

retrograde	12600 Jan 27 22:39	5° \mathbb{M} .54'47		min. Earth dist.	12606 May 01 04:42	18° \mathbb{M} .02'49	28.80818 AU
opposition	12600 Apr 17 17:09	4° \mathbb{M} .29'43	-0°26'32	direct	12606 Jul 18 20:05	16° \mathbb{M} .38'03	
min. Earth dist.	12600 Apr 17 01:17	4° \mathbb{M} .30'50	28.77589 AU	evening set	12606 Oct 14 07:50	18° \mathbb{M} .32'16	
direct	12600 Jul 04 17:40	3° \mathbb{M} .05'52					
evening set	12600 Sep 30 02:42	5° \mathbb{M} .00'03		conjunction	12606 Oct 30 06:27	19° \mathbb{M} .08'03	-0°15'24
				minimum elong	12606 Oct 30 06:27	19° \mathbb{M} .08'03	0°14'46
conjunction	12600 Oct 15 23:19	5° \mathbb{M} .35'44	-0°24'11	behind sun begin	12606 Oct 30 03:56	19° \mathbb{M} .07'49	
minimum elong	12600 Oct 15 23:19	5° \mathbb{M} .35'44	0°23'44	behind sun end	12606 Oct 30 08:59	19° \mathbb{M} .08'17	
max. Earth dist.	12600 Oct 16 15:24	5° \mathbb{M} .37'15	30.77739 AU	max. Earth dist.	12606 Oct 30 21:11	19° \mathbb{M} .09'26	30.81026 AU
morning rise	12600 Oct 31 22:20	6° \mathbb{M} .11'39		morning rise	12606 Nov 15 07:15	19° \mathbb{M} .44'03	
retrograde	12601 Jan 30 12:16	8° \mathbb{M} .09'59		retrograde	12607 Feb 13 20:17	21° \mathbb{M} .42'06	
opposition	12601 Apr 20 05:27	6° \mathbb{M} .44'56	-0°25'04	opposition	12607 May 04 06:59	20° \mathbb{M} .17'14	-0°15'33
min. Earth dist.	12601 Apr 19 14:25	6° \mathbb{M} .45'59	28.77969 AU	min. Earth dist.	12607 May 03 16:40	20° \mathbb{M} .18'14	28.81236 AU
direct	12601 Jul 07 05:36	5° \mathbb{M} .21'05		direct	12607 Jul 21 07:37	18° \mathbb{M} .53'24	
evening set	12601 Oct 02 15:16	7° \mathbb{M} .15'16		evening set	12607 Oct 16 20:49	20° \mathbb{M} .47'36	
conjunction	12601 Oct 18 12:22	7° \mathbb{M} .50'59	-0°22'48	conjunction	12607 Nov 01 19:49	21° \mathbb{M} .23'24	-0°13'51
minimum elong	12601 Oct 18 12:22	7° \mathbb{M} .50'59	0°22'18	minimum elong	12607 Nov 01 19:49	21° \mathbb{M} .23'24	0°13'10
max. Earth dist.	12601 Oct 19 05:15	7° \mathbb{M} .52'34	30.78192 AU	behind sun begin	12607 Nov 01 16:01	21° \mathbb{M} .23'03	
morning rise	12601 Nov 03 11:35	8° \mathbb{M} .26'54		behind sun end	12607 Nov 01 23:38	21° \mathbb{M} .23'45	
retrograde	12602 Feb 02 01:55	10° \mathbb{M} .25'12		max. Earth dist.	12607 Nov 02 10:38	21° \mathbb{M} .24'47	30.81397 AU
opposition	12602 Apr 22 17:42	9° \mathbb{M} .00'10	-0°23'34	morning rise	12607 Nov 17 20:52	21° \mathbb{M} .59'25	
min. Earth dist.	12602 Apr 22 01:44	9° \mathbb{M} .01'18	28.78473 AU	retrograde	12608 Feb 16 07:44	23° \mathbb{M} .57'22	
direct	12602 Jul 09 19:10	7° \mathbb{M} .36'20		opposition	12608 May 05 19:11	22° \mathbb{M} .32'29	-0°13'53
evening set	12602 Oct 05 03:56	9° \mathbb{M} .30'33		min. Earth dist.	12608 May 05 06:12	22° \mathbb{M} .33'24	28.81576 AU
				direct	12608 Jul 22 18:32	21° \mathbb{M} .08'37	
conjunction	12602 Oct 21 01:12	10° \mathbb{M} .06'16	-0°21'23	evening set	12608 Oct 18 09:52	23° \mathbb{M} .02'48	
minimum elong	12602 Oct 21 01:12	10° \mathbb{M} .06'16	0°20'52				
max. Earth dist.	12602 Oct 21 17:18	10° \mathbb{M} .07'46	30.78751 AU	conjunction	12608 Nov 03 09:13	23° \mathbb{M} .38'36	-0°12'17
morning rise	12602 Nov 06 00:52	10° \mathbb{M} .42'13		minimum elong	12608 Nov 03 09:13	23° \mathbb{M} .38'36	0°11'35
retrograde	12603 Feb 04 15:51	12° \mathbb{M} .40'29		behind sun begin	12608 Nov 03 04:35	23° \mathbb{M} .38'11	
opposition	12603 Apr 25 06:06	11° \mathbb{M} .15'29	-0°22'02	behind sun end	12608 Nov 03 13:51	23° \mathbb{M} .39'01	
min. Earth dist.	12603 Apr 24 14:50	11° \mathbb{M} .16'34	28.79079 AU	max. Earth dist.	12608 Nov 03 23:29	23° \mathbb{M} .39'56	30.81731 AU
direct	12603 Jul 12 06:14	9° \mathbb{M} .51'41		morning rise	12608 Nov 19 10:32	24° \mathbb{M} .14'36	
evening set	12603 Oct 07 16:41	11° \mathbb{M} .45'54		retrograde	12609 Feb 17 20:36	26° \mathbb{M} .12'27	
				opposition	12609 May 08 06:57	24° \mathbb{M} .47'35	-0°12'11
conjunction	12603 Oct 23 14:27	12° \mathbb{M} .21'38	-0°19'56	min. Earth dist.	12609 May 07 17:21	24° \mathbb{M} .48'32	28.81900 AU
minimum elong	12603 Oct 23 14:27	12° \mathbb{M} .21'38	0°19'22	direct	12609 Jul 25 07:39	23° \mathbb{M} .23'39	
max. Earth dist.	12603 Oct 24 07:33	12° \mathbb{M} .23'15	30.79381 AU	evening set	12609 Oct 20 22:55	25° \mathbb{M} .17'49	
morning rise	12603 Nov 08 14:16	12° \mathbb{M} .57'36					
retrograde	12604 Feb 07 05:28	14° \mathbb{M} .55'49		conjunction	12609 Nov 05 22:28	25° \mathbb{M} .53'37	-0°10'42
opposition	12604 Apr 26 18:16	13° \mathbb{M} .30'53	-0°20'27	minimum elong	12609 Nov 05 22:29	25° \mathbb{M} .53'37	0°09'58
min. Earth dist.	12604 Apr 26 03:00	13° \mathbb{M} .31'58	28.79711 AU	behind sun begin	12609 Nov 05 17:12	25° \mathbb{M} .53'09	
direct	12604 Jul 13 20:02	12° \mathbb{M} .07'07		behind sun end	12609 Nov 06 03:45	25° \mathbb{M} .54'06	
evening set	12604 Oct 09 05:44	14° \mathbb{M} .01'20		max. Earth dist.	12609 Nov 06 12:13	25° \mathbb{M} .54'54	30.82060 AU
				morning rise	12609 Nov 22 00:05	26° \mathbb{M} .29'38	
conjunction	12604 Oct 25 03:41	14° \mathbb{M} .37'06	-0°18'27	retrograde	12610 Feb 20 08:50	28° \mathbb{M} .27'24	
minimum elong	12604 Oct 25 03:41	14° \mathbb{M} .37'06	0°17'52	opposition	12610 May 10 18:56	27° \mathbb{M} .02'30	-0°10'28
max. Earth dist.	12604 Oct 25 19:17	14° \mathbb{M} .38'34	30.80008 AU	min. Earth dist.	12610 May 10 06:29	27° \mathbb{M} .03'23	28.82259 AU
	12604 Nov 04 07:02	15° \mathbb{M} .		direct	12610 Jul 27 19:09	25° \mathbb{M} .38'32	
morning rise	12604 Nov 10 03:58	15° \mathbb{M} .13'05		evening set	12610 Oct 23 11:40	27° \mathbb{M} .32'41	
retrograde	12605 Feb 08 19:30	17° \mathbb{M} .11'16					
opposition	12605 Apr 29 06:33	15° \mathbb{M} .46'22	-0°18'51	conjunction	12610 Nov 08 11:39	28° \mathbb{M} .08'30	-0°09'06
min. Earth dist.	12605 Apr 28 15:38	15° \mathbb{M} .47'24	28.80316 AU	minimum elong	12610 Nov 08 11:39	28° \mathbb{M} .08'30	0°08'22
	12605 May 28 11:14	15° \mathbb{R} \mathbb{M} .		behind sun begin	12610 Nov 08 05:54	28° \mathbb{M} .07'59	
direct	12605 Jul 16 07:28	14° \mathbb{M} .22'35		behind sun end	12610 Nov 08 17:24	28° \mathbb{M} .09'01	
	12605 Sep 01 16:22	15° \mathbb{M} .		max. Earth dist.	12610 Nov 09 01:51	28° \mathbb{M} .09'49	30.82457 AU
evening set	12605 Oct 11 18:43	16° \mathbb{M} .16'49		morning rise	12610 Nov 24 13:25	28° \mathbb{M} .44'31	
					12611 Jan 02 13:59	0° \mathbb{Z} .	
conjunction	12605 Oct 27 17:05	16° \mathbb{M} .52'35	-0°16'56	retrograde	12611 Feb 22 21:47	0° \mathbb{Z} .42'11	
minimum elong	12605 Oct 27 17:05	16° \mathbb{M} .52'35	0°16'19		12611 Apr 16 16:59	30° \mathbb{R} \mathbb{M} .	
max. Earth dist.	12605 Oct 28 09:10	16° \mathbb{M} .54'06	30.80560 AU	opposition	12611 May 13 06:40	29° \mathbb{M} .17'17	-0°08'45
morning rise	12605 Nov 12 17:29	17° \mathbb{M} .28'35		min. Earth dist.	12611 May 12 17:27	29° \mathbb{M} .18'13	28.82693 AU
retrograde	12606 Feb 11 06:41	19° \mathbb{M} .26'42		direct	12611 Jul 30 08:29	27° \mathbb{M} .53'17	
opposition	12606 May 01 18:49	18° \mathbb{M} .01'50	-0°17'13	evening set	12611 Oct 26 00:42	29° \mathbb{M} .47'26	

	12611 Oct 31 16:58	0°♈		max. Earth dist.	12616 Nov 22 08:08	11°♈37'56	30.87207 AU
				morning rise	12616 Dec 07 22:20	12°♈12'47	
conjunction	12611 Nov 11 00:50	0°♈23'15 -0°07'29		retrograde	12617 Mar 08 02:43	14°♈09'58	
minimum elong	12611 Nov 11 00:50	0°♈23'15 0°06'43		opposition	12617 May 26 04:06	12°♈45'25	0°01'46
behind sun begin	12611 Nov 10 18:43	0°♈22'42		min. Earth dist.	12617 May 25 17:18	12°♈46'11	28.87717 AU
behind sun end	12611 Nov 11 06:56	0°♈23'48		direct	12617 Aug 12 06:51	11°♈21'28	
max. Earth dist.	12611 Nov 11 14:04	0°♈24'29 30.82943 AU		evening set	12617 Nov 08 07:02	13°♈15'44	
morning rise	12611 Nov 27 02:58	0°♈59'16					
retrograde	12612 Feb 25 11:13	2°♈56'51		conjunction	12617 Nov 24 08:48	13°♈51'37	0°02'29
opposition	12612 May 14 18:19	1°♈31'58 -0°07'01		minimum elong	12617 Nov 24 08:48	13°♈51'37	0°03'22
min. Earth dist.	12612 May 14 05:56	1°♈32'50 28.83249 AU		behind sun begin	12617 Nov 24 02:17	13°♈51'02	
direct	12612 Jul 31 19:39	0°♈07'56		behind sun end	12617 Nov 24 15:19	13°♈52'12	
evening set	12612 Oct 27 13:37	2°♈02'05		max. Earth dist.	12617 Nov 24 20:43	13°♈52'43	30.88200 AU
				morning rise	12617 Dec 10 11:59	14°♈27'39	
conjunction	12612 Nov 12 14:12	2°♈37'55 -0°05'52		retrograde	12618 Mar 10 14:50	16°♈24'45	
minimum elong	12612 Nov 12 14:12	2°♈37'55 0°05'06		opposition	12618 May 28 15:34	15°♈00'16	0°03'32
behind sun begin	12612 Nov 12 07:50	2°♈37'21		min. Earth dist.	12618 May 28 04:23	15°♈01'03	28.88670 AU
behind sun end	12612 Nov 12 20:33	2°♈38'30		direct	12618 Aug 14 19:26	13°♈36'18	
max. Earth dist.	12612 Nov 13 04:22	2°♈39'15 30.83560 AU		evening set	12618 Nov 10 20:14	15°♈30'35	
morning rise	12612 Nov 28 16:24	3°♈13'56					
retrograde	12613 Feb 27 00:37	5°♈11'25		conjunction	12618 Nov 26 22:09	16°♈06'28	0°04'08
opposition	12613 May 17 05:56	3°♈46'35 -0°05'16		minimum elong	12618 Nov 26 22:09	16°♈06'28	0°05'00
min. Earth dist.	12613 May 16 17:18	3°♈47'28 28.83926 AU		behind sun begin	12618 Nov 26 15:47	16°♈05'54	
direct	12613 Aug 03 09:41	2°♈22'33		behind sun end	12618 Nov 27 04:32	16°♈07'02	
evening set	12613 Oct 30 02:35	4°♈16'43		max. Earth dist.	12618 Nov 27 09:12	16°♈07'29	30.89100 AU
				morning rise	12618 Dec 13 01:32	16°♈42'30	
conjunction	12613 Nov 15 03:16	4°♈52'33 -0°04'14		retrograde	12619 Mar 13 02:17	18°♈39'30	
minimum elong	12613 Nov 15 03:15	4°♈52'33 0°03'25		opposition	12619 May 31 03:10	17°♈15'03	0°05'17
behind sun begin	12613 Nov 14 20:45	4°♈51'58		min. Earth dist.	12619 May 30 17:35	17°♈15'43	28.89527 AU
behind sun end	12613 Nov 15 09:45	4°♈53'08		direct	12619 Aug 17 05:54	15°♈51'03	
max. Earth dist.	12613 Nov 15 16:13	4°♈53'46 30.84311 AU		evening set	12619 Nov 13 09:27	17°♈45'20	
morning rise	12613 Dec 01 05:49	5°♈28'35					
retrograde	12614 Mar 01 13:53	7°♈25'59		conjunction	12619 Nov 29 11:44	18°♈21'13	0°05'45
opposition	12614 May 19 17:33	6°♈01'12 -0°03'31		minimum elong	12619 Nov 29 11:44	18°♈21'13	0°06'39
min. Earth dist.	12614 May 19 04:58	6°♈02'05 28.84751 AU		behind sun begin	12619 Nov 29 05:36	18°♈20'40	
direct	12614 Aug 05 21:04	4°♈37'10		behind sun end	12619 Nov 29 17:52	18°♈21'46	
evening set	12614 Nov 01 15:30	6°♈31'21		max. Earth dist.	12619 Nov 29 22:28	18°♈22'12	30.89916 AU
				morning rise	12619 Dec 15 15:11	18°♈57'14	
conjunction	12614 Nov 17 16:35	7°♈07'13 -0°02'35		retrograde	12620 Mar 14 14:39	20°♈54'06	
minimum elong	12614 Nov 17 16:36	7°♈07'13 0°01'46		opposition	12620 Jun 01 14:22	19°♈29'41	0°07'01
behind sun begin	12614 Nov 17 10:02	7°♈06'37		min. Earth dist.	12620 Jun 01 04:35	19°♈30'22	28.90292 AU
behind sun end	12614 Nov 17 23:09	7°♈07'48		direct	12620 Aug 18 18:30	18°♈05'37	
max. Earth dist.	12614 Nov 18 06:26	7°♈08'30 30.85198 AU		evening set	12620 Nov 14 22:47	19°♈59'54	
morning rise	12614 Dec 03 19:12	7°♈43'15					
retrograde	12615 Mar 04 01:26	9°♈40'34		conjunction	12620 Dec 01 01:08	20°♈35'46	0°07'21
opposition	12615 May 22 05:07	8°♈15'52 -0°01'45		minimum elong	12620 Dec 01 01:08	20°♈35'46	0°08'15
min. Earth dist.	12615 May 21 17:04	8°♈16'42 28.85689 AU		behind sun begin	12620 Nov 30 19:21	20°♈35'15	
direct	12615 Aug 08 09:22	6°♈51'52		behind sun end	12620 Dec 01 06:55	20°♈36'17	
evening set	12615 Nov 04 04:35	8°♈46'04		max. Earth dist.	12620 Dec 01 10:22	20°♈36'37	30.90650 AU
				morning rise	12620 Dec 17 04:49	21°♈11'47	
conjunction	12615 Nov 20 05:51	9°♈21'56 -0°00'53		retrograde	12621 Mar 17 03:08	23°♈08'31	
minimum elong	12615 Nov 20 05:50	9°♈21'56 0°00'02		opposition	12621 Jun 04 01:44	21°♈44'05	0°08'44
behind sun begin	12615 Nov 20 00:56	9°♈21'31		min. Earth dist.	12621 Jun 03 17:12	21°♈44'41	28.91012 AU
behind sun end	12615 Nov 20 10:45	9°♈22'22		direct	12621 Aug 21 06:11	20°♈19'58	
max. Earth dist.	12615 Nov 20 18:31	9°♈23'07 30.86191 AU		evening set	12621 Nov 17 11:45	22°♈14'14	
morning rise	12615 Dec 06 08:48	9°♈57'58					
retrograde	12616 Mar 05 15:30	11°♈55'14		conjunction	12621 Dec 03 14:26	22°♈50'06	0°08'57
asc. node	12616 May 21 12:12	10°♈34'17		minimum elong	12621 Dec 03 14:26	22°♈50'06	0°09'53
opposition	12616 May 23 16:37	10°♈30'36 0°00'01		behind sun begin	12621 Dec 03 09:07	22°♈49'37	
min. Earth dist.	12616 May 23 04:19	10°♈31'28 28.86707 AU		behind sun end	12621 Dec 03 19:44	22°♈50'34	
direct	12616 Aug 09 20:31	9°♈06'37		max. Earth dist.	12621 Dec 04 00:13	22°♈51'00	30.91359 AU
evening set	12616 Nov 05 17:47	11°♈00'52		morning rise	12621 Dec 19 18:04	23°♈26'05	
				retrograde	12622 Mar 19 15:20	25°♈22'41	
conjunction	12616 Nov 21 19:19	11°♈36'45 0°00'49		opposition	12622 Jun 06 12:54	23°♈58'15	0°10'27
minimum elong	12616 Nov 21 19:19	11°♈36'45 0°01'41		min. Earth dist.	12622 Jun 06 04:29	23°♈58'51	28.91716 AU
behind sun begin	12616 Nov 21 12:46	11°♈36'10		direct	12622 Aug 23 20:21	22°♈34'05	
behind sun end	12616 Nov 22 01:53	11°♈37'20		evening set	12622 Nov 20 00:55	24°♈28'19	

conjunction	12622 Dec 06 03:37	25° \mathring{A} 04'11	0°10'32	evening set	12628 Dec 03 06:51	7° \mathring{B} 49'34	
minimum elong	12622 Dec 06 03:37	25° \mathring{A} 04'11	0°11'28				
behind sun begin	12622 Dec 05 22:55	25° \mathring{A} 03'46		conjunction	12628 Dec 19 10:29	8° \mathring{B} 25'24	0°19'38
behind sun end	12622 Dec 06 08:18	25° \mathring{A} 04'36		minimum elong	12628 Dec 19 10:29	8° \mathring{B} 25'24	0°20'34
max. Earth dist.	12622 Dec 06 11:51	25° \mathring{A} 04'56	30.92085 AU	max. Earth dist.	12628 Dec 19 17:25	8° \mathring{B} 26'02	30.98564 AU
morning rise	12622 Dec 22 07:32	25° \mathring{A} 40'09		morning rise	12629 Jan 04 14:33	9° \mathring{B} 01'18	
retrograde	12623 Mar 22 04:01	27° \mathring{A} 36'37		retrograde	12629 Apr 04 02:13	10° \mathring{B} 57'04	
opposition	12623 Jun 08 23:57	26° \mathring{A} 12'11	0°12'08	opposition	12629 Jun 21 17:11	9° \mathring{B} 33'02	0°21'48
min. Earth dist.	12623 Jun 08 15:56	26° \mathring{A} 12'45	28.92477 AU	min. Earth dist.	12629 Jun 21 10:52	9° \mathring{B} 33'28	28.99238 AU
direct	12623 Aug 26 07:47	24° \mathring{A} 47'56		direct	12629 Sep 08 04:49	8° \mathring{B} 08'46	
evening set	12623 Nov 22 13:52	26° \mathring{A} 42'10		evening set	12629 Dec 05 19:57	10° \mathring{B} 03'08	
conjunction	12623 Dec 08 16:54	27° \mathring{A} 18'01	0°12'06	conjunction	12629 Dec 21 23:31	10° \mathring{B} 38'58	0°21'04
minimum elong	12623 Dec 08 16:55	27° \mathring{A} 18'01	0°13'03	minimum elong	12629 Dec 21 23:31	10° \mathring{B} 38'58	0°22'01
behind sun begin	12623 Dec 08 13:03	27° \mathring{A} 17'41		max. Earth dist.	12629 Dec 22 05:02	10° \mathring{B} 39'28	30.99898 AU
behind sun end	12623 Dec 08 20:46	27° \mathring{A} 18'22		morning rise	12630 Jan 07 03:40	11° \mathring{B} 14'51	
max. Earth dist.	12623 Dec 09 01:49	27° \mathring{A} 18'50	30.92873 AU	retrograde	12630 Apr 06 14:15	13° \mathring{B} 10'33	
morning rise	12623 Dec 24 20:46	27° \mathring{A} 53'59		opposition	12630 Jun 24 04:08	11° \mathring{B} 46'36	0°23'19
retrograde	12624 Mar 23 15:33	29° \mathring{A} 50'17		min. Earth dist.	12630 Jun 23 23:09	11° \mathring{B} 46'57	29.00555 AU
opposition	12624 Jun 10 10:58	28° \mathring{A} 25'53	0°13'49	direct	12630 Sep 10 15:33	10° \mathring{B} 22'22	
min. Earth dist.	12624 Jun 10 03:35	28° \mathring{A} 26'24	28.93306 AU	evening set	12630 Dec 08 09:03	12° \mathring{B} 16'46	
direct	12624 Aug 27 20:52	27° \mathring{A} 01'36		conjunction	12630 Dec 24 12:52	12° \mathring{B} 52'35	0°22'27
evening set	12624 Nov 24 02:58	28° \mathring{A} 55'48		minimum elong	12630 Dec 24 12:52	12° \mathring{B} 52'35	0°23'23
conjunction	12624 Dec 10 06:00	29° \mathring{A} 31'39	0°13'39	max. Earth dist.	12630 Dec 24 18:32	12° \mathring{B} 53'07	31.01170 AU
minimum elong	12624 Dec 10 06:00	29° \mathring{A} 31'39	0°14'35	morning rise	12631 Jan 09 16:51	13° \mathring{B} 28'27	
behind sun begin	12624 Dec 10 03:21	29° \mathring{A} 31'25		retrograde	12631 Apr 09 02:09	15° \mathring{B} 24'03	
behind sun end	12624 Dec 10 08:39	29° \mathring{A} 31'53		opposition	12631 Jun 26 14:53	14° \mathring{B} 00'11	0°24'47
max. Earth dist.	12624 Dec 10 13:37	29° \mathring{A} 32'21	30.93761 AU	min. Earth dist.	12631 Jun 26 10:25	14° \mathring{B} 00'30	29.01770 AU
	12624 Dec 22 22:54	0° \mathring{B}		direct	12631 Sep 13 04:43	12° \mathring{B} 35'58	
morning rise	12624 Dec 26 10:02	0° \mathring{B} 07'36		evening set	12631 Dec 10 22:21	14° \mathring{B} 30'24	
retrograde	12625 Mar 26 04:59	2° \mathring{B} 03'46		conjunction	12631 Dec 27 02:05	15° \mathring{B} 06'13	0°23'49
opposition	12625 Jun 12 21:49	0° \mathring{B} 39'23	0°15'28	minimum elong	12631 Dec 27 02:05	15° \mathring{B} 06'13	0°24'46
min. Earth dist.	12625 Jun 12 14:01	0° \mathring{B} 39'56	28.94258 AU	max. Earth dist.	12631 Dec 27 05:42	15° \mathring{B} 06'33	31.02333 AU
	12625 Jul 07 04:12	30° \mathring{R} \mathring{A}		morning rise	12632 Jan 12 06:13	15° \mathring{B} 42'04	
direct	12625 Aug 30 08:53	29° \mathring{A} 15'04		retrograde	12632 Apr 10 14:56	17° \mathring{B} 37'33	
	12625 Oct 21 23:30	0° \mathring{B}		opposition	12632 Jun 28 01:43	16° \mathring{B} 13'44	0°26'13
evening set	12625 Nov 26 15:54	1° \mathring{B} 09'17		min. Earth dist.	12632 Jun 27 22:00	16° \mathring{B} 14'00	29.02883 AU
conjunction	12625 Dec 12 19:08	1° \mathring{B} 45'08	0°15'11	direct	12632 Sep 14 15:39	14° \mathring{B} 49'30	
minimum elong	12625 Dec 12 19:08	1° \mathring{B} 45'08	0°16'08	evening set	12632 Dec 12 11:25	16° \mathring{B} 43'58	
max. Earth dist.	12625 Dec 13 03:12	1° \mathring{B} 45'52	30.94772 AU	conjunction	12632 Dec 28 15:20	17° \mathring{B} 19'45	0°25'08
morning rise	12625 Dec 28 23:06	2° \mathring{B} 21'04		minimum elong	12632 Dec 28 15:20	17° \mathring{B} 19'45	0°26'03
retrograde	12626 Mar 28 15:18	4° \mathring{B} 17'07		max. Earth dist.	12632 Dec 28 19:09	17° \mathring{B} 20'06	31.03384 AU
opposition	12626 Jun 15 08:48	2° \mathring{B} 52'47	0°17'05	morning rise	12633 Jan 13 19:14	17° \mathring{B} 55'35	
min. Earth dist.	12626 Jun 15 02:04	2° \mathring{B} 53'15	28.95344 AU	retrograde	12633 Apr 13 02:38	19° \mathring{B} 50'56	
direct	12626 Sep 01 19:51	1° \mathring{B} 28'28		opposition	12633 Jun 30 12:27	18° \mathring{B} 27'11	0°27'36
evening set	12626 Nov 29 04:43	3° \mathring{B} 22'41		min. Earth dist.	12633 Jun 30 09:48	18° \mathring{B} 27'22	29.03885 AU
conjunction	12626 Dec 15 08:06	3° \mathring{B} 58'31	0°16'42	direct	12633 Sep 17 04:58	17° \mathring{B} 02'55	
minimum elong	12626 Dec 15 08:06	3° \mathring{B} 58'31	0°17'38	evening set	12633 Dec 15 00:32	18° \mathring{B} 57'23	
max. Earth dist.	12626 Dec 15 15:37	3° \mathring{B} 59'13	30.95938 AU	conjunction	12633 Dec 31 04:21	19° \mathring{B} 33'10	0°26'25
morning rise	12626 Dec 31 12:12	4° \mathring{B} 34'27		minimum elong	12633 Dec 31 04:21	19° \mathring{B} 33'10	0°27'21
retrograde	12627 Mar 31 03:12	6° \mathring{B} 30'23		max. Earth dist.	12633 Dec 31 06:23	19° \mathring{B} 33'21	31.04362 AU
opposition	12627 Jun 17 19:37	5° \mathring{B} 06'08	0°18'41	morning rise	12634 Jan 16 08:21	20° \mathring{B} 08'58	
min. Earth dist.	12627 Jun 17 12:11	5° \mathring{B} 06'40	28.96567 AU	retrograde	12634 Apr 15 16:10	22° \mathring{B} 04'12	
direct	12627 Sep 04 07:41	3° \mathring{B} 41'50		opposition	12634 Jul 02 23:02	20° \mathring{B} 40'28	0°28'57
evening set	12627 Dec 01 17:48	5° \mathring{B} 36'05		min. Earth dist.	12634 Jul 02 20:22	20° \mathring{B} 40'39	29.04838 AU
conjunction	12627 Dec 17 21:16	6° \mathring{B} 11'56	0°18'11	direct	12634 Sep 19 17:35	19° \mathring{B} 16'09	
minimum elong	12627 Dec 17 21:16	6° \mathring{B} 11'56	0°19'08	evening set	12634 Dec 17 13:23	21° \mathring{B} 10'37	
max. Earth dist.	12627 Dec 18 04:20	6° \mathring{B} 12'34	30.97212 AU	conjunction	12635 Jan 02 17:21	21° \mathring{B} 46'24	0°27'40
morning rise	12628 Jan 03 01:24	6° \mathring{B} 47'50		minimum elong	12635 Jan 02 17:21	21° \mathring{B} 46'24	0°28'34
retrograde	12628 Apr 01 14:18	8° \mathring{B} 43'41		max. Earth dist.	12635 Jan 02 19:28	21° \mathring{B} 46'35	31.05290 AU
opposition	12628 Jun 19 06:25	7° \mathring{B} 19'32	0°20'16	morning rise	12635 Jan 18 21:11	22° \mathring{B} 22'11	
min. Earth dist.	12628 Jun 19 00:24	7° \mathring{B} 19'58	28.97888 AU	retrograde	12635 Apr 18 02:05	24° \mathring{B} 17'16	
direct	12628 Sep 05 17:10	5° \mathring{B} 55'15					

opposition	12635 Jul 05 09:42	22° $\overline{3}$ 53'34	0°30'16	conjunction	12642 Jan 18 10:31	7° \approx 14'39	0°35'05
min. Earth dist.	12635 Jul 05 08:33	22° $\overline{3}$ 53'39	29.05759 AU	minimum elong	12642 Jan 18 10:31	7° \approx 14'39	0°35'55
direct	12635 Sep 22 05:17	21° $\overline{3}$ 29'13		max. Earth dist.	12642 Jan 18 09:37	7° \approx 14'34	31.13330 AU
evening set	12635 Dec 20 02:21	23° $\overline{3}$ 23'40		morning rise	12642 Feb 03 13:28	7° \approx 50'16	
				retrograde	12642 May 03 06:37	9° \approx 44'33	
conjunction	12636 Jan 05 06:17	23° $\overline{3}$ 59'26	0°28'52	opposition	12642 Jul 20 10:37	8° \approx 21'16	0°38'00
minimum elong	12636 Jan 05 06:17	23° $\overline{3}$ 59'26	0°29'46	min. Earth dist.	12642 Jul 20 12:18	8° \approx 21'09	29.13993 AU
max. Earth dist.	12636 Jan 05 07:27	23° $\overline{3}$ 59'32	31.06222 AU	direct	12642 Oct 07 11:47	6° \approx 56'53	
morning rise	12636 Jan 21 10:08	24° $\overline{3}$ 35'11		evening set	12643 Jan 04 19:32	8° \approx 51'28	
retrograde	12636 Apr 19 13:33	26° $\overline{3}$ 30'07					
opposition	12636 Jul 06 20:01	25° $\overline{3}$ 06'27	0°31'31	conjunction	12643 Jan 20 23:07	9° \approx 27'06	0°35'57
min. Earth dist.	12636 Jul 06 18:26	25° $\overline{3}$ 06'34	29.06701 AU	minimum elong	12643 Jan 20 23:07	9° \approx 27'06	0°36'44
direct	12636 Sep 23 17:30	23° $\overline{3}$ 42'04		max. Earth dist.	12643 Jan 20 20:22	9° \approx 26'51	31.14612 AU
evening set	12636 Dec 21 15:14	25° $\overline{3}$ 36'31		morning rise	12643 Feb 06 02:05	10° \approx 02'41	
				retrograde	12643 May 05 19:41	11° \approx 56'53	
conjunction	12637 Jan 06 19:08	26° $\overline{3}$ 12'15	0°30'01	opposition	12643 Jul 22 21:00	10° \approx 33'40	0°38'54
minimum elong	12637 Jan 06 19:08	26° $\overline{3}$ 12'15	0°30'54	min. Earth dist.	12643 Jul 22 22:45	10° \approx 33'33	29.15221 AU
max. Earth dist.	12637 Jan 06 19:50	26° $\overline{3}$ 12'19	31.07180 AU	direct	12643 Oct 10 00:08	9° \approx 09'17	
morning rise	12637 Jan 22 22:51	26° $\overline{3}$ 47'59		evening set	12644 Jan 07 08:20	11° \approx 03'53	
retrograde	12637 Apr 22 00:18	28° $\overline{3}$ 42'47					
opposition	12637 Jul 09 06:36	27° $\overline{3}$ 19'09	0°32'44	conjunction	12644 Jan 23 11:55	11° \approx 39'31	0°36'46
min. Earth dist.	12637 Jul 09 06:18	27° $\overline{3}$ 19'10	29.07705 AU	minimum elong	12644 Jan 23 11:55	11° \approx 39'31	0°37'32
direct	12637 Sep 26 03:12	25° $\overline{3}$ 54'44		max. Earth dist.	12644 Jan 23 08:58	11° \approx 39'14	31.15765 AU
evening set	12637 Dec 24 03:48	27° $\overline{3}$ 49'10		morning rise	12644 Feb 08 14:33	12° \approx 15'04	
				retrograde	12644 May 07 05:53	14° \approx 09'10	
conjunction	12638 Jan 09 07:46	28° $\overline{3}$ 24'53	0°31'08	opposition	12644 Jul 24 07:27	12° \approx 46'01	0°39'44
minimum elong	12638 Jan 09 07:46	28° $\overline{3}$ 24'53	0°32'00	min. Earth dist.	12644 Jul 24 10:59	12° \approx 45'46	29.16309 AU
max. Earth dist.	12638 Jan 09 08:28	28° $\overline{3}$ 24'57	31.08232 AU	direct	12644 Oct 11 11:44	11° \approx 21'37	
morning rise	12638 Jan 25 11:20	29° $\overline{3}$ 00'36		evening set	12645 Jan 08 21:09	13° \approx 16'14	
	12638 Feb 24 08:27	0° \approx					
retrograde	12638 Apr 24 10:27	0° \approx 55'17		conjunction	12645 Jan 25 00:34	13° \approx 51'50	0°37'31
	12638 Jun 24 12:42	30° \overline{R} $\overline{3}$		minimum elong	12645 Jan 25 00:34	13° \approx 51'50	0°38'15
opposition	12638 Jul 11 17:01	29° $\overline{3}$ 31'41	0°33'53	max. Earth dist.	12645 Jan 24 20:19	13° \approx 51'27	31.16793 AU
min. Earth dist.	12638 Jul 11 16:07	29° $\overline{3}$ 31'45	29.08802 AU	morning rise	12645 Feb 10 03:06	14° \approx 27'22	
direct	12638 Sep 28 15:04	28° $\overline{3}$ 07'14			12645 Feb 25 18:18	15° \approx	
	12638 Dec 25 21:57	0° \approx		retrograde	12645 May 09 17:57	16° \approx 21'21	
evening set	12638 Dec 26 16:36	0° \approx 01'41			12645 Jul 25 16:33	15° \overline{R} \approx	
				opposition	12645 Jul 26 17:49	14° \approx 58'14	0°40'30
conjunction	12639 Jan 11 20:26	0° \approx 37'23	0°32'12	min. Earth dist.	12645 Jul 26 21:07	14° \approx 58'00	29.17268 AU
minimum elong	12639 Jan 11 20:26	0° \approx 37'23	0°33'03	direct	12645 Oct 14 00:17	13° \approx 33'49	
max. Earth dist.	12639 Jan 11 20:03	0° \approx 37'21	31.09383 AU		12645 Dec 28 20:03	15° \approx	
morning rise	12639 Jan 27 23:59	1° \approx 13'05		evening set	12646 Jan 11 09:41	15° \approx 28'26	
retrograde	12639 Apr 26 20:44	3° \approx 07'38					
opposition	12639 Jul 14 03:24	1° \approx 44'06	0°35'00	conjunction	12646 Jan 27 13:00	16° \approx 04'01	0°38'12
min. Earth dist.	12639 Jul 14 03:25	1° \approx 44'06	29.10020 AU	minimum elong	12646 Jan 27 13:01	16° \approx 04'01	0°38'56
direct	12639 Oct 01 01:11	0° \approx 19'39		max. Earth dist.	12646 Jan 27 08:00	16° \approx 03'34	31.17685 AU
evening set	12639 Dec 29 05:17	2° \approx 14'07		morning rise	12646 Feb 12 15:20	16° \approx 39'32	
				retrograde	12646 May 12 04:37	18° \approx 33'24	
conjunction	12640 Jan 14 09:15	2° \approx 49'49	0°33'13	opposition	12646 Jul 29 04:17	17° \approx 10'19	0°41'13
minimum elong	12640 Jan 14 09:15	2° \approx 49'49	0°34'04	min. Earth dist.	12646 Jul 29 09:14	17° \approx 09'58	29.18113 AU
max. Earth dist.	12640 Jan 14 09:26	2° \approx 49'50	31.10653 AU	direct	12646 Oct 16 10:41	15° \approx 45'52	
morning rise	12640 Jan 30 12:32	3° \approx 25'28		evening set	12647 Jan 13 22:16	17° \approx 40'29	
retrograde	12640 Apr 28 07:12	5° \approx 19'56					
opposition	12640 Jul 15 13:49	3° \approx 56'29	0°36'03	conjunction	12647 Jan 30 01:33	18° \approx 16'02	0°38'51
min. Earth dist.	12640 Jul 15 13:59	3° \approx 56'28	29.11321 AU	minimum elong	12647 Jan 30 01:33	18° \approx 16'02	0°39'32
direct	12640 Oct 02 12:59	2° \approx 32'03		max. Earth dist.	12647 Jan 29 20:05	18° \approx 15'32	31.18487 AU
evening set	12640 Dec 30 18:03	4° \approx 26'33		morning rise	12647 Feb 15 03:40	18° \approx 51'31	
				retrograde	12647 May 14 14:24	20° \approx 45'16	
conjunction	12641 Jan 15 21:45	5° \approx 02'13	0°34'11	opposition	12647 Jul 31 14:25	19° \approx 22'13	0°41'52
minimum elong	12641 Jan 15 21:45	5° \approx 02'13	0°35'00	min. Earth dist.	12647 Jul 31 19:14	19° \approx 21'52	29.18868 AU
max. Earth dist.	12641 Jan 15 20:25	5° \approx 02'06	31.11987 AU	direct	12647 Oct 18 22:59	17° \approx 57'44	
morning rise	12641 Feb 01 01:03	5° \approx 37'52		evening set	12648 Jan 16 10:53	19° \approx 52'20	
retrograde	12641 Apr 30 19:29	7° \approx 32'14					
opposition	12641 Jul 18 00:11	6° \approx 08'52	0°37'04	conjunction	12648 Feb 01 13:55	20° \approx 27'52	0°39'26
min. Earth dist.	12641 Jul 18 00:47	6° \approx 08'49	29.12675 AU	minimum elong	12648 Feb 01 13:55	20° \approx 27'52	0°40'07
direct	12641 Oct 04 22:58	4° \approx 44'27		max. Earth dist.	12648 Feb 01 07:04	20° \approx 27'14	31.19214 AU
evening set	12642 Jan 02 06:43	6° \approx 39'00		morning rise	12648 Feb 17 15:54	21° \approx 03'20	

retrograde	12648 May 16 00:12	22° \approx 56'57		evening set	12655 Feb 01 00:05	5° \mathbb{H} 12'13	
opposition	12648 Aug 02 00:43	21° \approx 33'55	0°42'27				
min. Earth dist.	12648 Aug 02 06:39	21° \approx 33'30	29.19589 AU	conjunction	12655 Feb 17 01:57	5° \mathbb{H} 47'37	0°41'53
direct	12648 Oct 20 09:02	20° \approx 09'24		minimum elong	12655 Feb 17 01:58	5° \mathbb{H} 47'37	0°42'21
evening set	12649 Jan 17 23:07	22° \approx 04'00		max. Earth dist.	12655 Feb 16 16:52	5° \mathbb{H} 46'47	31.25564 AU
				morning rise	12655 Mar 05 02:11	6° \mathbb{H} 22'53	
conjunction	12649 Feb 03 02:08	22° \approx 39'31	0°39'57	retrograde	12655 Jun 01 04:47	8° \mathbb{H} 16'00	
minimum elong	12649 Feb 03 02:08	22° \approx 39'31	0°40'36	opposition	12655 Aug 17 23:54	6° \mathbb{H} 53'20	0°44'49
max. Earth dist.	12649 Feb 02 19:48	22° \approx 38'56	31.19928 AU	min. Earth dist.	12655 Aug 18 08:37	6° \mathbb{H} 52'44	29.26077 AU
morning rise	12649 Feb 19 03:45	23° \approx 14'56		direct	12655 Nov 05 16:49	5° \mathbb{H} 28'53	
retrograde	12649 May 18 09:30	25° \approx 08'28		evening set	12656 Feb 03 12:14	7° \mathbb{H} 23'40	
opposition	12649 Aug 04 10:55	23° \approx 45'27	0°42'59				
min. Earth dist.	12649 Aug 04 17:03	23° \approx 45'01	29.20307 AU	conjunction	12656 Feb 19 13:57	7° \mathbb{H} 59'03	0°41'59
direct	12649 Oct 22 20:36	22° \approx 20'53		minimum elong	12656 Feb 19 13:57	7° \mathbb{H} 59'03	0°42'26
evening set	12650 Jan 20 11:28	24° \approx 15'29		max. Earth dist.	12656 Feb 19 04:28	7° \mathbb{H} 58'10	31.26519 AU
				morning rise	12656 Mar 06 13:51	8° \mathbb{H} 34'17	
conjunction	12650 Feb 05 14:09	24° \approx 50'59	0°40'25	retrograde	12656 Jun 02 14:15	10° \mathbb{H} 27'20	
minimum elong	12650 Feb 05 14:10	24° \approx 50'59	0°41'03	opposition	12656 Aug 19 10:09	9° \mathbb{H} 04'44	0°44'54
max. Earth dist.	12650 Feb 05 06:26	24° \approx 50'16	31.20673 AU	min. Earth dist.	12656 Aug 19 18:45	9° \mathbb{H} 04'08	29.26966 AU
morning rise	12650 Feb 21 15:42	25° \approx 26'23		direct	12656 Nov 07 05:12	7° \mathbb{H} 40'18	
retrograde	12650 May 20 20:47	27° \approx 19'49		evening set	12657 Feb 05 00:18	9° \mathbb{H} 35'05	
opposition	12650 Aug 06 21:01	25° \approx 56'49	0°43'27				
min. Earth dist.	12650 Aug 07 03:16	25° \approx 56'23	29.21099 AU	conjunction	12657 Feb 21 01:39	10° \mathbb{H} 10'27	0°42'02
direct	12650 Oct 25 06:17	24° \approx 32'14		minimum elong	12657 Feb 21 01:39	10° \mathbb{H} 10'27	0°42'26
evening set	12651 Jan 22 23:34	26° \approx 26'51		max. Earth dist.	12657 Feb 20 14:46	10° \mathbb{H} 09'26	31.27340 AU
				morning rise	12657 Mar 09 01:21	10° \mathbb{H} 45'40	
conjunction	12651 Feb 08 02:17	27° \approx 02'19	0°40'50	retrograde	12657 Jun 05 00:01	12° \mathbb{H} 38'39	
minimum elong	12651 Feb 08 02:17	27° \approx 02'19	0°41'25	opposition	12657 Aug 21 20:32	11° \mathbb{H} 16'04	0°44'55
max. Earth dist.	12651 Feb 07 19:20	27° \approx 01'41	31.21501 AU	min. Earth dist.	12657 Aug 22 06:12	11° \mathbb{H} 15'24	29.27734 AU
morning rise	12651 Feb 24 03:26	27° \approx 37'41		direct	12657 Nov 09 15:01	9° \mathbb{H} 51'38	
retrograde	12651 May 23 06:56	29° \approx 31'02		evening set	12658 Feb 07 12:14	11° \mathbb{H} 46'24	
opposition	12651 Aug 09 07:15	28° \approx 08'05	0°43'51				
min. Earth dist.	12651 Aug 09 14:10	28° \approx 07'36	29.21971 AU	conjunction	12658 Feb 23 13:31	12° \mathbb{H} 21'45	0°42'01
direct	12651 Oct 27 18:57	26° \approx 43'30		minimum elong	12658 Feb 23 13:32	12° \mathbb{H} 21'45	0°42'24
evening set	12652 Jan 25 11:49	28° \approx 38'08		max. Earth dist.	12658 Feb 23 02:55	12° \mathbb{H} 20'46	31.28041 AU
				morning rise	12658 Mar 11 12:49	12° \mathbb{H} 56'56	
conjunction	12652 Feb 10 14:12	29° \approx 13'35	0°41'11	retrograde	12658 Jun 07 08:59	14° \mathbb{H} 49'50	
minimum elong	12652 Feb 10 14:13	29° \approx 13'35	0°41'45	opposition	12658 Aug 24 06:43	13° \mathbb{H} 27'17	0°44'52
max. Earth dist.	12652 Feb 10 05:57	29° \approx 12'50	31.22433 AU	min. Earth dist.	12658 Aug 24 16:56	13° \mathbb{H} 26'35	29.28364 AU
morning rise	12652 Feb 26 15:16	29° \approx 48'55		direct	12658 Nov 12 02:11	12° \mathbb{H} 02'49	
	12652 Mar 02 19:19	0° \mathbb{H}		evening set	12659 Feb 10 00:16	13° \mathbb{H} 57'35	
retrograde	12652 May 24 19:11	1° \mathbb{H} 42'12					
opposition	12652 Aug 10 17:18	0° \mathbb{H} 19'18	0°44'11	conjunction	12659 Feb 26 01:11	14° \mathbb{H} 32'54	0°41'57
min. Earth dist.	12652 Aug 10 23:39	0° \mathbb{H} 18'52	29.22955 AU	minimum elong	12659 Feb 26 01:11	14° \mathbb{H} 32'54	0°42'18
	12652 Aug 22 09:00	30° \mathbb{R} \approx		max. Earth dist.	12659 Feb 25 12:51	14° \mathbb{H} 31'45	31.28617 AU
direct	12652 Oct 29 06:46	28° \approx 54'45		morning rise	12659 Mar 14 00:22	15° \mathbb{H} 08'04	
	12653 Jan 02 12:36	0° \mathbb{H}		retrograde	12659 Jun 09 19:37	17° \mathbb{H} 00'52	
evening set	12653 Jan 26 23:54	0° \mathbb{H} 49'26		opposition	12659 Aug 26 16:57	15° \mathbb{H} 38'20	0°44'46
				min. Earth dist.	12659 Aug 27 03:29	15° \mathbb{H} 37'36	29.28891 AU
conjunction	12653 Feb 12 02:13	1° \mathbb{H} 24'52	0°41'29	direct	12659 Nov 14 12:22	14° \mathbb{H} 13'49	
minimum elong	12653 Feb 12 02:13	1° \mathbb{H} 24'52	0°42'01	evening set	12660 Feb 12 12:04	16° \mathbb{H} 08'34	
max. Earth dist.	12653 Feb 11 18:26	1° \mathbb{H} 24'09	31.23455 AU				
morning rise	12653 Feb 28 02:52	2° \mathbb{H} 00'11		conjunction	12660 Feb 28 12:53	16° \mathbb{H} 43'51	0°41'49
retrograde	12653 May 27 05:16	3° \mathbb{H} 53'24		minimum elong	12660 Feb 28 12:54	16° \mathbb{H} 43'51	0°42'08
opposition	12653 Aug 13 03:34	2° \mathbb{H} 30'35	0°44'28	max. Earth dist.	12660 Feb 28 01:06	16° \mathbb{H} 42'46	31.29091 AU
min. Earth dist.	12653 Aug 13 11:12	2° \mathbb{H} 30'03	29.24008 AU	morning rise	12660 Mar 15 11:35	17° \mathbb{H} 18'59	
direct	12653 Oct 31 17:37	1° \mathbb{H} 06'05		retrograde	12660 Jun 11 04:17	19° \mathbb{H} 11'43	
evening set	12654 Jan 29 11:53	3° \mathbb{H} 00'47		opposition	12660 Aug 28 03:12	17° \mathbb{H} 49'10	0°44'35
				min. Earth dist.	12660 Aug 28 14:44	17° \mathbb{H} 48'22	29.29326 AU
conjunction	12654 Feb 14 13:58	3° \mathbb{H} 36'12	0°41'42	direct	12660 Nov 16 00:32	16° \mathbb{H} 24'37	
minimum elong	12654 Feb 14 13:58	3° \mathbb{H} 36'12	0°42'13	evening set	12661 Feb 13 23:51	18° \mathbb{H} 19'20	
max. Earth dist.	12654 Feb 14 05:27	3° \mathbb{H} 35'25	31.24531 AU	max. Earth dist.	12661 Mar 01 11:08	18° \mathbb{H} 53'23	31.29514 AU
morning rise	12654 Mar 02 14:30	4° \mathbb{H} 11'30					
retrograde	12654 May 29 17:33	6° \mathbb{H} 04'40		conjunction	12661 Mar 02 00:17	18° \mathbb{H} 54'35	0°41'38
opposition	12654 Aug 15 13:41	4° \mathbb{H} 41'56	0°44'41	minimum elong	12661 Mar 02 00:18	18° \mathbb{H} 54'35	0°41'54
min. Earth dist.	12654 Aug 15 20:51	4° \mathbb{H} 41'26	29.25072 AU	morning rise	12661 Mar 17 22:52	19° \mathbb{H} 29'42	
direct	12654 Nov 03 06:14	3° \mathbb{H} 17'28		retrograde	12661 Jun 13 15:33	21° \mathbb{H} 22'20	

opposition	12661 Aug 30 13:20	19° H 59'46	0°44'21	direct	12667 Dec 02 07:08	1° Y 37'12	
min. Earth dist.	12661 Aug 31 00:19	19° H 59'00	29.29743 AU	evening set	12668 Mar 01 08:06	3° Y 32'00	
direct	12661 Nov 18 11:56	18° H 35'11					
evening set	12662 Feb 16 11:19	20° H 29'53		conjunction	12668 Mar 17 06:37	4° Y 07'07	0°38'40
				minimum elong	12668 Mar 17 06:37	4° Y 07'07	0°38'42
conjunction	12662 Mar 04 11:38	21° H 05'07	0°41'23	max. Earth dist.	12668 Mar 16 16:13	4° Y 05'48	31.33731 AU
minimum elong	12662 Mar 04 11:38	21° H 05'07	0°41'37	morning rise	12668 Apr 02 03:04	4° Y 42'05	
max. Earth dist.	12662 Mar 03 22:58	21° H 03'57	31.29927 AU	retrograde	12668 Jun 28 14:38	6° Y 34'30	
morning rise	12662 Mar 20 09:49	21° H 40'11		opposition	12668 Sep 14 13:12	5° Y 12'14	0°40'58
retrograde	12662 Jun 16 00:58	23° H 32'45		min. Earth dist.	12668 Sep 15 01:45	5° Y 11'22	29.34052 AU
opposition	12662 Sep 01 23:37	22° H 10'10	0°44'03	direct	12668 Dec 03 16:48	3° Y 47'51	
min. Earth dist.	12662 Sep 02 11:49	22° H 09'20	29.30176 AU	evening set	12669 Mar 03 19:26	5° Y 42'40	
direct	12662 Nov 20 23:02	20° H 45'34					
evening set	12663 Feb 18 22:56	22° H 40'14		conjunction	12669 Mar 19 17:50	6° Y 17'47	0°38'01
				minimum elong	12669 Mar 19 17:50	6° Y 17'47	0°38'01
conjunction	12663 Mar 06 22:55	23° H 15'27	0°41'05	max. Earth dist.	12669 Mar 19 04:03	6° Y 16'30	31.34288 AU
minimum elong	12663 Mar 06 22:56	23° H 15'27	0°41'17	morning rise	12669 Apr 04 13:48	6° Y 52'43	
max. Earth dist.	12663 Mar 06 09:47	23° H 14'14	31.30395 AU	retrograde	12669 Jun 30 23:36	8° Y 45'09	
morning rise	12663 Mar 22 20:53	23° H 50'29		opposition	12669 Sep 16 23:45	7° Y 22'55	0°40'14
retrograde	12663 Jun 18 12:23	25° H 42'59		min. Earth dist.	12669 Sep 17 13:21	7° Y 21'59	29.34543 AU
opposition	12663 Sep 04 09:39	24° H 20'25	0°43'42	direct	12669 Dec 06 04:06	5° Y 58'34	
min. Earth dist.	12663 Sep 04 20:57	24° H 19'38	29.30680 AU	evening set	12670 Mar 06 06:50	7° Y 53'24	
direct	12663 Nov 23 12:01	22° H 55'48					
evening set	12664 Feb 21 10:29	24° H 50'29		conjunction	12670 Mar 22 04:49	8° Y 28'29	0°37'19
				minimum elong	12670 Mar 22 04:49	8° Y 28'29	0°37'16
conjunction	12664 Mar 08 10:12	25° H 25'40	0°40'43	max. Earth dist.	12670 Mar 21 13:36	8° Y 27'05	31.34716 AU
minimum elong	12664 Mar 08 10:12	25° H 25'40	0°40'53	morning rise	12670 Apr 07 00:40	9° Y 03'24	
max. Earth dist.	12664 Mar 07 21:00	25° H 24'27	31.30944 AU	retrograde	12670 Jul 03 11:01	10° Y 55'50	
morning rise	12664 Mar 24 07:48	26° H 00'41		opposition	12670 Sep 19 10:12	9° Y 33'38	0°39'27
retrograde	12664 Jun 19 23:04	27° H 53'09		min. Earth dist.	12670 Sep 19 23:22	9° Y 32'44	29.34895 AU
opposition	12664 Sep 05 20:01	26° H 30'36	0°43'16	direct	12670 Dec 08 14:52	8° Y 09'17	
min. Earth dist.	12664 Sep 06 08:09	26° H 29'46	29.31291 AU	evening set	12671 Mar 08 18:11	10° Y 04'08	
direct	12664 Nov 24 22:46	25° H 06'01					
evening set	12665 Feb 22 21:44	27° H 00'42		conjunction	12671 Mar 24 15:59	10° Y 39'12	0°36'33
				minimum elong	12671 Mar 24 15:59	10° Y 39'12	0°36'28
conjunction	12665 Mar 10 21:14	27° H 35'52	0°40'17	max. Earth dist.	12671 Mar 24 00:53	10° Y 37'49	31.34985 AU
minimum elong	12665 Mar 10 21:15	27° H 35'52	0°40'26	morning rise	12671 Apr 09 11:22	11° Y 14'06	
max. Earth dist.	12665 Mar 10 08:27	27° H 34'42	31.31610 AU	retrograde	12671 Jul 05 20:44	13° Y 06'31	
morning rise	12665 Mar 26 18:31	28° H 10'52		opposition	12671 Sep 21 20:46	11° Y 44'19	0°38'36
	12665 Jun 08 09:15	0° Y		min. Earth dist.	12671 Sep 22 11:25	11° Y 43'19	29.35095 AU
retrograde	12665 Jun 22 08:28	0° Y 03'18		direct	12671 Dec 11 01:38	10° Y 19'59	
	12665 Jul 06 08:43	30° R H		evening set	12672 Mar 10 05:31	12° Y 14'50	
opposition	12665 Sep 08 06:14	28° H 40'50	0°42'47	max. Earth dist.	12672 Mar 25 11:14	12° Y 48'25	31.35127 AU
min. Earth dist.	12665 Sep 08 17:42	28° H 40'02	29.31986 AU				
direct	12665 Nov 27 10:56	27° H 16'17		conjunction	12672 Mar 26 02:58	12° Y 49'52	0°35'45
evening set	12666 Feb 25 09:12	29° H 11'00		minimum elong	12672 Mar 26 02:58	12° Y 49'52	0°35'37
				morning rise	12672 Apr 10 22:08	13° Y 24'44	
conjunction	12666 Mar 13 08:20	29° H 46'10	0°39'49	retrograde	12672 Jul 07 08:29	15° Y 17'07	
minimum elong	12666 Mar 13 08:20	29° H 46'10	0°39'55	opposition	12672 Sep 23 07:18	13° Y 54'56	0°37'42
max. Earth dist.	12666 Mar 12 18:39	29° H 44'54	31.32334 AU	min. Earth dist.	12672 Sep 23 21:17	13° Y 53'58	29.35171 AU
	12666 Mar 19 14:04	0° Y		direct	12672 Dec 12 15:15	12° Y 30'34	
morning rise	12666 Mar 29 05:24	0° Y 21'09		evening set	12673 Mar 12 16:33	14° Y 25'24	
retrograde	12666 Jun 24 18:38	2° Y 13'34					
opposition	12666 Sep 10 16:26	0° Y 51'10	0°42'14	conjunction	12673 Mar 28 13:42	15° Y 00'26	0°34'53
min. Earth dist.	12666 Sep 11 04:33	0° Y 50'20	29.32729 AU	minimum elong	12673 Mar 28 13:42	15° Y 00'26	0°34'44
	12666 Oct 13 20:07	30° R H		max. Earth dist.	12673 Mar 27 21:39	14° Y 58'57	31.35149 AU
direct	12666 Nov 29 20:19	29° H 26'40		morning rise	12673 Apr 13 08:34	15° Y 35'17	
	12667 Jan 14 17:24	0° Y		retrograde	12673 Jul 09 19:21	17° Y 27'38	
evening set	12667 Feb 27 20:35	1° Y 21'26		opposition	12673 Sep 25 17:56	16° Y 05'25	0°36'46
				min. Earth dist.	12673 Sep 26 08:59	16° Y 04'23	29.35161 AU
conjunction	12667 Mar 15 19:35	1° Y 56'35	0°39'16	direct	12673 Dec 15 02:46	14° Y 41'02	
minimum elong	12667 Mar 15 19:36	1° Y 56'35	0°39'20	evening set	12674 Mar 15 03:33	16° Y 35'50	
max. Earth dist.	12667 Mar 15 06:37	1° Y 55'23	31.33068 AU	max. Earth dist.	12674 Mar 30 08:48	17° Y 09'23	31.35116 AU
morning rise	12667 Mar 31 16:14	2° Y 31'32					
retrograde	12667 Jun 27 03:47	4° Y 23'58		conjunction	12674 Mar 31 00:30	17° Y 10'50	0°33'58
opposition	12667 Sep 13 02:48	3° Y 01'38	0°41'38	minimum elong	12674 Mar 31 00:30	17° Y 10'50	0°33'47
min. Earth dist.	12667 Sep 13 15:19	3° Y 00'47	29.33430 AU	morning rise	12674 Apr 15 19:02	17° Y 45'40	

retrograde	12674 Jul 12 04:15	19° Υ 37'59		direct	12680 Dec 30 07:02	29° Υ 52'28	
opposition	12674 Sep 28 04:20	18° Υ 15'44	0°35'46		12681 Jan 20 22:38	0° \mathcal{B}	
min. Earth dist.	12674 Sep 28 18:51	18° Υ 14'45	29.35106 AU	evening set	12681 Mar 30 07:25	1° \mathcal{B} 47'15	
direct	12674 Dec 17 15:30	16° Υ 51'20		max. Earth dist.	12681 Apr 14 10:39	2° \mathcal{B} 20'42	31.35691 AU
evening set	12675 Mar 17 14:37	18° Υ 46'06					
				conjunction	12681 Apr 15 02:09	2° \mathcal{B} 22'08	0°26'21
conjunction	12675 Apr 02 11:08	19° Υ 21'06	0°33'01	minimum elong	12681 Apr 15 02:09	2° \mathcal{B} 22'08	0°25'56
minimum elong	12675 Apr 02 11:08	19° Υ 21'06	0°32'48	morning rise	12681 Apr 30 18:39	2° \mathcal{B} 56'52	
max. Earth dist.	12675 Apr 01 18:37	19° Υ 19'34	31.35065 AU	retrograde	12681 Jul 27 02:08	4° \mathcal{B} 49'17	
morning rise	12675 Apr 18 05:28	19° Υ 55'54		opposition	12681 Oct 13 07:29	3° \mathcal{B} 27'08	0°27'26
retrograde	12675 Jul 14 14:31	21° Υ 48'11		min. Earth dist.	12681 Oct 13 21:35	3° \mathcal{B} 26'10	29.35685 AU
opposition	12675 Sep 30 14:57	20° Υ 25'55	0°34'43	direct	12682 Jan 01 19:54	2° \mathcal{B} 02'53	
min. Earth dist.	12675 Oct 01 05:41	20° Υ 24'55	29.35084 AU	evening set	12682 Apr 01 18:19	3° \mathcal{B} 57'41	
direct	12675 Dec 20 02:14	19° Υ 01'30					
evening set	12676 Mar 19 01:22	20° Υ 56'15		conjunction	12682 Apr 17 12:43	4° \mathcal{B} 32'34	0°25'06
				minimum elong	12682 Apr 17 12:43	4° \mathcal{B} 32'34	0°24'38
conjunction	12676 Apr 03 21:42	21° Υ 31'13	0°32'01	max. Earth dist.	12682 Apr 16 20:47	4° \mathcal{B} 31'06	31.35610 AU
minimum elong	12676 Apr 03 21:43	21° Υ 31'13	0°31'46	morning rise	12682 May 03 04:56	5° \mathcal{B} 07'17	
max. Earth dist.	12676 Apr 03 06:26	21° Υ 29'48	31.35068 AU	retrograde	12682 Jul 29 13:20	6° \mathcal{B} 59'44	
morning rise	12676 Apr 19 15:34	22° Υ 06'00		opposition	12682 Oct 15 18:26	5° \mathcal{B} 37'35	0°26'05
retrograde	12676 Jul 15 23:12	23° Υ 58'17		min. Earth dist.	12682 Oct 16 09:35	5° \mathcal{B} 36'33	29.35542 AU
opposition	12676 Oct 02 01:38	22° Υ 36'01	0°33'37	direct	12683 Jan 04 06:46	4° \mathcal{B} 13'22	
min. Earth dist.	12676 Oct 02 16:14	22° Υ 35'00	29.35120 AU	evening set	12683 Apr 04 05:09	6° \mathcal{B} 08'10	
direct	12676 Dec 21 14:07	21° Υ 11'36					
evening set	12677 Mar 21 12:18	23° Υ 06'20		conjunction	12683 Apr 19 23:20	6° \mathcal{B} 43'02	0°23'48
				minimum elong	12683 Apr 19 23:20	6° \mathcal{B} 43'02	0°23'19
conjunction	12677 Apr 06 08:10	23° Υ 41'17	0°30'58	max. Earth dist.	12683 Apr 19 07:42	6° \mathcal{B} 41'36	31.35391 AU
minimum elong	12677 Apr 06 08:10	23° Υ 41'17	0°30'41	morning rise	12683 May 05 15:12	7° \mathcal{B} 17'45	
max. Earth dist.	12677 Apr 05 16:03	23° Υ 39'47	31.35156 AU	retrograde	12683 Jul 31 23:07	9° \mathcal{B} 10'13	
morning rise	12677 Apr 22 01:53	24° Υ 16'03		opposition	12683 Oct 18 05:30	7° \mathcal{B} 48'04	0°24'41
retrograde	12677 Jul 18 09:21	26° Υ 08'20		min. Earth dist.	12683 Oct 18 20:15	7° \mathcal{B} 47'04	29.35234 AU
opposition	12677 Oct 04 12:12	24° Υ 46'05	0°32'29	direct	12684 Jan 06 19:41	6° \mathcal{B} 23'51	
min. Earth dist.	12677 Oct 05 02:09	24° Υ 45'07	29.35254 AU	evening set	12684 Apr 05 15:55	8° \mathcal{B} 18'39	
direct	12677 Dec 24 00:05	23° Υ 21'41					
evening set	12678 Mar 23 22:58	25° Υ 16'25		conjunction	12684 Apr 21 09:40	8° \mathcal{B} 53'31	0°22'29
				minimum elong	12684 Apr 21 09:40	8° \mathcal{B} 53'31	0°21'58
conjunction	12678 Apr 08 18:44	25° Υ 51'22	0°29'53	max. Earth dist.	12684 Apr 20 16:59	8° \mathcal{B} 51'58	31.35009 AU
minimum elong	12678 Apr 08 18:44	25° Υ 51'22	0°29'33	morning rise	12684 May 07 01:21	9° \mathcal{B} 28'13	
max. Earth dist.	12678 Apr 08 03:48	25° Υ 49'59	31.35316 AU	retrograde	12684 Aug 02 10:11	11° \mathcal{B} 20'43	
morning rise	12678 Apr 24 12:01	26° Υ 26'08		opposition	12684 Oct 19 16:39	9° \mathcal{B} 58'32	0°23'15
retrograde	12678 Jul 20 17:32	28° Υ 18'26		min. Earth dist.	12684 Oct 20 07:44	9° \mathcal{B} 57'31	29.34789 AU
opposition	12678 Oct 06 22:57	26° Υ 56'12	0°31'17	direct	12685 Jan 08 06:53	8° \mathcal{B} 34'19	
min. Earth dist.	12678 Oct 07 13:33	26° Υ 55'12	29.35424 AU	evening set	12685 Apr 08 02:32	10° \mathcal{B} 29'06	
direct	12678 Dec 26 10:42	25° Υ 31'51					
evening set	12679 Mar 26 09:53	27° Υ 26'36		conjunction	12685 Apr 23 20:09	11° \mathcal{B} 03'57	0°21'08
				minimum elong	12685 Apr 23 20:10	11° \mathcal{B} 03'57	0°20'36
conjunction	12679 Apr 11 05:11	28° Υ 01'32	0°28'45	max. Earth dist.	12685 Apr 23 04:27	11° \mathcal{B} 02'30	31.34497 AU
minimum elong	12679 Apr 11 05:11	28° Υ 01'32	0°28'23	morning rise	12685 May 09 11:27	11° \mathcal{B} 38'38	
max. Earth dist.	12679 Apr 10 13:24	28° Υ 00'04	31.35497 AU	retrograde	12685 Aug 04 19:13	13° \mathcal{B} 31'10	
morning rise	12679 Apr 26 22:19	28° Υ 36'17		opposition	12685 Oct 22 03:41	12° \mathcal{B} 08'57	0°21'47
	12679 Jun 11 16:37	0° \mathcal{B}		min. Earth dist.	12685 Oct 22 19:03	12° \mathcal{B} 07'54	29.34213 AU
retrograde	12679 Jul 23 04:43	0° \mathcal{B} 28'36		direct	12686 Jan 10 19:21	10° \mathcal{B} 44'43	
	12679 Sep 03 22:34	30° $\mathcal{R}\Upsilon$		evening set	12686 Apr 10 13:12	12° \mathcal{B} 39'29	
opposition	12679 Oct 09 09:36	29° Υ 06'25	0°30'03				
min. Earth dist.	12679 Oct 09 23:19	29° Υ 05'29	29.35590 AU	conjunction	12686 Apr 26 06:24	13° \mathcal{B} 14'19	0°19'45
direct	12679 Dec 28 20:43	27° Υ 42'06		minimum elong	12686 Apr 26 06:24	13° \mathcal{B} 14'19	0°19'10
evening set	12680 Mar 27 20:42	29° Υ 36'52		max. Earth dist.	12686 Apr 25 13:41	13° \mathcal{B} 12'46	31.33885 AU
	12680 Apr 07 08:49	0° \mathcal{B}		morning rise	12686 May 11 21:37	13° \mathcal{B} 49'00	
					12686 Jun 17 18:37	15° \mathcal{B}	
conjunction	12680 Apr 12 15:46	0° \mathcal{B} 11'47	0°27'34	retrograde	12686 Aug 07 05:30	15° \mathcal{B} 41'32	
minimum elong	12680 Apr 12 15:46	0° \mathcal{B} 11'47	0°27'10		12686 Sep 28 15:51	15° $\mathcal{R}\mathcal{B}$	
max. Earth dist.	12680 Apr 12 00:30	0° \mathcal{B} 10'22	31.35632 AU	opposition	12686 Oct 24 14:44	14° \mathcal{B} 19'17	0°20'18
morning rise	12680 Apr 28 08:29	0° \mathcal{B} 46'32		min. Earth dist.	12686 Oct 25 05:32	14° \mathcal{B} 18'17	29.33571 AU
retrograde	12680 Jul 24 14:34	2° \mathcal{B} 38'54		direct	12687 Jan 13 06:09	12° \mathcal{B} 55'01	
opposition	12680 Oct 10 20:36	1° \mathcal{B} 16'44	0°28'46	evening set	12687 Apr 12 23:38	14° \mathcal{B} 49'45	
min. Earth dist.	12680 Oct 11 11:28	1° \mathcal{B} 15'43	29.35693 AU		12687 Apr 17 15:46	15° \mathcal{B}	
	12680 Dec 08 13:27	30° $\mathcal{R}\Upsilon$					

conjunction	12687 Apr 28 16:40	15° 8 24'35	0°18'21	conjunction	12693 May 11 04:54	28° 8 26'48	0°09'28
minimum elong	12687 Apr 28 16:41	15° 8 24'35	0°17'45	minimum elong	12693 May 11 04:53	28° 8 26'48	0°08'43
max. Earth dist.	12687 Apr 28 01:11	15° 8 23'09	31.33221 AU	behind sun begin	12693 May 10 23:17	28° 8 26'18	
morning rise	12687 May 14 07:28	15° 8 59'15		behind sun end	12693 May 11 10:30	28° 8 27'18	
retrograde	12687 Aug 09 13:24	17° 8 51'50		max. Earth dist.	12693 May 10 14:50	28° 8 25'30	31.30451 AU
opposition	12687 Oct 27 01:55	16° 8 29'32	0°18'47	morning rise	12693 May 26 18:26	29° 8 01'27	
min. Earth dist.	12687 Oct 27 17:10	16° 8 28'29	29.32913 AU		12693 Jun 25 00:17	0° II	
direct	12688 Jan 15 17:10	15° 8 05'15		retrograde	12693 Aug 22 07:42	0° II 54'27	
evening set	12688 Apr 14 10:07	16° 8 59'58			12693 Oct 22 12:45	30° 8 8	
max. Earth dist.	12688 Apr 29 10:52	17° 8 33'18	31.32595 AU	opposition	12693 Nov 08 21:35	29° 8 32'08	0°09'11
				min. Earth dist.	12693 Nov 09 10:16	29° 8 31'16	29.30242 AU
conjunction	12688 Apr 30 02:43	17° 8 34'47	0°16'55	direct	12694 Jan 28 11:33	28° 8 08'03	
minimum elong	12688 Apr 30 02:43	17° 8 34'47	0°16'17		12694 Apr 26 16:46	0° II	
morning rise	12688 May 15 17:24	18° 8 09'27		evening set	12694 Apr 28 00:02	0° II 02'50	
retrograde	12688 Aug 11 00:16	20° 8 02'03					
opposition	12688 Oct 28 13:02	18° 8 39'44	0°17'14	conjunction	12694 May 13 15:09	0° II 37'38	0°07'55
min. Earth dist.	12688 Oct 29 02:49	18° 8 38'47	29.32325 AU	minimum elong	12694 May 13 15:09	0° II 37'38	0°07'08
direct	12689 Jan 17 03:03	17° 8 15'26		behind sun begin	12694 May 13 09:11	0° II 37'06	
evening set	12689 Apr 16 20:19	19° 8 10'09		behind sun end	12694 May 13 21:06	0° II 38'09	
				max. Earth dist.	12694 May 13 02:17	0° II 36'26	31.29982 AU
conjunction	12689 May 02 12:45	19° 8 44'57	0°15'28	morning rise	12694 May 29 04:20	1° II 12'17	
minimum elong	12689 May 02 12:45	19° 8 44'57	0°14'49	retrograde	12694 Aug 24 17:40	3° II 05'22	
behind sun begin	12689 May 02 10:08	19° 8 44'43		opposition	12694 Nov 11 09:14	1° II 43'02	0°07'31
behind sun end	12689 May 02 15:21	19° 8 45'11		min. Earth dist.	12694 Nov 11 22:04	1° II 42'10	29.29713 AU
max. Earth dist.	12689 May 01 21:50	19° 8 43'34	31.32046 AU	direct	12695 Jan 31 00:29	0° II 18'59	
morning rise	12689 May 18 03:06	20° 8 19'37		evening set	12695 Apr 30 10:33	2° II 13'46	
retrograde	12689 Aug 13 09:55	22° 8 12'18		max. Earth dist.	12695 May 15 11:26	2° II 47'16	31.29398 AU
opposition	12689 Oct 31 00:20	20° 8 49'57	0°15'40				
min. Earth dist.	12689 Oct 31 14:41	20° 8 48'58	29.31827 AU	conjunction	12695 May 16 01:13	2° II 48'33	0°06'22
direct	12690 Jan 19 13:16	19° 8 25'41		minimum elong	12695 May 16 01:12	2° II 48'33	0°05'34
evening set	12690 Apr 19 06:40	21° 8 20'24		behind sun begin	12695 May 15 19:00	2° II 47'59	
				behind sun end	12695 May 16 07:25	2° II 49'06	
conjunction	12690 May 04 22:48	21° 8 55'12	0°14'00	morning rise	12695 May 31 14:19	3° II 23'12	
minimum elong	12690 May 04 22:49	21° 8 55'12	0°13'19	retrograde	12695 Aug 27 04:32	5° II 16'22	
behind sun begin	12690 May 04 19:03	21° 8 54'52		opposition	12695 Nov 13 20:52	3° II 54'01	0°05'51
behind sun end	12690 May 05 02:34	21° 8 55'32		min. Earth dist.	12695 Nov 14 09:03	3° II 53'11	29.29070 AU
max. Earth dist.	12690 May 04 08:19	21° 8 53'51	31.31601 AU	direct	12696 Feb 02 11:29	2° II 29'58	
morning rise	12690 May 20 12:58	22° 8 29'51		evening set	12696 May 01 20:56	4° II 24'45	
retrograde	12690 Aug 15 21:23	24° 8 22'36					
opposition	12690 Nov 02 11:21	23° 8 00'16	0°14'05	conjunction	12696 May 17 11:29	4° II 59'31	0°04'48
min. Earth dist.	12690 Nov 03 00:23	22° 8 59'22	29.31409 AU	minimum elong	12696 May 17 11:29	4° II 59'31	0°03'59
direct	12691 Jan 22 01:32	21° 8 36'02		behind sun begin	12696 May 17 05:07	4° II 58'57	
evening set	12691 Apr 21 17:03	23° 8 30'47		behind sun end	12696 May 17 17:51	5° II 00'05	
				max. Earth dist.	12696 May 16 22:43	4° II 58'20	31.28682 AU
conjunction	12691 May 07 08:52	24° 8 05'34	0°12'30	morning rise	12696 Jun 02 00:14	5° II 34'10	
minimum elong	12691 May 07 08:52	24° 8 05'34	0°11'48	retrograde	12696 Aug 28 13:09	7° II 27'24	
behind sun begin	12691 May 07 04:19	24° 8 05'10		opposition	12696 Nov 15 08:42	6° II 05'01	0°04'10
behind sun end	12691 May 07 13:25	24° 8 05'59		min. Earth dist.	12696 Nov 15 21:32	6° II 04'08	29.28287 AU
max. Earth dist.	12691 May 06 18:29	24° 8 04'14	31.31210 AU	direct	12697 Feb 03 23:11	4° II 40'58	
morning rise	12691 May 22 22:48	24° 8 40'14		evening set	12697 May 04 07:18	6° II 35'43	
retrograde	12691 Aug 18 09:04	26° 8 33'04					
opposition	12691 Nov 04 22:47	25° 8 10'44	0°12'28	conjunction	12697 May 19 21:31	7° II 10'29	0°03'13
min. Earth dist.	12691 Nov 05 12:14	25° 8 09'49	29.31043 AU	minimum elong	12697 May 19 21:32	7° II 10'29	0°02'23
direct	12692 Jan 24 11:34	23° 8 46'33		behind sun begin	12697 May 19 15:06	7° II 09'54	
evening set	12692 Apr 23 03:14	25° 8 41'19		behind sun end	12697 May 20 03:58	7° II 11'03	
				max. Earth dist.	12697 May 19 08:10	7° II 09'14	31.27843 AU
conjunction	12692 May 08 18:51	26° 8 16'06	0°10'59	morning rise	12697 Jun 04 10:16	7° II 45'08	
minimum elong	12692 May 08 18:52	26° 8 16'06	0°10'15	retrograde	12697 Aug 31 00:28	9° II 38'25	
behind sun begin	12692 May 08 13:43	26° 8 15'39		opposition	12697 Nov 17 20:22	8° II 15'59	0°02'28
behind sun end	12692 May 09 00:00	26° 8 16'34		min. Earth dist.	12697 Nov 18 08:04	8° II 15'11	29.27379 AU
max. Earth dist.	12692 May 08 05:31	26° 8 14'52	31.30850 AU	direct	12698 Feb 06 10:15	6° II 51'54	
morning rise	12692 May 24 08:30	26° 8 50'45		evening set	12698 May 06 17:40	8° II 46'37	
retrograde	12692 Aug 19 19:16	28° 8 43'41					
opposition	12692 Nov 06 10:12	27° 8 21'22	0°10'50	conjunction	12698 May 22 07:44	9° II 21'23	0°01'36
min. Earth dist.	12692 Nov 06 22:50	27° 8 20'30	29.30663 AU	minimum elong	12698 May 22 07:43	9° II 21'23	0°00'45
direct	12693 Jan 26 00:05	25° 8 57'14		behind sun begin	12698 May 22 01:17	9° II 20'48	
evening set	12693 Apr 25 13:41	27° 8 52'01		behind sun end	12698 May 22 14:09	9° II 21'57	

max. Earth dist.	12698 May 21 18:50	9°II20'11	31.26875 AU	evening set	12704 May 20 06:47	21°II51'23	
morning rise	12698 Jun 06 20:12	9°II56'02					
retrograde	12698 Sep 02 09:43	11°II49'22		conjunction	12704 Jun 04 19:26	22°II26'07	-0°07'56
opposition	12698 Nov 20 08:08	10°II26'51	0°00'47	minimum elong	12704 Jun 04 19:27	22°II26'07	0°08'52
min. Earth dist.	12698 Nov 20 20:42	10°II26'00	29.26374 AU	behind sun begin	12704 Jun 04 13:54	22°II25'37	
direct	12699 Feb 08 21:03	9°II02'44		behind sun end	12704 Jun 05 01:00	22°II26'37	
evening set	12699 May 09 03:58	10°II57'25		max. Earth dist.	12704 Jun 04 09:48	22°II25'14	31.21617 AU
desc. node	12699 May 22 12:34	11°II27'11		morning rise	12704 Jun 20 07:10	23°II00'48	
				retrograde	12704 Sep 16 05:33	24°II54'41	
conjunction	12699 May 24 17:47	11°II32'10	-0°00'03	opposition	12704 Dec 04 07:27	23°II31'58	-0°09'19
minimum elong	12699 May 24 17:47	11°II32'10	0°00'54	min. Earth dist.	12704 Dec 04 15:30	23°II31'25	29.21291 AU
behind sun begin	12699 May 24 11:21	11°II31'36		direct	12705 Feb 22 18:21	22°II07'57	
behind sun end	12699 May 25 00:13	11°II32'45		evening set	12705 May 22 16:52	24°II02'39	
max. Earth dist.	12699 May 24 05:26	11°II31'02	31.25855 AU				
morning rise	12699 Jun 09 06:07	12°II06'49		conjunction	12705 Jun 07 05:31	24°II37'25	-0°09'29
retrograde	12699 Sep 04 20:32	14°II00'13		minimum elong	12705 Jun 07 05:30	24°II37'25	0°10'25
opposition	12699 Nov 22 19:54	12°II37'38	-0°00'54	behind sun begin	12705 Jun 07 00:25	24°II36'57	
min. Earth dist.	12699 Nov 23 07:05	12°II36'52	29.25340 AU	behind sun end	12705 Jun 07 10:35	24°II37'52	
direct	12700 Feb 11 09:11	11°II13'29		max. Earth dist.	12705 Jun 06 21:13	24°II36'39	31.20948 AU
evening set	12700 May 11 14:05	13°II08'07		morning rise	12705 Jun 22 16:59	25°II12'06	
				retrograde	12705 Sep 18 15:14	27°II06'07	
conjunction	12700 May 27 03:37	13°II42'52	-0°01'39	opposition	12705 Dec 06 19:39	25°II43'25	-0°10'58
minimum elong	12700 May 27 03:36	13°II42'52	0°02'33	min. Earth dist.	12705 Dec 07 04:06	25°II42'50	29.20608 AU
behind sun begin	12700 May 26 21:10	13°II42'18		direct	12706 Feb 25 06:03	24°II19'28	
behind sun end	12700 May 27 10:02	13°II43'27		evening set	12706 May 25 03:13	26°II14'11	
max. Earth dist.	12700 May 26 15:27	13°II41'45	31.24830 AU				
morning rise	12700 Jun 11 15:49	14°II17'31		conjunction	12706 Jun 09 15:34	26°II48'57	-0°11'01
retrograde	12700 Sep 07 07:53	16°II10'59		minimum elong	12706 Jun 09 15:34	26°II48'57	0°11'58
opposition	12700 Nov 25 07:49	14°II48'19	-0°02'36	behind sun begin	12706 Jun 09 11:06	26°II48'33	
min. Earth dist.	12700 Nov 25 19:07	14°II47'33	29.24357 AU	behind sun end	12706 Jun 09 20:02	26°II49'21	
direct	12701 Feb 13 19:05	13°II24'09		max. Earth dist.	12706 Jun 09 07:05	26°II48'10	31.20249 AU
evening set	12701 May 14 00:12	15°II18'47		morning rise	12706 Jun 25 03:02	27°II23'39	
				retrograde	12706 Sep 21 03:32	29°II17'48	
conjunction	12701 May 29 13:37	15°II53'31	-0°03'15	opposition	12706 Dec 09 07:47	27°II55'06	-0°12'37
minimum elong	12701 May 29 13:37	15°II53'31	0°04'08	min. Earth dist.	12706 Dec 09 14:53	27°II54'37	29.19873 AU
behind sun begin	12701 May 29 07:17	15°II52'57		direct	12707 Feb 27 17:04	26°II31'12	
behind sun end	12701 May 29 19:58	15°II54'06		evening set	12707 May 27 13:37	28°II25'57	
max. Earth dist.	12701 May 29 02:53	15°II52'32	31.23888 AU				
morning rise	12701 Jun 14 01:35	16°II28'10		conjunction	12707 Jun 12 01:49	29°II00'43	-0°12'33
retrograde	12701 Sep 09 18:20	18°II21'43		minimum elong	12707 Jun 12 01:48	29°II00'43	0°13'29
opposition	12701 Nov 27 19:31	16°II59'01	-0°04'17	behind sun begin	12707 Jun 11 22:08	29°II00'23	
min. Earth dist.	12701 Nov 28 05:37	16°II58'20	29.23458 AU	behind sun end	12707 Jun 12 05:28	29°II01'03	
direct	12702 Feb 16 07:50	15°II34'51		max. Earth dist.	12707 Jun 11 17:51	28°II59'59	31.19463 AU
evening set	12702 May 16 10:29	17°II29'29		morning rise	12707 Jun 27 13:06	29°II35'26	
					12707 Jul 08 23:51	0°☾	
conjunction	12702 May 31 23:33	18°II04'14	-0°04'49	retrograde	12707 Sep 23 13:39	1°☾29'43	
minimum elong	12702 May 31 23:33	18°II04'14	0°05'44	opposition	12707 Dec 11 20:17	0°☾07'01	-0°14'14
behind sun begin	12702 May 31 17:22	18°II03'41		min. Earth dist.	12707 Dec 12 04:08	0°☾06'28	29.19044 AU
behind sun end	12702 Jun 01 05:44	18°II04'47			12707 Dec 16 03:17	30°☾II	
max. Earth dist.	12702 May 31 12:27	18°II03'12	31.23045 AU	direct	12708 Mar 01 03:37	28°II43'09	
morning rise	12702 Jun 16 11:31	18°II38'53			12708 May 10 22:54	0°☾	
retrograde	12702 Sep 12 07:11	20°II32'31		evening set	12708 May 28 23:55	0°☾37'54	
opposition	12702 Nov 30 07:26	19°II09'48	-0°05'58				
min. Earth dist.	12702 Nov 30 16:58	19°II09'09	29.22671 AU	conjunction	12708 Jun 13 11:58	1°☾12'41	-0°14'03
direct	12703 Feb 18 18:59	17°II45'40		minimum elong	12708 Jun 13 11:58	1°☾12'41	0°15'00
evening set	12703 May 18 20:30	19°II40'20		behind sun begin	12708 Jun 13 09:30	1°☾12'27	
				behind sun end	12708 Jun 13 14:26	1°☾12'54	
conjunction	12703 Jun 03 09:31	20°II15'04	-0°06'23	max. Earth dist.	12708 Jun 13 04:32	1°☾11'59	31.18579 AU
minimum elong	12703 Jun 03 09:31	20°II15'04	0°07'17	morning rise	12708 Jun 28 23:11	1°☾47'24	
behind sun begin	12703 Jun 03 03:36	20°II14'33		retrograde	12708 Sep 25 01:04	3°☾41'49	
behind sun end	12703 Jun 03 15:26	20°II15'36		opposition	12708 Dec 13 08:41	2°☾19'05	-0°15'51
max. Earth dist.	12703 Jun 03 00:14	20°II14'13	31.22298 AU	min. Earth dist.	12708 Dec 13 15:21	2°☾18'37	29.18086 AU
morning rise	12703 Jun 18 21:10	20°II49'44		direct	12709 Mar 03 15:17	0°☾55'14	
retrograde	12703 Sep 14 17:37	22°II43'30		evening set	12709 May 31 10:27	2°☾50'00	
opposition	12703 Dec 02 19:29	21°II20'46	-0°07'39				
min. Earth dist.	12703 Dec 03 04:38	21°II20'09	29.21953 AU	conjunction	12709 Jun 15 22:17	3°☾24'46	-0°15'32
direct	12704 Feb 21 07:38	19°II56'42		minimum elong	12709 Jun 15 22:17	3°☾24'46	0°16'29

max. Earth dist.	12709 Jun 15 14:29	3°☾24'03	31.17548 AU	conjunction	12716 Jun 30 21:52	18°☾49'16	-0°25'12
morning rise	12709 Jul 01 09:31	3°☾59'30		minimum elong	12716 Jun 30 21:52	18°☾49'16	0°26'08
retrograde	12709 Sep 27 13:04	5°☾54'02		max. Earth dist.	12716 Jun 30 18:47	18°☾48'59	31.09331 AU
opposition	12709 Dec 15 21:05	4°☾31'15	-0°17'25	morning rise	12716 Jul 16 08:53	19°☾24'05	
min. Earth dist.	12709 Dec 16 04:19	4°☾30'45	29.16994 AU	retrograde	12716 Oct 12 22:27	21°☾19'18	
direct	12710 Mar 06 00:34	3°☾07'23		opposition	12716 Dec 31 13:06	19°☾56'02	-0°27'39
evening set	12710 Jun 02 20:53	5°☾02'09		min. Earth dist.	12716 Dec 31 15:55	19°☾55'51	29.08873 AU
				direct	12717 Mar 21 14:00	18°☾32'08	
				evening set	12717 Jun 17 21:07	20°☾26'46	
conjunction	12710 Jun 18 08:43	5°☾36'55	-0°17'00				
minimum elong	12710 Jun 18 08:43	5°☾36'55	0°17'58				
max. Earth dist.	12710 Jun 18 01:57	5°☾36'18	31.16391 AU	conjunction	12717 Jul 03 08:15	21°☾01'35	-0°26'27
morning rise	12710 Jul 03 19:46	6°☾11'40		minimum elong	12717 Jul 03 08:15	21°☾01'35	0°27'22
retrograde	12710 Sep 30 00:19	8°☾06'17		max. Earth dist.	12717 Jul 03 06:07	21°☾01'23	31.08410 AU
opposition	12710 Dec 18 09:35	6°☾43'26	-0°18'59	morning rise	12717 Jul 18 19:16	21°☾36'24	
min. Earth dist.	12710 Dec 18 16:00	6°☾42'59	29.15767 AU	retrograde	12717 Oct 15 09:47	23°☾31'45	
direct	12711 Mar 08 14:05	5°☾19'33		opposition	12718 Jan 03 01:36	22°☾08'28	-0°28'58
evening set	12711 Jun 05 07:17	7°☾14'17		min. Earth dist.	12718 Jan 03 02:57	22°☾08'22	29.07955 AU
				direct	12718 Mar 24 01:40	20°☾44'36	
				evening set	12718 Jun 20 07:42	22°☾39'14	
conjunction	12711 Jun 20 18:49	7°☾49'03	-0°18'27				
minimum elong	12711 Jun 20 18:49	7°☾49'03	0°19'24				
max. Earth dist.	12711 Jun 20 11:28	7°☾48'22	31.15125 AU	conjunction	12718 Jul 05 18:39	23°☾14'04	-0°27'40
morning rise	12711 Jul 06 05:59	8°☾23'48		minimum elong	12718 Jul 05 18:39	23°☾14'04	0°28'35
retrograde	12711 Oct 02 14:01	10°☾18'31		max. Earth dist.	12718 Jul 05 16:30	23°☾13'52	31.07492 AU
opposition	12711 Dec 20 22:10	8°☾55'33	-0°20'30	morning rise	12718 Jul 21 05:47	23°☾48'55	
min. Earth dist.	12711 Dec 21 04:13	8°☾55'09	29.14481 AU	retrograde	12718 Oct 17 22:15	25°☾44'24	
direct	12712 Mar 10 01:42	7°☾31'39		opposition	12719 Jan 05 14:32	24°☾21'05	-0°30'15
evening set	12712 Jun 06 17:31	9°☾26'20		min. Earth dist.	12719 Jan 05 16:08	24°☾20'59	29.07040 AU
				direct	12719 Mar 26 11:03	22°☾57'15	
				evening set	12719 Jun 22 18:06	24°☾51'55	
conjunction	12712 Jun 22 05:08	10°☾01'07	-0°19'51				
minimum elong	12712 Jun 22 05:07	10°☾01'07	0°20'49				
max. Earth dist.	12712 Jun 21 23:30	10°☾00'36	31.13825 AU	conjunction	12719 Jul 08 05:09	25°☾26'45	-0°28'50
morning rise	12712 Jul 07 16:05	10°☾35'52		minimum elong	12719 Jul 08 05:09	25°☾26'45	0°29'44
retrograde	12712 Oct 04 00:31	12°☾30'40		max. Earth dist.	12719 Jul 08 04:23	25°☾26'40	31.06556 AU
opposition	12712 Dec 22 10:40	11°☾07'37	-0°22'00	morning rise	12719 Jul 23 16:10	26°☾01'37	
min. Earth dist.	12712 Dec 22 16:21	11°☾07'14	29.13190 AU	retrograde	12719 Oct 20 09:59	27°☾57'14	
direct	12713 Mar 12 14:31	9°☾43'41		opposition	12720 Jan 08 03:26	26°☾33'55	-0°31'29
evening set	12713 Jun 09 03:52	11°☾38'20		min. Earth dist.	12720 Jan 08 04:03	26°☾33'52	29.06068 AU
				direct	12720 Mar 27 23:59	25°☾10'07	
				evening set	12720 Jun 24 04:51	27°☾04'47	
conjunction	12713 Jun 24 15:13	12°☾13'07	-0°21'14				
minimum elong	12713 Jun 24 15:13	12°☾13'07	0°22'11				
max. Earth dist.	12713 Jun 24 09:23	12°☾12'34	31.12566 AU	conjunction	12720 Jul 09 15:41	27°☾39'37	-0°29'58
morning rise	12713 Jul 10 02:21	12°☾47'53		minimum elong	12720 Jul 09 15:41	27°☾39'37	0°30'52
retrograde	12713 Oct 06 13:04	14°☾42'45		max. Earth dist.	12720 Jul 09 14:15	27°☾39'29	31.05548 AU
opposition	12713 Dec 24 23:09	13°☾19'38	-0°23'28	morning rise	12720 Jul 25 02:56	28°☾14'31	
min. Earth dist.	12713 Dec 25 03:30	13°☾19'20	29.11973 AU		12720 Sep 27 02:52	0°☾	
direct	12714 Mar 15 02:13	11°☾55'40		retrograde	12720 Oct 22 00:10	0°☾10'17	
evening set	12714 Jun 11 14:08	13°☾50'19			12720 Nov 16 07:20	30°☾	
				opposition	12721 Jan 09 16:18	28°☾46'54	-0°32'40
conjunction	12714 Jun 27 01:29	14°☾25'06	-0°22'35	min. Earth dist.	12721 Jan 09 16:45	28°☾46'53	29.05022 AU
minimum elong	12714 Jun 27 01:28	14°☾25'06	0°23'33	direct	12721 Mar 30 10:27	27°☾23'07	
max. Earth dist.	12714 Jun 26 21:12	14°☾24'42	31.11383 AU	evening set	12721 Jun 26 15:30	29°☾17'49	
morning rise	12714 Jul 12 12:25	14°☾59'53					
retrograde	12714 Oct 08 23:40	16°☾54'51		conjunction	12721 Jul 12 02:31	29°☾52'40	-0°31'03
opposition	12714 Dec 27 11:46	15°☾31'40	-0°24'54	minimum elong	12721 Jul 12 02:31	29°☾52'40	0°31'55
min. Earth dist.	12714 Dec 27 16:05	15°☾31'22	29.10843 AU	max. Earth dist.	12721 Jul 12 02:25	29°☾52'40	31.04437 AU
direct	12715 Mar 17 15:14	14°☾07'43			12721 Jul 15 07:50	0°☾	
evening set	12715 Jun 14 00:29	16°☾02'20		morning rise	12721 Jul 27 13:41	0°☾27'34	
				retrograde	12721 Oct 24 11:39	2°☾23'28	
conjunction	12715 Jun 29 11:40	16°☾37'08	-0°23'55	opposition	12722 Jan 12 05:21	1°☾00'03	-0°33'48
minimum elong	12715 Jun 29 11:40	16°☾37'08	0°24'51	min. Earth dist.	12722 Jan 12 05:43	1°☾00'01	29.03842 AU
max. Earth dist.	12715 Jun 29 07:41	16°☾36'46	31.10317 AU		12722 Feb 21 23:25	30°☾	
morning rise	12715 Jul 14 22:42	17°☾11'56		direct	12722 Apr 01 22:57	29°☾36'16	
retrograde	12715 Oct 11 12:27	19°☾07'01			12722 May 09 20:15	0°☾	
opposition	12715 Dec 30 00:20	17°☾43'47	-0°26'18	evening set	12722 Jun 29 02:18	1°☾30'57	
min. Earth dist.	12715 Dec 30 02:47	17°☾43'37	29.09822 AU				
direct	12716 Mar 19 03:14	16°☾19'51		conjunction	12722 Jul 14 13:09	2°☾05'49	-0°32'06
evening set	12716 Jun 15 10:43	18°☾14'28		minimum elong	12722 Jul 14 13:09	2°☾05'49	0°32'58

max. Earth dist.	12722 Jul 14 12:25	2°Ω05'45	31.03201 AU	min. Earth dist.	12729 Jan 27 19:34	16°Ω33'08	28.95175 AU
morning rise	12722 Jul 30 00:32	2°Ω40'45		direct	12729 Apr 17 11:28	15°Ω08'59	
retrograde	12722 Oct 27 01:32	4°Ω36'45		evening set	12729 Jul 14 05:03	17°Ω03'34	
opposition	12723 Jan 14 18:20	3°Ω13'16	-0°34'53				
min. Earth dist.	12723 Jan 14 17:50	3°Ω13'18	29.02551 AU	conjunction	12729 Jul 29 16:14	17°Ω38'32	-0°37'59
direct	12723 Apr 04 11:00	1°Ω49'28		minimum elong	12729 Jul 29 16:15	17°Ω38'32	0°38'42
evening set	12723 Jul 01 12:59	3°Ω44'08		max. Earth dist.	12729 Jul 29 20:20	17°Ω38'55	30.94720 AU
				morning rise	12729 Aug 14 04:35	18°Ω13'36	
conjunction	12723 Jul 16 23:58	4°Ω19'01	-0°33'05	retrograde	12729 Nov 11 14:03	20°Ω10'22	
minimum elong	12723 Jul 16 23:58	4°Ω19'01	0°33'56	opposition	12730 Jan 30 13:19	18°Ω46'25	-0°40'59
max. Earth dist.	12723 Jul 17 00:23	4°Ω19'04	31.01856 AU	min. Earth dist.	12730 Jan 30 08:07	18°Ω46'47	28.94314 AU
morning rise	12723 Aug 01 11:20	4°Ω53'58		direct	12730 Apr 19 20:59	17°Ω22'37	
retrograde	12723 Oct 29 13:27	6°Ω50'04		evening set	12730 Jul 16 15:44	19°Ω17'12	
opposition	12724 Jan 17 07:28	5°Ω26'29	-0°35'55				
min. Earth dist.	12724 Jan 17 07:18	5°Ω26'30	29.01172 AU	conjunction	12730 Aug 01 03:10	19°Ω52'12	-0°38'36
direct	12724 Apr 06 00:27	4°Ω02'40		minimum elong	12730 Aug 01 03:10	19°Ω52'12	0°39'19
evening set	12724 Jul 02 23:35	5°Ω57'18		max. Earth dist.	12730 Aug 01 09:04	19°Ω52'45	30.93889 AU
				morning rise	12730 Aug 16 15:29	20°Ω27'18	
conjunction	12724 Jul 18 10:34	6°Ω32'12	-0°34'02	retrograde	12730 Nov 14 01:46	22°Ω24'12	
minimum elong	12724 Jul 18 10:34	6°Ω32'12	0°34'52	opposition	12731 Feb 02 02:28	21°Ω00'13	-0°41'38
max. Earth dist.	12724 Jul 18 11:07	6°Ω32'15	31.00471 AU	min. Earth dist.	12731 Feb 01 20:48	21°Ω00'37	28.93506 AU
morning rise	12724 Aug 02 22:09	7°Ω07'10		direct	12731 Apr 22 08:38	19°Ω36'28	
retrograde	12724 Oct 31 02:44	9°Ω03'21		evening set	12731 Jul 19 02:45	21°Ω31'03	
opposition	12725 Jan 18 20:23	7°Ω39'41	-0°36'54				
min. Earth dist.	12725 Jan 18 18:36	7°Ω39'48	28.99784 AU	conjunction	12731 Aug 03 14:08	22°Ω06'03	-0°39'11
direct	12725 Apr 08 13:13	6°Ω15'50		minimum elong	12731 Aug 03 14:09	22°Ω06'03	0°39'50
evening set	12725 Jul 05 10:16	8°Ω10'26		max. Earth dist.	12731 Aug 03 19:45	22°Ω06'35	30.93108 AU
				morning rise	12731 Aug 19 02:48	22°Ω41'11	
conjunction	12725 Jul 20 21:16	8°Ω45'21	-0°34'56	retrograde	12731 Nov 16 16:43	24°Ω38'13	
minimum elong	12725 Jul 20 21:16	8°Ω45'21	0°35'43	opposition	12732 Feb 04 15:35	23°Ω14'13	-0°42'12
max. Earth dist.	12725 Jul 20 22:33	8°Ω45'28	30.99092 AU	min. Earth dist.	12732 Feb 04 08:58	23°Ω14'40	28.92738 AU
morning rise	12725 Aug 05 08:56	9°Ω20'20		direct	12732 Apr 23 20:19	21°Ω50'29	
retrograde	12725 Nov 02 12:54	11°Ω16'37		evening set	12732 Jul 20 13:42	23°Ω45'05	
opposition	12726 Jan 21 09:20	9°Ω52'52	-0°37'50				
min. Earth dist.	12726 Jan 21 07:53	9°Ω52'58	28.98451 AU	conjunction	12732 Aug 05 01:19	24°Ω20'06	-0°39'41
direct	12726 Apr 11 00:44	8°Ω29'00		minimum elong	12732 Aug 05 01:19	24°Ω20'06	0°40'20
evening set	12726 Jul 07 20:56	10°Ω23'35		max. Earth dist.	12732 Aug 05 08:07	24°Ω20'45	30.92321 AU
				morning rise	12732 Aug 20 14:04	24°Ω55'15	
conjunction	12726 Jul 23 08:01	10°Ω58'30	-0°35'46	retrograde	12732 Nov 18 05:50	26°Ω52'24	
minimum elong	12726 Jul 23 08:01	10°Ω58'30	0°36'33	opposition	12733 Feb 06 04:51	25°Ω28'22	-0°42'43
max. Earth dist.	12726 Jul 23 10:29	10°Ω58'44	30.97814 AU	min. Earth dist.	12733 Feb 05 22:38	25°Ω28'48	28.91931 AU
morning rise	12726 Aug 07 19:45	11°Ω33'31		direct	12733 Apr 26 09:18	24°Ω04'40	
retrograde	12726 Nov 05 00:34	13°Ω29'54		evening set	12733 Jul 23 00:55	25°Ω59'17	
opposition	12727 Jan 23 22:17	12°Ω06'05	-0°38'43				
min. Earth dist.	12727 Jan 23 19:01	12°Ω06'18	28.97228 AU	conjunction	12733 Aug 07 12:36	26°Ω34'19	-0°40'08
direct	12727 Apr 13 13:05	10°Ω42'13		minimum elong	12733 Aug 07 12:36	26°Ω34'19	0°40'44
evening set	12727 Jul 10 07:33	12°Ω36'47		max. Earth dist.	12733 Aug 07 19:15	26°Ω34'57	30.91488 AU
				morning rise	12733 Aug 23 01:35	27°Ω09'29	
conjunction	12727 Jul 25 18:35	13°Ω11'43	-0°36'34	retrograde	12733 Nov 20 19:52	29°Ω06'44	
minimum elong	12727 Jul 25 18:35	13°Ω11'43	0°37'19	opposition	12734 Feb 08 17:57	27°Ω42'40	-0°43'10
max. Earth dist.	12727 Jul 25 21:18	13°Ω11'59	30.96653 AU	min. Earth dist.	12734 Feb 08 10:28	27°Ω43'11	28.91055 AU
morning rise	12727 Aug 10 06:33	13°Ω46'45		direct	12734 Apr 28 21:47	26°Ω18'57	
	12727 Sep 16 16:21	15°Ω		evening set	12734 Jul 25 12:13	28°Ω13'34	
retrograde	12727 Nov 07 12:56	15°Ω43'16					
	12727 Dec 31 16:46	15°RΩ		conjunction	12734 Aug 10 00:01	28°Ω48'37	-0°40'32
opposition	12728 Jan 26 11:24	14°Ω19'23	-0°39'32	minimum elong	12734 Aug 10 00:01	28°Ω48'37	0°41'07
min. Earth dist.	12728 Jan 26 08:04	14°Ω19'37	28.96143 AU	max. Earth dist.	12734 Aug 10 06:55	28°Ω49'17	30.90557 AU
direct	12728 Apr 14 22:45	12°Ω55'32		morning rise	12734 Aug 25 13:12	29°Ω23'49	
evening set	12728 Jul 11 18:12	14°Ω50'06			12734 Sep 11 12:37	0°Π	
	12728 Jul 16 04:34	15°Ω		retrograde	12734 Nov 23 08:02	1°Π21'10	
					12735 Feb 09 12:03	30°RΩ	
conjunction	12728 Jul 27 05:27	15°Ω25'03	-0°37'18	opposition	12735 Feb 11 07:23	29°Ω57'01	-0°43'33
minimum elong	12728 Jul 27 05:28	15°Ω25'03	0°38'03	min. Earth dist.	12735 Feb 11 00:38	29°Ω57'29	28.90081 AU
max. Earth dist.	12728 Jul 27 09:53	15°Ω25'28	30.95631 AU	direct	12735 May 01 10:10	28°Ω33'19	
morning rise	12728 Aug 11 17:27	16°Ω00'06			12735 Jul 15 00:48	0°Π	
retrograde	12728 Nov 09 00:13	17°Ω56'44		evening set	12735 Jul 27 23:20	0°Π27'53	
opposition	12729 Jan 28 00:14	16°Ω32'49	-0°40'17				

conjunction	12735 Aug 12 11:24	1° $\mathring{\text{M}}$ 02'57	-0°40'51	direct	12742 May 16 21:27	14° $\mathring{\text{M}}$ 13'07	
minimum elong	12735 Aug 12 11:24	1° $\mathring{\text{M}}$ 02'57	0°41'24	evening set	12742 Aug 12 06:19	16° $\mathring{\text{M}}$ 07'33	
max. Earth dist.	12735 Aug 12 18:59	1° $\mathring{\text{M}}$ 03'40	30.89545 AU				
morning rise	12735 Aug 28 00:47	1° $\mathring{\text{M}}$ 38'10		conjunction	12742 Aug 27 19:45	16° $\mathring{\text{M}}$ 42'45	-0°41'26
retrograde	12735 Nov 25 21:22	3° $\mathring{\text{M}}$ 35'34		minimum elong	12742 Aug 27 19:45	16° $\mathring{\text{M}}$ 42'45	0°41'45
opposition	12736 Feb 13 20:36	2° $\mathring{\text{M}}$ 11'21	-0°43'52	max. Earth dist.	12742 Aug 28 07:18	16° $\mathring{\text{M}}$ 43'51	30.83612 AU
min. Earth dist.	12736 Feb 13 12:34	2° $\mathring{\text{M}}$ 11'55	28.89021 AU	morning rise	12742 Sep 12 11:03	17° $\mathring{\text{M}}$ 18'09	
direct	12736 May 02 23:54	0° $\mathring{\text{M}}$ 47'37		retrograde	12742 Dec 11 15:28	19° $\mathring{\text{M}}$ 16'06	
evening set	12736 Jul 29 10:42	2° $\mathring{\text{M}}$ 42'08		opposition	12743 Mar 01 16:25	17° $\mathring{\text{M}}$ 51'32	-0°44'14
				min. Earth dist.	12743 Mar 01 04:07	17° $\mathring{\text{M}}$ 52'23	28.83420 AU
conjunction	12736 Aug 13 22:49	3° $\mathring{\text{M}}$ 17'14	-0°41'07	direct	12743 May 19 09:14	16° $\mathring{\text{M}}$ 27'48	
minimum elong	12736 Aug 13 22:50	3° $\mathring{\text{M}}$ 17'14	0°41'39	evening set	12743 Aug 14 17:46	18° $\mathring{\text{M}}$ 22'15	
max. Earth dist.	12736 Aug 14 06:08	3° $\mathring{\text{M}}$ 17'55	30.88459 AU				
morning rise	12736 Aug 29 12:35	3° $\mathring{\text{M}}$ 52'29		conjunction	12743 Aug 30 07:25	18° $\mathring{\text{M}}$ 57'29	-0°41'16
retrograde	12736 Nov 27 09:32	5° $\mathring{\text{M}}$ 49'56		minimum elong	12743 Aug 30 07:26	18° $\mathring{\text{M}}$ 57'29	0°41'32
opposition	12737 Feb 15 09:43	4° $\mathring{\text{M}}$ 25'38	-0°44'07	max. Earth dist.	12743 Aug 30 19:34	18° $\mathring{\text{M}}$ 58'38	30.83199 AU
min. Earth dist.	12737 Feb 15 02:13	4° $\mathring{\text{M}}$ 26'09	28.87935 AU	morning rise	12743 Sep 14 23:03	19° $\mathring{\text{M}}$ 32'55	
direct	12737 May 05 10:54	3° $\mathring{\text{M}}$ 01'51		retrograde	12743 Dec 14 04:55	21° $\mathring{\text{M}}$ 30'58	
evening set	12737 Jul 31 21:51	4° $\mathring{\text{M}}$ 56'19		opposition	12744 Mar 03 05:42	20° $\mathring{\text{M}}$ 06'24	-0°44'01
				min. Earth dist.	12744 Mar 02 18:01	20° $\mathring{\text{M}}$ 07'12	28.83038 AU
conjunction	12737 Aug 16 10:19	5° $\mathring{\text{M}}$ 31'26	-0°41'20	direct	12744 May 20 21:33	18° $\mathring{\text{M}}$ 42'43	
minimum elong	12737 Aug 16 10:19	5° $\mathring{\text{M}}$ 31'26	0°41'49	evening set	12744 Aug 16 05:25	20° $\mathring{\text{M}}$ 37'12	
max. Earth dist.	12737 Aug 16 19:03	5° $\mathring{\text{M}}$ 32'15	30.87381 AU				
morning rise	12737 Sep 01 00:10	6° $\mathring{\text{M}}$ 06'42		conjunction	12744 Aug 31 19:24	21° $\mathring{\text{M}}$ 12'27	-0°41'01
retrograde	12737 Nov 29 20:36	8° $\mathring{\text{M}}$ 04'12		minimum elong	12744 Aug 31 19:24	21° $\mathring{\text{M}}$ 12'27	0°41'16
opposition	12738 Feb 17 22:49	6° $\mathring{\text{M}}$ 39'49	-0°44'18	max. Earth dist.	12744 Sep 01 08:15	21° $\mathring{\text{M}}$ 13'40	30.82837 AU
min. Earth dist.	12738 Feb 17 14:07	6° $\mathring{\text{M}}$ 40'25	28.86878 AU	morning rise	12744 Sep 16 11:16	21° $\mathring{\text{M}}$ 47'55	
direct	12738 May 08 00:02	5° $\mathring{\text{M}}$ 16'00		retrograde	12744 Dec 15 19:58	23° $\mathring{\text{M}}$ 46'03	
evening set	12738 Aug 03 09:05	7° $\mathring{\text{M}}$ 10'27		opposition	12745 Mar 05 18:40	22° $\mathring{\text{M}}$ 21'30	-0°43'43
				min. Earth dist.	12745 Mar 05 05:50	22° $\mathring{\text{M}}$ 22'23	28.82669 AU
conjunction	12738 Aug 18 21:33	7° $\mathring{\text{M}}$ 45'34	-0°41'29	direct	12745 May 23 11:09	20° $\mathring{\text{M}}$ 57'52	
minimum elong	12738 Aug 18 21:33	7° $\mathring{\text{M}}$ 45'34	0°41'56	evening set	12745 Aug 18 17:19	22° $\mathring{\text{M}}$ 52'22	
max. Earth dist.	12738 Aug 19 05:55	7° $\mathring{\text{M}}$ 46'21	30.86368 AU				
morning rise	12738 Sep 03 11:49	8° $\mathring{\text{M}}$ 20'51		conjunction	12745 Sep 03 07:25	23° $\mathring{\text{M}}$ 27'39	-0°40'43
retrograde	12738 Dec 02 09:43	10° $\mathring{\text{M}}$ 18'27		minimum elong	12745 Sep 03 07:25	23° $\mathring{\text{M}}$ 27'39	0°40'55
opposition	12739 Feb 20 12:02	8° $\mathring{\text{M}}$ 53'59	-0°44'25	max. Earth dist.	12745 Sep 03 19:50	23° $\mathring{\text{M}}$ 28'50	30.82448 AU
min. Earth dist.	12739 Feb 20 02:52	8° $\mathring{\text{M}}$ 54'37	28.85928 AU	morning rise	12745 Sep 18 23:41	24° $\mathring{\text{M}}$ 03'08	
direct	12739 May 10 10:06	7° $\mathring{\text{M}}$ 30'08		retrograde	12745 Dec 18 08:51	26° $\mathring{\text{M}}$ 01'22	
evening set	12739 Aug 05 20:17	9° $\mathring{\text{M}}$ 24'34		opposition	12746 Mar 08 08:01	24° $\mathring{\text{M}}$ 36'48	-0°43'22
				min. Earth dist.	12746 Mar 07 19:57	24° $\mathring{\text{M}}$ 37'38	28.82262 AU
conjunction	12739 Aug 21 09:06	9° $\mathring{\text{M}}$ 59'42	-0°41'34	direct	12746 May 25 22:21	23° $\mathring{\text{M}}$ 13'12	
minimum elong	12739 Aug 21 09:06	9° $\mathring{\text{M}}$ 59'42	0°41'58	evening set	12746 Aug 21 05:03	25° $\mathring{\text{M}}$ 07'42	
max. Earth dist.	12739 Aug 21 19:16	10° $\mathring{\text{M}}$ 00'40	30.85474 AU				
morning rise	12739 Sep 05 23:27	10° $\mathring{\text{M}}$ 35'01		conjunction	12746 Sep 05 19:34	25° $\mathring{\text{M}}$ 43'01	-0°40'22
retrograde	12739 Dec 04 21:26	12° $\mathring{\text{M}}$ 32'41		minimum elong	12746 Sep 05 19:34	25° $\mathring{\text{M}}$ 43'01	0°40'32
opposition	12740 Feb 23 01:07	11° $\mathring{\text{M}}$ 08'10	-0°44'29	max. Earth dist.	12746 Sep 06 09:00	25° $\mathring{\text{M}}$ 44'17	30.82000 AU
min. Earth dist.	12740 Feb 22 15:19	11° $\mathring{\text{M}}$ 08'51	28.85103 AU	morning rise	12746 Sep 21 11:59	26° $\mathring{\text{M}}$ 18'32	
direct	12740 May 11 21:59	9° $\mathring{\text{M}}$ 44'20		retrograde	12746 Dec 20 20:59	28° $\mathring{\text{M}}$ 16'50	
evening set	12740 Aug 07 07:35	11° $\mathring{\text{M}}$ 38'45		opposition	12747 Mar 10 21:16	26° $\mathring{\text{M}}$ 52'15	-0°42'56
				min. Earth dist.	12747 Mar 10 08:27	26° $\mathring{\text{M}}$ 53'08	28.81759 AU
conjunction	12740 Aug 22 20:31	12° $\mathring{\text{M}}$ 13'54	-0°41'35	direct	12747 May 28 11:46	25° $\mathring{\text{M}}$ 28'40	
minimum elong	12740 Aug 22 20:31	12° $\mathring{\text{M}}$ 13'54	0°41'59	evening set	12747 Aug 23 17:08	27° $\mathring{\text{M}}$ 23'08	
max. Earth dist.	12740 Aug 23 06:29	12° $\mathring{\text{M}}$ 14'51	30.84727 AU				
morning rise	12740 Sep 07 11:19	12° $\mathring{\text{M}}$ 49'15		conjunction	12747 Sep 08 07:46	27° $\mathring{\text{M}}$ 58'28	-0°39'56
retrograde	12740 Dec 06 11:59	14° $\mathring{\text{M}}$ 47'00		minimum elong	12747 Sep 08 07:47	27° $\mathring{\text{M}}$ 58'28	0°40'04
opposition	12741 Feb 24 14:11	13° $\mathring{\text{M}}$ 22'27	-0°44'28	max. Earth dist.	12747 Sep 08 20:07	27° $\mathring{\text{M}}$ 59'38	30.81450 AU
min. Earth dist.	12741 Feb 24 03:19	13° $\mathring{\text{M}}$ 23'12	28.84425 AU	morning rise	12747 Sep 24 00:41	28° $\mathring{\text{M}}$ 34'01	
direct	12741 May 14 09:16	11° $\mathring{\text{M}}$ 58'38			12747 Nov 08 16:17	0° $\mathring{\text{A}}$	
evening set	12741 Aug 09 18:54	13° $\mathring{\text{M}}$ 53'03		retrograde	12747 Dec 23 10:41	0° $\mathring{\text{A}}$ 32'22	
					12748 Feb 07 12:26	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
conjunction	12741 Aug 25 08:07	14° $\mathring{\text{M}}$ 28'14	-0°41'32	opposition	12748 Mar 12 10:28	29° $\mathring{\text{M}}$ 07'44	-0°42'27
minimum elong	12741 Aug 25 08:07	14° $\mathring{\text{M}}$ 28'14	0°41'52	min. Earth dist.	12748 Mar 11 21:57	29° $\mathring{\text{M}}$ 08'36	28.81168 AU
max. Earth dist.	12741 Aug 25 19:29	14° $\mathring{\text{M}}$ 29'19	30.84103 AU	direct	12748 May 29 22:19	27° $\mathring{\text{M}}$ 44'07	
morning rise	12741 Sep 09 23:04	15° $\mathring{\text{M}}$ 03'36		evening set	12748 Aug 25 05:01	29° $\mathring{\text{M}}$ 38'33	
retrograde	12741 Dec 09 00:49	17° $\mathring{\text{M}}$ 01'28			12748 Sep 03 17:36	0° $\mathring{\text{A}}$	
opposition	12742 Feb 27 03:18	15° $\mathring{\text{M}}$ 36'53	-0°44'23				
min. Earth dist.	12742 Feb 26 16:32	15° $\mathring{\text{M}}$ 37'38	28.83864 AU	conjunction	12748 Sep 09 20:09	0° $\mathring{\text{A}}$ 13'55	-0°39'27

minimum elong	12748 Sep 09 20:09	0° <u>♁</u> 13'55	0°39'33	min. Earth dist.	12755 Mar 28 14:39	14° <u>♁</u> 54'52	28.77950 AU
max. Earth dist.	12748 Sep 10 09:37	0° <u>♁</u> 15'11	30.80813 AU	direct	12755 Jun 15 11:38	13° <u>♁</u> 30'04	
morning rise	12748 Sep 25 13:15	0° <u>♁</u> 49'29		evening set	12755 Sep 10 16:51	15° <u>♁</u> 24'20	
retrograde	12748 Dec 24 22:17	2° <u>♁</u> 47'51					
opposition	12749 Mar 14 23:36	1° <u>♁</u> 23'09	-0°41'54	conjunction	12755 Sep 26 10:11	15° <u>♁</u> 59'49	-0°34'26
min. Earth dist.	12749 Mar 14 10:59	1° <u>♁</u> 24'02	28.80493 AU	minimum elong	12755 Sep 26 10:11	15° <u>♁</u> 59'49	0°34'16
	12749 May 26 23:41	30° <u>♁</u> 17'00		max. Earth dist.	12755 Sep 27 02:27	16° <u>♁</u> 01'21	30.77915 AU
direct	12749 Jun 01 11:13	29° <u>♁</u> 59'30		morning rise	12755 Oct 12 05:41	16° <u>♁</u> 35'33	
	12749 Jun 06 21:27	0° <u>♁</u>		retrograde	12756 Jan 10 19:41	18° <u>♁</u> 33'59	
evening set	12749 Aug 27 16:59	1° <u>♁</u> 53'54		opposition	12756 Mar 30 17:49	17° <u>♁</u> 09'01	-0°36'18
				min. Earth dist.	12756 Mar 30 02:24	17° <u>♁</u> 10'05	28.77942 AU
conjunction	12749 Sep 12 08:15	2° <u>♁</u> 29'16	-0°38'54	direct	12756 Jun 17 01:09	15° <u>♁</u> 45'15	
minimum elong	12749 Sep 12 08:15	2° <u>♁</u> 29'16	0°38'57	evening set	12756 Sep 12 05:12	17° <u>♁</u> 39'31	
max. Earth dist.	12749 Sep 12 21:02	2° <u>♁</u> 30'28	30.80133 AU				
morning rise	12749 Sep 28 01:49	3° <u>♁</u> 04'52		conjunction	12756 Sep 27 22:42	18° <u>♁</u> 15'02	-0°33'30
retrograde	12749 Dec 27 11:27	5° <u>♁</u> 03'14		minimum elong	12756 Sep 27 22:42	18° <u>♁</u> 15'02	0°33'19
opposition	12750 Mar 17 12:38	3° <u>♁</u> 38'27	-0°41'17	max. Earth dist.	12756 Sep 28 14:05	18° <u>♁</u> 16'30	30.77948 AU
min. Earth dist.	12750 Mar 16 23:28	3° <u>♁</u> 39'22	28.79821 AU	morning rise	12756 Oct 13 18:43	18° <u>♁</u> 50'47	
direct	12750 Jun 03 22:36	2° <u>♁</u> 14'45		retrograde	12757 Jan 12 10:06	20° <u>♁</u> 49'16	
evening set	12750 Aug 30 04:53	4° <u>♁</u> 09'07		opposition	12757 Apr 02 06:41	19° <u>♁</u> 24'18	-0°35'16
				min. Earth dist.	12757 Apr 01 15:34	19° <u>♁</u> 25'21	28.78004 AU
conjunction	12750 Sep 14 20:32	4° <u>♁</u> 44'30	-0°38'18	direct	12757 Jun 19 12:08	18° <u>♁</u> 00'35	
minimum elong	12750 Sep 14 20:32	4° <u>♁</u> 44'30	0°38'20	evening set	12757 Sep 14 17:26	19° <u>♁</u> 54'52	
max. Earth dist.	12750 Sep 15 10:29	4° <u>♁</u> 45'49	30.79475 AU				
morning rise	12750 Sep 30 14:19	5° <u>♁</u> 20'07		conjunction	12757 Sep 30 11:24	20° <u>♁</u> 30'24	-0°32'31
retrograde	12750 Dec 29 23:15	7° <u>♁</u> 18'30		minimum elong	12757 Sep 30 11:24	20° <u>♁</u> 30'24	0°32'15
opposition	12751 Mar 20 01:43	5° <u>♁</u> 53'39	-0°40'36	max. Earth dist.	12757 Oct 01 03:57	20° <u>♁</u> 31'58	30.78012 AU
min. Earth dist.	12751 Mar 19 12:49	5° <u>♁</u> 54'33	28.79201 AU	morning rise	12757 Oct 16 07:33	21° <u>♁</u> 06'11	
direct	12751 Jun 06 10:20	4° <u>♁</u> 29'54		retrograde	12758 Jan 14 21:53	23° <u>♁</u> 04'41	
evening set	12751 Sep 01 16:46	6° <u>♁</u> 24'14		opposition	12758 Apr 04 19:30	21° <u>♁</u> 39'45	-0°34'11
				min. Earth dist.	12758 Apr 04 04:20	21° <u>♁</u> 40'48	28.78058 AU
conjunction	12751 Sep 17 08:42	6° <u>♁</u> 59'37	-0°37'39	direct	12758 Jun 22 00:59	20° <u>♁</u> 16'04	
minimum elong	12751 Sep 17 08:43	6° <u>♁</u> 59'38	0°37'37	evening set	12758 Sep 17 06:00	22° <u>♁</u> 10'21	
max. Earth dist.	12751 Sep 17 22:37	7° <u>♁</u> 00'56	30.78912 AU				
morning rise	12751 Oct 03 02:55	7° <u>♁</u> 35'15		conjunction	12758 Oct 03 00:10	22° <u>♁</u> 45'54	-0°31'28
retrograde	12752 Jan 01 13:31	9° <u>♁</u> 33'39		minimum elong	12758 Oct 03 00:10	22° <u>♁</u> 45'54	0°31'12
opposition	12752 Mar 21 14:34	8° <u>♁</u> 08'44	-0°39'52	max. Earth dist.	12758 Oct 03 15:37	22° <u>♁</u> 47'22	30.78055 AU
min. Earth dist.	12752 Mar 21 00:22	8° <u>♁</u> 09'44	28.78691 AU	morning rise	12758 Oct 18 20:48	23° <u>♁</u> 21'43	
direct	12752 Jun 07 22:06	6° <u>♁</u> 44'57		retrograde	12759 Jan 17 11:35	25° <u>♁</u> 20'14	
evening set	12752 Sep 03 04:47	8° <u>♁</u> 39'15		opposition	12759 Apr 07 08:20	23° <u>♁</u> 55'19	-0°33'02
				min. Earth dist.	12759 Apr 06 17:05	23° <u>♁</u> 56'22	28.78075 AU
conjunction	12752 Sep 18 21:01	9° <u>♁</u> 14'40	-0°36'56	direct	12759 Jun 24 11:53	22° <u>♁</u> 31'37	
minimum elong	12752 Sep 18 21:01	9° <u>♁</u> 14'40	0°36'52	evening set	12759 Sep 19 18:30	24° <u>♁</u> 25'55	
max. Earth dist.	12752 Sep 19 11:24	9° <u>♁</u> 16'02	30.78453 AU				
morning rise	12752 Oct 04 15:32	9° <u>♁</u> 50'19		conjunction	12759 Oct 05 13:08	25° <u>♁</u> 01'30	-0°30'23
retrograde	12753 Jan 03 02:36	11° <u>♁</u> 48'43		minimum elong	12759 Oct 05 13:08	25° <u>♁</u> 01'30	0°30'03
opposition	12753 Mar 24 03:23	10° <u>♁</u> 23'46	-0°39'04	max. Earth dist.	12759 Oct 06 05:13	25° <u>♁</u> 03'01	30.78019 AU
min. Earth dist.	12753 Mar 23 13:46	10° <u>♁</u> 24'43	28.78305 AU	morning rise	12759 Oct 21 10:01	25° <u>♁</u> 37'20	
direct	12753 Jun 10 10:48	8° <u>♁</u> 59'58		retrograde	12760 Jan 19 23:33	27° <u>♁</u> 35'52	
evening set	12753 Sep 05 16:47	10° <u>♁</u> 54'15		opposition	12760 Apr 08 21:12	26° <u>♁</u> 10'56	-0°31'51
				min. Earth dist.	12760 Apr 08 06:47	26° <u>♁</u> 11'56	28.77990 AU
conjunction	12753 Sep 21 09:25	11° <u>♁</u> 29'41	-0°36'09	direct	12760 Jun 25 23:24	24° <u>♁</u> 47'14	
minimum elong	12753 Sep 21 09:25	11° <u>♁</u> 29'41	0°36'03	evening set	12760 Sep 21 07:10	26° <u>♁</u> 41'31	
max. Earth dist.	12753 Sep 22 00:31	11° <u>♁</u> 31'07	30.78144 AU				
morning rise	12753 Oct 07 04:13	12° <u>♁</u> 05'22		conjunction	12760 Oct 07 02:05	27° <u>♁</u> 17'07	-0°29'15
retrograde	12754 Jan 05 17:12	14° <u>♁</u> 03'46		minimum elong	12760 Oct 07 02:05	27° <u>♁</u> 17'07	0°28'54
opposition	12754 Mar 26 16:11	12° <u>♁</u> 38'47	-0°38'12	max. Earth dist.	12760 Oct 07 17:19	27° <u>♁</u> 18'33	30.77901 AU
min. Earth dist.	12754 Mar 26 01:07	12° <u>♁</u> 39'50	28.78059 AU	morning rise	12760 Oct 22 23:23	27° <u>♁</u> 52'57	
direct	12754 Jun 13 00:22	11° <u>♁</u> 14'59		retrograde	12761 Jan 21 13:36	29° <u>♁</u> 51'28	
evening set	12754 Sep 08 04:47	13° <u>♁</u> 09'15		opposition	12761 Apr 11 09:45	28° <u>♁</u> 26'30	-0°30'36
				min. Earth dist.	12761 Apr 10 18:43	28° <u>♁</u> 27'34	28.77831 AU
conjunction	12754 Sep 23 21:36	13° <u>♁</u> 44'43	-0°35'19	direct	12761 Jun 28 11:11	27° <u>♁</u> 02'46	
minimum elong	12754 Sep 23 21:37	13° <u>♁</u> 44'43	0°35'12	evening set	12761 Sep 23 19:45	28° <u>♁</u> 57'03	
max. Earth dist.	12754 Sep 24 12:38	13° <u>♁</u> 46'08	30.77964 AU				
morning rise	12754 Oct 09 16:52	14° <u>♁</u> 20'25		conjunction	12761 Oct 09 15:01	29° <u>♁</u> 32'40	-0°28'04
retrograde	12755 Jan 08 06:17	16° <u>♁</u> 18'51		minimum elong	12761 Oct 09 15:01	29° <u>♁</u> 32'40	0°27'41
opposition	12755 Mar 29 05:10	14° <u>♁</u> 53'51	-0°37'17	max. Earth dist.	12761 Oct 10 06:18	29° <u>♁</u> 34'06	30.77715 AU

	12761 Oct 21 16:49	0° <u>ℓ</u>		min. Earth dist.	12768 Apr 26 08:57	14° <u>ℓ</u> .14'14	28.78534 AU
morning rise	12761 Oct 25 12:38	0° <u>ℓ</u> .08'31		opposition	12768 Apr 27 00:24	14° <u>ℓ</u> .13'09	-0°20'48
retrograde	12762 Jan 24 02:11	2° <u>ℓ</u> .07'00		direct	12768 Jul 14 02:38	12° <u>ℓ</u> .49'17	
opposition	12762 Apr 13 22:30	0° <u>ℓ</u> .42'00	-0°29'20	evening set	12768 Oct 09 11:34	14° <u>ℓ</u> .43'28	
min. Earth dist.	12762 Apr 13 08:27	0° <u>ℓ</u> .42'59	28.77641 AU		12768 Oct 16 21:26	15° <u>ℓ</u>	
	12762 May 10 03:29	30° <u>ℓ</u> . <u>ℓ</u>					
direct	12762 Jun 30 23:50	29° <u>ℓ</u> .18'14		conjunction	12768 Oct 25 09:17	15° <u>ℓ</u> .19'13	-0°18'48
	12762 Aug 20 04:20	0° <u>ℓ</u>		minimum elong	12768 Oct 25 09:17	15° <u>ℓ</u> .19'13	0°18'11
evening set	12762 Sep 26 08:07	1° <u>ℓ</u> .12'28		max. Earth dist.	12768 Oct 26 01:57	15° <u>ℓ</u> .20'47	30.78809 AU
				morning rise	12768 Nov 10 09:05	15° <u>ℓ</u> .55'10	
conjunction	12762 Oct 12 03:49	1° <u>ℓ</u> .48'06	-0°26'51	retrograde	12769 Feb 08 22:17	17° <u>ℓ</u> .53'20	
minimum elong	12762 Oct 12 03:49	1° <u>ℓ</u> .48'06	0°26'27	opposition	12769 Apr 29 12:31	16° <u>ℓ</u> .28'21	-0°19'15
max. Earth dist.	12762 Oct 12 19:22	1° <u>ℓ</u> .49'34	30.77544 AU	min. Earth dist.	12769 Apr 28 21:43	16° <u>ℓ</u> .29'23	28.79141 AU
morning rise	12762 Oct 28 01:45	2° <u>ℓ</u> .23'58		direct	12769 Jul 16 13:50	15° <u>ℓ</u> .04'30	
retrograde	12763 Jan 26 16:13	4° <u>ℓ</u> .22'24		evening set	12769 Oct 12 00:21	16° <u>ℓ</u> .58'42	
opposition	12763 Apr 16 10:58	2° <u>ℓ</u> .57'22	-0°28'00				
min. Earth dist.	12763 Apr 15 19:54	2° <u>ℓ</u> .58'26	28.77485 AU	conjunction	12769 Oct 27 22:20	17° <u>ℓ</u> .34'27	-0°17'20
direct	12763 Jul 03 13:16	1° <u>ℓ</u> .33'33		minimum elong	12769 Oct 27 22:20	17° <u>ℓ</u> .34'27	0°16'41
evening set	12763 Sep 28 20:46	3° <u>ℓ</u> .27'47		max. Earth dist.	12769 Oct 28 14:18	17° <u>ℓ</u> .35'57	30.79467 AU
				morning rise	12769 Nov 12 22:31	18° <u>ℓ</u> .10'26	
conjunction	12763 Oct 14 16:41	4° <u>ℓ</u> .03'26	-0°25'36	retrograde	12770 Feb 11 11:34	20° <u>ℓ</u> .08'34	
minimum elong	12763 Oct 14 16:41	4° <u>ℓ</u> .03'26	0°25'09	min. Earth dist.	12770 May 01 09:12	18° <u>ℓ</u> .44'43	28.79820 AU
max. Earth dist.	12763 Oct 15 07:50	4° <u>ℓ</u> .04'51	30.77419 AU	opposition	12770 May 02 00:38	18° <u>ℓ</u> .43'38	-0°17'40
morning rise	12763 Oct 30 15:03	4° <u>ℓ</u> .39'19		direct	12770 Jul 19 01:15	17° <u>ℓ</u> .19'48	
retrograde	12764 Jan 29 05:12	6° <u>ℓ</u> .37'42		evening set	12770 Oct 14 13:12	19° <u>ℓ</u> .14'01	
opposition	12764 Apr 17 23:22	5° <u>ℓ</u> .12'38	-0°26'38				
min. Earth dist.	12764 Apr 17 09:13	5° <u>ℓ</u> .13'38	28.77417 AU	conjunction	12770 Oct 30 11:30	19° <u>ℓ</u> .49'47	-0°15'51
direct	12764 Jul 05 00:35	3° <u>ℓ</u> .48'47		minimum elong	12770 Oct 30 11:30	19° <u>ℓ</u> .49'47	0°15'11
evening set	12764 Sep 30 09:14	5° <u>ℓ</u> .42'59		behind sun begin	12770 Oct 30 09:28	19° <u>ℓ</u> .49'36	
				behind sun end	12770 Oct 30 13:32	19° <u>ℓ</u> .49'58	
conjunction	12764 Oct 16 05:39	6° <u>ℓ</u> .18'39	-0°24'19	max. Earth dist.	12770 Oct 31 03:29	19° <u>ℓ</u> .51'17	30.80139 AU
minimum elong	12764 Oct 16 05:39	6° <u>ℓ</u> .18'39	0°23'50	morning rise	12770 Nov 15 11:57	20° <u>ℓ</u> .25'47	
max. Earth dist.	12764 Oct 16 21:47	6° <u>ℓ</u> .20'10	30.77408 AU	retrograde	12771 Feb 13 23:09	22° <u>ℓ</u> .23'52	
morning rise	12764 Nov 01 04:12	6° <u>ℓ</u> .54'34		opposition	12771 May 04 12:55	20° <u>ℓ</u> .58'59	-0°16'03
retrograde	12765 Jan 30 19:09	8° <u>ℓ</u> .52'53		min. Earth dist.	12771 May 03 22:48	20° <u>ℓ</u> .59'58	28.80481 AU
opposition	12765 Apr 20 11:38	7° <u>ℓ</u> .27'48	-0°25'14	direct	12771 Jul 21 12:39	19° <u>ℓ</u> .35'10	
min. Earth dist.	12765 Apr 19 20:34	7° <u>ℓ</u> .28'52	28.77465 AU	evening set	12771 Oct 17 02:15	21° <u>ℓ</u> .29'23	
direct	12765 Jul 07 14:51	6° <u>ℓ</u> .03'56					
evening set	12765 Oct 02 21:46	7° <u>ℓ</u> .58'07		conjunction	12771 Nov 02 00:56	22° <u>ℓ</u> .05'10	-0°14'21
				minimum elong	12771 Nov 02 00:56	22° <u>ℓ</u> .05'10	0°13'39
conjunction	12765 Oct 18 18:19	8° <u>ℓ</u> .33'48	-0°22'59	behind sun begin	12771 Nov 01 21:27	22° <u>ℓ</u> .04'51	
minimum elong	12765 Oct 18 18:19	8° <u>ℓ</u> .33'48	0°22'27	behind sun end	12771 Nov 02 04:25	22° <u>ℓ</u> .05'29	
max. Earth dist.	12765 Oct 19 09:38	8° <u>ℓ</u> .35'15	30.77528 AU	max. Earth dist.	12771 Nov 02 16:27	22° <u>ℓ</u> .06'37	30.80776 AU
morning rise	12765 Nov 03 17:20	9° <u>ℓ</u> .09'43		morning rise	12771 Nov 18 01:38	22° <u>ℓ</u> .41'10	
retrograde	12766 Feb 02 09:22	11° <u>ℓ</u> .08'01		retrograde	12772 Feb 16 12:52	24° <u>ℓ</u> .39'11	
min. Earth dist.	12766 Apr 22 09:10	9° <u>ℓ</u> .43'58	28.77670 AU	min. Earth dist.	12772 May 05 10:14	23° <u>ℓ</u> .15'21	28.81072 AU
opposition	12766 Apr 23 00:01	9° <u>ℓ</u> .42'55	-0°23'47	opposition	12772 May 06 00:52	23° <u>ℓ</u> .14'20	-0°14'26
direct	12766 Jul 10 02:41	8° <u>ℓ</u> .19'02		direct	12772 Jul 23 00:52	21° <u>ℓ</u> .50'29	
evening set	12766 Oct 05 10:14	10° <u>ℓ</u> .13'13		evening set	12772 Oct 18 15:25	23° <u>ℓ</u> .44'43	
conjunction	12766 Oct 21 07:19	10° <u>ℓ</u> .48'55	-0°21'37	conjunction	12772 Nov 03 14:19	24° <u>ℓ</u> .20'30	-0°12'49
minimum elong	12766 Oct 21 07:19	10° <u>ℓ</u> .48'55	0°21'05	minimum elong	12772 Nov 03 14:19	24° <u>ℓ</u> .20'30	0°12'06
max. Earth dist.	12766 Oct 21 23:54	10° <u>ℓ</u> .50'29	30.77809 AU	behind sun begin	12772 Nov 03 09:55	24° <u>ℓ</u> .20'07	
morning rise	12766 Nov 06 06:28	11° <u>ℓ</u> .24'51		behind sun end	12772 Nov 03 18:42	24° <u>ℓ</u> .20'54	
retrograde	12767 Feb 04 20:44	13° <u>ℓ</u> .23'06		max. Earth dist.	12772 Nov 04 04:51	24° <u>ℓ</u> .21'52	30.81319 AU
opposition	12767 Apr 25 12:11	11° <u>ℓ</u> .58'02	-0°22'19	morning rise	12772 Nov 19 15:21	24° <u>ℓ</u> .56'31	
min. Earth dist.	12767 Apr 24 21:01	11° <u>ℓ</u> .59'05	28.78025 AU	retrograde	12773 Feb 18 01:41	26° <u>ℓ</u> .54'28	
direct	12767 Jul 12 15:33	10° <u>ℓ</u> .34'09		opposition	12773 May 08 13:04	25° <u>ℓ</u> .29'36	-0°12'46
evening set	12767 Oct 07 22:53	12° <u>ℓ</u> .28'19		min. Earth dist.	12773 May 07 23:53	25° <u>ℓ</u> .30'32	28.81577 AU
				direct	12773 Jul 25 12:18	24° <u>ℓ</u> .05'44	
conjunction	12767 Oct 23 20:11	13° <u>ℓ</u> .04'02	-0°20'14	evening set	12773 Oct 21 04:16	25° <u>ℓ</u> .59'56	
minimum elong	12767 Oct 23 20:11	13° <u>ℓ</u> .04'02	0°19'38				
max. Earth dist.	12767 Oct 24 11:53	13° <u>ℓ</u> .05'31	30.78248 AU	conjunction	12773 Nov 06 03:37	26° <u>ℓ</u> .35'44	-0°11'16
morning rise	12767 Nov 08 19:51	13° <u>ℓ</u> .40'00		minimum elong	12773 Nov 06 03:37	26° <u>ℓ</u> .35'44	0°10'31
	12767 Dec 20 14:29	15° <u>ℓ</u>		behind sun begin	12773 Nov 05 22:32	26° <u>ℓ</u> .35'17	
retrograde	12768 Feb 07 10:22	15° <u>ℓ</u> .38'11		behind sun end	12773 Nov 06 08:41	26° <u>ℓ</u> .36'12	
	12768 Mar 28 11:45	15° <u>ℓ</u> . <u>ℓ</u>		max. Earth dist.	12773 Nov 06 18:30	26° <u>ℓ</u> .37'08	30.81793 AU

morning rise	12773 Nov 22 04:47	27° \mathbb{M} 11'45	direct	12779 Aug 08 15:18	7° \mathbb{A} 34'01	
retrograde	12774 Feb 20 15:11	29° \mathbb{M} 09'36	evening set	12779 Nov 04 10:04	9° \mathbb{A} 28'10	
min. Earth dist.	12774 May 10 11:29	27° \mathbb{M} 45'41 28.82015 AU				
opposition	12774 May 11 01:03	27° \mathbb{M} 44'44 -0°11'06	conjunction	12779 Nov 20 11:03	10° \mathbb{A} 04'00 -0°01'43	
direct	12774 Jul 28 02:42	26° \mathbb{M} 20'49	minimum elong	12779 Nov 20 11:03	10° \mathbb{A} 04'00 0°00'51	
evening set	12774 Oct 23 17:22	28° \mathbb{M} 15'00	behind sun begin	12779 Nov 20 04:31	10° \mathbb{A} 03'25	
			behind sun end	12779 Nov 20 17:36	10° \mathbb{A} 04'35	
conjunction	12774 Nov 08 16:52	28° \mathbb{M} 50'49 -0°09'42	max. Earth dist.	12779 Nov 21 00:21	10° \mathbb{A} 05'14 30.85335 AU	
minimum elong	12774 Nov 08 16:52	28° \mathbb{M} 50'49 0°08'57	morning rise	12779 Dec 06 13:40	10° \mathbb{A} 40'02	
behind sun begin	12774 Nov 08 11:16	28° \mathbb{M} 50'18	retrograde	12780 Mar 05 17:25	12° \mathbb{A} 37'17	
behind sun end	12774 Nov 08 22:27	28° \mathbb{M} 51'19	opposition	12780 May 23 23:06	11° \mathbb{A} 12'33 -0°00'52	
max. Earth dist.	12774 Nov 09 06:23	28° \mathbb{M} 52'04 30.82221 AU	min. Earth dist.	12780 May 23 11:25	11° \mathbb{A} 13'22 28.85827 AU	
morning rise	12774 Nov 24 18:28	29° \mathbb{M} 26'49	direct	12780 Aug 10 01:56	9° \mathbb{A} 48'30	
	12774 Dec 10 09:48	0° \mathbb{A}	evening set	12780 Nov 05 23:03	11° \mathbb{A} 42'40	
retrograde	12775 Feb 23 04:47	1° \mathbb{A} 24'34				
opposition	12775 May 13 12:56	29° \mathbb{M} 59'42 -0°09'25	conjunction	12780 Nov 22 00:20	12° \mathbb{A} 18'31 -0°00'02	
min. Earth dist.	12775 May 13 00:13	0° \mathbb{A} 00'35 28.82451 AU	minimum elong	12780 Nov 22 00:19	12° \mathbb{A} 18'31 0°00'50	
	12775 May 13 08:32	30° \mathbb{K} \mathbb{M}	behind sun begin	12780 Nov 21 17:47	12° \mathbb{A} 17'56	
direct	12775 Jul 30 14:40	28° \mathbb{M} 35'44	behind sun end	12780 Nov 22 06:52	12° \mathbb{A} 19'06	
	12775 Oct 12 04:46	0° \mathbb{A}	max. Earth dist.	12780 Nov 22 13:23	12° \mathbb{A} 19'44 30.86336 AU	
evening set	12775 Oct 26 06:17	0° \mathbb{A} 29'53	morning rise	12780 Dec 08 03:07	12° \mathbb{A} 54'32	
			asc. node	12780 Dec 09 05:20	12° \mathbb{A} 56'56	
conjunction	12775 Nov 11 06:16	1° \mathbb{A} 05'42 -0°08'08	retrograde	12781 Mar 08 06:44	14° \mathbb{A} 51'43	
minimum elong	12775 Nov 11 06:16	1° \mathbb{A} 05'42 0°07'20	opposition	12781 May 26 10:34	13° \mathbb{A} 27'04 0°00'51	
behind sun begin	12775 Nov 11 00:17	1° \mathbb{A} 05'10	min. Earth dist.	12781 May 25 22:03	13° \mathbb{A} 27'57 28.86877 AU	
behind sun end	12775 Nov 11 12:15	1° \mathbb{A} 06'14	direct	12781 Aug 12 12:59	12° \mathbb{A} 03'02	
max. Earth dist.	12775 Nov 11 20:33	1° \mathbb{A} 07'02 30.82665 AU	evening set	12781 Nov 08 12:00	13° \mathbb{A} 57'15	
morning rise	12775 Nov 27 07:58	1° \mathbb{A} 41'43				
retrograde	12776 Feb 25 16:41	3° \mathbb{A} 39'21	conjunction	12781 Nov 24 13:25	14° \mathbb{A} 33'06 0°01'36	
opposition	12776 May 15 00:41	2° \mathbb{A} 14'28 -0°07'44	minimum elong	12781 Nov 24 13:25	14° \mathbb{A} 33'06 0°02'31	
min. Earth dist.	12776 May 14 12:02	2° \mathbb{A} 15'22 28.82908 AU	behind sun begin	12781 Nov 24 06:52	14° \mathbb{A} 32'31	
direct	12776 Aug 01 04:00	0° \mathbb{A} 50'28	behind sun end	12781 Nov 24 19:58	14° \mathbb{A} 33'42	
evening set	12776 Oct 27 19:18	2° \mathbb{A} 44'36	max. Earth dist.	12781 Nov 25 01:58	14° \mathbb{A} 34'16 30.87427 AU	
			morning rise	12781 Dec 10 16:27	15° \mathbb{A} 09'08	
conjunction	12776 Nov 12 19:23	3° \mathbb{A} 20'26 -0°06'34	retrograde	12782 Mar 10 18:44	17° \mathbb{A} 06'16	
minimum elong	12776 Nov 12 19:23	3° \mathbb{A} 20'26 0°05'45	opposition	12782 May 28 22:10	15° \mathbb{A} 41'42 0°02'35	
behind sun begin	12776 Nov 12 13:07	3° \mathbb{A} 19'52	min. Earth dist.	12782 May 28 10:58	15° \mathbb{A} 42'29 28.88005 AU	
behind sun end	12776 Nov 13 01:39	3° \mathbb{A} 20'59	direct	12782 Aug 14 23:39	14° \mathbb{A} 17'42	
max. Earth dist.	12776 Nov 13 08:23	3° \mathbb{A} 21'38 30.83160 AU	evening set	12782 Nov 11 01:06	16° \mathbb{A} 11'57	
morning rise	12776 Nov 28 21:27	3° \mathbb{A} 56'26				
retrograde	12777 Feb 27 06:29	5° \mathbb{A} 53'58	conjunction	12782 Nov 27 02:54	16° \mathbb{A} 47'49 0°03'13	
opposition	12777 May 17 12:21	4° \mathbb{A} 29'06 -0°06'01	minimum elong	12782 Nov 27 02:53	16° \mathbb{A} 47'49 0°04'08	
min. Earth dist.	12777 May 16 23:41	4° \mathbb{A} 29'59 28.83454 AU	behind sun begin	12782 Nov 26 20:25	16° \mathbb{A} 47'14	
direct	12777 Aug 03 15:50	3° \mathbb{A} 05'04	behind sun end	12782 Nov 27 09:20	16° \mathbb{A} 48'24	
evening set	12777 Oct 30 08:11	4° \mathbb{A} 59'11	max. Earth dist.	12782 Nov 27 15:41	16° \mathbb{A} 49'00 30.88570 AU	
			morning rise	12782 Dec 13 05:58	17° \mathbb{A} 23'50	
conjunction	12777 Nov 15 08:40	5° \mathbb{A} 35'01 -0°04'58	retrograde	12783 Mar 13 07:59	19° \mathbb{A} 20'54	
minimum elong	12777 Nov 15 08:40	5° \mathbb{A} 35'01 0°04'08	opposition	12783 May 31 09:29	17° \mathbb{A} 56'26 0°04'18	
behind sun begin	12777 Nov 15 02:12	5° \mathbb{A} 34'27	min. Earth dist.	12783 May 30 22:09	17° \mathbb{A} 57'13 28.89133 AU	
behind sun end	12777 Nov 15 15:07	5° \mathbb{A} 35'36	direct	12783 Aug 17 13:05	16° \mathbb{A} 32'27	
max. Earth dist.	12777 Nov 15 22:33	5° \mathbb{A} 36'19 30.83752 AU	evening set	12783 Nov 13 14:29	18° \mathbb{A} 26'45	
morning rise	12777 Dec 01 10:48	6° \mathbb{A} 11'02				
retrograde	12778 Mar 01 17:57	8° \mathbb{A} 08'28	conjunction	12783 Nov 29 16:18	19° \mathbb{A} 02'37 0°04'49	
min. Earth dist.	12778 May 19 12:00	6° \mathbb{A} 44'28 28.84106 AU	minimum elong	12783 Nov 29 16:19	19° \mathbb{A} 02'37 0°05'45	
opposition	12778 May 20 00:02	6° \mathbb{A} 43'37 -0°04'19	behind sun begin	12783 Nov 29 10:02	19° \mathbb{A} 02'04	
direct	12778 Aug 06 03:42	5° \mathbb{A} 19'34	behind sun end	12783 Nov 29 22:35	19° \mathbb{A} 03'11	
evening set	12778 Nov 01 21:03	7° \mathbb{A} 13'41	max. Earth dist.	12783 Nov 30 03:27	19° \mathbb{A} 03'39 30.89670 AU	
			morning rise	12783 Dec 15 19:40	19° \mathbb{A} 38'38	
conjunction	12778 Nov 17 21:44	7° \mathbb{A} 49'32 -0°03'22	retrograde	12784 Mar 14 21:24	21° \mathbb{A} 35'38	
minimum elong	12778 Nov 17 21:46	7° \mathbb{A} 49'32 0°02'31	opposition	12784 Jun 01 21:00	20° \mathbb{A} 11'13 0°06'00	
behind sun begin	12778 Nov 17 15:13	7° \mathbb{A} 48'56	min. Earth dist.	12784 Jun 01 10:50	20° \mathbb{A} 11'56 28.90200 AU	
behind sun end	12778 Nov 18 04:18	7° \mathbb{A} 50'07	direct	12784 Aug 19 00:24	18° \mathbb{A} 47'15	
max. Earth dist.	12778 Nov 18 10:51	7° \mathbb{A} 50'45 30.84480 AU	evening set	12784 Nov 15 03:38	20° \mathbb{A} 41'35	
morning rise	12778 Dec 04 00:15	8° \mathbb{A} 25'33				
retrograde	12779 Mar 04 06:39	10° \mathbb{A} 22'53	conjunction	12784 Dec 01 05:50	21° \mathbb{A} 17'27 0°06'24	
opposition	12779 May 22 11:36	8° \mathbb{A} 58'05 -0°02'36	minimum elong	12784 Dec 01 05:49	21° \mathbb{A} 17'27 0°07'21	
min. Earth dist.	12779 May 21 22:51	8° \mathbb{A} 58'59 28.84901 AU	behind sun begin	12784 Nov 30 23:50	21° \mathbb{A} 16'54	

behind sun end	12784 Dec 01 11:49	21° \nearrow 17'59		morning rise	12789 Dec 29 04:23	3° \searrow 05'10	
max. Earth dist.	12784 Dec 01 17:12	21° \nearrow 18'30	30.90679 AU	retrograde	12790 Mar 28 22:50	5° \searrow 01'21	
morning rise	12784 Dec 17 09:07	21° \nearrow 53'27		opposition	12790 Jun 15 16:12	3° \searrow 37'04	0°15'56
retrograde	12785 Mar 17 09:47	23° \nearrow 50'21		min. Earth dist.	12790 Jun 15 08:39	3° \searrow 37'36	28.95103 AU
opposition	12785 Jun 04 08:25	22° \nearrow 25'59	0°07'43	direct	12790 Sep 02 02:12	2° \searrow 12'49	
min. Earth dist.	12785 Jun 03 22:43	22° \nearrow 26'40	28.91147 AU	evening set	12790 Nov 29 10:32	4° \searrow 07'03	
direct	12785 Aug 21 13:31	21° \nearrow 02'00					
evening set	12785 Nov 17 17:01	22° \nearrow 56'20		conjunction	12790 Dec 15 13:39	4° \searrow 42'53	0°15'36
				minimum elong	12790 Dec 15 13:39	4° \searrow 42'53	0°16'34
conjunction	12785 Dec 03 19:14	23° \nearrow 32'12	0°07'59	max. Earth dist.	12790 Dec 15 20:48	4° \searrow 43'33	30.95539 AU
minimum elong	12785 Dec 03 19:14	23° \nearrow 32'12	0°08'56	morning rise	12790 Dec 31 17:38	5° \searrow 18'50	
behind sun begin	12785 Dec 03 13:38	23° \nearrow 31'42		retrograde	12791 Mar 31 08:46	7° \searrow 14'52	
behind sun end	12785 Dec 04 00:50	23° \nearrow 32'42		opposition	12791 Jun 18 03:06	5° \searrow 50'37	0°17'31
max. Earth dist.	12785 Dec 04 04:42	23° \nearrow 33'04	30.91581 AU	min. Earth dist.	12791 Jun 17 20:51	5° \searrow 51'03	28.96020 AU
morning rise	12785 Dec 19 22:50	24° \nearrow 08'12		direct	12791 Sep 04 12:54	4° \searrow 26'19	
retrograde	12786 Mar 20 00:27	26° \nearrow 04'58		evening set	12791 Dec 01 23:31	6° \searrow 20'33	
opposition	12786 Jun 06 19:46	24° \nearrow 40'38	0°09'24				
min. Earth dist.	12786 Jun 06 10:34	24° \nearrow 41'16	28.92006 AU	conjunction	12791 Dec 18 02:53	6° \searrow 56'23	0°17'04
direct	12786 Aug 24 02:18	23° \nearrow 16'36		minimum elong	12791 Dec 18 02:52	6° \searrow 56'23	0°18'02
evening set	12786 Nov 20 06:08	25° \nearrow 10'55		max. Earth dist.	12791 Dec 18 10:19	6° \searrow 57'04	30.96515 AU
				morning rise	12792 Jan 03 06:48	7° \searrow 32'18	
conjunction	12786 Dec 06 08:44	25° \nearrow 46'48	0°09'33	retrograde	12792 Apr 01 20:07	9° \searrow 28'13	
minimum elong	12786 Dec 06 08:43	25° \nearrow 46'48	0°10'30	opposition	12792 Jun 19 13:56	8° \searrow 04'00	0°19'03
behind sun begin	12786 Dec 06 03:38	25° \nearrow 46'20		min. Earth dist.	12792 Jun 19 07:12	8° \searrow 04'28	28.97049 AU
behind sun end	12786 Dec 06 13:49	25° \nearrow 47'15		direct	12792 Sep 06 01:22	6° \searrow 39'41	
max. Earth dist.	12786 Dec 06 18:30	25° \nearrow 47'42	30.92392 AU	evening set	12792 Dec 03 12:29	8° \searrow 33'56	
morning rise	12786 Dec 22 12:18	26° \nearrow 22'47					
retrograde	12787 Mar 22 11:25	28° \nearrow 19'25		conjunction	12792 Dec 19 15:47	9° \searrow 09'45	0°18'30
opposition	12787 Jun 09 07:04	26° \nearrow 55'06	0°11'04	minimum elong	12792 Dec 19 15:47	9° \searrow 09'45	0°19'28
min. Earth dist.	12787 Jun 08 23:04	26° \nearrow 55'39	28.92777 AU	max. Earth dist.	12792 Dec 19 22:04	9° \searrow 10'19	30.97606 AU
direct	12787 Aug 26 15:13	25° \nearrow 31'01		morning rise	12793 Jan 04 19:51	9° \searrow 45'39	
evening set	12787 Nov 22 19:25	27° \nearrow 25'19		retrograde	12793 Apr 04 08:21	11° \searrow 41'28	
				opposition	12793 Jun 22 00:52	10° \searrow 17'18	0°20'35
conjunction	12787 Dec 08 22:05	28° \nearrow 01'11	0°11'05	min. Earth dist.	12793 Jun 21 18:50	10° \searrow 17'44	28.98210 AU
minimum elong	12787 Dec 08 22:06	28° \nearrow 01'11	0°12'03	direct	12793 Sep 08 11:38	8° \searrow 52'59	
behind sun begin	12787 Dec 08 17:41	28° \nearrow 00'47		evening set	12793 Dec 06 01:22	10° \searrow 47'16	
behind sun end	12787 Dec 09 02:30	28° \nearrow 01'34					
max. Earth dist.	12787 Dec 09 06:26	28° \nearrow 01'57	30.93150 AU	conjunction	12793 Dec 22 04:57	11° \searrow 23'05	0°19'54
morning rise	12787 Dec 25 01:53	28° \nearrow 37'09		minimum elong	12793 Dec 22 04:57	11° \searrow 23'05	0°20'52
	12788 Feb 07 09:11	0° \searrow		max. Earth dist.	12793 Dec 22 11:54	11° \searrow 23'43	30.98822 AU
retrograde	12788 Mar 23 23:57	0° \searrow 33'38		morning rise	12794 Jan 07 08:53	11° \searrow 58'58	
	12788 May 09 11:07	30° \nwarrow		retrograde	12794 Apr 06 20:06	13° \searrow 54'41	
opposition	12788 Jun 10 18:05	29° \nearrow 09'20	0°12'42	opposition	12794 Jun 24 11:37	12° \searrow 30'36	0°22'04
min. Earth dist.	12788 Jun 10 09:53	29° \nearrow 09'54	28.93524 AU	min. Earth dist.	12794 Jun 24 05:48	12° \searrow 31'01	28.99460 AU
direct	12788 Aug 28 03:25	27° \nearrow 45'11		direct	12794 Sep 11 00:11	11° \searrow 06'19	
evening set	12788 Nov 24 08:33	29° \nearrow 39'28		evening set	12794 Dec 08 14:28	13° \searrow 00'38	
	12788 Dec 03 15:22	0° \searrow					
				conjunction	12794 Dec 24 17:59	13° \searrow 36'26	0°21'17
conjunction	12788 Dec 10 11:25	0° \searrow 15'20	0°12'37	minimum elong	12794 Dec 24 17:59	13° \searrow 36'26	0°22'15
minimum elong	12788 Dec 10 11:25	0° \searrow 15'19	0°13'35	max. Earth dist.	12794 Dec 24 23:17	13° \searrow 36'56	31.00106 AU
behind sun begin	12788 Dec 10 07:54	0° \searrow 15'01		morning rise	12795 Jan 09 22:07	14° \searrow 12'19	
behind sun end	12788 Dec 10 14:55	0° \searrow 15'38		retrograde	12795 Apr 09 10:13	16° \searrow 07'56	
max. Earth dist.	12788 Dec 10 19:42	0° \searrow 16'05	30.93891 AU	opposition	12795 Jun 26 22:25	14° \searrow 43'57	0°23'31
morning rise	12788 Dec 26 15:12	0° \searrow 51'17		min. Earth dist.	12795 Jun 26 17:00	14° \searrow 44'20	29.00754 AU
retrograde	12789 Mar 26 10:31	2° \searrow 47'37		direct	12795 Sep 13 12:09	13° \searrow 19'41	
opposition	12789 Jun 13 05:15	1° \searrow 23'19	0°14'20	evening set	12795 Dec 11 03:33	15° \searrow 14'03	
min. Earth dist.	12789 Jun 12 22:23	1° \searrow 23'48	28.94283 AU				
	12789 Aug 23 09:08	30° \nwarrow		conjunction	12795 Dec 27 07:16	15° \searrow 49'52	0°22'38
direct	12789 Aug 30 14:34	29° \nearrow 59'08		minimum elong	12795 Dec 27 07:16	15° \searrow 49'52	0°23'35
	12789 Sep 06 18:19	0° \searrow		max. Earth dist.	12795 Dec 27 12:54	15° \searrow 50'23	31.01377 AU
evening set	12789 Nov 26 21:26	1° \searrow 53'22		morning rise	12796 Jan 12 11:11	16° \searrow 25'43	
				retrograde	12796 Apr 10 21:10	18° \searrow 21'15	
conjunction	12789 Dec 13 00:29	2° \searrow 29'13	0°14'07	opposition	12796 Jun 28 09:11	16° \searrow 57'22	0°24'56
minimum elong	12789 Dec 13 00:29	2° \searrow 29'13	0°15'05	min. Earth dist.	12796 Jun 28 05:06	16° \searrow 57'39	29.01996 AU
behind sun begin	12789 Dec 12 22:25	2° \searrow 29'02		direct	12796 Sep 15 00:26	15° \searrow 33'07	
behind sun end	12789 Dec 13 02:33	2° \searrow 29'24		evening set	12796 Dec 12 16:44	17° \searrow 27'32	
max. Earth dist.	12789 Dec 13 08:15	2° \searrow 29'56	30.94682 AU				

conjunction	12796 Dec 28 20:24	18°30'31.9" 0°23'56"	retrograde	12803 Apr 27 03:00	3°55'21.3"	
minimum elong	12796 Dec 28 20:24	18°30'31.9" 0°24'53"	opposition	12803 Jul 14 11:21	2°58'28.37" 0°33'40"	
max. Earth dist.	12796 Dec 29 00:21	18°30'34.1" 31.02585 AU	min. Earth dist.	12803 Jul 14 11:17	2°58'28.38" 29.08647 AU	
morning rise	12797 Jan 14 00:24	18°33'9.10"	direct	12803 Oct 01 08:23	1°54'04.09"	
retrograde	12797 Apr 13 10:26	20°33'43.6"	evening set	12803 Dec 29 10:59	2°58'58.36"	
opposition	12797 Jun 30 19:58	19°31'04.7" 0°26'19"				
min. Earth dist.	12797 Jun 30 15:49	19°31'11.04" 29.03157 AU	conjunction	12804 Jan 14 14:41	3°53'34.17" 0°31'58"	
direct	12797 Sep 17 12:23	17°34'46.32"	minimum elong	12804 Jan 14 14:41	3°53'34.17" 0°32'49"	
evening set	12797 Dec 15 05:42	19°34'40.58"	max. Earth dist.	12804 Jan 14 13:45	3°53'34.12" 31.09136 AU	
			morning rise	12804 Jan 30 18:10	4°59'09.58"	
conjunction	12797 Dec 31 09:30	20°31'16.46" 0°25'12"	retrograde	12804 Apr 28 15:45	6°54'04.32"	
minimum elong	12797 Dec 31 09:29	20°31'16.46" 0°26'08"	opposition	12804 Jul 15 21:39	4°54'40.57" 0°34'44"	
max. Earth dist.	12797 Dec 31 13:09	20°31'17.06" 31.03680 AU	min. Earth dist.	12804 Jul 15 21:37	4°54'40.58" 29.09677 AU	
morning rise	12798 Jan 16 13:22	20°35'23.35"	direct	12804 Oct 02 20:16	3°56'16.28"	
retrograde	12798 Apr 15 21:29	22°34'47.55"	evening set	12804 Dec 30 23:33	5°51'10.56"	
opposition	12798 Jul 03 06:51	21°32'24.09" 0°27'39"				
min. Earth dist.	12798 Jul 03 04:23	21°32'24.19" 29.04198 AU	conjunction	12805 Jan 16 03:22	5°54'46.36" 0°32'56"	
direct	12798 Sep 19 23:38	19°35'59.53"	minimum elong	12805 Jan 16 03:22	5°54'46.36" 0°33'47"	
evening set	12798 Dec 17 18:48	21°35'54.20"	max. Earth dist.	12805 Jan 16 03:12	5°54'46.35" 31.10221 AU	
			morning rise	12805 Feb 01 06:33	6°52'22.15"	
conjunction	12799 Jan 02 22:38	22°33'07.0" 0°26'26"	retrograde	12805 May 01 01:45	8°51'16.43"	
minimum elong	12799 Jan 02 22:38	22°33'07.0" 0°27'22"	opposition	12805 Jul 18 08:04	6°53'53.11" 0°35'44"	
max. Earth dist.	12799 Jan 03 01:08	22°33'07.20" 31.04675 AU	min. Earth dist.	12805 Jul 18 08:51	6°53'53.08" 29.10826 AU	
morning rise	12799 Jan 19 02:31	23°35'05.55"	direct	12805 Oct 05 07:58	5°58'28.42"	
retrograde	12799 Apr 18 09:37	25°30'17.07"	evening set	12806 Jan 02 12:05	7°53'23.11"	
opposition	12799 Jul 05 17:20	23°33'37.24" 0°28'57"				
min. Earth dist.	12799 Jul 05 14:39	23°33'37.36" 29.05139 AU	conjunction	12806 Jan 18 15:46	7°58'58.50" 0°33'51"	
direct	12799 Sep 22 11:18	22°31'37.06"	minimum elong	12806 Jan 18 15:46	7°58'58.50" 0°34'40"	
evening set	12799 Dec 20 07:52	24°30'07.33"	max. Earth dist.	12806 Jan 18 14:28	7°58'58.43" 31.11441 AU	
			morning rise	12806 Feb 03 19:00	8°53'34.28"	
conjunction	12800 Jan 05 11:41	24°34'31.9" 0°27'38"	retrograde	12806 May 03 14:54	10°58'28.49"	
minimum elong	12800 Jan 05 11:41	24°34'31.9" 0°28'33"	opposition	12806 Jul 20 18:21	9°55'05.22" 0°36'42"	
max. Earth dist.	12800 Jan 05 13:10	24°34'32.8" 31.05572 AU	min. Earth dist.	12806 Jul 20 18:38	9°55'05.21" 29.12095 AU	
morning rise	12800 Jan 21 15:30	25°31'19.06"	direct	12806 Oct 07 20:00	7°54'40.54"	
retrograde	12800 Apr 19 18:59	27°31'14.11"	evening set	12807 Jan 05 00:44	9°53'35.25"	
opposition	12800 Jul 07 04:03	25°35'03.30" 0°30'12"				
min. Earth dist.	12800 Jul 07 02:59	25°35'03.35" 29.06012 AU	conjunction	12807 Jan 21 04:26	10°51'11.04" 0°34'44"	
direct	12800 Sep 23 21:59	24°32'26.10"	minimum elong	12807 Jan 21 04:26	10°51'11.04" 0°35'32"	
evening set	12800 Dec 21 20:36	26°32'03.36"	max. Earth dist.	12807 Jan 21 03:16	10°51'10.57" 31.12743 AU	
			morning rise	12807 Feb 06 07:24	10°54'46.40"	
conjunction	12801 Jan 07 00:31	26°35'56.21" 0°28'47"	retrograde	12807 May 06 02:08	12°54'40.55"	
minimum elong	12801 Jan 07 00:31	26°35'56.21" 0°29'42"	opposition	12807 Jul 23 04:39	11°51'17.34" 0°37'36"	
max. Earth dist.	12801 Jan 07 01:59	26°35'56.30" 31.06429 AU	min. Earth dist.	12807 Jul 23 06:25	11°51'17.27" 29.13423 AU	
morning rise	12801 Jan 23 04:11	27°32'07.03"	direct	12807 Oct 10 07:31	9°53'53.08"	
retrograde	12801 Apr 22 05:24	29°32'27.07"	evening set	12808 Jan 07 13:26	11°54'47.41"	
opposition	12801 Jul 09 14:33	28°30'32.24" 0°31'24"				
min. Earth dist.	12801 Jul 09 13:18	28°30'33.30" 29.06854 AU	conjunction	12808 Jan 23 17:01	12°53'23.19" 0°35'33"	
direct	12801 Sep 26 09:59	26°33'39.01"	minimum elong	12808 Jan 23 17:01	12°53'23.19" 0°36'19"	
evening set	12801 Dec 24 09:30	28°33'32.28"	max. Earth dist.	12808 Jan 23 14:58	12°53'23.07" 31.14083 AU	
			morning rise	12808 Feb 08 19:52	12°58'58.53"	
conjunction	12802 Jan 09 13:16	29°30'09.12" 0°29'53"	retrograde	12808 May 07 14:01	14°53'53.04"	
minimum elong	12802 Jan 09 13:16	29°30'09.12" 0°30'47"	opposition	12808 Jul 24 14:57	13°52'29.48" 0°38'26"	
max. Earth dist.	12802 Jan 09 13:21	29°30'09.12" 31.07275 AU	min. Earth dist.	12808 Jul 24 16:19	13°52'29.42" 29.14744 AU	
morning rise	12802 Jan 25 16:58	29°34'44.56"	direct	12808 Oct 11 19:37	12°55'05.23"	
	12802 Feb 01 17:52	0°58'	evening set	12809 Jan 09 02:02	13°59'59.58"	
retrograde	12802 Apr 24 16:36	1°53'39.45"				
opposition	12802 Jul 12 00:57	0°56'16.07" 0°32'34"	conjunction	12809 Jan 25 05:27	14°53'35.35" 0°36'19"	
min. Earth dist.	12802 Jul 12 00:40	0°56'16.08" 29.07726 AU	minimum elong	12809 Jan 25 05:27	14°53'35.35" 0°37'04"	
	12802 Jul 21 16:05	30°51'14.0"	max. Earth dist.	12809 Jan 25 02:33	14°53'35.18" 31.15366 AU	
direct	12802 Sep 28 19:33	28°35'51.40"		12809 Feb 05 05:47	15°58'	
	12802 Dec 04 07:58	0°58'	morning rise	12809 Feb 10 08:07	15°58'11.08"	
evening set	12802 Dec 26 22:12	0°54'46.07"	retrograde	12809 May 09 23:47	17°55'05.13"	
			opposition	12809 Jul 27 01:27	15°54'42.02" 0°39'14"	
conjunction	12803 Jan 12 02:08	1°52'21.50" 0°30'57"	min. Earth dist.	12809 Jul 27 04:26	15°54'41.49" 29.15994 AU	
minimum elong	12803 Jan 12 02:08	1°52'21.50" 0°31'50"		12809 Aug 22 07:07	15°58'	
max. Earth dist.	12803 Jan 12 02:44	1°52'21.53" 31.08168 AU	direct	12809 Oct 14 05:44	14°58'17.38"	
morning rise	12803 Jan 28 05:36	1°57'57.33"		12809 Dec 04 19:36	15°58'	

evening set	12810 Jan 11 14:41	16° \approx 12'13			12816 Feb 11 13:21	0° \mathbb{H}	
				morning rise	12816 Feb 26 21:08	0° \mathbb{H} 33'45	
conjunction	12810 Jan 27 18:07	16° \approx 47'49 0°37'01		retrograde	12816 May 25 02:51	2° \mathbb{H} 27'06	
minimum elong	12810 Jan 27 18:07	16° \approx 47'49 0°37'45		opposition	12816 Aug 11 01:17	1° \mathbb{H} 04'08 0°43'04	
max. Earth dist.	12810 Jan 27 14:54	16° \approx 47'31 31.16563 AU		min. Earth dist.	12816 Aug 11 08:29	1° \mathbb{H} 03'38 29.22198 AU	
morning rise	12810 Feb 12 20:32	17° \approx 23'21			12816 Sep 23 14:13	30° \mathbb{R} \approx	
retrograde	12810 May 12 10:21	19° \approx 17'20		direct	12816 Oct 29 14:28	29° \approx 39'34	
opposition	12810 Jul 29 11:42	17° \approx 54'13 0°39'57			12816 Dec 04 00:53	0° \mathbb{H}	
min. Earth dist.	12810 Jul 29 14:50	17° \approx 53'59 29.17124 AU		evening set	12817 Jan 27 05:22	1° \mathbb{H} 34'10	
direct	12810 Oct 16 17:26	16° \approx 29'48					
evening set	12811 Jan 14 03:28	18° \approx 24'24		conjunction	12817 Feb 12 07:46	2° \mathbb{H} 09'37 0°40'26	
				minimum elong	12817 Feb 12 07:46	2° \mathbb{H} 09'37 0°40'59	
conjunction	12811 Jan 30 06:40	18° \approx 59'59 0°37'41		max. Earth dist.	12817 Feb 11 23:59	2° \mathbb{H} 08'54 31.22622 AU	
minimum elong	12811 Jan 30 06:40	18° \approx 59'59 0°38'24		morning rise	12817 Feb 28 08:44	2° \mathbb{H} 44'56	
max. Earth dist.	12811 Jan 30 01:43	18° \approx 59'31 31.17629 AU		retrograde	12817 May 27 14:00	4° \mathbb{H} 38'12	
morning rise	12811 Feb 15 09:01	19° \approx 35'29		opposition	12817 Aug 13 11:25	3° \mathbb{H} 15'17 0°43'22	
retrograde	12811 May 14 21:10	21° \approx 29'22		min. Earth dist.	12817 Aug 13 17:46	3° \mathbb{H} 14'51 29.23103 AU	
opposition	12811 Jul 31 22:07	20° \approx 06'17 0°40'37		direct	12817 Nov 01 02:52	1° \mathbb{H} 50'44	
min. Earth dist.	12811 Aug 01 02:24	20° \approx 05'59 29.18136 AU		evening set	12818 Jan 29 17:31	3° \mathbb{H} 45'21	
direct	12811 Oct 19 03:00	18° \approx 41'50					
evening set	12812 Jan 16 15:58	20° \approx 36'27		conjunction	12818 Feb 14 19:42	4° \mathbb{H} 20'46 0°40'41	
				minimum elong	12818 Feb 14 19:43	4° \mathbb{H} 20'46 0°41'11	
conjunction	12812 Feb 01 19:12	21° \approx 12'00 0°38'17		max. Earth dist.	12818 Feb 14 11:29	4° \mathbb{H} 20'01 31.23573 AU	
minimum elong	12812 Feb 01 19:12	21° \approx 12'00 0°38'57		morning rise	12818 Mar 02 20:26	4° \mathbb{H} 56'05	
max. Earth dist.	12812 Feb 01 14:26	21° \approx 11'34 31.18576 AU		retrograde	12818 May 29 23:33	6° \mathbb{H} 49'17	
morning rise	12812 Feb 17 21:10	21° \approx 47'29		opposition	12818 Aug 15 21:34	5° \mathbb{H} 26'26 0°43'36	
retrograde	12812 May 16 06:33	23° \approx 41'15		min. Earth dist.	12818 Aug 16 05:03	5° \mathbb{H} 25'54 29.24111 AU	
opposition	12812 Aug 02 08:26	22° \approx 18'12 0°41'14		direct	12818 Nov 03 12:43	4° \mathbb{H} 01'54	
min. Earth dist.	12812 Aug 02 13:20	22° \approx 17'52 29.19023 AU		evening set	12819 Feb 01 05:35	5° \mathbb{H} 56'33	
direct	12812 Oct 20 15:35	20° \approx 53'44					
evening set	12813 Jan 18 04:33	22° \approx 48'21		conjunction	12819 Feb 17 07:41	6° \mathbb{H} 31'58 0°40'53	
				minimum elong	12819 Feb 17 07:42	6° \mathbb{H} 31'58 0°41'22	
conjunction	12813 Feb 03 07:29	23° \approx 23'52 0°38'49		max. Earth dist.	12819 Feb 16 23:42	6° \mathbb{H} 31'14 31.24625 AU	
minimum elong	12813 Feb 03 07:29	23° \approx 23'52 0°39'30		morning rise	12819 Mar 05 08:07	7° \mathbb{H} 07'15	
max. Earth dist.	12813 Feb 03 00:50	23° \approx 23'16 31.19427 AU		retrograde	12819 Jun 01 09:54	9° \mathbb{H} 00'23	
morning rise	12813 Feb 19 09:25	23° \approx 59'19		opposition	12819 Aug 18 07:44	7° \mathbb{H} 37'38 0°43'47	
retrograde	12813 May 18 18:24	25° \approx 52'59		min. Earth dist.	12819 Aug 18 14:58	7° \mathbb{H} 37'08 29.25177 AU	
opposition	12813 Aug 04 18:40	24° \approx 29'57 0°41'47		direct	12819 Nov 05 23:59	6° \mathbb{H} 13'09	
min. Earth dist.	12813 Aug 04 23:51	24° \approx 29'35 29.19845 AU		evening set	12820 Feb 03 17:41	8° \mathbb{H} 07'50	
direct	12813 Oct 23 02:42	23° \approx 05'27					
evening set	12814 Jan 20 16:47	25° \approx 00'03		conjunction	12820 Feb 19 19:26	8° \mathbb{H} 43'14 0°41'01	
				minimum elong	12820 Feb 19 19:26	8° \mathbb{H} 43'14 0°41'27	
conjunction	12814 Feb 05 19:46	25° \approx 35'33 0°39'19		max. Earth dist.	12820 Feb 19 10:16	8° \mathbb{H} 42'24 31.25702 AU	
minimum elong	12814 Feb 05 19:47	25° \approx 35'33 0°39'56		morning rise	12820 Mar 06 19:40	9° \mathbb{H} 18'30	
max. Earth dist.	12814 Feb 05 13:35	25° \approx 34'59 31.20214 AU		retrograde	12820 Jun 02 20:27	11° \mathbb{H} 11'37	
morning rise	12814 Feb 21 21:22	26° \approx 10'58		opposition	12820 Aug 19 17:59	9° \mathbb{H} 48'56 0°43'53	
retrograde	12814 May 21 03:55	28° \approx 04'31		min. Earth dist.	12820 Aug 20 01:58	9° \mathbb{H} 48'23 29.26258 AU	
opposition	12814 Aug 07 04:57	26° \approx 41'31 0°42'16		direct	12820 Nov 07 08:53	8° \mathbb{H} 24'30	
min. Earth dist.	12814 Aug 07 11:21	26° \approx 41'04 29.20610 AU		evening set	12821 Feb 05 05:41	10° \mathbb{H} 19'14	
direct	12814 Oct 25 14:19	25° \approx 16'59					
evening set	12815 Jan 23 05:12	27° \approx 11'35		conjunction	12821 Feb 21 07:23	10° \mathbb{H} 54'37 0°41'06	
				minimum elong	12821 Feb 21 07:23	10° \mathbb{H} 54'37 0°41'31	
conjunction	12815 Feb 08 07:54	27° \approx 47'04 0°39'45		max. Earth dist.	12821 Feb 20 22:41	10° \mathbb{H} 53'48 31.26755 AU	
minimum elong	12815 Feb 08 07:54	27° \approx 47'04 0°40'21		morning rise	12821 Mar 09 07:12	11° \mathbb{H} 29'51	
max. Earth dist.	12815 Feb 08 00:21	27° \approx 46'22 31.20979 AU		retrograde	12821 Jun 05 05:20	13° \mathbb{H} 22'55	
morning rise	12815 Feb 24 09:24	28° \approx 22'27		opposition	12821 Aug 22 04:12	12° \mathbb{H} 00'20 0°43'56	
	12815 Apr 22 20:11	0° \mathbb{H}		min. Earth dist.	12821 Aug 22 12:49	11° \mathbb{H} 59'44 29.27267 AU	
retrograde	12815 May 23 16:15	0° \mathbb{H} 15'53		direct	12821 Nov 09 20:41	10° \mathbb{H} 35'56	
	12815 Jun 23 20:46	30° \mathbb{R} \approx		evening set	12822 Feb 07 17:50	12° \mathbb{H} 30'41	
opposition	12815 Aug 09 15:00	28° \approx 52'54 0°42'42					
min. Earth dist.	12815 Aug 09 21:00	28° \approx 52'29 29.21380 AU		conjunction	12822 Feb 23 19:10	13° \mathbb{H} 06'03 0°41'07	
direct	12815 Oct 28 02:42	27° \approx 28'20		minimum elong	12822 Feb 23 19:10	13° \mathbb{H} 06'03 0°41'29	
evening set	12816 Jan 25 17:23	29° \approx 22'56		max. Earth dist.	12822 Feb 23 08:37	13° \mathbb{H} 05'05 31.27714 AU	
				morning rise	12822 Mar 11 18:54	13° \mathbb{H} 41'16	
conjunction	12816 Feb 10 20:00	29° \approx 58'24 0°40'07		retrograde	12822 Jun 07 16:52	15° \mathbb{H} 34'17	
minimum elong	12816 Feb 10 20:00	29° \approx 58'24 0°40'41		opposition	12822 Aug 24 14:30	14° \mathbb{H} 11'45 0°43'55	
max. Earth dist.	12816 Feb 10 12:42	29° \approx 57'44 31.21758 AU		min. Earth dist.	12822 Aug 24 23:22	14° \mathbb{H} 11'08 29.28166 AU	

direct	12822 Nov 12 06:53	12° H 47'22			12829 Apr 27 14:04	0° Y	
evening set	12823 Feb 10 05:54	14° H 42'09		retrograde	12829 Jun 22 16:57	0° Y 50'37	
					12829 Aug 19 21:06	30° R H	
conjunction	12823 Feb 26 07:08	15° H 17'29	0°41'04	opposition	12829 Sep 08 14:27	29° H 28'06	0°42'03
minimum elong	12823 Feb 26 07:09	15° H 17'29	0°41'25	min. Earth dist.	12829 Sep 09 02:40	29° H 27'15	29.31345 AU
max. Earth dist.	12823 Feb 25 20:52	15° H 16'33	31.28531 AU	direct	12829 Nov 27 16:46	28° H 03'31	
morning rise	12823 Mar 14 06:24	15° H 52'41		evening set	12830 Feb 25 15:52	29° H 58'12	
retrograde	12823 Jun 10 02:14	17° H 45'39			12830 Feb 26 11:54	0° Y	
opposition	12823 Aug 27 00:51	16° H 23'09	0°43'50				
min. Earth dist.	12823 Aug 27 11:08	16° H 22'26	29.28908 AU	conjunction	12830 Mar 13 15:25	0° Y 33'22	0°39'09
direct	12823 Nov 14 17:32	14° H 58'46		minimum elong	12830 Mar 13 15:25	0° Y 33'22	0°39'14
evening set	12824 Feb 12 18:00	16° H 53'34		max. Earth dist.	12830 Mar 13 02:27	0° Y 32'10	31.31535 AU
				morning rise	12830 Mar 29 12:40	1° Y 08'22	
conjunction	12824 Feb 28 18:53	17° H 28'52	0°40'58	retrograde	12830 Jun 25 01:00	3° Y 00'48	
minimum elong	12824 Feb 28 18:53	17° H 28'52	0°41'16	opposition	12830 Sep 11 00:46	1° Y 38'19	0°41'33
max. Earth dist.	12824 Feb 28 07:03	17° H 27'47	31.29207 AU	min. Earth dist.	12830 Sep 11 13:05	1° Y 37'27	29.31798 AU
morning rise	12824 Mar 15 18:00	18° H 04'02		direct	12830 Nov 30 04:24	0° Y 13'45	
retrograde	12824 Jun 11 14:27	19° H 56'55		evening set	12831 Feb 28 03:21	2° Y 08'25	
opposition	12824 Aug 28 11:09	18° H 34'27	0°43'41				
min. Earth dist.	12824 Aug 28 21:08	18° H 33'45	29.29512 AU	conjunction	12831 Mar 16 02:26	2° Y 43'34	0°38'39
direct	12824 Nov 16 06:20	17° H 10'02		minimum elong	12831 Mar 16 02:26	2° Y 43'34	0°38'42
evening set	12825 Feb 14 05:46	19° H 04'50		max. Earth dist.	12831 Mar 15 12:18	2° Y 42'16	31.32040 AU
				morning rise	12831 Mar 31 23:32	3° Y 18'33	
conjunction	12825 Mar 02 06:31	19° H 40'07	0°40'48	retrograde	12831 Jun 27 11:48	5° Y 10'58	
minimum elong	12825 Mar 02 06:31	19° H 40'07	0°41'05	opposition	12831 Sep 13 10:58	3° Y 48'31	0°40'59
max. Earth dist.	12825 Mar 01 18:39	19° H 39'02	31.29735 AU	min. Earth dist.	12831 Sep 13 22:50	3° Y 47'42	29.32346 AU
morning rise	12825 Mar 18 05:15	20° H 15'15		direct	12831 Dec 02 13:53	2° Y 23'59	
retrograde	12825 Jun 14 00:52	22° H 08'05		evening set	12832 Mar 01 14:36	4° Y 18'41	
opposition	12825 Aug 30 21:35	20° H 45'36	0°43'29				
min. Earth dist.	12825 Aug 31 09:07	20° H 44'48	29.29981 AU	conjunction	12832 Mar 17 13:35	4° Y 53'49	0°38'06
direct	12825 Nov 18 18:30	19° H 21'10		minimum elong	12832 Mar 17 13:35	4° Y 53'49	0°38'06
evening set	12826 Feb 16 17:39	21° H 15'56		max. Earth dist.	12832 Mar 17 00:24	4° Y 52'36	31.32614 AU
				morning rise	12832 Apr 02 10:13	5° Y 28'47	
conjunction	12826 Mar 04 18:09	21° H 51'12	0°40'35	retrograde	12832 Jun 28 20:56	7° Y 21'12	
minimum elong	12826 Mar 04 18:09	21° H 51'12	0°40'49	opposition	12832 Sep 14 21:24	5° Y 58'48	0°40'22
max. Earth dist.	12826 Mar 04 05:27	21° H 50'02	31.30156 AU	min. Earth dist.	12832 Sep 15 10:13	5° Y 57'55	29.32932 AU
morning rise	12826 Mar 20 16:41	22° H 26'18		direct	12832 Dec 03 23:52	4° Y 34'19	
retrograde	12826 Jun 16 11:36	24° H 19'02		evening set	12833 Mar 04 01:53	6° Y 29'03	
opposition	12826 Sep 02 07:40	22° H 56'33	0°43'13	max. Earth dist.	12833 Mar 19 10:21	7° Y 02'52	31.33206 AU
min. Earth dist.	12826 Sep 02 18:45	22° H 55'47	29.30346 AU				
direct	12826 Nov 21 07:29	21° H 32'04		conjunction	12833 Mar 20 00:28	7° Y 04'10	0°37'29
evening set	12827 Feb 19 05:28	23° H 26'49		minimum elong	12833 Mar 20 00:28	7° Y 04'10	0°37'28
				morning rise	12833 Apr 04 20:58	7° Y 39'07	
conjunction	12827 Mar 07 05:41	24° H 02'03	0°40'18	retrograde	12833 Jul 01 08:47	9° Y 31'32	
minimum elong	12827 Mar 07 05:41	24° H 02'03	0°40'31	opposition	12833 Sep 17 07:42	8° Y 09'12	0°39'41
max. Earth dist.	12827 Mar 06 16:18	24° H 00'49	31.30483 AU	min. Earth dist.	12833 Sep 17 19:54	8° Y 08'21	29.33500 AU
morning rise	12827 Mar 23 03:55	24° H 37'08		direct	12833 Dec 06 11:46	6° Y 44'45	
retrograde	12827 Jun 18 21:27	26° H 29'46		evening set	12834 Mar 06 13:16	8° Y 39'32	
opposition	12827 Sep 04 18:02	25° H 07'16	0°42'53				
min. Earth dist.	12827 Sep 05 06:19	25° H 06'25	29.30661 AU	conjunction	12834 Mar 22 11:38	9° Y 14'38	0°36'49
direct	12827 Nov 23 18:18	23° H 42'45		minimum elong	12834 Mar 22 11:38	9° Y 14'38	0°36'45
evening set	12828 Feb 21 16:57	25° H 37'28		max. Earth dist.	12834 Mar 21 21:39	9° Y 13'20	31.33731 AU
				morning rise	12834 Apr 07 07:42	9° Y 49'34	
conjunction	12828 Mar 08 16:58	26° H 12'41	0°39'59	retrograde	12834 Jul 03 19:21	11° Y 41'59	
minimum elong	12828 Mar 08 16:59	26° H 12'41	0°40'08	opposition	12834 Sep 19 18:09	10° Y 19'41	0°38'56
max. Earth dist.	12828 Mar 08 04:00	26° H 11'29	31.30790 AU	min. Earth dist.	12834 Sep 20 07:46	10° Y 18'45	29.33985 AU
morning rise	12828 Mar 24 14:51	26° H 47'44		direct	12834 Dec 08 22:58	8° Y 55'17	
retrograde	12828 Jun 20 07:17	28° H 40'17		evening set	12835 Mar 09 00:41	10° Y 50'06	
opposition	12828 Sep 06 04:16	27° H 17'46	0°42'30				
min. Earth dist.	12828 Sep 06 16:11	27° H 16'57	29.30967 AU	conjunction	12835 Mar 24 22:44	11° Y 25'11	0°36'06
direct	12828 Nov 25 07:02	25° H 53'13		minimum elong	12835 Mar 24 22:45	11° Y 25'11	0°36'01
evening set	12829 Feb 23 04:31	27° H 47'54		max. Earth dist.	12835 Mar 24 08:10	11° Y 23'50	31.34164 AU
				morning rise	12835 Apr 09 18:33	12° Y 00'06	
conjunction	12829 Mar 11 04:09	28° H 23'06	0°39'35	retrograde	12835 Jul 06 06:25	13° Y 52'31	
minimum elong	12829 Mar 11 04:09	28° H 23'06	0°39'44	opposition	12835 Sep 22 04:40	12° Y 30'16	0°38'09
max. Earth dist.	12829 Mar 10 14:13	28° H 21'49	31.31119 AU	min. Earth dist.	12835 Sep 22 17:41	12° Y 29'22	29.34348 AU
morning rise	12829 Mar 27 01:50	28° H 58'08		direct	12835 Dec 11 11:31	11° Y 05'54	

evening set	12836 Mar 10 11:57	13° Υ 00'44		opposition	12842 Oct 07 06:36	27° Υ 42'55	0°31'10
				min. Earth dist.	12842 Oct 07 20:36	27° Υ 41'57	29.34213 AU
conjunction	12836 Mar 26 09:39	13° Υ 35'48	0°35'20	direct	12842 Dec 26 17:17	26° Υ 18'28	
minimum elong	12836 Mar 26 09:39	13° Υ 35'48	0°35'12	evening set	12843 Mar 26 17:02	28° Υ 13'12	
max. Earth dist.	12836 Mar 25 18:22	13° Υ 34'23	31.34454 AU				
morning rise	12836 Apr 11 05:08	14° Υ 10'41		conjunction	12843 Apr 11 12:44	28° Υ 48'09	0°28'40
retrograde	12836 Jul 07 16:54	16° Υ 03'07		minimum elong	12843 Apr 11 12:44	28° Υ 48'09	0°28'18
opposition	12836 Sep 23 15:19	14° Υ 40'53	0°37'18	max. Earth dist.	12843 Apr 10 21:16	28° Υ 46'43	31.34208 AU
min. Earth dist.	12836 Sep 24 05:30	14° Υ 39'54	29.34580 AU	morning rise	12843 Apr 27 06:05	29° Υ 22'55	
direct	12836 Dec 12 22:19	13° Υ 16'32			12843 May 15 02:41	0° \mathcal{B}	
evening set	12837 Mar 12 23:11	15° Υ 11'22		retrograde	12843 Jul 23 12:21	1° \mathcal{B} 15'15	
					12843 Oct 05 10:26	30° $\mathcal{R}\Upsilon$	
conjunction	12837 Mar 28 20:42	15° Υ 46'25	0°34'31	opposition	12843 Oct 09 17:25	29° Υ 52'57	0°29'59
minimum elong	12837 Mar 28 20:42	15° Υ 46'25	0°34'22	min. Earth dist.	12843 Oct 10 08:06	29° Υ 51'56	29.34275 AU
max. Earth dist.	12837 Mar 28 05:40	15° Υ 45'02	31.34619 AU	direct	12843 Dec 29 03:32	28° Υ 28'32	
morning rise	12837 Apr 13 15:49	16° Υ 21'17			12844 Mar 17 03:35	0° \mathcal{B}	
retrograde	12837 Jul 10 03:10	18° Υ 13'42		evening set	12844 Mar 28 03:38	0° \mathcal{B} 23'16	
opposition	12837 Sep 26 01:46	16° Υ 51'29	0°36'24				
min. Earth dist.	12837 Sep 26 15:54	16° Υ 50'30	29.34667 AU	conjunction	12844 Apr 12 23:01	0° \mathcal{B} 58'12	0°27'32
direct	12837 Dec 15 11:16	15° Υ 27'08		minimum elong	12844 Apr 12 23:02	0° \mathcal{B} 58'12	0°27'07
evening set	12838 Mar 15 10:30	17° Υ 21'57		max. Earth dist.	12844 Apr 12 07:49	0° \mathcal{B} 56'48	31.34321 AU
				morning rise	12844 Apr 28 16:08	1° \mathcal{B} 32'58	
conjunction	12838 Mar 31 07:36	17° Υ 57'00	0°33'39	retrograde	12844 Jul 24 23:09	3° \mathcal{B} 25'19	
minimum elong	12838 Mar 31 07:36	17° Υ 57'00	0°33'26	opposition	12844 Oct 11 04:05	2° \mathcal{B} 03'03	0°28'46
max. Earth dist.	12838 Mar 30 15:16	17° Υ 55'29	31.34644 AU	min. Earth dist.	12844 Oct 11 17:39	2° \mathcal{B} 02'07	29.34407 AU
morning rise	12838 Apr 16 02:33	18° Υ 31'51		direct	12844 Dec 30 15:31	0° \mathcal{B} 38'40	
retrograde	12838 Jul 12 13:08	20° Υ 24'14		evening set	12845 Mar 30 14:24	2° \mathcal{B} 33'26	
opposition	12838 Sep 28 12:21	19° Υ 02'01	0°35'26				
min. Earth dist.	12838 Sep 29 02:57	19° Υ 01'01	29.34640 AU	conjunction	12845 Apr 15 09:27	3° \mathcal{B} 08'21	0°26'22
direct	12838 Dec 17 21:35	17° Υ 37'39		minimum elong	12845 Apr 15 09:28	3° \mathcal{B} 08'21	0°25'57
evening set	12839 Mar 17 21:31	19° Υ 32'27		max. Earth dist.	12845 Apr 14 17:58	3° \mathcal{B} 06'55	31.34469 AU
				morning rise	12845 May 01 02:19	3° \mathcal{B} 43'06	
conjunction	12839 Apr 02 18:29	20° Υ 07'28	0°32'44	retrograde	12845 Jul 27 10:23	5° \mathcal{B} 35'30	
minimum elong	12839 Apr 02 18:29	20° Υ 07'29	0°32'31	opposition	12845 Oct 13 14:46	4° \mathcal{B} 13'15	0°27'29
max. Earth dist.	12839 Apr 02 02:58	20° Υ 06'02	31.34563 AU	min. Earth dist.	12845 Oct 14 05:06	4° \mathcal{B} 12'16	29.34565 AU
morning rise	12839 Apr 18 12:58	20° Υ 42'19		direct	12846 Jan 02 02:20	2° \mathcal{B} 48'55	
retrograde	12839 Jul 14 20:39	22° Υ 34'40		evening set	12846 Apr 02 01:08	4° \mathcal{B} 43'42	
opposition	12839 Sep 30 22:56	21° Υ 12'26	0°34'27				
min. Earth dist.	12839 Oct 01 13:56	21° Υ 11'24	29.34514 AU	conjunction	12846 Apr 17 19:59	5° \mathcal{B} 18'36	0°25'10
direct	12839 Dec 20 09:37	19° Υ 48'03		minimum elong	12846 Apr 17 19:59	5° \mathcal{B} 18'36	0°24'41
evening set	12840 Mar 19 08:36	21° Υ 42'49		max. Earth dist.	12846 Apr 17 05:14	5° \mathcal{B} 17'15	31.34612 AU
				morning rise	12846 May 03 12:29	5° \mathcal{B} 53'21	
conjunction	12840 Apr 04 05:05	22° Υ 17'50	0°31'47	retrograde	12846 Jul 29 21:05	7° \mathcal{B} 45'46	
minimum elong	12840 Apr 04 05:06	22° Υ 17'50	0°31'30	opposition	12846 Oct 16 01:38	6° \mathcal{B} 23'33	0°26'11
max. Earth dist.	12840 Apr 03 12:23	22° Υ 16'17	31.34423 AU	min. Earth dist.	12846 Oct 16 15:40	6° \mathcal{B} 22'36	29.34668 AU
morning rise	12840 Apr 19 23:27	22° Υ 52'39		direct	12847 Jan 04 15:35	4° \mathcal{B} 59'17	
retrograde	12840 Jul 16 07:02	24° Υ 44'59		evening set	12847 Apr 04 11:57	6° \mathcal{B} 54'04	
opposition	12840 Oct 02 09:27	23° Υ 22'43	0°33'24				
min. Earth dist.	12840 Oct 02 23:54	23° Υ 21'43	29.34372 AU	conjunction	12847 Apr 20 06:19	7° \mathcal{B} 28'58	0°23'56
direct	12840 Dec 21 19:12	21° Υ 58'17		minimum elong	12847 Apr 20 06:19	7° \mathcal{B} 28'58	0°23'25
evening set	12841 Mar 21 19:19	23° Υ 53'02		max. Earth dist.	12847 Apr 19 14:36	7° \mathcal{B} 27'31	31.34676 AU
				morning rise	12847 May 05 22:38	8° \mathcal{B} 03'42	
conjunction	12841 Apr 06 15:41	24° Υ 28'02	0°30'47	retrograde	12847 Aug 01 07:40	9° \mathcal{B} 56'10	
minimum elong	12841 Apr 06 15:41	24° Υ 28'02	0°30'29	opposition	12847 Oct 18 12:39	8° \mathcal{B} 33'58	0°24'50
max. Earth dist.	12841 Apr 06 00:04	24° Υ 26'35	31.34281 AU	min. Earth dist.	12847 Oct 19 02:49	8° \mathcal{B} 33'00	29.34692 AU
morning rise	12841 Apr 22 09:37	25° Υ 02'50		direct	12848 Jan 07 01:54	7° \mathcal{B} 09'43	
retrograde	12841 Jul 18 15:25	26° Υ 55'09		evening set	12848 Apr 05 22:38	9° \mathcal{B} 04'31	
opposition	12841 Oct 04 20:08	25° Υ 32'52	0°32'18				
min. Earth dist.	12841 Oct 05 11:19	25° Υ 31'49	29.34250 AU	conjunction	12848 Apr 21 16:52	9° \mathcal{B} 39'25	0°22'39
direct	12841 Dec 24 05:24	24° Υ 08'25		minimum elong	12848 Apr 21 16:52	9° \mathcal{B} 39'25	0°22'06
evening set	12842 Mar 24 06:14	26° Υ 03'09		max. Earth dist.	12848 Apr 21 02:05	9° \mathcal{B} 38'02	31.34636 AU
max. Earth dist.	12842 Apr 08 10:02	26° Υ 36'37	31.34200 AU	morning rise	12848 May 07 08:45	10° \mathcal{B} 14'08	
				retrograde	12848 Aug 02 16:10	12° \mathcal{B} 06'38	
conjunction	12842 Apr 09 02:11	26° Υ 38'07	0°29'45	opposition	12848 Oct 19 23:41	10° \mathcal{B} 44'27	0°23'27
minimum elong	12842 Apr 09 02:11	26° Υ 38'07	0°29'23	min. Earth dist.	12848 Oct 20 14:17	10° \mathcal{B} 43'27	29.34584 AU
morning rise	12842 Apr 24 19:56	27° Υ 12'54		direct	12849 Jan 08 14:01	9° \mathcal{B} 20'14	
retrograde	12842 Jul 21 02:11	29° Υ 05'13		evening set	12849 Apr 08 09:25	11° \mathcal{B} 15'01	

max. Earth dist.	12849 Apr 23 11:09	11° 8 48'25	31.34463 AU	conjunction	12855 May 07 16:52	24° 8 52'12	0°12'57
				minimum elong	12855 May 07 16:52	24° 8 52'12	0°12'13
conjunction	12849 Apr 24 03:13	11° 8 49'54	0°21'20	behind sun begin	12855 May 07 12:31	24° 8 51'49	
minimum elong	12849 Apr 24 03:13	11° 8 49'54	0°20'46	behind sun end	12855 May 07 21:13	24° 8 52'35	
morning rise	12849 May 09 19:01	12° 8 24'36		max. Earth dist.	12855 May 07 02:44	24° 8 50'53	31.31324 AU
retrograde	12849 Aug 05 03:15	14° 8 17'09		morning rise	12855 May 23 06:59	25° 8 26'51	
opposition	12849 Oct 22 10:45	12° 8 54'58	0°22'02	retrograde	12855 Aug 18 17:33	27° 8 19'38	
min. Earth dist.	12849 Oct 23 00:53	12° 8 54'00	29.34337 AU	opposition	12855 Nov 05 06:04	25° 8 57'16	0°12'58
direct	12850 Jan 11 00:20	11° 8 30'45		min. Earth dist.	12855 Nov 05 19:26	25° 8 56'21	29.31095 AU
evening set	12850 Apr 10 20:08	13° 8 25'32		direct	12856 Jan 24 21:55	24° 8 33'02	
				evening set	12856 Apr 23 11:06	26° 8 27'46	
conjunction	12850 Apr 26 13:47	14° 8 00'24	0°20'00				
minimum elong	12850 Apr 26 13:47	14° 8 00'24	0°19'23	conjunction	12856 May 09 02:53	27° 8 02'33	0°11'28
max. Earth dist.	12850 Apr 25 22:25	13° 8 58'59	31.34134 AU	minimum elong	12856 May 09 02:53	27° 8 02'33	0°10'42
morning rise	12850 May 12 05:08	14° 8 35'06		behind sun begin	12856 May 08 21:54	27° 8 02'07	
	12850 May 23 22:54	15° 8		behind sun end	12856 May 09 07:52	27° 8 03'00	
retrograde	12850 Aug 07 11:56	16° 8 27'41		max. Earth dist.	12856 May 08 12:16	27° 8 01'12	31.30869 AU
opposition	12850 Oct 24 21:56	15° 8 05'29	0°20'35	morning rise	12856 May 24 16:55	27° 8 37'13	
min. Earth dist.	12850 Oct 25 13:08	15° 8 04'26	29.33934 AU	retrograde	12856 Aug 20 04:31	29° 8 30'04	
	12850 Oct 28 05:59	15° 8		opposition	12856 Nov 06 17:19	28° 8 07'42	0°11'22
direct	12851 Jan 13 11:06	13° 8 41'16		min. Earth dist.	12856 Nov 07 06:14	28° 8 06'49	29.30685 AU
	12851 Mar 26 23:35	15° 8		direct	12857 Jan 26 08:01	26° 8 43'30	
evening set	12851 Apr 13 06:55	15° 8 36'02		evening set	12857 Apr 25 21:20	28° 8 38'16	
max. Earth dist.	12851 Apr 28 08:07	16° 8 09'24	31.33675 AU				
conjunction	12851 Apr 29 00:09	16° 8 10'53	0°18'38	conjunction	12857 May 11 13:03	29° 8 13'04	0°09'59
minimum elong	12851 Apr 29 00:10	16° 8 10'53	0°18'01	minimum elong	12857 May 11 13:03	29° 8 13'04	0°09'12
morning rise	12851 May 14 15:23	16° 8 45'35		behind sun begin	12857 May 11 07:35	29° 8 12'35	
retrograde	12851 Aug 09 22:43	18° 8 38'10		behind sun end	12857 May 11 18:31	29° 8 13'33	
opposition	12851 Oct 27 09:06	17° 8 15'57	0°19'06	max. Earth dist.	12857 May 10 23:54	29° 8 11'51	31.30480 AU
min. Earth dist.	12851 Oct 27 23:19	17° 8 14'58	29.33411 AU	morning rise	12857 May 27 02:44	29° 8 47'44	
direct	12852 Jan 15 22:50	15° 8 51'43			12857 Jun 01 19:11	0° II	
evening set	12852 Apr 14 17:22	17° 8 46'28		retrograde	12857 Aug 22 13:27	1° II 40'39	
				opposition	12857 Nov 09 04:46	0° II 18'19	0°09'46
conjunction	12852 Apr 30 10:23	18° 8 21'18	0°17'15	min. Earth dist.	12857 Nov 09 17:42	0° II 17'26	29.30299 AU
minimum elong	12852 Apr 30 10:23	18° 8 21'18	0°16'34		12857 Nov 20 11:19	30° 8	
max. Earth dist.	12852 Apr 29 18:45	18° 8 19'51	31.33099 AU	direct	12858 Jan 28 20:28	28° 8 54'11	
morning rise	12852 May 16 01:18	18° 8 55'59			12858 Apr 04 08:09	0° II	
retrograde	12852 Aug 11 08:48	20° 8 48'37		evening set	12858 Apr 28 07:49	0° II 48'57	
opposition	12852 Oct 28 20:23	19° 8 26'20	0°17'36	conjunction	12858 May 13 23:04	1° II 23'45	0°08'29
min. Earth dist.	12852 Oct 29 11:31	19° 8 25'18	29.32806 AU	minimum elong	12858 May 13 23:05	1° II 23'45	0°07'40
direct	12853 Jan 17 09:06	18° 8 02'05		behind sun begin	12858 May 13 17:14	1° II 23'14	
evening set	12853 Apr 17 03:52	19° 8 56'49		behind sun end	12858 May 14 04:56	1° II 24'17	
conjunction	12853 May 02 20:37	20° 8 31'38	0°15'50	max. Earth dist.	12858 May 13 09:12	1° II 22'28	31.30102 AU
minimum elong	12853 May 02 20:37	20° 8 31'38	0°15'09	morning rise	12858 May 29 12:41	1° II 58'25	
behind sun begin	12853 May 02 18:23	20° 8 31'26		retrograde	12858 Aug 25 01:14	3° II 51'26	
behind sun end	12853 May 02 22:51	20° 8 31'50		opposition	12858 Nov 11 16:10	2° II 29'07	0°08'08
max. Earth dist.	12853 May 02 05:18	20° 8 30'13	31.32481 AU	min. Earth dist.	12858 Nov 12 04:11	2° II 28'18	29.29909 AU
morning rise	12853 May 18 11:19	21° 8 06'19		direct	12859 Jan 31 06:59	1° II 05'02	
retrograde	12853 Aug 13 19:20	22° 8 58'58		evening set	12859 Apr 30 18:12	2° II 59'50	
opposition	12853 Oct 31 07:24	21° 8 36'39	0°16'04	conjunction	12859 May 16 09:19	3° II 34'38	0°06'58
min. Earth dist.	12853 Oct 31 21:23	21° 8 35'42	29.32177 AU	minimum elong	12859 May 16 09:19	3° II 34'38	0°06'08
direct	12854 Jan 19 21:19	20° 8 12'23		behind sun begin	12859 May 16 03:11	3° II 34'05	
evening set	12854 Apr 19 14:23	22° 8 07'06		behind sun end	12859 May 16 15:27	3° II 35'10	
conjunction	12854 May 05 06:47	22° 8 41'55	0°14'24	max. Earth dist.	12859 May 15 20:31	3° II 33'26	31.29682 AU
minimum elong	12854 May 05 06:47	22° 8 41'55	0°13'41	morning rise	12859 May 31 22:34	4° II 09'18	
behind sun begin	12854 May 05 03:16	22° 8 41'36		retrograde	12859 Aug 27 10:20	6° II 02'25	
behind sun end	12854 May 05 10:18	22° 8 42'14		opposition	12859 Nov 14 03:54	4° II 40'06	0°06'30
max. Earth dist.	12854 May 04 15:18	22° 8 40'29	31.31864 AU	min. Earth dist.	12859 Nov 14 16:41	4° II 39'14	29.29457 AU
morning rise	12854 May 20 21:16	23° 8 16'35		direct	12860 Feb 02 17:46	3° II 16'04	
retrograde	12854 Aug 16 06:46	25° 8 09'18		evening set	12860 May 02 04:35	5° II 10'52	
opposition	12854 Nov 02 18:44	23° 8 46'56	0°14'32	conjunction	12860 May 17 19:21	5° II 45'39	0°05'26
min. Earth dist.	12854 Nov 03 08:58	23° 8 45'58	29.31600 AU	minimum elong	12860 May 17 19:21	5° II 45'39	0°04'35
direct	12855 Jan 22 08:31	22° 8 22'41		behind sun begin	12860 May 17 13:02	5° II 45'05	
evening set	12855 Apr 22 00:39	24° 8 17'24		behind sun end	12860 May 18 01:40	5° II 46'13	

max. Earth dist.	12860 May 17 06:16	5°II44'26	31.29192 AU	evening set	12866 May 15 18:53	18°II17'41	
morning rise	12860 Jun 02 08:31	6°II20'20					
retrograde	12860 Aug 28 20:59	8°II13'32		conjunction	12866 May 31 08:24	18°II52'26	-0°03'59
opposition	12860 Nov 15 15:31	6°II51'14	0°04'51	minimum elong	12866 May 31 08:23	18°II52'26	0°04'56
min. Earth dist.	12860 Nov 16 03:12	6°II50'26	29.28907 AU	behind sun begin	12866 May 31 02:07	18°II51'53	
direct	12861 Feb 04 04:57	5°II27'12		behind sun end	12866 May 31 14:40	18°II53'00	
evening set	12861 May 04 15:05	7°II22'01		max. Earth dist.	12866 May 30 21:18	18°II51'25	31.23626 AU
				morning rise	12866 Jun 15 20:24	19°II27'06	
conjunction	12861 May 20 05:39	7°II56'49	0°03'53	retrograde	12866 Sep 11 14:19	21°II20'42	
minimum elong	12861 May 20 05:38	7°II56'49	0°03'02	opposition	12866 Nov 29 14:38	19°II58'01	-0°05'04
behind sun begin	12861 May 19 23:13	7°II56'14		min. Earth dist.	12866 Nov 30 01:38	19°II57'16	29.23084 AU
behind sun end	12861 May 20 12:04	7°II57'23		direct	12867 Feb 18 03:49	18°II33'53	
max. Earth dist.	12861 May 19 16:45	7°II55'37	31.28570 AU	evening set	12867 May 18 05:12	20°II28'33	
morning rise	12861 Jun 04 18:33	8°II31'29					
retrograde	12861 Aug 31 07:22	10°II24'47		conjunction	12867 Jun 02 18:19	21°II03'18	-0°05'31
opposition	12861 Nov 18 03:14	9°II02'27	0°03'12	minimum elong	12867 Jun 02 18:19	21°II03'18	0°06'27
min. Earth dist.	12861 Nov 18 15:54	9°II01'35	29.28223 AU	behind sun begin	12867 Jun 02 12:15	21°II02'45	
direct	12862 Feb 06 14:15	7°II38'26		behind sun end	12867 Jun 03 00:23	21°II03'50	
evening set	12862 May 07 01:37	9°II33'15		max. Earth dist.	12867 Jun 02 06:55	21°II02'14	31.22556 AU
				morning rise	12867 Jun 18 06:21	21°II37'58	
conjunction	12862 May 22 15:57	10°II08'02	0°02'19	retrograde	12867 Sep 14 02:25	23°II31'38	
minimum elong	12862 May 22 15:57	10°II08'02	0°01'26	opposition	12867 Dec 02 02:34	22°II08'53	-0°06'42
behind sun begin	12862 May 22 09:30	10°II07'28		min. Earth dist.	12867 Dec 02 12:04	22°II08'14	29.22067 AU
behind sun end	12862 May 22 22:23	10°II08'37		direct	12868 Feb 20 15:18	20°II44'44	
max. Earth dist.	12862 May 22 03:18	10°II06'52	31.27818 AU	evening set	12868 May 19 15:14	22°II39'24	
morning rise	12862 Jun 07 04:39	10°II42'43					
retrograde	12862 Sep 02 18:28	12°II36'05		conjunction	12868 Jun 04 04:18	23°II14'09	-0°07'02
opposition	12862 Nov 20 15:03	11°II13'43	0°01'33	minimum elong	12868 Jun 04 04:17	23°II14'09	0°08'00
min. Earth dist.	12862 Nov 21 02:42	11°II12'55	29.27387 AU	behind sun begin	12868 Jun 03 22:31	23°II13'38	
direct	12863 Feb 09 02:35	9°II49'42		behind sun end	12868 Jun 04 10:04	23°II14'40	
evening set	12863 May 09 12:01	11°II44'30		max. Earth dist.	12868 Jun 03 18:22	23°II13'14	31.21584 AU
				morning rise	12868 Jun 19 16:04	23°II48'49	
conjunction	12863 May 25 02:04	12°II19'16	0°00'43	retrograde	12868 Sep 15 11:34	25°II42'35	
minimum elong	12863 May 25 02:02	12°II19'16	0°00'10	opposition	12868 Dec 03 14:38	24°II19'49	-0°08'20
behind sun begin	12863 May 24 19:39	12°II18'42		min. Earth dist.	12868 Dec 04 00:23	24°II19'09	29.21145 AU
behind sun end	12863 May 25 08:25	12°II19'50		direct	12869 Feb 22 02:38	22°II55'41	
max. Earth dist.	12863 May 24 12:53	12°II18'03	31.26907 AU	evening set	12869 May 22 01:29	24°II50'21	
morning rise	12863 Jun 09 14:37	12°II53'56					
retrograde	12863 Sep 05 06:29	14°II47'23		conjunction	12869 Jun 06 14:17	25°II25'06	-0°08'33
desc. node	12863 Oct 31 09:45	14°II00'50		minimum elong	12869 Jun 06 14:17	25°II25'06	0°09'30
opposition	12863 Nov 23 03:00	13°II24'56	-0°00'07	behind sun begin	12869 Jun 06 08:54	25°II24'37	
min. Earth dist.	12863 Nov 23 15:09	13°II24'07	29.26416 AU	behind sun end	12869 Jun 06 19:39	25°II25'35	
direct	12864 Feb 11 13:56	12°II00'54		max. Earth dist.	12869 Jun 06 04:38	25°II24'12	31.20717 AU
evening set	12864 May 10 22:21	13°II55'40		morning rise	12869 Jun 22 02:02	25°II59'47	
				retrograde	12869 Sep 17 22:22	27°II53'39	
conjunction	12864 May 26 12:17	14°II30'26	-0°00'53	opposition	12869 Dec 06 02:28	26°II30'52	-0°09'57
minimum elong	12864 May 26 12:17	14°II30'26	0°01'48	min. Earth dist.	12869 Dec 06 10:37	26°II30'19	29.20310 AU
behind sun begin	12864 May 26 05:50	14°II29'52		direct	12870 Feb 24 13:45	25°II06'46	
behind sun end	12864 May 26 18:43	14°II31'01		evening set	12870 May 24 11:43	27°II01'27	
max. Earth dist.	12864 May 26 00:14	14°II29'20	31.25877 AU				
morning rise	12864 Jun 11 00:37	15°II05'06		conjunction	12870 Jun 09 00:20	27°II36'13	-0°10'03
retrograde	12864 Sep 06 17:21	16°II58'36		minimum elong	12870 Jun 09 00:20	27°II36'13	0°11'01
opposition	12864 Nov 24 14:46	15°II36'05	-0°01'46	behind sun begin	12870 Jun 08 19:28	27°II35'46	
min. Earth dist.	12864 Nov 25 02:26	15°II35'17	29.25327 AU	behind sun end	12870 Jun 09 05:12	27°II36'39	
direct	12865 Feb 13 03:22	14°II12'00		max. Earth dist.	12870 Jun 08 15:24	27°II35'23	31.19907 AU
evening set	12865 May 13 08:44	16°II06'44		morning rise	12870 Jun 24 11:56	28°II10'54	
					12870 Sep 03 08:14	0°II04'55	
conjunction	12865 May 28 22:18	16°II41'30	-0°02'27	retrograde	12870 Sep 20 09:12	0°II04'55	
minimum elong	12865 May 28 22:19	16°II41'30	0°03'22		12870 Oct 07 17:15	30°II11'01	
behind sun begin	12865 May 28 15:55	16°II40'56		opposition	12870 Dec 08 14:43	28°II42'07	-0°11'33
behind sun end	12865 May 29 04:43	16°II42'04		min. Earth dist.	12870 Dec 08 23:16	28°II41'32	29.19526 AU
max. Earth dist.	12865 May 28 09:36	16°II40'19	31.24760 AU	direct	12871 Feb 26 22:58	27°II18'04	
morning rise	12865 Jun 13 10:40	17°II16'10		evening set	12871 May 26 21:50	29°II12'46	
retrograde	12865 Sep 09 04:43	19°II09'42					
opposition	12865 Nov 27 02:39	17°II47'06	-0°03'25	conjunction	12871 Jun 11 10:19	29°II47'32	-0°11'32
min. Earth dist.	12865 Nov 27 13:54	17°II46'20	29.24199 AU	minimum elong	12871 Jun 11 10:19	29°II47'32	0°12'30
direct	12866 Feb 15 14:13	16°II22'59		behind sun begin	12871 Jun 11 06:06	29°II47'09	

behind sun end	12871 Jun 11 14:32	29° Π 47'55		minimum elong	12877 Jun 23 23:57	12° \mathfrak{D} 59'20	0°21'04
max. Earth dist.	12871 Jun 11 02:17	29° Π 46'48	31.19137 AU	max. Earth dist.	12877 Jun 23 17:55	12° \mathfrak{D} 58'47	31.13001 AU
	12871 Jun 16 22:39	0° \mathfrak{D}		morning rise	12877 Jul 09 11:01	13° \mathfrak{D} 34'07	
morning rise	12871 Jun 26 21:47	0° \mathfrak{D} 22'14		retrograde	12877 Oct 05 19:51	15° \mathfrak{D} 28'57	
retrograde	12871 Sep 22 20:39	2° \mathfrak{D} 16'23		opposition	12877 Dec 24 05:31	14° \mathfrak{D} 05'54	-0°22'14
opposition	12871 Dec 11 02:54	0° \mathfrak{D} 53'35	-0°13'09	min. Earth dist.	12877 Dec 24 11:34	14° \mathfrak{D} 05'29	29.12349 AU
min. Earth dist.	12871 Dec 11 10:03	0° \mathfrak{D} 53'06	29.18744 AU	direct	12878 Mar 14 10:40	12° \mathfrak{D} 41'58	
	12872 Jan 15 15:05	30° \mathfrak{K} Π		evening set	12878 Jun 10 22:41	14° \mathfrak{D} 36'41	
direct	12872 Feb 29 10:51	29° Π 29'36					
	12872 Apr 12 20:11	0° \mathfrak{D}		conjunction	12878 Jun 26 10:10	15° \mathfrak{D} 11'29	-0°21'26
evening set	12872 May 28 08:13	1° \mathfrak{D} 24'19		minimum elong	12878 Jun 26 10:09	15° \mathfrak{D} 11'29	0°22'25
				max. Earth dist.	12878 Jun 26 04:29	15° \mathfrak{D} 10'57	31.11697 AU
conjunction	12872 Jun 12 20:25	1° \mathfrak{D} 59'05	-0°13'01	morning rise	12878 Jul 11 21:17	15° \mathfrak{D} 46'16	
minimum elong	12872 Jun 12 20:25	1° \mathfrak{D} 59'05	0°14'00	retrograde	12878 Oct 08 06:41	17° \mathfrak{D} 41'10	
behind sun begin	12872 Jun 12 17:06	1° \mathfrak{D} 58'47		opposition	12878 Dec 26 18:01	16° \mathfrak{D} 18'03	-0°23'39
behind sun end	12872 Jun 12 23:45	1° \mathfrak{D} 59'23		min. Earth dist.	12878 Dec 26 22:22	16° \mathfrak{D} 17'45	29.11057 AU
max. Earth dist.	12872 Jun 12 12:09	1° \mathfrak{D} 58'19	31.18340 AU	direct	12879 Mar 16 22:54	14° \mathfrak{D} 54'05	
morning rise	12872 Jun 28 07:54	2° \mathfrak{D} 33'48		evening set	12879 Jun 13 08:54	16° \mathfrak{D} 48'45	
retrograde	12872 Sep 24 09:26	4° \mathfrak{D} 28'05					
opposition	12872 Dec 12 15:07	3° \mathfrak{D} 05'17	-0°14'43	conjunction	12879 Jun 28 20:16	17° \mathfrak{D} 23'34	-0°22'44
min. Earth dist.	12872 Dec 12 22:34	3° \mathfrak{D} 04'47	29.17934 AU	minimum elong	12879 Jun 28 20:16	17° \mathfrak{D} 23'34	0°23'41
direct	12873 Mar 02 21:08	1° \mathfrak{D} 41'20		max. Earth dist.	12879 Jun 28 15:22	17° \mathfrak{D} 23'07	31.10428 AU
evening set	12873 May 30 18:33	3° \mathfrak{D} 36'05		morning rise	12879 Jul 14 07:23	17° \mathfrak{D} 58'22	
				retrograde	12879 Oct 10 17:33	19° \mathfrak{D} 53'22	
conjunction	12873 Jun 15 06:45	4° \mathfrak{D} 10'52	-0°14'29	opposition	12879 Dec 29 06:42	18° \mathfrak{D} 30'10	-0°25'02
minimum elong	12873 Jun 15 06:45	4° \mathfrak{D} 10'52	0°15'27	min. Earth dist.	12879 Dec 29 11:14	18° \mathfrak{D} 29'51	29.09844 AU
behind sun begin	12873 Jun 15 04:48	4° \mathfrak{D} 10'41		direct	12880 Mar 18 09:01	17° \mathfrak{D} 06'11	
behind sun end	12873 Jun 15 08:42	4° \mathfrak{D} 11'03		evening set	12880 Jun 14 19:11	19° \mathfrak{D} 00'50	
max. Earth dist.	12873 Jun 14 23:45	4° \mathfrak{D} 10'13	31.17491 AU				
morning rise	12873 Jun 30 18:00	4° \mathfrak{D} 45'36		conjunction	12880 Jun 30 06:33	19° \mathfrak{D} 35'39	-0°24'01
retrograde	12873 Sep 26 21:13	6° \mathfrak{D} 40'00		minimum elong	12880 Jun 30 06:33	19° \mathfrak{D} 35'39	0°24'58
opposition	12873 Dec 15 03:30	5° \mathfrak{D} 17'12	-0°16'17	max. Earth dist.	12880 Jun 30 02:52	19° \mathfrak{D} 35'18	31.09272 AU
min. Earth dist.	12873 Dec 15 10:22	5° \mathfrak{D} 16'44	29.17031 AU	morning rise	12880 Jul 15 17:36	20° \mathfrak{D} 10'27	
direct	12874 Mar 05 09:46	3° \mathfrak{D} 53'17		retrograde	12880 Oct 12 04:24	22° \mathfrak{D} 05'34	
evening set	12874 Jun 02 05:03	5° \mathfrak{D} 48'04		opposition	12880 Dec 30 19:03	20° \mathfrak{D} 42'18	-0°26'23
				min. Earth dist.	12880 Dec 30 21:51	20° \mathfrak{D} 42'07	29.08740 AU
conjunction	12874 Jun 17 16:54	6° \mathfrak{D} 22'50	-0°15'55	direct	12881 Mar 20 21:19	19° \mathfrak{D} 18'19	
minimum elong	12874 Jun 17 16:54	6° \mathfrak{D} 22'50	0°16'55	evening set	12881 Jun 17 05:37	21° \mathfrak{D} 12'58	
max. Earth dist.	12874 Jun 17 09:11	6° \mathfrak{D} 22'07	31.16538 AU				
morning rise	12874 Jul 03 04:13	6° \mathfrak{D} 57'35		conjunction	12881 Jul 02 16:46	21° \mathfrak{D} 47'47	-0°25'15
retrograde	12874 Sep 29 09:53	8° \mathfrak{D} 52'07		minimum elong	12881 Jul 02 16:46	21° \mathfrak{D} 47'47	0°26'11
opposition	12874 Dec 17 16:00	7° \mathfrak{D} 29'17	-0°17'49	max. Earth dist.	12881 Jul 02 13:07	21° \mathfrak{D} 47'26	31.08226 AU
min. Earth dist.	12874 Dec 17 22:31	7° \mathfrak{D} 28'50	29.16029 AU	morning rise	12881 Jul 18 03:57	22° \mathfrak{D} 22'37	
direct	12875 Mar 07 20:16	6° \mathfrak{D} 05'23		retrograde	12881 Oct 14 16:38	24° \mathfrak{D} 17'50	
evening set	12875 Jun 04 15:28	8° \mathfrak{D} 00'10		opposition	12882 Jan 02 07:45	22° \mathfrak{D} 54'32	-0°27'41
				min. Earth dist.	12882 Jan 02 10:22	22° \mathfrak{D} 54'21	29.07758 AU
conjunction	12875 Jun 20 03:21	8° \mathfrak{D} 34'58	-0°17'20	direct	12882 Mar 23 07:06	21° \mathfrak{D} 30'34	
minimum elong	12875 Jun 20 03:20	8° \mathfrak{D} 34'58	0°18'19	evening set	12882 Jun 19 15:49	23° \mathfrak{D} 25'13	
max. Earth dist.	12875 Jun 19 20:56	8° \mathfrak{D} 34'22	31.15469 AU				
morning rise	12875 Jul 05 14:26	9° \mathfrak{D} 09'43		conjunction	12882 Jul 05 03:04	24° \mathfrak{D} 00'02	-0°26'28
retrograde	12875 Oct 01 21:06	11° \mathfrak{D} 04'22		minimum elong	12882 Jul 05 03:04	24° \mathfrak{D} 00'02	0°27'24
opposition	12875 Dec 20 04:33	9° \mathfrak{D} 41'28	-0°19'19	max. Earth dist.	12882 Jul 05 01:14	23° \mathfrak{D} 59'52	31.07293 AU
min. Earth dist.	12875 Dec 20 11:08	9° \mathfrak{D} 41'01	29.14897 AU	morning rise	12882 Jul 20 14:06	24° \mathfrak{D} 34'52	
direct	12876 Mar 09 10:10	8° \mathfrak{D} 17'35		retrograde	12882 Oct 17 04:06	26° \mathfrak{D} 30'14	
evening set	12876 Jun 06 01:55	10° \mathfrak{D} 12'21		opposition	12883 Jan 04 20:29	25° \mathfrak{D} 06'54	-0°28'58
				min. Earth dist.	12883 Jan 04 22:01	25° \mathfrak{D} 06'48	29.06858 AU
conjunction	12876 Jun 21 13:34	10° \mathfrak{D} 47'09	-0°18'44	direct	12883 Mar 25 18:50	23° \mathfrak{D} 42'58	
minimum elong	12876 Jun 21 13:34	10° \mathfrak{D} 47'09	0°19'43	evening set	12883 Jun 22 02:20	25° \mathfrak{D} 37'37	
max. Earth dist.	12876 Jun 21 06:29	10° \mathfrak{D} 46'30	31.14287 AU				
morning rise	12876 Jul 07 00:48	11° \mathfrak{D} 21'55		conjunction	12883 Jul 07 13:21	26° \mathfrak{D} 12'27	-0°27'38
retrograde	12876 Oct 03 10:30	13° \mathfrak{D} 16'40		minimum elong	12883 Jul 07 13:21	26° \mathfrak{D} 12'27	0°28'33
opposition	12876 Dec 21 17:00	11° \mathfrak{D} 53'42	-0°20'48	max. Earth dist.	12883 Jul 07 11:15	26° \mathfrak{D} 12'15	31.06434 AU
min. Earth dist.	12876 Dec 21 22:32	11° \mathfrak{D} 53'19	29.13660 AU	morning rise	12883 Jul 23 00:36	26° \mathfrak{D} 47'19	
direct	12877 Mar 11 22:32	10° \mathfrak{D} 29'47		retrograde	12883 Oct 19 17:39	28° \mathfrak{D} 42'49	
evening set	12877 Jun 08 12:19	12° \mathfrak{D} 24'33		opposition	12884 Jan 07 09:12	27° \mathfrak{D} 19'26	-0°30'11
				min. Earth dist.	12884 Jan 07 10:04	27° \mathfrak{D} 19'23	29.06032 AU
conjunction	12877 Jun 23 23:57	12° \mathfrak{D} 59'20	-0°20'06	direct	12884 Mar 27 05:09	25° \mathfrak{D} 55'33	

evening set	12884 Jun 23 12:42	27° $\mathring{\Omega}$ 50'13		max. Earth dist.	12890 Jul 22 17:08	11° $\mathring{\Omega}$ 44'03	30.99267 AU
				morning rise	12890 Aug 07 04:00	12° $\mathring{\Omega}$ 18'58	
conjunction	12884 Jul 08 23:52	28° $\mathring{\Omega}$ 25'04 -0°28'46		retrograde	12890 Nov 04 07:21	14° $\mathring{\Omega}$ 15'18	
minimum elong	12884 Jul 08 23:52	28° $\mathring{\Omega}$ 25'04 0°29'41		opposition	12891 Jan 23 04:18	12° $\mathring{\Omega}$ 51'35 -0°37'27	
max. Earth dist.	12884 Jul 08 23:25	28° $\mathring{\Omega}$ 25'01 31.05611 AU		min. Earth dist.	12891 Jan 23 02:36	12° $\mathring{\Omega}$ 51'42 28.98633 AU	
morning rise	12884 Jul 24 11:01	28° $\mathring{\Omega}$ 59'56		direct	12891 Apr 12 17:37	11° $\mathring{\Omega}$ 27'45	
	12884 Aug 23 03:25	0° $\mathring{\Omega}$		evening set	12891 Jul 09 15:53	13° $\mathring{\Omega}$ 22'21	
retrograde	12884 Oct 21 05:56	0° $\mathring{\Omega}$ 55'34					
	12884 Dec 22 14:27	30° $\mathring{\Omega}$		conjunction	12891 Jul 25 03:06	13° $\mathring{\Omega}$ 57'17 -0°35'23	
opposition	12885 Jan 08 22:04	29° $\mathring{\Omega}$ 32'10 -0°31'22		minimum elong	12891 Jul 25 03:06	13° $\mathring{\Omega}$ 57'17 0°36'09	
min. Earth dist.	12885 Jan 08 22:46	29° $\mathring{\Omega}$ 32'08 29.05203 AU		max. Earth dist.	12891 Jul 25 05:44	13° $\mathring{\Omega}$ 57'32 30.97986 AU	
direct	12885 Mar 29 18:24	28° $\mathring{\Omega}$ 08'19		morning rise	12891 Aug 09 14:53	14° $\mathring{\Omega}$ 32'18	
	12885 Jun 24 14:38	0° $\mathring{\Omega}$			12891 Aug 22 11:40	15° $\mathring{\Omega}$	
evening set	12885 Jun 25 23:22	0° $\mathring{\Omega}$ 03'01		retrograde	12891 Nov 06 18:43	16° $\mathring{\Omega}$ 28'43	
				opposition	12892 Jan 25 17:14	15° $\mathring{\Omega}$ 04'56 -0°38'16	
conjunction	12885 Jul 11 10:21	0° $\mathring{\Omega}$ 37'52 -0°29'51		min. Earth dist.	12892 Jan 25 14:30	15° $\mathring{\Omega}$ 05'07 28.97378 AU	
minimum elong	12885 Jul 11 10:21	0° $\mathring{\Omega}$ 37'52 0°30'44			12892 Jan 28 17:03	15° $\mathring{\Omega}$	
max. Earth dist.	12885 Jul 11 09:29	0° $\mathring{\Omega}$ 37'47 31.04775 AU		direct	12892 Apr 14 05:26	13° $\mathring{\Omega}$ 41'04	
morning rise	12885 Jul 26 21:40	1° $\mathring{\Omega}$ 12'45			12892 Jun 24 07:46	15° $\mathring{\Omega}$	
retrograde	12885 Oct 23 20:01	3° $\mathring{\Omega}$ 08'31		evening set	12892 Jul 11 02:43	15° $\mathring{\Omega}$ 35'40	
opposition	12886 Jan 11 10:53	1° $\mathring{\Omega}$ 45'06 -0°32'31					
min. Earth dist.	12886 Jan 11 10:26	1° $\mathring{\Omega}$ 45'08 29.04346 AU		conjunction	12892 Jul 26 13:50	16° $\mathring{\Omega}$ 10'36 -0°36'08	
direct	12886 Apr 01 06:13	0° $\mathring{\Omega}$ 21'17		minimum elong	12892 Jul 26 13:50	16° $\mathring{\Omega}$ 10'36 0°36'53	
evening set	12886 Jun 28 10:03	2° $\mathring{\Omega}$ 16'00		max. Earth dist.	12892 Jul 26 16:11	16° $\mathring{\Omega}$ 10'50 30.96775 AU	
				morning rise	12892 Aug 11 01:56	16° $\mathring{\Omega}$ 45'39	
conjunction	12886 Jul 13 21:05	2° $\mathring{\Omega}$ 50'52 -0°30'53		retrograde	12892 Nov 08 08:22	18° $\mathring{\Omega}$ 42'11	
minimum elong	12886 Jul 13 21:05	2° $\mathring{\Omega}$ 50'52 0°31'46		opposition	12893 Jan 27 06:16	17° $\mathring{\Omega}$ 18'19 -0°39'03	
max. Earth dist.	12886 Jul 13 21:14	2° $\mathring{\Omega}$ 50'53 31.03877 AU		min. Earth dist.	12893 Jan 27 02:47	17° $\mathring{\Omega}$ 18'33 28.96226 AU	
morning rise	12886 Jul 29 08:21	3° $\mathring{\Omega}$ 25'47		direct	12893 Apr 16 16:03	15° $\mathring{\Omega}$ 54'27	
retrograde	12886 Oct 26 07:16	5° $\mathring{\Omega}$ 21'40		evening set	12893 Jul 13 13:23	17° $\mathring{\Omega}$ 49'03	
opposition	12887 Jan 14 00:02	3° $\mathring{\Omega}$ 58'14 -0°33'36					
min. Earth dist.	12887 Jan 14 00:07	3° $\mathring{\Omega}$ 58'14 29.03410 AU		conjunction	12893 Jul 29 00:42	18° $\mathring{\Omega}$ 24'00 -0°36'49	
direct	12887 Apr 03 18:21	2° $\mathring{\Omega}$ 34'27		minimum elong	12893 Jul 29 00:42	18° $\mathring{\Omega}$ 24'00 0°37'32	
evening set	12887 Jun 30 20:45	4° $\mathring{\Omega}$ 29'09		max. Earth dist.	12893 Jul 29 04:53	18° $\mathring{\Omega}$ 24'24 30.95668 AU	
				morning rise	12893 Aug 13 12:45	18° $\mathring{\Omega}$ 59'03	
conjunction	12887 Jul 16 07:45	5° $\mathring{\Omega}$ 04'02 -0°31'53		retrograde	12893 Nov 10 20:54	20° $\mathring{\Omega}$ 55'42	
minimum elong	12887 Jul 16 07:45	5° $\mathring{\Omega}$ 04'02 0°32'44		opposition	12894 Jan 29 19:18	19° $\mathring{\Omega}$ 31'47 -0°39'45	
max. Earth dist.	12887 Jul 16 08:01	5° $\mathring{\Omega}$ 04'03 31.02895 AU		min. Earth dist.	12894 Jan 29 15:18	19° $\mathring{\Omega}$ 32'04 28.95176 AU	
morning rise	12887 Jul 31 19:10	5° $\mathring{\Omega}$ 38'58		direct	12894 Apr 19 05:04	18° $\mathring{\Omega}$ 07'57	
retrograde	12887 Oct 28 20:02	7° $\mathring{\Omega}$ 34'59		evening set	12894 Jul 16 00:16	20° $\mathring{\Omega}$ 02'33	
opposition	12888 Jan 16 13:02	6° $\mathring{\Omega}$ 11'30 -0°34'39					
min. Earth dist.	12888 Jan 16 11:49	6° $\mathring{\Omega}$ 11'35 29.02364 AU		conjunction	12894 Jul 31 11:33	20° $\mathring{\Omega}$ 37'31 -0°37'28	
direct	12888 Apr 05 07:14	4° $\mathring{\Omega}$ 47'43		minimum elong	12894 Jul 31 11:33	20° $\mathring{\Omega}$ 37'31 0°38'10	
evening set	12888 Jul 02 07:38	6° $\mathring{\Omega}$ 42'25		max. Earth dist.	12894 Jul 31 15:37	20° $\mathring{\Omega}$ 37'54 30.94689 AU	
				morning rise	12894 Aug 15 23:54	21° $\mathring{\Omega}$ 12'36	
conjunction	12888 Jul 17 18:38	7° $\mathring{\Omega}$ 17'19 -0°32'50		retrograde	12894 Nov 13 11:17	23° $\mathring{\Omega}$ 09'22	
minimum elong	12888 Jul 17 18:38	7° $\mathring{\Omega}$ 17'19 0°33'41		opposition	12895 Feb 01 08:20	21° $\mathring{\Omega}$ 45'25 -0°40'24	
max. Earth dist.	12888 Jul 17 19:01	7° $\mathring{\Omega}$ 17'21 31.01779 AU		min. Earth dist.	12895 Feb 01 02:51	21° $\mathring{\Omega}$ 45'47 28.94256 AU	
morning rise	12888 Aug 02 06:09	7° $\mathring{\Omega}$ 52'16		direct	12895 Apr 21 16:19	20° $\mathring{\Omega}$ 21'36	
retrograde	12888 Oct 30 07:57	9° $\mathring{\Omega}$ 48'23		evening set	12895 Jul 18 10:59	22° $\mathring{\Omega}$ 16'13	
opposition	12889 Jan 18 02:05	8° $\mathring{\Omega}$ 24'51 -0°35'38					
min. Earth dist.	12889 Jan 18 01:38	8° $\mathring{\Omega}$ 24'53 29.01193 AU		conjunction	12895 Aug 02 22:27	22° $\mathring{\Omega}$ 51'12 -0°38'03	
direct	12889 Apr 07 18:19	7° $\mathring{\Omega}$ 01'04		minimum elong	12895 Aug 02 22:27	22° $\mathring{\Omega}$ 51'12 0°38'43	
evening set	12889 Jul 04 18:27	8° $\mathring{\Omega}$ 55'44		max. Earth dist.	12895 Aug 03 03:52	22° $\mathring{\Omega}$ 51'43 30.93810 AU	
				morning rise	12895 Aug 18 10:54	23° $\mathring{\Omega}$ 26'18	
conjunction	12889 Jul 20 05:34	9° $\mathring{\Omega}$ 30'39 -0°33'44		retrograde	12895 Nov 15 23:20	25° $\mathring{\Omega}$ 23'12	
minimum elong	12889 Jul 20 05:34	9° $\mathring{\Omega}$ 30'39 0°34'33		opposition	12896 Feb 03 21:30	23° $\mathring{\Omega}$ 59'13 -0°41'00	
max. Earth dist.	12889 Jul 20 06:44	9° $\mathring{\Omega}$ 30'45 31.00561 AU		min. Earth dist.	12896 Feb 03 16:14	23° $\mathring{\Omega}$ 59'35 28.93419 AU	
morning rise	12889 Aug 04 17:07	10° $\mathring{\Omega}$ 05'37		direct	12896 Apr 23 04:26	22° $\mathring{\Omega}$ 35'27	
retrograde	12889 Nov 01 19:15	12° $\mathring{\Omega}$ 01'50		evening set	12896 Jul 19 21:56	24° $\mathring{\Omega}$ 30'04	
opposition	12890 Jan 20 15:07	10° $\mathring{\Omega}$ 38'13 -0°36'34					
min. Earth dist.	12890 Jan 20 13:20	10° $\mathring{\Omega}$ 38'21 28.99924 AU		conjunction	12896 Aug 04 09:30	25° $\mathring{\Omega}$ 05'05 -0°38'34	
direct	12890 Apr 10 07:21	9° $\mathring{\Omega}$ 14'25		minimum elong	12896 Aug 04 09:30	25° $\mathring{\Omega}$ 05'05 0°39'13	
evening set	12890 Jul 07 05:12	11° $\mathring{\Omega}$ 09'03		max. Earth dist.	12896 Aug 04 15:21	25° $\mathring{\Omega}$ 05'38 30.93015 AU	
				morning rise	12896 Aug 19 22:11	25° $\mathring{\Omega}$ 40'12	
conjunction	12890 Jul 22 16:12	11° $\mathring{\Omega}$ 43'58 -0°34'35		retrograde	12896 Nov 17 13:34	27° $\mathring{\Omega}$ 37'13	
minimum elong	12890 Jul 22 16:13	11° $\mathring{\Omega}$ 43'58 0°35'24		opposition	12897 Feb 05 10:26	26° $\mathring{\Omega}$ 13'13 -0°41'32	

min. Earth dist.	12897 Feb 05 03:40	26°Ω13'41	28.92642 AU	conjunction	12903 Aug 21 17:15	10°♊45'52	-0°40'35
direct	12897 Apr 25 17:46	24°Ω49'29		minimum elong	12903 Aug 21 17:16	10°♊45'52	0°41'00
evening set	12897 Jul 22 09:02	26°Ω44'07		max. Earth dist.	12903 Aug 22 01:23	10°♊46'38	30.86487 AU
				morning rise	12903 Sep 06 07:36	11°♊21'10	
conjunction	12897 Aug 06 20:39	27°Ω19'10	-0°39'02	retrograde	12903 Dec 05 05:54	13°♊18'48	
minimum elong	12897 Aug 06 20:39	27°Ω19'10	0°39'39	opposition	12904 Feb 23 07:19	11°♊54'22	-0°43'27
max. Earth dist.	12897 Aug 07 02:57	27°Ω19'45	30.92245 AU	min. Earth dist.	12904 Feb 22 22:12	11°♊55'00	28.85963 AU
morning rise	12897 Aug 22 09:33	27°Ω54'19		direct	12904 May 12 04:28	10°♊30'33	
retrograde	12897 Nov 20 02:42	29°Ω51'27		evening set	12904 Aug 07 15:57	12°♊25'01	
opposition	12898 Feb 07 23:46	28°Ω27'26	-0°42'00				
min. Earth dist.	12898 Feb 07 17:34	28°Ω27'52	28.91883 AU	conjunction	12904 Aug 23 04:49	13°♊00'10	-0°40'38
direct	12898 Apr 28 05:22	27°Ω03'45		minimum elong	12904 Aug 23 04:49	13°♊00'10	0°41'00
evening set	12898 Jul 24 20:01	28°Ω58'23		max. Earth dist.	12904 Aug 23 14:07	13°♊01'02	30.85419 AU
				morning rise	12904 Sep 07 19:18	13°♊35'29	
conjunction	12898 Aug 09 07:51	29°Ω33'26	-0°39'27	retrograde	12904 Dec 06 18:09	15°♊33'10	
minimum elong	12898 Aug 09 07:52	29°Ω33'26	0°40'02	opposition	12905 Feb 24 20:25	14°♊08'39	-0°43'27
max. Earth dist.	12898 Aug 09 15:07	29°Ω34'07	30.91480 AU	min. Earth dist.	12905 Feb 24 11:32	14°♊09'16	28.84948 AU
	12898 Aug 21 00:25	0°♊		direct	12905 May 14 17:04	12°♊44'48	
morning rise	12898 Aug 24 20:52	0°♊08'37		evening set	12905 Aug 10 03:18	14°♊39'14	
retrograde	12898 Nov 22 14:23	2°♊05'52					
opposition	12899 Feb 10 13:01	0°♊41'50	-0°42'24	conjunction	12905 Aug 25 16:21	15°♊14'24	-0°40'37
min. Earth dist.	12899 Feb 10 05:28	0°♊42'21	28.91090 AU	minimum elong	12905 Aug 25 16:21	15°♊14'24	0°40'57
	12899 Mar 09 01:40	30°♋Ω		max. Earth dist.	12905 Aug 26 02:08	15°♊15'20	30.84474 AU
direct	12899 Apr 30 18:20	29°Ω18'10		morning rise	12905 Sep 10 07:08	15°♊49'44	
	12899 Jun 20 02:03	0°♊		retrograde	12905 Dec 09 08:48	17°♊47'29	
evening set	12899 Jul 27 07:23	1°♊12'48		opposition	12906 Feb 27 09:29	16°♊22'54	-0°43'25
				min. Earth dist.	12906 Feb 26 22:55	16°♊23'38	28.84070 AU
conjunction	12899 Aug 11 19:14	1°♊47'52	-0°39'48	direct	12906 May 17 06:25	14°♊59'03	
minimum elong	12899 Aug 11 19:14	1°♊47'52	0°40'20	evening set	12906 Aug 12 14:35	16°♊53'27	
max. Earth dist.	12899 Aug 12 01:58	1°♊48'31	30.90652 AU				
morning rise	12899 Aug 27 08:35	2°♊23'05		conjunction	12906 Aug 28 03:48	17°♊28'39	-0°40'32
retrograde	12899 Nov 25 02:59	4°♊20'27		minimum elong	12906 Aug 28 03:49	17°♊28'39	0°40'51
opposition	12900 Feb 13 02:17	2°♊56'22	-0°42'44	max. Earth dist.	12906 Aug 28 14:14	17°♊29'38	30.83660 AU
min. Earth dist.	12900 Feb 12 19:14	2°♊56'51	28.90230 AU	morning rise	12906 Sep 12 18:54	18°♊04'01	
direct	12900 May 03 04:54	1°♊32'42		retrograde	12906 Dec 11 21:44	20°♊01'50	
evening set	12900 Jul 29 18:40	3°♊27'20		opposition	12907 Mar 01 22:43	18°♊37'12	-0°43'18
				min. Earth dist.	12907 Mar 01 12:30	18°♊37'54	28.83336 AU
conjunction	12900 Aug 14 06:51	4°♊02'25	-0°40'05	direct	12907 May 19 18:12	17°♊13'22	
minimum elong	12900 Aug 14 06:51	4°♊02'25	0°40'36	evening set	12907 Aug 15 01:57	19°♊07'46	
max. Earth dist.	12900 Aug 14 14:45	4°♊03'10	30.89735 AU				
morning rise	12900 Aug 29 20:16	4°♊37'39		conjunction	12907 Aug 30 15:31	19°♊42'58	-0°40'24
retrograde	12900 Nov 27 14:56	6°♊35'06		minimum elong	12907 Aug 30 15:32	19°♊42'58	0°40'41
opposition	12901 Feb 15 15:35	5°♊10'58	-0°43'00	max. Earth dist.	12907 Aug 31 03:06	19°♊44'04	30.83002 AU
min. Earth dist.	12901 Feb 15 07:53	5°♊11'30	28.89248 AU	morning rise	12907 Sep 15 06:50	20°♊18'22	
direct	12901 May 05 17:23	3°♊47'17		retrograde	12907 Dec 14 10:24	22°♊16'16	
evening set	12901 Aug 01 06:05	5°♊41'53		opposition	12908 Mar 03 11:35	20°♊51'37	-0°43'07
				min. Earth dist.	12908 Mar 02 23:47	20°♊52'25	28.82739 AU
conjunction	12901 Aug 16 18:15	6°♊16'59	-0°40'18	direct	12908 May 21 07:11	19°♊27'47	
minimum elong	12901 Aug 16 18:15	6°♊16'59	0°40'47	evening set	12908 Aug 16 13:30	21°♊22'12	
max. Earth dist.	12901 Aug 17 01:21	6°♊17'39	30.88705 AU				
morning rise	12901 Sep 01 08:04	6°♊52'15		conjunction	12908 Sep 01 03:11	21°♊57'26	-0°40'13
retrograde	12901 Nov 30 04:11	8°♊49'46		minimum elong	12908 Sep 01 03:11	21°♊57'26	0°40'27
opposition	12902 Feb 18 04:55	7°♊25'32	-0°43'13	max. Earth dist.	12908 Sep 01 14:31	21°♊58'31	30.82465 AU
min. Earth dist.	12902 Feb 17 21:04	7°♊26'04	28.88178 AU	morning rise	12908 Sep 16 18:55	22°♊32'52	
direct	12902 May 08 04:40	6°♊01'49		retrograde	12908 Dec 15 23:49	24°♊30'51	
evening set	12902 Aug 03 17:21	7°♊56'22		opposition	12909 Mar 06 00:45	23°♊06'11	-0°42'52
				min. Earth dist.	12909 Mar 05 13:10	23°♊06'59	28.82264 AU
conjunction	12902 Aug 19 05:52	8°♊31'29	-0°40'28	direct	12909 May 23 18:02	21°♊42'25	
minimum elong	12902 Aug 19 05:52	8°♊31'29	0°40'56	evening set	12909 Aug 19 00:54	23°♊36'50	
max. Earth dist.	12902 Aug 19 14:21	8°♊32'17	30.87599 AU				
morning rise	12902 Sep 03 19:47	9°♊06'46		conjunction	12909 Sep 03 14:58	24°♊12'06	-0°39'57
retrograde	12902 Dec 02 15:54	11°♊04'20		minimum elong	12909 Sep 03 14:58	24°♊12'06	0°40'09
opposition	12903 Feb 20 18:11	9°♊40'01	-0°43'22	max. Earth dist.	12909 Sep 04 03:53	24°♊13'19	30.82035 AU
min. Earth dist.	12903 Feb 20 10:12	9°♊40'34	28.87054 AU	morning rise	12909 Sep 19 06:50	24°♊47'33	
direct	12903 May 10 17:12	8°♊16'15		retrograde	12909 Dec 18 12:10	26°♊45'38	
evening set	12903 Aug 06 04:39	10°♊10'45		opposition	12910 Mar 08 13:50	25°♊20'58	-0°42'33
				min. Earth dist.	12910 Mar 08 01:17	25°♊21'51	28.81864 AU

direct	12910 May 26 06:27	23° <u>0</u> 57'15		minimum elong	12916 Sep 19 04:18	9° <u>0</u> 58'42	0°36'23
evening set	12910 Aug 21 12:38	25° <u>0</u> 51'41		max. Earth dist.	12916 Sep 19 18:24	10° <u>0</u> 00'02	30.78687 AU
				morning rise	12916 Oct 04 22:28	10° <u>0</u> 34'21	
conjunction	12910 Sep 06 02:48	26° <u>0</u> 26'58	-0°39'38	retrograde	12917 Jan 03 10:11	12° <u>0</u> 32'44	
minimum elong	12910 Sep 06 02:48	26° <u>0</u> 26'58	0°39'48	opposition	12917 Mar 24 09:19	11° <u>0</u> 07'50	-0°38'35
max. Earth dist.	12910 Sep 06 15:07	26° <u>0</u> 28'08	30.81668 AU	min. Earth dist.	12917 Mar 23 19:24	11° <u>0</u> 08'49	28.78450 AU
morning rise	12910 Sep 21 19:08	27° <u>0</u> 02'28		direct	12917 Jun 10 19:12	9° <u>0</u> 44'04	
retrograde	12910 Dec 21 01:36	29° <u>0</u> 00'38		evening set	12917 Sep 06 00:10	11° <u>0</u> 38'24	
opposition	12911 Mar 11 02:57	27° <u>0</u> 35'59	-0°42'11				
min. Earth dist.	12911 Mar 10 14:20	27° <u>0</u> 36'51	28.81517 AU	conjunction	12917 Sep 21 16:23	12° <u>0</u> 13'50	-0°35'44
direct	12911 May 28 17:00	26° <u>0</u> 12'18		minimum elong	12917 Sep 21 16:23	12° <u>0</u> 13'50	0°35'37
evening set	12911 Aug 24 00:21	28° <u>0</u> 06'45		max. Earth dist.	12917 Sep 22 06:11	12° <u>0</u> 15'08	30.78203 AU
				morning rise	12917 Oct 07 11:00	12° <u>0</u> 49'30	
conjunction	12911 Sep 08 14:57	28° <u>0</u> 42'04	-0°39'15	retrograde	12918 Jan 06 00:31	14° <u>0</u> 47'54	
minimum elong	12911 Sep 08 14:57	28° <u>0</u> 42'04	0°39'22	opposition	12918 Mar 26 22:20	13° <u>0</u> 22'56	-0°37'46
max. Earth dist.	12911 Sep 09 04:33	28° <u>0</u> 43'21	30.81309 AU	min. Earth dist.	12918 Mar 26 08:44	13° <u>0</u> 23'53	28.78037 AU
morning rise	12911 Sep 24 07:27	29° <u>0</u> 17'35		direct	12918 Jun 13 07:27	11° <u>0</u> 59'08	
	12911 Oct 14 09:34	0° <u>0</u>		evening set	12918 Sep 08 12:05	13° <u>0</u> 53'26	
retrograde	12911 Dec 23 13:32	1° <u>0</u> 15'51					
	12912 Mar 07 08:49	30° <u>0</u>		conjunction	12918 Sep 24 04:47	14° <u>0</u> 28'54	-0°34'57
opposition	12912 Mar 12 16:06	29° <u>0</u> 51'12	-0°41'44	minimum elong	12918 Sep 24 04:48	14° <u>0</u> 28'54	0°34'48
min. Earth dist.	12912 Mar 12 03:34	29° <u>0</u> 52'04	28.81137 AU	max. Earth dist.	12918 Sep 24 20:02	14° <u>0</u> 30'20	30.77857 AU
direct	12912 May 30 04:43	28° <u>0</u> 27'33		morning rise	12918 Oct 09 23:36	15° <u>0</u> 04'34	
	12912 Aug 15 08:54	0° <u>0</u>		retrograde	12919 Jan 08 12:30	17° <u>0</u> 02'58	
evening set	12912 Aug 25 12:21	0° <u>0</u> 22'01		opposition	12919 Mar 29 11:02	15° <u>0</u> 37'59	-0°36'54
				min. Earth dist.	12919 Mar 28 20:27	15° <u>0</u> 39'00	28.77758 AU
conjunction	12912 Sep 10 03:04	0° <u>0</u> 57'21	-0°38'48	direct	12919 Jun 15 20:50	14° <u>0</u> 14'10	
minimum elong	12912 Sep 10 03:05	0° <u>0</u> 57'21	0°38'53	evening set	12919 Sep 11 00:11	16° <u>0</u> 08'27	
max. Earth dist.	12912 Sep 10 15:49	0° <u>0</u> 58'33	30.80903 AU				
morning rise	12912 Sep 25 20:00	1° <u>0</u> 32'54		conjunction	12919 Sep 26 17:04	16° <u>0</u> 43'55	-0°34'07
retrograde	12912 Dec 25 04:06	3° <u>0</u> 31'13		minimum elong	12919 Sep 26 17:04	16° <u>0</u> 43'55	0°33'56
opposition	12913 Mar 15 05:10	2° <u>0</u> 06'34	-0°41'13	max. Earth dist.	12919 Sep 27 07:42	16° <u>0</u> 45'18	30.77655 AU
min. Earth dist.	12913 Mar 14 16:02	2° <u>0</u> 07'28	28.80694 AU	morning rise	12919 Oct 12 12:24	17° <u>0</u> 19'38	
direct	12913 Jun 01 15:13	0° <u>0</u> 42'55		retrograde	12920 Jan 11 01:31	19° <u>0</u> 18'02	
evening set	12913 Aug 28 00:20	2° <u>0</u> 37'23		opposition	12920 Mar 30 23:52	17° <u>0</u> 53'01	-0°35'59
				min. Earth dist.	12920 Mar 30 09:08	17° <u>0</u> 54'02	28.77635 AU
conjunction	12913 Sep 12 15:25	3° <u>0</u> 12'44	-0°38'18	direct	12920 Jun 17 07:45	16° <u>0</u> 29'12	
minimum elong	12913 Sep 12 15:25	3° <u>0</u> 12'44	0°38'21	evening set	12920 Sep 12 12:11	18° <u>0</u> 23'28	
max. Earth dist.	12913 Sep 13 04:46	3° <u>0</u> 14'00	30.80410 AU				
morning rise	12913 Sep 28 08:34	3° <u>0</u> 48'19		conjunction	12920 Sep 28 05:31	18° <u>0</u> 58'57	-0°33'14
retrograde	12913 Dec 27 16:47	5° <u>0</u> 46'41		minimum elong	12920 Sep 28 05:31	18° <u>0</u> 58'57	0°33'00
opposition	12914 Mar 17 18:27	4° <u>0</u> 21'59	-0°40'39	max. Earth dist.	12920 Sep 28 21:39	19° <u>0</u> 00'29	30.77595 AU
min. Earth dist.	12914 Mar 17 06:00	4° <u>0</u> 22'51	28.80160 AU	morning rise	12920 Oct 14 01:00	19° <u>0</u> 34'41	
direct	12914 Jun 04 03:58	2° <u>0</u> 58'20		retrograde	12921 Jan 12 12:59	21° <u>0</u> 33'06	
evening set	12914 Aug 30 12:14	4° <u>0</u> 52'46		opposition	12921 Apr 02 12:36	20° <u>0</u> 08'05	-0°35'00
				min. Earth dist.	12921 Apr 01 21:39	20° <u>0</u> 09'08	28.77638 AU
conjunction	12914 Sep 15 03:38	5° <u>0</u> 28'08	-0°37'44	direct	12921 Jun 19 19:48	18° <u>0</u> 44'18	
minimum elong	12914 Sep 15 03:38	5° <u>0</u> 28'08	0°37'45	evening set	12921 Sep 15 00:23	20° <u>0</u> 38'33	
max. Earth dist.	12914 Sep 15 16:50	5° <u>0</u> 29'23	30.79853 AU				
morning rise	12914 Sep 30 21:11	6° <u>0</u> 03'44		conjunction	12921 Sep 30 17:57	21° <u>0</u> 14'04	-0°32'17
retrograde	12914 Dec 30 07:47	8° <u>0</u> 02'08		minimum elong	12921 Sep 30 17:57	21° <u>0</u> 14'04	0°32'02
opposition	12915 Mar 20 07:30	6° <u>0</u> 37'22	-0°40'01	max. Earth dist.	12921 Oct 01 09:30	21° <u>0</u> 15'32	30.77675 AU
min. Earth dist.	12915 Mar 19 18:01	6° <u>0</u> 38'18	28.79572 AU	morning rise	12921 Oct 16 13:55	21° <u>0</u> 49'49	
direct	12915 Jun 06 17:27	5° <u>0</u> 13'40		retrograde	12922 Jan 15 03:25	23° <u>0</u> 48'15	
evening set	12915 Sep 02 00:17	7° <u>0</u> 08'05		min. Earth dist.	12922 Apr 04 09:39	22° <u>0</u> 24'21	28.77776 AU
				opposition	12922 Apr 05 01:23	22° <u>0</u> 23'15	-0°33'58
conjunction	12915 Sep 17 15:57	7° <u>0</u> 43'29	-0°37'08	direct	12922 Jun 22 06:26	20° <u>0</u> 59'29	
minimum elong	12915 Sep 17 15:57	7° <u>0</u> 43'29	0°37'06	evening set	12922 Sep 17 12:33	22° <u>0</u> 53'44	
max. Earth dist.	12915 Sep 18 05:17	7° <u>0</u> 44'44	30.79250 AU				
morning rise	12915 Oct 03 09:52	8° <u>0</u> 19'05		conjunction	12922 Oct 03 06:31	23° <u>0</u> 29'16	-0°31'18
retrograde	12916 Jan 01 20:28	10° <u>0</u> 17'30		minimum elong	12922 Oct 03 06:31	23° <u>0</u> 29'16	0°31'00
opposition	12916 Mar 21 20:27	8° <u>0</u> 52'40	-0°39'20	max. Earth dist.	12922 Oct 03 23:00	23° <u>0</u> 30'50	30.77849 AU
min. Earth dist.	12916 Mar 21 07:53	8° <u>0</u> 53'32	28.78981 AU	morning rise	12922 Oct 19 02:46	24° <u>0</u> 05'03	
direct	12916 Jun 08 05:13	7° <u>0</u> 28'55		retrograde	12923 Jan 17 15:06	26° <u>0</u> 03'31	
evening set	12916 Sep 03 12:13	9° <u>0</u> 23'18		opposition	12923 Apr 07 14:13	24° <u>0</u> 38'32	-0°32'52
				min. Earth dist.	12923 Apr 06 23:08	24° <u>0</u> 39'35	28.77977 AU
conjunction	12916 Sep 19 04:18	9° <u>0</u> 58'42	-0°36'27	direct	12923 Jun 24 18:17	23° <u>0</u> 14'49	

evening set	12923 Sep 20 01:01	25° <u>♁</u> 09'04		max. Earth dist.	12929 Oct 19 16:57	9° <u>♂</u> 19'11	30.78293 AU
				morning rise	12929 Nov 03 23:30	9° <u>♂</u> 53'34	
conjunction	12923 Oct 05 19:18	25° <u>♁</u> 44'38 -0°30'15		retrograde	12930 Feb 02 13:46	11° <u>♂</u> 51'53	
minimum elong	12923 Oct 05 19:18	25° <u>♁</u> 44'38 0°29'55		opposition	12930 Apr 23 06:32	10° <u>♂</u> 26'52 -0°23'56	
max. Earth dist.	12923 Oct 06 11:27	25° <u>♁</u> 46'09 30.78074 AU		min. Earth dist.	12930 Apr 22 16:09	10° <u>♂</u> 27'53 28.78324 AU	
morning rise	12923 Oct 21 15:55	26° <u>♁</u> 20'25		direct	12930 Jul 10 10:01	9° <u>♂</u> 03'03	
retrograde	12924 Jan 20 05:39	28° <u>♁</u> 18'54		evening set	12930 Oct 05 17:13	10° <u>♂</u> 57'14	
min. Earth dist.	12924 Apr 08 10:55	26° <u>♁</u> 55'04 28.78197 AU					
opposition	12924 Apr 09 02:48	26° <u>♁</u> 53'58 -0°31'44		conjunction	12930 Oct 21 13:50	11° <u>♂</u> 32'55 -0°21'47	
direct	12924 Jun 26 06:18	25° <u>♁</u> 30'15		minimum elong	12930 Oct 21 13:50	11° <u>♂</u> 32'55 0°21'12	
evening set	12924 Sep 21 13:37	27° <u>♁</u> 24'33		max. Earth dist.	12930 Oct 22 04:55	11° <u>♂</u> 34'20 30.78355 AU	
				morning rise	12930 Nov 06 12:50	12° <u>♂</u> 08'51	
conjunction	12924 Oct 07 08:10	28° <u>♁</u> 00'07 -0°29'10		retrograde	12931 Feb 05 03:23	14° <u>♂</u> 07'06	
minimum elong	12924 Oct 07 08:11	28° <u>♁</u> 00'07 0°28'47		opposition	12931 Apr 25 18:52	12° <u>♂</u> 42'05 -0°22'30	
max. Earth dist.	12924 Oct 08 00:14	28° <u>♁</u> 01'38 30.78267 AU		min. Earth dist.	12931 Apr 25 03:59	12° <u>♂</u> 43'07 28.78443 AU	
morning rise	12924 Oct 23 05:07	28° <u>♁</u> 35'56		direct	12931 Jul 12 21:16	11° <u>♂</u> 18'14	
	12924 Dec 06 14:33	0° <u>♂</u>		evening set	12931 Oct 08 05:51	13° <u>♂</u> 12'25	
retrograde	12925 Jan 21 18:41	0° <u>♂</u> 34'26					
	12925 Mar 10 07:37	30° <u>♂</u> <u>♁</u>		conjunction	12931 Oct 24 02:53	13° <u>♂</u> 48'07 -0°20'26	
opposition	12925 Apr 11 15:41	29° <u>♁</u> 09'31 -0°30'32		minimum elong	12931 Oct 24 02:53	13° <u>♂</u> 48'07 0°19'50	
min. Earth dist.	12925 Apr 11 01:02	29° <u>♁</u> 10'32 28.78366 AU		max. Earth dist.	12931 Oct 24 18:46	13° <u>♂</u> 49'36 30.78523 AU	
direct	12925 Jun 28 17:25	27° <u>♁</u> 45'49		morning rise	12931 Nov 09 02:04	14° <u>♂</u> 24'03	
evening set	12925 Sep 24 02:05	29° <u>♁</u> 40'07			12931 Nov 26 00:56	15° <u>♂</u>	
	12925 Oct 02 23:10	0° <u>♂</u>		retrograde	12932 Feb 07 13:46	16° <u>♂</u> 22'15	
					12932 Apr 25 15:42	15° <u>♂</u> <u>♂</u>	
conjunction	12925 Oct 09 21:04	0° <u>♂</u> 15'42 -0°28'02		opposition	12932 Apr 27 07:04	14° <u>♂</u> 57'14 -0°21'02	
minimum elong	12925 Oct 09 21:04	0° <u>♂</u> 15'42 0°27'38		min. Earth dist.	12932 Apr 26 16:44	14° <u>♂</u> 58'15 28.78677 AU	
max. Earth dist.	12925 Oct 10 13:16	0° <u>♂</u> 17'14 30.78398 AU		direct	12932 Jul 14 08:59	13° <u>♂</u> 33'23	
morning rise	12925 Oct 25 18:16	0° <u>♂</u> 51'32			12932 Sep 26 21:34	15° <u>♂</u>	
retrograde	12926 Jan 24 09:16	2° <u>♂</u> 50'02		evening set	12932 Oct 09 18:31	15° <u>♂</u> 27'33	
opposition	12926 Apr 14 04:25	1° <u>♂</u> 25'07 -0°29'18					
min. Earth dist.	12926 Apr 13 13:00	1° <u>♂</u> 26'11 28.78442 AU		conjunction	12932 Oct 25 15:50	16° <u>♂</u> 03'16 -0°19'03	
direct	12926 Jul 01 07:30	0° <u>♂</u> 01'25		minimum elong	12932 Oct 25 15:50	16° <u>♂</u> 03'16 0°18'25	
evening set	12926 Sep 26 14:51	1° <u>♂</u> 55'42		max. Earth dist.	12932 Oct 26 07:23	16° <u>♂</u> 04'44 30.78838 AU	
				morning rise	12932 Nov 10 15:23	16° <u>♂</u> 39'13	
conjunction	12926 Oct 12 10:04	2° <u>♂</u> 31'19 -0°26'51		retrograde	12933 Feb 09 03:31	18° <u>♂</u> 37'23	
minimum elong	12926 Oct 12 10:04	2° <u>♂</u> 31'19 0°26'25		opposition	12933 Apr 29 19:15	17° <u>♂</u> 12'23 -0°19'32	
max. Earth dist.	12926 Oct 13 01:14	2° <u>♂</u> 32'45 30.78425 AU		min. Earth dist.	12933 Apr 29 03:53	17° <u>♂</u> 13'28 28.79060 AU	
morning rise	12926 Oct 28 07:44	3° <u>♂</u> 07'10		direct	12933 Jul 16 20:07	15° <u>♂</u> 48'31	
retrograde	12927 Jan 26 23:47	5° <u>♂</u> 05'38		evening set	12933 Oct 12 07:05	17° <u>♂</u> 42'42	
opposition	12927 Apr 16 17:06	3° <u>♂</u> 40'41 -0°28'01					
min. Earth dist.	12927 Apr 16 02:46	3° <u>♂</u> 41'41 28.78434 AU		conjunction	12933 Oct 28 04:43	18° <u>♂</u> 18'26 -0°17'38	
direct	12927 Jul 03 19:48	2° <u>♂</u> 16'58		minimum elong	12933 Oct 28 04:43	18° <u>♂</u> 18'26 0°16'59	
evening set	12927 Sep 29 03:25	4° <u>♂</u> 11'14		max. Earth dist.	12933 Oct 28 20:34	18° <u>♂</u> 19'55 30.79284 AU	
				morning rise	12933 Nov 13 04:34	18° <u>♂</u> 54'24	
conjunction	12927 Oct 14 23:09	4° <u>♂</u> 46'52 -0°25'38		retrograde	12934 Feb 11 15:33	20° <u>♂</u> 52'32	
minimum elong	12927 Oct 14 23:10	4° <u>♂</u> 46'52 0°25'10		opposition	12934 May 02 07:34	19° <u>♂</u> 27'34 -0°18'01	
max. Earth dist.	12927 Oct 15 15:02	4° <u>♂</u> 48'22 30.78388 AU		min. Earth dist.	12934 May 01 17:10	19° <u>♂</u> 28'34 28.79574 AU	
morning rise	12927 Oct 30 21:02	5° <u>♂</u> 22'44		direct	12934 Jul 19 06:19	18° <u>♂</u> 03'43	
retrograde	12928 Jan 29 12:16	7° <u>♂</u> 21'09		evening set	12934 Oct 14 19:48	19° <u>♂</u> 57'54	
opposition	12928 Apr 18 05:36	5° <u>♂</u> 56'11 -0°26'42					
min. Earth dist.	12928 Apr 17 14:50	5° <u>♂</u> 57'13 28.78367 AU		conjunction	12934 Oct 30 17:51	20° <u>♂</u> 33'39 -0°16'12	
direct	12928 Jul 05 09:41	4° <u>♂</u> 32'26		minimum elong	12934 Oct 30 17:52	20° <u>♂</u> 33'39 0°15'30	
evening set	12928 Sep 30 16:05	6° <u>♂</u> 26'40		behind sun begin	12934 Oct 30 16:19	20° <u>♂</u> 33'30	
				behind sun end	12934 Oct 30 19:24	20° <u>♂</u> 33'47	
conjunction	12928 Oct 16 11:58	7° <u>♂</u> 02'19 -0°24'23		max. Earth dist.	12934 Oct 31 10:01	20° <u>♂</u> 35'10 30.79864 AU	
minimum elong	12928 Oct 16 11:58	7° <u>♂</u> 02'19 0°23'52		morning rise	12934 Nov 15 17:58	21° <u>♂</u> 09'37	
max. Earth dist.	12928 Oct 17 02:45	7° <u>♂</u> 03'43 30.78321 AU		retrograde	12935 Feb 14 05:30	23° <u>♂</u> 07'43	
morning rise	12928 Nov 01 10:19	7° <u>♂</u> 38'13		opposition	12935 May 04 19:32	21° <u>♂</u> 42'48 -0°16'27	
retrograde	12929 Jan 31 01:47	9° <u>♂</u> 36'34		min. Earth dist.	12935 May 04 04:16	21° <u>♂</u> 43'52 28.80192 AU	
opposition	12929 Apr 20 18:08	8° <u>♂</u> 11'35 -0°25'20		direct	12935 Jul 21 20:02	20° <u>♂</u> 18'57	
min. Earth dist.	12929 Apr 20 03:44	8° <u>♂</u> 12'35 28.78317 AU		evening set	12935 Oct 17 08:44	22° <u>♂</u> 13'11	
direct	12929 Jul 07 21:16	6° <u>♂</u> 47'47					
evening set	12929 Oct 03 04:36	8° <u>♂</u> 42'00		conjunction	12935 Nov 02 07:00	22° <u>♂</u> 48'56 -0°14'44	
				minimum elong	12935 Nov 02 06:59	22° <u>♂</u> 48'56 0°14'01	
conjunction	12929 Oct 19 00:59	9° <u>♂</u> 17'40 -0°23'06		behind sun begin	12935 Nov 02 03:47	22° <u>♂</u> 48'39	
minimum elong	12929 Oct 19 01:00	9° <u>♂</u> 17'40 0°22'34		behind sun end	12935 Nov 02 10:12	22° <u>♂</u> 49'14	

max. Earth dist.	12935 Nov 02 22:21	22° \mathcal{M} .50'23	30.80512 AU	min. Earth dist.	12941 May 17 07:47	5° \mathcal{A} 15'04	28.83379 AU
morning rise	12935 Nov 18 07:29	23° \mathcal{M} .24'55		direct	12941 Aug 03 22:54	3° \mathcal{A} 50'16	
retrograde	12936 Feb 16 19:23	25° \mathcal{M} .22'59		evening set	12941 Oct 30 14:43	5° \mathcal{A} 44'25	
opposition	12936 May 06 07:44	23° \mathcal{M} .58'07	-0°14'52				
min. Earth dist.	12936 May 05 17:34	23° \mathcal{M} .59'06	28.80864 AU	conjunction	12941 Nov 15 14:51	6° \mathcal{A} 20'14	-0°05'37
direct	12936 Jul 23 07:32	22° \mathcal{M} .34'18		minimum elong	12941 Nov 15 14:51	6° \mathcal{A} 20'14	0°04'45
evening set	12936 Oct 18 21:32	24° \mathcal{M} .28'32		behind sun begin	12941 Nov 15 08:27	6° \mathcal{A} 19'39	
				behind sun end	12941 Nov 15 21:14	6° \mathcal{A} 20'48	
conjunction	12936 Nov 03 20:13	25° \mathcal{M} .04'19	-0°13'15	max. Earth dist.	12941 Nov 16 03:47	6° \mathcal{A} 21'26	30.83578 AU
minimum elong	12936 Nov 03 20:13	25° \mathcal{M} .04'19	0°12'29	morning rise	12941 Dec 01 16:49	6° \mathcal{A} 56'15	
behind sun begin	12936 Nov 03 16:01	25° \mathcal{M} .03'56		retrograde	12942 Mar 02 01:03	8° \mathcal{A} 53'46	
behind sun end	12936 Nov 04 00:25	25° \mathcal{M} .04'42		opposition	12942 May 20 07:28	7° \mathcal{A} 28'56	-0°05'01
max. Earth dist.	12936 Nov 04 12:10	25° \mathcal{M} .05'49	30.81183 AU	min. Earth dist.	12942 May 19 18:52	7° \mathcal{A} 29'49	28.83797 AU
morning rise	12936 Nov 19 20:49	25° \mathcal{M} .40'18		direct	12942 Aug 06 10:33	6° \mathcal{A} 04'54	
retrograde	12937 Feb 18 08:27	27° \mathcal{M} .38'19		evening set	12942 Nov 02 03:44	7° \mathcal{A} 59'02	
opposition	12937 May 08 19:49	26° \mathcal{M} .13'30	-0°13'16				
min. Earth dist.	12937 May 08 05:22	26° \mathcal{M} .14'31	28.81512 AU	conjunction	12942 Nov 18 04:08	8° \mathcal{A} 34'52	-0°04'03
direct	12937 Jul 25 20:51	24° \mathcal{M} .49'41		minimum elong	12942 Nov 18 04:07	8° \mathcal{A} 34'52	0°03'10
evening set	12937 Oct 21 10:41	26° \mathcal{M} .43'56		behind sun begin	12942 Nov 17 21:36	8° \mathcal{A} 34'17	
				behind sun end	12942 Nov 18 10:38	8° \mathcal{A} 35'27	
conjunction	12937 Nov 06 09:30	27° \mathcal{M} .19'44	-0°11'45	max. Earth dist.	12942 Nov 18 17:03	8° \mathcal{A} 36'04	30.84019 AU
minimum elong	12937 Nov 06 09:30	27° \mathcal{M} .19'44	0°10'59	morning rise	12942 Dec 04 06:17	9° \mathcal{A} 10'52	
behind sun begin	12937 Nov 06 04:36	27° \mathcal{M} .19'17		retrograde	12943 Mar 04 11:34	11° \mathcal{A} 08'17	
behind sun end	12937 Nov 06 14:24	27° \mathcal{M} .20'10		opposition	12943 May 22 19:03	9° \mathcal{A} 43'27	-0°03'21
max. Earth dist.	12937 Nov 06 23:56	27° \mathcal{M} .21'05	30.81804 AU	min. Earth dist.	12943 May 22 07:42	9° \mathcal{A} 44'15	28.84285 AU
morning rise	12937 Nov 22 10:32	27° \mathcal{M} .55'44		direct	12943 Aug 08 21:08	8° \mathcal{A} 19'22	
retrograde	12938 Feb 20 23:10	29° \mathcal{M} .53'41		evening set	12943 Nov 04 16:40	10° \mathcal{A} 13'29	
opposition	12938 May 11 07:58	28° \mathcal{M} .28'53	-0°11'38				
min. Earth dist.	12938 May 10 18:21	28° \mathcal{M} .29'50	28.82102 AU	conjunction	12943 Nov 20 17:23	10° \mathcal{A} 49'19	-0°02'28
direct	12938 Jul 28 08:51	27° \mathcal{M} .05'03		minimum elong	12943 Nov 20 17:23	10° \mathcal{A} 49'19	0°01'35
evening set	12938 Oct 23 23:41	28° \mathcal{M} .59'18		behind sun begin	12943 Nov 20 10:50	10° \mathcal{A} 48'44	
				behind sun end	12943 Nov 20 23:56	10° \mathcal{A} 49'54	
conjunction	12938 Nov 08 23:00	29° \mathcal{M} .35'06	-0°10'14	max. Earth dist.	12943 Nov 21 06:21	10° \mathcal{A} 50'31	30.84563 AU
minimum elong	12938 Nov 08 23:01	29° \mathcal{M} .35'06	0°09'25	morning rise	12943 Dec 06 19:43	11° \mathcal{A} 25'19	
behind sun begin	12938 Nov 08 17:34	29° \mathcal{M} .34'37		retrograde	12944 Mar 06 00:01	13° \mathcal{A} 22'37	
behind sun end	12938 Nov 09 04:28	29° \mathcal{M} .35'36		opposition	12944 May 24 06:31	11° \mathcal{A} 57'48	-0°01'40
max. Earth dist.	12938 Nov 09 13:59	29° \mathcal{M} .36'30	30.82341 AU	min. Earth dist.	12944 May 23 18:19	11° \mathcal{A} 58'40	28.84883 AU
	12938 Nov 20 00:04	0° \mathcal{A}		direct	12944 Aug 10 10:14	10° \mathcal{A} 33'41	
morning rise	12938 Nov 25 00:09	0° \mathcal{A} 11'06		evening set	12944 Nov 06 05:32	12° \mathcal{A} 27'49	
retrograde	12939 Feb 23 11:51	2° \mathcal{A} 08'58					
opposition	12939 May 13 20:02	0° \mathcal{A} 44'10	-0°10'00	conjunction	12944 Nov 22 06:23	13° \mathcal{A} 03'38	-0°00'50
min. Earth dist.	12939 May 13 06:58	0° \mathcal{A} 45'05	28.82581 AU	minimum elong	12944 Nov 22 06:22	13° \mathcal{A} 03'38	0°00'05
	12939 Jun 10 10:55	30° \mathcal{R} \mathcal{M} .		behind sun begin	12944 Nov 22 00:12	13° \mathcal{A} 03'05	
direct	12939 Jul 30 22:45	29° \mathcal{M} .20'19		behind sun end	12944 Nov 22 12:32	13° \mathcal{A} 04'11	
	12939 Sep 17 20:20	0° \mathcal{A}		max. Earth dist.	12944 Nov 22 18:42	13° \mathcal{A} 04'47	30.85223 AU
evening set	12939 Oct 26 12:51	1° \mathcal{A} 14'32		morning rise	12944 Dec 08 08:58	13° \mathcal{A} 39'39	
				retrograde	12945 Mar 08 12:17	15° \mathcal{A} 36'51	
conjunction	12939 Nov 11 12:20	1° \mathcal{A} 50'21	-0°08'42	asc. node	12945 May 25 02:15	14° \mathcal{A} 14'52	
minimum elong	12939 Nov 11 12:20	1° \mathcal{A} 50'21	0°07'53	opposition	12945 May 26 18:08	14° \mathcal{A} 12'04	0°00'00
behind sun begin	12939 Nov 11 06:29	1° \mathcal{A} 49'49		min. Earth dist.	12945 May 26 06:49	14° \mathcal{A} 12'52	28.85624 AU
behind sun end	12939 Nov 11 18:12	1° \mathcal{A} 50'52		direct	12945 Aug 12 20:57	12° \mathcal{A} 47'56	
max. Earth dist.	12939 Nov 12 01:43	1° \mathcal{A} 51'36	30.82786 AU	evening set	12945 Nov 08 18:22	14° \mathcal{A} 42'04	
morning rise	12939 Nov 27 13:52	2° \mathcal{A} 26'21					
retrograde	12940 Feb 26 00:55	4° \mathcal{A} 24'06		conjunction	12945 Nov 24 19:37	15° \mathcal{A} 17'54	0°00'47
opposition	12940 May 15 07:53	2° \mathcal{A} 59'18	-0°08'21	minimum elong	12945 Nov 24 19:38	15° \mathcal{A} 17'54	0°01'42
min. Earth dist.	12940 May 14 18:56	3° \mathcal{A} 00'13	28.82996 AU	behind sun begin	12945 Nov 24 13:04	15° \mathcal{A} 17'19	
direct	12940 Aug 01 10:41	1° \mathcal{A} 35'23		behind sun end	12945 Nov 25 02:11	15° \mathcal{A} 18'29	
evening set	12940 Oct 28 01:51	3° \mathcal{A} 29'35		max. Earth dist.	12945 Nov 25 08:39	15° \mathcal{A} 19'07	30.86042 AU
				morning rise	12945 Dec 10 22:17	15° \mathcal{A} 53'54	
conjunction	12940 Nov 13 01:44	4° \mathcal{A} 05'24	-0°07'09	retrograde	12946 Mar 11 00:54	17° \mathcal{A} 51'01	
minimum elong	12940 Nov 13 01:43	4° \mathcal{A} 05'24	0°06'18	opposition	12946 May 29 05:28	16° \mathcal{A} 26'17	0°01'41
behind sun begin	12940 Nov 12 19:32	4° \mathcal{A} 04'50		min. Earth dist.	12946 May 28 17:34	16° \mathcal{A} 27'07	28.86510 AU
behind sun end	12940 Nov 13 07:54	4° \mathcal{A} 05'57		direct	12946 Aug 15 09:38	15° \mathcal{A} 02'09	
max. Earth dist.	12940 Nov 13 15:29	4° \mathcal{A} 06'41	30.83176 AU	evening set	12946 Nov 11 07:25	16° \mathcal{A} 56'19	
morning rise	12940 Nov 29 03:21	4° \mathcal{A} 41'25					
retrograde	12941 Feb 27 11:38	6° \mathcal{A} 39'02		conjunction	12946 Nov 27 08:46	17° \mathcal{A} 32'10	0°02'22
opposition	12941 May 17 19:48	5° \mathcal{A} 14'14	-0°06'41	minimum elong	12946 Nov 27 08:46	17° \mathcal{A} 32'10	0°03'19

behind sun begin	12946 Nov 27 02:15	17° \mathring{A} 31'35		opposition	12952 Jun 11 01:37	29° \mathring{A} 52'54	0°11'37
behind sun end	12946 Nov 27 15:17	17° \mathring{A} 32'45		min. Earth dist.	12952 Jun 10 17:33	29° \mathring{A} 53'28	28.92826 AU
max. Earth dist.	12946 Nov 27 20:35	17° \mathring{A} 33'15	30.87003 AU	direct	12952 Aug 28 08:05	28° \mathring{A} 28'50	
morning rise	12946 Dec 13 11:46	18° \mathring{A} 08'10			12952 Nov 13 17:39	0° \mathring{B}	
retrograde	12947 Mar 13 15:12	20° \mathring{A} 05'13		evening set	12952 Nov 24 14:09	0° \mathring{B} 23'09	
opposition	12947 May 31 16:55	18° \mathring{A} 40'33	0°03'22				
min. Earth dist.	12947 May 31 05:35	18° \mathring{A} 41'20	28.87539 AU	conjunction	12952 Dec 10 16:49	0° \mathring{B} 59'00	0°11'35
direct	12947 Aug 17 21:10	17° \mathring{A} 16'26		minimum elong	12952 Dec 10 16:49	0° \mathring{B} 59'00	0°12'35
evening set	12947 Nov 13 20:21	19° \mathring{A} 10'38		behind sun begin	12952 Dec 10 12:41	0° \mathring{B} 58'38	
				behind sun end	12952 Dec 10 20:57	0° \mathring{B} 59'22	
conjunction	12947 Nov 29 22:03	19° \mathring{A} 46'29	0°03'56	max. Earth dist.	12952 Dec 11 01:50	0° \mathring{B} 59'50	30.93254 AU
minimum elong	12947 Nov 29 22:04	19° \mathring{A} 46'29	0°04'52	morning rise	12952 Dec 26 20:26	1° \mathring{B} 34'59	
behind sun begin	12947 Nov 29 15:41	19° \mathring{A} 45'55		retrograde	12953 Mar 26 16:28	3° \mathring{B} 31'28	
behind sun end	12947 Nov 30 04:27	19° \mathring{A} 47'04		opposition	12953 Jun 13 12:46	2° \mathring{B} 07'12	0°13'13
max. Earth dist.	12947 Nov 30 10:48	19° \mathring{A} 47'40	30.88080 AU	min. Earth dist.	12953 Jun 13 04:20	2° \mathring{B} 07'47	28.93673 AU
morning rise	12947 Dec 16 01:02	20° \mathring{A} 22'29		direct	12953 Aug 30 20:51	0° \mathring{B} 43'05	
retrograde	12948 Mar 15 03:43	22° \mathring{A} 19'28		evening set	12953 Nov 27 03:21	2° \mathring{B} 37'23	
opposition	12948 Jun 02 04:15	20° \mathring{A} 54'53	0°05'02				
min. Earth dist.	12948 Jun 01 17:17	20° \mathring{A} 55'40	28.88648 AU	conjunction	12953 Dec 13 06:06	3° \mathring{B} 13'14	0°13'04
direct	12948 Aug 19 10:27	19° \mathring{A} 30'49		minimum elong	12953 Dec 13 06:05	3° \mathring{B} 13'14	0°14'03
evening set	12948 Nov 15 09:30	21° \mathring{A} 25'04		behind sun begin	12953 Dec 13 02:57	3° \mathring{B} 12'57	
				behind sun end	12953 Dec 13 09:14	3° \mathring{B} 13'31	
conjunction	12948 Dec 01 11:17	22° \mathring{A} 00'56	0°05'29	max. Earth dist.	12953 Dec 13 14:03	3° \mathring{B} 13'58	30.94081 AU
minimum elong	12948 Dec 01 11:17	22° \mathring{A} 00'56	0°06'27	morning rise	12953 Dec 29 09:53	3° \mathring{B} 49'12	
behind sun begin	12948 Dec 01 05:07	22° \mathring{A} 00'22		retrograde	12954 Mar 29 03:47	5° \mathring{B} 45'33	
behind sun end	12948 Dec 01 17:26	22° \mathring{A} 01'29		opposition	12954 Jun 15 23:51	4° \mathring{B} 21'18	0°14'48
max. Earth dist.	12948 Dec 01 22:33	22° \mathring{A} 01'58	30.89222 AU	min. Earth dist.	12954 Jun 15 16:51	4° \mathring{B} 21'47	28.94501 AU
morning rise	12948 Dec 17 14:33	22° \mathring{A} 36'56		direct	12954 Sep 02 06:38	2° \mathring{B} 57'07	
retrograde	12949 Mar 17 17:19	24° \mathring{A} 33'50		evening set	12954 Nov 29 16:23	4° \mathring{B} 51'25	
opposition	12949 Jun 04 15:36	23° \mathring{A} 09'21	0°06'42				
min. Earth dist.	12949 Jun 04 04:47	23° \mathring{A} 10'07	28.89802 AU	conjunction	12954 Dec 15 19:25	5° \mathring{B} 27'15	0°14'32
direct	12949 Aug 21 21:44	21° \mathring{A} 45'19		minimum elong	12954 Dec 15 19:25	5° \mathring{B} 27'15	0°15'32
evening set	12949 Nov 17 22:33	23° \mathring{A} 39'36		behind sun begin	12954 Dec 15 18:06	5° \mathring{B} 27'08	
				behind sun end	12954 Dec 15 20:44	5° \mathring{B} 27'22	
conjunction	12949 Dec 04 00:39	24° \mathring{A} 15'28	0°07'02	max. Earth dist.	12954 Dec 16 03:33	5° \mathring{B} 28'00	30.94913 AU
minimum elong	12949 Dec 04 00:39	24° \mathring{A} 15'28	0°07'59	morning rise	12954 Dec 31 23:11	6° \mathring{B} 03'12	
behind sun begin	12949 Dec 03 18:48	24° \mathring{A} 14'56		retrograde	12955 Mar 31 15:14	7° \mathring{B} 59'24	
behind sun end	12949 Dec 04 06:30	24° \mathring{A} 15'59		opposition	12955 Jun 18 10:47	6° \mathring{B} 35'10	0°16'21
max. Earth dist.	12949 Dec 04 12:13	24° \mathring{A} 16'32	30.90351 AU	min. Earth dist.	12955 Jun 18 03:34	6° \mathring{B} 35'41	28.95337 AU
morning rise	12949 Dec 20 03:56	24° \mathring{A} 51'28		direct	12955 Sep 04 19:35	5° \mathring{B} 10'57	
retrograde	12950 Mar 20 04:58	26° \mathring{A} 48'18		evening set	12955 Dec 02 05:27	7° \mathring{B} 05'13	
opposition	12950 Jun 07 03:03	25° \mathring{A} 23'54	0°08'21				
min. Earth dist.	12950 Jun 06 17:29	25° \mathring{A} 24'34	28.90899 AU	conjunction	12955 Dec 18 08:26	7° \mathring{B} 41'03	0°15'58
direct	12950 Aug 24 09:51	23° \mathring{A} 59'52		minimum elong	12955 Dec 18 08:26	7° \mathring{B} 41'03	0°16'57
evening set	12950 Nov 20 11:52	25° \mathring{A} 54'11		max. Earth dist.	12955 Dec 18 15:08	7° \mathring{B} 41'40	30.95771 AU
				morning rise	12956 Jan 03 12:22	8° \mathring{B} 16'58	
conjunction	12950 Dec 06 14:07	26° \mathring{A} 30'03	0°08'34	retrograde	12956 Apr 02 03:53	10° \mathring{B} 13'03	
minimum elong	12950 Dec 06 14:07	26° \mathring{A} 30'03	0°09'32	opposition	12956 Jun 19 21:44	8° \mathring{B} 48'49	0°17'53
behind sun begin	12950 Dec 06 08:42	26° \mathring{A} 29'34		min. Earth dist.	12956 Jun 19 15:12	8° \mathring{B} 49'16	28.96239 AU
behind sun end	12950 Dec 06 19:32	26° \mathring{A} 30'32		direct	12956 Sep 06 07:15	7° \mathring{B} 24'32	
max. Earth dist.	12950 Dec 07 00:10	26° \mathring{A} 30'59	30.91414 AU	evening set	12956 Dec 03 18:19	9° \mathring{B} 18'48	
morning rise	12950 Dec 22 17:36	27° \mathring{A} 06'03					
retrograde	12951 Mar 22 19:01	29° \mathring{A} 02'46		conjunction	12956 Dec 19 21:35	9° \mathring{B} 54'38	0°17'23
opposition	12951 Jun 09 14:13	27° \mathring{A} 38'26	0°10'00	minimum elong	12956 Dec 19 21:35	9° \mathring{B} 54'38	0°18'23
min. Earth dist.	12951 Jun 09 04:30	27° \mathring{A} 39'07	28.91912 AU	max. Earth dist.	12956 Dec 20 05:06	9° \mathring{B} 55'19	30.96715 AU
direct	12951 Aug 26 21:22	26° \mathring{A} 14'24		morning rise	12957 Jan 05 01:23	10° \mathring{B} 30'32	
evening set	12951 Nov 23 01:09	28° \mathring{A} 08'43		retrograde	12957 Apr 04 15:04	12° \mathring{B} 26'28	
				opposition	12957 Jun 22 08:35	11° \mathring{B} 02'16	0°19'23
conjunction	12951 Dec 09 03:35	28° \mathring{A} 44'35	0°10'05	min. Earth dist.	12957 Jun 22 02:21	11° \mathring{B} 02'42	28.97232 AU
minimum elong	12951 Dec 09 03:35	28° \mathring{A} 44'35	0°11'03	direct	12957 Sep 08 20:25	9° \mathring{B} 37'57	
behind sun begin	12951 Dec 08 22:42	28° \mathring{A} 44'09		evening set	12957 Dec 06 07:14	11° \mathring{B} 32'13	
behind sun end	12951 Dec 09 08:27	28° \mathring{A} 45'02					
max. Earth dist.	12951 Dec 09 13:09	28° \mathring{A} 45'28	30.92370 AU	conjunction	12957 Dec 22 10:30	12° \mathring{B} 08'01	0°18'47
morning rise	12951 Dec 25 07:07	29° \mathring{A} 20'35		minimum elong	12957 Dec 22 10:29	12° \mathring{B} 08'01	0°19'45
	12952 Jan 13 04:26	0° \mathring{B}		max. Earth dist.	12957 Dec 22 16:39	12° \mathring{B} 08'35	30.97772 AU
retrograde	12952 Mar 24 04:56	1° \mathring{B} 17'12		morning rise	12958 Jan 07 14:30	12° \mathring{B} 43'55	
	12952 Jun 06 20:24	30° \mathring{R} \mathring{A}		retrograde	12958 Apr 07 04:11	14° \mathring{B} 39'43	

opposition	12958 Jun 24 19:24	13° $\overline{3}$ 15'33	0°20'51	max. Earth dist.	12965 Jan 07 07:34	27° $\overline{3}$ 41'09	31.06537 AU
min. Earth dist.	12958 Jun 24 13:04	13° $\overline{3}$ 16'00	28.98355 AU	morning rise	12965 Jan 23 09:51	28° $\overline{3}$ 16'47	
direct	12958 Sep 11 07:42	11° $\overline{3}$ 51'13			12965 Mar 26 22:44	0° \approx	
evening set	12958 Dec 08 20:11	13° $\overline{3}$ 45'30		retrograde	12965 Apr 22 13:35	0° \approx 11'52	
					12965 May 19 12:13	30° \overline{R} $\overline{3}$	
conjunction	12958 Dec 24 23:39	14° $\overline{3}$ 21'18	0°20'08	opposition	12965 Jul 09 22:36	28° $\overline{3}$ 48'14	0°30'08
minimum elong	12958 Dec 24 23:39	14° $\overline{3}$ 21'18	0°21'08	min. Earth dist.	12965 Jul 09 20:54	28° $\overline{3}$ 48'21	29.07040 AU
max. Earth dist.	12958 Dec 25 06:23	14° $\overline{3}$ 21'55	30.98949 AU	direct	12965 Sep 26 15:29	27° $\overline{3}$ 23'57	
morning rise	12959 Jan 10 03:31	14° $\overline{3}$ 57'10		evening set	12965 Dec 24 15:18	29° $\overline{3}$ 18'25	
retrograde	12959 Apr 09 15:42	16° $\overline{3}$ 52'51					
opposition	12959 Jun 27 06:09	15° $\overline{3}$ 28'45	0°22'18	conjunction	12966 Jan 09 19:10	29° $\overline{3}$ 54'09	0°28'42
min. Earth dist.	12959 Jun 27 00:44	15° $\overline{3}$ 29'08	28.99591 AU	minimum elong	12966 Jan 09 19:10	29° $\overline{3}$ 54'09	0°29'36
direct	12959 Sep 13 20:17	14° $\overline{3}$ 04'26		max. Earth dist.	12966 Jan 09 20:57	29° $\overline{3}$ 54'19	31.07496 AU
evening set	12959 Dec 11 09:09	15° $\overline{3}$ 58'44			12966 Jan 12 10:06	0° \approx	
				morning rise	12966 Jan 25 22:44	0° \approx 29'53	
conjunction	12959 Dec 27 12:38	16° $\overline{3}$ 34'32	0°21'28	retrograde	12966 Apr 25 00:16	2° \approx 24'51	
minimum elong	12959 Dec 27 12:38	16° $\overline{3}$ 34'32	0°22'26	opposition	12966 Jul 12 09:14	1° \approx 01'16	0°31'18
max. Earth dist.	12959 Dec 27 18:15	16° $\overline{3}$ 35'03	31.00251 AU	min. Earth dist.	12966 Jul 12 08:20	1° \approx 01'19	29.07946 AU
morning rise	12960 Jan 12 16:36	17° $\overline{3}$ 10'23			12966 Aug 22 04:07	30° \overline{R} $\overline{3}$	
retrograde	12960 Apr 11 05:07	19° $\overline{3}$ 05'57		direct	12966 Sep 29 04:18	29° $\overline{3}$ 36'56	
opposition	12960 Jun 28 16:52	17° $\overline{3}$ 41'57	0°23'42		12966 Nov 05 15:15	0° \approx	
min. Earth dist.	12960 Jun 28 10:54	17° $\overline{3}$ 42'22	29.00935 AU	evening set	12966 Dec 27 04:21	1° \approx 31'24	
direct	12960 Sep 15 08:07	16° $\overline{3}$ 17'39					
evening set	12960 Dec 12 22:00	18° $\overline{3}$ 11'58		conjunction	12967 Jan 12 08:02	2° \approx 07'07	0°29'46
				minimum elong	12967 Jan 12 08:02	2° \approx 07'07	0°30'40
conjunction	12960 Dec 29 01:35	18° $\overline{3}$ 47'46	0°22'46	max. Earth dist.	12967 Jan 12 07:59	2° \approx 07'07	31.08375 AU
minimum elong	12960 Dec 29 01:34	18° $\overline{3}$ 47'46	0°23'45	morning rise	12967 Jan 28 11:40	2° \approx 42'51	
max. Earth dist.	12960 Dec 29 07:10	18° $\overline{3}$ 48'17	31.01619 AU	retrograde	12967 Apr 27 12:56	4° \approx 37'40	
morning rise	12961 Jan 14 05:28	19° $\overline{3}$ 23'37		opposition	12967 Jul 14 19:39	3° \approx 14'07	0°32'24
retrograde	12961 Apr 13 15:23	21° $\overline{3}$ 19'06		min. Earth dist.	12967 Jul 14 19:02	3° \approx 14'09	29.08809 AU
opposition	12961 Jul 01 03:45	19° $\overline{3}$ 55'11	0°25'04	direct	12967 Oct 01 15:33	1° \approx 49'45	
min. Earth dist.	12961 Jun 30 23:21	19° $\overline{3}$ 55'30	29.02317 AU	evening set	12967 Dec 29 17:07	3° \approx 44'13	
direct	12961 Sep 17 18:39	18° $\overline{3}$ 30'56					
evening set	12961 Dec 15 11:04	20° $\overline{3}$ 25'17		conjunction	12968 Jan 14 20:55	4° \approx 19'55	0°30'47
				minimum elong	12968 Jan 14 20:55	4° \approx 19'55	0°31'38
conjunction	12961 Dec 31 14:44	21° $\overline{3}$ 01'04	0°24'02	max. Earth dist.	12968 Jan 14 21:14	4° \approx 19'57	31.09220 AU
minimum elong	12961 Dec 31 14:44	21° $\overline{3}$ 01'04	0°24'59	morning rise	12968 Jan 31 00:17	4° \approx 55'37	
max. Earth dist.	12961 Dec 31 19:40	21° $\overline{3}$ 01'32	31.02998 AU	retrograde	12968 Apr 29 00:13	6° \approx 50'19	
morning rise	12962 Jan 16 18:37	21° $\overline{3}$ 36'54		opposition	12968 Jul 16 06:12	5° \approx 26'46	0°33'27
retrograde	12962 Apr 16 03:20	23° $\overline{3}$ 32'17		min. Earth dist.	12968 Jul 16 06:42	5° \approx 26'44	29.09656 AU
opposition	12962 Jul 03 14:19	22° $\overline{3}$ 08'29	0°26'24	direct	12968 Oct 03 04:44	4° \approx 02'23	
min. Earth dist.	12962 Jul 03 09:46	22° $\overline{3}$ 08'48	29.03664 AU	evening set	12968 Dec 31 05:44	5° \approx 56'50	
direct	12962 Sep 20 06:32	20° $\overline{3}$ 44'14					
evening set	12962 Dec 18 00:18	22° $\overline{3}$ 38'38		conjunction	12969 Jan 16 09:26	6° \approx 32'31	0°31'45
				minimum elong	12969 Jan 16 09:26	6° \approx 32'31	0°32'36
conjunction	12963 Jan 03 03:56	23° $\overline{3}$ 14'25	0°25'16	max. Earth dist.	12969 Jan 16 08:31	6° \approx 32'26	31.10089 AU
minimum elong	12963 Jan 03 03:56	23° $\overline{3}$ 14'25	0°26'13	morning rise	12969 Feb 01 12:51	7° \approx 08'11	
max. Earth dist.	12963 Jan 03 07:34	23° $\overline{3}$ 14'45	31.04293 AU	retrograde	12969 May 01 12:48	9° \approx 02'46	
morning rise	12963 Jan 19 07:48	23° $\overline{3}$ 50'14		opposition	12969 Jul 18 16:34	7° \approx 39'15	0°34'28
retrograde	12963 Apr 18 14:39	25° $\overline{3}$ 45'32		min. Earth dist.	12969 Jul 18 16:33	7° \approx 39'15	29.10548 AU
opposition	12963 Jul 06 01:12	24° $\overline{3}$ 21'48	0°27'42	direct	12969 Oct 05 17:18	6° \approx 14'49	
min. Earth dist.	12963 Jul 05 22:17	24° $\overline{3}$ 22'00	29.04914 AU	evening set	12970 Jan 02 18:26	8° \approx 09'17	
direct	12963 Sep 22 15:54	22° $\overline{3}$ 57'33					
evening set	12963 Dec 20 13:17	24° $\overline{3}$ 51'59		conjunction	12970 Jan 18 22:08	8° \approx 44'57	0°32'40
				minimum elong	12970 Jan 18 22:08	8° \approx 44'57	0°33'29
conjunction	12964 Jan 05 17:03	25° $\overline{3}$ 27'45	0°26'27	max. Earth dist.	12970 Jan 18 21:12	8° \approx 44'52	31.11005 AU
minimum elong	12964 Jan 05 17:03	25° $\overline{3}$ 27'45	0°27'23	morning rise	12970 Feb 04 01:20	9° \approx 20'36	
max. Earth dist.	12964 Jan 05 20:27	25° $\overline{3}$ 28'04	31.05480 AU	retrograde	12970 May 03 22:25	11° \approx 15'02	
morning rise	12964 Jan 21 20:45	26° $\overline{3}$ 03'32		opposition	12970 Jul 21 02:55	9° \approx 51'34	0°35'25
retrograde	12964 Apr 20 01:32	27° $\overline{3}$ 58'44		min. Earth dist.	12970 Jul 21 04:17	9° \approx 51'28	29.11514 AU
opposition	12964 Jul 07 11:55	26° $\overline{3}$ 35'04	0°28'56	direct	12970 Oct 08 04:10	8° \approx 27'07	
min. Earth dist.	12964 Jul 07 09:07	26° $\overline{3}$ 35'16	29.06029 AU	evening set	12971 Jan 05 07:05	10° \approx 21'35	
direct	12964 Sep 24 04:33	25° $\overline{3}$ 10'49					
evening set	12964 Dec 22 02:26	27° $\overline{3}$ 05'16		conjunction	12971 Jan 21 10:46	10° \approx 57'14	0°33'32
				minimum elong	12971 Jan 21 10:46	10° \approx 57'14	0°34'21
conjunction	12965 Jan 07 06:04	27° $\overline{3}$ 41'00	0°27'36	max. Earth dist.	12971 Jan 21 09:26	10° \approx 57'07	31.12027 AU
minimum elong	12965 Jan 07 06:04	27° $\overline{3}$ 41'00	0°28'32	morning rise	12971 Feb 06 13:50	11° \approx 32'51	

retrograde	12971 May 06 09:57	13° \approx 27'11	evening set	12978 Jan 20 23:04	25° \approx 46'46	
opposition	12971 Jul 23 13:14	12° \approx 03'46 0°36'19				
min. Earth dist.	12971 Jul 23 13:56	12° \approx 03'43 29.12584 AU	conjunction	12978 Feb 06 01:59	26° \approx 22'17 0°38'11	
direct	12971 Oct 10 16:09	10° \approx 39'19	minimum elong	12978 Feb 06 02:00	26° \approx 22'18 0°38'48	
evening set	12972 Jan 07 19:36	12° \approx 33'47	max. Earth dist.	12978 Feb 05 19:39	26° \approx 21'42 31.19729 AU	
			morning rise	12978 Feb 22 03:52	26° \approx 57'44	
conjunction	12972 Jan 23 23:07	13° \approx 09'26 0°34'21	retrograde	12978 May 21 14:11	28° \approx 51'25	
minimum elong	12972 Jan 23 23:07	13° \approx 09'26 0°35'09	opposition	12978 Aug 07 13:29	27° \approx 28'24 0°41'04	
max. Earth dist.	12972 Jan 23 21:09	13° \approx 09'15 31.13147 AU	min. Earth dist.	12978 Aug 07 18:26	27° \approx 28'04 29.20126 AU	
morning rise	12972 Feb 09 02:04	13° \approx 45'02	direct	12978 Oct 25 22:54	26° \approx 03'56	
	12972 Mar 19 13:51	15° \approx	evening set	12979 Jan 23 11:33	27° \approx 58'33	
retrograde	12972 May 07 20:35	15° \approx 39'16				
	12972 Jun 27 07:01	15° \approx	conjunction	12979 Feb 08 14:23	28° \approx 34'03 0°38'38	
opposition	12972 Jul 24 23:40	14° \approx 15'55 0°37'10	minimum elong	12979 Feb 08 14:23	28° \approx 34'03 0°39'14	
min. Earth dist.	12972 Jul 25 01:26	14° \approx 15'48 29.13762 AU	max. Earth dist.	12979 Feb 08 07:42	28° \approx 33'27 31.20469 AU	
direct	12972 Oct 12 01:01	12° \approx 51'29	morning rise	12979 Feb 24 15:56	29° \approx 09'28	
evening set	12973 Jan 09 08:05	14° \approx 45'59		12979 Mar 21 16:25	0° \approx	
	12973 Jan 15 17:50	15° \approx	retrograde	12979 May 24 00:11	1° \approx 03'02	
conjunction	12973 Jan 25 11:39	15° \approx 21'37 0°35'08		12979 Jul 28 22:28	30° \approx	
minimum elong	12973 Jan 25 11:40	15° \approx 21'37 0°35'55	opposition	12979 Aug 09 23:51	29° \approx 40'02 0°41'31	
max. Earth dist.	12973 Jan 25 09:57	15° \approx 21'28 31.14368 AU	min. Earth dist.	12979 Aug 10 06:28	29° \approx 39'35 29.20831 AU	
morning rise	12973 Feb 10 14:23	15° \approx 57'12	direct	12979 Oct 28 10:10	28° \approx 15'32	
retrograde	12973 May 10 06:10	17° \approx 51'21	evening set	12980 Jan 21 06:15	0° \approx	
opposition	12973 Jul 27 09:53	16° \approx 28'05 0°37'58		12980 Jan 25 23:45	0° \approx 10'08	
min. Earth dist.	12973 Jul 27 11:32	16° \approx 27'58 29.14997 AU	conjunction	12980 Feb 11 02:26	0° \approx 45'36 0°39'01	
direct	12973 Oct 14 13:15	15° \approx 03'40	minimum elong	12980 Feb 11 02:26	0° \approx 45'36 0°39'35	
evening set	12974 Jan 11 20:45	16° \approx 58'13	max. Earth dist.	12980 Feb 10 19:11	0° \approx 44'56 31.21151 AU	
			morning rise	12980 Feb 27 03:48	1° \approx 20'59	
conjunction	12974 Jan 28 00:06	17° \approx 33'49 0°35'51	retrograde	12980 May 25 11:27	3° \approx 14'26	
minimum elong	12974 Jan 28 00:06	17° \approx 33'49 0°36'35	opposition	12980 Aug 11 10:01	1° \approx 51'27 0°41'54	
max. Earth dist.	12974 Jan 27 20:50	17° \approx 33'31 31.15610 AU	min. Earth dist.	12980 Aug 11 16:12	1° \approx 51'01 29.21488 AU	
morning rise	12974 Feb 13 02:48	18° \approx 09'23	direct	12980 Oct 29 22:57	0° \approx 26'54	
retrograde	12974 May 12 17:11	20° \approx 03'27	evening set	12981 Jan 27 12:01	2° \approx 21'29	
opposition	12974 Jul 29 20:13	18° \approx 40'17 0°38'42				
min. Earth dist.	12974 Jul 29 22:46	18° \approx 40'06 29.16233 AU	conjunction	12981 Feb 12 14:29	2° \approx 56'57 0°39'21	
direct	12974 Oct 16 22:52	17° \approx 15'52	minimum elong	12981 Feb 12 14:29	2° \approx 56'57 0°39'54	
evening set	12975 Jan 14 09:19	19° \approx 10'27	max. Earth dist.	12981 Feb 12 06:27	2° \approx 56'12 31.21798 AU	
			morning rise	12981 Feb 28 15:40	3° \approx 32'18	
conjunction	12975 Jan 30 12:42	19° \approx 46'03 0°36'31	retrograde	12981 May 27 21:28	5° \approx 25'38	
minimum elong	12975 Jan 30 12:42	19° \approx 46'03 0°37'14	opposition	12981 Aug 13 20:08	4° \approx 02'40 0°42'14	
max. Earth dist.	12975 Jan 30 09:47	19° \approx 45'47 31.16805 AU	min. Earth dist.	12981 Aug 14 03:32	4° \approx 02'09 29.22153 AU	
morning rise	12975 Feb 15 15:01	20° \approx 21'34	direct	12981 Nov 01 08:42	2° \approx 38'05	
retrograde	12975 May 15 03:16	22° \approx 15'34	evening set	12982 Jan 30 00:06	4° \approx 32'39	
opposition	12975 Aug 01 06:33	20° \approx 52'28 0°39'23				
min. Earth dist.	12975 Aug 01 10:00	20° \approx 52'13 29.17379 AU	conjunction	12982 Feb 15 02:32	5° \approx 08'05 0°39'38	
direct	12975 Oct 19 10:21	19° \approx 28'04	minimum elong	12982 Feb 15 02:32	5° \approx 08'05 0°40'08	
evening set	12976 Jan 16 22:02	21° \approx 22'40	max. Earth dist.	12982 Feb 14 18:47	5° \approx 07'22 31.22479 AU	
			morning rise	12982 Mar 03 03:25	5° \approx 43'25	
conjunction	12976 Feb 02 01:08	21° \approx 58'14 0°37'08	retrograde	12982 May 30 06:21	7° \approx 36'39	
minimum elong	12976 Feb 02 01:08	21° \approx 58'14 0°37'48	opposition	12982 Aug 16 06:15	6° \approx 13'42 0°42'29	
max. Earth dist.	12976 Feb 01 20:19	21° \approx 57'48 31.17903 AU	min. Earth dist.	12982 Aug 16 13:22	6° \approx 13'12 29.22855 AU	
morning rise	12976 Feb 18 03:25	22° \approx 33'45	direct	12982 Nov 03 21:08	4° \approx 49'05	
retrograde	12976 May 16 15:32	24° \approx 27'39	evening set	12983 Feb 01 12:14	6° \approx 43'39	
opposition	12976 Aug 02 16:54	23° \approx 04'35 0°40'00				
min. Earth dist.	12976 Aug 02 20:37	23° \approx 04'19 29.18425 AU	conjunction	12983 Feb 17 14:18	7° \approx 19'04 0°39'51	
direct	12976 Oct 20 21:19	21° \approx 40'10	minimum elong	12983 Feb 17 14:18	7° \approx 19'04 0°40'20	
evening set	12977 Jan 18 10:26	23° \approx 34'47	max. Earth dist.	12983 Feb 17 05:19	7° \approx 18'15 31.23222 AU	
			morning rise	12983 Mar 05 15:01	7° \approx 54'22	
conjunction	12977 Feb 03 13:35	24° \approx 10'20 0°37'41	retrograde	12983 Jun 01 16:30	9° \approx 47'32	
minimum elong	12977 Feb 03 13:35	24° \approx 10'20 0°38'21	opposition	12983 Aug 18 16:24	8° \approx 24'37 0°42'42	
max. Earth dist.	12977 Feb 03 08:55	24° \approx 09'55 31.18876 AU	min. Earth dist.	12983 Aug 18 23:49	8° \approx 24'06 29.23660 AU	
morning rise	12977 Feb 19 15:32	24° \approx 45'49	direct	12983 Nov 06 06:24	7° \approx 00'00	
retrograde	12977 May 19 02:11	26° \approx 39'37	evening set	12984 Feb 04 00:07	8° \approx 54'35	
opposition	12977 Aug 05 03:21	25° \approx 16'35 0°40'34				
min. Earth dist.	12977 Aug 05 08:30	25° \approx 16'13 29.19331 AU	conjunction	12984 Feb 20 02:10	9° \approx 29'59 0°40'01	
direct	12977 Oct 23 10:19	23° \approx 52'09	minimum elong	12984 Feb 20 02:11	9° \approx 29'59 0°40'28	

max. Earth dist.	12984 Feb 19 18:06	9° ✕ 29'15	31.24080 AU	conjunction	12991 Mar 07 12:04	24° ✕ 47'58	0°39'32
morning rise	12984 Mar 07 02:29	10° ✕ 05'16		minimum elong	12991 Mar 07 12:04	24° ✕ 47'58	0°39'44
retrograde	12984 Jun 03 01:49	11° ✕ 58'22		max. Earth dist.	12991 Mar 07 00:17	24° ✕ 46'53	31.30108 AU
opposition	12984 Aug 20 02:33	10° ✕ 35'30	0°42'50	morning rise	12991 Mar 23 10:29	25° ✕ 23'05	
min. Earth dist.	12984 Aug 20 10:20	10° ✕ 34'58	29.24569 AU	retrograde	12991 Jun 19 05:17	27° ✕ 15'51	
direct	12984 Nov 07 17:00	9° ✕ 10'55		opposition	12991 Sep 05 02:16	25° ✕ 53'24	0°42'05
evening set	12985 Feb 05 12:03	11° ✕ 05'32		min. Earth dist.	12991 Sep 05 13:16	25° ✕ 52'38	29.30360 AU
				direct	12991 Nov 24 02:16	24° ✕ 28'59	
conjunction	12985 Feb 21 13:47	11° ✕ 40'55	0°40'08	evening set	12992 Feb 21 23:24	26° ✕ 23'45	
minimum elong	12985 Feb 21 13:47	11° ✕ 40'55	0°40'32				
max. Earth dist.	12985 Feb 21 04:27	11° ✕ 40'03	31.25049 AU	conjunction	12992 Mar 08 23:30	26° ✕ 58'59	0°39'14
morning rise	12985 Mar 09 14:02	12° ✕ 16'11		minimum elong	12992 Mar 08 23:30	26° ✕ 59'00	0°39'24
retrograde	12985 Jun 05 13:34	14° ✕ 09'14		max. Earth dist.	12992 Mar 08 10:11	26° ✕ 57'46	31.30552 AU
opposition	12985 Aug 22 12:40	12° ✕ 46'27	0°42'55	morning rise	12992 Mar 24 21:46	27° ✕ 34'05	
min. Earth dist.	12985 Aug 22 20:11	12° ✕ 45'56	29.25575 AU	retrograde	12992 Jun 20 15:11	29° ✕ 26'47	
direct	12985 Nov 10 03:17	11° ✕ 21'55		opposition	12992 Sep 06 12:30	28° ✕ 04'19	0°41'44
evening set	12986 Feb 07 23:59	13° ✕ 16'34		min. Earth dist.	12992 Sep 07 00:03	28° ✕ 03'31	29.30770 AU
				direct	12992 Nov 25 11:50	26° ✕ 39'52	
conjunction	12986 Feb 24 01:39	13° ✕ 51'56	0°40'11	evening set	12993 Feb 23 10:54	28° ✕ 34'36	
minimum elong	12986 Feb 24 01:39	13° ✕ 51'56	0°40'32				
max. Earth dist.	12986 Feb 23 16:57	13° ✕ 51'08	31.26070 AU	conjunction	12993 Mar 11 10:58	29° ✕ 09'50	0°38'53
morning rise	12986 Mar 12 01:29	14° ✕ 27'10		minimum elong	12993 Mar 11 10:59	29° ✕ 09'50	0°39'00
retrograde	12986 Jun 07 24:00	16° ✕ 20'12		max. Earth dist.	12993 Mar 10 22:20	29° ✕ 08'40	31.30923 AU
opposition	12986 Aug 24 22:49	14° ✕ 57'30	0°42'56	morning rise	12993 Mar 27 08:49	29° ✕ 44'53	
min. Earth dist.	12986 Aug 25 07:34	14° ✕ 56'53	29.26599 AU		12993 Apr 03 11:03	0° ∇	
direct	12986 Nov 12 15:20	13° ✕ 33'01		retrograde	12993 Jun 22 23:50	1° ∇ 37'30	
evening set	12987 Feb 10 12:02	15° ✕ 27'44		opposition	12993 Sep 08 22:49	0° ∇ 15'02	0°41'20
				min. Earth dist.	12993 Sep 09 11:04	0° ∇ 14'11	29.31107 AU
conjunction	12987 Feb 26 13:22	16° ✕ 03'05	0°40'10		12993 Sep 18 01:08	30° ℞ ✕	
minimum elong	12987 Feb 26 13:22	16° ✕ 03'05	0°40'30	direct	12993 Nov 27 22:55	28° ✕ 50'33	
max. Earth dist.	12987 Feb 26 03:25	16° ✕ 02'10	31.27088 AU		12994 Feb 03 16:55	0° ∇	
morning rise	12987 Mar 14 13:03	16° ✕ 38'17		evening set	12994 Feb 25 22:35	0° ∇ 45'15	
retrograde	12987 Jun 10 12:02	18° ✕ 31'17					
opposition	12987 Aug 27 09:01	17° ✕ 08'40	0°42'53	conjunction	12994 Mar 13 22:13	1° ∇ 20'27	0°38'29
min. Earth dist.	12987 Aug 27 17:17	17° ✕ 08'05	29.27588 AU	minimum elong	12994 Mar 13 22:13	1° ∇ 20'27	0°38'33
direct	12987 Nov 15 03:08	15° ✕ 44'13		max. Earth dist.	12994 Mar 13 08:16	1° ∇ 19'10	31.31254 AU
evening set	12988 Feb 12 23:51	17° ✕ 38'59		morning rise	12994 Mar 29 19:56	1° ∇ 55'30	
				retrograde	12994 Jun 25 10:03	3° ∇ 48'02	
conjunction	12988 Feb 29 01:00	18° ✕ 14'18	0°40'06	opposition	12994 Sep 11 08:58	2° ∇ 25'33	0°40'52
minimum elong	12988 Feb 29 01:01	18° ✕ 14'18	0°40'23	min. Earth dist.	12994 Sep 11 20:50	2° ∇ 24'44	29.31446 AU
max. Earth dist.	12988 Feb 28 14:53	18° ✕ 13'22	31.28025 AU	direct	12994 Nov 30 09:42	1° ∇ 01'02	
morning rise	12988 Mar 16 00:19	18° ✕ 49'30		evening set	12995 Feb 28 10:00	2° ∇ 55'43	
retrograde	12988 Jun 11 22:30	20° ✕ 42'27					
opposition	12988 Aug 28 19:26	19° ✕ 19'54	0°42'47	conjunction	12995 Mar 16 09:30	3° ∇ 30'53	0°38'01
min. Earth dist.	12988 Aug 29 05:18	19° ✕ 19'13	29.28480 AU	minimum elong	12995 Mar 16 09:30	3° ∇ 30'53	0°38'04
direct	12988 Nov 16 14:05	17° ✕ 55'29		max. Earth dist.	12995 Mar 15 20:24	3° ∇ 29'41	31.31603 AU
evening set	12989 Feb 14 11:48	19° ✕ 50'16		morning rise	12995 Apr 01 06:44	4° ∇ 05'54	
				retrograde	12995 Jun 27 19:06	5° ∇ 58'23	
conjunction	12989 Mar 02 12:44	20° ✕ 25'34	0°39'58	opposition	12995 Sep 13 19:24	4° ∇ 35'54	0°40'20
minimum elong	12989 Mar 02 12:45	20° ✕ 25'34	0°40'14	min. Earth dist.	12995 Sep 14 08:05	4° ∇ 35'01	29.31830 AU
max. Earth dist.	12989 Mar 02 01:57	20° ✕ 24'35	31.28859 AU	direct	12995 Dec 02 21:04	3° ∇ 11'21	
morning rise	12989 Mar 18 11:49	21° ✕ 00'44		evening set	12996 Mar 01 21:18	5° ∇ 06'01	
retrograde	12989 Jun 14 10:26	22° ✕ 53'38					
opposition	12989 Aug 31 05:33	21° ✕ 31'08	0°42'37	conjunction	12996 Mar 17 20:25	5° ∇ 41'10	0°37'30
min. Earth dist.	12989 Aug 31 15:11	21° ✕ 30'28	29.29240 AU	minimum elong	12996 Mar 17 20:25	5° ∇ 41'10	0°37'30
direct	12989 Nov 19 03:11	20° ✕ 06'44		max. Earth dist.	12996 Mar 17 06:38	5° ∇ 39'54	31.32035 AU
evening set	12990 Feb 16 23:49	22° ✕ 01'31		morning rise	12996 Apr 02 17:30	6° ∇ 16'09	
				retrograde	12996 Jun 29 06:15	8° ∇ 08'36	
conjunction	12990 Mar 05 00:28	22° ✕ 36'49	0°39'47	opposition	12996 Sep 15 05:39	6° ∇ 46'07	0°39'45
minimum elong	12990 Mar 05 00:28	22° ✕ 36'49	0°40'01	min. Earth dist.	12996 Sep 15 17:17	6° ∇ 45'19	29.32303 AU
max. Earth dist.	12990 Mar 04 12:35	22° ✕ 35'43	31.29546 AU	direct	12996 Dec 04 08:23	5° ∇ 21'35	
morning rise	12990 Mar 20 23:16	23° ✕ 11'57		evening set	12997 Mar 04 08:39	7° ∇ 16'16	
retrograde	12990 Jun 16 20:48	25° ✕ 04'48					
opposition	12990 Sep 02 15:58	23° ✕ 42'19	0°42'23	conjunction	12997 Mar 20 07:34	7° ∇ 51'24	0°36'56
min. Earth dist.	12990 Sep 03 02:55	23° ✕ 41'34	29.29868 AU	minimum elong	12997 Mar 20 07:34	7° ∇ 51'24	0°36'54
direct	12990 Nov 21 13:38	22° ✕ 17'55		max. Earth dist.	12997 Mar 19 18:03	7° ∇ 50'09	31.32548 AU
evening set	12991 Feb 19 11:34	24° ✕ 12'42		morning rise	12997 Apr 05 04:16	8° ∇ 26'22	

retrograde	12997 Jul 01 16:27	10° Υ 18'47		minimum elong	13004 Apr 05 12:36	23° Υ 04'58	0°31'13
opposition	12997 Sep 17 15:57	8° Υ 56'21	0°39'07	max. Earth dist.	13004 Apr 04 21:11	23° Υ 03'33	31.35085 AU
min. Earth dist.	12997 Sep 18 04:42	8° Υ 55'28	29.32859 AU	morning rise	13004 Apr 21 07:08	23° Υ 39'49	
direct	12997 Dec 06 19:14	7° Υ 31'51		retrograde	13004 Jul 17 15:01	25° Υ 32'14	
evening set	12998 Mar 06 20:01	9° Υ 26'33		opposition	13004 Oct 03 17:51	24° Υ 10'03	0°33'07
				min. Earth dist.	13004 Oct 04 08:58	24° Υ 09'00	29.35047 AU
conjunction	12998 Mar 22 18:40	10° Υ 01'40	0°36'19	direct	13004 Dec 23 01:11	22° Υ 45'44	
minimum elong	12998 Mar 22 18:40	10° Υ 01'40	0°36'15	evening set	13005 Mar 23 02:50	24° Υ 40'32	
max. Earth dist.	12998 Mar 22 05:09	10° Υ 00'25	31.33139 AU				
morning rise	12998 Apr 07 15:06	10° Υ 36'36		conjunction	13005 Apr 07 23:24	25° Υ 15'32	0°30'33
retrograde	12998 Jul 04 04:05	12° Υ 29'01		minimum elong	13005 Apr 07 23:25	25° Υ 15'32	0°30'13
opposition	12998 Sep 20 02:17	11° Υ 06'38	0°38'25	max. Earth dist.	13005 Apr 07 07:03	25° Υ 14'01	31.34944 AU
min. Earth dist.	12998 Sep 20 14:21	11° Υ 05'48	29.33451 AU	morning rise	13005 Apr 23 17:47	25° Υ 50'22	
direct	12998 Dec 09 08:11	9° Υ 42'11		retrograde	13005 Jul 20 01:55	27° Υ 42'46	
evening set	12999 Mar 09 07:19	11° Υ 36'55		opposition	13005 Oct 06 04:19	26° Υ 20'33	0°32'04
				min. Earth dist.	13005 Oct 06 18:41	26° Υ 19'34	29.34850 AU
conjunction	12999 Mar 25 05:36	12° Υ 12'01	0°35'38	direct	13005 Dec 25 12:16	24° Υ 56'12	
minimum elong	12999 Mar 25 05:36	12° Υ 12'01	0°35'32	evening set	13006 Mar 25 13:52	26° Υ 51'00	
max. Earth dist.	12999 Mar 24 15:30	12° Υ 10'43	31.33724 AU				
morning rise	12999 Apr 10 01:44	12° Υ 46'56		conjunction	13006 Apr 10 10:11	27° Υ 25'59	0°29'33
retrograde	12999 Jul 06 14:42	14° Υ 39'22		minimum elong	13006 Apr 10 10:11	27° Υ 25'59	0°29'11
opposition	12999 Sep 22 12:47	13° Υ 17'02	0°37'40	max. Earth dist.	13006 Apr 09 17:54	27° Υ 24'29	31.34705 AU
min. Earth dist.	12999 Sep 23 01:46	13° Υ 16'08	29.34027 AU	morning rise	13006 Apr 26 04:11	28° Υ 00'48	
direct	12999 Dec 11 18:31	11° Υ 52'38		retrograde	13006 Jul 22 12:05	29° Υ 53'11	
evening set	13000 Mar 11 18:35	13° Υ 47'24		opposition	13006 Oct 08 15:06	28° Υ 30'56	0°30'58
				min. Earth dist.	13006 Oct 09 06:34	28° Υ 29'53	29.34598 AU
conjunction	13000 Mar 27 16:41	14° Υ 22'29	0°34'54	direct	13006 Dec 27 23:44	27° Υ 06'34	
minimum elong	13000 Mar 27 16:42	14° Υ 22'29	0°34'46	evening set	13007 Mar 28 00:37	29° Υ 01'20	
max. Earth dist.	13000 Mar 27 03:02	14° Υ 21'13	31.34264 AU				
morning rise	13000 Apr 12 12:27	14° Υ 57'24		conjunction	13007 Apr 12 20:38	29° Υ 36'18	0°28'30
retrograde	13000 Jul 08 23:52	16° Υ 49'49		minimum elong	13007 Apr 12 20:39	29° Υ 36'18	0°28'06
opposition	13000 Sep 24 23:13	15° Υ 27'33	0°36'51	max. Earth dist.	13007 Apr 12 04:42	29° Υ 34'49	31.34453 AU
min. Earth dist.	13000 Sep 25 12:13	15° Υ 26'39	29.34513 AU		13007 Apr 23 12:35	0° \mathcal{B}	
direct	13000 Dec 14 06:44	14° Υ 03'12		morning rise	13007 Apr 28 14:22	0° \mathcal{B} 11'06	
evening set	13001 Mar 14 06:00	15° Υ 57'59		retrograde	13007 Jul 24 23:29	2° \mathcal{B} 03'28	
				opposition	13007 Oct 11 01:46	0° \mathcal{B} 41'11	0°29'50
conjunction	13001 Mar 30 03:41	16° Υ 33'03	0°34'08	min. Earth dist.	13007 Oct 11 16:15	0° \mathcal{B} 40'12	29.34351 AU
minimum elong	13001 Mar 30 03:41	16° Υ 33'03	0°33'56		13007 Nov 06 04:20	30° \mathcal{R} Υ	
max. Earth dist.	13001 Mar 29 12:33	16° Υ 31'39	31.34691 AU	direct	13007 Dec 30 13:22	29° Υ 16'48	
morning rise	13001 Apr 14 23:17	17° Υ 07'57			13008 Feb 21 02:33	0° \mathcal{B}	
retrograde	13001 Jul 11 10:29	19° Υ 00'22		evening set	13008 Mar 29 11:29	1° \mathcal{B} 11'33	
opposition	13001 Sep 27 09:48	17° Υ 38'09	0°36'00				
min. Earth dist.	13001 Sep 27 23:12	17° Υ 37'13	29.34878 AU	conjunction	13008 Apr 14 07:07	1° \mathcal{B} 46'30	0°27'25
direct	13001 Dec 16 16:28	16° Υ 13'49		minimum elong	13008 Apr 14 07:07	1° \mathcal{B} 46'30	0°26'59
evening set	13002 Mar 16 17:16	18° Υ 08'37		max. Earth dist.	13008 Apr 13 14:53	1° \mathcal{B} 45'00	31.34232 AU
				morning rise	13008 Apr 30 00:36	2° \mathcal{B} 21'17	
conjunction	13002 Apr 01 14:48	18° Υ 43'41	0°33'18	retrograde	13008 Jul 26 09:49	4° \mathcal{B} 13'40	
minimum elong	13002 Apr 01 14:49	18° Υ 43'41	0°33'04	opposition	13008 Oct 12 12:25	2° \mathcal{B} 51'21	0°28'39
max. Earth dist.	13002 Apr 01 00:18	18° Υ 42'21	31.34974 AU	min. Earth dist.	13008 Oct 13 03:17	2° \mathcal{B} 50'20	29.34182 AU
morning rise	13002 Apr 17 09:55	19° Υ 18'34		direct	13009 Jan 01 00:03	1° \mathcal{B} 26'58	
retrograde	13002 Jul 13 19:23	21° Υ 10'59		evening set	13009 Mar 31 22:11	3° \mathcal{B} 21'43	
opposition	13002 Sep 29 20:27	19° Υ 48'48	0°35'05				
min. Earth dist.	13002 Sep 30 10:42	19° Υ 47'49	29.35078 AU	conjunction	13009 Apr 16 17:40	3° \mathcal{B} 56'39	0°26'18
direct	13002 Dec 19 03:30	18° Υ 24'29		minimum elong	13009 Apr 16 17:41	3° \mathcal{B} 56'39	0°25'50
evening set	13003 Mar 19 04:39	20° Υ 19'18		max. Earth dist.	13009 Apr 16 02:28	3° \mathcal{B} 55'15	31.34106 AU
max. Earth dist.	13003 Apr 03 09:46	20° Υ 52'52	31.35105 AU	morning rise	13009 May 02 10:46	4° \mathcal{B} 31'25	
				retrograde	13009 Jul 28 18:50	6° \mathcal{B} 23'48	
conjunction	13003 Apr 04 01:44	20° Υ 54'20	0°32'26	opposition	13009 Oct 14 23:09	5° \mathcal{B} 01'31	0°27'26
minimum elong	13003 Apr 04 01:44	20° Υ 54'20	0°32'10	min. Earth dist.	13009 Oct 15 13:27	5° \mathcal{B} 00'32	29.34088 AU
morning rise	13003 Apr 19 20:42	21° Υ 29'13		direct	13010 Jan 03 12:36	3° \mathcal{B} 37'08	
retrograde	13003 Jul 16 05:57	23° Υ 21'38		evening set	13010 Apr 03 09:00	5° \mathcal{B} 31'54	
opposition	13003 Oct 02 07:06	21° Υ 59'27	0°34'07	max. Earth dist.	13010 Apr 18 11:59	6° \mathcal{B} 05'20	31.34057 AU
min. Earth dist.	13003 Oct 02 21:00	21° Υ 58'29	29.35138 AU				
direct	13003 Dec 21 14:07	20° Υ 35'08		conjunction	13010 Apr 19 04:01	6° \mathcal{B} 06'49	0°25'09
evening set	13004 Mar 20 15:39	22° Υ 29'57		minimum elong	13010 Apr 19 04:01	6° \mathcal{B} 06'49	0°24'38
				morning rise	13010 May 04 20:57	6° \mathcal{B} 41'34	
conjunction	13004 Apr 05 12:36	23° Υ 04'58	0°31'30	retrograde	13010 Jul 31 05:44	8° \mathcal{B} 33'59	

opposition	13010 Oct 17 09:55	7°8'11"43	0°26'11"	direct	13017 Jan 18 17:56	18°8'50"19	
min. Earth dist.	13010 Oct 17 23:55	7°8'10"45	29.34075 AU	evening set	13017 Apr 18 11:59	20°8'45"06	
direct	13011 Jan 05 23:08	5°8'47"23					
evening set	13011 Apr 05 19:38	7°8'42"09		conjunction	13017 May 04 04:58	21°8'19"56	0°16'08"
				minimum elong	13017 May 04 04:58	21°8'19"56	0°15'25"
conjunction	13011 Apr 21 14:31	8°8'17"04	0°23'57"	behind sun begin	13017 May 04 03:05	21°8'19"46	
minimum elong	13011 Apr 21 14:31	8°8'17"04	0°23'25"	behind sun end	13017 May 04 06:52	21°8'20"07	
max. Earth dist.	13011 Apr 20 23:47	8°8'15"42	31.34061 AU	max. Earth dist.	13017 May 03 12:55	21°8'18"27	31.32516 AU
morning rise	13011 May 07 07:00	8°8'51"49		morning rise	13017 May 19 19:59	21°8'54"38	
retrograde	13011 Aug 02 14:42	10°8'44"16		retrograde	13017 Aug 15 05:24	23°8'47"19	
opposition	13011 Oct 19 20:50	9°8'22"01	0°24'53"	opposition	13017 Nov 01 15:20	22°8'25"01	0°16'25"
min. Earth dist.	13011 Oct 20 11:14	9°8'21"02	29.34078 AU	min. Earth dist.	13017 Nov 02 06:12	22°8'24"00	29.32206 AU
direct	13012 Jan 08 10:27	7°8'57"44		direct	13018 Jan 21 04:47	21°8'00"46	
evening set	13012 Apr 07 06:19	9°8'52"30		evening set	13018 Apr 20 22:28	22°8'55"31	
max. Earth dist.	13012 Apr 22 09:09	10°8'25"58	31.34062 AU				
				conjunction	13018 May 06 15:17	23°8'30"21	0°14'44"
conjunction	13012 Apr 23 00:46	10°8'27"25	0°22'43"	minimum elong	13018 May 06 15:17	23°8'30"21	0°14'00"
minimum elong	13012 Apr 23 00:46	10°8'27"25	0°22'09"	behind sun begin	13018 May 06 12:00	23°8'30"04	
morning rise	13012 May 08 17:10	11°8'02"09		behind sun end	13018 May 06 18:35	23°8'30"39	
retrograde	13012 Aug 04 00:50	12°8'54"39		max. Earth dist.	13018 May 06 00:13	23°8'28"57	31.31843 AU
opposition	13012 Oct 21 07:42	11°8'32"26	0°23'33"	morning rise	13018 May 22 05:56	24°8'05"02	
min. Earth dist.	13012 Oct 21 21:24	11°8'31"29	29.34054 AU	retrograde	13018 Aug 17 14:50	25°8'57"44	
direct	13013 Jan 09 20:49	10°8'08"10		opposition	13018 Nov 04 02:33	24°8'35"24	0°14'55"
evening set	13013 Apr 09 17:03	12°8'02"57		min. Earth dist.	13018 Nov 04 17:03	24°8'34"24	29.31490 AU
				direct	13019 Jan 23 18:03	23°8'11"07	
conjunction	13013 Apr 25 11:19	12°8'37"51	0°21'27"	evening set	13019 Apr 23 09:00	25°8'05"51	
minimum elong	13013 Apr 25 11:19	12°8'37"51	0°20'51"	max. Earth dist.	13019 May 08 09:30	25°8'39"12	31.31118 AU
max. Earth dist.	13013 Apr 24 20:27	12°8'36"29	31.33991 AU				
morning rise	13013 May 11 03:17	13°8'12"35		conjunction	13019 May 09 01:23	25°8'40"40	0°13'20"
	13013 Jul 20 02:11	15°8'		minimum elong	13019 May 09 01:23	25°8'40"40	0°12'34"
retrograde	13013 Aug 06 09:44	15°8'05"07		behind sun begin	13019 May 08 21:12	25°8'40"18	
	13013 Aug 24 00:56	15°8'8'		behind sun end	13019 May 09 05:34	25°8'41"02	
opposition	13013 Oct 23 18:42	13°8'42"55	0°22'10"	morning rise	13019 May 24 15:58	26°8'15"21	
min. Earth dist.	13013 Oct 24 09:29	13°8'41"54	29.33937 AU	retrograde	13019 Aug 20 02:03	28°8'08"04	
direct	13014 Jan 12 06:59	12°8'18"41		opposition	13019 Nov 06 13:45	26°8'45"40	0°13'24"
evening set	13014 Apr 12 03:54	14°8'13"29		min. Earth dist.	13019 Nov 07 03:47	26°8'44"43	29.30778 AU
				direct	13020 Jan 26 05:17	25°8'21"22	
conjunction	13014 Apr 27 21:45	14°8'48"22	0°20'10"	evening set	13020 Apr 24 19:13	27°8'16"05	
minimum elong	13014 Apr 27 21:46	14°8'48"22	0°19'32"				
max. Earth dist.	13014 Apr 27 06:15	14°8'46"56	31.33826 AU	conjunction	13020 May 10 11:32	27°8'50"54	0°11'54"
	13014 May 03 02:38	15°8'		minimum elong	13020 May 10 11:32	27°8'50"54	0°11'07"
morning rise	13014 May 13 13:33	15°8'23"05		behind sun begin	13020 May 10 06:42	27°8'50"28	
retrograde	13014 Aug 08 20:52	17°8'15"40		behind sun end	13020 May 10 16:21	27°8'51"20	
opposition	13014 Oct 26 05:47	15°8'53"28	0°20'46"	max. Earth dist.	13020 May 09 21:10	27°8'49"34	31.30418 AU
min. Earth dist.	13014 Oct 26 19:36	15°8'52"31	29.33706 AU	morning rise	13020 May 26 01:43	28°8'25"34	
	13014 Nov 30 12:36	15°8'8'			13020 Jul 19 08:39	0°8'	
direct	13015 Jan 14 17:44	14°8'29"14		retrograde	13020 Aug 21 10:57	0°8'18"20	
	13015 Feb 27 19:11	15°8'			13020 Sep 24 07:44	30°8'8'	
evening set	13015 Apr 14 14:31	16°8'24"02		opposition	13020 Nov 08 01:05	28°8'55"54	0°11'51"
				min. Earth dist.	13020 Nov 08 15:12	28°8'54"56	29.30105 AU
conjunction	13015 Apr 30 08:07	16°8'58"54	0°18'50"	direct	13021 Jan 27 17:20	27°8'31"36	
minimum elong	13015 Apr 30 08:07	16°8'58"54	0°18'11"	evening set	13021 Apr 27 05:40	29°8'26"18	
max. Earth dist.	13015 Apr 29 16:37	16°8'57"28	31.33521 AU				
morning rise	13015 May 15 23:34	17°8'33"37		conjunction	13021 May 12 21:31	0°8'01"06	0°10'28"
retrograde	13015 Aug 11 07:16	19°8'26"15		minimum elong	13021 May 12 21:31	0°8'01"06	0°09'39"
opposition	13015 Oct 28 17:04	18°8'04"01	0°19'21"	behind sun begin	13021 May 12 16:11	0°8'00"38	
min. Earth dist.	13015 Oct 29 07:59	18°8'03"00	29.33340 AU	behind sun end	13021 May 13 02:52	0°8'01"35	
direct	13016 Jan 17 04:54	16°8'39"48		max. Earth dist.	13021 May 12 06:44	29°8'59"44	31.29795 AU
evening set	13016 Apr 16 01:14	18°8'34"35			13021 May 12 09:32	0°8'	
				morning rise	13021 May 28 11:38	0°8'35"47	
conjunction	13016 May 01 18:34	19°8'09"27	0°17'30"	retrograde	13021 Aug 23 21:04	2°8'28"36	
minimum elong	13016 May 01 18:34	19°8'09"27	0°16'49"	opposition	13021 Nov 10 12:15	1°8'06"10	0°10'18"
max. Earth dist.	13016 May 01 03:14	19°8'08"02	31.33090 AU	min. Earth dist.	13021 Nov 11 01:03	1°8'05"17	29.29534 AU
morning rise	13016 May 17 09:46	19°8'44"09			13021 Dec 26 21:32	30°8'8'	
retrograde	13016 Aug 12 18:30	21°8'36"48		direct	13022 Jan 30 03:53	29°8'41"52	
opposition	13016 Oct 30 04:04	20°8'14"33	0°17'53"		13022 Mar 04 15:22	0°8'	
min. Earth dist.	13016 Oct 30 18:21	20°8'13"34	29.32831 AU	evening set	13022 Apr 29 15:57	1°8'36"35	

conjunction	13022 May 15 07:40	2°II11'24	0°09'00	opposition	13027 Nov 24 09:49	14°II11'15	0°00'41
minimum elong	13022 May 15 07:39	2°II11'24	0°08'11	min. Earth dist.	13027 Nov 24 21:18	14°II10'28	29.26680 AU
behind sun begin	13022 May 15 01:55	2°II10'53		direct	13028 Feb 12 21:59	12°II47'15	
behind sun end	13022 May 15 13:23	2°II11'54		desc. node	13028 May 09 19:07	14°II36'43	
max. Earth dist.	13022 May 14 18:09	2°II10'09	31.29270 AU	evening set	13028 May 12 06:14	14°II42'05	
morning rise	13022 May 30 21:24	2°II46'04					
retrograde	13022 Aug 26 06:14	4°II38'58		conjunction	13028 May 27 20:16	15°II16'53	-0°00'06
opposition	13022 Nov 12 23:47	3°II16'32	0°08'43	minimum elong	13028 May 27 20:17	15°II16'53	0°01'02
min. Earth dist.	13022 Nov 13 12:58	3°II15'38	29.29058 AU	behind sun begin	13028 May 27 13:51	15°II16'18	
direct	13023 Feb 01 13:46	1°II52'18		behind sun end	13028 May 28 02:44	15°II17'27	
evening set	13023 May 02 02:09	3°II47'01		max. Earth dist.	13028 May 27 07:36	15°II15'42	31.26310 AU
				morning rise	13028 Jun 12 09:01	15°II51'34	
conjunction	13023 May 17 17:31	4°II21'49	0°07'32	retrograde	13028 Sep 08 03:37	17°II45'03	
minimum elong	13023 May 17 17:32	4°II21'49	0°06'41	opposition	13028 Nov 25 21:40	16°II22'38	-0°00'57
behind sun begin	13023 May 17 11:29	4°II21'17		min. Earth dist.	13028 Nov 26 08:51	16°II21'52	29.25920 AU
behind sun end	13023 May 17 23:34	4°II22'22		direct	13029 Feb 14 10:07	14°II58'37	
max. Earth dist.	13023 May 17 04:09	4°II20'35	31.28843 AU	evening set	13029 May 14 16:40	16°II53'28	
morning rise	13023 Jun 02 07:10	4°II56'30					
retrograde	13023 Aug 28 17:25	6°II49'30		conjunction	13029 May 30 06:39	17°II28'15	-0°01'39
opposition	13023 Nov 15 11:09	5°II27'05	0°07'08	minimum elong	13029 May 30 06:39	17°II28'15	0°02'36
min. Earth dist.	13023 Nov 15 22:51	5°II26'17	29.28649 AU	behind sun begin	13029 May 30 00:13	17°II27'40	
direct	13024 Feb 03 23:53	4°II02'54		behind sun end	13029 May 30 13:05	17°II28'49	
evening set	13024 May 03 12:29	5°II57'39		max. Earth dist.	13029 May 29 19:04	17°II27'11	31.25470 AU
				morning rise	13029 Jun 14 19:01	18°II02'56	
conjunction	13024 May 19 03:38	6°II32'27	0°06'03	retrograde	13029 Sep 10 13:04	19°II56'29	
minimum elong	13024 May 19 03:37	6°II32'27	0°05'11	opposition	13029 Nov 28 09:38	18°II34'01	-0°02'34
behind sun begin	13024 May 18 21:21	6°II31'54		min. Earth dist.	13029 Nov 28 21:16	18°II33'14	29.25006 AU
behind sun end	13024 May 19 09:53	6°II33'01		direct	13030 Feb 16 22:45	17°II10'00	
max. Earth dist.	13024 May 18 14:38	6°II31'15	31.28444 AU	evening set	13030 May 17 03:12	19°II04'49	
morning rise	13024 Jun 03 17:02	7°II07'08					
retrograde	13024 Aug 30 04:19	9°II00'15		conjunction	13030 Jun 01 16:49	19°II39'36	-0°03'10
opposition	13024 Nov 16 22:37	7°II37'51	0°05'32	minimum elong	13030 Jun 01 16:49	19°II39'36	0°04'08
min. Earth dist.	13024 Nov 17 11:04	7°II37'00	29.28257 AU	behind sun begin	13030 Jun 01 10:28	19°II39'01	
direct	13025 Feb 05 10:26	6°II13'43		behind sun end	13030 Jun 01 23:10	19°II40'10	
evening set	13025 May 05 22:53	8°II08'30		max. Earth dist.	13030 Jun 01 04:35	19°II38'28	31.24507 AU
				morning rise	13030 Jun 17 05:11	20°II14'17	
conjunction	13025 May 21 13:48	8°II43'18	0°04'33	retrograde	13030 Sep 12 23:42	22°II07'53	
minimum elong	13025 May 21 13:48	8°II43'18	0°03'39	opposition	13030 Nov 30 21:35	20°II45'22	-0°04'11
behind sun begin	13025 May 21 07:25	8°II42'44		min. Earth dist.	13030 Dec 01 08:09	20°II44'38	29.23991 AU
behind sun end	13025 May 21 20:12	8°II43'52		direct	13031 Feb 19 10:31	19°II21'19	
max. Earth dist.	13025 May 21 01:30	8°II42'10	31.28043 AU	evening set	13031 May 19 13:23	21°II16'05	
morning rise	13025 Jun 06 02:59	9°II17'59					
retrograde	13025 Sep 01 16:15	11°II11'12		conjunction	13031 Jun 04 02:56	21°II50'52	-0°04'41
opposition	13025 Nov 19 10:14	9°II48'49	0°03'55	minimum elong	13031 Jun 04 02:55	21°II50'52	0°05'39
min. Earth dist.	13025 Nov 19 21:43	9°II48'02	29.27820 AU	behind sun begin	13031 Jun 03 20:43	21°II50'18	
direct	13026 Feb 07 22:37	8°II24'44		behind sun end	13031 Jun 04 09:06	21°II51'25	
evening set	13026 May 08 09:19	10°II19'33		max. Earth dist.	13031 Jun 03 15:43	21°II49'49	31.23448 AU
				morning rise	13031 Jun 19 15:03	22°II25'32	
conjunction	13026 May 23 23:50	10°II54'21	0°03'02	retrograde	13031 Sep 15 09:02	24°II19'13	
minimum elong	13026 May 23 23:51	10°II54'21	0°02'07	opposition	13031 Dec 03 09:39	22°II56'36	-0°05'47
behind sun begin	13026 May 23 17:24	10°II53'46		min. Earth dist.	13031 Dec 03 20:49	22°II55'50	29.22913 AU
behind sun end	13026 May 24 06:18	10°II54'55		direct	13032 Feb 21 21:51	21°II32'31	
max. Earth dist.	13026 May 23 11:06	10°II53'10	31.27568 AU	evening set	13032 May 20 23:43	23°II27'14	
morning rise	13026 Jun 08 12:53	11°II29'02					
retrograde	13026 Sep 04 03:57	13°II22'21		conjunction	13032 Jun 05 12:59	24°II02'01	-0°06'10
opposition	13026 Nov 21 22:02	11°II59'58	0°02'18	minimum elong	13032 Jun 05 12:59	24°II02'01	0°07'08
min. Earth dist.	13026 Nov 22 09:50	11°II59'10	29.27311 AU	behind sun begin	13032 Jun 05 07:03	24°II01'29	
direct	13027 Feb 10 08:40	10°II35'56		behind sun end	13032 Jun 05 18:56	24°II02'33	
evening set	13027 May 10 19:42	12°II30'46		max. Earth dist.	13032 Jun 05 02:00	24°II01'00	31.22374 AU
				morning rise	13032 Jun 21 01:04	24°II36'42	
conjunction	13027 May 26 10:08	13°II05'33	0°01'28	retrograde	13032 Sep 16 19:48	26°II30'25	
minimum elong	13027 May 26 10:08	13°II05'33	0°00'33	opposition	13032 Dec 04 21:25	25°II07'44	-0°07'23
behind sun begin	13027 May 26 03:43	13°II04'59		min. Earth dist.	13032 Dec 05 07:00	25°II07'05	29.21850 AU
behind sun end	13027 May 26 16:34	13°II06'08		direct	13033 Feb 23 09:22	23°II43'37	
max. Earth dist.	13027 May 25 22:28	13°II04'29	31.27003 AU	evening set	13033 May 23 10:03	25°II38'19	
morning rise	13027 Jun 10 22:51	13°II40'14					
retrograde	13027 Sep 06 14:45	15°II33'39		conjunction	13033 Jun 07 23:05	26°II13'05	-0°07'39

minimum elong	13033 Jun 07 23:05	26°II13'05	0°08'38	morning rise	13038 Jul 04 12:55	7°☾44'33	
behind sun begin	13033 Jun 07 17:28	26°II12'35		retrograde	13038 Sep 30 16:50	9°☾38'58	
behind sun end	13033 Jun 08 04:42	26°II13'35		opposition	13038 Dec 18 22:38	8°☾16'08	-0°16'43
max. Earth dist.	13033 Jun 07 12:36	26°II12'07	31.21333 AU	min. Earth dist.	13038 Dec 19 05:36	8°☾15'39	29.16808 AU
morning rise	13033 Jun 23 11:00	26°II47'47		direct	13039 Mar 09 05:48	6°☾52'12	
retrograde	13033 Sep 19 06:04	28°II41'35		evening set	13039 Jun 05 23:44	8°☾46'59	
opposition	13033 Dec 07 09:34	27°II18'50	-0°08'59				
min. Earth dist.	13033 Dec 07 19:25	27°II18'10	29.20860 AU	conjunction	13039 Jun 21 11:44	9°☾21'46	-0°16'18
direct	13034 Feb 25 19:52	25°II54'43		minimum elong	13039 Jun 21 11:43	9°☾21'46	0°17'18
evening set	13034 May 25 20:10	27°II49'23		max. Earth dist.	13039 Jun 21 04:32	9°☾21'06	31.16374 AU
				morning rise	13039 Jul 06 23:08	9°☾56'31	
conjunction	13034 Jun 10 09:05	28°II24'09	-0°09'08	retrograde	13039 Oct 03 04:59	11°☾51'03	
minimum elong	13034 Jun 10 09:04	28°II24'09	0°10'07	opposition	13039 Dec 21 11:04	10°☾28'13	-0°18'12
behind sun begin	13034 Jun 10 03:53	28°II23'41		min. Earth dist.	13039 Dec 21 16:56	10°☾27'49	29.15919 AU
behind sun end	13034 Jun 10 14:15	28°II24'37		direct	13040 Mar 10 17:40	9°☾04'19	
max. Earth dist.	13034 Jun 09 23:51	28°II23'18	31.20394 AU	evening set	13040 Jun 07 10:15	10°☾59'07	
morning rise	13034 Jun 25 20:48	28°II58'50					
	13034 Jul 26 10:13	0°☾		conjunction	13040 Jun 22 22:10	11°☾33'55	-0°17'41
retrograde	13034 Sep 21 17:09	0°☾52'45		minimum elong	13040 Jun 22 22:10	11°☾33'55	0°18'40
	13034 Nov 21 02:32	30°RII		max. Earth dist.	13040 Jun 22 15:46	11°☾33'19	31.15417 AU
opposition	13034 Dec 09 21:39	29°II29'57	-0°10'33	morning rise	13040 Jul 08 09:25	12°☾08'41	
min. Earth dist.	13034 Dec 10 05:59	29°II29'23	29.19961 AU	retrograde	13040 Oct 04 15:43	14°☾03'20	
direct	13035 Feb 28 07:33	28°II05'51		opposition	13040 Dec 22 23:35	12°☾40'29	-0°19'39
evening set	13035 May 28 06:30	0°☾00'32		min. Earth dist.	13040 Dec 23 06:13	12°☾40'01	29.14902 AU
	13035 May 28 00:40	0°☾		direct	13041 Mar 13 05:10	11°☾16'37	
				evening set	13041 Jun 09 20:51	13°☾11'25	
conjunction	13035 Jun 12 19:06	0°☾35'18	-0°10'36				
minimum elong	13035 Jun 12 19:06	0°☾35'18	0°11'35	conjunction	13041 Jun 25 08:37	13°☾46'13	-0°19'01
behind sun begin	13035 Jun 12 14:28	0°☾34'53		minimum elong	13041 Jun 25 08:37	13°☾46'13	0°20'01
behind sun end	13035 Jun 12 23:44	0°☾35'43		max. Earth dist.	13041 Jun 25 02:12	13°☾45'37	31.14340 AU
max. Earth dist.	13035 Jun 12 09:49	0°☾34'26	31.19542 AU	morning rise	13041 Jul 10 19:50	14°☾21'00	
morning rise	13035 Jun 28 06:50	1°☾10'00		retrograde	13041 Oct 07 03:26	16°☾15'46	
retrograde	13035 Sep 24 05:18	3°☾04'01		opposition	13041 Dec 25 12:11	14°☾52'52	-0°21'05
opposition	13035 Dec 12 09:42	1°☾41'12	-0°12'07	min. Earth dist.	13041 Dec 25 17:27	14°☾52'31	29.13751 AU
min. Earth dist.	13035 Dec 12 17:55	1°☾40'39	29.19157 AU	direct	13042 Mar 15 17:12	13°☾29'00	
direct	13036 Mar 01 17:10	0°☾17'08		evening set	13042 Jun 12 07:20	15°☾23'48	
evening set	13036 May 29 16:39	2°☾11'50					
				conjunction	13042 Jun 27 18:57	15°☾58'37	-0°20'21
conjunction	13036 Jun 14 05:16	2°☾46'36	-0°12'03	minimum elong	13042 Jun 27 18:57	15°☾58'37	0°21'19
minimum elong	13036 Jun 14 05:16	2°☾46'36	0°13'03	max. Earth dist.	13042 Jun 27 12:36	15°☾58'01	31.13118 AU
behind sun begin	13036 Jun 14 01:20	2°☾46'15		morning rise	13042 Jul 13 06:09	16°☾33'24	
behind sun end	13036 Jun 14 09:12	2°☾46'57		retrograde	13042 Oct 09 14:02	18°☾28'18	
max. Earth dist.	13036 Jun 13 21:33	2°☾45'53	31.18764 AU	opposition	13042 Dec 28 00:58	17°☾05'19	-0°22'29
morning rise	13036 Jun 29 16:47	3°☾21'17		min. Earth dist.	13042 Dec 28 06:52	17°☾04'55	29.12475 AU
retrograde	13036 Sep 25 16:39	5°☾15'27		direct	13043 Mar 18 03:59	15°☾41'26	
opposition	13036 Dec 13 21:53	3°☾52'38	-0°13'40	evening set	13043 Jun 14 17:47	17°☾36'12	
min. Earth dist.	13036 Dec 14 05:22	3°☾52'07	29.18384 AU				
direct	13037 Mar 04 06:11	2°☾28'36		conjunction	13043 Jun 30 05:25	18°☾11'01	-0°21'38
evening set	13037 Jun 01 03:02	4°☾23'20		minimum elong	13043 Jun 30 05:25	18°☾11'01	0°22'37
				max. Earth dist.	13043 Jun 30 00:03	18°☾10'31	31.11799 AU
conjunction	13037 Jun 16 15:18	4°☾58'06	-0°13'29	morning rise	13043 Jul 15 16:33	18°☾45'49	
minimum elong	13037 Jun 16 15:18	4°☾58'06	0°14'29	retrograde	13043 Oct 12 01:05	20°☾40'48	
behind sun begin	13037 Jun 16 12:21	4°☾57'50		opposition	13043 Dec 30 13:25	19°☾17'45	-0°23'51
behind sun end	13037 Jun 16 18:15	4°☾58'22		min. Earth dist.	13043 Dec 30 18:11	19°☾17'25	29.11113 AU
max. Earth dist.	13037 Jun 16 07:01	4°☾57'20	31.18001 AU	direct	13044 Mar 19 15:34	17°☾53'50	
morning rise	13037 Jul 02 02:52	5°☾32'49		evening set	13044 Jun 16 04:18	19°☾48'34	
retrograde	13037 Sep 28 06:14	7°☾27'05					
opposition	13037 Dec 16 10:09	6°☾04'16	-0°15'12	conjunction	13044 Jul 01 15:43	20°☾23'23	-0°22'54
min. Earth dist.	13037 Dec 16 16:56	6°☾03'48	29.17621 AU	minimum elong	13044 Jul 01 15:43	20°☾23'23	0°23'52
direct	13038 Mar 06 17:38	4°☾40'17		max. Earth dist.	13044 Jul 01 10:05	20°☾22'52	31.10422 AU
evening set	13038 Jun 03 13:21	6°☾35'02		morning rise	13044 Jul 17 02:59	20°☾58'12	
				retrograde	13044 Oct 13 13:23	22°☾53'17	
conjunction	13038 Jun 19 01:36	7°☾09'49	-0°14'54	opposition	13045 Jan 01 02:05	21°☾30'08	-0°25'10
minimum elong	13038 Jun 19 01:36	7°☾09'49	0°15'54	min. Earth dist.	13045 Jan 01 06:47	21°☾29'48	29.09748 AU
behind sun begin	13038 Jun 19 00:25	7°☾09'43		direct	13045 Mar 22 01:36	20°☾06'10	
behind sun end	13038 Jun 19 02:47	7°☾09'56		evening set	13045 Jun 18 14:36	22°☾00'53	
max. Earth dist.	13038 Jun 18 18:49	7°☾09'12	31.17216 AU				

conjunction	13045 Jul 04 02:03	22°☾35'42	-0°24'07	retrograde	13051 Oct 30 01:56	8°♊21'55	
minimum elong	13045 Jul 04 02:03	22°☾35'42	0°25'05	opposition	13052 Jan 17 19:17	6°♊58'26	-0°33'22
max. Earth dist.	13045 Jul 03 22:11	22°☾35'21	31.09072 AU	min. Earth dist.	13052 Jan 17 19:17	6°♊58'26	29.02437 AU
morning rise	13045 Jul 19 13:08	23°☾10'32		direct	13052 Apr 06 13:56	5°♊34'35	
retrograde	13045 Oct 16 00:53	25°☾05'42		evening set	13052 Jul 03 16:06	7°♊29'18	
opposition	13046 Jan 03 14:45	23°☾42'28	-0°26'28				
min. Earth dist.	13046 Jan 03 18:26	23°☾42'13	29.08432 AU	conjunction	13052 Jul 19 03:16	8°♊04'12	-0°31'38
direct	13046 Mar 24 15:04	22°☾18'29		minimum elong	13052 Jul 19 03:16	8°♊04'12	0°32'29
evening set	13046 Jun 21 01:05	24°☾13'11		max. Earth dist.	13052 Jul 19 04:03	8°♊04'16	31.01951 AU
				morning rise	13052 Aug 03 14:42	8°♊39'08	
conjunction	13046 Jul 06 12:17	24°☾48'01	-0°25'18	retrograde	13052 Oct 31 13:33	10°♊35'10	
minimum elong	13046 Jul 06 12:17	24°☾48'01	0°26'15	opposition	13053 Jan 19 08:14	9°♊11'38	-0°34'21
max. Earth dist.	13046 Jul 06 08:09	24°☾47'38	31.07813 AU	min. Earth dist.	13053 Jan 19 07:06	9°♊11'43	29.01459 AU
morning rise	13046 Jul 21 23:33	25°☾22'51		direct	13053 Apr 09 01:54	7°♊47'49	
retrograde	13046 Oct 18 14:53	27°☾18'08		evening set	13053 Jul 06 02:56	9°♊42'32	
opposition	13047 Jan 06 03:24	25°☾54'49	-0°27'43				
min. Earth dist.	13047 Jan 06 05:59	25°☾54'38	29.07240 AU	conjunction	13053 Jul 21 13:56	10°♊17'26	-0°32'32
direct	13047 Mar 27 02:18	24°☾30'50		minimum elong	13053 Jul 21 13:56	10°♊17'26	0°33'22
evening set	13047 Jun 23 11:20	26°☾25'32		max. Earth dist.	13053 Jul 21 14:14	10°♊17'28	31.00925 AU
				morning rise	13053 Aug 06 01:33	10°♊52'24	
conjunction	13047 Jul 08 22:39	27°☾00'22	-0°26'28	retrograde	13053 Nov 03 02:29	12°♊48'33	
minimum elong	13047 Jul 08 22:39	27°☾00'22	0°27'24	opposition	13054 Jan 21 21:23	11°♊24'59	-0°35'17
max. Earth dist.	13047 Jul 08 20:20	27°☾00'09	31.06671 AU	min. Earth dist.	13054 Jan 21 20:26	11°♊25'03	29.00393 AU
morning rise	13047 Jul 24 09:47	27°☾35'13		direct	13054 Apr 11 12:13	10°♊01'10	
retrograde	13047 Oct 21 01:34	29°☾30'37		evening set	13054 Jul 08 13:43	11°♊55'52	
opposition	13048 Jan 08 16:07	28°☾07'14	-0°28'56				
min. Earth dist.	13048 Jan 08 18:27	28°☾07'05	29.06150 AU	conjunction	13054 Jul 24 00:55	12°♊30'47	-0°33'24
direct	13048 Mar 28 14:12	26°☾43'17		minimum elong	13054 Jul 24 00:55	12°♊30'47	0°34'12
evening set	13048 Jun 24 21:50	28°☾37'58		max. Earth dist.	13054 Jul 24 02:32	12°♊30'56	30.99803 AU
				morning rise	13054 Aug 08 12:30	13°♊05'46	
conjunction	13048 Jul 10 08:58	29°☾12'49	-0°27'35		13054 Oct 25 15:02	15°♊	
minimum elong	13048 Jul 10 08:58	29°☾12'49	0°28'29	retrograde	13054 Nov 05 14:10	15°♊02'01	
max. Earth dist.	13048 Jul 10 06:41	29°☾12'36	31.05641 AU		13054 Nov 16 18:06	15°♊	
morning rise	13048 Jul 25 20:16	29°☾47'41		opposition	13055 Jan 24 10:27	13°♊38'23	-0°36'10
	13048 Jul 31 11:24	0°♊		min. Earth dist.	13055 Jan 24 08:56	13°♊38'29	28.99212 AU
retrograde	13048 Oct 22 14:49	1°♊43'11		direct	13055 Apr 14 01:08	12°♊14'33	
opposition	13049 Jan 10 04:40	0°♊19'47	-0°30'06	evening set	13055 Jul 11 00:36	14°♊09'13	
min. Earth dist.	13049 Jan 10 05:29	0°♊19'44	29.05163 AU				
	13049 Jan 22 08:53	30°♊		conjunction	13055 Jul 26 11:42	14°♊44'09	-0°34'12
direct	13049 Mar 31 02:49	28°☾55'51		minimum elong	13055 Jul 26 11:43	14°♊44'09	0°34'59
	13049 Jun 02 20:04	0°♊		max. Earth dist.	13055 Jul 26 12:34	14°♊44'14	30.98582 AU
evening set	13049 Jun 27 08:17	0°♊50'33			13055 Aug 02 10:50	15°♊	
				morning rise	13055 Aug 10 23:37	15°♊19'09	
conjunction	13049 Jul 12 19:27	1°♊25'25	-0°28'39	retrograde	13055 Nov 08 04:11	17°♊15'30	
minimum elong	13049 Jul 12 19:27	1°♊25'25	0°29'34	opposition	13056 Jan 26 23:30	15°♊51'46	-0°37'00
max. Earth dist.	13049 Jul 12 18:24	1°♊25'19	31.04685 AU	min. Earth dist.	13056 Jan 26 21:24	15°♊51'55	28.97955 AU
morning rise	13049 Jul 28 06:42	2°♊00'18			13056 Feb 29 20:36	15°♊	
retrograde	13049 Oct 25 02:52	3°♊55'56		direct	13056 Apr 15 12:08	14°♊27'55	
opposition	13050 Jan 12 17:36	2°♊32'30	-0°31'14		13056 May 29 15:21	15°♊	
min. Earth dist.	13050 Jan 12 18:42	2°♊32'25	29.04240 AU	evening set	13056 Jul 12 11:20	16°♊22'34	
direct	13050 Apr 02 15:00	1°♊08'36					
evening set	13050 Jun 29 18:43	3°♊03'18		conjunction	13056 Jul 27 22:38	16°♊57'30	-0°34'57
				minimum elong	13056 Jul 27 22:38	16°♊57'30	0°35'42
conjunction	13050 Jul 15 05:51	3°♊38'10	-0°29'42	max. Earth dist.	13056 Jul 28 00:57	16°♊57'43	30.97293 AU
minimum elong	13050 Jul 15 05:51	3°♊38'10	0°30'35	morning rise	13056 Aug 12 10:30	17°♊32'31	
max. Earth dist.	13050 Jul 15 05:22	3°♊38'07	31.03789 AU	retrograde	13056 Nov 09 15:26	19°♊28'58	
morning rise	13050 Jul 30 17:12	4°♊13'04		opposition	13057 Jan 28 12:32	18°♊05'09	-0°37'47
retrograde	13050 Oct 27 14:54	6°♊08'50		min. Earth dist.	13057 Jan 28 10:25	18°♊05'17	28.96659 AU
opposition	13051 Jan 15 06:25	4°♊45'22	-0°32'19	direct	13057 Apr 18 00:26	16°♊41'15	
min. Earth dist.	13051 Jan 15 05:51	4°♊45'25	29.03346 AU	evening set	13057 Jul 14 22:11	18°♊35'53	
direct	13051 Apr 05 03:21	3°♊21'30					
evening set	13051 Jul 02 05:23	5°♊16'13		conjunction	13057 Jul 30 09:25	19°♊10'49	-0°35'39
				minimum elong	13057 Jul 30 09:25	19°♊10'49	0°36'23
conjunction	13051 Jul 17 16:27	5°♊51'06	-0°30'41	max. Earth dist.	13057 Jul 30 11:45	19°♊11'03	30.96026 AU
minimum elong	13051 Jul 17 16:27	5°♊51'06	0°31'34	morning rise	13057 Aug 14 21:33	19°♊45'52	
max. Earth dist.	13051 Jul 17 16:12	5°♊51'04	31.02885 AU	retrograde	13057 Nov 12 05:35	21°♊42'23	
morning rise	13051 Aug 02 03:54	6°♊26'01		opposition	13058 Jan 31 01:35	20°♊18'29	-0°38'31

min. Earth dist.	13058 Jan 30 21:57	20°Ω18'44	28.95429 AU	conjunction	13064 Aug 14 14:29	4°♊47'02	-0°39'03
direct	13058 Apr 20 13:22	18°Ω54'34		minimum elong	13064 Aug 14 14:30	4°♊47'02	0°39'33
evening set	13058 Jul 17 08:50	20°Ω49'11		max. Earth dist.	13064 Aug 14 21:34	4°♊47'43	30.90029 AU
				morning rise	13064 Aug 30 03:55	5°♊22'15	
conjunction	13058 Aug 01 20:12	21°Ω24'09	-0°36'18	retrograde	13064 Nov 27 21:15	7°♊19'38	
minimum elong	13058 Aug 01 20:12	21°Ω24'09	0°37'00	opposition	13065 Feb 15 21:16	5°♊55'31	-0°41'55
max. Earth dist.	13058 Aug 01 23:49	21°Ω24'29	30.94831 AU	min. Earth dist.	13065 Feb 15 13:19	5°♊56'04	28.89714 AU
morning rise	13058 Aug 17 08:25	21°Ω59'12		direct	13065 May 05 21:49	4°♊31'50	
retrograde	13058 Nov 14 18:07	23°Ω55'50		evening set	13065 Aug 01 13:49	6°♊26'29	
opposition	13059 Feb 02 14:43	22°Ω31'51	-0°39'10				
min. Earth dist.	13059 Feb 02 11:14	22°Ω32'05	28.94299 AU	conjunction	13065 Aug 17 02:02	7°♊01'35	-0°39'18
direct	13059 Apr 23 01:52	21°Ω07'57		minimum elong	13065 Aug 17 02:02	7°♊01'35	0°39'47
evening set	13059 Jul 19 19:39	23°Ω02'32		max. Earth dist.	13065 Aug 17 10:24	7°♊02'23	30.89342 AU
				morning rise	13065 Sep 01 15:31	7°♊36'50	
conjunction	13059 Aug 04 07:07	23°Ω37'31	-0°36'54	retrograde	13065 Nov 30 09:31	9°♊34'19	
minimum elong	13059 Aug 04 07:07	23°Ω37'31	0°37'35	opposition	13066 Feb 18 10:38	8°♊10'11	-0°42'09
max. Earth dist.	13059 Aug 04 11:26	23°Ω37'56	30.93772 AU	min. Earth dist.	13066 Feb 18 02:51	8°♊10'43	28.88990 AU
morning rise	13059 Aug 19 19:30	24°Ω12'36		direct	13066 May 08 09:49	6°♊46'31	
retrograde	13059 Nov 17 06:36	26°Ω09'20		evening set	13066 Aug 04 01:12	8°♊41'10	
opposition	13060 Feb 05 03:31	24°Ω45'19	-0°39'47				
min. Earth dist.	13060 Feb 04 22:11	24°Ω45'41	28.93303 AU	conjunction	13066 Aug 19 13:30	9°♊16'16	-0°39'29
direct	13060 Apr 24 14:27	23°Ω21'25		minimum elong	13066 Aug 19 13:30	9°♊16'16	0°39'56
evening set	13060 Jul 21 06:34	25°Ω16'01		max. Earth dist.	13066 Aug 19 21:22	9°♊17'01	30.88579 AU
				morning rise	13066 Sep 04 03:21	9°♊51'32	
conjunction	13060 Aug 05 18:03	25°Ω51'01	-0°37'27	retrograde	13066 Dec 03 00:44	11°♊49'07	
minimum elong	13060 Aug 05 18:03	25°Ω51'01	0°38'05	opposition	13067 Feb 20 23:55	10°♊24'56	-0°42'19
max. Earth dist.	13060 Aug 05 22:49	25°Ω51'28	30.92836 AU	min. Earth dist.	13067 Feb 20 15:14	10°♊25'31	28.88174 AU
morning rise	13060 Aug 21 06:39	26°Ω26'08		direct	13067 May 10 22:47	9°♊01'15	
retrograde	13060 Nov 18 18:15	28°Ω22'59		evening set	13067 Aug 06 12:42	10°♊55'53	
opposition	13061 Feb 06 16:41	26°Ω58'56	-0°40'20				
min. Earth dist.	13061 Feb 06 11:31	26°Ω59'17	28.92438 AU	conjunction	13067 Aug 22 01:13	11°♊31'01	-0°39'37
direct	13061 Apr 27 01:29	25°Ω35'05		minimum elong	13067 Aug 22 01:14	11°♊31'01	0°40'03
evening set	13061 Jul 23 17:17	27°Ω29'40		max. Earth dist.	13067 Aug 22 09:40	11°♊31'49	30.87698 AU
				morning rise	13067 Sep 06 15:15	12°♊06'18	
conjunction	13061 Aug 08 04:59	28°Ω04'42	-0°37'56	retrograde	13067 Dec 05 13:27	14°♊03'57	
minimum elong	13061 Aug 08 04:59	28°Ω04'42	0°38'33	opposition	13068 Feb 23 13:09	12°♊39'41	-0°42'26
max. Earth dist.	13061 Aug 08 11:15	28°Ω05'17	30.92034 AU	min. Earth dist.	13068 Feb 23 05:15	12°♊40'13	28.87245 AU
morning rise	13061 Aug 23 17:40	28°Ω39'50		direct	13068 May 12 11:13	11°♊15'59	
	13061 Oct 04 13:25	0°♊		evening set	13068 Aug 08 00:08	13°♊10'34	
retrograde	13061 Nov 21 06:31	0°♊36'49					
	13062 Jan 09 19:14	30°♋Ω		conjunction	13068 Aug 23 12:52	13°♊45'43	-0°39'42
opposition	13062 Feb 09 05:46	29°Ω12'44	-0°40'49	minimum elong	13068 Aug 23 12:53	13°♊45'43	0°40'04
min. Earth dist.	13062 Feb 08 23:02	29°Ω13'12	28.91680 AU	max. Earth dist.	13068 Aug 23 21:31	13°♊46'32	30.86743 AU
direct	13062 Apr 29 13:37	27°Ω48'56		morning rise	13068 Sep 08 03:10	14°♊21'02	
evening set	13062 Jul 26 04:21	29°Ω43'32		retrograde	13068 Dec 07 03:02	16°♊18'42	
	13062 Aug 02 12:12	0°♊		opposition	13069 Feb 25 02:20	14°♊54'22	-0°42'28
				min. Earth dist.	13069 Feb 24 17:03	14°♊55'00	28.86260 AU
conjunction	13062 Aug 10 16:01	0°♊18'35	-0°38'22	direct	13069 May 15 00:34	13°♊30'37	
minimum elong	13062 Aug 10 16:01	0°♊18'35	0°38'57	evening set	13069 Aug 10 11:29	15°♊25'10	
max. Earth dist.	13062 Aug 10 22:08	0°♊19'09	30.91322 AU				
morning rise	13062 Aug 26 05:02	0°♊53'45		conjunction	13069 Aug 26 00:21	16°♊00'19	-0°39'42
retrograde	13062 Nov 23 19:27	2°♊50'52		minimum elong	13069 Aug 26 00:21	16°♊00'19	0°40'04
opposition	13063 Feb 11 18:54	1°♊26'47	-0°41'15	max. Earth dist.	13069 Aug 26 09:09	16°♊01'09	30.85748 AU
min. Earth dist.	13063 Feb 11 12:11	1°♊27'14	28.91013 AU	morning rise	13069 Sep 10 14:58	16°♊35'39	
direct	13063 May 01 23:46	0°♊03'01		retrograde	13069 Dec 09 15:55	18°♊33'23	
evening set	13063 Jul 28 15:18	1°♊57'38		opposition	13070 Feb 27 15:42	17°♊08'56	-0°42'27
				min. Earth dist.	13070 Feb 27 06:54	17°♊09'32	28.85286 AU
conjunction	13063 Aug 13 03:17	2°♊32'41	-0°38'44	direct	13070 May 17 13:06	15°♊45'10	
minimum elong	13063 Aug 13 03:17	2°♊32'42	0°39'18	evening set	13070 Aug 12 22:50	17°♊39'38	
max. Earth dist.	13063 Aug 13 11:01	2°♊33'25	30.90673 AU				
morning rise	13063 Aug 28 16:22	3°♊07'53		conjunction	13070 Aug 28 12:02	18°♊14'49	-0°39'40
retrograde	13063 Nov 26 07:01	5°♊05'08		minimum elong	13070 Aug 28 12:03	18°♊14'49	0°39'58
opposition	13064 Feb 14 08:03	3°♊41'03	-0°41'37	max. Earth dist.	13070 Aug 28 22:06	18°♊15'46	30.84806 AU
min. Earth dist.	13064 Feb 14 00:36	3°♊41'33	28.90366 AU	morning rise	13070 Sep 13 02:50	18°♊50'10	
direct	13064 May 03 11:56	2°♊17'20		retrograde	13070 Dec 12 04:52	20°♊47'56	
evening set	13064 Jul 30 02:33	4°♊11'58		opposition	13071 Mar 02 04:40	19°♊23'25	-0°42'22
				min. Earth dist.	13071 Mar 01 18:28	19°♊24'07	28.84382 AU

direct	13071 May 20 02:43	17° <u>0</u> 59'36		minimum elong	13077 Sep 12 22:49	3° <u>0</u> 57'39	0°37'42
evening set	13071 Aug 15 10:21	19° <u>0</u> 54'03		max. Earth dist.	13077 Sep 13 12:11	3° <u>0</u> 58'55	30.81139 AU
				morning rise	13077 Sep 28 15:44	4° <u>0</u> 33'11	
conjunction	13071 Aug 30 23:37	20° <u>0</u> 29'15	-0°39'33	retrograde	13077 Dec 28 00:55	6° <u>0</u> 31'29	
minimum elong	13071 Aug 30 23:38	20° <u>0</u> 29'15	0°39'50	min. Earth dist.	13078 Mar 17 11:08	5° <u>0</u> 07'46	28.80982 AU
max. Earth dist.	13071 Aug 31 09:26	20° <u>0</u> 30'11	30.83951 AU	opposition	13078 Mar 18 00:35	5° <u>0</u> 06'50	-0°39'59
morning rise	13071 Sep 15 14:51	21° <u>0</u> 04'38		direct	13078 Jun 04 12:11	3° <u>0</u> 43'11	
retrograde	13071 Dec 14 17:06	23° <u>0</u> 02'27		evening set	13078 Aug 30 20:02	5° <u>0</u> 37'39	
opposition	13072 Mar 03 17:52	21° <u>0</u> 37'51	-0°42'13				
min. Earth dist.	13072 Mar 03 07:43	21° <u>0</u> 38'33	28.83596 AU	conjunction	13078 Sep 15 11:07	6° <u>0</u> 13'01	-0°37'08
direct	13072 May 21 13:36	20° <u>0</u> 14'02		minimum elong	13078 Sep 15 11:07	6° <u>0</u> 13'01	0°37'07
evening set	13072 Aug 16 21:40	22° <u>0</u> 08'27		max. Earth dist.	13078 Sep 16 00:14	6° <u>0</u> 14'15	30.80762 AU
				morning rise	13078 Oct 01 04:25	6° <u>0</u> 48'35	
conjunction	13072 Sep 01 11:19	22° <u>0</u> 43'40	-0°39'24	retrograde	13078 Dec 30 15:10	8° <u>0</u> 46'57	
minimum elong	13072 Sep 01 11:20	22° <u>0</u> 43'40	0°39'37	opposition	13079 Mar 20 13:44	7° <u>0</u> 22'16	-0°39'23
max. Earth dist.	13072 Sep 01 22:51	22° <u>0</u> 44'46	30.83223 AU	min. Earth dist.	13079 Mar 20 01:18	7° <u>0</u> 23'08	28.80570 AU
morning rise	13072 Sep 17 02:38	23° <u>0</u> 19'05		direct	13079 Jun 07 00:43	5° <u>0</u> 58'38	
retrograde	13072 Dec 16 04:18	25° <u>0</u> 16'57		evening set	13079 Sep 02 08:05	7° <u>0</u> 53'07	
opposition	13073 Mar 06 06:56	23° <u>0</u> 52'19	-0°42'01				
min. Earth dist.	13073 Mar 05 19:47	23° <u>0</u> 53'06	28.82928 AU	conjunction	13079 Sep 17 23:36	8° <u>0</u> 28'30	-0°36'33
direct	13073 May 24 02:13	22° <u>0</u> 28'31		minimum elong	13079 Sep 17 23:37	8° <u>0</u> 28'30	0°36'31
evening set	13073 Aug 19 09:14	24° <u>0</u> 22'55		max. Earth dist.	13079 Sep 18 13:15	8° <u>0</u> 29'47	30.80304 AU
				morning rise	13079 Oct 03 17:07	9° <u>0</u> 04'06	
conjunction	13073 Sep 03 22:58	24° <u>0</u> 58'09	-0°39'10	retrograde	13080 Jan 02 05:19	11° <u>0</u> 02'29	
minimum elong	13073 Sep 03 22:59	24° <u>0</u> 58'09	0°39'22	opposition	13080 Mar 22 02:50	9° <u>0</u> 37'47	-0°38'44
max. Earth dist.	13073 Sep 04 10:02	24° <u>0</u> 59'12	30.82629 AU	min. Earth dist.	13080 Mar 21 13:30	9° <u>0</u> 38'42	28.80053 AU
morning rise	13073 Sep 19 14:45	25° <u>0</u> 33'35		direct	13080 Jun 08 14:54	8° <u>0</u> 14'08	
retrograde	13073 Dec 18 18:20	27° <u>0</u> 31'32		evening set	13080 Sep 03 20:11	10° <u>0</u> 08'35	
opposition	13074 Mar 08 20:04	26° <u>0</u> 06'52	-0°41'44				
min. Earth dist.	13074 Mar 08 08:14	26° <u>0</u> 07'42	28.82405 AU	conjunction	13080 Sep 19 11:50	10° <u>0</u> 43'59	-0°35'55
direct	13074 May 26 12:12	24° <u>0</u> 43'05		minimum elong	13080 Sep 19 11:50	10° <u>0</u> 43'59	0°35'50
evening set	13074 Aug 21 20:40	26° <u>0</u> 37'29		max. Earth dist.	13080 Sep 20 00:41	10° <u>0</u> 45'12	30.79742 AU
				morning rise	13080 Oct 05 05:49	11° <u>0</u> 19'37	
conjunction	13074 Sep 06 10:49	27° <u>0</u> 12'44	-0°38'53	retrograde	13081 Jan 03 17:49	13° <u>0</u> 18'02	
minimum elong	13074 Sep 06 10:49	27° <u>0</u> 12'44	0°39'01	opposition	13081 Mar 24 16:02	11° <u>0</u> 53'16	-0°38'02
max. Earth dist.	13074 Sep 06 23:26	27° <u>0</u> 13'56	30.82157 AU	min. Earth dist.	13081 Mar 24 03:21	11° <u>0</u> 54'09	28.79464 AU
morning rise	13074 Sep 22 02:46	27° <u>0</u> 48'12		direct	13081 Jun 11 02:19	10° <u>0</u> 29'36	
retrograde	13074 Dec 21 06:14	29° <u>0</u> 46'15		evening set	13081 Sep 06 08:10	12° <u>0</u> 24'00	
opposition	13075 Mar 11 09:12	28° <u>0</u> 21'34	-0°41'24				
min. Earth dist.	13075 Mar 10 21:14	28° <u>0</u> 22'24	28.81978 AU	conjunction	13081 Sep 22 00:18	12° <u>0</u> 59'26	-0°35'14
direct	13075 May 29 00:12	26° <u>0</u> 57'49		minimum elong	13081 Sep 22 00:18	12° <u>0</u> 59'26	0°35'07
evening set	13075 Aug 24 08:23	28° <u>0</u> 52'13		max. Earth dist.	13081 Sep 22 14:22	13° <u>0</u> 00'46	30.79139 AU
				morning rise	13081 Oct 07 18:28	13° <u>0</u> 35'05	
conjunction	13075 Sep 08 22:42	29° <u>0</u> 27'30	-0°38'32	retrograde	13082 Jan 06 05:45	15° <u>0</u> 33'29	
minimum elong	13075 Sep 08 22:42	29° <u>0</u> 27'30	0°38'39	opposition	13082 Mar 27 04:59	14° <u>0</u> 08'40	-0°37'16
max. Earth dist.	13075 Sep 09 11:02	29° <u>0</u> 28'40	30.81782 AU	min. Earth dist.	13082 Mar 26 15:44	14° <u>0</u> 09'35	28.78854 AU
	13075 Sep 23 06:51	0° <u>0</u>		direct	13082 Jun 13 15:52	12° <u>0</u> 44'57	
morning rise	13075 Sep 24 15:04	0° <u>0</u> 02'59		evening set	13082 Sep 08 20:15	14° <u>0</u> 39'19	
retrograde	13075 Dec 23 21:06	2° <u>0</u> 01'07					
opposition	13076 Mar 12 22:10	0° <u>0</u> 36'27	-0°40'59	conjunction	13082 Sep 24 12:33	15° <u>0</u> 14'45	-0°34'29
min. Earth dist.	13076 Mar 12 09:13	0° <u>0</u> 37'20	28.81635 AU	minimum elong	13082 Sep 24 12:33	15° <u>0</u> 14'45	0°34'19
	13076 Apr 04 13:49	30° <u>0</u> 8'00		max. Earth dist.	13082 Sep 25 01:48	15° <u>0</u> 16'01	30.78549 AU
direct	13076 May 30 11:50	29° <u>0</u> 12'43		morning rise	13082 Oct 10 07:15	15° <u>0</u> 50'26	
	13076 Jul 23 02:00	0° <u>0</u>		retrograde	13083 Jan 08 19:37	17° <u>0</u> 48'50	
evening set	13076 Aug 25 20:10	1° <u>0</u> 07'10		opposition	13083 Mar 29 17:53	16° <u>0</u> 23'56	-0°36'26
				min. Earth dist.	13083 Mar 29 04:25	16° <u>0</u> 24'53	28.78300 AU
conjunction	13076 Sep 10 10:45	1° <u>0</u> 42'28	-0°38'08	direct	13083 Jun 16 02:41	15° <u>0</u> 00'11	
minimum elong	13076 Sep 10 10:46	1° <u>0</u> 42'28	0°38'11	evening set	13083 Sep 11 08:15	16° <u>0</u> 54'31	
max. Earth dist.	13076 Sep 10 23:59	1° <u>0</u> 43'43	30.81453 AU				
morning rise	13076 Sep 26 03:21	2° <u>0</u> 17'59		conjunction	13083 Sep 27 00:59	17° <u>0</u> 29'58	-0°33'42
retrograde	13076 Dec 25 09:59	4° <u>0</u> 16'12		minimum elong	13083 Sep 27 00:59	17° <u>0</u> 29'58	0°33'30
opposition	13077 Mar 15 11:26	2° <u>0</u> 51'32	-0°40'31	max. Earth dist.	13083 Sep 27 15:33	17° <u>0</u> 31'21	30.78028 AU
min. Earth dist.	13077 Mar 14 23:08	2° <u>0</u> 52'23	28.81318 AU	morning rise	13083 Oct 12 19:49	18° <u>0</u> 05'40	
direct	13077 Jun 01 23:16	1° <u>0</u> 27'52		retrograde	13084 Jan 11 06:08	20° <u>0</u> 04'04	
evening set	13077 Aug 28 07:55	3° <u>0</u> 22'19		opposition	13084 Mar 31 06:38	18° <u>0</u> 39'07	-0°35'34
				min. Earth dist.	13084 Mar 30 17:05	18° <u>0</u> 40'04	28.77832 AU
conjunction	13077 Sep 12 22:48	3° <u>0</u> 57'39	-0°37'40	direct	13084 Jun 17 15:22	17° <u>0</u> 15'20	

evening set	13084 Sep 12 20:23	19° <u>♂</u> 09'38		max. Earth dist.	13090 Oct 13 09:30	3° <u>♂</u> 17'47	30.77945 AU
				morning rise	13090 Oct 28 14:03	3° <u>♂</u> 52'03	
conjunction	13084 Sep 28 13:19	19° <u>♂</u> 45'06 -0°32'52		retrograde	13091 Jan 27 04:59	5° <u>♂</u> 50'29	
minimum elong	13084 Sep 28 13:19	19° <u>♂</u> 45'06 0°32'36		opposition	13091 Apr 16 23:31	4° <u>♂</u> 25'31 -0°27'59	
max. Earth dist.	13084 Sep 29 03:31	19° <u>♂</u> 46'27 30.77636 AU		min. Earth dist.	13091 Apr 16 08:20	4° <u>♂</u> 26'35 28.78056 AU	
morning rise	13084 Oct 14 08:37	20° <u>♂</u> 20'49		direct	13091 Jul 04 04:23	3° <u>♂</u> 01'47	
retrograde	13085 Jan 12 19:35	22° <u>♂</u> 19'13		evening set	13091 Sep 29 10:31	4° <u>♂</u> 56'03	
opposition	13085 Apr 02 19:24	20° <u>♂</u> 54'14 -0°34'38					
min. Earth dist.	13085 Apr 02 04:49	20° <u>♂</u> 55'15 28.77514 AU		conjunction	13091 Oct 15 05:44	5° <u>♂</u> 31'40 -0°25'38	
direct	13085 Jun 20 02:24	19° <u>♂</u> 30'25		minimum elong	13091 Oct 15 05:44	5° <u>♂</u> 31'40 0°25'08	
evening set	13085 Sep 15 08:20	21° <u>♂</u> 24'41		max. Earth dist.	13091 Oct 15 20:58	5° <u>♂</u> 33'07 30.78112 AU	
				morning rise	13091 Oct 31 03:24	6° <u>♂</u> 07'32	
conjunction	13085 Oct 01 01:39	22° <u>♂</u> 00'11 -0°31'58		retrograde	13092 Jan 29 18:59	8° <u>♂</u> 05'57	
minimum elong	13085 Oct 01 01:39	22° <u>♂</u> 00'11 0°31'42		opposition	13092 Apr 18 12:11	6° <u>♂</u> 40'59 -0°26'42	
max. Earth dist.	13085 Oct 01 16:54	22° <u>♂</u> 01'37 30.77383 AU		min. Earth dist.	13092 Apr 17 21:20	6° <u>♂</u> 42'02 28.78188 AU	
morning rise	13085 Oct 16 21:13	22° <u>♂</u> 35'54		direct	13092 Jul 05 15:49	5° <u>♂</u> 17'14	
retrograde	13086 Jan 15 07:31	24° <u>♂</u> 34'19		evening set	13092 Sep 30 23:08	7° <u>♂</u> 11'30	
opposition	13086 Apr 05 08:14	23° <u>♂</u> 09'18 -0°33'39					
min. Earth dist.	13086 Apr 04 18:08	23° <u>♂</u> 10'17 28.77339 AU		conjunction	13092 Oct 16 18:49	7° <u>♂</u> 47'08 -0°24'26	
direct	13086 Jun 22 13:03	21° <u>♂</u> 45'29		minimum elong	13092 Oct 16 18:50	7° <u>♂</u> 47'09 0°23'53	
evening set	13086 Sep 17 20:29	23° <u>♂</u> 39'44		max. Earth dist.	13092 Oct 17 10:48	7° <u>♂</u> 48'39 30.78199 AU	
				morning rise	13092 Nov 01 16:40	8° <u>♂</u> 23'01	
conjunction	13086 Oct 03 14:10	24° <u>♂</u> 15'15 -0°31'02		retrograde	13093 Jan 31 06:14	10° <u>♂</u> 21'24	
minimum elong	13086 Oct 03 14:10	24° <u>♂</u> 15'15 0°30'42		min. Earth dist.	13093 Apr 20 10:23	8° <u>♂</u> 57'26 28.78234 AU	
max. Earth dist.	13086 Oct 04 05:37	24° <u>♂</u> 16'42 30.77294 AU		opposition	13093 Apr 21 00:51	8° <u>♂</u> 56'26 -0°25'24	
morning rise	13086 Oct 19 10:06	24° <u>♂</u> 51'00		direct	13093 Jul 08 04:44	7° <u>♂</u> 32'40	
retrograde	13087 Jan 17 21:49	26° <u>♂</u> 49'24		evening set	13093 Oct 03 11:44	9° <u>♂</u> 26'53	
opposition	13087 Apr 07 20:44	25° <u>♂</u> 24'23 -0°32'37					
min. Earth dist.	13087 Apr 07 05:19	25° <u>♂</u> 25'27 28.77318 AU		conjunction	13093 Oct 19 07:42	10° <u>♂</u> 02'33 -0°23'11	
direct	13087 Jun 25 01:49	24° <u>♂</u> 00'33		minimum elong	13093 Oct 19 07:42	10° <u>♂</u> 02'33 0°22'38	
evening set	13087 Sep 20 08:44	25° <u>♂</u> 54'49		max. Earth dist.	13093 Oct 19 22:38	10° <u>♂</u> 03'57 30.78231 AU	
				morning rise	13093 Nov 04 06:02	10° <u>♂</u> 38'26	
conjunction	13087 Oct 06 02:41	26° <u>♂</u> 30'21 -0°30'02		retrograde	13094 Feb 02 19:43	12° <u>♂</u> 36'46	
minimum elong	13087 Oct 06 02:41	26° <u>♂</u> 30'21 0°29'42		opposition	13094 Apr 23 13:21	11° <u>♂</u> 11'47 -0°24'03	
max. Earth dist.	13087 Oct 06 18:13	26° <u>♂</u> 31'49 30.77333 AU		min. Earth dist.	13094 Apr 22 22:32	11° <u>♂</u> 12'49 28.78248 AU	
morning rise	13087 Oct 21 23:00	27° <u>♂</u> 06'07		direct	13094 Jul 10 16:04	9° <u>♂</u> 47'58	
retrograde	13088 Jan 20 11:30	29° <u>♂</u> 04'33		evening set	13094 Oct 06 00:24	11° <u>♂</u> 42'10	
opposition	13088 Apr 09 09:32	27° <u>♂</u> 39'31 -0°31'32					
min. Earth dist.	13088 Apr 08 18:50	27° <u>♂</u> 40'32 28.77423 AU		conjunction	13094 Oct 21 20:46	12° <u>♂</u> 17'51 -0°21'55	
direct	13088 Jun 26 13:47	26° <u>♂</u> 15'43		minimum elong	13094 Oct 21 20:46	12° <u>♂</u> 17'51 0°21'18	
evening set	13088 Sep 21 20:50	28° <u>♂</u> 09'58		max. Earth dist.	13094 Oct 22 12:14	12° <u>♂</u> 19'18 30.78235 AU	
				morning rise	13094 Nov 06 19:20	12° <u>♂</u> 53'45	
conjunction	13088 Oct 07 15:13	28° <u>♂</u> 45'32 -0°29'00		retrograde	13095 Feb 05 07:13	14° <u>♂</u> 52'02	
minimum elong	13088 Oct 07 15:13	28° <u>♂</u> 45'32 0°28'36		min. Earth dist.	13095 Apr 25 11:50	13° <u>♂</u> 27'59 28.78266 AU	
max. Earth dist.	13088 Oct 08 07:37	28° <u>♂</u> 47'04 30.77495 AU		opposition	13095 Apr 26 01:42	13° <u>♂</u> 27'01 -0°22'40	
morning rise	13088 Oct 23 11:46	29° <u>♂</u> 21'19		direct	13095 Jul 13 02:55	12° <u>♂</u> 03'10	
	13088 Nov 10 17:59	0° <u>♂</u>		evening set	13095 Oct 08 13:01	13° <u>♂</u> 57'21	
retrograde	13089 Jan 22 01:29	1° <u>♂</u> 19'45					
	13089 Apr 08 18:48	30° <u>♂</u> <u>♂</u>		conjunction	13095 Oct 24 09:43	14° <u>♂</u> 33'02 -0°20'37	
opposition	13089 Apr 11 22:11	29° <u>♂</u> 54'45 -0°30'24		minimum elong	13095 Oct 24 09:43	14° <u>♂</u> 33'02 0°19'59	
min. Earth dist.	13089 Apr 11 06:23	29° <u>♂</u> 55'51 28.77616 AU		max. Earth dist.	13095 Oct 25 00:57	14° <u>♂</u> 34'27 30.78290 AU	
direct	13089 Jun 29 03:18	28° <u>♂</u> 30'58			13095 Nov 05 08:06	15° <u>♂</u>	
	13089 Sep 12 16:07	0° <u>♂</u>		morning rise	13095 Nov 09 08:37	15° <u>♂</u> 08'57	
evening set	13089 Sep 24 09:20	0° <u>♂</u> 25'14		retrograde	13096 Feb 07 20:36	17° <u>♂</u> 07'10	
				opposition	13096 Apr 27 13:57	15° <u>♂</u> 42'08 -0°21'15	
conjunction	13089 Oct 10 03:53	1° <u>♂</u> 00'49 -0°27'55		min. Earth dist.	13096 Apr 26 23:06	15° <u>♂</u> 43'10 28.78358 AU	
minimum elong	13089 Oct 10 03:53	1° <u>♂</u> 00'49 0°27'31			13096 May 23 19:51	15° <u>♂</u> <u>♂</u>	
max. Earth dist.	13089 Oct 10 19:36	1° <u>♂</u> 02'18 30.77716 AU		direct	13096 Jul 14 15:43	14° <u>♂</u> 18'15	
morning rise	13089 Oct 26 00:55	1° <u>♂</u> 36'38			13096 Sep 02 20:39	15° <u>♂</u>	
retrograde	13090 Jan 24 15:22	3° <u>♂</u> 35'04		evening set	13096 Oct 10 01:32	16° <u>♂</u> 12'25	
opposition	13090 Apr 14 10:53	2° <u>♂</u> 10'05 -0°29'13					
min. Earth dist.	13090 Apr 13 19:56	2° <u>♂</u> 11'08 28.77857 AU		conjunction	13096 Oct 25 22:29	16° <u>♂</u> 48'07 -0°19'17	
direct	13090 Jul 01 14:26	0° <u>♂</u> 46'20		minimum elong	13096 Oct 25 22:29	16° <u>♂</u> 48'07 0°18'37	
evening set	13090 Sep 26 21:47	2° <u>♂</u> 40'36		max. Earth dist.	13096 Oct 26 13:44	16° <u>♂</u> 49'33 30.78424 AU	
				morning rise	13096 Nov 10 21:43	17° <u>♂</u> 24'02	
conjunction	13090 Oct 12 16:51	3° <u>♂</u> 16'12 -0°26'48		retrograde	13097 Feb 09 09:09	19° <u>♂</u> 22'13	
minimum elong	13090 Oct 12 16:51	3° <u>♂</u> 16'12 0°26'19		opposition	13097 Apr 30 02:21	17° <u>♂</u> 57'11 -0°19'48	

min. Earth dist.	13097 Apr 29 12:19	17° M .58'09	28.78558 AU
direct	13097 Jul 17 03:19	16° M .33'16	
evening set	13097 Oct 12 14:05	18° M .27'26	
conjunction	13097 Oct 28 11:29	19° M .03'09	-0°17'55
minimum elong	13097 Oct 28 11:29	19° M .03'09	0°17'14
max. Earth dist.	13097 Oct 29 03:19	19° M .04'38	30.78695 AU
morning rise	13097 Nov 13 10:57	19° M .39'05	
retrograde	13098 Feb 11 22:36	21° M .37'13	
opposition	13098 May 02 14:21	20° M .12'11	-0°18'20
min. Earth dist.	13098 May 01 23:16	20° M .13'14	28.78894 AU
direct	13098 Jul 19 16:16	18° M .48'15	
evening set	13098 Oct 15 02:49	20° M .42'26	
conjunction	13098 Oct 31 00:24	21° M .18'09	-0°16'31
minimum elong	13098 Oct 31 00:24	21° M .18'09	0°15'48
behind sun begin	13098 Oct 30 23:31	21° M .18'04	
behind sun end	13098 Oct 31 01:17	21° M .18'14	
max. Earth dist.	13098 Oct 31 15:35	21° M .19'34	30.79102 AU
morning rise	13098 Nov 16 00:17	21° M .54'06	
retrograde	13099 Feb 14 12:23	23° M .52'11	
opposition	13099 May 05 02:34	22° M .27'10	-0°16'49
min. Earth dist.	13099 May 04 12:10	22° M .28'11	28.79382 AU
direct	13099 Jul 22 03:30	21° M .03'16	
evening set	13099 Oct 17 15:22	22° M .57'26	
conjunction	13099 Nov 02 13:25	23° M .33'11	-0°15'06
minimum elong	13099 Nov 02 13:25	23° M .33'11	0°14'22
behind sun begin	13099 Nov 02 10:30	23° M .32'55	
behind sun end	13099 Nov 02 16:20	23° M .33'27	
max. Earth dist.	13099 Nov 03 05:44	23° M .34'43	30.79660 AU
morning rise	13099 Nov 18 13:25	24° M .09'08	
retrograde	13100 Feb 17 02:24	26° M .07'10	
opposition	13100 May 07 14:34	24° M .42'12	-0°15'17
min. Earth dist.	13100 May 06 23:37	24° M .43'15	28.80001 AU
direct	13100 Jul 24 17:39	23° M .18'19	
evening set	13100 Oct 20 04:10	25° M .12'31	
conjunction	13100 Nov 05 02:22	25° M .48'16	-0°13'40
minimum elong	13100 Nov 05 02:22	25° M .48'16	0°12'53
behind sun begin	13100 Nov 04 22:23	25° M .47'55	
behind sun end	13100 Nov 05 06:20	25° M .48'38	
max. Earth dist.	13100 Nov 05 17:37	25° M .49'42	30.80352 AU
morning rise	13100 Nov 21 02:49	26° M .24'15	
retrograde	13101 Feb 19 16:05	28° M .22'15	
min. Earth dist.	13101 May 09 11:55	26° M .58'22	28.80754 AU
opposition	13101 May 10 02:40	26° M .57'20	-0°13'44
direct	13101 Jul 27 04:55	25° M .33'28	
evening set	13101 Oct 22 16:53	27° M .27'41	
conjunction	13101 Nov 07 15:34	28° M .03'28	-0°12'12
minimum elong	13101 Nov 07 15:34	28° M .03'28	0°11'25
behind sun begin	13101 Nov 07 10:51	28° M .03'02	
behind sun end	13101 Nov 07 20:17	28° M .03'53	
max. Earth dist.	13101 Nov 08 07:46	28° M .04'59	30.81141 AU
morning rise	13101 Nov 23 16:09	28° M .39'27	
	13102 Jan 04 21:52	0° ∞	