
retrograde	12998 Dec 26 07:44	8° <u>♂</u> 11'20		morning rise	13006 Sep 26 16:10	14° <u>♂</u> 29'30	
min. Earth dist.	12999 Mar 18 23:22	7° <u>♂</u> 12'35 47.53307 AU		retrograde	13007 Jan 04 00:53	15° <u>♂</u> 55'54	
opposition	12999 Mar 20 02:45	7° <u>♂</u> 11'18 -16°03'33		opposition	13007 Mar 28 22:54	14° <u>♂</u> 56'23 -15°24'23	
direct	12999 Jun 10 09:49	6° <u>♂</u> 11'52		min. Earth dist.	13007 Mar 28 01:46	14° <u>♂</u> 57'23 47.87677 AU	
				direct	13007 Jun 19 06:49	13° <u>♂</u> 57'32	
conjunction	12999 Sep 16 20:38	7° <u>♂</u> 39'33 -15°23'15		evening set	13007 Sep 22 17:43	15° <u>♂</u> 20'20	
minimum elong	12999 Sep 16 20:52	7° <u>♂</u> 39'33 15°23'14					
max. Earth dist.	12999 Sep 17 23:39	7° <u>♂</u> 41'07 49.48568 AU		conjunction	13007 Sep 25 14:23	15° <u>♂</u> 24'17 -14°44'55	
retrograde	12999 Dec 27 11:42	9° <u>♂</u> 09'52		minimum elong	13007 Sep 25 14:37	15° <u>♂</u> 24'18 14°44'46	
min. Earth dist.	13000 Mar 20 06:49	8° <u>♂</u> 11'04 47.58716 AU		max. Earth dist.	13007 Sep 26 11:59	15° <u>♂</u> 25'32 49.82121 AU	
opposition	13000 Mar 21 08:36	8° <u>♂</u> 09'52 -15°59'34		morning rise	13007 Sep 28 11:37	15° <u>♂</u> 28'17	
direct	13000 Jun 11 15:58	7° <u>♂</u> 10'29		retrograde	13008 Jan 05 08:50	16° <u>♂</u> 53'47	
				min. Earth dist.	13008 Mar 28 09:03	15° <u>♂</u> 55'14 47.90188 AU	
conjunction	13000 Sep 18 02:02	8° <u>♂</u> 38'00 -15°19'21		opposition	13008 Mar 29 04:18	15° <u>♂</u> 54'20 -15°18'24	
minimum elong	13000 Sep 18 02:14	8° <u>♂</u> 38'00 15°19'17		direct	13008 Jun 19 12:09	14° <u>♂</u> 55'33	
max. Earth dist.	13000 Sep 19 05:12	8° <u>♂</u> 39'35 49.53871 AU		evening set	13008 Sep 22 10:53	16° <u>♂</u> 17'33	
retrograde	13000 Dec 28 14:27	10° <u>♂</u> 08'10					
opposition	13001 Mar 22 14:14	9° <u>♂</u> 08'13 -15°55'19		conjunction	13008 Sep 25 19:31	16° <u>♂</u> 22'11 -14°39'06	
min. Earth dist.	13001 Mar 21 12:40	9° <u>♂</u> 09'25 47.63792 AU		minimum elong	13008 Sep 25 19:46	16° <u>♂</u> 22'12 14°38'54	
direct	13001 Jun 13 00:15	8° <u>♂</u> 08'53		max. Earth dist.	13008 Sep 26 15:25	16° <u>♂</u> 23'20 49.84456 AU	
				morning rise	13008 Sep 29 04:46	16° <u>♂</u> 26'52	
conjunction	13001 Sep 19 07:14	9° <u>♂</u> 36'15 -15°15'11		retrograde	13009 Jan 05 16:01	17° <u>♂</u> 51'36	
minimum elong	13001 Sep 19 07:28	9° <u>♂</u> 36'16 15°15'07		opposition	13009 Mar 30 09:34	16° <u>♂</u> 52'11 -15°12'13	
max. Earth dist.	13001 Sep 20 08:50	9° <u>♂</u> 37'44 49.58871 AU		min. Earth dist.	13009 Mar 29 14:25	16° <u>♂</u> 53'05 47.92153 AU	
retrograde	13001 Dec 29 21:37	11° <u>♂</u> 06'18		direct	13009 Jun 20 14:40	15° <u>♂</u> 53'26	
opposition	13002 Mar 23 19:51	10° <u>♂</u> 06'24 -15°50'48		evening set	13009 Sep 23 05:14	17° <u>♂</u> 14'43	
min. Earth dist.	13002 Mar 22 18:37	10° <u>♂</u> 07'35 47.68590 AU					
direct	13002 Jun 14 05:26	9° <u>♂</u> 07'08		conjunction	13009 Sep 27 00:38	17° <u>♂</u> 19'59 -14°33'04	
				minimum elong	13009 Sep 27 00:51	17° <u>♂</u> 19'59 14°32'52	
conjunction	13002 Sep 20 12:29	10° <u>♂</u> 34'21 -15°10'45		max. Earth dist.	13009 Sep 27 19:04	17° <u>♂</u> 21'02 49.86243 AU	
minimum elong	13002 Sep 20 12:43	10° <u>♂</u> 34'22 15°10'39		morning rise	13009 Sep 30 20:39	17° <u>♂</u> 25'16	
max. Earth dist.	13002 Sep 21 14:20	10° <u>♂</u> 35'51 49.63589 AU		retrograde	13010 Jan 06 19:54	18° <u>♂</u> 49'17	
retrograde	13002 Dec 31 04:24	12° <u>♂</u> 04'17		opposition	13010 Mar 31 14:55	17° <u>♂</u> 49'53 -15°05'50	
min. Earth dist.	13003 Mar 24 01:29	11° <u>♂</u> 05'35 47.73090 AU		min. Earth dist.	13010 Mar 30 21:50	17° <u>♂</u> 50'41 47.93595 AU	
opposition	13003 Mar 25 01:27	11° <u>♂</u> 04'28 -15°46'01		direct	13010 Jun 21 19:11	16° <u>♂</u> 51'09	
direct	13003 Jun 15 10:55	10° <u>♂</u> 05'17		evening set	13010 Sep 24 00:30	18° <u>♂</u> 11'46	
conjunction	13003 Sep 21 17:43	11° <u>♂</u> 32'23 -15°06'04		conjunction	13010 Sep 28 05:44	18° <u>♂</u> 17'35 -14°26'50	
minimum elong	13003 Sep 21 17:56	11° <u>♂</u> 32'24 15°05'58		minimum elong	13010 Sep 28 05:59	18° <u>♂</u> 17'36 14°26'37	
max. Earth dist.	13003 Sep 22 18:31	11° <u>♂</u> 33'49 49.68024 AU		max. Earth dist.	13010 Sep 28 24:00	18° <u>♂</u> 18'38 49.87539 AU	
retrograde	13004 Jan 01 10:38	13° <u>♂</u> 02'12		morning rise	13010 Oct 02 11:37	18° <u>♂</u> 23'26	
min. Earth dist.	13004 Mar 24 06:32	12° <u>♂</u> 03'35 47.77291 AU		retrograde	13011 Jan 07 20:52	19° <u>♂</u> 46'47	
opposition	13004 Mar 25 06:43	12° <u>♂</u> 02'28 -15°40'59		opposition	13011 Apr 01 20:02	18° <u>♂</u> 47'23 -14°59'13	
direct	13004 Jun 15 12:55	11° <u>♂</u> 03'22		min. Earth dist.	13011 Apr 01 03:25	18° <u>♂</u> 48'10 47.94556 AU	
				direct	13011 Jun 23 02:30	17° <u>♂</u> 48'39	
conjunction	13004 Sep 21 22:50	12° <u>♂</u> 30'23 -15°01'08		evening set	13011 Sep 24 20:15	19° <u>♂</u> 08'39	
minimum elong	13004 Sep 21 23:04	12° <u>♂</u> 30'23 15°01'00					
max. Earth dist.	13004 Sep 22 22:44	12° <u>♂</u> 31'46 49.72138 AU		conjunction	13011 Sep 29 10:40	19° <u>♂</u> 15'00 -14°20'23	
retrograde	13005 Jan 01 15:38	14° <u>♂</u> 00'06		minimum elong	13011 Sep 29 10:54	19° <u>♂</u> 15'01 14°20'09	
opposition	13005 Mar 26 12:15	13° <u>♂</u> 00'26 -15°35'41		max. Earth dist.	13011 Sep 30 02:55	19° <u>♂</u> 15'56 49.88388 AU	
min. Earth dist.	13005 Mar 25 13:41	13° <u>♂</u> 01'29 47.81161 AU		morning rise	13011 Oct 04 01:47	19° <u>♂</u> 21'23	
direct	13005 Jun 16 16:16	12° <u>♂</u> 01'26		retrograde	13012 Jan 09 02:11	20° <u>♂</u> 44'06	
evening set	13005 Sep 21 16:03	13° <u>♂</u> 26'16		min. Earth dist.	13012 Apr 01 09:13	19° <u>♂</u> 45'27 47.95116 AU	
				opposition	13012 Apr 02 01:02	19° <u>♂</u> 44'42 -14°52'23	
conjunction	13005 Sep 23 03:57	13° <u>♂</u> 28'21 -14°55'57		direct	13012 Jun 23 08:24	18° <u>♂</u> 45'58	
minimum elong	13005 Sep 23 04:11	13° <u>♂</u> 28'22 14°55'50		evening set	13012 Sep 24 16:30	20° <u>♂</u> 05'24	
morning rise	13005 Sep 24 16:22	13° <u>♂</u> 30'27					
max. Earth dist.	13005 Sep 24 03:50	13° <u>♂</u> 29'44 49.75907 AU		conjunction	13012 Sep 29 15:40	20° <u>♂</u> 12'13 -14°13'42	
retrograde	13006 Jan 02 18:21	14° <u>♂</u> 58'00		minimum elong	13012 Sep 29 15:55	20° <u>♂</u> 12'14 14°13'28	
opposition	13006 Mar 27 17:38	13° <u>♂</u> 58'25 -15°30'09		max. Earth dist.	13012 Sep 30 08:01	20° <u>♂</u> 13'09 49.88858 AU	
min. Earth dist.	13006 Mar 26 19:28	13° <u>♂</u> 59'27 47.84639 AU		morning rise	13012 Oct 04 15:34	20° <u>♂</u> 19'06	
direct	13006 Jun 18 00:26	12° <u>♂</u> 59'30		retrograde	13013 Jan 09 07:47	21° <u>♂</u> 41'15	

opposition	13013 Apr 03 06:09	20° <u>♁</u> 41'51	-14°45'19	max. Earth dist.	13019 Oct 07 11:30	26° <u>♁</u> 51'27	49.82782 AU
min. Earth dist.	13013 Apr 02 15:37	20° <u>♁</u> 42'32	47.95314 AU	morning rise	13019 Oct 14 06:51	27° <u>♁</u> 00'46	
direct	13013 Jun 24 15:10	19° <u>♁</u> 43'08		retrograde	13020 Jan 16 22:48	28° <u>♁</u> 19'45	
evening set	13013 Sep 25 12:59	21° <u>♁</u> 01'59		opposition	13020 Apr 09 16:51	27° <u>♁</u> 20'31	-13°49'13
				min. Earth dist.	13020 Apr 09 08:30	27° <u>♁</u> 20'55	47.87111 AU
conjunction	13013 Sep 30 20:25	21° <u>♁</u> 09'17	-14°06'48	direct	13020 Jun 30 19:42	26° <u>♁</u> 21'59	
minimum elong	13013 Sep 30 20:39	21° <u>♁</u> 09'18	14°06'32	evening set	13020 Sep 29 20:04	27° <u>♁</u> 37'48	
max. Earth dist.	13013 Oct 01 11:45	21° <u>♁</u> 10'10	49.89007 AU				
morning rise	13013 Oct 06 04:36	21° <u>♁</u> 16'38		conjunction	13020 Oct 07 06:53	27° <u>♁</u> 48'00	-13°12'05
retrograde	13014 Jan 10 14:34	22° <u>♁</u> 38'14		minimum elong	13020 Oct 07 07:07	27° <u>♁</u> 48'01	13°11'42
opposition	13014 Apr 04 11:09	21° <u>♁</u> 38'51	-14°38'01	max. Earth dist.	13020 Oct 07 16:08	27° <u>♁</u> 48'32	49.80181 AU
min. Earth dist.	13014 Apr 03 20:20	21° <u>♁</u> 39'32	47.95200 AU	morning rise	13020 Oct 14 18:37	27° <u>♁</u> 58'15	
direct	13014 Jun 25 17:47	20° <u>♁</u> 40'08		retrograde	13021 Jan 17 00:39	29° <u>♁</u> 16'52	
evening set	13014 Sep 26 09:47	21° <u>♁</u> 58'29		opposition	13021 Apr 10 21:48	28° <u>♁</u> 17'38	-13°40'21
				min. Earth dist.	13021 Apr 10 14:00	28° <u>♁</u> 18'00	47.84106 AU
conjunction	13014 Oct 02 01:17	22° <u>♁</u> 06'14	-13°59'39	direct	13021 Jul 02 02:11	27° <u>♁</u> 19'05	
minimum elong	13014 Oct 02 01:32	22° <u>♁</u> 06'15	13°59'23	evening set	13021 Sep 30 18:27	28° <u>♁</u> 34'33	
max. Earth dist.	13014 Oct 02 15:40	22° <u>♁</u> 07'03	49.88837 AU				
morning rise	13014 Oct 07 17:38	22° <u>♁</u> 14'02		conjunction	13021 Oct 08 11:43	28° <u>♁</u> 45'07	-13°03'27
retrograde	13015 Jan 11 20:26	23° <u>♁</u> 35'08		minimum elong	13021 Oct 08 11:58	28° <u>♁</u> 45'08	13°03'03
opposition	13015 Apr 05 16:06	22° <u>♁</u> 35'45	-14°30'27	max. Earth dist.	13021 Oct 08 18:40	28° <u>♁</u> 45'31	49.77028 AU
min. Earth dist.	13015 Apr 05 02:57	22° <u>♁</u> 36'22	47.94779 AU	morning rise	13021 Oct 16 06:09	28° <u>♁</u> 55'45	
direct	13015 Jun 26 19:58	21° <u>♁</u> 37'04			13021 Dec 12 09:12	0° <u>♁</u>	
evening set	13015 Sep 27 06:58	22° <u>♁</u> 54'55		retrograde	13022 Jan 18 05:56	0° <u>♁</u> 13'59	
					13022 Feb 24 18:49	30° <u>♁</u>	
conjunction	13015 Oct 03 06:14	23° <u>♁</u> 03'07	-13°52'16	opposition	13022 Apr 12 02:48	29° <u>♁</u> 14'44	-13°31'17
minimum elong	13015 Oct 03 06:29	23° <u>♁</u> 03'08	13°51'58	min. Earth dist.	13022 Apr 11 20:14	29° <u>♁</u> 15'03	47.80570 AU
max. Earth dist.	13015 Oct 03 20:37	23° <u>♁</u> 03'56	49.88371 AU	direct	13022 Jul 03 08:04	28° <u>♁</u> 16'11	
morning rise	13015 Oct 09 06:17	23° <u>♁</u> 11'21		evening set	13022 Oct 01 17:00	29° <u>♁</u> 31'17	
retrograde	13016 Jan 12 22:48	24° <u>♁</u> 31'58					
opposition	13016 Apr 05 21:00	23° <u>♁</u> 32'37	-14°22'39	conjunction	13022 Oct 09 16:49	29° <u>♁</u> 42'12	-12°54'37
min. Earth dist.	13016 Apr 05 07:53	23° <u>♁</u> 33'14	47.94034 AU	minimum elong	13022 Oct 09 17:04	29° <u>♁</u> 42'13	12°54'13
direct	13016 Jun 27 02:23	22° <u>♁</u> 33'57		max. Earth dist.	13022 Oct 09 23:28	29° <u>♁</u> 42'35	49.73358 AU
evening set	13016 Sep 27 04:11	23° <u>♁</u> 51'22		morning rise	13022 Oct 17 17:41	29° <u>♁</u> 53'12	
					13022 Oct 22 18:11	0° <u>♁</u>	
conjunction	13016 Oct 03 10:53	23° <u>♁</u> 59'58	-13°44'40	retrograde	13023 Jan 19 11:21	1° <u>♁</u> 11'05	
minimum elong	13016 Oct 03 11:08	23° <u>♁</u> 59'59	13°44'22	opposition	13023 Apr 13 07:37	0° <u>♁</u> 11'49	-13°22'01
max. Earth dist.	13016 Oct 03 23:34	24° <u>♁</u> 00'42	49.87576 AU	min. Earth dist.	13023 Apr 13 02:37	0° <u>♁</u> 12'03	47.76539 AU
morning rise	13016 Oct 09 18:32	24° <u>♁</u> 08'38			13023 Apr 23 23:35	30° <u>♁</u>	
retrograde	13017 Jan 13 03:38	25° <u>♁</u> 28'49		direct	13023 Jul 04 14:35	29° <u>♁</u> 13'13	
opposition	13017 Apr 07 02:00	24° <u>♁</u> 29'30	-14°14'37		13023 Sep 11 04:36	0° <u>♁</u>	
min. Earth dist.	13017 Apr 06 13:46	24° <u>♁</u> 30'04	47.92956 AU	evening set	13023 Oct 02 15:47	0° <u>♁</u> 27'58	
direct	13017 Jun 28 08:11	23° <u>♁</u> 30'52					
evening set	13017 Sep 28 01:44	24° <u>♁</u> 47'51		conjunction	13023 Oct 10 21:46	0° <u>♁</u> 39'15	-12°45'34
				minimum elong	13023 Oct 10 22:01	0° <u>♁</u> 39'16	12°45'10
conjunction	13017 Oct 04 15:50	24° <u>♁</u> 56'52	-13°36'50	max. Earth dist.	13023 Oct 11 03:07	0° <u>♁</u> 39'33	49.69243 AU
minimum elong	13017 Oct 04 16:06	24° <u>♁</u> 56'53	13°36'30	morning rise	13023 Oct 19 04:54	0° <u>♁</u> 50'37	
max. Earth dist.	13017 Oct 05 04:34	24° <u>♁</u> 57'36	49.86419 AU	retrograde	13024 Jan 20 18:21	2° <u>♁</u> 08'08	
morning rise	13017 Oct 11 06:49	25° <u>♁</u> 05'57		opposition	13024 Apr 13 12:25	1° <u>♁</u> 08'50	-13°12'31
retrograde	13018 Jan 14 09:58	26° <u>♁</u> 25'43		min. Earth dist.	13024 Apr 13 07:28	1° <u>♁</u> 09'04	47.72097 AU
opposition	13018 Apr 08 07:00	25° <u>♁</u> 26'26	-14°06'22	direct	13024 Jul 04 17:08	0° <u>♁</u> 10'13	
min. Earth dist.	13018 Apr 07 20:13	25° <u>♁</u> 26'56	47.91483 AU	evening set	13024 Oct 02 14:21	1° <u>♁</u> 24'37	
direct	13018 Jun 29 13:57	24° <u>♁</u> 27'50					
evening set	13018 Sep 28 23:36	25° <u>♁</u> 44'25		conjunction	13024 Oct 11 02:32	1° <u>♁</u> 36'15	-12°36'19
				minimum elong	13024 Oct 11 02:46	1° <u>♁</u> 36'16	12°35'53
conjunction	13018 Oct 05 20:44	25° <u>♁</u> 53'50	-13°28'47	max. Earth dist.	13024 Oct 11 06:44	1° <u>♁</u> 36'29	49.64729 AU
minimum elong	13018 Oct 05 20:58	25° <u>♁</u> 53'51	13°28'26	morning rise	13024 Oct 19 15:57	1° <u>♁</u> 47'58	
max. Earth dist.	13018 Oct 06 07:59	25° <u>♁</u> 54'29	49.84852 AU	retrograde	13025 Jan 21 00:44	3° <u>♁</u> 05'08	
morning rise	13018 Oct 12 18:47	26° <u>♁</u> 03'20		opposition	13025 Apr 14 17:23	2° <u>♁</u> 05'49	-13°02'48
retrograde	13019 Jan 15 17:45	27° <u>♁</u> 22'42		min. Earth dist.	13025 Apr 14 14:05	2° <u>♁</u> 05'58	47.67293 AU
opposition	13019 Apr 09 11:53	26° <u>♁</u> 23'27	-13°57'54	direct	13025 Jul 05 18:53	1° <u>♁</u> 07'10	
min. Earth dist.	13019 Apr 09 01:18	26° <u>♁</u> 23'56	47.89559 AU	evening set	13025 Oct 03 13:15	2° <u>♁</u> 21'15	
direct	13019 Jun 30 16:10	25° <u>♁</u> 24'53					
evening set	13019 Sep 29 21:41	26° <u>♁</u> 41'05		conjunction	13025 Oct 12 07:31	2° <u>♁</u> 33'14	-12°26'50
				minimum elong	13025 Oct 12 07:46	2° <u>♁</u> 33'15	12°26'24
conjunction	13019 Oct 07 01:44	26° <u>♁</u> 50'54	-13°20'31	max. Earth dist.	13025 Oct 12 11:50	2° <u>♁</u> 33'29	49.59894 AU
minimum elong	13019 Oct 07 02:00	26° <u>♁</u> 50'54	13°20'09	morning rise	13025 Oct 21 02:53	2° <u>♁</u> 45'17	

retrograde	13026 Jan 22 03:06	4°M.02'09		minimum elong	13032 Oct 18 19:13	9°M.14'10	11°13'39
opposition	13026 Apr 15 22:09	3°M.02'48	-12°52'51	max. Earth dist.	13032 Oct 18 16:41	9°M.14'02	49.16827 AU
min. Earth dist.	13026 Apr 15 18:46	3°M.02'57	47.62174 AU	morning rise	13032 Oct 29 06:10	9°M.28'31	
direct	13026 Jul 07 00:14	2°M.04'07		retrograde	13033 Jan 28 15:30	10°M.43'37	
evening set	13026 Oct 04 12:13	3°M.17'54		opposition	13033 Apr 22 08:57	9°M.44'04	-11°36'41
				min. Earth dist.	13033 Apr 22 12:30	9°M.43'54	47.16820 AU
conjunction	13026 Oct 13 12:20	3°M.30'13	-12°17'08	direct	13033 Jul 13 12:24	8°M.45'12	
minimum elong	13026 Oct 13 12:35	3°M.30'14	12°16'39	evening set	13033 Oct 09 09:22	9°M.57'17	
max. Earth dist.	13026 Oct 13 14:57	3°M.30'22	49.54757 AU				
morning rise	13026 Oct 22 13:48	3°M.42'37		conjunction	13033 Oct 20 00:20	10°M.11'52	-11°03'00
retrograde	13027 Jan 23 07:07	4°M.59'11		minimum elong	13033 Oct 20 00:33	10°M.11'52	11°02'26
opposition	13027 Apr 17 03:03	3°M.59'48	-12°42'39	max. Earth dist.	13033 Oct 19 20:27	10°M.11'38	49.08905 AU
min. Earth dist.	13027 Apr 17 00:34	3°M.59'55	47.56768 AU	morning rise	13033 Oct 30 16:48	10°M.26'32	
direct	13027 Jul 08 06:29	3°M.01'06		retrograde	13034 Jan 29 22:41	11°M.41'24	
evening set	13027 Oct 05 11:16	4°M.14'37		opposition	13034 Apr 23 13:59	10°M.41'48	-11°24'57
				min. Earth dist.	13034 Apr 23 17:56	10°M.41'37	47.08505 AU
conjunction	13027 Oct 14 17:21	4°M.27'15	-12°07'12	direct	13034 Jul 14 16:40	9°M.42'51	
minimum elong	13027 Oct 14 17:36	4°M.27'16	12°06'43	evening set	13034 Oct 10 09:32	10°M.54'43	
max. Earth dist.	13027 Oct 14 20:03	4°M.27'25	49.49323 AU				
morning rise	13027 Oct 24 00:39	4°M.40'00		conjunction	13034 Oct 21 05:42	11°M.09'36	-10°51'35
retrograde	13028 Jan 24 12:11	5°M.56'17		minimum elong	13034 Oct 21 05:56	11°M.09'37	10°51'00
opposition	13028 Apr 17 07:52	4°M.56'53	-12°32'13	max. Earth dist.	13034 Oct 21 00:16	11°M.09'17	49.00473 AU
min. Earth dist.	13028 Apr 17 06:27	4°M.56'57	47.51056 AU	morning rise	13034 Nov 01 03:28	11°M.24'35	
direct	13028 Jul 08 13:49	3°M.58'10		retrograde	13035 Jan 31 06:16	12°M.39'13	
evening set	13028 Oct 05 10:35	5°M.11'24		opposition	13035 Apr 24 19:13	11°M.39'33	-11°13'01
				min. Earth dist.	13035 Apr 25 01:09	11°M.39'16	46.99710 AU
conjunction	13028 Oct 14 22:18	5°M.24'23	-11°57'02	direct	13035 Jul 15 19:38	10°M.40'31	
minimum elong	13028 Oct 14 22:33	5°M.24'23	11°56'32	evening set	13035 Oct 11 09:51	11°M.52'11	
max. Earth dist.	13028 Oct 14 23:55	5°M.24'28	49.43605 AU				
morning rise	13028 Oct 24 11:21	5°M.37'27		conjunction	13035 Oct 22 11:08	12°M.07'22	-10°39'58
retrograde	13029 Jan 24 20:56	6°M.53'28		minimum elong	13035 Oct 22 11:21	12°M.07'23	10°39'22
opposition	13029 Apr 18 12:46	5°M.54'04	-12°21'33	max. Earth dist.	13035 Oct 22 05:33	12°M.07'03	48.91600 AU
min. Earth dist.	13029 Apr 18 11:09	5°M.54'08	47.45046 AU	morning rise	13035 Nov 02 13:49	12°M.22'39	
direct	13029 Jul 09 16:19	4°M.55'19		retrograde	13036 Feb 01 10:00	13°M.37'05	
evening set	13029 Oct 06 09:47	6°M.08'18		opposition	13036 Apr 25 00:12	12°M.37'20	-11°00'51
				min. Earth dist.	13036 Apr 25 06:13	12°M.37'03	46.90498 AU
conjunction	13029 Oct 16 03:12	6°M.21'37	-11°46'38	direct	13036 Jul 16 00:22	11°M.38'13	
minimum elong	13029 Oct 16 03:27	6°M.21'38	11°46'09	evening set	13036 Oct 11 10:20	12°M.49'42	
max. Earth dist.	13029 Oct 16 03:47	6°M.21'39	49.37551 AU				
morning rise	13029 Oct 25 22:03	6°M.35'01		conjunction	13036 Oct 22 16:26	13°M.05'11	-10°28'08
retrograde	13030 Jan 26 03:33	7°M.50'48		minimum elong	13036 Oct 22 16:40	13°M.05'12	10°27'32
opposition	13030 Apr 19 17:50	6°M.51'22	-12°10'39	max. Earth dist.	13036 Oct 22 09:02	13°M.04'45	48.82345 AU
min. Earth dist.	13030 Apr 19 18:10	6°M.51'21	47.38680 AU	morning rise	13036 Nov 03 00:15	13°M.20'46	
direct	13030 Jul 10 18:40	5°M.52'37		retrograde	13037 Feb 01 15:02	14°M.35'00	
evening set	13030 Oct 07 09:27	7°M.05'22		opposition	13037 Apr 26 05:26	13°M.35'11	-10°48'27
				min. Earth dist.	13037 Apr 26 12:36	13°M.34'50	46.80947 AU
conjunction	13030 Oct 17 08:28	7°M.19'00	-11°36'02	direct	13037 Jul 17 05:54	12°M.35'59	
minimum elong	13030 Oct 17 08:43	7°M.19'01	11°35'30	evening set	13037 Oct 12 10:45	13°M.47'18	
max. Earth dist.	13030 Oct 17 08:53	7°M.19'02	49.31121 AU				
morning rise	13030 Oct 27 08:46	7°M.32'44		conjunction	13037 Oct 23 21:53	14°M.03'05	-10°16'04
retrograde	13031 Jan 27 06:25	8°M.48'16		minimum elong	13037 Oct 23 22:06	14°M.03'06	10°15'26
opposition	13031 Apr 20 22:38	7°M.48'49	-11°59'33	max. Earth dist.	13037 Oct 23 14:31	14°M.02'39	48.72761 AU
min. Earth dist.	13031 Apr 20 23:18	7°M.48'47	47.31893 AU	morning rise	13037 Nov 04 10:31	14°M.18'58	
direct	13031 Jul 11 23:47	6°M.50'02			13037 Dec 07 08:50	15°M.	
evening set	13031 Oct 08 09:20	8°M.02'34		retrograde	13038 Feb 02 19:17	15°M.33'02	
					13038 Apr 02 18:25	15°R.M.	
conjunction	13031 Oct 18 13:40	8°M.16'32	-11°25'13	opposition	13038 Apr 27 10:42	14°M.33'08	-10°35'49
minimum elong	13031 Oct 18 13:54	8°M.16'32	11°24'41	min. Earth dist.	13038 Apr 27 18:45	14°M.32'46	46.71076 AU
max. Earth dist.	13031 Oct 18 11:45	8°M.16'25	49.24232 AU	direct	13038 Jul 18 13:43	13°M.33'53	
morning rise	13031 Oct 28 19:34	8°M.30'34		evening set	13038 Oct 13 11:35	14°M.45'03	
retrograde	13032 Jan 28 10:52	9°M.45'52			13038 Oct 24 08:05	15°M.	
opposition	13032 Apr 21 03:44	8°M.46'24	-11°48'13				
min. Earth dist.	13032 Apr 21 05:50	8°M.46'18	47.24627 AU	conjunction	13038 Oct 25 03:25	15°M.01'07	-10°03'46
direct	13032 Jul 12 05:19	7°M.47'34		minimum elong	13038 Oct 25 03:38	15°M.01'08	10°03'09
evening set	13032 Oct 08 09:09	8°M.59'54		max. Earth dist.	13038 Oct 24 18:58	15°M.00'38	48.62889 AU
				morning rise	13038 Nov 05 20:53	15°M.17'18	
conjunction	13032 Oct 18 18:58	9°M.14'10	-11°14'12	retrograde	13039 Feb 04 03:35	16°M.31'14	

opposition	13039 Apr 28 15:47	15° ℓ 31'16	-10°22'56	conjunction	13045 Oct 31 21:04	21° ℓ 55'06	-8°31'23
min. Earth dist.	13039 Apr 28 23:46	15° ℓ 30'54	46.60929 AU	minimum elong	13045 Oct 31 21:16	21° ℓ 55'07	8°30'40
	13039 May 27 17:26	15° ℓ 31'16		max. Earth dist.	13045 Oct 31 05:59	21° ℓ 54'13	47.84180 AU
direct	13039 Jul 19 17:01	14° ℓ 31'56		morning rise	13045 Nov 13 21:40	22° ℓ 13'18	
	13039 Sep 09 10:03	15° ℓ		retrograde	13046 Feb 11 03:00	23° ℓ 26'39	
evening set	13039 Oct 14 12:29	15° ℓ 42'59		opposition	13046 May 05 07:23	22° ℓ 26'15	-8°46'12
				min. Earth dist.	13046 May 05 22:21	22° ℓ 25'33	45.79838 AU
conjunction	13039 Oct 26 09:01	15° ℓ 59'21	-9°51'15	direct	13046 Jul 26 01:28	21° ℓ 26'25	
minimum elong	13039 Oct 26 09:14	15° ℓ 59'22	9°50'36	evening set	13046 Oct 20 00:37	22° ℓ 37'01	
max. Earth dist.	13039 Oct 25 23:32	15° ℓ 58'49	48.52727 AU	max. Earth dist.	13046 Nov 01 10:04	22° ℓ 54'20	47.71063 AU
morning rise	13039 Nov 07 07:18	16° ℓ 15'50					
retrograde	13040 Feb 05 11:43	17° ℓ 29'38		conjunction	13046 Nov 02 03:29	22° ℓ 55'21	-8°17'20
opposition	13040 Apr 28 21:14	16° ℓ 29'38	-10°09'48	minimum elong	13046 Nov 02 03:40	22° ℓ 55'22	8°16'36
min. Earth dist.	13040 Apr 29 06:54	16° ℓ 29'11	46.50499 AU	morning rise	13046 Nov 15 08:19	23° ℓ 13'50	
direct	13040 Jul 19 19:24	15° ℓ 30'15		retrograde	13047 Feb 12 09:25	24° ℓ 27'06	
evening set	13040 Oct 14 13:23	16° ℓ 41'11		opposition	13047 May 06 13:18	23° ℓ 26'35	-8°31'30
				min. Earth dist.	13047 May 07 06:00	23° ℓ 25'48	45.66361 AU
conjunction	13040 Oct 26 14:37	16° ℓ 57'51	-9°38'29	direct	13047 Jul 27 07:16	22° ℓ 26'37	
minimum elong	13040 Oct 26 14:50	16° ℓ 57'52	9°37'50	evening set	13047 Oct 21 03:06	23° ℓ 37'10	
max. Earth dist.	13040 Oct 26 05:16	16° ℓ 57'18	48.42290 AU				
morning rise	13040 Nov 07 17:24	17° ℓ 14'37		conjunction	13047 Nov 03 10:04	23° ℓ 55'46	-8°03'04
retrograde	13041 Feb 05 15:58	18° ℓ 28'19		minimum elong	13047 Nov 03 10:16	23° ℓ 55'47	8°02'20
opposition	13041 Apr 30 02:40	17° ℓ 28'16	-9°56'27	max. Earth dist.	13047 Nov 02 16:24	23° ℓ 54'44	47.57484 AU
min. Earth dist.	13041 Apr 30 12:09	17° ℓ 27'49	46.39771 AU	morning rise	13047 Nov 16 18:44	24° ℓ 14'31	
direct	13041 Jul 21 00:46	16° ℓ 28'50		retrograde	13048 Feb 13 12:04	25° ℓ 27'45	
evening set	13041 Oct 15 14:44	17° ℓ 39'42		opposition	13048 May 06 19:25	24° ℓ 27'05	-8°16'33
				min. Earth dist.	13048 May 07 13:02	24° ℓ 26'15	45.52447 AU
conjunction	13041 Oct 27 20:21	17° ℓ 56'39	-9°25'30	direct	13048 Jul 27 16:58	23° ℓ 26'58	
minimum elong	13041 Oct 27 20:34	17° ℓ 56'39	9°24'49	evening set	13048 Oct 21 05:44	24° ℓ 37'29	
max. Earth dist.	13041 Oct 27 09:06	17° ℓ 55'59	48.31540 AU				
morning rise	13041 Nov 09 03:50	18° ℓ 13'42		conjunction	13048 Nov 03 16:27	24° ℓ 56'21	-7°48'34
retrograde	13042 Feb 06 21:05	19° ℓ 27'19		minimum elong	13048 Nov 03 16:37	24° ℓ 56'22	7°47'49
opposition	13042 May 01 08:10	18° ℓ 27'13	-9°42'50	max. Earth dist.	13048 Nov 02 21:32	24° ℓ 55'14	47.43517 AU
min. Earth dist.	13042 May 01 18:57	18° ℓ 26'42	46.28718 AU	morning rise	13048 Nov 17 05:02	25° ℓ 15'22	
direct	13042 Jul 22 06:17	17° ℓ 27'44		retrograde	13049 Feb 13 19:35	26° ℓ 28'33	
evening set	13042 Oct 16 16:09	18° ℓ 38'32		opposition	13049 May 08 01:33	25° ℓ 27'46	-8°01'23
				min. Earth dist.	13049 May 08 19:22	25° ℓ 26'54	45.38181 AU
conjunction	13042 Oct 29 02:23	18° ℓ 55'47	-9°12'17	direct	13049 Jul 28 23:18	24° ℓ 27'29	
minimum elong	13042 Oct 29 02:35	18° ℓ 55'47	9°11'36	evening set	13049 Oct 22 08:39	25° ℓ 37'59	
max. Earth dist.	13042 Oct 28 15:00	18° ℓ 55'07	48.20418 AU				
morning rise	13042 Nov 10 14:15	19° ℓ 13'08		conjunction	13049 Nov 04 23:08	25° ℓ 57'07	-7°33'51
retrograde	13043 Feb 08 02:14	20° ℓ 26'41		minimum elong	13049 Nov 04 23:19	25° ℓ 57'08	7°33'06
opposition	13043 May 02 13:50	19° ℓ 26'32	-9°29'01	max. Earth dist.	13049 Nov 04 03:08	25° ℓ 55'56	47.29199 AU
min. Earth dist.	13043 May 03 01:53	19° ℓ 25'57	46.17247 AU	morning rise	13049 Nov 18 15:32	26° ℓ 16'23	
direct	13043 Jul 23 13:41	18° ℓ 26'59		retrograde	13050 Feb 15 05:01	27° ℓ 29'33	
evening set	13043 Oct 17 18:01	19° ℓ 37'44		opposition	13050 May 09 07:50	26° ℓ 28'38	-7°45'57
				min. Earth dist.	13050 May 10 03:22	26° ℓ 27'41	45.23594 AU
conjunction	13043 Oct 30 08:27	19° ℓ 55'15	-8°58'51	direct	13050 Jul 30 03:41	25° ℓ 28'13	
minimum elong	13043 Oct 30 08:39	19° ℓ 55'16	8°58'09	evening set	13050 Oct 23 11:44	26° ℓ 38'42	
max. Earth dist.	13043 Oct 29 19:30	19° ℓ 54'30	48.08856 AU	max. Earth dist.	13050 Nov 05 09:56	26° ℓ 56'54	47.14592 AU
morning rise	13043 Nov 12 00:40	20° ℓ 12'53					
retrograde	13044 Feb 09 10:30	21° ℓ 26'23		conjunction	13050 Nov 06 05:58	26° ℓ 58'06	-7°18'54
opposition	13044 May 02 19:28	20° ℓ 26'10	-9°14'57	minimum elong	13050 Nov 06 06:09	26° ℓ 58'06	7°18'06
min. Earth dist.	13044 May 03 08:03	20° ℓ 25'35	46.05306 AU	morning rise	13050 Nov 20 01:56	27° ℓ 17'37	
direct	13044 Jul 23 18:31	19° ℓ 26'33		retrograde	13051 Feb 16 11:51	28° ℓ 30'47	
evening set	13044 Oct 17 20:01	20° ℓ 37'15		opposition	13051 May 10 14:07	27° ℓ 29'43	-7°30'16
				min. Earth dist.	13051 May 11 09:21	27° ℓ 28'47	45.08723 AU
conjunction	13044 Oct 30 14:42	20° ℓ 55'03	-8°45'13	direct	13051 Jul 31 08:58	26° ℓ 29'09	
minimum elong	13044 Oct 30 14:54	20° ℓ 55'03	8°44'31	evening set	13051 Oct 24 15:07	27° ℓ 39'40	
max. Earth dist.	13044 Oct 30 00:03	20° ℓ 54'11	47.96778 AU				
morning rise	13044 Nov 12 11:15	21° ℓ 12'58		conjunction	13051 Nov 07 12:45	27° ℓ 59'20	-7°03'42
retrograde	13045 Feb 09 20:01	22° ℓ 26'24		minimum elong	13051 Nov 07 12:55	27° ℓ 59'20	7°02'55
opposition	13045 May 04 01:28	21° ℓ 26'06	-9°00'41	max. Earth dist.	13051 Nov 06 14:54	27° ℓ 58'02	46.99703 AU
min. Earth dist.	13045 May 04 16:09	21° ℓ 25'24	45.92837 AU	morning rise	13051 Nov 21 12:25	28° ℓ 19'07	
direct	13045 Jul 24 21:40	20° ℓ 26'23		retrograde	13052 Feb 17 19:16	29° ℓ 32'17	
evening set	13045 Oct 18 22:07	21° ℓ 37'01		opposition	13052 May 10 20:37	28° ℓ 31'06	-7°14'21
				min. Earth dist.	13052 May 11 17:07	28° ℓ 30'06	44.93589 AU

direct	13052 Jul 31 14:02	27° \mathbb{M} 30'24	conjunction	13058 Nov 14 18:15	5° \mathbb{A} 19'15	-5°10'46
evening set	13052 Oct 24 18:38	28° \mathbb{M} 40'58	minimum elong	13058 Nov 14 18:23	5° \mathbb{A} 19'16	5°09'55
			max. Earth dist.	13058 Nov 13 13:14	5° \mathbb{A} 17'29	45.85762 AU
conjunction	13052 Nov 07 19:53	29° \mathbb{M} 00'53	morning rise	13058 Nov 29 15:46	5° \mathbb{A} 40'49	
minimum elong	13052 Nov 07 20:03	29° \mathbb{M} 00'53	retrograde	13059 Feb 25 02:49	6° \mathbb{A} 54'38	
max. Earth dist.	13052 Nov 06 22:16	28° \mathbb{M} 59'36	opposition	13059 May 18 22:15	5° \mathbb{A} 52'30	-5°15'56
morning rise	13052 Nov 21 22:51	29° \mathbb{M} 20'56	min. Earth dist.	13059 May 20 01:20	5° \mathbb{A} 51'10	43.77464 AU
	13052 Dec 22 13:21	0° \mathbb{A}	direct	13059 Aug 08 14:18	4° \mathbb{A} 50'45	
retrograde	13053 Feb 18 00:29	0° \mathbb{A} 34'08	evening set	13059 Nov 01 04:16	6° \mathbb{A} 02'10	
	13053 Apr 17 22:19	30° \mathbb{K} \mathbb{M}	max. Earth dist.	13059 Nov 14 20:22	6° \mathbb{A} 21'58	45.67708 AU
opposition	13053 May 12 03:16	29° \mathbb{M} 32'49				
min. Earth dist.	13053 May 13 00:21	29° \mathbb{M} 31'48	conjunction	13059 Nov 16 02:32	6° \mathbb{A} 23'49	-4°53'44
direct	13053 Aug 01 22:22	28° \mathbb{M} 32'00	minimum elong	13059 Nov 16 02:39	6° \mathbb{A} 23'49	4°52'51
evening set	13053 Oct 25 22:28	29° \mathbb{M} 42'38	morning rise	13059 Dec 01 02:39	6° \mathbb{A} 45'36	
	13053 Nov 07 04:06	0° \mathbb{A}	retrograde	13060 Feb 26 12:37	7° \mathbb{A} 59'35	
max. Earth dist.	13053 Nov 08 04:04	0° \mathbb{A} 01'26	opposition	13060 May 19 06:01	6° \mathbb{A} 57'16	-4°58'03
			min. Earth dist.	13060 May 20 10:50	6° \mathbb{A} 55'50	43.59131 AU
conjunction	13053 Nov 09 02:58	0° \mathbb{A} 02'48	direct	13060 Aug 08 21:04	5° \mathbb{A} 55'19	
minimum elong	13053 Nov 09 03:08	0° \mathbb{A} 02'49	evening set	13060 Nov 01 10:10	7° \mathbb{A} 06'53	
morning rise	13053 Nov 23 09:25	0° \mathbb{A} 23'07	max. Earth dist.	13060 Nov 15 04:35	7° \mathbb{A} 26'55	45.49305 AU
retrograde	13054 Feb 19 08:30	1° \mathbb{A} 36'23				
opposition	13054 May 13 10:00	0° \mathbb{A} 34'58	conjunction	13060 Nov 16 11:02	7° \mathbb{A} 28'46	-4°36'27
min. Earth dist.	13054 May 14 07:29	0° \mathbb{A} 33'55	minimum elong	13060 Nov 16 11:09	7° \mathbb{A} 28'47	4°35'34
	13054 Jun 14 06:33	30° \mathbb{K} \mathbb{M}	morning rise	13060 Dec 01 13:37	7° \mathbb{A} 50'48	
direct	13054 Aug 03 04:36	29° \mathbb{M} 34'01	retrograde	13061 Feb 26 22:22	9° \mathbb{A} 04'56	
	13054 Sep 21 00:05	0° \mathbb{A}	opposition	13061 May 20 13:47	8° \mathbb{A} 02'26	-4°39'54
evening set	13054 Oct 27 02:43	0° \mathbb{A} 44'45	min. Earth dist.	13061 May 21 18:22	8° \mathbb{A} 01'00	43.40481 AU
max. Earth dist.	13054 Nov 09 10:21	1° \mathbb{A} 03'43	direct	13061 Aug 10 03:05	7° \mathbb{A} 00'16	
			evening set	13061 Nov 02 16:24	8° \mathbb{A} 12'02	
conjunction	13054 Nov 10 10:29	1° \mathbb{A} 05'10	max. Earth dist.	13061 Nov 16 11:19	8° \mathbb{A} 32'10	45.30595 AU
minimum elong	13054 Nov 10 10:38	1° \mathbb{A} 05'11				
morning rise	13054 Nov 24 20:09	1° \mathbb{A} 25'44	conjunction	13061 Nov 17 19:33	8° \mathbb{A} 34'09	-4°18'56
retrograde	13055 Feb 20 18:01	2° \mathbb{A} 39'06	minimum elong	13061 Nov 17 19:40	8° \mathbb{A} 34'09	4°18'01
opposition	13055 May 14 16:53	1° \mathbb{A} 37'34	morning rise	13061 Dec 03 00:42	8° \mathbb{A} 56'24	
min. Earth dist.	13055 May 15 16:16	1° \mathbb{A} 36'26	retrograde	13062 Feb 28 09:28	10° \mathbb{A} 10'43	
direct	13055 Aug 04 10:12	0° \mathbb{A} 36'29	opposition	13062 May 21 21:54	9° \mathbb{A} 08'01	-4°21'30
evening set	13055 Oct 28 07:15	1° \mathbb{A} 47'20	min. Earth dist.	13062 May 23 03:59	9° \mathbb{A} 06'31	43.21559 AU
			direct	13062 Aug 11 08:46	8° \mathbb{A} 05'39	
conjunction	13055 Nov 11 18:12	2° \mathbb{A} 08'01	evening set	13062 Nov 03 22:55	9° \mathbb{A} 17'38	
minimum elong	13055 Nov 11 18:21	2° \mathbb{A} 08'01	max. Earth dist.	13062 Nov 17 20:34	9° \mathbb{A} 38'01	45.11627 AU
max. Earth dist.	13055 Nov 10 17:41	2° \mathbb{A} 06'32				
morning rise	13055 Nov 26 06:54	2° \mathbb{A} 28'50	conjunction	13062 Nov 19 04:31	9° \mathbb{A} 39'59	-4°01'10
retrograde	13056 Feb 22 03:53	3° \mathbb{A} 42'18	minimum elong	13062 Nov 19 04:38	9° \mathbb{A} 39'59	4°00'16
opposition	13056 May 14 23:57	2° \mathbb{A} 40'39	morning rise	13062 Dec 04 11:45	10° \mathbb{A} 02'27	
min. Earth dist.	13056 May 15 23:30	2° \mathbb{A} 39'30	retrograde	13063 Mar 01 16:49	11° \mathbb{A} 16'57	
direct	13056 Aug 04 14:47	1° \mathbb{A} 39'25	opposition	13063 May 23 05:59	10° \mathbb{A} 14'04	-4°02'50
evening set	13056 Oct 28 12:04	2° \mathbb{A} 50'24	min. Earth dist.	13063 May 24 12:17	10° \mathbb{A} 12'33	43.02396 AU
max. Earth dist.	13056 Nov 10 23:04	3° \mathbb{A} 09'43	direct	13063 Aug 12 18:21	9° \mathbb{A} 11'30	
			evening set	13063 Nov 05 05:53	10° \mathbb{A} 23'44	
conjunction	13056 Nov 12 01:53	3° \mathbb{A} 11'20	max. Earth dist.	13063 Nov 19 04:08	10° \mathbb{A} 44'14	44.92445 AU
minimum elong	13056 Nov 12 02:02	3° \mathbb{A} 11'20				
morning rise	13056 Nov 26 17:45	3° \mathbb{A} 32'24	conjunction	13063 Nov 20 13:29	10° \mathbb{A} 46'18	-3°43'09
retrograde	13057 Feb 22 13:29	4° \mathbb{A} 45'59	minimum elong	13063 Nov 20 13:35	10° \mathbb{A} 46'18	3°42'14
opposition	13057 May 16 07:21	3° \mathbb{A} 44'11	morning rise	13063 Dec 05 22:58	11° \mathbb{A} 09'00	
min. Earth dist.	13057 May 17 08:49	3° \mathbb{A} 42'56	retrograde	13064 Mar 02 01:56	12° \mathbb{A} 23'43	
direct	13057 Aug 05 20:18	2° \mathbb{A} 42'48	opposition	13064 May 23 14:25	11° \mathbb{A} 20'39	-3°43'54
evening set	13057 Oct 29 17:10	3° \mathbb{A} 53'55	min. Earth dist.	13064 May 24 21:08	11° \mathbb{A} 19'07	42.83042 AU
max. Earth dist.	13057 Nov 12 06:48	4° \mathbb{A} 13'26	direct	13064 Aug 13 02:18	10° \mathbb{A} 17'53	
			evening set	13064 Nov 05 12:58	11° \mathbb{A} 30'22	
conjunction	13057 Nov 13 10:04	4° \mathbb{A} 15'05				
minimum elong	13057 Nov 13 10:12	4° \mathbb{A} 15'06	conjunction	13064 Nov 20 22:38	11° \mathbb{A} 53'09	-3°24'54
morning rise	13057 Nov 28 04:40	4° \mathbb{A} 36'24	minimum elong	13064 Nov 20 22:44	11° \mathbb{A} 53'09	3°24'00
retrograde	13058 Feb 23 18:43	5° \mathbb{A} 50'06	max. Earth dist.	13064 Nov 19 12:44	11° \mathbb{A} 51'02	44.73053 AU
opposition	13058 May 17 14:43	4° \mathbb{A} 48'09	morning rise	13064 Dec 06 10:02	12° \mathbb{A} 16'05	
min. Earth dist.	13058 May 18 17:03	4° \mathbb{A} 46'51	retrograde	13065 Mar 03 10:25	13° \mathbb{A} 31'04	
direct	13058 Aug 07 06:11	3° \mathbb{A} 46'35	opposition	13065 May 24 23:11	12° \mathbb{A} 27'49	-3°24'42
evening set	13058 Oct 30 22:40	4° \mathbb{A} 57'50	min. Earth dist.	13065 May 26 07:04	12° \mathbb{A} 26'12	42.63478 AU

direct	13065 Aug 14 11:54	11°♂24'51		retrograde	13072 Mar 11 19:11	21°♂40'55	
evening set	13065 Nov 06 20:36	12°♂37'37		opposition	13072 Jun 01 18:35	20°♂36'09	-1°03'12
max. Earth dist.	13065 Nov 20 22:09	12°♂58'29	44.53458 AU	min. Earth dist.	13072 Jun 03 09:17	20°♂34'08	41.17406 AU
				direct	13072 Aug 21 23:33	19°♂31'30	
conjunction	13065 Nov 22 08:12	13°♂00'37	-3°06'24	evening set	13072 Nov 14 14:45	20°♂46'51	
minimum elong	13065 Nov 22 08:17	13°♂00'37	3°05'28	max. Earth dist.	13072 Nov 28 17:31	21°♂08'33	43.06439 AU
morning rise	13065 Dec 07 21:26	13°♂23'46					
retrograde	13066 Mar 04 22:40	14°♂39'02		conjunction	13072 Nov 30 11:04	21°♂11'14	-0°50'19
opposition	13066 May 26 07:53	13°♂35'36	-3°05'15	minimum elong	13072 Nov 30 11:06	21°♂11'14	0°49'20
min. Earth dist.	13066 May 27 15:35	13°♂34'00	42.43693 AU	morning rise	13072 Dec 16 08:40	21°♂35'44	
direct	13066 Aug 15 18:07	12°♂32'26		retrograde	13073 Mar 13 08:05	22°♂53'27	
evening set	13066 Nov 08 04:48	13°♂45'31		opposition	13073 Jun 03 05:14	21°♂48'25	-0°41'58
max. Earth dist.	13066 Nov 22 06:04	14°♂06'29	44.33597 AU	min. Earth dist.	13073 Jun 04 19:52	21°♂46'24	40.95111 AU
				direct	13073 Aug 23 09:21	20°♂43'29	
conjunction	13066 Nov 23 18:00	14°♂08'45	-2°47'39	evening set	13073 Nov 16 02:06	21°♂59'18	
minimum elong	13066 Nov 23 18:04	14°♂08'45	2°46'44	max. Earth dist.	13073 Nov 30 03:27	22°♂21'02	42.84045 AU
morning rise	13066 Dec 09 09:02	14°♂32'06					
retrograde	13067 Mar 06 12:00	15°♂47'40		conjunction	13073 Dec 01 22:49	22°♂23'51	-0°29'57
opposition	13067 May 27 17:05	14°♂44'04	-2°45'32	minimum elong	13073 Dec 01 22:50	22°♂23'51	0°28'58
min. Earth dist.	13067 May 29 02:41	14°♂42'21	42.23623 AU	morning rise	13073 Dec 17 21:06	22°♂48'31	
direct	13067 Aug 16 23:06	13°♂40'42		retrograde	13074 Mar 14 21:36	24°♂06'40	
evening set	13067 Nov 09 13:14	14°♂54'07		opposition	13074 Jun 04 16:04	23°♂01'22	-0°20'29
max. Earth dist.	13067 Nov 23 16:11	15°♂15'17	44.13408 AU	min. Earth dist.	13074 Jun 06 07:53	22°♂59'17	40.72598 AU
				direct	13074 Aug 24 18:46	21°♂56'08	
conjunction	13067 Nov 25 04:08	15°♂17'33	-2°28'41	evening set	13074 Nov 17 13:49	23°♂12'27	
minimum elong	13067 Nov 25 04:11	15°♂17'33	2°27'44	max. Earth dist.	13074 Dec 01 15:26	23°♂34'19	42.61433 AU
morning rise	13067 Dec 10 20:29	15°♂41'07					
retrograde	13068 Mar 06 21:51	16°♂57'00		conjunction	13074 Dec 03 11:02	23°♂37'10	-0°09'23
opposition	13068 May 28 02:25	15°♂53'12	-2°25'34	minimum elong	13074 Dec 03 11:02	23°♂37'10	0°08'24
min. Earth dist.	13068 May 29 12:21	15°♂51'28	42.03188 AU	behind sun begin	13074 Dec 03 05:22	23°♂36'49	
direct	13068 Aug 17 09:25	14°♂49'37		behind sun end	13074 Dec 03 16:43	23°♂37'31	
evening set	13068 Nov 09 22:22	16°♂03'25		morning rise	13074 Dec 19 09:28	24°♂02'00	
max. Earth dist.	13068 Nov 24 00:33	16°♂24'38	43.92832 AU	retrograde	13075 Mar 16 07:35	25°♂20'38	
				asc. node	13075 May 16 10:09	24°♂40'33	
conjunction	13068 Nov 25 14:30	16°♂27'02	-2°09'28	opposition	13075 Jun 06 03:21	24°♂15'04	0°01'14
minimum elong	13068 Nov 25 14:34	16°♂27'03	2°08'31	min. Earth dist.	13075 Jun 07 19:48	24°♂12'56	40.49893 AU
morning rise	13068 Dec 11 08:24	16°♂50'48		direct	13075 Aug 26 07:51	23°♂09'33	
retrograde	13069 Mar 08 08:32	18°♂07'02		evening set	13075 Nov 19 02:00	24°♂26'23	
opposition	13069 May 29 12:04	17°♂03'01	-2°05'21	max. Earth dist.	13075 Dec 03 03:10	24°♂48'21	42.38662 AU
min. Earth dist.	13069 May 30 23:13	17°♂01'13	41.82355 AU				
direct	13069 Aug 18 19:18	15°♂59'11		conjunction	13075 Dec 04 23:18	24°♂51'16	0°11'32
evening set	13069 Nov 11 07:49	17°♂13'20		minimum elong	13075 Dec 04 23:18	24°♂51'16	0°12'31
max. Earth dist.	13069 Nov 25 10:24	17°♂34'42	43.71818 AU	behind sun begin	13075 Dec 04 19:11	24°♂51'00	
				behind sun end	13075 Dec 05 03:25	24°♂51'31	
conjunction	13069 Nov 27 01:20	17°♂37'11	-1°50'01	morning rise	13075 Dec 20 21:55	25°♂16'15	
minimum elong	13069 Nov 27 01:23	17°♂37'11	1°49'04	retrograde	13076 Mar 16 20:18	26°♂35'23	
morning rise	13069 Dec 12 20:20	18°♂01'08		opposition	13076 Jun 06 14:52	25°♂29'34	0°23'13
retrograde	13070 Mar 09 18:10	19°♂17'42		min. Earth dist.	13076 Jun 08 07:08	25°♂27'26	40.27053 AU
opposition	13070 May 30 22:05	18°♂13'27	-1°44'53	direct	13076 Aug 26 18:40	24°♂23'46	
min. Earth dist.	13070 Jun 01 10:46	18°♂11'34	41.61081 AU	evening set	13076 Nov 19 14:49	25°♂41'11	
direct	13070 Aug 20 06:19	17°♂09'22		max. Earth dist.	13076 Dec 03 14:42	26°♂03'12	42.15742 AU
evening set	13070 Nov 12 17:47	18°♂23'54					
max. Earth dist.	13070 Nov 26 20:28	18°♂45'22	43.50389 AU	conjunction	13076 Dec 05 12:04	26°♂06'12	0°32'33
				minimum elong	13076 Dec 05 12:03	26°♂06'12	0°33'33
conjunction	13070 Nov 28 12:23	18°♂47'55	-1°30'21	morning rise	13076 Dec 21 10:35	26°♂31'21	
minimum elong	13070 Nov 28 12:25	18°♂47'55	1°29'24	retrograde	13077 Mar 18 10:50	27°♂51'03	
morning rise	13070 Dec 14 08:28	19°♂12'04		opposition	13077 Jun 08 02:50	26°♂44'59	0°45'26
retrograde	13071 Mar 11 05:31	20°♂29'00		min. Earth dist.	13077 Jun 09 20:36	26°♂42'45	40.04082 AU
opposition	13071 Jun 01 08:04	19°♂24'30	-1°24'10	direct	13077 Aug 28 03:17	25°♂38'54	
min. Earth dist.	13071 Jun 02 20:58	19°♂22'35	41.39416 AU	evening set	13077 Nov 21 04:06	26°♂56'56	
direct	13071 Aug 21 15:44	18°♂20'08		max. Earth dist.	13077 Dec 05 04:10	27°♂19'05	41.92693 AU
evening set	13071 Nov 14 04:11	19°♂35'04					
max. Earth dist.	13071 Nov 28 05:49	19°♂56'35	43.28572 AU	conjunction	13077 Dec 07 01:16	27°♂22'06	0°53'49
				minimum elong	13077 Dec 07 01:14	27°♂22'05	0°54'48
conjunction	13071 Nov 29 23:37	19°♂59'16	-1°10'27	morning rise	13077 Dec 22 23:26	27°♂47'22	
minimum elong	13071 Nov 29 23:39	19°♂59'16	1°09'29	retrograde	13078 Mar 20 01:50	29°♂07'40	
morning rise	13071 Dec 15 20:38	20°♂23'36		opposition	13078 Jun 09 15:02	28°♂01'22	1°07'53

min. Earth dist.	13078 Jun 11 08:27	27° $\mathring{\text{A}}$ 59'09	39.80964 AU	evening set	13084 Nov 30 20:23	6° $\mathring{\text{B}}$ 16'37	
direct	13078 Aug 29 14:21	26° $\mathring{\text{A}}$ 55'01		max. Earth dist.	13084 Dec 14 05:09	6° $\mathring{\text{B}}$ 38'49	40.23974 AU
evening set	13078 Nov 22 18:15	28° $\mathring{\text{A}}$ 13'42					
max. Earth dist.	13078 Dec 06 15:50	28° $\mathring{\text{A}}$ 35'51	41.69464 AU	conjunction	13084 Dec 16 09:19	6° $\mathring{\text{B}}$ 42'28	3°28'16
				minimum elong	13084 Dec 16 09:13	6° $\mathring{\text{B}}$ 42'27	3°29'17
conjunction	13078 Dec 08 14:47	28° $\mathring{\text{A}}$ 39'00	1°15'17	morning rise	13084 Dec 31 22:43	7° $\mathring{\text{B}}$ 08'24	
minimum elong	13078 Dec 08 14:45	28° $\mathring{\text{A}}$ 39'00	1°16'17	retrograde	13085 Mar 29 18:21	8° $\mathring{\text{B}}$ 33'40	
morning rise	13078 Dec 24 12:33	29° $\mathring{\text{A}}$ 04'25		opposition	13085 Jun 18 15:42	7° $\mathring{\text{B}}$ 25'16	3°51'16
	13079 Feb 03 13:39	0° $\mathring{\text{B}}$		min. Earth dist.	13085 Jun 20 15:27	7° $\mathring{\text{B}}$ 22'36	38.11662 AU
retrograde	13079 Mar 21 19:26	0° $\mathring{\text{B}}$ 25'20		direct	13085 Sep 07 07:19	6° $\mathring{\text{B}}$ 16'34	
	13079 May 07 14:49	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$		evening set	13085 Dec 02 15:12	7° $\mathring{\text{B}}$ 40'39	
opposition	13079 Jun 11 03:36	29° $\mathring{\text{A}}$ 18'47	1°30'34	max. Earth dist.	13085 Dec 15 20:07	8° $\mathring{\text{B}}$ 02'45	39.98837 AU
min. Earth dist.	13079 Jun 12 22:31	29° $\mathring{\text{A}}$ 16'29	39.57656 AU				
direct	13079 Aug 31 00:19	28° $\mathring{\text{A}}$ 12'10		conjunction	13085 Dec 18 01:47	8° $\mathring{\text{B}}$ 06'32	3°51'03
evening set	13079 Nov 24 08:54	29° $\mathring{\text{A}}$ 31'33		minimum elong	13085 Dec 18 01:41	8° $\mathring{\text{B}}$ 06'32	3°52'04
max. Earth dist.	13079 Dec 08 05:54	29° $\mathring{\text{A}}$ 53'49	41.45995 AU	morning rise	13086 Jan 02 13:05	8° $\mathring{\text{B}}$ 32'30	
				retrograde	13086 Mar 31 13:55	9° $\mathring{\text{B}}$ 58'35	
conjunction	13079 Dec 10 04:53	29° $\mathring{\text{A}}$ 56'59	1°36'58	opposition	13086 Jun 20 07:05	8° $\mathring{\text{B}}$ 49'49	4°15'25
minimum elong	13079 Dec 10 04:50	29° $\mathring{\text{A}}$ 56'59	1°37'57	min. Earth dist.	13086 Jun 22 07:33	8° $\mathring{\text{B}}$ 47'07	37.86559 AU
	13079 Dec 12 01:30	0° $\mathring{\text{B}}$		direct	13086 Sep 08 22:19	7° $\mathring{\text{B}}$ 40'43	
morning rise	13079 Dec 26 01:43	0° $\mathring{\text{B}}$ 22'31		evening set	13086 Dec 04 10:42	9° $\mathring{\text{B}}$ 05'44	
retrograde	13080 Mar 22 10:15	1° $\mathring{\text{B}}$ 44'06		max. Earth dist.	13086 Dec 17 12:56	9° $\mathring{\text{B}}$ 27'49	39.73578 AU
opposition	13080 Jun 11 16:41	0° $\mathring{\text{B}}$ 37'18	1°53'29				
min. Earth dist.	13080 Jun 13 12:14	0° $\mathring{\text{B}}$ 34'57	39.34080 AU	conjunction	13086 Dec 19 18:52	9° $\mathring{\text{B}}$ 31'38	4°14'00
	13080 Jul 12 04:25	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$		minimum elong	13086 Dec 19 18:45	9° $\mathring{\text{B}}$ 31'38	4°15'00
direct	13080 Aug 31 13:55	29° $\mathring{\text{A}}$ 30'24		morning rise	13087 Jan 04 03:26	9° $\mathring{\text{B}}$ 57'37	
	13080 Oct 19 21:44	0° $\mathring{\text{B}}$		retrograde	13087 Apr 02 06:25	11° $\mathring{\text{B}}$ 24'35	
evening set	13080 Nov 25 00:13	0° $\mathring{\text{B}}$ 50'30		opposition	13087 Jun 21 22:56	10° $\mathring{\text{B}}$ 15'26	4°39'44
max. Earth dist.	13080 Dec 08 18:42	1° $\mathring{\text{B}}$ 12'45	41.22237 AU	min. Earth dist.	13087 Jun 24 00:10	10° $\mathring{\text{B}}$ 12'40	37.61377 AU
				direct	13087 Sep 10 14:28	9° $\mathring{\text{B}}$ 05'56	
conjunction	13080 Dec 10 19:10	1° $\mathring{\text{B}}$ 16'03	1°58'50	evening set	13087 Dec 06 06:59	10° $\mathring{\text{B}}$ 31'54	
minimum elong	13080 Dec 10 19:07	1° $\mathring{\text{B}}$ 16'02	1°59'51	max. Earth dist.	13087 Dec 19 06:09	10° $\mathring{\text{B}}$ 53'56	39.48284 AU
morning rise	13080 Dec 26 15:11	1° $\mathring{\text{B}}$ 41'41					
retrograde	13081 Mar 24 01:04	3° $\mathring{\text{B}}$ 03'58		conjunction	13087 Dec 21 12:18	10° $\mathring{\text{B}}$ 57'49	4°37'04
opposition	13081 Jun 13 06:07	1° $\mathring{\text{B}}$ 56'53	2°16'37	minimum elong	13087 Dec 21 12:11	10° $\mathring{\text{B}}$ 57'48	4°38'04
min. Earth dist.	13081 Jun 15 02:25	1° $\mathring{\text{B}}$ 54'29	39.10199 AU	morning rise	13088 Jan 05 18:02	11° $\mathring{\text{B}}$ 23'48	
direct	13081 Sep 02 02:57	0° $\mathring{\text{B}}$ 49'40		retrograde	13088 Apr 02 23:11	12° $\mathring{\text{B}}$ 51'40	
evening set	13081 Nov 26 16:20	2° $\mathring{\text{B}}$ 10'30		opposition	13088 Jun 22 15:12	11° $\mathring{\text{B}}$ 42'11	5°04'11
max. Earth dist.	13081 Dec 10 08:14	2° $\mathring{\text{B}}$ 32'44	40.98126 AU	min. Earth dist.	13088 Jun 24 16:00	11° $\mathring{\text{B}}$ 39'25	37.36195 AU
				direct	13088 Sep 11 06:32	10° $\mathring{\text{B}}$ 32'17	
conjunction	13081 Dec 12 10:11	2° $\mathring{\text{B}}$ 36'09	2°20'55	evening set	13088 Dec 07 03:58	11° $\mathring{\text{B}}$ 59'15	
minimum elong	13081 Dec 12 10:07	2° $\mathring{\text{B}}$ 36'09	2°21'54	max. Earth dist.	13088 Dec 19 22:48	12° $\mathring{\text{B}}$ 21'09	39.22982 AU
morning rise	13081 Dec 28 04:53	3° $\mathring{\text{B}}$ 01'54					
retrograde	13082 Mar 25 14:32	4° $\mathring{\text{B}}$ 24'53		conjunction	13088 Dec 22 06:09	12° $\mathring{\text{B}}$ 25'09	5°00'15
opposition	13082 Jun 14 19:57	3° $\mathring{\text{B}}$ 17'30	2°39'58	minimum elong	13088 Dec 22 06:00	12° $\mathring{\text{B}}$ 25'08	5°01'15
min. Earth dist.	13082 Jun 16 17:58	3° $\mathring{\text{B}}$ 14'59	38.85971 AU	morning rise	13089 Jan 06 08:44	12° $\mathring{\text{B}}$ 51'06	
direct	13082 Sep 03 16:35	2° $\mathring{\text{B}}$ 09'57		retrograde	13089 Apr 04 17:35	14° $\mathring{\text{B}}$ 19'59	
evening set	13082 Nov 28 09:04	3° $\mathring{\text{B}}$ 31'32		opposition	13089 Jun 24 08:09	13° $\mathring{\text{B}}$ 10'07	5°28'47
max. Earth dist.	13082 Dec 11 23:14	3° $\mathring{\text{B}}$ 53'48	40.73688 AU	min. Earth dist.	13089 Jun 26 10:10	13° $\mathring{\text{B}}$ 07'16	37.11029 AU
				direct	13089 Sep 12 20:36	11° $\mathring{\text{B}}$ 59'50	
conjunction	13082 Dec 14 01:34	3° $\mathring{\text{B}}$ 57'16	2°43'11	evening set	13089 Dec 09 01:54	13° $\mathring{\text{B}}$ 27'52	
minimum elong	13082 Dec 14 01:29	3° $\mathring{\text{B}}$ 57'16	2°44'12	max. Earth dist.	13089 Dec 21 18:06	13° $\mathring{\text{B}}$ 49'46	38.97703 AU
morning rise	13082 Dec 29 18:46	4° $\mathring{\text{B}}$ 23'06					
retrograde	13083 Mar 27 06:44	5° $\mathring{\text{B}}$ 46'48		conjunction	13089 Dec 24 00:46	13° $\mathring{\text{B}}$ 53'45	5°23'33
opposition	13083 Jun 16 10:06	4° $\mathring{\text{B}}$ 39'07	3°03'32	minimum elong	13089 Dec 24 00:38	13° $\mathring{\text{B}}$ 53'44	5°24'32
min. Earth dist.	13083 Jun 18 08:03	4° $\mathring{\text{B}}$ 36'35	38.61436 AU	morning rise	13090 Jan 07 23:45	14° $\mathring{\text{B}}$ 19'39	
direct	13083 Sep 05 04:31	3° $\mathring{\text{B}}$ 31'11		retrograde	13090 Apr 06 13:13	15° $\mathring{\text{B}}$ 49'34	
evening set	13083 Nov 30 02:24	4° $\mathring{\text{B}}$ 53'35		opposition	13090 Jun 26 01:20	14° $\mathring{\text{B}}$ 39'23	5°53'29
max. Earth dist.	13083 Dec 13 12:47	5° $\mathring{\text{B}}$ 15'45	40.48947 AU	min. Earth dist.	13090 Jun 28 02:44	14° $\mathring{\text{B}}$ 36'32	36.85889 AU
				direct	13090 Sep 14 11:52	13° $\mathring{\text{B}}$ 28'42	
conjunction	13083 Dec 15 17:06	5° $\mathring{\text{B}}$ 19'23	3°05'38	evening set	13090 Dec 11 00:52	14° $\mathring{\text{B}}$ 57'54	
minimum elong	13083 Dec 15 17:01	5° $\mathring{\text{B}}$ 19'22	3°06'38	max. Earth dist.	13090 Dec 23 11:37	15° $\mathring{\text{B}}$ 19'35	38.72430 AU
morning rise	13083 Dec 31 08:39	5° $\mathring{\text{B}}$ 45'16					
retrograde	13084 Mar 28 00:43	7° $\mathring{\text{B}}$ 09'45		conjunction	13090 Dec 25 19:49	15° $\mathring{\text{B}}$ 23'42	5°46'55
opposition	13084 Jun 17 00:48	6° $\mathring{\text{B}}$ 01'42	3°27'18	minimum elong	13090 Dec 25 19:39	15° $\mathring{\text{B}}$ 23'41	5°47'55
min. Earth dist.	13084 Jun 19 00:31	5° $\mathring{\text{B}}$ 59'04	38.36646 AU	morning rise	13091 Jan 09 15:06	15° $\mathring{\text{B}}$ 49'33	
direct	13084 Sep 05 15:57	4° $\mathring{\text{B}}$ 53'24		retrograde	13091 Apr 08 11:37	17° $\mathring{\text{B}}$ 20'34	

opposition	13091 Jun 27 19:14	16° $\overline{3}$ 10'02	6°18'17	minimum elong	13098 Jan 06 02:36	26° $\overline{3}$ 35'16	8°32'24
min. Earth dist.	13091 Jun 29 21:52	16° $\overline{3}$ 07'07	36.60753 AU	morning rise	13098 Jan 19 08:42	26° $\overline{3}$ 59'55	
direct	13091 Sep 16 03:00	14° $\overline{3}$ 58'59		retrograde	13098 Apr 20 04:26	28° $\overline{3}$ 40'03	
evening set	13091 Dec 13 00:30	16° $\overline{3}$ 29'23		opposition	13098 Jul 08 16:38	27° $\overline{3}$ 26'49	9°13'08
max. Earth dist.	13091 Dec 25 07:33	16° $\overline{3}$ 50'59	38.47114 AU	min. Earth dist.	13098 Jul 10 22:50	27° $\overline{3}$ 23'33	34.82653 AU
				direct	13098 Sep 26 15:20	26° $\overline{3}$ 12'44	
conjunction	13091 Dec 27 15:28	16° $\overline{3}$ 55'07	6°10'22	evening set	13098 Dec 26 03:42	27° $\overline{3}$ 53'02	
minimum elong	13091 Dec 27 15:19	16° $\overline{3}$ 55'06	6°11'21	max. Earth dist.	13099 Jan 05 14:48	28° $\overline{3}$ 12'38	36.67559 AU
morning rise	13092 Jan 11 06:22	17° $\overline{3}$ 20'53					
retrograde	13092 Apr 09 09:03	18° $\overline{3}$ 53'03		conjunction	13099 Jan 08 02:59	28° $\overline{3}$ 17'21	8°54'48
opposition	13092 Jun 28 13:45	17° $\overline{3}$ 42'11	6°43'10	minimum elong	13099 Jan 08 02:44	28° $\overline{3}$ 17'20	8°55'44
min. Earth dist.	13092 Jun 30 16:41	17° $\overline{3}$ 39'13	36.35552 AU	morning rise	13099 Jan 21 01:41	28° $\overline{3}$ 41'39	
direct	13092 Sep 16 21:50	16° $\overline{3}$ 30'45			13099 Mar 12 09:50	0° \approx	
evening set	13092 Dec 14 01:26	18° $\overline{3}$ 02'24		retrograde	13099 Apr 22 06:02	0° \approx 23'19	
max. Earth dist.	13092 Dec 26 02:40	18° $\overline{3}$ 23'46	38.21714 AU		13099 Jun 02 15:39	30° \overline{R} $\overline{3}$	
				opposition	13099 Jul 10 15:20	29° $\overline{3}$ 09'40	9°37'57
conjunction	13092 Dec 28 11:47	18° $\overline{3}$ 28'02	6°33'51	min. Earth dist.	13099 Jul 12 21:35	29° $\overline{3}$ 06'21	34.57306 AU
minimum elong	13092 Dec 28 11:36	18° $\overline{3}$ 28'01	6°34'50	direct	13099 Sep 28 14:25	27° $\overline{3}$ 55'07	
morning rise	13093 Jan 11 22:16	18° $\overline{3}$ 53'41		evening set	13099 Dec 28 11:45	29° $\overline{3}$ 37'05	
retrograde	13093 Apr 11 08:36	20° $\overline{3}$ 27'04		max. Earth dist.	13100 Jan 07 15:01	29° $\overline{3}$ 56'14	36.42092 AU
opposition	13093 Jun 30 08:40	19° $\overline{3}$ 15'50	7°08'07		13100 Jan 09 14:27	0° \approx	
min. Earth dist.	13093 Jul 02 12:04	19° $\overline{3}$ 12'50	36.10260 AU				
direct	13093 Sep 18 15:58	18° $\overline{3}$ 04'00		conjunction	13100 Jan 10 03:27	0° \approx 01'02	9°18'00
evening set	13093 Dec 16 03:17	19° $\overline{3}$ 36'58		minimum elong	13100 Jan 10 03:13	0° \approx 01'01	9°18'55
max. Earth dist.	13093 Dec 27 22:47	19° $\overline{3}$ 58'05	37.96173 AU	morning rise	13100 Jan 22 18:48	0° \approx 24'59	
				retrograde	13100 Apr 24 09:02	2° \approx 08'14	
conjunction	13093 Dec 30 08:53	20° $\overline{3}$ 02'28	6°57'24	opposition	13100 Jul 12 14:36	0° \approx 54'09	10°02'36
minimum elong	13093 Dec 30 08:42	20° $\overline{3}$ 02'27	6°58'23	min. Earth dist.	13100 Jul 14 20:20	0° \approx 50'52	34.32190 AU
morning rise	13094 Jan 13 14:22	20° $\overline{3}$ 27'59			13100 Aug 22 15:32	30° \overline{R} $\overline{3}$	
retrograde	13094 Apr 13 04:51	22° $\overline{3}$ 02'36		direct	13100 Sep 30 12:55	29° $\overline{3}$ 39'08	
opposition	13094 Jul 02 04:25	20° $\overline{3}$ 51'00	7°33'08		13100 Nov 07 17:53	0° \approx	
min. Earth dist.	13094 Jul 04 09:08	20° $\overline{3}$ 47'54	35.84828 AU	evening set	13100 Dec 30 20:59	1° \approx 22'51	
direct	13094 Sep 20 10:46	19° $\overline{3}$ 38'45		max. Earth dist.	13101 Jan 09 16:15	1° \approx 41'33	36.16855 AU
evening set	13094 Dec 18 06:10	21° $\overline{3}$ 13'04					
max. Earth dist.	13094 Dec 29 20:14	21° $\overline{3}$ 33'58	37.70509 AU	conjunction	13101 Jan 12 04:54	1° \approx 46'24	9°40'59
				minimum elong	13101 Jan 12 04:39	1° \approx 46'23	9°41'53
conjunction	13095 Jan 01 06:30	21° $\overline{3}$ 38'24	7°20'57	morning rise	13101 Jan 24 12:17	2° \approx 09'57	
minimum elong	13095 Jan 01 06:17	21° $\overline{3}$ 38'23	7°21'55	retrograde	13101 Apr 26 10:08	3° \approx 54'52	
morning rise	13095 Jan 15 06:38	22° $\overline{3}$ 03'45		opposition	13101 Jul 14 14:36	2° \approx 40'23	10°27'03
retrograde	13095 Apr 15 02:31	23° $\overline{3}$ 39'40		min. Earth dist.	13101 Jul 16 20:56	2° \approx 37'01	34.07338 AU
opposition	13095 Jul 04 00:31	22° $\overline{3}$ 27'41	7°58'10	direct	13101 Oct 02 11:53	1° \approx 24'55	
min. Earth dist.	13095 Jul 06 04:57	22° $\overline{3}$ 24'34	35.59296 AU	evening set	13102 Jan 02 07:37	3° \approx 10'26	
direct	13095 Sep 22 05:53	21° $\overline{3}$ 15'00		max. Earth dist.	13102 Jan 11 19:18	3° \approx 28'42	35.91913 AU
evening set	13095 Dec 20 10:01	22° $\overline{3}$ 50'43					
max. Earth dist.	13095 Dec 31 16:42	23° $\overline{3}$ 11'15	37.44750 AU	conjunction	13102 Jan 14 07:08	3° \approx 33'33	10°03'45
				minimum elong	13102 Jan 14 06:54	3° \approx 33'32	10°04'39
conjunction	13096 Jan 03 04:39	23° $\overline{3}$ 15'50	7°44'30				
minimum elong	13096 Jan 03 04:27	23° $\overline{3}$ 15'50	7°45'28				
morning rise	13096 Jan 16 23:10	23° $\overline{3}$ 40'59					
retrograde	13096 Apr 16 01:51	25° $\overline{3}$ 18'15					
opposition	13096 Jul 04 21:24	24° $\overline{3}$ 05'52	8°23'12				
min. Earth dist.	13096 Jul 07 03:19	24° $\overline{3}$ 02'39	35.33715 AU				
direct	13096 Sep 22 22:26	22° $\overline{3}$ 52'43					
evening set	13096 Dec 21 14:44	24° $\overline{3}$ 29'54					
max. Earth dist.	13097 Jan 01 16:06	24° $\overline{3}$ 50'13	37.18965 AU				
conjunction	13097 Jan 04 03:26	24° $\overline{3}$ 54'48	8°08'01				
minimum elong	13097 Jan 04 03:13	24° $\overline{3}$ 54'47	8°08'58				
morning rise	13097 Jan 17 15:43	25° $\overline{3}$ 19'42					
retrograde	13097 Apr 18 01:25	26° $\overline{3}$ 58'22					
opposition	13097 Jul 06 18:45	25° $\overline{3}$ 45'34	8°48'12				
min. Earth dist.	13097 Jul 09 00:10	25° $\overline{3}$ 42'22	35.08140 AU				
direct	13097 Sep 24 19:05	24° $\overline{3}$ 31'58					
evening set	13097 Dec 23 20:45	26° $\overline{3}$ 10'40					
max. Earth dist.	13098 Jan 03 14:08	26° $\overline{3}$ 30'34	36.93213 AU				
conjunction	13098 Jan 06 02:49	26° $\overline{3}$ 35'17	8°31'28				