

evening set	4600 Feb 08 21:56	4°♂47'51	conjunction	4606 Mar 21 04:10	0°♀14'31 -0°46'41
			minimum elong	4606 Mar 21 04:10	0°♀14'31 0°46'41
conjunction	4600 Feb 24 13:12	5°♂42'58 -0°42'58	max. Earth dist.	4606 Mar 21 23:58	0°♀17'23 20.88727 AU
minimum elong	4600 Feb 24 13:12	5°♂42'58 0°42'58	morning rise	4606 Apr 05 22:01	1°♀09'03
max. Earth dist.	4600 Feb 25 03:45	5°♂45'07 20.61011 AU	retrograde	4606 Jul 08 04:17	4°♀16'27
morning rise	4600 Mar 12 05:06	6°♂38'09	opposition	4606 Sep 23 20:51	2°♀17'48 -0°51'32
retrograde	4600 Jun 12 16:03	9°♂47'11	min. Earth dist.	4606 Sep 23 01:14	2°♀19'46 18.90517 AU
opposition	4600 Aug 28 20:09	7°♂48'09 -0°48'16	direct	4606 Dec 09 04:42	0°♀20'40
min. Earth dist.	4600 Aug 28 04:33	7°♂49'43 18.63662 AU	evening set	4607 Mar 09 17:42	3°♀22'43
direct	4600 Nov 13 17:05	5°♂49'16			
evening set	4601 Feb 13 05:14	8°♂55'54	conjunction	4607 Mar 25 10:03	4°♀16'55 -0°46'30
			minimum elong	4607 Mar 25 10:04	4°♀16'55 0°46'30
conjunction	4601 Feb 28 20:36	9°♂50'50 -0°44'10	max. Earth dist.	4607 Mar 26 07:06	4°♀19'58 20.92109 AU
minimum elong	4601 Feb 28 20:36	9°♂50'50 0°44'10	morning rise	4607 Apr 10 04:14	5°♀11'24
max. Earth dist.	4601 Mar 01 13:30	9°♂53'19 20.66233 AU	retrograde	4607 Jul 12 13:23	8°♀18'37
morning rise	4601 Mar 16 12:29	10°♂45'52	min. Earth dist.	4607 Sep 27 11:23	6°♀21'59 18.93651 AU
retrograde	4601 Jun 17 02:02	13°♂54'32	opposition	4607 Sep 28 07:13	6°♀20'00 -0°51'12
opposition	4601 Sep 02 09:35	11°♂55'33 -0°49'27	direct	4607 Dec 13 14:15	4°♀23'04
min. Earth dist.	4601 Sep 01 17:06	11°♂57'13 18.68802 AU	evening set	4608 Mar 12 23:01	7°♀24'32
direct	4601 Nov 18 04:31	9°♂56'59			
evening set	4602 Feb 17 12:17	13°♂02'43	conjunction	4608 Mar 28 15:35	8°♀18'40 -0°46'05
			minimum elong	4608 Mar 28 15:35	8°♀18'40 0°46'05
conjunction	4602 Mar 05 03:29	13°♂57'28 -0°45'08	max. Earth dist.	4608 Mar 29 11:33	8°♀21'34 20.94995 AU
minimum elong	4602 Mar 05 03:29	13°♂57'28 0°45'07	morning rise	4608 Apr 13 10:30	9°♀13'07
max. Earth dist.	4602 Mar 05 20:25	13°♂59'57 20.71287 AU	retrograde	4608 Jul 15 22:41	12°♀20'12
morning rise	4602 Mar 20 19:47	14°♂52'22	opposition	4608 Oct 01 17:25	10°♀21'34 -0°50'36
retrograde	4602 Jun 21 12:57	18°♂00'43	min. Earth dist.	4608 Sep 30 21:48	10°♀23'31 18.96289 AU
opposition	4602 Sep 06 22:20	16°♂01'48 -0°50'23	direct	4608 Dec 16 21:22	8°♀24'46
min. Earth dist.	4602 Sep 06 04:41	16°♂03'34 18.73762 AU	evening set	4609 Mar 17 03:50	11°♀25'41
direct	4602 Nov 22 15:15	14°♂03'32			
evening set	4603 Feb 21 18:41	17°♂08'25	conjunction	4609 Apr 01 21:02	12°♀19'47 -0°45'26
			minimum elong	4609 Apr 01 21:02	12°♀19'47 0°45'26
conjunction	4603 Mar 09 10:09	18°♂03'02 -0°45'52	max. Earth dist.	4609 Apr 02 18:08	12°♀22'50 20.97373 AU
minimum elong	4603 Mar 09 10:09	18°♂03'02 0°45'53	morning rise	4609 Apr 17 16:26	13°♀14'13
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morning rise	4603 Mar 25 02:36	18°♂57'49	min. Earth dist.	4609 Oct 05 07:15	14°♀24'28 18.98408 AU
retrograde	4603 Jun 25 22:47	22°♂05'51	opposition	4609 Oct 06 03:10	14°♀22'28 -0°49'45
opposition	4603 Sep 11 10:36	20°♂07'02 -0°51'03	direct	4609 Dec 21 06:33	12°♀25'47
min. Earth dist.	4603 Sep 10 16:18	20°♂08'52 18.78458 AU	evening set	4610 Mar 21 08:43	15°♀26'12
direct	4603 Nov 27 01:44	18°♂09'05			
evening set	4604 Feb 26 00:54	21°♂13'11	conjunction	4610 Apr 06 02:16	16°♀20'16 -0°44'34
			minimum elong	4610 Apr 06 02:16	16°♀20'16 0°44'34
conjunction	4604 Mar 12 16:18	22°♂07'39 -0°46'22	max. Earth dist.	4610 Apr 06 22:17	16°♀23'09 20.99258 AU
minimum elong	4604 Mar 12 16:18	22°♂07'39 0°46'22	morning rise	4610 Apr 21 22:33	17°♀14'42
max. Earth dist.	4604 Mar 13 11:00	22°♂10'23 20.80672 AU	retrograde	4610 Jul 24 15:53	20°♀21'33
morning rise	4604 Mar 28 09:16	23°♂02'20	opposition	4610 Oct 10 12:23	18°♀22'45 -0°48'40
retrograde	4604 Jun 29 08:54	26°♂10'08	min. Earth dist.	4610 Oct 09 16:54	18°♀24'41 19.00068 AU
opposition	4604 Sep 14 22:26	24°♂11'23 -0°51'28	direct	4610 Dec 25 12:53	16°♀26'06
min. Earth dist.	4604 Sep 14 03:27	24°♂13'17 18.82859 AU	evening set	4611 Mar 25 13:16	19°♀26'05
direct	4604 Nov 30 10:54	22°♂13'44			
evening set	4605 Mar 01 06:41	25°♂17'05	conjunction	4611 Apr 10 07:34	20°♀20'09 -0°43'29
			minimum elong	4611 Apr 10 07:34	20°♀20'09 0°43'28
conjunction	4605 Mar 16 22:27	26°♂11'27 -0°46'39	max. Earth dist.	4611 Apr 11 04:43	20°♀23'12 21.00695 AU
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morning rise	4605 Apr 01 15:38	27°♂06'03	opposition	4611 Oct 14 21:13	22°♀22'28 -0°47'20
	4605 Jun 10 06:37	0°♀	min. Earth dist.	4611 Oct 14 01:20	22°♀24'27 19.01292 AU
retrograde	4605 Jul 03 18:37	0°♀13'37	direct	4611 Dec 29 20:55	20°♀25'52
	4605 Jul 27 14:41	30°♂	evening set	4612 Mar 28 17:50	23°♀25'29
opposition	4605 Sep 19 09:51	28°♂14'57 -0°51'38			
min. Earth dist.	4605 Sep 18 14:22	28°♂16'54 18.86893 AU	conjunction	4612 Apr 13 12:32	24°♀19'32 -0°42'11
direct	4605 Dec 04 20:46	26°♂17'35	minimum elong	4612 Apr 13 12:32	24°♀19'32 0°42'12
evening set	4606 Mar 05 12:18	29°♂20'15	max. Earth dist.	4612 Apr 14 08:43	24°♀22'26 21.01726 AU
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























































































































min. Earth dist.	4612 Oct 17 10:25	26° $\Upsilon$ 23'42	19.02146 AU	min. Earth dist.	4618 Nov 11 12:06	20° $\mathcal{S}$ 19'09	18.99671 AU
opposition	4612 Oct 18 05:52	26° $\Upsilon$ 21'45	-0°45'47	direct	4619 Jan 26 12:43	18° $\mathcal{S}$ 20'53	
direct	4613 Jan 02 02:42	24° $\Upsilon$ 25'11		evening set	4619 Apr 26 05:23	21° $\mathcal{S}$ 20'01	
evening set	4613 Apr 01 22:18	27° $\Upsilon$ 24'30					
conjunction	4613 Apr 17 17:49	28° $\Upsilon$ 18'36	-0°40'41	conjunction	4619 May 12 05:42	22° $\mathcal{S}$ 14'39	-0°27'53
minimum elong	4613 Apr 17 17:50	28° $\Upsilon$ 18'36	0°40'41	minimum elong	4619 May 12 05:42	22° $\mathcal{S}$ 14'39	0°27'55
max. Earth dist.	4613 Apr 18 15:10	28° $\Upsilon$ 21'39	21.02400 AU	max. Earth dist.	4619 May 13 00:40	22° $\mathcal{S}$ 17'22	20.98778 AU
morning rise	4613 May 03 16:10	29° $\Upsilon$ 13'07		morning rise	4619 May 28 09:19	23° $\mathcal{S}$ 09'48	
	4613 May 18 01:38	0° $\mathcal{S}$		retrograde	4619 Aug 30 19:12	26° $\mathcal{S}$ 17'32	
retrograde	4613 Aug 05 15:01	2° $\mathcal{S}$ 19'52		opposition	4619 Nov 16 12:52	24° $\mathcal{S}$ 18'05	-0°29'19
opposition	4613 Oct 22 14:05	0° $\mathcal{S}$ 20'47	-0°44'01	min. Earth dist.	4619 Nov 15 20:01	24° $\mathcal{S}$ 19'47	18.97801 AU
min. Earth dist.	4613 Oct 21 18:09	0° $\mathcal{S}$ 22'46	19.02641 AU	direct	4620 Jan 30 19:04	22° $\mathcal{S}$ 21'30	
	4613 Oct 31 06:28	30° $\mathcal{R}\Upsilon$		evening set	4620 Apr 29 11:54	25° $\mathcal{S}$ 20'50	
direct	4614 Jan 06 09:38	28° $\Upsilon$ 24'14		conjunction	4620 May 15 12:54	26° $\mathcal{S}$ 15'37	-0°25'12
	4614 Mar 10 10:14	0° $\mathcal{S}$		minimum elong	4620 May 15 12:54	26° $\mathcal{S}$ 15'37	0°25'12
evening set	4614 Apr 06 02:56	1° $\mathcal{S}$ 23'19		max. Earth dist.	4620 May 16 05:45	26° $\mathcal{S}$ 18'01	20.96659 AU
conjunction	4614 Apr 21 23:02	2° $\mathcal{S}$ 17'27	-0°38'59	morning rise	4620 May 31 17:37	27° $\mathcal{S}$ 10'55	
minimum elong	4614 Apr 21 23:02	2° $\mathcal{S}$ 17'27	0°39'00		4620 Aug 06 06:21	0° $\Pi$	
max. Earth dist.	4614 Apr 22 19:15	2° $\mathcal{S}$ 20'21	21.02726 AU	retrograde	4620 Sep 03 04:28	0° $\Pi$ 18'58	
morning rise	4614 May 07 22:23	3° $\mathcal{S}$ 12'03			4620 Oct 01 12:47	30° $\mathcal{R}\mathcal{S}$	
retrograde	4614 Aug 09 23:08	6° $\mathcal{S}$ 18'51		opposition	4620 Nov 19 20:52	28° $\mathcal{S}$ 19'25	-0°26'16
opposition	4614 Oct 26 22:12	4° $\mathcal{S}$ 19'41	-0°42'02	min. Earth dist.	4620 Nov 19 05:49	28° $\mathcal{S}$ 20'56	18.95425 AU
min. Earth dist.	4614 Oct 26 02:59	4° $\mathcal{S}$ 21'37	19.02798 AU	direct	4621 Feb 03 00:22	26° $\mathcal{S}$ 22'42	
direct	4615 Jan 10 14:39	2° $\mathcal{S}$ 23'09		evening set	4621 May 03 18:52	29° $\mathcal{S}$ 22'19	
evening set	4615 Apr 10 07:36	5° $\mathcal{S}$ 22'06			4621 May 14 20:33	0° $\Pi$	
conjunction	4615 Apr 26 04:36	6° $\mathcal{S}$ 16'18	-0°37'06	conjunction	4621 May 19 20:59	0° $\Pi$ 17'17	-0°22'23
minimum elong	4615 Apr 26 04:36	6° $\mathcal{S}$ 16'18	0°37'07	minimum elong	4621 May 19 20:59	0° $\Pi$ 17'17	0°22'24
max. Earth dist.	4615 Apr 27 01:44	6° $\mathcal{S}$ 19'20	21.02703 AU	max. Earth dist.	4621 May 20 13:39	0° $\Pi$ 19'40	20.94022 AU
morning rise	4615 May 12 04:37	7° $\mathcal{S}$ 10'58		morning rise	4621 Jun 05 02:27	1° $\Pi$ 12'45	
retrograde	4615 Aug 14 07:23	10° $\mathcal{S}$ 17'52		retrograde	4621 Sep 07 14:59	4° $\Pi$ 21'06	
min. Earth dist.	4615 Oct 30 10:25	8° $\mathcal{S}$ 20'36	19.02588 AU	opposition	4621 Nov 24 04:41	2° $\Pi$ 21'25	-0°23'05
opposition	4615 Oct 31 05:55	8° $\mathcal{S}$ 18'39	-0°39'52	min. Earth dist.	4621 Nov 23 14:01	2° $\Pi$ 22'55	18.92515 AU
direct	4616 Jan 14 21:11	6° $\mathcal{S}$ 22'08		direct	4622 Feb 07 07:21	0° $\Pi$ 24'33	
evening set	4616 Apr 13 12:37	9° $\mathcal{S}$ 21'01		evening set	4622 May 08 02:27	3° $\Pi$ 24'30	
conjunction	4616 Apr 29 10:13	10° $\mathcal{S}$ 15'18	-0°35'03	conjunction	4622 May 24 05:21	4° $\Pi$ 19'39	-0°19'27
minimum elong	4616 Apr 29 10:13	10° $\mathcal{S}$ 15'18	0°35'03	minimum elong	4622 May 24 05:21	4° $\Pi$ 19'39	0°19'27
max. Earth dist.	4616 Apr 30 06:01	10° $\mathcal{S}$ 18'08	21.02322 AU	max. Earth dist.	4622 May 24 19:37	4° $\Pi$ 21'41	20.90859 AU
morning rise	4616 May 15 11:17	11° $\mathcal{S}$ 10'04		morning rise	4622 Jun 09 11:57	5° $\Pi$ 15'18	
retrograde	4616 Aug 17 15:28	14° $\mathcal{S}$ 17'07		retrograde	4622 Sep 12 00:34	8° $\Pi$ 23'59	
opposition	4616 Nov 03 13:49	12° $\mathcal{S}$ 17'50	-0°37'29	opposition	4622 Nov 28 12:45	6° $\Pi$ 24'08	-0°19'46
min. Earth dist.	4616 Nov 02 19:18	12° $\mathcal{S}$ 19'42	19.02024 AU	min. Earth dist.	4622 Nov 28 00:08	6° $\Pi$ 25'25	18.89101 AU
direct	4617 Jan 18 01:41	10° $\mathcal{S}$ 21'20		direct	4623 Feb 11 12:53	4° $\Pi$ 27'03	
evening set	4617 Apr 17 17:39	13° $\mathcal{S}$ 20'12		evening set	4623 May 12 10:16	7° $\Pi$ 27'23	
conjunction	4617 May 03 16:15	14° $\mathcal{S}$ 14'36	-0°32'49	conjunction	4623 May 28 14:17	8° $\Pi$ 22'44	-0°16'24
minimum elong	4617 May 03 16:15	14° $\mathcal{S}$ 14'36	0°32'50	minimum elong	4623 May 28 14:17	8° $\Pi$ 22'44	0°16'24
max. Earth dist.	4617 May 04 12:46	14° $\mathcal{S}$ 17'32	21.01567 AU	max. Earth dist.	4623 May 29 04:20	8° $\Pi$ 24'44	20.87214 AU
	4617 May 16 22:35	15° $\mathcal{S}$		morning rise	4623 Jun 13 21:37	9° $\Pi$ 18'34	
morning rise	4617 May 19 18:04	15° $\mathcal{S}$ 09'28		retrograde	4623 Sep 16 11:33	12° $\Pi$ 27'35	
retrograde	4617 Aug 22 00:41	18° $\mathcal{S}$ 16'43		opposition	4623 Dec 02 20:41	10° $\Pi$ 27'34	-0°16'21
opposition	4617 Nov 07 21:31	16° $\mathcal{S}$ 17'23	-0°34'56	min. Earth dist.	4623 Dec 02 08:22	10° $\Pi$ 28'50	18.85229 AU
min. Earth dist.	4617 Nov 07 02:55	16° $\mathcal{S}$ 19'15	19.01058 AU	direct	4624 Feb 15 20:44	8° $\Pi$ 30'15	
	4617 Dec 12 20:44	15° $\mathcal{R}\mathcal{S}$		evening set	4624 May 15 18:49	11° $\Pi$ 31'03	
direct	4618 Jan 22 08:04	14° $\mathcal{S}$ 20'53		conjunction	4624 May 31 23:36	12° $\Pi$ 26'35	-0°13'16
	4618 Mar 02 14:49	15° $\mathcal{S}$		minimum elong	4624 May 31 23:36	12° $\Pi$ 26'35	0°13'17
evening set	4618 Apr 21 23:23	17° $\mathcal{S}$ 19'50		behind sun begin	4624 May 31 19:46	12° $\Pi$ 26'03	
conjunction	4618 May 07 22:40	18° $\mathcal{S}$ 14'20	-0°30'26	behind sun end	4624 Jun 01 03:25	12° $\Pi$ 27'07	
minimum elong	4618 May 07 22:40	18° $\mathcal{S}$ 14'20	0°30'26	max. Earth dist.	4624 Jun 01 11:27	12° $\Pi$ 28'16	20.83152 AU
max. Earth dist.	4618 May 08 17:26	18° $\mathcal{S}$ 17'01	21.00397 AU	morning rise	4624 Jun 17 08:01	13° $\Pi$ 22'38	
morning rise	4618 May 24 01:33	19° $\mathcal{S}$ 09'20		retrograde	4624 Sep 19 21:26	16° $\Pi$ 32'02	
retrograde	4618 Aug 26 09:16	22° $\mathcal{S}$ 16'49		opposition	4624 Dec 06 04:56	14° $\Pi$ 31'48	-0°12'49
opposition	4618 Nov 12 05:10	20° $\mathcal{S}$ 17'26	-0°32'13	min. Earth dist.	4624 Dec 05 18:37	14° $\Pi$ 32'52	18.80990 AU
				direct	4625 Feb 19 02:07	12° $\Pi$ 34'14	

evening set	4625 May 20 03:39	15° $\Pi$ 35'32		minimum elong	4630 Jun 26 21:24	7° $\Theta$ 12'22	0°06'47
				behind sun begin	4630 Jun 26 15:09	7° $\Theta$ 11'28	
conjunction	4625 Jun 05 09:35	16° $\Pi$ 31'18 -0°10'03		behind sun end	4630 Jun 27 03:39	7° $\Theta$ 13'15	
minimum elong	4625 Jun 05 09:34	16° $\Pi$ 31'18 0°10'03		max. Earth dist.	4630 Jun 27 02:03	7° $\Theta$ 13'01	20.53300 AU
behind sun begin	4625 Jun 05 04:13	16° $\Pi$ 30'33		morning rise	4630 Jul 13 10:46	8° $\Theta$ 09'49	
behind sun end	4625 Jun 05 14:56	16° $\Pi$ 32'03		retrograde	4630 Oct 16 00:56	11° $\Theta$ 22'10	
max. Earth dist.	4625 Jun 05 21:20	16° $\Pi$ 32'59 20.78753 AU		opposition	4630 Dec 31 11:06	9° $\Theta$ 21'02	0°09'21
morning rise	4625 Jun 21 18:46	17° $\Pi$ 27'33		min. Earth dist.	4630 Dec 31 07:36	9° $\Theta$ 21'24	18.50517 AU
retrograde	4625 Sep 24 09:38	20° $\Pi$ 37'22		direct	4631 Mar 16 01:44	7° $\Theta$ 21'48	
opposition	4625 Dec 10 13:10	18° $\Pi$ 36'57 -0°09'14		evening set	4631 Jun 15 00:21	10° $\Theta$ 27'43	
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direct	4626 Feb 23 10:36	16° $\Pi$ 39'06		conjunction	4631 Jul 01 11:43	11° $\Theta$ 25'02	0°10'08
evening set	4626 May 24 13:25	19° $\Pi$ 41'00		minimum elong	4631 Jul 01 11:42	11° $\Theta$ 25'02	0°10'07
				behind sun begin	4631 Jul 01 06:22	11° $\Theta$ 24'16	
conjunction	4626 Jun 09 20:07	20° $\Pi$ 37'00 -0°06'47		behind sun end	4631 Jul 01 17:03	11° $\Theta$ 25'47	
minimum elong	4626 Jun 09 20:07	20° $\Pi$ 37'00 0°06'47		max. Earth dist.	4631 Jul 01 15:39	11° $\Theta$ 25'35	20.47725 AU
behind sun begin	4626 Jun 09 13:54	20° $\Pi$ 36'07		morning rise	4631 Jul 18 01:40	12° $\Theta$ 22'44	
behind sun end	4626 Jun 10 02:21	20° $\Pi$ 37'52		retrograde	4631 Oct 20 16:00	15° $\Theta$ 35'41	
max. Earth dist.	4626 Jun 10 05:41	20° $\Pi$ 38'22 20.74058 AU		opposition	4632 Jan 04 21:29	13° $\Theta$ 34'27	0°13'04
morning rise	4626 Jun 26 06:19	21° $\Pi$ 33'29		min. Earth dist.	4632 Jan 04 18:19	13° $\Theta$ 34'47	18.44857 AU
retrograde	4626 Sep 28 20:05	24° $\Pi$ 43'44		direct	4632 Mar 19 12:17	11° $\Theta$ 34'58	
opposition	4626 Dec 14 21:39	22° $\Pi$ 43'09 -0°05'34		evening set	4632 Jun 18 14:53	14° $\Theta$ 41'51	
min. Earth dist.	4626 Dec 14 13:36	22° $\Pi$ 43'58 18.71616 AU					
direct	4627 Feb 27 16:20	20° $\Pi$ 45'00		conjunction	4632 Jul 05 02:57	15° $\Theta$ 39'27	0°13'27
evening set	4627 May 28 23:37	23° $\Pi$ 47'35		minimum elong	4632 Jul 05 02:56	15° $\Theta$ 39'27	0°13'27
				behind sun begin	4632 Jul 04 23:16	15° $\Theta$ 38'55	
conjunction	4627 Jun 14 07:25	24° $\Pi$ 43'49 -0°03'27		behind sun end	4632 Jul 05 06:37	15° $\Theta$ 39'58	
minimum elong	4627 Jun 14 07:25	24° $\Pi$ 43'49 0°03'27		max. Earth dist.	4632 Jul 05 04:36	15° $\Theta$ 39'41	20.41979 AU
behind sun begin	4627 Jun 14 00:46	24° $\Pi$ 42'53		morning rise	4632 Jul 21 17:36	16° $\Theta$ 37'25	
behind sun end	4627 Jun 14 14:03	24° $\Pi$ 44'45		retrograde	4632 Oct 24 06:24	19° $\Theta$ 50'58	
max. Earth dist.	4627 Jun 14 16:46	24° $\Pi$ 45'09 20.69134 AU		opposition	4633 Jan 08 08:30	17° $\Theta$ 49'38	0°16'44
morning rise	4627 Jun 30 18:18	25° $\Pi$ 40'32		min. Earth dist.	4633 Jan 08 07:51	17° $\Theta$ 49'42	18.39027 AU
retrograde	4627 Oct 03 09:27	28° $\Pi$ 51'15		direct	4633 Mar 23 22:09	15° $\Theta$ 49'51	
opposition	4627 Dec 19 06:24	26° $\Pi$ 50'30 -0°01'52		evening set	4633 Jun 23 06:16	18° $\Theta$ 57'46	
min. Earth dist.	4627 Dec 18 22:26	26° $\Pi$ 51'20 18.66585 AU					
direct	4628 Mar 03 01:13	24° $\Pi$ 52'05		conjunction	4633 Jul 09 19:14	19° $\Theta$ 55'39	0°16'43
evening set	4628 Jun 01 10:32	27° $\Pi$ 55'24		minimum elong	4633 Jul 09 19:14	19° $\Theta$ 55'39	0°16'43
				max. Earth dist.	4633 Jul 09 19:36	19° $\Theta$ 55'42	20.36054 AU
conjunction	4628 Jun 17 19:06	28° $\Pi$ 51'53 -0°00'02		morning rise	4633 Jul 26 10:26	20° $\Theta$ 53'53	
minimum elong	4628 Jun 17 19:07	28° $\Pi$ 51'53 0°00'03		retrograde	4633 Oct 28 22:33	24° $\Theta$ 08'02	
behind sun begin	4628 Jun 17 13:26	28° $\Pi$ 51'06		opposition	4634 Jan 12 19:58	22° $\Theta$ 06'35	0°20'20
behind sun end	4628 Jun 18 00:48	28° $\Pi$ 52'41		min. Earth dist.	4634 Jan 12 19:57	22° $\Theta$ 06'35	18.32993 AU
max. Earth dist.	4628 Jun 18 02:24	28° $\Pi$ 52'55 20.64012 AU		direct	4634 Mar 28 10:21	20° $\Theta$ 06'28	
asc. node	4628 Jun 20 12:03	29° $\Pi$ 01'18		evening set	4634 Jun 27 22:46	23° $\Theta$ 15'27	
morning rise	4628 Jul 04 06:58	29° $\Pi$ 48'50					
	4628 Jul 07 14:15	0° $\Theta$		conjunction	4634 Jul 14 12:21	24° $\Theta$ 13'36	0°19'56
retrograde	4628 Oct 06 21:19	3° $\Theta$ 00'05		minimum elong	4634 Jul 14 12:21	24° $\Theta$ 13'36	0°19'56
opposition	4628 Dec 22 15:41	0° $\Theta$ 59'11 0°01'52		max. Earth dist.	4634 Jul 14 10:18	24° $\Theta$ 13'18	20.29907 AU
min. Earth dist.	4628 Dec 22 09:45	0° $\Theta$ 59'48 18.61381 AU		morning rise	4634 Jul 31 04:05	25° $\Theta$ 12'06	
	4629 Jan 16 12:09	30° $\mathbb{R}$ $\Pi$		retrograde	4634 Nov 02 13:35	28° $\Theta$ 26'49	
direct	4629 Mar 07 08:08	29° $\Pi$ 00'29		opposition	4635 Jan 17 08:06	26° $\Theta$ 25'14	0°23'51
	4629 Apr 24 20:57	0° $\Theta$		min. Earth dist.	4635 Jan 17 10:41	26° $\Theta$ 24'58	18.26753 AU
evening set	4629 Jun 05 22:16	2° $\Theta$ 04'36		direct	4635 Apr 01 22:08	24° $\Theta$ 24'45	
				evening set	4635 Jul 02 15:59	27° $\Theta$ 34'48	
conjunction	4629 Jun 22 07:55	3° $\Theta$ 01'21 0°03'25					
minimum elong	4629 Jun 22 07:55	3° $\Theta$ 01'21 0°03'25		conjunction	4635 Jul 19 06:20	28° $\Theta$ 33'15	0°23'03
behind sun begin	4629 Jun 22 01:15	3° $\Theta$ 00'25		minimum elong	4635 Jul 19 06:20	28° $\Theta$ 33'15	0°23'03
behind sun end	4629 Jun 22 14:35	3° $\Theta$ 02'18		max. Earth dist.	4635 Jul 19 02:42	28° $\Theta$ 32'43	20.23587 AU
max. Earth dist.	4629 Jun 22 14:46	3° $\Theta$ 02'19 20.58734 AU		morning rise	4635 Aug 04 22:31	29° $\Theta$ 31'59	
morning rise	4629 Jul 08 20:26	3° $\Theta$ 58'34			4635 Aug 13 03:49	0° $\mathcal{O}$	
retrograde	4629 Oct 11 11:29	7° $\Theta$ 10'20		retrograde	4635 Nov 07 06:34	2° $\mathcal{O}$ 47'18	
opposition	4629 Dec 27 01:02	5° $\Theta$ 09'19 0°05'37		opposition	4636 Jan 21 20:41	0° $\mathcal{O}$ 45'32	0°27'15
min. Earth dist.	4629 Dec 26 19:18	5° $\Theta$ 09'54 18.56021 AU		min. Earth dist.	4636 Jan 21 23:50	0° $\mathcal{O}$ 45'12	18.20355 AU
direct	4630 Mar 11 17:32	3° $\Theta$ 10'21			4636 Feb 09 04:25	30° $\mathbb{R}$ $\Theta$	
evening set	4630 Jun 10 11:00	6° $\Theta$ 15'20		direct	4636 Apr 05 12:07	28° $\Theta$ 44'39	
					4636 May 30 02:37	0° $\mathcal{O}$	
conjunction	4630 Jun 26 21:23	7° $\Theta$ 12'22 0°06'47		evening set	4636 Jul 06 10:02	1° $\mathcal{O}$ 55'47	

conjunction	4636 Jul 23 01:00	2°Ω54'31	0°26'03	morning rise	4642 Sep 06 02:46	0°Π36'04	
minimum elong	4636 Jul 23 01:00	2°Ω54'31	0°26'02	retrograde	4642 Dec 08 15:45	3°Π55'09	
max. Earth dist.	4636 Jul 22 19:23	2°Ω53'41	20.17123 AU	opposition	4643 Feb 21 04:51	1°Π52'24	0°46'06
morning rise	4636 Aug 08 17:36	3°Ω53'30		min. Earth dist.	4643 Feb 21 17:09	1°Π51'04	17.76787 AU
retrograde	4636 Nov 10 22:29	7°Ω09'22			4643 Apr 16 12:55	30°RΩ	
opposition	4637 Jan 25 09:57	5°Ω07'27	0°30'32	direct	4643 May 07 02:47	29°Ω48'45	
min. Earth dist.	4637 Jan 25 15:34	5°Ω06'51	18.13851 AU		4643 May 27 13:38	0°Π	
direct	4637 Apr 10 01:07	3°Ω06'08		evening set	4643 Aug 08 15:50	3°Π07'55	
evening set	4637 Jul 11 05:02	6°Ω18'22					
conjunction	4637 Jul 27 20:37	7°Ω17'23	0°28'55	conjunction	4643 Aug 25 09:21	4°Π08'27	0°42'15
minimum elong	4637 Jul 27 20:37	7°Ω17'23	0°28'55	minimum elong	4643 Aug 25 09:20	4°Π08'27	0°42'14
max. Earth dist.	4637 Jul 27 13:16	7°Ω16'17	20.10603 AU	max. Earth dist.	4643 Aug 24 17:44	4°Π06'05	19.74097 AU
morning rise	4637 Aug 13 13:36	8°Ω16'36		morning rise	4643 Sep 11 02:40	5°Π08'59	
retrograde	4637 Nov 15 16:42	11°Ω33'01		retrograde	4643 Dec 13 13:15	8°Π28'35	
opposition	4638 Jan 29 23:27	9°Ω30'54	0°33'39	opposition	4644 Feb 25 22:14	6°Π25'48	0°47'49
min. Earth dist.	4638 Jan 30 05:39	9°Ω30'15	18.07325 AU	min. Earth dist.	4644 Feb 26 11:01	6°Π24'25	17.71515 AU
direct	4638 Apr 14 16:49	7°Ω29'10		direct	4644 May 10 21:41	4°Π21'53	
evening set	4638 Jul 16 00:53	10°Ω42'32		evening set	4644 Aug 12 16:19	7°Π42'13	
conjunction	4638 Aug 01 16:59	11°Ω41'49	0°31'38	conjunction	4644 Aug 29 10:05	8°Π42'59	0°43'39
minimum elong	4638 Aug 01 16:59	11°Ω41'49	0°31'37	minimum elong	4644 Aug 29 10:05	8°Π42'59	0°43'40
max. Earth dist.	4638 Aug 01 08:09	11°Ω40'30	20.04079 AU	max. Earth dist.	4644 Aug 28 18:27	8°Π40'36	19.68983 AU
morning rise	4638 Aug 18 10:08	12°Ω41'17		morning rise	4644 Sep 15 03:02	9°Π43'41	
	4638 Oct 03 11:12	15°Ω		retrograde	4644 Dec 17 11:20	13°Π03'46	
retrograde	4638 Nov 20 09:35	15°Ω58'14		opposition	4645 Mar 01 16:25	11°Π01'00	0°49'16
	4639 Jan 08 08:28	15°RΩ		min. Earth dist.	4645 Mar 02 06:23	10°Π59'29	17.66563 AU
opposition	4639 Feb 03 13:49	13°Ω55'57	0°36'35	direct	4645 May 15 16:33	8°Π56'52	
min. Earth dist.	4639 Feb 03 22:09	13°Ω55'04	18.00841 AU	evening set	4645 Aug 17 17:52	12°Π18'19	
direct	4639 Apr 19 06:52	11°Ω53'47		conjunction	4645 Sep 03 11:25	13°Π19'17	0°44'48
	4639 Jul 18 12:20	15°Ω		minimum elong	4645 Sep 03 11:25	13°Π19'17	0°44'48
evening set	4639 Jul 20 21:20	15°Ω08'17		max. Earth dist.	4645 Sep 02 17:33	13°Π16'33	19.64192 AU
conjunction	4639 Aug 06 13:51	16°Ω07'50	0°34'11	morning rise	4645 Sep 20 04:14	14°Π20'09	
minimum elong	4639 Aug 06 13:51	16°Ω07'50	0°34'11	retrograde	4645 Dec 22 09:24	17°Π40'42	
max. Earth dist.	4639 Aug 06 03:20	16°Ω06'16	19.97653 AU	opposition	4646 Mar 06 11:11	15°Π37'58	0°50'24
morning rise	4639 Aug 23 07:15	17°Ω07'32		min. Earth dist.	4646 Mar 07 02:03	15°Π36'20	17.61934 AU
retrograde	4639 Nov 25 05:02	20°Ω25'03		direct	4646 May 20 12:46	13°Π33'35	
opposition	4640 Feb 08 04:35	18°Ω22'35	0°39'19	evening set	4646 Aug 22 19:56	16°Π56'09	
min. Earth dist.	4640 Feb 08 13:19	18°Ω21'39	17.94488 AU	conjunction	4646 Sep 08 13:32	17°Π57'18	0°45'40
direct	4640 Apr 22 23:55	16°Ω20'00		minimum elong	4646 Sep 08 13:32	17°Π57'18	0°45'40
evening set	4640 Jul 24 18:44	19°Ω35'40		max. Earth dist.	4646 Sep 07 19:44	17°Π54'34	19.59700 AU
conjunction	4640 Aug 10 11:41	20°Ω35'29	0°36'32	morning rise	4646 Sep 25 05:46	18°Π58'18	
minimum elong	4640 Aug 10 11:40	20°Ω35'29	0°36'31	retrograde	4646 Dec 27 08:42	22°Π19'15	
max. Earth dist.	4640 Aug 10 00:17	20°Ω33'46	19.91372 AU	opposition	4647 Mar 11 06:49	20°Π16'33	0°51'13
morning rise	4640 Aug 27 05:05	21°Ω35'24		min. Earth dist.	4647 Mar 11 22:34	20°Π14'50	17.57589 AU
retrograde	4640 Nov 28 23:16	24°Ω53'26		direct	4647 May 25 09:35	18°Π11'58	
opposition	4641 Feb 11 20:00	22°Ω50'51	0°41'49	evening set	4647 Aug 27 22:36	21°Π35'32	
min. Earth dist.	4641 Feb 12 06:33	22°Ω49'42	17.88318 AU	conjunction	4647 Sep 13 15:51	22°Π36'51	0°46'15
direct	4641 Apr 27 15:29	20°Ω47'52		minimum elong	4647 Sep 13 15:51	22°Π36'51	0°46'15
evening set	4641 Jul 29 17:01	24°Ω04'42		max. Earth dist.	4647 Sep 12 19:50	22°Π33'46	19.55499 AU
conjunction	4641 Aug 15 10:13	25°Ω04'45	0°38'40	morning rise	4647 Sep 30 07:48	23°Π37'58	
minimum elong	4641 Aug 15 10:13	25°Ω04'45	0°38'39	retrograde	4648 Jan 01 06:41	26°Π59'18	
max. Earth dist.	4641 Aug 14 20:55	25°Ω02'45	19.85325 AU	opposition	4648 Mar 15 03:05	24°Π56'35	0°51'42
morning rise	4641 Sep 01 03:46	26°Ω04'54		min. Earth dist.	4648 Mar 15 19:55	24°Π54'45	17.53542 AU
retrograde	4641 Dec 03 19:44	29°Ω23'27		direct	4648 May 29 07:50	22°Π51'46	
opposition	4642 Feb 16 12:03	27°Ω20'46	0°44'05	evening set	4648 Sep 01 01:48	26°Π16'18	
min. Earth dist.	4642 Feb 16 22:59	27°Ω19'35	17.82407 AU	conjunction	4648 Sep 17 18:58	27°Π17'45	0°46'31
direct	4642 May 02 09:34	25°Ω17'25		minimum elong	4648 Sep 17 18:58	27°Π17'45	0°46'30
evening set	4642 Aug 03 15:59	28°Ω35'25		max. Earth dist.	4648 Sep 16 23:03	27°Π14'40	19.51592 AU
conjunction	4642 Aug 20 09:28	29°Ω35'44	0°40'35	morning rise	4648 Oct 04 10:14	28°Π18'58	
minimum elong	4642 Aug 20 09:28	29°Ω35'44	0°40'35		4648 Nov 03 16:29	0°Ω	
max. Earth dist.	4642 Aug 19 19:50	29°Ω33'40	19.79544 AU	retrograde	4649 Jan 05 06:02	1°Ω40'34	
	4642 Aug 27 01:43	0°Π			4649 Mar 11 12:10	30°RΠ	
				opposition	4649 Mar 19 23:49	29°Π37'53	0°51'51

min. Earth dist.	4649 Mar 20 17:08	29° <u>17</u> 35'59	17.49784 AU	conjunction	4655 Oct 22 19:18	0° <u>12</u> 25'14	0°39'46
direct	4649 Jun 03 07:02	27° <u>17</u> 32'50		minimum elong	4655 Oct 22 19:18	0° <u>12</u> 25'14	0°39'46
	4649 Aug 20 13:22	0° <u>12</u>		max. Earth dist.	4655 Oct 21 22:01	0° <u>12</u> 21'54	19.35785 AU
evening set	4649 Sep 06 05:37	0° <u>12</u> 58'15		morning rise	4655 Nov 08 05:08	1° <u>12</u> 26'29	
				retrograde	4656 Feb 08 00:06	4° <u>12</u> 48'30	
conjunction	4649 Sep 22 22:17	1° <u>12</u> 59'48	0°46'29	opposition	4656 Apr 21 14:36	2° <u>12</u> 45'54	0°43'12
minimum elong	4649 Sep 22 22:17	1° <u>12</u> 59'48	0°46'29	min. Earth dist.	4656 Apr 22 09:12	2° <u>12</u> 43'52	17.35725 AU
max. Earth dist.	4649 Sep 22 00:25	1° <u>12</u> 56'25	19.47997 AU	direct	4656 Jul 06 16:12	0° <u>12</u> 39'46	
morning rise	4649 Oct 09 13:02	3° <u>12</u> 01'05		evening set	4656 Oct 10 10:10	4° <u>12</u> 08'38	
retrograde	4650 Jan 10 03:56	6° <u>12</u> 22'56					
opposition	4650 Mar 24 21:16	4° <u>12</u> 20'13	0°51'39	conjunction	4656 Oct 26 22:21	5° <u>12</u> 10'15	0°37'38
min. Earth dist.	4650 Mar 25 15:45	4° <u>12</u> 18'12	17.46372 AU	minimum elong	4656 Oct 26 22:21	5° <u>12</u> 10'15	0°37'37
direct	4650 Jun 08 07:02	2° <u>12</u> 14'57		max. Earth dist.	4656 Oct 26 01:14	5° <u>12</u> 06'57	19.35752 AU
evening set	4650 Sep 11 09:24	5° <u>12</u> 41'08		morning rise	4656 Nov 12 07:20	6° <u>12</u> 11'25	
max. Earth dist.	4650 Sep 27 04:13	6° <u>12</u> 39'26	19.44768 AU	retrograde	4657 Feb 12 01:18	9° <u>12</u> 33'18	
				opposition	4657 Apr 26 14:28	7° <u>12</u> 30'49	0°40'41
conjunction	4650 Sep 28 01:45	6° <u>12</u> 42'47	0°46'08	min. Earth dist.	4657 Apr 27 07:30	7° <u>12</u> 28'58	17.35998 AU
minimum elong	4650 Sep 28 01:45	6° <u>12</u> 42'47	0°46'08	direct	4657 Jul 11 19:47	5° <u>12</u> 24'44	
morning rise	4650 Oct 14 15:44	7° <u>12</u> 44'07		evening set	4657 Oct 15 13:49	8° <u>12</u> 53'44	
retrograde	4651 Jan 15 03:40	11° <u>12</u> 06'08		max. Earth dist.	4657 Oct 31 05:37	9° <u>12</u> 52'12	19.36333 AU
opposition	4651 Mar 29 19:09	9° <u>12</u> 03'25	0°51'05				
min. Earth dist.	4651 Mar 30 13:25	9° <u>12</u> 01'25	17.43335 AU	conjunction	4657 Nov 01 01:14	9° <u>12</u> 55'16	0°35'14
direct	4651 Jun 13 08:33	6° <u>12</u> 57'56		minimum elong	4657 Nov 01 01:14	9° <u>12</u> 55'16	0°35'15
evening set	4651 Sep 16 13:36	10° <u>12</u> 24'48		morning rise	4657 Nov 17 09:05	10° <u>12</u> 56'19	
max. Earth dist.	4651 Oct 02 06:41	11° <u>12</u> 22'59	19.41943 AU	retrograde	4658 Feb 16 23:42	14° <u>12</u> 18'02	
				opposition	4658 May 01 14:53	12° <u>12</u> 15'44	0°37'53
conjunction	4651 Oct 03 05:21	11° <u>12</u> 26'30	0°45'28	min. Earth dist.	4658 May 02 08:14	12° <u>12</u> 13'50	17.36873 AU
minimum elong	4651 Oct 03 05:21	11° <u>12</u> 26'30	0°45'28	direct	4658 Jul 16 20:42	10° <u>12</u> 09'45	
morning rise	4651 Oct 19 18:40	12° <u>12</u> 27'52		evening set	4658 Oct 20 17:09	13° <u>12</u> 38'46	
retrograde	4652 Jan 20 01:43	15° <u>12</u> 50'00		max. Earth dist.	4658 Nov 05 07:54	14° <u>12</u> 37'07	19.37503 AU
opposition	4652 Apr 02 17:26	13° <u>12</u> 47'15	0°50'11				
min. Earth dist.	4652 Apr 03 12:49	13° <u>12</u> 45'08	17.40745 AU	conjunction	4658 Nov 06 03:29	14° <u>12</u> 40'11	0°32'37
direct	4652 Jun 17 09:14	11° <u>12</u> 41'34		minimum elong	4658 Nov 06 03:29	14° <u>12</u> 40'11	0°32'37
evening set	4652 Sep 20 17:48	15° <u>12</u> 09'02			4658 Nov 11 09:45	15° <u>12</u>	
max. Earth dist.	4652 Oct 06 10:45	16° <u>12</u> 07'17	19.39591 AU	morning rise	4658 Nov 22 10:30	15° <u>12</u> 41'06	
				retrograde	4659 Feb 22 00:30	19° <u>12</u> 02'38	
conjunction	4652 Oct 07 09:04	16° <u>12</u> 10'46	0°44'29	opposition	4659 May 06 15:19	17° <u>12</u> 00'30	0°34'50
minimum elong	4652 Oct 07 09:04	16° <u>12</u> 10'46	0°44'31	min. Earth dist.	4659 May 07 07:09	16° <u>12</u> 58'47	17.38307 AU
morning rise	4652 Oct 23 21:37	17° <u>12</u> 12'09			4659 Jul 07 18:23	15° <u>12</u> 18'11	
retrograde	4653 Jan 24 02:13	20° <u>12</u> 34'19		direct	4659 Jul 22 00:41	14° <u>12</u> 54'39	
opposition	4653 Apr 07 16:07	18° <u>12</u> 31'35	0°48'56		4659 Aug 05 05:07	15° <u>12</u>	
min. Earth dist.	4653 Apr 08 10:46	18° <u>12</u> 29'32	17.38632 AU	evening set	4659 Oct 25 20:08	18° <u>12</u> 23'36	
direct	4653 Jun 22 11:52	16° <u>12</u> 25'42		max. Earth dist.	4659 Nov 10 11:56	19° <u>12</u> 22'06	19.39187 AU
evening set	4653 Sep 25 22:07	19° <u>12</u> 53'40					
				conjunction	4659 Nov 11 05:40	19° <u>12</u> 24'53	0°29'46
conjunction	4653 Oct 12 12:40	20° <u>12</u> 55'24	0°43'13	minimum elong	4659 Nov 11 05:40	19° <u>12</u> 24'53	0°29'47
minimum elong	4653 Oct 12 12:40	20° <u>12</u> 55'24	0°43'13	morning rise	4659 Nov 27 11:30	20° <u>12</u> 25'39	
max. Earth dist.	4653 Oct 11 14:10	20° <u>12</u> 51'54	19.37734 AU	retrograde	4660 Feb 26 22:33	23° <u>12</u> 46'55	
morning rise	4653 Oct 29 00:20	21° <u>12</u> 56'46		opposition	4660 May 10 15:55	21° <u>12</u> 44'59	0°31'32
retrograde	4654 Jan 29 00:36	25° <u>12</u> 18'56		min. Earth dist.	4660 May 11 07:58	21° <u>12</u> 43'15	17.40226 AU
opposition	4654 Apr 12 15:19	23° <u>12</u> 16'12	0°47'21	direct	4660 Jul 26 02:15	19° <u>12</u> 39'18	
min. Earth dist.	4654 Apr 13 10:47	23° <u>12</u> 14'04	17.37061 AU	evening set	4660 Oct 29 22:56	23° <u>12</u> 08'05	
direct	4654 Jun 27 12:32	21° <u>12</u> 10'11					
evening set	4654 Oct 01 02:16	24° <u>12</u> 38'33		conjunction	4660 Nov 15 07:17	24° <u>12</u> 09'11	0°26'44
				minimum elong	4660 Nov 15 07:17	24° <u>12</u> 09'11	0°26'44
conjunction	4654 Oct 17 16:06	25° <u>12</u> 40'16	0°41'38	max. Earth dist.	4660 Nov 14 13:16	24° <u>12</u> 06'21	19.41339 AU
minimum elong	4654 Oct 17 16:06	25° <u>12</u> 40'16	0°41'38	morning rise	4660 Dec 01 12:15	25° <u>12</u> 09'47	
max. Earth dist.	4654 Oct 16 18:00	25° <u>12</u> 36'49	19.36458 AU	retrograde	4661 Mar 02 22:35	28° <u>12</u> 30'45	
morning rise	4654 Nov 03 02:56	26° <u>12</u> 41'35		opposition	4661 May 15 16:39	26° <u>12</u> 28'59	0°28'02
	4655 Jan 22 15:01	0° <u>12</u>		min. Earth dist.	4661 May 16 07:22	26° <u>12</u> 27'24	17.42589 AU
retrograde	4655 Feb 03 01:47	0° <u>12</u> 03'41		direct	4661 Jul 31 06:29	24° <u>12</u> 23'29	
	4655 Feb 14 13:13	30° <u>12</u> 13'13		evening set	4661 Nov 04 00:57	27° <u>12</u> 51'58	
opposition	4655 Apr 17 14:42	28° <u>12</u> 01'00	0°45'26				
min. Earth dist.	4655 Apr 18 08:49	27° <u>12</u> 59'01	17.36082 AU	conjunction	4661 Nov 20 08:25	28° <u>12</u> 52'53	0°23'30
direct	4655 Jul 02 15:43	25° <u>12</u> 54'54		minimum elong	4661 Nov 20 08:25	28° <u>12</u> 52'53	0°23'30
evening set	4655 Oct 06 06:12	29° <u>12</u> 23'33		max. Earth dist.	4661 Nov 19 16:26	28° <u>12</u> 50'23	19.43899 AU
	4655 Oct 16 01:58	0° <u>12</u>		morning rise	4661 Dec 06 12:09	29° <u>12</u> 53'18	

	4661 Dec 08 08:07	0°♈		behind sun begin	4667 Dec 18 16:47	26°♏50'57	
retrograde	4662 Mar 07 20:07	3°♏13'54		behind sun end	4667 Dec 19 06:01	26°♏52'58	
opposition	4662 May 20 17:30	1°♏12'20	0°24'21	max. Earth dist.	4667 Dec 18 14:46	26°♏50'38	19.66555 AU
min. Earth dist.	4662 May 21 07:56	1°♏10'46	17.45333 AU	morning rise	4668 Jan 03 21:30	27°♏50'58	
	4662 Jun 19 15:59	30°♍			4668 Feb 13 04:42	0°♎	
direct	4662 Aug 05 09:11	29°♍07'00		retrograde	4668 Apr 04 01:37	1°♎08'35	
	4662 Sep 19 20:50	0°♏			4668 May 27 09:30	30°♏♏	
evening set	4662 Nov 09 02:33	2°♏35'05		opposition	4668 Jun 17 17:29	29°♏07'46	0°00'03
				min. Earth dist.	4668 Jun 18 00:26	29°♏07'02	17.68991 AU
conjunction	4662 Nov 25 08:49	3°♏35'47	0°20'08	desc. node	4668 Jun 22 20:56	28°♏54'46	
minimum elong	4662 Nov 25 08:48	3°♏35'47	0°20'09	direct	4668 Sep 02 20:43	27°♏03'38	
max. Earth dist.	4662 Nov 24 16:40	3°♏33'16	19.46835 AU		4668 Nov 29 03:09	0°♎	
morning rise	4662 Dec 11 11:42	4°♏36'00		evening set	4668 Dec 06 18:43	0°♎27'21	
retrograde	4663 Mar 12 18:34	7°♏56'13					
opposition	4663 May 25 18:05	5°♏54'47	0°20'31	conjunction	4668 Dec 22 18:52	1°♎26'31	-0°01'54
min. Earth dist.	4663 May 26 07:21	5°♏53'22	17.48451 AU	minimum elong	4668 Dec 22 18:53	1°♎26'31	0°01'54
direct	4663 Aug 10 12:41	3°♏49'38		behind sun begin	4668 Dec 22 12:16	1°♎25'31	
evening set	4663 Nov 14 03:15	7°♏17'13		behind sun end	4668 Dec 23 01:30	1°♎27'31	
				max. Earth dist.	4668 Dec 22 11:38	1°♎25'25	19.71546 AU
conjunction	4663 Nov 30 08:40	8°♏17'43	0°16'38	morning rise	4669 Jan 07 16:10	2°♎25'16	
minimum elong	4663 Nov 30 08:40	8°♏17'43	0°16'38	retrograde	4669 Apr 08 20:39	5°♎42'19	
max. Earth dist.	4663 Nov 29 18:36	8°♏15'31	19.50122 AU	opposition	4669 Jun 22 16:22	3°♎41'37	-0°04'04
morning rise	4663 Dec 16 10:26	9°♏17'42		min. Earth dist.	4669 Jun 22 22:15	3°♎41'00	17.74181 AU
retrograde	4664 Mar 16 15:45	12°♏37'28		direct	4669 Sep 07 19:27	1°♎37'45	
opposition	4664 May 29 18:37	10°♏36'11	0°16'33	evening set	4669 Dec 11 14:07	5°♎00'32	
min. Earth dist.	4664 May 30 07:06	10°♏34'51	17.51886 AU				
direct	4664 Aug 14 15:39	8°♏31'14		conjunction	4669 Dec 27 13:22	5°♎59'24	-0°05'35
evening set	4664 Nov 18 03:26	11°♏58'13		minimum elong	4669 Dec 27 13:22	5°♎59'24	0°05'34
				behind sun begin	4669 Dec 27 07:00	5°♎58'27	
conjunction	4664 Dec 04 07:37	12°♏58'27	0°13'02	behind sun end	4669 Dec 27 19:43	6°♎00'22	
minimum elong	4664 Dec 04 07:37	12°♏58'27	0°13'03	max. Earth dist.	4669 Dec 27 08:16	5°♎58'39	19.76925 AU
behind sun begin	4664 Dec 04 03:36	12°♏57'50		morning rise	4670 Jan 12 09:51	6°♎57'53	
behind sun end	4664 Dec 04 11:38	12°♏59'04		retrograde	4670 Apr 13 15:50	10°♎14'22	
max. Earth dist.	4664 Dec 03 17:43	12°♏56'17	19.53724 AU	opposition	4670 Jun 27 14:40	8°♎13'50	-0°08'08
morning rise	4664 Dec 20 08:31	13°♏58'13		min. Earth dist.	4670 Jun 27 17:56	8°♎13'29	17.79727 AU
retrograde	4665 Mar 21 12:42	17°♏17'30		direct	4670 Sep 12 19:22	6°♎10'18	
opposition	4665 Jun 03 18:51	15°♏16'21	0°12'29	evening set	4670 Dec 16 08:46	9°♎32'05	
min. Earth dist.	4665 Jun 04 06:20	15°♏15'07	17.55654 AU				
direct	4665 Aug 19 17:36	13°♏11'34		conjunction	4671 Jan 01 07:07	10°♎30'40	-0°09'12
evening set	4665 Nov 23 02:35	16°♏37'51		minimum elong	4671 Jan 01 07:06	10°♎30'40	0°09'11
				behind sun begin	4671 Jan 01 01:30	10°♎29'49	
conjunction	4665 Dec 09 05:53	17°♏37'51	0°09'23	behind sun end	4671 Jan 01 12:43	10°♎31'30	
minimum elong	4665 Dec 09 05:52	17°♏37'51	0°09'23	max. Earth dist.	4671 Jan 01 03:47	10°♎30'10	19.82638 AU
behind sun begin	4665 Dec 09 00:18	17°♏37'00		morning rise	4671 Jan 17 02:51	11°♎28'52	
behind sun end	4665 Dec 09 11:26	17°♏38'41		retrograde	4671 Apr 18 09:45	14°♎44'47	
max. Earth dist.	4665 Dec 08 18:11	17°♏36'02	19.57661 AU	opposition	4671 Jul 02 12:27	12°♎44'25	-0°12'08
morning rise	4665 Dec 25 05:43	18°♏37'22		min. Earth dist.	4671 Jul 02 14:57	12°♎44'10	17.85597 AU
retrograde	4666 Mar 26 09:34	21°♏56'07		direct	4671 Sep 17 16:44	10°♎41'15	
opposition	4666 Jun 08 18:51	19°♏55'05	0°08'22	evening set	4671 Dec 21 02:31	14°♎02'02	
min. Earth dist.	4666 Jun 09 04:51	19°♏54'01	17.59745 AU				
direct	4666 Aug 24 19:47	17°♏50'30		conjunction	4672 Jan 05 24:00	15°♎00'18	-0°12'44
evening set	4666 Nov 28 00:49	21°♏15'59		minimum elong	4672 Jan 05 24:00	15°♎00'18	0°12'43
				behind sun begin	4672 Jan 05 19:47	14°♎59'40	
conjunction	4666 Dec 14 03:00	22°♏15'43	0°05'41	behind sun end	4672 Jan 06 04:12	15°♎00'56	
minimum elong	4666 Dec 14 02:59	22°♏15'43	0°05'41	max. Earth dist.	4672 Jan 05 22:20	15°♎00'04	19.88645 AU
behind sun begin	4666 Dec 13 20:37	22°♏14'45		morning rise	4672 Jan 21 19:06	15°♎58'15	
behind sun end	4666 Dec 14 09:21	22°♏16'41		retrograde	4672 Apr 22 03:52	19°♎13'35	
max. Earth dist.	4666 Dec 13 16:07	22°♏14'02	19.61927 AU	opposition	4672 Jul 06 09:45	17°♎13'25	-0°16'02
morning rise	4666 Dec 30 02:02	23°♏14'59		min. Earth dist.	4672 Jul 06 09:38	17°♎13'26	17.91703 AU
retrograde	4667 Mar 31 05:26	26°♏33'12		direct	4672 Sep 21 15:40	15°♎10'39	
opposition	4667 Jun 13 18:27	24°♏32'15	0°04'13	evening set	4672 Dec 24 19:23	18°♎30'22	
min. Earth dist.	4667 Jun 14 03:29	24°♏31'18	17.64191 AU				
direct	4667 Aug 29 19:49	22°♏27'52		conjunction	4673 Jan 09 16:01	19°♎28'21	-0°16'11
evening set	4667 Dec 02 22:09	25°♏52'31		minimum elong	4673 Jan 09 16:01	19°♎28'21	0°16'10
				behind sun begin	4673 Jan 09 15:40	19°♎28'18	
conjunction	4667 Dec 18 23:23	26°♏51'57	0°01'56	behind sun end	4673 Jan 09 16:22	19°♎28'24	
minimum elong	4667 Dec 18 23:24	26°♏51'57	0°01'57	max. Earth dist.	4673 Jan 09 16:20	19°♎28'24	19.94841 AU

morning rise	4673 Jan 25 10:26	20°  26'01	retrograde	4679 May 23 12:48	19°  48'56
retrograde	4673 Apr 26 20:09	23°  40'48	opposition	4679 Aug 08 00:12	17°  49'41 -0°38'53
opposition	4673 Jul 11 06:47	21°  40'49 -0°19'48	min. Earth dist.	4679 Aug 07 15:45	17°  50'33 18.35406 AU
min. Earth dist.	4673 Jul 11 06:07	21°  40'54 17.97981 AU	direct	4679 Oct 24 04:15	15°  49'22
direct	4673 Sep 26 12:16	19°  38'27	evening set	4680 Jan 24 18:24	19°  01'16
evening set	4673 Dec 29 11:28	22°  35'05			
conjunction	4674 Jan 14 07:17	23°  54'46 -0°19'31	conjunction	4680 Feb 09 10:44	19°  57'17 -0°36'12
minimum elong	4674 Jan 14 07:16	23°  54'46 0°19'31	minimum elong	4680 Feb 09 10:44	19°  57'17 0°36'11
max. Earth dist.	4674 Jan 14 08:49	23°  55'00 20.01180 AU	max. Earth dist.	4680 Feb 09 19:53	19°  58'39 20.38337 AU
morning rise	4674 Jan 30 01:11	24°  52'10	morning rise	4680 Feb 25 02:38	20°  53'13
retrograde	4674 May 01 13:16	28°  06'24	retrograde	4680 May 27 02:42	24°  04'08
opposition	4674 Jul 16 03:05	26°  06'35 -0°23'26	opposition	4680 Aug 11 16:46	22°  04'55 -0°41'19
min. Earth dist.	4674 Jul 15 23:54	26°  06'55 18.04356 AU	min. Earth dist.	4680 Aug 11 06:13	22°  05'59 18.41227 AU
direct	4674 Oct 01 09:36	24°  04'36	direct	4680 Oct 27 20:18	20°  04'51
evening set	4675 Jan 03 02:37	27°  22'09	evening set	4681 Jan 28 04:27	23°  15'39
conjunction	4675 Jan 18 21:46	28°  19'32 -0°22'43	conjunction	4681 Feb 12 20:32	24°  11'25 -0°38'18
minimum elong	4675 Jan 18 21:45	28°  19'32 0°22'43	minimum elong	4681 Feb 12 20:32	24°  11'25 0°38'18
max. Earth dist.	4675 Jan 19 01:17	28°  20'04 20.07566 AU	max. Earth dist.	4681 Feb 13 08:06	24°  13'08 20.44088 AU
morning rise	4675 Feb 03 15:06	29°  16'40	morning rise	4681 Feb 28 12:11	25°  07'09
retrograde	4675 Feb 16 02:11	0°  00	retrograde	4681 May 31 13:26	28°  17'33
opposition	4675 May 06 04:10	2°  30'20	opposition	4681 Aug 16 08:48	26°  18'22 -0°43'30
min. Earth dist.	4675 Jul 20 23:01	0°  30'42 -0°26'55	min. Earth dist.	4681 Aug 15 21:39	26°  19'30 18.46932 AU
direct	4675 Jul 20 19:32	0°  31'03 18.10749 AU	direct	4681 Nov 01 10:50	24°  18'36
evening set	4675 Aug 02 12:22	30°  16'00	evening set	4682 Feb 01 13:57	27°  28'18
conjunction	4675 Oct 06 04:44	28°  29'05	conjunction	4682 Feb 17 05:37	28°  23'50 -0°40'10
minimum elong	4675 Dec 06 03:17	0°  00	minimum elong	4682 Feb 17 05:37	28°  23'50 0°40'09
max. Earth dist.	4676 Jan 07 17:06	1°  45'31	max. Earth dist.	4682 Feb 17 17:40	28°  25'37 20.49749 AU
morning rise	4676 Jan 23 11:29	2°  42'36 -0°25'47	morning rise	4682 Mar 04 21:22	29°  19'22
retrograde	4676 Jan 23 11:28	2°  42'36 0°25'47	retrograde	4682 Mar 16 20:10	0°  00
max. Earth dist.	4676 Jan 23 15:43	2°  43'15 20.13945 AU	opposition	4682 Jun 05 02:05	2°  29'18
morning rise	4676 Feb 08 04:26	3°  39'29	min. Earth dist.	4682 Aug 20 23:54	0°  30'09 -0°45'26
retrograde	4676 May 09 20:13	6°  52'35	direct	4682 Aug 20 10:40	0°  31'30 18.52559 AU
opposition	4676 Jul 24 18:09	4°  53'05 -0°30'13	evening set	4682 Sep 02 13:16	30°  16'00
min. Earth dist.	4676 Jul 24 12:21	4°  53'41 18.17095 AU	conjunction	4682 Nov 06 00:14	28°  30'40
direct	4676 Oct 10 00:35	2°  51'50	minimum elong	4683 Jan 05 15:22	0°  00
evening set	4677 Jan 11 06:42	6°  07'09	max. Earth dist.	4683 Feb 05 22:35	1°  39'21
conjunction	4677 Jan 27 00:33	7°  03'57 -0°28'40	conjunction	4683 Feb 21 14:12	2°  34'40 -0°41'48
minimum elong	4677 Jan 27 00:33	7°  03'57 0°28'40	minimum elong	4683 Feb 21 14:12	2°  34'40 0°41'48
max. Earth dist.	4677 Jan 27 06:45	7°  04'53 20.20239 AU	max. Earth dist.	4683 Feb 22 04:36	2°  36'48 20.55317 AU
morning rise	4677 Feb 11 17:00	8°  00'35	morning rise	4683 Mar 09 05:51	3°  30'02
retrograde	4677 May 14 09:48	11°  13'08	retrograde	4683 Jun 09 12:19	6°  39'31
opposition	4677 Jul 29 12:59	9°  13'45 -0°33'19	opposition	4683 Aug 25 14:29	4°  40'26 -0°47'06
min. Earth dist.	4677 Jul 29 06:56	9°  14'23 18.23341 AU	min. Earth dist.	4683 Aug 25 00:35	4°  41'51 18.58075 AU
direct	4677 Oct 14 18:06	7°  12'50	direct	4683 Nov 10 13:23	2°  41'16
evening set	4678 Jan 15 19:25	10°  27'00	evening set	4684 Feb 10 06:43	5°  48'58
conjunction	4678 Jan 31 12:37	11°  23'32 -0°31'23	conjunction	4684 Feb 25 22:01	6°  44'05 -0°43'13
minimum elong	4678 Jan 31 12:37	11°  23'32 0°31'22	minimum elong	4684 Feb 25 22:01	6°  44'05 0°43'13
max. Earth dist.	4678 Jan 31 19:19	11°  24'33 20.26424 AU	max. Earth dist.	4684 Feb 26 12:42	6°  46'15 20.60777 AU
morning rise	4678 Feb 16 04:54	12°  19'56	morning rise	4684 Mar 12 13:54	7°  39'17
retrograde	4678 Apr 13 20:25	15°  00	retrograde	4684 Jun 13 00:20	10°  48'22
opposition	4678 May 19 00:57	15°  31'56	opposition	4684 Aug 29 04:24	8°  49'22 -0°48'32
min. Earth dist.	4678 Jun 24 06:25	15°  31'56	min. Earth dist.	4684 Aug 28 12:41	8°  50'57 18.63473 AU
direct	4678 Aug 03 06:58	13°  32'38 -0°36'13	direct	4684 Nov 14 00:40	6°  50'31
evening set	4678 Aug 02 22:43	13°  33'28 18.29452 AU	evening set	4685 Feb 13 14:10	9°  57'17
conjunction	4679 Jan 20 07:18	14°  45'03	conjunction	4685 Mar 01 05:33	10°  52'13 -0°44'23
minimum elong	4679 Jan 24 12:30	15°  00	minimum elong	4685 Mar 01 05:33	10°  52'13 0°44'23
max. Earth dist.	4679 Feb 05 00:09	15°  41'19 -0°33'54	max. Earth dist.	4685 Mar 01 22:28	10°  54'43 20.66088 AU
morning rise	4679 Feb 05 08:54	15°  42'38 20.32451 AU	morning rise	4685 Mar 16 21:26	11°  47'16
retrograde	4679 Feb 20 16:05	16°  37'29	retrograde	4685 Jun 17 10:06	14°  56'00
opposition			opposition	4685 Sep 02 17:52	12°  57'06 -0°49'41
min. Earth dist.			min. Earth dist.	4685 Sep 02 01:31	12°  58'44 18.68695 AU
direct			direct	4685 Nov 18 12:44	10°  58'35

evening set	4686 Feb 17 21:11	14° $\mathbf{\text{X}}$ 04'26	max. Earth dist.	4692 Mar 29 20:19	9° $\mathbf{\text{Y}}$ 24'31	20.94586 AU
			morning rise	4692 Apr 13 19:38	10° $\mathbf{\text{Y}}$ 16'08	
conjunction	4686 Mar 05 12:26	14° $\mathbf{\text{X}}$ 59'13 -0°45'20	retrograde	4692 Jul 16 06:56	13° $\mathbf{\text{Y}}$ 23'10	
minimum elong	4686 Mar 05 12:26	14° $\mathbf{\text{X}}$ 59'13 0°45'20	min. Earth dist.	4692 Oct 01 06:32	11° $\mathbf{\text{Y}}$ 26'23	18.95831 AU
max. Earth dist.	4686 Mar 06 05:21	15° $\mathbf{\text{X}}$ 01'42 20.71209 AU	opposition	4692 Oct 02 01:58	11° $\mathbf{\text{Y}}$ 24'26	-0°50'36
morning rise	4686 Mar 21 04:45	15° $\mathbf{\text{X}}$ 54'08	direct	4692 Dec 17 07:03	9° $\mathbf{\text{Y}}$ 27'32	
retrograde	4686 Jun 21 22:00	19° $\mathbf{\text{X}}$ 02'33	evening set	4693 Mar 17 12:58	12° $\mathbf{\text{Y}}$ 28'25	
opposition	4686 Sep 07 06:42	17° $\mathbf{\text{X}}$ 03'43 -0°50'35				
min. Earth dist.	4686 Sep 06 13:01	17° $\mathbf{\text{X}}$ 05'30 18.73701 AU	conjunction	4693 Apr 02 06:10	13° $\mathbf{\text{Y}}$ 22'31	-0°45'25
direct	4686 Nov 22 22:54	15° $\mathbf{\text{X}}$ 05'31	minimum elong	4693 Apr 02 06:10	13° $\mathbf{\text{Y}}$ 22'31	0°45'26
evening set	4687 Feb 22 03:45	18° $\mathbf{\text{X}}$ 10'32	max. Earth dist.	4693 Apr 03 03:02	13° $\mathbf{\text{Y}}$ 25'32	20.96887 AU
			morning rise	4693 Apr 18 01:32	14° $\mathbf{\text{Y}}$ 16'56	
conjunction	4687 Mar 09 19:12	19° $\mathbf{\text{X}}$ 05'10 -0°46'03	retrograde	4693 Jul 20 15:04	17° $\mathbf{\text{Y}}$ 23'48	
minimum elong	4687 Mar 09 19:12	19° $\mathbf{\text{X}}$ 05'10 0°46'02	opposition	4693 Oct 06 11:34	15° $\mathbf{\text{Y}}$ 24'59	-0°49'43
max. Earth dist.	4687 Mar 10 14:01	19° $\mathbf{\text{X}}$ 07'55 20.76069 AU	min. Earth dist.	4693 Oct 05 15:58	15° $\mathbf{\text{Y}}$ 26'57	18.97908 AU
morning rise	4687 Mar 25 11:37	19° $\mathbf{\text{X}}$ 59'58	direct	4693 Dec 21 15:12	13° $\mathbf{\text{Y}}$ 28'10	
retrograde	4687 Jun 26 07:06	23° $\mathbf{\text{X}}$ 08'04	evening set	4694 Mar 21 17:40	16° $\mathbf{\text{Y}}$ 28'32	
opposition	4687 Sep 11 18:55	21° $\mathbf{\text{X}}$ 09'21 -0°51'14				
min. Earth dist.	4687 Sep 11 00:54	21° $\mathbf{\text{X}}$ 11'09 18.78410 AU	conjunction	4694 Apr 06 11:14	17° $\mathbf{\text{Y}}$ 22'35	-0°44'31
direct	4687 Nov 27 09:38	19° $\mathbf{\text{X}}$ 11'28	minimum elong	4694 Apr 06 11:14	17° $\mathbf{\text{Y}}$ 22'35	0°44'31
evening set	4688 Feb 26 10:06	22° $\mathbf{\text{X}}$ 15'41	max. Earth dist.	4694 Apr 07 07:12	17° $\mathbf{\text{Y}}$ 25'28	20.98761 AU
			morning rise	4694 Apr 22 07:28	18° $\mathbf{\text{Y}}$ 17'01	
conjunction	4688 Mar 13 01:30	23° $\mathbf{\text{X}}$ 10'10 -0°46'31	retrograde	4694 Jul 24 23:04	21° $\mathbf{\text{Y}}$ 23'45	
minimum elong	4688 Mar 13 01:30	23° $\mathbf{\text{X}}$ 10'10 0°46'32	opposition	4694 Oct 10 20:48	19° $\mathbf{\text{Y}}$ 24'50	-0°48'36
max. Earth dist.	4688 Mar 13 19:56	23° $\mathbf{\text{X}}$ 12'52 20.80620 AU	min. Earth dist.	4694 Oct 10 01:16	19° $\mathbf{\text{Y}}$ 26'47	18.99590 AU
morning rise	4688 Mar 28 18:26	24° $\mathbf{\text{X}}$ 04'52	direct	4694 Dec 25 22:03	17° $\mathbf{\text{Y}}$ 28'03	
retrograde	4688 Jun 29 18:32	27° $\mathbf{\text{X}}$ 12'43	evening set	4695 Mar 25 22:08	20° $\mathbf{\text{Y}}$ 27'59	
opposition	4688 Sep 15 06:51	25° $\mathbf{\text{X}}$ 14'03 -0°51'37				
min. Earth dist.	4688 Sep 14 12:01	25° $\mathbf{\text{X}}$ 15'56 18.82790 AU	conjunction	4695 Apr 10 16:23	21° $\mathbf{\text{Y}}$ 22'02	-0°43'24
direct	4688 Nov 30 19:17	23° $\mathbf{\text{X}}$ 16'27	minimum elong	4695 Apr 10 16:23	21° $\mathbf{\text{Y}}$ 22'02	0°43'25
evening set	4689 Mar 01 15:52	26° $\mathbf{\text{X}}$ 19'55	max. Earth dist.	4695 Apr 11 13:39	21° $\mathbf{\text{Y}}$ 25'06	21.00245 AU
			morning rise	4695 Apr 26 13:07	22° $\mathbf{\text{Y}}$ 16'28	
conjunction	4689 Mar 17 07:37	27° $\mathbf{\text{X}}$ 14'18 -0°46'46	retrograde	4695 Jul 29 07:06	25° $\mathbf{\text{Y}}$ 23'07	
minimum elong	4689 Mar 17 07:37	27° $\mathbf{\text{X}}$ 14'18 0°46'45	min. Earth dist.	4695 Oct 14 09:40	23° $\mathbf{\text{Y}}$ 26'07	19.00891 AU
max. Earth dist.	4689 Mar 18 03:42	27° $\mathbf{\text{X}}$ 17'13 20.84796 AU	opposition	4695 Oct 15 05:30	23° $\mathbf{\text{Y}}$ 24'07	-0°47'15
morning rise	4689 Apr 02 00:47	28° $\mathbf{\text{X}}$ 08'54	direct	4695 Dec 30 05:31	21° $\mathbf{\text{Y}}$ 27'24	
	4689 May 08 09:35	0° $\mathbf{\text{Y}}$	evening set	4696 Mar 29 02:41	24° $\mathbf{\text{Y}}$ 26'58	
retrograde	4689 Jul 04 03:17	1° $\mathbf{\text{Y}}$ 16'31				
	4689 Sep 01 19:43	30° $\mathbf{\text{R}}$ $\mathbf{\text{X}}$	conjunction	4696 Apr 13 21:21	25° $\mathbf{\text{Y}}$ 21'01	-0°42'05
opposition	4689 Sep 19 18:21	29° $\mathbf{\text{X}}$ 17'54 -0°51'45	minimum elong	4696 Apr 13 21:21	25° $\mathbf{\text{Y}}$ 21'01	0°42'04
min. Earth dist.	4689 Sep 18 23:19	29° $\mathbf{\text{X}}$ 19'48 18.86757 AU	max. Earth dist.	4696 Apr 14 17:41	25° $\mathbf{\text{Y}}$ 23'56	21.01382 AU
direct	4689 Dec 05 04:57	27° $\mathbf{\text{X}}$ 20'33	morning rise	4696 Apr 29 19:01	26° $\mathbf{\text{Y}}$ 15'29	
	4690 Feb 26 23:01	0° $\mathbf{\text{Y}}$	retrograde	4696 Aug 01 15:02	29° $\mathbf{\text{Y}}$ 22'08	
evening set	4690 Mar 05 21:39	0° $\mathbf{\text{Y}}$ 23'18	opposition	4696 Oct 18 14:06	27° $\mathbf{\text{Y}}$ 23'03	-0°45'40
			min. Earth dist.	4696 Oct 17 18:25	27° $\mathbf{\text{Y}}$ 25'01	19.01866 AU
conjunction	4690 Mar 21 13:31	1° $\mathbf{\text{Y}}$ 17'35 -0°46'46	direct	4697 Jan 02 11:04	25° $\mathbf{\text{Y}}$ 26'23	
minimum elong	4690 Mar 21 13:31	1° $\mathbf{\text{Y}}$ 17'35 0°46'47	evening set	4697 Apr 02 06:59	28° $\mathbf{\text{Y}}$ 25'39	
max. Earth dist.	4690 Mar 22 08:48	1° $\mathbf{\text{Y}}$ 20'23 20.88543 AU				
morning rise	4690 Apr 06 07:19	2° $\mathbf{\text{Y}}$ 12'07	conjunction	4697 Apr 18 02:29	29° $\mathbf{\text{Y}}$ 19'44	-0°40'33
retrograde	4690 Jul 08 13:38	5° $\mathbf{\text{Y}}$ 19'32	minimum elong	4697 Apr 18 02:29	29° $\mathbf{\text{Y}}$ 19'44	0°40'34
min. Earth dist.	4690 Sep 23 09:57	3° $\mathbf{\text{Y}}$ 22'50 18.90279 AU	max. Earth dist.	4697 Apr 19 00:01	29° $\mathbf{\text{Y}}$ 22'50	21.02184 AU
opposition	4690 Sep 24 05:15	3° $\mathbf{\text{Y}}$ 20'54 -0°51'37		4697 Apr 29 19:45	0° $\mathbf{\text{B}}$	
direct	4690 Dec 09 13:54	1° $\mathbf{\text{Y}}$ 23'44	morning rise	4697 May 04 00:46	0° $\mathbf{\text{B}}$ 14'15	
evening set	4691 Mar 10 03:02	4° $\mathbf{\text{Y}}$ 25'51	retrograde	4697 Aug 05 23:11	3° $\mathbf{\text{B}}$ 20'55	
			opposition	4697 Oct 22 22:20	1° $\mathbf{\text{B}}$ 21'47	-0°43'52
conjunction	4691 Mar 25 19:23	5° $\mathbf{\text{Y}}$ 20'03 -0°46'33	min. Earth dist.	4697 Oct 22 02:20	1° $\mathbf{\text{B}}$ 23'47	19.02493 AU
minimum elong	4691 Mar 25 19:23	5° $\mathbf{\text{Y}}$ 20'03 0°46'33		4697 Nov 29 13:22	30° $\mathbf{\text{R}}$ $\mathbf{\text{Y}}$	
max. Earth dist.	4691 Mar 26 15:53	5° $\mathbf{\text{Y}}$ 23'02 20.91812 AU	direct	4698 Jan 06 18:06	29° $\mathbf{\text{Y}}$ 25'11	
morning rise	4691 Apr 10 13:32	6° $\mathbf{\text{Y}}$ 14'32		4698 Feb 12 20:04	0° $\mathbf{\text{B}}$	
retrograde	4691 Jul 12 21:55	9° $\mathbf{\text{Y}}$ 21'44	evening set	4698 Apr 06 11:40	2° $\mathbf{\text{B}}$ 24'15	
opposition	4691 Sep 28 15:47	7° $\mathbf{\text{Y}}$ 23'05 -0°51'14				
min. Earth dist.	4691 Sep 27 20:25	7° $\mathbf{\text{Y}}$ 25'01 18.93294 AU	conjunction	4698 Apr 22 07:42	3° $\mathbf{\text{B}}$ 18'23	-0°38'50
direct	4691 Dec 13 22:50	5° $\mathbf{\text{Y}}$ 26'05	minimum elong	4698 Apr 22 07:42	3° $\mathbf{\text{B}}$ 18'23	0°38'50
evening set	4692 Mar 13 08:10	8° $\mathbf{\text{Y}}$ 27'33	max. Earth dist.	4698 Apr 23 04:02	3° $\mathbf{\text{B}}$ 21'18	21.02646 AU
			morning rise	4698 May 08 06:59	4° $\mathbf{\text{B}}$ 12'57	
conjunction	4692 Mar 29 00:44	9° $\mathbf{\text{Y}}$ 21'41 -0°46'06	retrograde	4698 Aug 10 07:43	7° $\mathbf{\text{B}}$ 19'43	
minimum elong	4692 Mar 29 00:44	9° $\mathbf{\text{Y}}$ 21'41 0°46'06	min. Earth dist.	4698 Oct 26 10:50	5° $\mathbf{\text{B}}$ 22'28	19.02783 AU



opposition	4698 Oct 27 06:18	5° <del>8</del> 20'31 -0°41'52			4705 Apr 27 21:48	0° <del>II</del>
direct	4699 Jan 10 22:55	3° <del>8</del> 23'58		evening set	4705 May 05 03:38	0° <del>II</del> 23'59
evening set	4699 Apr 10 16:18	6° <del>8</del> 22'55				
				conjunction	4705 May 21 05:41	1° <del>II</del> 18'56 -0°22'05
conjunction	4699 Apr 26 13:15	7° <del>8</del> 17'07 -0°36'56		minimum elong	4705 May 21 05:41	1° <del>II</del> 18'56 0°22'05
minimum elong	4699 Apr 26 13:15	7° <del>8</del> 17'07 0°36'56		max. Earth dist.	4705 May 21 22:15	1° <del>II</del> 21'18 20.94202 AU
max. Earth dist.	4699 Apr 27 10:31	7° <del>8</del> 20'10 21.02753 AU		morning rise	4705 Jun 06 11:05	2° <del>II</del> 14'24
morning rise	4699 May 12 13:11	8° <del>8</del> 11'47		retrograde	4705 Sep 08 23:01	5° <del>II</del> 22'44
retrograde	4699 Aug 14 15:47	11° <del>8</del> 18'39		opposition	4705 Nov 25 13:08	3° <del>II</del> 23'04 -0°22'44
opposition	4699 Oct 31 14:10	9° <del>8</del> 19'27 -0°39'39		min. Earth dist.	4705 Nov 24 22:39	3° <del>II</del> 24'32 18.92678 AU
min. Earth dist.	4699 Oct 30 18:35	9° <del>8</del> 21'25 19.02696 AU		direct	4706 Feb 08 16:23	1° <del>II</del> 26'13
direct	4700 Jan 15 05:31	7° <del>8</del> 22'58		evening set	4706 May 09 11:07	4° <del>II</del> 26'09
evening set	4700 Apr 14 21:13	10° <del>8</del> 21'51				
				conjunction	4706 May 25 13:56	5° <del>II</del> 21'17 -0°19'07
conjunction	4700 Apr 30 18:45	11° <del>8</del> 16'07 -0°34'51		minimum elong	4706 May 25 13:56	5° <del>II</del> 21'17 0°19'08
minimum elong	4700 Apr 30 18:45	11° <del>8</del> 16'07 0°34'52		max. Earth dist.	4706 May 26 04:10	5° <del>II</del> 23'19 20.91024 AU
max. Earth dist.	4700 May 01 14:39	11° <del>8</del> 18'58 21.02484 AU		morning rise	4706 Jun 10 20:25	6° <del>II</del> 16'55
morning rise	4700 May 16 19:45	12° <del>8</del> 10'53		retrograde	4706 Sep 13 08:28	9° <del>II</del> 25'33
	4700 Jul 22 19:04	15° <del>8</del>		opposition	4706 Nov 29 20:58	7° <del>II</del> 25'43 -0°19'24
retrograde	4700 Aug 19 01:02	15° <del>8</del> 17'57		min. Earth dist.	4706 Nov 29 08:21	7° <del>II</del> 27'00 18.89277 AU
	4700 Sep 15 14:59	15° <del>8</del>		direct	4707 Feb 12 21:52	5° <del>II</del> 28'38
opposition	4700 Nov 04 22:08	13° <del>8</del> 18'42 -0°37'16		evening set	4707 May 13 18:50	8° <del>II</del> 28'57
min. Earth dist.	4700 Nov 04 03:24	13° <del>8</del> 20'35 19.02229 AU				
direct	4701 Jan 19 10:16	11° <del>8</del> 22'15		conjunction	4707 May 29 22:45	9° <del>II</del> 24'15 -0°16'04
evening set	4701 Apr 19 02:26	14° <del>8</del> 21'09		minimum elong	4707 May 29 22:45	9° <del>II</del> 24'15 0°16'04
	4701 Apr 30 12:31	15° <del>8</del>		max. Earth dist.	4707 May 30 13:00	9° <del>II</del> 26'18 20.87419 AU
				morning rise	4707 Jun 15 06:00	10° <del>II</del> 20'05
conjunction	4701 May 05 00:57	15° <del>8</del> 15'33 -0°32'36		retrograde	4707 Sep 17 19:01	13° <del>II</del> 29'02
minimum elong	4701 May 05 00:57	15° <del>8</del> 15'33 0°32'36		opposition	4707 Dec 04 04:54	11° <del>II</del> 29'01 -0°15'58
max. Earth dist.	4701 May 05 21:30	15° <del>8</del> 18'29 21.01806 AU		min. Earth dist.	4707 Dec 03 16:33	11° <del>II</del> 30'16 18.85475 AU
morning rise	4701 May 21 02:40	16° <del>8</del> 10'25		direct	4708 Feb 17 04:59	9° <del>II</del> 31'41
retrograde	4701 Aug 23 09:21	19° <del>8</del> 17'41		evening set	4708 May 17 03:06	12° <del>II</del> 32'26
min. Earth dist.	4701 Nov 08 11:15	17° <del>8</del> 20'17 19.01324 AU				
opposition	4701 Nov 09 05:47	17° <del>8</del> 18'25 -0°34'41		conjunction	4708 Jun 02 07:48	13° <del>II</del> 27'56 -0°12'55
direct	4702 Jan 23 16:34	15° <del>8</del> 21'59		minimum elong	4708 Jun 02 07:48	13° <del>II</del> 27'56 0°12'55
evening set	4702 Apr 23 08:12	18° <del>8</del> 20'59		behind sun begin	4708 Jun 02 03:45	13° <del>II</del> 27'22
				behind sun end	4708 Jun 02 11:51	13° <del>II</del> 28'30
conjunction	4702 May 09 07:24	19° <del>8</del> 15'29 -0°30'11		max. Earth dist.	4708 Jun 02 19:54	13° <del>II</del> 29'40 20.83450 AU
minimum elong	4702 May 09 07:24	19° <del>8</del> 15'29 0°30'13		morning rise	4708 Jun 18 16:08	14° <del>II</del> 23'58
max. Earth dist.	4702 May 10 02:05	19° <del>8</del> 18'10 21.00676 AU		retrograde	4708 Sep 21 05:22	17° <del>II</del> 33'18
morning rise	4702 May 25 10:11	20° <del>8</del> 10'30		opposition	4708 Dec 07 13:06	15° <del>II</del> 33'05 -0°12'26
retrograde	4702 Aug 27 18:45	23° <del>8</del> 18'00		min. Earth dist.	4708 Dec 07 02:32	15° <del>II</del> 34'09 18.81348 AU
opposition	4702 Nov 13 13:37	21° <del>8</del> 18'41 -0°31'56		direct	4709 Feb 20 11:13	13° <del>II</del> 35'29
min. Earth dist.	4702 Nov 12 20:31	21° <del>8</del> 20'25 18.99951 AU		evening set	4709 May 21 11:56	16° <del>II</del> 36'44
direct	4703 Jan 27 21:23	19° <del>8</del> 22'13				
evening set	4703 Apr 27 14:13	22° <del>8</del> 21'24		conjunction	4709 Jun 06 17:45	17° <del>II</del> 32'28 -0°09'42
				minimum elong	4709 Jun 06 17:45	17° <del>II</del> 32'28 0°09'43
conjunction	4703 May 13 14:25	23° <del>8</del> 16'02 -0°27'38		behind sun begin	4709 Jun 06 12:17	17° <del>II</del> 31'42
minimum elong	4703 May 13 14:25	23° <del>8</del> 16'02 0°27'38		behind sun end	4709 Jun 06 23:13	17° <del>II</del> 33'14
max. Earth dist.	4703 May 14 09:16	23° <del>8</del> 18'44 20.99043 AU		max. Earth dist.	4709 Jun 07 05:50	17° <del>II</del> 34'12 20.79174 AU
morning rise	4703 May 29 17:54	24° <del>8</del> 11'10		morning rise	4709 Jun 23 02:50	18° <del>II</del> 28'42
retrograde	4703 Sep 01 03:47	27° <del>8</del> 18'57		retrograde	4709 Sep 25 16:48	21° <del>II</del> 38'25
opposition	4703 Nov 17 21:22	25° <del>8</del> 19'34 -0°29'01		opposition	4709 Dec 11 21:10	19° <del>II</del> 38'01 -0°08'50
min. Earth dist.	4703 Nov 17 04:41	25° <del>8</del> 21'15 18.98049 AU		min. Earth dist.	4709 Dec 11 10:51	19° <del>II</del> 39'05 18.76926 AU
direct	4704 Feb 01 04:08	23° <del>8</del> 23'01		direct	4710 Feb 24 18:28	17° <del>II</del> 40'10
evening set	4704 Apr 30 20:50	26° <del>8</del> 22'24		evening set	4710 May 25 21:33	20° <del>II</del> 42'00
conjunction	4704 May 16 21:45	27° <del>8</del> 17'11 -0°24'55		conjunction	4710 Jun 11 04:10	21° <del>II</del> 37'58 -0°06'25
minimum elong	4704 May 16 21:45	27° <del>8</del> 17'11 0°24'56		minimum elong	4710 Jun 11 04:09	21° <del>II</del> 37'57 0°06'25
max. Earth dist.	4704 May 17 14:22	27° <del>8</del> 19'34 20.96884 AU		behind sun begin	4710 Jun 10 21:52	21° <del>II</del> 37'04
morning rise	4704 Jun 02 02:21	28° <del>8</del> 12'29		behind sun end	4710 Jun 11 10:27	21° <del>II</del> 38'50
	4704 Jul 07 15:16	0° <del>II</del>		max. Earth dist.	4710 Jun 11 13:58	21° <del>II</del> 39'21 20.74626 AU
retrograde	4704 Sep 04 13:09	1° <del>II</del> 20'32		morning rise	4710 Jun 27 14:15	22° <del>II</del> 34'25
	4704 Nov 04 20:55	30° <del>8</del>		retrograde	4710 Sep 30 04:05	25° <del>II</del> 44'35
opposition	4704 Nov 21 05:18	29° <del>8</del> 21'02 -0°25'57		opposition	4710 Dec 16 05:45	23° <del>II</del> 44'00 -0°05'10
min. Earth dist.	4704 Nov 20 14:19	29° <del>8</del> 22'33 18.95626 AU		min. Earth dist.	4710 Dec 15 21:16	23° <del>II</del> 44'52 18.72263 AU
direct	4705 Feb 04 09:07	27° <del>8</del> 24'21		direct	4711 Mar 01 01:08	21° <del>II</del> 45'53

evening set	4711 May 30 07:32	24° $\Pi$ 48'22		behind sun end	4716 Jul 06 14:14	16° $\mathfrak{D}$ 40'08	
				max. Earth dist.	4716 Jul 06 12:19	16° $\mathfrak{D}$ 39'52	20.42972 AU
conjunction	4711 Jun 15 15:13	25° $\Pi$ 44'34 -0°03'06		morning rise	4716 Jul 23 01:25	17° $\mathfrak{D}$ 37'36	
minimum elong	4711 Jun 15 15:13	25° $\Pi$ 44'34 0°03'07		retrograde	4716 Oct 25 13:58	20° $\mathfrak{D}$ 51'05	
behind sun begin	4711 Jun 15 08:34	25° $\Pi$ 43'38		opposition	4717 Jan 09 16:50	18° $\mathfrak{D}$ 49'49	0°17'09
behind sun end	4711 Jun 15 21:53	25° $\Pi$ 45'30		min. Earth dist.	4717 Jan 09 16:21	18° $\mathfrak{D}$ 49'52	18.39964 AU
max. Earth dist.	4711 Jun 16 00:58	25° $\Pi$ 45'58 20.69851 AU		direct	4717 Mar 25 06:10	16° $\mathfrak{D}$ 50'05	
morning rise	4711 Jul 02 02:00	26° $\Pi$ 41'15		evening set	4717 Jun 24 14:20	19° $\mathfrak{D}$ 57'55	
retrograde	4711 Oct 04 16:50	29° $\Pi$ 51'53					
opposition	4711 Dec 20 14:31	27° $\Pi$ 51'10 -0°01'27		conjunction	4717 Jul 11 03:13	20° $\mathfrak{D}$ 55'45	0°17'06
min. Earth dist.	4711 Dec 20 06:10	27° $\Pi$ 52'02 18.67376 AU		minimum elong	4717 Jul 11 03:12	20° $\mathfrak{D}$ 55'45	0°17'07
direct	4712 Mar 04 09:31	25° $\Pi$ 52'48		max. Earth dist.	4717 Jul 11 03:28	20° $\mathfrak{D}$ 55'47	20.36922 AU
asc. node	4712 May 12 19:54	27° $\Pi$ 48'32		morning rise	4717 Jul 27 18:17	21° $\mathfrak{D}$ 53'57	
evening set	4712 Jun 02 18:32	28° $\Pi$ 56'00		retrograde	4717 Oct 30 07:00	25° $\mathfrak{D}$ 08'01	
				opposition	4718 Jan 14 04:14	23° $\mathfrak{D}$ 06'37	0°20'45
conjunction	4712 Jun 19 03:01	29° $\Pi$ 52'27 0°00'21		min. Earth dist.	4718 Jan 14 04:26	23° $\mathfrak{D}$ 06'36	18.33788 AU
minimum elong	4712 Jun 19 03:00	29° $\Pi$ 52'27 0°00'21		direct	4718 Mar 29 18:58	21° $\mathfrak{D}$ 06'32	
behind sun begin	4712 Jun 18 20:19	29° $\Pi$ 51'31		evening set	4718 Jun 29 06:46	24° $\mathfrak{D}$ 15'25	
behind sun end	4712 Jun 19 09:40	29° $\Pi$ 53'24					
max. Earth dist.	4712 Jun 19 10:30	29° $\Pi$ 53'31 20.64872 AU		conjunction	4718 Jul 15 20:15	25° $\mathfrak{D}$ 13'33	0°20'19
	4712 Jun 21 07:02	0° $\mathfrak{D}$		minimum elong	4718 Jul 15 20:15	25° $\mathfrak{D}$ 13'33	0°20'18
morning rise	4712 Jul 05 14:45	0° $\mathfrak{D}$ 49'23		max. Earth dist.	4718 Jul 15 17:53	25° $\mathfrak{D}$ 13'12	20.30633 AU
retrograde	4712 Oct 08 04:49	4° $\mathfrak{D}$ 00'32		morning rise	4718 Aug 01 11:55	26° $\mathfrak{D}$ 12'00	
opposition	4712 Dec 23 23:43	1° $\mathfrak{D}$ 59'41 0°02'17		retrograde	4718 Nov 03 21:31	29° $\mathfrak{D}$ 26'39	
min. Earth dist.	4712 Dec 23 17:24	2° $\mathfrak{D}$ 00'20 18.62306 AU		opposition	4719 Jan 18 16:24	27° $\mathfrak{D}$ 25'06	0°24'16
direct	4713 Mar 08 16:27	0° $\mathfrak{D}$ 01'03		min. Earth dist.	4719 Jan 18 19:11	27° $\mathfrak{D}$ 24'48	18.27409 AU
evening set	4713 Jun 07 06:11	3° $\mathfrak{D}$ 05'04		direct	4719 Apr 03 05:47	25° $\mathfrak{D}$ 24'38	
				evening set	4719 Jul 03 23:42	28° $\mathfrak{D}$ 34'34	
conjunction	4713 Jun 23 15:45	4° $\mathfrak{D}$ 01'47 0°03'48					
minimum elong	4713 Jun 23 15:45	4° $\mathfrak{D}$ 01'47 0°03'47		conjunction	4719 Jul 20 13:59	29° $\mathfrak{D}$ 32'59	0°23'25
behind sun begin	4713 Jun 23 09:07	4° $\mathfrak{D}$ 00'51		minimum elong	4719 Jul 20 13:59	29° $\mathfrak{D}$ 32'59	0°23'25
behind sun end	4713 Jun 23 22:23	4° $\mathfrak{D}$ 02'43		max. Earth dist.	4719 Jul 20 10:23	29° $\mathfrak{D}$ 32'27	20.24182 AU
max. Earth dist.	4713 Jun 23 22:56	4° $\mathfrak{D}$ 02'48 20.59711 AU			4719 Jul 28 04:50	0° $\mathcal{O}$	
morning rise	4713 Jul 10 04:10	4° $\mathfrak{D}$ 58'57		morning rise	4719 Aug 06 06:05	0° $\mathcal{O}$ 31'41	
retrograde	4713 Oct 12 19:26	8° $\mathfrak{D}$ 10'39		retrograde	4719 Nov 08 15:08	3° $\mathcal{O}$ 46'56	
opposition	4713 Dec 28 09:12	6° $\mathfrak{D}$ 09'42 0°06'01		opposition	4720 Jan 23 04:55	1° $\mathcal{O}$ 45'11	0°27'40
min. Earth dist.	4713 Dec 28 03:13	6° $\mathfrak{D}$ 10'19 18.57039 AU		min. Earth dist.	4720 Jan 23 08:12	1° $\mathcal{O}$ 44'51	18.20893 AU
direct	4714 Mar 13 02:12	4° $\mathfrak{D}$ 10'49			4720 Mar 13 08:01	30° $\mathfrak{R}$ $\mathfrak{D}$	
evening set	4714 Jun 11 18:55	7° $\mathfrak{D}$ 15'42		direct	4720 Apr 06 20:09	29° $\mathfrak{D}$ 44'20	
					4720 May 01 03:07	0° $\mathcal{O}$	
conjunction	4714 Jun 28 05:11	8° $\mathfrak{D}$ 12'41 0°07'09		evening set	4720 Jul 07 17:47	2° $\mathcal{O}$ 55'21	
minimum elong	4714 Jun 28 05:10	8° $\mathfrak{D}$ 12'41 0°07'09					
behind sun begin	4714 Jun 27 23:00	8° $\mathfrak{D}$ 11'49		conjunction	4720 Jul 24 08:38	3° $\mathcal{O}$ 54'03	0°26'25
behind sun end	4714 Jun 28 11:21	8° $\mathfrak{D}$ 13'34		minimum elong	4720 Jul 24 08:38	3° $\mathcal{O}$ 54'03	0°26'25
max. Earth dist.	4714 Jun 28 09:58	8° $\mathfrak{D}$ 13'22 20.54346 AU		max. Earth dist.	4720 Jul 24 02:52	3° $\mathcal{O}$ 53'12	20.17619 AU
morning rise	4714 Jul 14 18:26	9° $\mathfrak{D}$ 10'07		morning rise	4720 Aug 10 01:10	4° $\mathcal{O}$ 53'01	
retrograde	4714 Oct 17 08:03	12° $\mathfrak{D}$ 22'23		retrograde	4720 Nov 12 06:24	8° $\mathcal{O}$ 08'50	
opposition	4715 Jan 01 19:14	10° $\mathfrak{D}$ 21'20 0°09'46		opposition	4721 Jan 26 17:59	6° $\mathcal{O}$ 06'54	0°30'56
min. Earth dist.	4715 Jan 01 15:35	10° $\mathfrak{D}$ 21'43 18.51576 AU		min. Earth dist.	4721 Jan 26 23:43	6° $\mathcal{O}$ 06'17	18.14315 AU
direct	4715 Mar 17 09:53	8° $\mathfrak{D}$ 22'12		direct	4721 Apr 11 08:45	4° $\mathcal{O}$ 05'37	
evening set	4715 Jun 16 08:24	11° $\mathfrak{D}$ 28'02		evening set	4721 Jul 12 12:36	7° $\mathcal{O}$ 17'45	
conjunction	4715 Jul 02 19:38	12° $\mathfrak{D}$ 25'18 0°10'30		conjunction	4721 Jul 29 04:07	8° $\mathcal{O}$ 16'45	0°29'17
minimum elong	4715 Jul 02 19:39	12° $\mathfrak{D}$ 25'18 0°10'30		minimum elong	4721 Jul 29 04:07	8° $\mathcal{O}$ 16'45	0°29'16
behind sun begin	4715 Jul 02 14:27	12° $\mathfrak{D}$ 24'33		max. Earth dist.	4721 Jul 28 20:59	8° $\mathcal{O}$ 15'41	20.11043 AU
behind sun end	4715 Jul 03 00:51	12° $\mathfrak{D}$ 26'02		morning rise	4721 Aug 14 21:00	9° $\mathcal{O}$ 15'57	
max. Earth dist.	4715 Jul 02 23:45	12° $\mathfrak{D}$ 25'53 20.48780 AU		retrograde	4721 Nov 17 00:42	12° $\mathcal{O}$ 32'20	
morning rise	4715 Jul 19 09:28	13° $\mathfrak{D}$ 22'58		opposition	4722 Jan 31 07:30	10° $\mathcal{O}$ 30'13	0°34'02
retrograde	4715 Oct 22 00:16	16° $\mathfrak{D}$ 35'51		min. Earth dist.	4722 Jan 31 13:37	10° $\mathcal{O}$ 29'34	18.07751 AU
opposition	4716 Jan 06 05:40	14° $\mathfrak{D}$ 34'42 0°13'29		direct	4722 Apr 16 00:17	8° $\mathcal{O}$ 28'31	
min. Earth dist.	4716 Jan 06 02:35	14° $\mathfrak{D}$ 35'02 18.45891 AU		evening set	4722 Jul 17 08:16	11° $\mathcal{O}$ 41'48	
direct	4716 Mar 20 21:01	12° $\mathfrak{D}$ 35'18					
evening set	4716 Jun 19 22:54	15° $\mathfrak{D}$ 42'06		conjunction	4722 Aug 03 00:14	12° $\mathcal{O}$ 41'04	0°31'59
				minimum elong	4722 Aug 03 00:14	12° $\mathcal{O}$ 41'03	0°31'59
conjunction	4716 Jul 06 10:51	16° $\mathfrak{D}$ 39'39 0°13'50		max. Earth dist.	4722 Aug 02 15:29	12° $\mathcal{O}$ 39'45	20.04499 AU
minimum elong	4716 Jul 06 10:50	16° $\mathfrak{D}$ 39'39 0°13'49		morning rise	4722 Aug 19 17:19	13° $\mathcal{O}$ 40'30	
behind sun begin	4716 Jul 06 07:27	16° $\mathfrak{D}$ 39'10			4722 Sep 12 19:49	15° $\mathcal{O}$	

retrograde	4722 Nov 21 17:12	16° $\Omega$ 57'27		min. Earth dist.	4729 Mar 03 14:20	11° $\mathbb{N}$ 59'16	17.67170 AU
	4723 Feb 03 00:42	15° $\mathbb{R}\Omega$		direct	4729 May 16 23:50	9° $\mathbb{N}$ 56'44	
opposition	4723 Feb 04 21:45	14° $\Omega$ 55'10	0°36'57	evening set	4729 Aug 19 01:08	13° $\mathbb{N}$ 18'09	
min. Earth dist.	4723 Feb 05 05:58	14° $\Omega$ 54'17	18.01268 AU				
direct	4723 Apr 20 14:49	12° $\Omega$ 53'03		conjunction	4729 Sep 04 18:40	14° $\mathbb{N}$ 19'05	0°45'00
	4723 Jul 02 00:26	15° $\Omega$		minimum elong	4729 Sep 04 18:40	14° $\mathbb{N}$ 19'05	0°45'00
evening set	4723 Jul 22 04:42	16° $\Omega$ 07'29		max. Earth dist.	4729 Sep 04 00:44	14° $\mathbb{N}$ 16'21	19.64752 AU
				morning rise	4729 Sep 21 11:28	15° $\mathbb{N}$ 19'57	
conjunction	4723 Aug 07 21:08	17° $\Omega$ 07'01	0°34'30	retrograde	4729 Dec 23 17:40	18° $\mathbb{N}$ 40'29	
minimum elong	4723 Aug 07 21:08	17° $\Omega$ 07'01	0°34'30	opposition	4730 Mar 07 19:09	16° $\mathbb{N}$ 37'47	0°50'36
max. Earth dist.	4723 Aug 07 10:58	17° $\Omega$ 05'30	19.98091 AU	min. Earth dist.	4730 Mar 08 10:01	16° $\mathbb{N}$ 36'10	17.62432 AU
morning rise	4723 Aug 24 14:28	18° $\Omega$ 06'42		direct	4730 May 21 20:40	14° $\mathbb{N}$ 33'28	
retrograde	4723 Nov 26 12:23	21° $\Omega$ 24'12		evening set	4730 Aug 24 03:05	17° $\mathbb{N}$ 55'56	
opposition	4724 Feb 09 12:24	19° $\Omega$ 21'46	0°39'40				
min. Earth dist.	4724 Feb 09 20:49	19° $\Omega$ 20'52	17.94950 AU	conjunction	4730 Sep 09 20:40	18° $\mathbb{N}$ 57'04	0°45'51
direct	4724 Apr 24 07:29	17° $\Omega$ 19'15		minimum elong	4730 Sep 09 20:40	18° $\mathbb{N}$ 57'04	0°45'51
evening set	4724 Jul 26 01:59	20° $\Omega$ 34'51		max. Earth dist.	4730 Sep 09 02:40	18° $\mathbb{N}$ 54'18	19.60123 AU
				morning rise	4730 Sep 26 12:54	19° $\mathbb{N}$ 58'03	
conjunction	4724 Aug 11 18:51	21° $\Omega$ 34'39	0°36'50	retrograde	4730 Dec 28 15:36	23° $\mathbb{N}$ 18'59	
minimum elong	4724 Aug 11 18:51	21° $\Omega$ 34'39	0°36'50	opposition	4731 Mar 12 14:48	21° $\mathbb{N}$ 16'16	0°51'24
max. Earth dist.	4724 Aug 11 07:35	21° $\Omega$ 32'57	19.91860 AU	min. Earth dist.	4731 Mar 13 06:47	21° $\mathbb{N}$ 14'31	17.57932 AU
morning rise	4724 Aug 28 12:13	22° $\Omega$ 34'33		direct	4731 May 26 17:40	19° $\mathbb{N}$ 11'41	
retrograde	4724 Nov 30 06:30	25° $\Omega$ 52'36		evening set	4731 Aug 29 05:51	22° $\mathbb{N}$ 35'09	
opposition	4725 Feb 13 03:54	23° $\Omega$ 50'03	0°42'09				
min. Earth dist.	4725 Feb 13 14:10	23° $\Omega$ 48'57	17.88837 AU	conjunction	4731 Sep 14 23:06	23° $\mathbb{N}$ 36'26	0°46'23
direct	4725 Apr 28 23:14	21° $\Omega$ 47'10		minimum elong	4731 Sep 14 23:06	23° $\mathbb{N}$ 36'26	0°46'23
evening set	4725 Jul 31 00:12	25° $\Omega$ 03'57		max. Earth dist.	4731 Sep 14 02:49	23° $\mathbb{N}$ 33'19	19.55758 AU
				morning rise	4731 Oct 01 15:03	24° $\mathbb{N}$ 37'33	
conjunction	4725 Aug 16 17:20	26° $\Omega$ 03'59	0°38'57	retrograde	4732 Jan 02 14:18	27° $\mathbb{N}$ 58'49	
minimum elong	4725 Aug 16 17:19	26° $\Omega$ 03'59	0°38'57	opposition	4732 Mar 16 10:54	25° $\mathbb{N}$ 56'03	0°51'51
max. Earth dist.	4725 Aug 16 04:24	26° $\Omega$ 02'02	19.85876 AU	min. Earth dist.	4732 Mar 17 03:49	25° $\mathbb{N}$ 54'13	17.53716 AU
morning rise	4725 Sep 02 10:48	27° $\Omega$ 04'06		direct	4732 May 30 15:50	23° $\mathbb{N}$ 51'12	
	4725 Nov 05 21:04	0° $\mathbb{N}$		evening set	4732 Sep 02 08:59	27° $\mathbb{N}$ 15'36	
retrograde	4725 Dec 05 03:22	0° $\mathbb{N}$ 22'42		max. Earth dist.	4732 Sep 18 06:02	28° $\mathbb{N}$ 13'56	19.51683 AU
	4726 Jan 03 15:59	30° $\mathbb{R}\Omega$					
opposition	4726 Feb 17 19:51	28° $\Omega$ 20'04	0°44'23	conjunction	4732 Sep 19 02:10	28° $\mathbb{N}$ 17'02	0°46'38
min. Earth dist.	4726 Feb 18 06:19	28° $\Omega$ 18'56	17.82991 AU	minimum elong	4732 Sep 19 02:10	28° $\mathbb{N}$ 17'02	0°46'38
direct	4726 May 03 17:17	26° $\Omega$ 16'50		morning rise	4732 Oct 05 17:27	29° $\mathbb{N}$ 18'14	
evening set	4726 Aug 04 23:11	29° $\Omega$ 34'48			4732 Oct 17 13:17	0° $\Omega$	
	4726 Aug 12 00:19	0° $\mathbb{N}$		retrograde	4733 Jan 06 13:11	2° $\Omega$ 39'47	
				opposition	4733 Mar 21 07:42	0° $\Omega$ 37'00	0°51'57
conjunction	4726 Aug 21 16:37	0° $\mathbb{N}$ 35'06	0°40'50	min. Earth dist.	4733 Mar 22 01:15	0° $\Omega$ 35'05	17.49795 AU
minimum elong	4726 Aug 21 16:37	0° $\mathbb{N}$ 35'05	0°40'50		4733 Apr 04 15:24	30° $\mathbb{R}\mathbb{N}$	
max. Earth dist.	4726 Aug 21 03:07	0° $\mathbb{N}$ 33'03	19.80162 AU	direct	4733 Jun 04 15:19	28° $\mathbb{N}$ 31'53	
morning rise	4726 Sep 07 09:54	1° $\mathbb{N}$ 35'25			4733 Aug 02 16:49	0° $\Omega$	
retrograde	4726 Dec 09 23:03	4° $\mathbb{N}$ 54'31		evening set	4733 Sep 07 12:37	1° $\Omega$ 57'09	
opposition	4727 Feb 22 12:42	2° $\mathbb{N}$ 51'52	0°46'22	max. Earth dist.	4733 Sep 23 07:15	2° $\Omega$ 55'16	19.47937 AU
min. Earth dist.	4727 Feb 23 00:45	2° $\mathbb{N}$ 50'33	17.77430 AU				
direct	4727 May 08 10:00	0° $\mathbb{N}$ 48'20		conjunction	4733 Sep 24 05:17	2° $\Omega$ 58'41	0°46'34
evening set	4727 Aug 09 22:54	4° $\mathbb{N}$ 07'28		minimum elong	4733 Sep 24 05:16	2° $\Omega$ 58'41	0°46'33
				morning rise	4733 Oct 10 20:05	3° $\Omega$ 59'58	
conjunction	4727 Aug 26 16:23	5° $\mathbb{N}$ 07'59	0°42'29	retrograde	4734 Jan 11 11:27	7° $\Omega$ 21'44	
minimum elong	4727 Aug 26 16:23	5° $\mathbb{N}$ 07'59	0°42'30	opposition	4734 Mar 26 04:58	5° $\Omega$ 18'55	0°51'43
max. Earth dist.	4727 Aug 26 01:03	5° $\mathbb{N}$ 05'39	19.74756 AU	min. Earth dist.	4734 Mar 26 23:27	5° $\Omega$ 16'53	17.46247 AU
morning rise	4727 Sep 12 09:43	6° $\mathbb{N}$ 08'30		direct	4734 Jun 09 14:36	3° $\Omega$ 13'33	
retrograde	4727 Dec 14 21:31	9° $\mathbb{N}$ 28'08		evening set	4734 Sep 12 16:21	6° $\Omega$ 39'35	
opposition	4728 Feb 27 06:07	7° $\mathbb{N}$ 25'27	0°48'05	max. Earth dist.	4734 Sep 28 11:16	7° $\Omega$ 37'53	19.44590 AU
min. Earth dist.	4728 Feb 27 18:38	7° $\mathbb{N}$ 24'05	17.72170 AU				
direct	4728 May 12 05:18	5° $\mathbb{N}$ 21'39		conjunction	4734 Sep 29 08:44	7° $\Omega$ 41'13	0°46'10
evening set	4728 Aug 13 23:33	8° $\mathbb{N}$ 41'56		minimum elong	4734 Sep 29 08:44	7° $\Omega$ 41'13	0°46'11
				morning rise	4734 Oct 15 22:47	8° $\Omega$ 42'33	
conjunction	4728 Aug 30 17:16	9° $\mathbb{N}$ 42'41	0°43'53	retrograde	4735 Jan 16 11:01	12° $\Omega$ 04'30	
minimum elong	4728 Aug 30 17:15	9° $\mathbb{N}$ 42'41	0°43'52	opposition	4735 Mar 31 02:43	10° $\Omega$ 01'39	0°51'07
max. Earth dist.	4728 Aug 30 01:37	9° $\mathbb{N}$ 40'18	19.69622 AU	min. Earth dist.	4735 Mar 31 21:08	9° $\Omega$ 59'38	17.43113 AU
morning rise	4728 Sep 16 10:13	10° $\mathbb{N}$ 43'23		direct	4735 Jun 14 15:55	7° $\Omega$ 56'04	
retrograde	4728 Dec 18 18:39	14° $\mathbb{N}$ 03'29		evening set	4735 Sep 17 20:20	11° $\Omega$ 22'47	
opposition	4729 Mar 03 00:15	12° $\mathbb{N}$ 00'48	0°49'30				

conjunction	4735 Oct 04 12:08	12° <u>♏</u> 24'29	0°45'28		4742 Jan 25 14:20	15° <u>♍</u>	
minimum elong	4735 Oct 04 12:08	12° <u>♏</u> 24'29	0°45'29	retrograde	4742 Feb 18 07:35	15° <u>♍</u> 15'47	
max. Earth dist.	4735 Oct 03 13:29	12° <u>♏</u> 20'58	19.41688 AU		4742 Mar 14 07:55	15° <u>♍</u>	
morning rise	4735 Oct 21 01:34	13° <u>♏</u> 25'51		opposition	4742 May 02 22:07	13° <u>♍</u> 13'32	0°37'40
retrograde	4736 Jan 21 09:08	16° <u>♏</u> 47'55		min. Earth dist.	4742 May 03 15:28	13° <u>♍</u> 11'39	17.36811 AU
opposition	4736 Apr 04 00:58	14° <u>♏</u> 45'03	0°50'11	direct	4742 Jul 18 03:40	11° <u>♍</u> 07'38	
min. Earth dist.	4736 Apr 04 20:15	14° <u>♏</u> 42'57	17.40463 AU	evening set	4742 Oct 21 23:58	14° <u>♍</u> 36'45	
direct	4736 Jun 18 16:13	12° <u>♏</u> 39'15			4742 Oct 28 06:36	15° <u>♍</u>	
evening set	4736 Sep 22 00:27	16° <u>♏</u> 06'36					
conjunction	4736 Oct 08 15:46	17° <u>♏</u> 08'20	0°44'28	conjunction	4742 Nov 07 10:24	15° <u>♍</u> 38'11	0°32'25
minimum elong	4736 Oct 08 15:46	17° <u>♏</u> 08'20	0°44'27	minimum elong	4742 Nov 07 10:24	15° <u>♍</u> 38'11	0°32'26
max. Earth dist.	4736 Oct 07 17:47	17° <u>♏</u> 04'55	19.39294 AU	max. Earth dist.	4742 Nov 06 14:58	15° <u>♍</u> 35'08	19.37426 AU
morning rise	4736 Oct 25 04:22	18° <u>♏</u> 09'43		morning rise	4742 Nov 23 17:30	16° <u>♍</u> 39'08	
retrograde	4737 Jan 25 09:08	21° <u>♏</u> 31'51		retrograde	4743 Feb 23 08:01	20° <u>♍</u> 00'47	
opposition	4737 Apr 08 23:29	19° <u>♏</u> 28'59	0°48'53	opposition	4743 May 07 22:30	17° <u>♍</u> 58'42	0°34'35
min. Earth dist.	4737 Apr 09 18:04	19° <u>♏</u> 26'57	17.38334 AU	min. Earth dist.	4743 May 08 14:22	17° <u>♍</u> 56'59	17.38207 AU
direct	4737 Jun 23 19:03	17° <u>♏</u> 23'02		direct	4743 Jul 23 06:47	15° <u>♍</u> 52'55	
evening set	4737 Sep 27 04:42	20° <u>♏</u> 50'55		evening set	4743 Oct 27 03:04	19° <u>♍</u> 21'58	
conjunction	4737 Oct 13 19:17	21° <u>♏</u> 52'39	0°43'09	conjunction	4743 Nov 12 12:41	20° <u>♍</u> 23'16	0°29'33
minimum elong	4737 Oct 13 19:18	21° <u>♏</u> 52'39	0°43'09	minimum elong	4743 Nov 12 12:41	20° <u>♍</u> 23'16	0°29'33
max. Earth dist.	4737 Oct 12 20:59	21° <u>♏</u> 49'10	19.37449 AU	max. Earth dist.	4743 Nov 11 18:49	20° <u>♍</u> 20'28	19.39052 AU
morning rise	4737 Oct 30 07:03	22° <u>♏</u> 54'01		morning rise	4743 Nov 28 18:37	21° <u>♍</u> 24'04	
retrograde	4738 Jan 30 07:27	26° <u>♏</u> 16'10		retrograde	4744 Feb 28 06:54	24° <u>♍</u> 45'26	
opposition	4738 Apr 13 22:39	24° <u>♏</u> 13'21	0°47'16	opposition	4744 May 11 23:17	22° <u>♍</u> 43'33	0°31'16
min. Earth dist.	4738 Apr 14 17:49	24° <u>♏</u> 11'16	17.36800 AU	min. Earth dist.	4744 May 12 15:29	22° <u>♍</u> 41'48	17.40052 AU
direct	4738 Jun 28 19:45	22° <u>♏</u> 07'18		direct	4744 Jul 27 09:14	20° <u>♍</u> 37'55	
evening set	4738 Oct 02 08:39	25° <u>♏</u> 35'36		evening set	4744 Oct 31 05:54	24° <u>♍</u> 06'46	
conjunction	4738 Oct 18 22:34	26° <u>♏</u> 37'19	0°41'32	conjunction	4744 Nov 16 14:21	25° <u>♍</u> 07'54	0°26'28
minimum elong	4738 Oct 18 22:34	26° <u>♏</u> 37'19	0°41'32	minimum elong	4744 Nov 16 14:21	25° <u>♍</u> 07'54	0°26'29
max. Earth dist.	4738 Oct 18 01:00	26° <u>♏</u> 33'57	19.36226 AU	max. Earth dist.	4744 Nov 15 20:13	25° <u>♍</u> 05'03	19.41115 AU
morning rise	4738 Nov 04 09:28	27° <u>♏</u> 38'39		morning rise	4744 Dec 02 19:24	26° <u>♍</u> 08'31	
retrograde	4738 Dec 18 23:34	0° <u>♍</u>		retrograde	4745 Mar 04 05:54	29° <u>♍</u> 29'35	
opposition	4739 Feb 04 08:03	1° <u>♍</u> 00'48		opposition	4745 May 16 23:58	27° <u>♍</u> 27'50	0°27'45
min. Earth dist.	4739 Mar 25 03:22	30° <u>♍</u>		min. Earth dist.	4745 May 17 14:41	27° <u>♍</u> 26'15	17.42318 AU
direct	4739 Apr 18 22:01	28° <u>♏</u> 58'04	0°45'19	direct	4745 Aug 01 13:02	25° <u>♍</u> 22'20	
evening set	4739 Apr 19 15:50	28° <u>♏</u> 56'07	17.35883 AU	evening set	4745 Nov 05 08:03	28° <u>♍</u> 50'53	
conjunction	4739 Jul 03 22:48	26° <u>♏</u> 51'58		conjunction	4745 Nov 21 15:37	29° <u>♍</u> 51'49	0°23'14
minimum elong	4739 Oct 01 20:20	0° <u>♍</u>		minimum elong	4745 Nov 21 15:37	29° <u>♍</u> 51'50	0°23'15
max. Earth dist.	4739 Oct 07 12:44	0° <u>♍</u> 20'36		max. Earth dist.	4745 Nov 20 23:27	29° <u>♍</u> 49'18	19.43580 AU
morning rise	4739 Oct 23 04:52	1° <u>♍</u> 19'01	19.35627 AU	morning rise	4745 Nov 23 19:43	0° <u>♏</u>	
retrograde	4739 Oct 24 01:54	1° <u>♍</u> 22'18	0°39'39	retrograde	4745 Dec 07 19:29	0° <u>♏</u> 52'16	
opposition	4739 Oct 24 01:54	1° <u>♍</u> 22'18	0°39'39	opposition	4746 Mar 09 03:57	4° <u>♏</u> 12'56	
min. Earth dist.	4739 Nov 09 11:50	2° <u>♍</u> 23'34		min. Earth dist.	4746 May 22 00:49	2° <u>♏</u> 11'20	0°24'02
direct	4740 Feb 09 07:12	5° <u>♍</u> 45'39		direct	4746 May 22 15:24	2° <u>♏</u> 09'46	17.44972 AU
evening set	4740 Apr 22 21:43	3° <u>♍</u> 43'03	0°43'03	evening set	4746 Aug 06 16:18	0° <u>♏</u> 06'00	
conjunction	4740 Apr 23 16:05	3° <u>♍</u> 41'03	17.35603 AU	conjunction	4746 Nov 10 09:34	3° <u>♏</u> 34'06	
minimum elong	4740 Jul 07 23:38	1° <u>♍</u> 36'58		minimum elong	4746 Nov 26 15:57	4° <u>♏</u> 34'50	0°19'50
max. Earth dist.	4740 Oct 11 16:45	5° <u>♍</u> 05'53		max. Earth dist.	4746 Nov 26 15:57	4° <u>♏</u> 34'50	0°19'50
morning rise	4740 Oct 27 08:22	6° <u>♍</u> 04'17	19.35664 AU	morning rise	4746 Nov 25 23:39	4° <u>♏</u> 32'17	19.46432 AU
retrograde	4740 Oct 28 05:02	6° <u>♍</u> 07'31	0°37'29	retrograde	4746 Dec 12 19:00	5° <u>♏</u> 35'04	
opposition	4740 Oct 28 05:02	6° <u>♍</u> 07'31	0°37'30	opposition	4747 Mar 14 01:52	8° <u>♏</u> 55'20	
min. Earth dist.	4740 Nov 13 14:07	7° <u>♍</u> 08'42		min. Earth dist.	4747 May 27 01:24	6° <u>♏</u> 53'51	0°20'10
direct	4741 Feb 13 08:07	10° <u>♍</u> 30'41		direct	4747 May 27 14:36	6° <u>♏</u> 52'26	17.48008 AU
evening set	4741 Apr 27 21:41	8° <u>♍</u> 28'15	0°40'30	evening set	4747 Aug 11 19:54	4° <u>♏</u> 48'38	
conjunction	4741 Apr 28 14:34	8° <u>♍</u> 26'25	17.35928 AU	conjunction	4747 Nov 15 10:22	8° <u>♏</u> 16'14	
minimum elong	4741 Jul 13 02:26	6° <u>♍</u> 22'14		minimum elong	4747 Dec 01 15:53	9° <u>♏</u> 16'44	0°16'19
max. Earth dist.	4741 Oct 16 20:25	9° <u>♍</u> 51'18		max. Earth dist.	4747 Dec 01 15:54	9° <u>♏</u> 16'44	0°16'20
morning rise	4741 Nov 02 07:53	10° <u>♍</u> 52'52	0°35'04	morning rise	4747 Dec 01 01:45	9° <u>♏</u> 14'32	19.49652 AU
retrograde	4741 Nov 02 07:53	10° <u>♍</u> 52'52	0°35'04	retrograde	4747 Dec 17 17:46	10° <u>♏</u> 16'45	
opposition	4741 Nov 01 12:27	10° <u>♍</u> 49'49	19.36273 AU	opposition	4748 Mar 17 22:54	13° <u>♏</u> 36'31	
min. Earth dist.	4741 Nov 18 15:51	11° <u>♍</u> 53'56		min. Earth dist.	4748 May 31 01:46	11° <u>♏</u> 35'10	0°16'11
					4748 May 31 14:23	11° <u>♏</u> 33'49	17.51400 AU

direct	4748 Aug 15 22:51	9° $\nearrow$ 30'07		conjunction	4753 Dec 28 20:30	6° $\searrow$ 56'56	-0°05'57
evening set	4748 Nov 19 10:31	12° $\nearrow$ 57'04		minimum elong	4753 Dec 28 20:31	6° $\searrow$ 56'56	0°05'57
				behind sun begin	4753 Dec 28 14:13	6° $\searrow$ 55'59	
conjunction	4748 Dec 05 14:51	13° $\nearrow$ 57'20	0°12'43	behind sun end	4753 Dec 29 02:49	6° $\searrow$ 57'54	
minimum elong	4748 Dec 05 14:51	13° $\nearrow$ 57'20	0°12'43	max. Earth dist.	4753 Dec 28 15:48	6° $\searrow$ 56'14	19.77112 AU
behind sun begin	4748 Dec 05 10:38	13° $\nearrow$ 56'41		morning rise	4754 Jan 13 17:05	7° $\searrow$ 55'25	
behind sun end	4748 Dec 05 19:03	13° $\nearrow$ 57'58		retrograde	4754 Apr 14 22:59	11° $\searrow$ 11'51	
max. Earth dist.	4748 Dec 05 00:53	13° $\nearrow$ 55'09	19.53240 AU	opposition	4754 Jun 28 21:31	9° $\searrow$ 11'20	-0°08'33
morning rise	4748 Dec 21 15:53	14° $\nearrow$ 57'07		min. Earth dist.	4754 Jun 29 00:37	9° $\searrow$ 11'01	17.79991 AU
retrograde	4749 Mar 22 19:57	18° $\nearrow$ 16'22		direct	4754 Sep 14 02:33	7° $\searrow$ 07'49	
opposition	4749 Jun 05 01:59	16° $\nearrow$ 15'06	0°12'07	evening set	4754 Dec 17 15:48	10° $\searrow$ 29'36	
min. Earth dist.	4749 Jun 05 13:15	16° $\nearrow$ 13'54	17.55179 AU				
direct	4749 Aug 21 00:57	14° $\nearrow$ 10'12		conjunction	4755 Jan 02 14:14	11° $\searrow$ 28'11	-0°09'34
evening set	4749 Nov 24 09:29	17° $\nearrow$ 36'26		minimum elong	4755 Jan 02 14:14	11° $\searrow$ 28'11	0°09'33
				behind sun begin	4755 Jan 02 08:44	11° $\searrow$ 27'21	
conjunction	4749 Dec 10 12:55	18° $\nearrow$ 36'27	0°09'02	behind sun end	4755 Jan 02 19:44	11° $\searrow$ 29'01	
minimum elong	4749 Dec 10 12:55	18° $\nearrow$ 36'27	0°09'03	max. Earth dist.	4755 Jan 02 10:58	11° $\searrow$ 27'42	19.82970 AU
behind sun begin	4749 Dec 10 07:15	18° $\nearrow$ 35'35		morning rise	4755 Jan 18 10:07	12° $\searrow$ 26'24	
behind sun end	4749 Dec 10 18:35	18° $\nearrow$ 37'18		retrograde	4755 Apr 19 16:15	15° $\searrow$ 42'17	
max. Earth dist.	4749 Dec 10 01:29	18° $\nearrow$ 34'40	19.57213 AU	opposition	4755 Jul 03 19:26	13° $\searrow$ 41'59	-0°12'32
morning rise	4749 Dec 26 12:54	19° $\nearrow$ 35'58		min. Earth dist.	4755 Jul 03 21:45	13° $\searrow$ 41'44	17.85976 AU
retrograde	4750 Mar 27 16:30	22° $\nearrow$ 54'40		direct	4755 Sep 18 23:06	11° $\searrow$ 38'51	
opposition	4750 Jun 10 01:56	20° $\nearrow$ 53'31	0°07'59	evening set	4755 Dec 22 09:39	14° $\searrow$ 59'38	
min. Earth dist.	4750 Jun 10 11:49	20° $\nearrow$ 52'28	17.59337 AU				
direct	4750 Aug 26 03:01	18° $\nearrow$ 48'49		conjunction	4756 Jan 07 07:13	15° $\searrow$ 57'55	-0°13'06
evening set	4750 Nov 29 07:48	22° $\nearrow$ 14'15		minimum elong	4756 Jan 07 07:13	15° $\searrow$ 57'55	0°13'06
				behind sun begin	4756 Jan 07 03:13	15° $\searrow$ 57'19	
conjunction	4750 Dec 15 10:04	23° $\nearrow$ 13'58	0°05'20	behind sun end	4756 Jan 07 11:13	15° $\searrow$ 58'31	
minimum elong	4750 Dec 15 10:04	23° $\nearrow$ 13'58	0°05'21	max. Earth dist.	4756 Jan 07 05:43	15° $\searrow$ 57'42	19.89059 AU
behind sun begin	4750 Dec 15 03:39	23° $\nearrow$ 13'00		morning rise	4756 Jan 23 02:23	16° $\searrow$ 55'52	
behind sun end	4750 Dec 15 16:29	23° $\nearrow$ 14'57		retrograde	4756 Apr 23 11:35	20° $\searrow$ 11'11	
max. Earth dist.	4750 Dec 14 23:22	23° $\nearrow$ 12'19	19.61578 AU	opposition	4756 Jul 07 16:43	18° $\searrow$ 11'06	-0°16'26
morning rise	4750 Dec 31 09:15	24° $\nearrow$ 13'15		min. Earth dist.	4756 Jul 07 16:44	18° $\searrow$ 11'06	17.92137 AU
retrograde	4751 Apr 01 12:15	27° $\nearrow$ 31'23		direct	4756 Sep 22 22:21	16° $\searrow$ 08'23	
opposition	4751 Jun 15 01:19	25° $\nearrow$ 30'20	0°03'49	evening set	4756 Dec 26 02:43	19° $\searrow$ 28'09	
min. Earth dist.	4751 Jun 15 09:55	25° $\nearrow$ 29'26	17.63917 AU				
direct	4751 Aug 31 03:09	23° $\nearrow$ 25'50		conjunction	4757 Jan 10 23:25	20° $\searrow$ 26'08	-0°16'33
evening set	4751 Dec 04 05:06	26° $\nearrow$ 50'26		minimum elong	4757 Jan 10 23:25	20° $\searrow$ 26'08	0°16'33
				max. Earth dist.	4757 Jan 10 23:30	20° $\searrow$ 26'09	19.95285 AU
conjunction	4751 Dec 20 06:30	27° $\nearrow$ 49'53	0°01'35	morning rise	4757 Jan 26 17:55	21° $\searrow$ 23'48	
minimum elong	4751 Dec 20 06:29	27° $\nearrow$ 49'53	0°01'35	retrograde	4757 Apr 28 03:39	24° $\searrow$ 38'36	
behind sun begin	4751 Dec 19 23:52	27° $\nearrow$ 48'53		opposition	4757 Jul 12 13:49	22° $\searrow$ 38'42	-0°20'13
behind sun end	4751 Dec 20 13:06	27° $\nearrow$ 50'53		min. Earth dist.	4757 Jul 12 13:19	22° $\searrow$ 38'45	17.98422 AU
max. Earth dist.	4751 Dec 19 22:16	27° $\nearrow$ 48'38	19.66365 AU	direct	4757 Sep 27 17:48	20° $\searrow$ 36'23	
morning rise	4752 Jan 05 04:41	28° $\nearrow$ 48'53		evening set	4757 Dec 30 18:47	23° $\searrow$ 55'05	
	4752 Jan 25 16:56	0° $\searrow$					
retrograde	4752 Apr 05 08:25	2° $\searrow$ 06'27		conjunction	4758 Jan 15 14:42	24° $\searrow$ 52'46	-0°19'53
desc. node	4752 May 19 13:29	1° $\searrow$ 17'36		minimum elong	4758 Jan 15 14:42	24° $\searrow$ 52'46	0°19'52
opposition	4752 Jun 19 00:29	0° $\searrow$ 05'33	-0°00'20	max. Earth dist.	4758 Jan 15 16:09	24° $\searrow$ 52'59	20.01601 AU
min. Earth dist.	4752 Jun 19 07:04	0° $\searrow$ 04'51	17.68895 AU	morning rise	4758 Jan 31 08:39	25° $\searrow$ 50'10	
	4752 Jun 21 05:03	30° $\nearrow$		retrograde	4758 May 02 21:33	29° $\searrow$ 04'25	
direct	4752 Sep 04 04:19	28° $\nearrow$ 01'20		opposition	4758 Jul 17 10:11	27° $\searrow$ 04'42	-0°23'51
	4752 Nov 13 02:42	0° $\searrow$		min. Earth dist.	4758 Jul 17 07:20	27° $\searrow$ 05'00	18.04745 AU
evening set	4752 Dec 08 01:36	1° $\searrow$ 25'01		direct	4758 Oct 02 16:22	25° $\searrow$ 02'47	
				evening set	4759 Jan 04 10:10	28° $\searrow$ 20'23	
conjunction	4752 Dec 24 01:54	2° $\searrow$ 24'11	-0°02'16				
minimum elong	4752 Dec 24 01:52	2° $\searrow$ 24'11	0°02'15	conjunction	4759 Jan 20 05:22	29° $\searrow$ 17'47	-0°23'05
behind sun begin	4752 Dec 23 19:15	2° $\searrow$ 23'11		minimum elong	4759 Jan 20 05:22	29° $\searrow$ 17'47	0°23'05
behind sun end	4752 Dec 24 08:29	2° $\searrow$ 25'11		max. Earth dist.	4759 Jan 20 08:25	29° $\searrow$ 18'15	20.07914 AU
max. Earth dist.	4752 Dec 23 18:52	2° $\searrow$ 23'07	19.71547 AU		4759 Jan 31 19:08	0° $\approx$	
morning rise	4753 Jan 08 23:16	3° $\searrow$ 22'56		morning rise	4759 Feb 04 22:45	0° $\approx$ 14'55	
retrograde	4753 Apr 10 02:57	6° $\searrow$ 39'56		retrograde	4759 May 07 12:08	3° $\approx$ 28'36	
opposition	4753 Jun 23 23:17	4° $\searrow$ 39'12	-0°04'28	opposition	4759 Jul 22 06:00	1° $\approx$ 29'03	-0°27'19
min. Earth dist.	4753 Jun 24 04:40	4° $\searrow$ 38'38	17.74276 AU	min. Earth dist.	4759 Jul 22 02:58	1° $\approx$ 29'22	18.11050 AU
direct	4753 Sep 09 02:29	2° $\searrow$ 35'19			4759 Aug 31 17:15	30° $\nearrow$	
evening set	4753 Dec 12 21:08	5° $\searrow$ 58'04		direct	4759 Oct 07 10:46	29° $\searrow$ 27'29	
					4759 Nov 12 05:46	0° $\approx$	

evening set	4760 Jan 09 00:45	2° $\approx$ 44'00	max. Earth dist.	4766 Feb 19 01:09	29° $\approx$ 24'32	20.49767 AU
				4766 Feb 28 23:57	0° $\approx$	
conjunction	4760 Jan 24 19:13	3° $\approx$ 41'06 -0°26'08	morning rise	4766 Mar 06 04:54	0° $\approx$ 18'17	
minimum elong	4760 Jan 24 19:13	3° $\approx$ 41'06 0°26'07	retrograde	4766 Jun 06 09:21	3° $\approx$ 28'11	
max. Earth dist.	4760 Jan 24 23:09	3° $\approx$ 41'42 20.14189 AU	opposition	4766 Aug 22 06:43	1° $\approx$ 29'04 -0°45'43	
morning rise	4760 Feb 09 12:12	4° $\approx$ 37'59	min. Earth dist.	4766 Aug 21 17:18	1° $\approx$ 30'25 18.52616 AU	
retrograde	4760 May 11 04:27	7° $\approx$ 51'06		4766 Oct 02 15:47	30° $\approx$	
opposition	4760 Jul 26 01:15	5° $\approx$ 51'41 -0°30'36	direct	4766 Nov 07 07:48	29° $\approx$ 29'35	
min. Earth dist.	4760 Jul 25 19:53	5° $\approx$ 52'14 18.17279 AU		4766 Dec 11 23:48	0° $\approx$	
direct	4760 Oct 11 07:44	3° $\approx$ 50'28	evening set	4767 Feb 07 06:07	2° $\approx$ 38'18	
evening set	4761 Jan 12 14:17	7° $\approx$ 05'50				
			conjunction	4767 Feb 22 21:45	3° $\approx$ 33'38 -0°42'03	
conjunction	4761 Jan 28 08:12	8° $\approx$ 02'40 -0°29'01	minimum elong	4767 Feb 22 21:45	3° $\approx$ 33'38 0°42'03	
minimum elong	4761 Jan 28 08:11	8° $\approx$ 02'40 0°29'01	max. Earth dist.	4767 Feb 23 11:59	3° $\approx$ 35'45 20.55414 AU	
max. Earth dist.	4761 Jan 28 13:56	8° $\approx$ 03'32 20.20360 AU	morning rise	4767 Mar 10 13:24	4° $\approx$ 29'00	
morning rise	4761 Feb 13 00:43	8° $\approx$ 59'18	retrograde	4767 Jun 10 19:37	7° $\approx$ 38'27	
retrograde	4761 May 15 17:41	12° $\approx$ 11'52	opposition	4767 Aug 26 21:16	5° $\approx$ 39'25 -0°47'22	
opposition	4761 Jul 30 20:03	10° $\approx$ 12'31 -0°33'42	min. Earth dist.	4767 Aug 26 07:25	5° $\approx$ 40'49 18.58208 AU	
min. Earth dist.	4761 Jul 30 14:28	10° $\approx$ 13'05 18.23401 AU	direct	4767 Nov 11 19:50	3° $\approx$ 40'16	
direct	4761 Oct 16 01:14	8° $\approx$ 11'37	evening set	4768 Feb 11 14:21	6° $\approx$ 48'00	
evening set	4762 Jan 17 03:04	11° $\approx$ 25'51				
			conjunction	4768 Feb 27 05:43	7° $\approx$ 43'08 -0°43'27	
conjunction	4762 Feb 01 20:22	12° $\approx$ 22'23 -0°31'43	minimum elong	4768 Feb 27 05:43	7° $\approx$ 43'08 0°43'27	
minimum elong	4762 Feb 01 20:22	12° $\approx$ 22'23 0°31'42	max. Earth dist.	4768 Feb 27 20:17	7° $\approx$ 45'17 20.60944 AU	
max. Earth dist.	4762 Feb 02 02:48	12° $\approx$ 23'22 20.26430 AU	morning rise	4768 Mar 13 21:35	8° $\approx$ 38'19	
morning rise	4762 Feb 17 12:42	13° $\approx$ 18'47	retrograde	4768 Jun 14 07:50	11° $\approx$ 47'23	
	4762 Mar 20 20:35	15° $\approx$	opposition	4768 Aug 30 11:18	9° $\approx$ 48'26 -0°48'46	
retrograde	4762 May 20 08:14	16° $\approx$ 30'47	min. Earth dist.	4768 Aug 29 19:33	9° $\approx$ 50'01 18.63661 AU	
	4762 Jul 23 19:46	15° $\approx$	direct	4768 Nov 15 08:40	7° $\approx$ 49'37	
opposition	4762 Aug 04 13:49	14° $\approx$ 31'30 -0°36'35	evening set	4769 Feb 14 21:48	10° $\approx$ 56'24	
min. Earth dist.	4762 Aug 04 05:58	14° $\approx$ 32'18 18.29412 AU				
direct	4762 Oct 20 19:43	12° $\approx$ 30'52	conjunction	4769 Mar 02 13:12	11° $\approx$ 51'21 -0°44'36	
	4763 Jan 08 18:58	15° $\approx$	minimum elong	4769 Mar 02 13:12	11° $\approx$ 51'21 0°44'36	
evening set	4763 Jan 21 14:52	15° $\approx$ 43'57	max. Earth dist.	4769 Mar 03 05:55	11° $\approx$ 53'49 20.66292 AU	
			morning rise	4769 Mar 18 05:07	12° $\approx$ 46'24	
conjunction	4763 Feb 06 07:47	16° $\approx$ 40'14 -0°34'13	retrograde	4769 Jun 18 17:51	15° $\approx$ 55'07	
minimum elong	4763 Feb 06 07:47	16° $\approx$ 40'14 0°34'13	min. Earth dist.	4769 Sep 03 08:51	13° $\approx$ 57'52 18.68899 AU	
max. Earth dist.	4763 Feb 06 16:13	16° $\approx$ 41'30 20.32377 AU	opposition	4769 Sep 04 00:54	13° $\approx$ 56'15 -0°49'55	
morning rise	4763 Feb 21 23:47	17° $\approx$ 36'24	direct	4769 Nov 19 19:42	11° $\approx$ 57'46	
retrograde	4763 May 24 20:19	20° $\approx$ 47'49	evening set	4770 Feb 19 05:02	15° $\approx$ 03'39	
opposition	4763 Aug 09 07:08	18° $\approx$ 48'35 -0°39'14				
min. Earth dist.	4763 Aug 08 22:58	18° $\approx$ 49'24 18.35314 AU	conjunction	4770 Mar 06 20:18	15° $\approx$ 58'26 -0°45'32	
direct	4763 Oct 25 11:27	16° $\approx$ 48'14	minimum elong	4770 Mar 06 20:18	15° $\approx$ 58'26 0°45'31	
evening set	4764 Jan 26 01:50	20° $\approx$ 00'10	max. Earth dist.	4770 Mar 07 13:01	16° $\approx$ 00'53 20.71408 AU	
			morning rise	4770 Mar 22 12:35	16° $\approx$ 53'21	
conjunction	4764 Feb 10 18:13	20° $\approx$ 56'11 -0°36'31	retrograde	4770 Jun 23 05:10	20° $\approx$ 01'44	
minimum elong	4764 Feb 10 18:13	20° $\approx$ 56'11 0°36'31	opposition	4770 Sep 08 13:41	18° $\approx$ 02'57 -0°50'47	
max. Earth dist.	4764 Feb 11 03:22	20° $\approx$ 57'33 20.38238 AU	min. Earth dist.	4770 Sep 07 20:18	18° $\approx$ 04'42 18.73880 AU	
morning rise	4764 Feb 26 10:07	21° $\approx$ 52'07	direct	4770 Nov 24 06:48	16° $\approx$ 04'46	
retrograde	4764 May 28 09:30	25° $\approx$ 03'01	evening set	4771 Feb 23 11:43	19° $\approx$ 09'50	
opposition	4764 Aug 12 23:37	23° $\approx$ 03'48 -0°41'38				
min. Earth dist.	4764 Aug 12 13:02	23° $\approx$ 04'52 18.41142 AU	conjunction	4771 Mar 11 03:10	20° $\approx$ 04'28 -0°46'13	
direct	4764 Oct 29 03:47	21° $\approx$ 03'42	minimum elong	4771 Mar 11 03:10	20° $\approx$ 04'28 0°46'13	
evening set	4765 Jan 29 12:00	24° $\approx$ 14'32	max. Earth dist.	4771 Mar 11 21:39	20° $\approx$ 07'10 20.76220 AU	
			morning rise	4771 Mar 26 19:35	20° $\approx$ 59'15	
conjunction	4765 Feb 14 04:06	25° $\approx$ 10'19 -0°38'35	retrograde	4771 Jun 27 14:44	24° $\approx$ 07'21	
minimum elong	4765 Feb 14 04:06	25° $\approx$ 10'19 0°38'34	min. Earth dist.	4771 Sep 12 08:45	22° $\approx$ 10'24 18.78521 AU	
max. Earth dist.	4765 Feb 14 15:32	25° $\approx$ 12'01 20.44026 AU	opposition	4771 Sep 13 02:12	22° $\approx$ 08'39 -0°51'25	
morning rise	4765 Mar 01 19:46	26° $\approx$ 06'03	direct	4771 Nov 28 17:14	20° $\approx$ 10'46	
retrograde	4765 Jun 01 20:36	29° $\approx$ 16'25	evening set	4772 Feb 27 18:05	23° $\approx$ 15'02	
opposition	4765 Aug 17 15:35	27° $\approx$ 17'15 -0°43'48				
min. Earth dist.	4765 Aug 17 04:26	27° $\approx$ 18'22 18.46911 AU	conjunction	4772 Mar 14 09:30	24° $\approx$ 09'31 -0°46'40	
direct	4765 Nov 02 17:28	25° $\approx$ 17'27	minimum elong	4772 Mar 14 09:30	24° $\approx$ 09'31 0°46'40	
evening set	4766 Feb 02 21:23	28° $\approx$ 27'12	max. Earth dist.	4772 Mar 15 03:36	24° $\approx$ 12'10 20.80677 AU	
			morning rise	4772 Mar 30 02:23	25° $\approx$ 04'13	
conjunction	4766 Feb 18 13:07	29° $\approx$ 22'45 -0°40'26	retrograde	4772 Jul 01 01:25	28° $\approx$ 12'04	
minimum elong	4766 Feb 18 13:07	29° $\approx$ 22'45 0°40'26	opposition	4772 Sep 16 14:14	26° $\approx$ 13'24 -0°51'46	

min. Earth dist.	4772 Sep 15 19:50	26° $\mathbb{X}$ 15'15	18.82785 AU	conjunction	4779 Apr 12 00:16	22° $\mathbb{Y}$ 21'07	-0°43'20
direct	4772 Dec 02 02:45	24° $\mathbb{X}$ 15'47		minimum elong	4779 Apr 12 00:16	22° $\mathbb{Y}$ 21'07	0°43'20
evening set	4773 Mar 03 00:05	27° $\mathbb{X}$ 19'18		max. Earth dist.	4779 Apr 12 21:27	22° $\mathbb{Y}$ 24'10	20.99714 AU
				morning rise	4779 Apr 27 20:57	23° $\mathbb{Y}$ 15'34	
conjunction	4773 Mar 18 15:49	28° $\mathbb{X}$ 13'41	-0°46'53	retrograde	4779 Jul 30 14:18	26° $\mathbb{Y}$ 22'16	
minimum elong	4773 Mar 18 15:49	28° $\mathbb{X}$ 13'41	0°46'54	opposition	4779 Oct 16 12:46	24° $\mathbb{Y}$ 23'16	-0°47'09
max. Earth dist.	4773 Mar 19 11:22	28° $\mathbb{X}$ 16'32	20.84715 AU	min. Earth dist.	4779 Oct 15 16:56	24° $\mathbb{Y}$ 25'15	19.00397 AU
morning rise	4773 Apr 03 08:57	29° $\mathbb{X}$ 08'17		direct	4779 Dec 31 12:27	22° $\mathbb{Y}$ 26'32	
	4773 Apr 19 01:37	0° $\mathbb{Y}$		evening set	4780 Mar 30 10:28	25° $\mathbb{Y}$ 26'11	
retrograde	4773 Jul 05 10:20	2° $\mathbb{Y}$ 15'53					
min. Earth dist.	4773 Sep 20 07:24	0° $\mathbb{Y}$ 19'06	18.86600 AU	conjunction	4780 Apr 15 05:06	26° $\mathbb{Y}$ 20'15	-0°41'59
opposition	4773 Sep 21 01:45	0° $\mathbb{Y}$ 17'16	-0°51'52	minimum elong	4780 Apr 15 05:06	26° $\mathbb{Y}$ 20'15	0°42'00
	4773 Sep 28 06:55	30° $\mathbb{R}$ $\mathbb{X}$		max. Earth dist.	4780 Apr 16 01:27	26° $\mathbb{Y}$ 23'10	21.00929 AU
direct	4773 Dec 06 12:46	28° $\mathbb{X}$ 19'52		morning rise	4780 May 01 02:40	27° $\mathbb{Y}$ 14'43	
	4774 Feb 09 04:36	0° $\mathbb{Y}$			4780 Jul 04 04:28	0° $\mathbb{X}$	
evening set	4774 Mar 07 05:51	1° $\mathbb{Y}$ 22'40		retrograde	4780 Aug 02 23:25	0° $\mathbb{X}$ 21'26	
					4780 Sep 02 04:16	30° $\mathbb{R}$ $\mathbb{Y}$	
conjunction	4774 Mar 22 21:44	2° $\mathbb{Y}$ 16'57	-0°46'52	opposition	4780 Oct 19 21:21	28° $\mathbb{Y}$ 22'22	-0°45'32
minimum elong	4774 Mar 22 21:44	2° $\mathbb{Y}$ 16'57	0°46'52	min. Earth dist.	4780 Oct 19 01:27	28° $\mathbb{Y}$ 24'21	19.01453 AU
max. Earth dist.	4774 Mar 23 16:28	2° $\mathbb{Y}$ 19'40	20.88301 AU	direct	4781 Jan 03 18:42	26° $\mathbb{Y}$ 25'42	
morning rise	4774 Apr 07 15:30	3° $\mathbb{Y}$ 11'30		evening set	4781 Apr 03 14:51	29° $\mathbb{Y}$ 25'05	
retrograde	4774 Jul 09 20:38	6° $\mathbb{Y}$ 18'53			4781 Apr 13 20:47	0° $\mathbb{X}$	
opposition	4774 Sep 25 12:46	4° $\mathbb{Y}$ 20'14	-0°51'42				
min. Earth dist.	4774 Sep 24 17:54	4° $\mathbb{Y}$ 22'07	18.89950 AU	conjunction	4781 Apr 19 10:17	0° $\mathbb{X}$ 19'11	-0°40'26
direct	4774 Dec 10 21:04	2° $\mathbb{Y}$ 23'00		minimum elong	4781 Apr 19 10:17	0° $\mathbb{X}$ 19'11	0°40'25
evening set	4775 Mar 11 11:10	5° $\mathbb{Y}$ 25'08		max. Earth dist.	4781 Apr 20 07:51	0° $\mathbb{X}$ 22'17	21.01811 AU
				morning rise	4781 May 05 08:30	1° $\mathbb{X}$ 13'42	
conjunction	4775 Mar 27 03:30	6° $\mathbb{Y}$ 19'20	-0°46'37	retrograde	4781 Aug 07 06:55	4° $\mathbb{X}$ 20'26	
minimum elong	4775 Mar 27 03:30	6° $\mathbb{Y}$ 19'20	0°46'37	min. Earth dist.	4781 Oct 23 09:36	2° $\mathbb{X}$ 23'20	19.02157 AU
max. Earth dist.	4775 Mar 27 23:28	6° $\mathbb{Y}$ 22'14	20.91403 AU	opposition	4781 Oct 24 05:31	2° $\mathbb{X}$ 21'20	-0°43'43
morning rise	4775 Apr 11 21:37	7° $\mathbb{Y}$ 13'50		direct	4782 Jan 08 00:58	0° $\mathbb{X}$ 24'46	
retrograde	4775 Jul 14 04:36	10° $\mathbb{Y}$ 21'00		evening set	4782 Apr 07 19:31	3° $\mathbb{X}$ 23'56	
opposition	4775 Sep 29 23:16	8° $\mathbb{Y}$ 22'19	-0°51'17				
min. Earth dist.	4775 Sep 29 04:26	8° $\mathbb{Y}$ 24'12	18.92815 AU	conjunction	4782 Apr 23 15:31	4° $\mathbb{X}$ 18'05	-0°38'41
direct	4775 Dec 15 06:36	6° $\mathbb{Y}$ 25'14		minimum elong	4782 Apr 23 15:31	4° $\mathbb{X}$ 18'05	0°38'42
evening set	4776 Mar 14 16:18	9° $\mathbb{Y}$ 26'44		max. Earth dist.	4782 Apr 24 11:54	4° $\mathbb{X}$ 21'00	21.02346 AU
				morning rise	4782 May 09 14:43	5° $\mathbb{X}$ 12'40	
conjunction	4776 Mar 30 08:53	10° $\mathbb{Y}$ 20'52	-0°46'08	retrograde	4782 Aug 11 15:29	8° $\mathbb{X}$ 19'29	
minimum elong	4776 Mar 30 08:52	10° $\mathbb{Y}$ 20'52	0°46'08	opposition	4782 Oct 28 13:38	6° $\mathbb{X}$ 20'21	-0°41'41
max. Earth dist.	4776 Mar 31 04:04	10° $\mathbb{Y}$ 23'39	20.94057 AU	min. Earth dist.	4782 Oct 27 18:05	6° $\mathbb{X}$ 22'19	19.02507 AU
morning rise	4776 Apr 15 03:44	11° $\mathbb{Y}$ 15'19		direct	4783 Jan 12 06:35	4° $\mathbb{X}$ 23'50	
retrograde	4776 Jul 17 14:31	14° $\mathbb{Y}$ 22'20		evening set	4783 Apr 12 00:08	7° $\mathbb{X}$ 22'53	
opposition	4776 Oct 03 09:21	12° $\mathbb{Y}$ 23'33	-0°50'37				
min. Earth dist.	4776 Oct 02 14:06	12° $\mathbb{Y}$ 25'28	18.95264 AU	conjunction	4783 Apr 27 20:59	8° $\mathbb{X}$ 17'05	-0°36'45
direct	4776 Dec 18 14:11	10° $\mathbb{Y}$ 26'34		minimum elong	4783 Apr 27 20:59	8° $\mathbb{X}$ 17'05	0°36'46
evening set	4777 Mar 18 20:56	13° $\mathbb{Y}$ 27'30		max. Earth dist.	4783 Apr 28 18:18	8° $\mathbb{X}$ 20'09	21.02496 AU
				morning rise	4783 May 13 20:50	9° $\mathbb{X}$ 11'45	
conjunction	4777 Apr 03 14:06	14° $\mathbb{Y}$ 21'35	-0°45'25	retrograde	4783 Aug 15 23:54	12° $\mathbb{X}$ 18'42	
minimum elong	4777 Apr 03 14:06	14° $\mathbb{Y}$ 21'35	0°45'25	opposition	4783 Nov 01 21:36	10° $\mathbb{X}$ 19'32	-0°39'27
max. Earth dist.	4777 Apr 04 10:44	14° $\mathbb{Y}$ 24'34	20.96299 AU	min. Earth dist.	4783 Nov 01 02:13	10° $\mathbb{X}$ 21'29	19.02449 AU
morning rise	4777 Apr 19 09:27	15° $\mathbb{Y}$ 16'02		direct	4784 Jan 16 12:47	8° $\mathbb{X}$ 23'05	
retrograde	4777 Jul 21 21:52	18° $\mathbb{Y}$ 22'53		evening set	4784 Apr 15 05:14	11° $\mathbb{X}$ 22'03	
opposition	4777 Oct 07 18:56	16° $\mathbb{Y}$ 24'01	-0°49'42				
min. Earth dist.	4777 Oct 06 23:34	16° $\mathbb{Y}$ 25'58	18.97314 AU	conjunction	4784 May 01 02:42	12° $\mathbb{X}$ 16'21	-0°34'39
direct	4777 Dec 22 22:35	14° $\mathbb{Y}$ 27'08		minimum elong	4784 May 01 02:42	12° $\mathbb{X}$ 16'21	0°34'40
evening set	4778 Mar 23 01:39	17° $\mathbb{Y}$ 27'34		max. Earth dist.	4784 May 01 22:32	12° $\mathbb{X}$ 19'11	21.02240 AU
				morning rise	4784 May 17 03:36	13° $\mathbb{X}$ 11'07	
conjunction	4778 Apr 07 19:09	18° $\mathbb{Y}$ 21'37	-0°44'29		4784 Jun 22 06:35	15° $\mathbb{X}$	
minimum elong	4778 Apr 07 19:10	18° $\mathbb{Y}$ 21'37	0°44'29	retrograde	4784 Aug 19 08:18	16° $\mathbb{X}$ 18'14	
max. Earth dist.	4778 Apr 08 14:59	18° $\mathbb{Y}$ 24'29	20.98176 AU		4784 Oct 18 21:10	15° $\mathbb{R}$ $\mathbb{X}$	
morning rise	4778 Apr 23 15:19	19° $\mathbb{Y}$ 16'03		min. Earth dist.	4784 Nov 04 11:00	14° $\mathbb{X}$ 20'53	19.01975 AU
retrograde	4778 Jul 26 07:19	22° $\mathbb{Y}$ 22'49		opposition	4784 Nov 05 05:34	14° $\mathbb{X}$ 19'01	-0°37'01
min. Earth dist.	4778 Oct 11 08:20	20° $\mathbb{Y}$ 25'50	18.99027 AU	direct	4785 Jan 19 17:55	12° $\mathbb{X}$ 22'34	
opposition	4778 Oct 12 03:57	20° $\mathbb{Y}$ 23'52	-0°48'32		4785 Apr 12 22:17	15° $\mathbb{X}$	
direct	4778 Dec 27 05:21	18° $\mathbb{Y}$ 27'03		evening set	4785 Apr 19 10:31	15° $\mathbb{X}$ 21'34	
evening set	4779 Mar 27 06:05	21° $\mathbb{Y}$ 27'03					
				conjunction	4785 May 05 08:57	16° $\mathbb{X}$ 15'58	-0°32'22

minimum elong	4785 May 05 08:57	16°♄15'58 0°32'23	morning rise	4791 Jun 15 13:32	11°♄19'19
max. Earth dist.	4785 May 06 05:15	16°♄18'52 21.01527 AU	retrograde	4791 Sep 18 02:13	14°♄28'15
morning rise	4785 May 21 10:34	17°♄10'50	opposition	4791 Dec 04 12:36	12°♄28'07 -0°15'34
retrograde	4785 Aug 23 17:24	20°♄18'08	min. Earth dist.	4791 Dec 04 00:04	12°♄29'24 18.84854 AU
opposition	4785 Nov 09 13:25	18°♄18'53 -0°34'25	direct	4792 Feb 17 13:42	10°♄30'42
min. Earth dist.	4785 Nov 08 19:20	18°♄20'42 19.01008 AU	evening set	4792 May 17 10:54	13°♄31'26
direct	4786 Jan 24 00:18	16°♄22'26			
evening set	4786 Apr 23 16:24	19°♄21'29	conjunction	4792 Jun 02 15:29	14°♄26'57 -0°12'33
			minimum elong	4792 Jun 02 15:29	14°♄26'57 0°12'34
conjunction	4786 May 09 15:29	20°♄16'00 -0°29'56	behind sun begin	4792 Jun 02 11:14	14°♄26'21
minimum elong	4786 May 09 15:30	20°♄16'00 0°29'56	behind sun end	4792 Jun 02 19:44	14°♄27'32
max. Earth dist.	4786 May 10 09:46	20°♄18'37 21.00309 AU	max. Earth dist.	4792 Jun 03 03:53	14°♄28'43 20.82883 AU
morning rise	4786 May 25 18:10	21°♄11'00	morning rise	4792 Jun 18 23:43	15°♄22'58
retrograde	4786 Aug 28 02:13	24°♄18'31	retrograde	4792 Sep 21 12:35	18°♄32'18
opposition	4786 Nov 13 21:14	22°♄19'11 -0°31'38	opposition	4792 Dec 07 20:42	16°♄31'59 -0°12'02
min. Earth dist.	4786 Nov 13 04:25	22°♄20'52 18.99528 AU	min. Earth dist.	4792 Dec 07 09:44	16°♄33'07 18.80849 AU
direct	4787 Jan 28 05:30	20°♄22'39	direct	4793 Feb 20 19:12	14°♄34'20
evening set	4787 Apr 27 22:28	23°♄21'51	evening set	4793 May 21 19:38	17°♄35'36
conjunction	4787 May 13 22:35	24°♄16'29 -0°27'21	conjunction	4793 Jun 07 01:22	18°♄31'20 -0°09'19
minimum elong	4787 May 13 22:35	24°♄16'30 0°27'22	minimum elong	4793 Jun 07 01:22	18°♄31'20 0°09'20
max. Earth dist.	4787 May 14 16:57	24°♄19'07 20.98559 AU	behind sun begin	4793 Jun 06 19:47	18°♄30'33
morning rise	4787 May 30 01:59	25°♄11'38	behind sun end	4793 Jun 07 06:57	18°♄32'07
retrograde	4787 Sep 01 11:28	28°♄19'22	max. Earth dist.	4793 Jun 07 13:53	18°♄33'08 20.78744 AU
opposition	4787 Nov 18 05:06	26°♄19'55 -0°28'41	morning rise	4793 Jun 23 10:20	19°♄27'34
min. Earth dist.	4787 Nov 17 12:50	26°♄21'34 18.97501 AU	retrograde	4793 Sep 25 23:57	22°♄37'19
direct	4788 Feb 01 12:10	24°♄23'18	opposition	4793 Dec 12 04:56	20°♄36'52 -0°08'25
evening set	4788 May 01 04:54	27°♄22'40	min. Earth dist.	4793 Dec 11 18:16	20°♄37'58 18.76578 AU
			direct	4794 Feb 25 03:07	18°♄39'00
conjunction	4788 May 17 05:46	28°♄17'27 -0°24'37	evening set	4794 May 26 05:11	21°♄40'52
minimum elong	4788 May 17 05:46	28°♄17'26 0°24'37			
max. Earth dist.	4788 May 17 22:00	28°♄19'46 20.96283 AU	conjunction	4794 Jun 11 11:40	22°♄36'50 -0°06'03
morning rise	4788 Jun 02 10:18	29°♄12'44	minimum elong	4794 Jun 11 11:40	22°♄36'50 0°06'04
	4788 Jun 16 22:58	0°♄	behind sun begin	4794 Jun 11 05:19	22°♄35'56
retrograde	4788 Sep 04 20:56	2°♄20'45	behind sun end	4794 Jun 11 18:01	22°♄37'43
opposition	4788 Nov 21 13:04	0°♄21'08 -0°25'36	max. Earth dist.	4794 Jun 11 21:57	22°♄38'18 20.74361 AU
min. Earth dist.	4788 Nov 20 22:13	0°♄22'38 18.94971 AU	morning rise	4794 Jun 27 21:39	23°♄33'17
	4788 Nov 30 06:40	30°♄	retrograde	4794 Sep 30 11:09	26°♄43'30
direct	4789 Feb 04 17:46	28°♄24'20	opposition	4794 Dec 16 13:30	24°♄42'56 -0°04'44
	4789 Apr 08 14:04	0°♄	min. Earth dist.	4794 Dec 16 04:32	24°♄43'51 18.72087 AU
evening set	4789 May 05 11:42	1°♄23'56	direct	4795 Mar 01 09:06	22°♄44'50
			evening set	4795 May 30 15:15	25°♄47'23
conjunction	4789 May 21 13:40	2°♄18'53 -0°21'45	conjunction	4795 Jun 15 22:49	26°♄43'35 -0°02'42
minimum elong	4789 May 21 13:40	2°♄18'53 0°21'46	minimum elong	4795 Jun 15 22:50	26°♄43'35 0°02'43
max. Earth dist.	4789 May 22 06:00	2°♄21'13 20.93515 AU	behind sun begin	4795 Jun 15 16:10	26°♄42'39
morning rise	4789 Jun 06 18:59	3°♄14'20	behind sun end	4795 Jun 16 05:31	26°♄44'32
retrograde	4789 Sep 09 06:19	6°♄22'36	max. Earth dist.	4795 Jun 16 09:08	26°♄45'04 20.69765 AU
opposition	4789 Nov 25 20:44	4°♄22'50 -0°22'22	morning rise	4795 Jul 02 09:30	27°♄40'16
min. Earth dist.	4789 Nov 25 06:26	4°♄24'17 18.91971 AU		4795 Aug 20 00:50	0°♄
direct	4790 Feb 09 00:42	2°♄25'51	retrograde	4795 Oct 04 23:58	0°♄50'59
evening set	4790 May 09 19:03	5°♄25'45		4795 Nov 20 22:21	30°♄
			opposition	4795 Dec 20 22:18	28°♄50'19 -0°01'02
conjunction	4790 May 25 21:47	6°♄20'52 -0°18'47	min. Earth dist.	4795 Dec 20 13:39	28°♄51'12 18.67379 AU
minimum elong	4790 May 25 21:47	6°♄20'52 0°18'48	direct	4796 Mar 04 17:19	26°♄52'01
max. Earth dist.	4790 May 26 11:59	6°♄22'54 20.90318 AU	asc. node	4796 Mar 31 08:32	27°♄10'34
morning rise	4790 Jun 11 04:12	7°♄16'30	evening set	4796 Jun 03 02:12	29°♄55'18
retrograde	4790 Sep 13 16:09	10°♄25'05		4796 Jun 04 11:28	0°♄
opposition	4790 Nov 30 04:39	8°♄25'07 -0°19'01			
min. Earth dist.	4790 Nov 29 15:50	8°♄26'25 18.88585 AU	conjunction	4796 Jun 19 10:34	0°♄51'45 0°00'46
direct	4791 Feb 13 06:18	6°♄27'55	minimum elong	4796 Jun 19 10:34	0°♄51'45 0°00'45
evening set	4791 May 14 02:34	9°♄28'11	behind sun begin	4796 Jun 19 03:53	0°♄50'48
			behind sun end	4796 Jun 19 17:15	0°♄52'41
conjunction	4791 May 30 06:23	10°♄23'30 -0°15'43	max. Earth dist.	4796 Jun 19 18:31	0°♄52'53 20.64959 AU
minimum elong	4791 May 30 06:23	10°♄23'30 0°15'43	morning rise	4796 Jul 05 22:15	1°♄48'40
behind sun begin	4791 May 30 05:11	10°♄23'20	retrograde	4796 Oct 08 12:43	4°♄59'56
behind sun end	4791 May 30 07:35	10°♄23'41	opposition	4796 Dec 24 07:38	2°♄59'10 0°02'43
max. Earth dist.	4791 May 30 20:51	10°♄25'35 20.86754 AU			



min. Earth dist.	4796 Dec 24 00:58	2°☾59'51	18.62464 AU	retrograde	4802 Nov 04 05:35	0°♈27'34	
direct	4797 Mar 09 00:33	1°☾00'38			4802 Dec 07 12:28	30°♈☾	
evening set	4797 Jun 07 14:00	4°☾04'44		opposition	4803 Jan 19 00:35	28°☾25'59	0°24'43
				min. Earth dist.	4803 Jan 19 03:15	28°☾25'42	18.27562 AU
conjunction	4797 Jun 23 23:25	5°☾01'27	0°04'11	direct	4803 Apr 03 14:18	26°☾25'32	
minimum elong	4797 Jun 23 23:26	5°☾01'27	0°04'11	evening set	4803 Jul 04 07:33	29°☾35'23	
behind sun begin	4797 Jun 23 16:50	5°☾00'31			4803 Jul 11 08:42	0°♈	
behind sun end	4797 Jun 24 06:02	5°☾02'23					
max. Earth dist.	4797 Jun 24 07:01	5°☾02'32	20.59931 AU	conjunction	4803 Jul 20 21:44	0°♈33'47	0°23'49
morning rise	4797 Jul 10 11:43	5°☾58'37		minimum elong	4803 Jul 20 21:44	0°♈33'47	0°23'49
retrograde	4797 Oct 13 02:44	9°☾10'25		max. Earth dist.	4803 Jul 20 18:20	0°♈33'17	20.24330 AU
opposition	4797 Dec 28 17:04	7°☾09'35	0°06'28	morning rise	4803 Aug 06 13:45	1°♈32'29	
min. Earth dist.	4797 Dec 28 10:59	7°☾10'13	18.57310 AU	retrograde	4803 Nov 08 22:34	4°♈47'41	
direct	4798 Mar 13 09:16	5°☾10'50		opposition	4804 Jan 23 12:59	2°♈45'54	0°28'06
evening set	4798 Jun 12 02:50	8°☾15'48		min. Earth dist.	4804 Jan 23 16:06	2°♈45'34	18.21045 AU
				direct	4804 Apr 07 04:20	0°♈45'01	
conjunction	4798 Jun 28 12:57	9°☾12'48	0°07'34	evening set	4804 Jul 08 01:29	3°♈55'57	
minimum elong	4798 Jun 28 12:57	9°☾12'47	0°07'33				
behind sun begin	4798 Jun 28 06:52	9°☾11'56		conjunction	4804 Jul 24 16:15	4°♈54'38	0°26'48
behind sun end	4798 Jun 28 19:02	9°☾13'39		minimum elong	4804 Jul 24 16:15	4°♈54'38	0°26'48
max. Earth dist.	4798 Jun 28 17:51	9°☾13'29	20.54652 AU	max. Earth dist.	4804 Jul 24 10:36	4°♈53'48	20.17785 AU
morning rise	4798 Jul 15 02:07	10°☾10'13		morning rise	4804 Aug 10 08:44	5°♈53'35	
retrograde	4798 Oct 17 16:59	13°☾22'36		retrograde	4804 Nov 12 14:05	9°♈09'20	
opposition	4799 Jan 02 03:16	11°☾21'40	0°10'13	opposition	4805 Jan 27 02:06	7°♈07'22	0°31'21
min. Earth dist.	4799 Jan 01 23:32	11°☾22'03	18.51901 AU	min. Earth dist.	4805 Jan 27 07:35	7°♈06'47	18.14502 AU
direct	4799 Mar 17 17:57	9°☾22'38		direct	4805 Apr 11 16:55	5°♈06'03	
evening set	4799 Jun 16 16:16	12°☾28'32		evening set	4805 Jul 12 20:13	8°♈18'05	
conjunction	4799 Jul 03 03:25	13°☾25'48	0°10'55	conjunction	4805 Jul 29 11:38	9°♈17'02	0°29'39
minimum elong	4799 Jul 03 03:25	13°☾25'48	0°10'54	minimum elong	4805 Jul 29 11:38	9°♈17'02	0°29'39
behind sun begin	4799 Jul 02 22:22	13°☾25'05		max. Earth dist.	4805 Jul 29 04:57	9°♈16'03	20.11256 AU
behind sun end	4799 Jul 03 08:27	13°☾26'31		morning rise	4805 Aug 15 04:25	10°♈16'13	
max. Earth dist.	4799 Jul 03 07:35	13°☾26'23	20.49103 AU	retrograde	4805 Nov 17 08:18	13°♈32'32	
morning rise	4799 Jul 19 17:07	14°☾23'28		opposition	4806 Jan 31 15:30	11°♈30'23	0°34'26
retrograde	4799 Oct 22 08:00	17°☾36'26		min. Earth dist.	4806 Jan 31 21:16	11°♈29'46	18.08004 AU
opposition	4800 Jan 06 13:51	15°☾35'23	0°13'56	direct	4806 Apr 16 08:40	9°♈28'39	
min. Earth dist.	4800 Jan 06 10:48	15°☾35'42	18.46201 AU	evening set	4806 Jul 17 15:51	12°♈41'49	
direct	4800 Mar 21 04:18	13°☾36'04					
evening set	4800 Jun 20 06:56	16°☾42'54		conjunction	4806 Aug 03 07:43	13°♈41'03	0°32'20
				minimum elong	4806 Aug 03 07:43	13°♈41'03	0°32'19
conjunction	4800 Jul 06 18:45	17°☾40'27	0°14'15	max. Earth dist.	4806 Aug 02 23:15	13°♈39'48	20.04798 AU
minimum elong	4800 Jul 06 18:45	17°☾40'27	0°14'14	morning rise	4806 Aug 20 00:45	14°♈40'29	
behind sun begin	4800 Jul 06 15:43	17°☾40'01			4806 Aug 25 16:11	15°♈	
behind sun end	4800 Jul 06 21:48	17°☾40'53		retrograde	4806 Nov 22 00:47	17°♈57'21	
max. Earth dist.	4800 Jul 06 20:00	17°☾40'37	20.43256 AU	opposition	4807 Feb 05 05:47	15°♈55'02	0°37'20
morning rise	4800 Jul 23 09:15	18°☾38'23		min. Earth dist.	4807 Feb 05 13:37	15°♈54'12	18.01622 AU
retrograde	4800 Oct 25 22:48	21°☾51'55			4807 Feb 27 10:03	15°♈♈	
opposition	4801 Jan 10 00:58	19°☾50'42	0°17'36	direct	4807 Apr 20 22:11	13°♈52'54	
min. Earth dist.	4801 Jan 10 00:29	19°☾50'45	18.40218 AU		4807 Jun 11 04:49	15°♈	
direct	4801 Mar 25 14:25	17°☾51'02		evening set	4807 Jul 22 12:05	17°♈07'13	
evening set	4801 Jun 24 22:19	20°☾58'52					
				conjunction	4807 Aug 08 04:29	18°♈06'43	0°34'50
conjunction	4801 Jul 11 11:06	21°☾56'42	0°17'31	minimum elong	4807 Aug 08 04:29	18°♈06'43	0°34'50
minimum elong	4801 Jul 11 11:06	21°☾56'42	0°17'30	max. Earth dist.	4807 Aug 07 18:56	18°♈05'18	19.98501 AU
max. Earth dist.	4801 Jul 11 11:17	21°☾56'43	20.37144 AU	morning rise	4807 Aug 24 21:45	19°♈06'23	
morning rise	4801 Jul 28 02:05	22°☾54'53		retrograde	4807 Nov 26 20:34	22°♈23'50	
retrograde	4801 Oct 30 14:49	26°☾08'58		opposition	4808 Feb 09 20:31	20°♈21'23	0°40'01
opposition	4802 Jan 14 12:28	24°☾07'35	0°21'13	min. Earth dist.	4808 Feb 10 04:28	20°♈20'31	17.95418 AU
min. Earth dist.	4802 Jan 14 12:39	24°☾07'34	18.33979 AU	direct	4808 Apr 24 15:27	18°♈18'53	
direct	4802 Mar 30 02:48	22°☾07'32		evening set	4808 Jul 26 09:27	21°♈34'22	
evening set	4802 Jun 29 14:34	25°☾16'22					
				conjunction	4808 Aug 12 02:14	22°♈34'08	0°37'09
conjunction	4802 Jul 16 03:56	26°☾14'28	0°20'43	minimum elong	4808 Aug 12 02:14	22°♈34'08	0°37'08
minimum elong	4802 Jul 16 03:56	26°☾14'28	0°20'43	max. Earth dist.	4808 Aug 11 15:21	22°♈32'31	19.92390 AU
max. Earth dist.	4802 Jul 16 01:29	26°☾14'07	20.30802 AU	morning rise	4808 Aug 28 19:35	23°♈34'01	
morning rise	4802 Aug 01 19:32	27°☾12'55		retrograde	4808 Nov 30 14:23	26°♈52'01	
	4802 Oct 02 05:56	0°♈		opposition	4809 Feb 13 11:57	24°♈49'30	0°42'29

min. Earth dist.	4809 Feb 13 21:54	24° $\Omega$ 48'25	17.89429 AU	conjunction	4815 Sep 15 06:38	24° $\Upsilon$ 36'22	0°46'33
direct	4809 Apr 29 06:29	22° $\Omega$ 46'40		minimum elong	4815 Sep 15 06:38	24° $\Upsilon$ 36'22	0°46'33
evening set	4809 Jul 31 07:39	26° $\Omega$ 03'21		morning rise	4815 Oct 01 22:38	25° $\Upsilon$ 37'28	
				retrograde	4816 Jan 02 22:38	28° $\Upsilon$ 58'45	
conjunction	4809 Aug 17 00:45	27° $\Omega$ 03'22	0°39'15	opposition	4816 Mar 16 19:11	26° $\Upsilon$ 56'01	0°52'00
minimum elong	4809 Aug 17 00:45	27° $\Omega$ 03'22	0°39'14	min. Earth dist.	4816 Mar 17 12:00	26° $\Upsilon$ 54'11	17.54089 AU
max. Earth dist.	4809 Aug 16 12:27	27° $\Omega$ 01'31	19.86528 AU	direct	4816 May 31 00:16	24° $\Upsilon$ 51'12	
morning rise	4809 Sep 02 18:12	28° $\Omega$ 03'28		evening set	4816 Sep 02 16:29	28° $\Upsilon$ 15'32	
	4809 Oct 09 09:47	0° $\Upsilon$					
retrograde	4809 Dec 05 11:24	1° $\Upsilon$ 22'02		conjunction	4816 Sep 19 09:39	29° $\Upsilon$ 16'57	0°46'45
	4810 Feb 02 05:33	30° $\Upsilon$ $\Omega$		minimum elong	4816 Sep 19 09:39	29° $\Upsilon$ 16'57	0°46'45
opposition	4810 Feb 18 04:01	29° $\Omega$ 19'28	0°44'43	max. Earth dist.	4816 Sep 18 13:29	29° $\Upsilon$ 13'50	19.52012 AU
min. Earth dist.	4810 Feb 18 14:08	29° $\Omega$ 18'22	17.83691 AU		4816 Oct 01 01:20	0° $\Omega$	
direct	4810 May 04 00:56	27° $\Omega$ 16'20		morning rise	4816 Oct 06 00:57	0° $\Omega$ 18'09	
	4810 Jul 26 10:11	0° $\Upsilon$		retrograde	4817 Jan 06 21:13	3° $\Omega$ 39'41	
evening set	4810 Aug 05 06:33	0° $\Upsilon$ 34'13		opposition	4817 Mar 21 15:48	1° $\Omega$ 36'55	0°52'04
				min. Earth dist.	4817 Mar 22 09:25	1° $\Omega$ 34'59	17.50087 AU
conjunction	4810 Aug 21 23:54	1° $\Upsilon$ 34'29	0°41'07		4817 May 03 00:40	30° $\Upsilon$ $\Upsilon$	
minimum elong	4810 Aug 21 23:54	1° $\Upsilon$ 34'29	0°41'07	direct	4817 Jun 04 22:17	29° $\Upsilon$ 31'49	
max. Earth dist.	4810 Aug 21 10:49	1° $\Upsilon$ 32'30	19.80903 AU		4817 Jul 07 14:08	0° $\Omega$	
morning rise	4810 Sep 07 17:12	2° $\Upsilon$ 34'47		evening set	4817 Sep 07 20:02	2° $\Omega$ 57'00	
retrograde	4810 Dec 10 07:01	5° $\Upsilon$ 53'55					
opposition	4811 Feb 22 20:56	3° $\Upsilon$ 51'19	0°46'40	conjunction	4817 Sep 24 12:42	3° $\Omega$ 58'32	0°46'39
min. Earth dist.	4811 Feb 23 08:54	3° $\Upsilon$ 50'01	17.78194 AU	minimum elong	4817 Sep 24 12:42	3° $\Omega$ 58'32	0°46'39
direct	4811 May 08 17:49	1° $\Upsilon$ 47'55		max. Earth dist.	4817 Sep 23 14:41	3° $\Omega$ 55'08	19.48204 AU
evening set	4811 Aug 10 06:28	5° $\Upsilon$ 06'59		morning rise	4817 Oct 11 03:34	4° $\Omega$ 59'48	
				retrograde	4818 Jan 11 19:46	8° $\Omega$ 21'34	
conjunction	4811 Aug 26 23:55	6° $\Upsilon$ 07'29	0°42'45	opposition	4818 Mar 26 13:00	6° $\Omega$ 18'44	0°51'47
minimum elong	4811 Aug 26 23:55	6° $\Upsilon$ 07'29	0°42'44	min. Earth dist.	4818 Mar 27 07:15	6° $\Omega$ 16'44	17.46495 AU
max. Earth dist.	4811 Aug 26 08:59	6° $\Upsilon$ 05'13	19.75529 AU	direct	4818 Jun 09 22:42	4° $\Omega$ 13'22	
morning rise	4811 Sep 12 17:13	7° $\Upsilon$ 08'00		evening set	4818 Sep 12 23:29	7° $\Omega$ 39'19	
retrograde	4811 Dec 15 05:07	10° $\Upsilon$ 27'39					
opposition	4812 Feb 27 14:18	8° $\Upsilon$ 25'03	0°48'22	conjunction	4818 Sep 29 15:55	8° $\Omega$ 40'56	0°46'13
min. Earth dist.	4812 Feb 28 02:45	8° $\Upsilon$ 23'42	17.72935 AU	minimum elong	4818 Sep 29 15:55	8° $\Omega$ 40'56	0°46'13
direct	4812 May 12 13:33	6° $\Upsilon$ 21'22		max. Earth dist.	4818 Sep 28 18:39	8° $\Omega$ 37'39	19.44827 AU
evening set	4812 Aug 14 07:13	9° $\Upsilon$ 41'37		morning rise	4818 Oct 16 06:01	9° $\Omega$ 42'16	
max. Earth dist.	4812 Aug 30 09:13	10° $\Upsilon$ 39'58	19.70361 AU	retrograde	4819 Jan 16 18:26	13° $\Omega$ 04'11	
				opposition	4819 Mar 31 10:39	11° $\Omega$ 01'19	0°51'09
conjunction	4812 Aug 31 00:51	10° $\Upsilon$ 42'20	0°44'07	min. Earth dist.	4819 Apr 01 04:56	10° $\Omega$ 59'18	17.43347 AU
minimum elong	4812 Aug 31 00:51	10° $\Upsilon$ 42'20	0°44'08	direct	4819 Jun 14 23:01	8° $\Omega$ 55'44	
morning rise	4812 Sep 16 17:47	11° $\Upsilon$ 43'01		evening set	4819 Sep 18 03:28	12° $\Omega$ 22'21	
retrograde	4812 Dec 19 02:27	15° $\Upsilon$ 03'09					
opposition	4813 Mar 03 08:37	13° $\Upsilon$ 00'33	0°49'45	conjunction	4819 Oct 04 19:16	13° $\Omega$ 24'02	0°45'29
min. Earth dist.	4813 Mar 03 22:50	12° $\Upsilon$ 59'00	17.67874 AU	minimum elong	4819 Oct 04 19:16	13° $\Omega$ 24'02	0°45'29
direct	4813 May 17 08:09	10° $\Upsilon$ 56'36		max. Earth dist.	4819 Oct 03 20:45	13° $\Omega$ 20'32	19.41930 AU
evening set	4813 Aug 19 08:44	14° $\Upsilon$ 17'57		morning rise	4819 Oct 21 08:46	14° $\Omega$ 25'23	
max. Earth dist.	4813 Sep 04 08:19	15° $\Upsilon$ 16'09	19.65402 AU	retrograde	4820 Jan 21 16:39	17° $\Omega$ 47'25	
				opposition	4820 Apr 04 08:40	15° $\Omega$ 44'30	0°50'10
conjunction	4813 Sep 05 02:12	15° $\Upsilon$ 18'53	0°45'13	min. Earth dist.	4820 Apr 05 03:34	15° $\Omega$ 42'26	17.40725 AU
minimum elong	4813 Sep 05 02:12	15° $\Upsilon$ 18'53	0°45'13	direct	4820 Jun 19 00:13	13° $\Omega$ 38'42	
morning rise	4813 Sep 21 18:59	16° $\Upsilon$ 19'43		evening set	4820 Sep 22 07:28	17° $\Omega$ 05'57	
retrograde	4813 Dec 24 01:21	19° $\Upsilon$ 40'18					
opposition	4814 Mar 08 03:30	17° $\Upsilon$ 37'39	0°50'50	conjunction	4820 Oct 08 22:49	18° $\Omega$ 07'40	0°44'26
min. Earth dist.	4814 Mar 08 18:18	17° $\Upsilon$ 36'03	17.63029 AU	minimum elong	4820 Oct 08 22:49	18° $\Omega$ 07'40	0°44'27
direct	4814 May 22 05:22	15° $\Upsilon$ 33'25		max. Earth dist.	4820 Oct 08 01:12	18° $\Omega$ 04'18	19.39581 AU
evening set	4814 Aug 24 10:46	18° $\Upsilon$ 55'50		morning rise	4820 Oct 25 11:28	19° $\Omega$ 09'02	
max. Earth dist.	4814 Sep 09 10:09	19° $\Upsilon$ 54'10	19.60661 AU	retrograde	4821 Jan 25 16:15	22° $\Omega$ 31'07	
				opposition	4821 Apr 09 07:12	20° $\Omega$ 28'14	0°48'50
conjunction	4814 Sep 10 04:18	19° $\Upsilon$ 56'57	0°46'02	min. Earth dist.	4821 Apr 10 01:27	20° $\Omega$ 26'14	17.38658 AU
minimum elong	4814 Sep 10 04:18	19° $\Upsilon$ 56'57	0°46'02	direct	4821 Jun 24 02:10	18° $\Omega$ 22'17	
morning rise	4814 Sep 26 20:32	20° $\Upsilon$ 57'56		evening set	4821 Sep 27 11:31	21° $\Omega$ 50'02	
retrograde	4814 Dec 28 23:45	24° $\Upsilon$ 18'52		max. Earth dist.	4821 Oct 13 04:03	22° $\Omega$ 48'19	19.37812 AU
opposition	4815 Mar 12 23:04	22° $\Upsilon$ 16'12	0°51'35				
min. Earth dist.	4815 Mar 13 15:12	22° $\Upsilon$ 14'27	17.58414 AU	conjunction	4821 Oct 14 02:07	22° $\Omega$ 51'45	0°43'05
direct	4815 May 27 01:31	20° $\Upsilon$ 11'41		minimum elong	4821 Oct 14 02:07	22° $\Omega$ 51'45	0°43'05
evening set	4815 Aug 29 13:23	23° $\Upsilon$ 35'05		morning rise	4821 Oct 30 13:57	23° $\Omega$ 53'06	
max. Earth dist.	4815 Sep 14 10:16	24° $\Upsilon$ 33'14	19.56186 AU	retrograde	4822 Jan 30 14:43	27° $\Omega$ 15'13	

opposition	4822 Apr 14 06:15	25° <u>♏</u> 12'23	0°47'11	min. Earth dist.	4828 May 12 23:05	23° <u>♏</u> 39'42	17.40197 AU
min. Earth dist.	4822 Apr 15 00:55	25° <u>♏</u> 10'21	17.37207 AU	direct	4828 Jul 27 16:27	21° <u>♏</u> 35'48	
direct	4822 Jun 29 03:15	23° <u>♏</u> 06'21		evening set	4828 Oct 31 12:49	25° <u>♏</u> 04'34	
evening set	4822 Oct 02 15:32	26° <u>♏</u> 34'32					
max. Earth dist.	4822 Oct 18 08:20	27° <u>♏</u> 32'56	19.36677 AU	conjunction	4828 Nov 16 21:22	26° <u>♏</u> 05'41	0°26'12
				minimum elong	4828 Nov 16 21:22	26° <u>♏</u> 05'41	0°26'12
conjunction	4822 Oct 19 05:31	27° <u>♏</u> 36'15	0°41'27	max. Earth dist.	4828 Nov 16 02:55	26° <u>♏</u> 02'47	19.41176 AU
minimum elong	4822 Oct 19 05:31	27° <u>♏</u> 36'15	0°41'28	morning rise	4828 Dec 03 02:32	27° <u>♏</u> 06'19	
morning rise	4822 Nov 04 16:28	28° <u>♏</u> 37'33			4829 Feb 01 04:21	0° <u>♏</u>	
	4822 Nov 28 12:57	0° <u>♏</u>		retrograde	4829 Mar 04 13:28	0° <u>♏</u> 27'18	
retrograde	4823 Feb 04 15:32	1° <u>♏</u> 59'39			4829 Apr 05 12:01	30° <u>♏</u>	
	4823 Apr 18 01:14	30° <u>♏</u>		opposition	4829 May 17 07:11	28° <u>♏</u> 25'29	0°27'25
opposition	4823 Apr 19 05:25	29° <u>♏</u> 56'55	0°45'12	min. Earth dist.	4829 May 17 22:10	28° <u>♏</u> 23'52	17.42294 AU
min. Earth dist.	4823 Apr 19 22:59	29° <u>♏</u> 55'00	17.36370 AU	direct	4829 Aug 01 20:31	26° <u>♏</u> 19'55	
direct	4823 Jul 04 05:52	27° <u>♏</u> 50'51		evening set	4829 Nov 05 14:45	29° <u>♏</u> 48'22	
	4823 Sep 14 21:52	0° <u>♏</u>			4829 Nov 08 18:27	0° <u>♏</u>	
evening set	4823 Oct 07 19:37	1° <u>♏</u> 19'24					
max. Earth dist.	4823 Oct 23 11:50	2° <u>♏</u> 17'48	19.36144 AU	conjunction	4829 Nov 21 22:26	0° <u>♏</u> 49'19	0°22'56
				minimum elong	4829 Nov 21 22:27	0° <u>♏</u> 49'19	0°22'56
conjunction	4823 Oct 24 08:50	2° <u>♏</u> 21'05	0°39'31	max. Earth dist.	4829 Nov 21 05:55	0° <u>♏</u> 46'44	19.43471 AU
minimum elong	4823 Oct 24 08:50	2° <u>♏</u> 21'05	0°39'32	morning rise	4829 Dec 08 02:25	1° <u>♏</u> 49'45	
morning rise	4823 Nov 09 18:52	3° <u>♏</u> 22'21		retrograde	4830 Mar 09 10:48	5° <u>♏</u> 10'23	
retrograde	4824 Feb 09 14:13	6° <u>♏</u> 44'23		opposition	4830 May 22 07:55	3° <u>♏</u> 08'42	0°23'41
opposition	4824 Apr 23 05:11	4° <u>♏</u> 41'48	0°42'54	min. Earth dist.	4830 May 22 22:55	3° <u>♏</u> 07'05	17.44782 AU
min. Earth dist.	4824 Apr 23 23:22	4° <u>♏</u> 39'49	17.36131 AU	direct	4830 Aug 06 22:45	1° <u>♏</u> 03'16	
direct	4824 Jul 08 06:34	2° <u>♏</u> 35'45		evening set	4830 Nov 10 16:18	4° <u>♏</u> 31'19	
evening set	4824 Oct 11 23:36	6° <u>♏</u> 04'33					
				conjunction	4830 Nov 26 22:49	5° <u>♏</u> 32'03	0°19'31
conjunction	4824 Oct 28 11:57	7° <u>♏</u> 06'11	0°37'20	minimum elong	4830 Nov 26 22:49	5° <u>♏</u> 32'03	0°19'32
minimum elong	4824 Oct 28 11:58	7° <u>♏</u> 06'11	0°37'20	max. Earth dist.	4830 Nov 26 06:13	5° <u>♏</u> 29'27	19.46169 AU
max. Earth dist.	4824 Oct 27 15:28	7° <u>♏</u> 02'58	19.36190 AU	morning rise	4830 Dec 13 01:59	6° <u>♏</u> 32'18	
morning rise	4824 Nov 13 21:06	8° <u>♏</u> 07'21		retrograde	4831 Mar 14 09:21	9° <u>♏</u> 52'30	
retrograde	4825 Feb 13 15:41	11° <u>♏</u> 29'17		opposition	4831 May 27 08:14	7° <u>♏</u> 50'56	0°19'48
opposition	4825 Apr 28 05:05	9° <u>♏</u> 26'52	0°40'19	min. Earth dist.	4831 May 27 21:40	7° <u>♏</u> 49'29	17.47677 AU
min. Earth dist.	4825 Apr 28 21:59	9° <u>♏</u> 25'01	17.36435 AU	direct	4831 Aug 12 02:29	5° <u>♏</u> 45'38	
direct	4825 Jul 13 10:00	7° <u>♏</u> 20'53		evening set	4831 Nov 15 17:01	9° <u>♏</u> 13'10	
evening set	4825 Oct 17 03:24	10° <u>♏</u> 49'51					
				conjunction	4831 Dec 01 22:41	10° <u>♏</u> 13'42	0°15'59
conjunction	4825 Nov 02 14:55	11° <u>♏</u> 51'23	0°34'53	minimum elong	4831 Dec 01 22:41	10° <u>♏</u> 13'42	0°15'59
minimum elong	4825 Nov 02 14:55	11° <u>♏</u> 51'23	0°34'54	behind sun begin	4831 Dec 01 22:09	10° <u>♏</u> 13'37	
max. Earth dist.	4825 Nov 01 19:14	11° <u>♏</u> 48'18	19.36749 AU	behind sun end	4831 Dec 01 23:13	10° <u>♏</u> 13'47	
morning rise	4825 Nov 18 22:59	12° <u>♏</u> 52'27		max. Earth dist.	4831 Dec 01 08:22	10° <u>♏</u> 11'28	19.49266 AU
	4825 Dec 28 01:46	15° <u>♏</u>		morning rise	4831 Dec 18 00:41	11° <u>♏</u> 13'43	
retrograde	4826 Feb 18 14:12	16° <u>♏</u> 14'14		retrograde	4832 Mar 18 05:59	14° <u>♏</u> 33'27	
	4826 Apr 14 06:46	15° <u>♏</u>		opposition	4832 May 31 08:37	12° <u>♏</u> 32'00	0°15'48
opposition	4826 May 03 05:30	14° <u>♏</u> 11'59	0°37'27	min. Earth dist.	4832 May 31 21:33	12° <u>♏</u> 30'37	17.50969 AU
min. Earth dist.	4826 May 03 22:59	14° <u>♏</u> 10'05	17.37245 AU	direct	4832 Aug 16 05:15	10° <u>♏</u> 26'51	
direct	4826 Jul 18 11:02	12° <u>♏</u> 06'05		evening set	4832 Nov 19 17:00	13° <u>♏</u> 53'47	
	4826 Oct 12 12:58	15° <u>♏</u>					
evening set	4826 Oct 22 06:50	15° <u>♏</u> 35'05		conjunction	4832 Dec 05 21:25	14° <u>♏</u> 54'04	0°12'21
				minimum elong	4832 Dec 05 21:25	14° <u>♏</u> 54'04	0°12'23
conjunction	4826 Nov 07 17:23	16° <u>♏</u> 36'30	0°32'12	behind sun begin	4832 Dec 05 17:02	14° <u>♏</u> 53'23	
minimum elong	4826 Nov 07 17:23	16° <u>♏</u> 36'30	0°32'12	behind sun end	4832 Dec 06 01:48	14° <u>♏</u> 54'44	
max. Earth dist.	4826 Nov 06 21:47	16° <u>♏</u> 33'26	19.37799 AU	max. Earth dist.	4832 Dec 05 07:26	14° <u>♏</u> 51'53	19.52777 AU
morning rise	4826 Nov 24 00:35	17° <u>♏</u> 37'27		morning rise	4832 Dec 21 22:36	15° <u>♏</u> 53'51	
retrograde	4827 Feb 23 15:14	20° <u>♏</u> 59'01		retrograde	4833 Mar 23 02:48	19° <u>♏</u> 13'06	
opposition	4827 May 08 05:54	18° <u>♏</u> 56'55	0°34'20	opposition	4833 Jun 05 08:42	17° <u>♏</u> 11'45	0°11'43
min. Earth dist.	4827 May 08 21:58	18° <u>♏</u> 55'11	17.38511 AU	min. Earth dist.	4833 Jun 05 19:55	17° <u>♏</u> 10'33	17.54701 AU
direct	4827 Jul 23 14:52	16° <u>♏</u> 51'07		direct	4833 Aug 21 07:53	15° <u>♏</u> 06'47	
evening set	4827 Oct 27 10:00	20° <u>♏</u> 20'03		evening set	4833 Nov 24 15:59	18° <u>♏</u> 33'01	
conjunction	4827 Nov 12 19:41	21° <u>♏</u> 21'21	0°29'18	conjunction	4833 Dec 10 19:32	19° <u>♏</u> 33'02	0°08'40
minimum elong	4827 Nov 12 19:41	21° <u>♏</u> 21'21	0°29'19	minimum elong	4833 Dec 10 19:32	19° <u>♏</u> 33'02	0°08'41
max. Earth dist.	4827 Nov 12 01:22	21° <u>♏</u> 18'28	19.39276 AU	behind sun begin	4833 Dec 10 13:46	19° <u>♏</u> 32'10	
morning rise	4827 Nov 29 01:43	22° <u>♏</u> 22'08		behind sun end	4833 Dec 11 01:18	19° <u>♏</u> 33'55	
retrograde	4828 Feb 28 13:19	25° <u>♏</u> 43'26		max. Earth dist.	4833 Dec 10 08:16	19° <u>♏</u> 31'18	19.56733 AU
opposition	4828 May 12 06:31	23° <u>♏</u> 41'30	0°30'59	morning rise	4833 Dec 26 19:37	20° <u>♏</u> 32'35	

retrograde	4834 Mar 27 22:55	23° $\mathring{A}$ 51'18	direct	4839 Sep 19 05:46	12° $\mathring{B}$ 36'53
opposition	4834 Jun 10 08:29	21° $\mathring{A}$ 50'05 0°07'34	evening set	4839 Dec 22 16:38	15° $\mathring{B}$ 57'48
min. Earth dist.	4834 Jun 10 18:25	21° $\mathring{A}$ 49'02 17.58878 AU			
direct	4834 Aug 26 09:37	19° $\mathring{A}$ 45'20	conjunction	4840 Jan 07 14:20	16° $\mathring{B}$ 56'06 -0°13'30
evening set	4834 Nov 29 14:15	23° $\mathring{A}$ 10'48	minimum elong	4840 Jan 07 14:20	16° $\mathring{B}$ 56'06 0°13'29
			behind sun begin	4840 Jan 07 10:34	16° $\mathring{B}$ 55'32
conjunction	4834 Dec 15 16:37	24° $\mathring{A}$ 10'33 0°04'58	behind sun end	4840 Jan 07 18:06	16° $\mathring{B}$ 56'40
minimum elong	4834 Dec 15 16:37	24° $\mathring{A}$ 10'33 0°04'58	max. Earth dist.	4840 Jan 07 12:51	16° $\mathring{B}$ 55'53 19.88921 AU
behind sun begin	4834 Dec 15 10:10	24° $\mathring{A}$ 09'34	morning rise	4840 Jan 23 09:33	17° $\mathring{B}$ 54'04
behind sun end	4834 Dec 15 23:05	24° $\mathring{A}$ 11'32	retrograde	4840 Apr 23 18:22	21° $\mathring{B}$ 09'27
max. Earth dist.	4834 Dec 15 06:03	24° $\mathring{A}$ 08'55 19.61146 AU	opposition	4840 Jul 07 23:28	19° $\mathring{B}$ 09'25 -0°16'53
morning rise	4834 Dec 31 15:56	25° $\mathring{A}$ 09'51	min. Earth dist.	4840 Jul 07 23:38	19° $\mathring{B}$ 09'24 17.91993 AU
retrograde	4835 Apr 01 18:53	28° $\mathring{A}$ 28'02	direct	4840 Sep 23 04:25	17° $\mathring{B}$ 06'44
opposition	4835 Jun 15 07:55	26° $\mathring{A}$ 26'58 0°03'24	evening set	4840 Dec 26 09:46	20° $\mathring{B}$ 26'34
min. Earth dist.	4835 Jun 15 16:12	26° $\mathring{A}$ 26'05 17.63523 AU			
direct	4835 Aug 31 10:04	24° $\mathring{A}$ 22'28	conjunction	4841 Jan 11 06:33	21° $\mathring{B}$ 24'35 -0°16'57
evening set	4835 Dec 04 11:34	27° $\mathring{A}$ 47'08	minimum elong	4841 Jan 11 06:32	21° $\mathring{B}$ 24'35 0°16'56
			max. Earth dist.	4841 Jan 11 06:21	21° $\mathring{B}$ 24'33 19.95126 AU
conjunction	4835 Dec 20 13:04	28° $\mathring{A}$ 46'36 0°01'12	morning rise	4841 Jan 27 01:08	22° $\mathring{B}$ 22'16
minimum elong	4835 Dec 20 13:04	28° $\mathring{A}$ 46'36 0°01'12	retrograde	4841 Apr 28 11:07	25° $\mathring{B}$ 37'06
behind sun begin	4835 Dec 20 06:27	28° $\mathring{A}$ 45'36	opposition	4841 Jul 12 20:37	23° $\mathring{B}$ 37'13 -0°20'39
behind sun end	4835 Dec 20 19:41	28° $\mathring{A}$ 47'37	min. Earth dist.	4841 Jul 12 20:14	23° $\mathring{B}$ 37'16 17.98245 AU
max. Earth dist.	4835 Dec 20 05:10	28° $\mathring{A}$ 45'24 19.66013 AU	direct	4841 Sep 28 01:13	21° $\mathring{B}$ 34'54
morning rise	4836 Jan 05 11:21	29° $\mathring{A}$ 45'39	evening set	4841 Dec 31 02:05	24° $\mathring{B}$ 53'39
	4836 Jan 09 10:35	0° $\mathring{B}$			
retrograde	4836 Apr 05 14:38	3° $\mathring{B}$ 03'17	conjunction	4842 Jan 15 22:05	25° $\mathring{B}$ 51'22 -0°20'17
desc. node	4836 Apr 12 16:40	3° $\mathring{B}$ 01'56	minimum elong	4842 Jan 15 22:05	25° $\mathring{B}$ 51'22 0°20'17
opposition	4836 Jun 19 06:59	1° $\mathring{B}$ 02'24 -0°00'45	max. Earth dist.	4842 Jan 15 23:21	25° $\mathring{B}$ 51'33 20.01396 AU
min. Earth dist.	4836 Jun 19 13:30	1° $\mathring{B}$ 01'43 17.68589 AU	morning rise	4842 Jan 31 16:06	26° $\mathring{B}$ 48'47
	4836 Jul 15 02:37	30° $\mathring{R}$ $\mathring{A}$		4842 Apr 22 11:55	0° $\mathring{B}$
direct	4836 Sep 04 10:13	28° $\mathring{A}$ 58'14	retrograde	4842 May 03 04:26	0° $\mathring{B}$ 03'01
	4836 Oct 23 20:46	0° $\mathring{B}$		4842 May 13 20:36	30° $\mathring{R}$ $\mathring{B}$
evening set	4836 Dec 08 08:12	2° $\mathring{B}$ 22'01	opposition	4842 Jul 17 16:54	28° $\mathring{B}$ 03'18 -0°24'17
			min. Earth dist.	4842 Jul 17 14:21	28° $\mathring{B}$ 03'34 18.04511 AU
conjunction	4836 Dec 24 08:34	3° $\mathring{B}$ 21'13 -0°02'38	direct	4842 Oct 02 22:47	26° $\mathring{B}$ 01'20
minimum elong	4836 Dec 24 08:34	3° $\mathring{B}$ 21'13 0°02'38	evening set	4843 Jan 04 17:33	29° $\mathring{B}$ 18'59
behind sun begin	4836 Dec 24 01:58	3° $\mathring{B}$ 20'13		4843 Jan 16 01:25	0° $\mathring{B}$
behind sun end	4836 Dec 24 15:10	3° $\mathring{B}$ 22'13			
max. Earth dist.	4836 Dec 24 01:40	3° $\mathring{B}$ 20'10 19.71289 AU	conjunction	4843 Jan 20 12:49	0° $\mathring{B}$ 16'23 -0°23'29
morning rise	4837 Jan 09 06:06	4° $\mathring{B}$ 19'59	minimum elong	4843 Jan 20 12:49	0° $\mathring{B}$ 16'23 0°23'28
retrograde	4837 Apr 10 10:14	7° $\mathring{B}$ 37'05	max. Earth dist.	4843 Jan 20 15:23	0° $\mathring{B}$ 16'46 20.07644 AU
opposition	4837 Jun 24 05:48	5° $\mathring{B}$ 36'24 -0°04'54	morning rise	4843 Feb 05 06:17	1° $\mathring{B}$ 13'32
min. Earth dist.	4837 Jun 24 10:56	5° $\mathring{B}$ 35'52 17.74057 AU	retrograde	4843 May 07 19:11	4° $\mathring{B}$ 27'11
direct	4837 Sep 09 09:03	3° $\mathring{B}$ 32'34	opposition	4843 Jul 22 12:52	2° $\mathring{B}$ 27'36 -0°27'45
evening set	4837 Dec 13 03:41	6° $\mathring{B}$ 55'27	min. Earth dist.	4843 Jul 22 10:03	2° $\mathring{B}$ 27'53 18.10744 AU
			direct	4843 Oct 07 18:11	0° $\mathring{B}$ 25'58
conjunction	4837 Dec 29 03:14	7° $\mathring{B}$ 54'21 -0°06'20	evening set	4844 Jan 09 08:05	3° $\mathring{B}$ 42'28
minimum elong	4837 Dec 29 03:13	7° $\mathring{B}$ 54'21 0°06'19			
behind sun begin	4837 Dec 28 20:58	7° $\mathring{B}$ 53'24	conjunction	4844 Jan 25 02:39	4° $\mathring{B}$ 39'35 -0°26'32
behind sun end	4837 Dec 29 09:28	7° $\mathring{B}$ 55'18	minimum elong	4844 Jan 25 02:39	4° $\mathring{B}$ 39'35 0°26'32
max. Earth dist.	4837 Dec 28 22:45	7° $\mathring{B}$ 53'41 19.76927 AU	max. Earth dist.	4844 Jan 25 06:19	4° $\mathring{B}$ 40'08 20.13844 AU
morning rise	4838 Jan 13 23:54	8° $\mathring{B}$ 52'52	morning rise	4844 Feb 09 19:41	5° $\mathring{B}$ 36'28
retrograde	4838 Apr 15 05:31	12° $\mathring{B}$ 09'24	retrograde	4844 May 11 11:25	8° $\mathring{B}$ 49'32
opposition	4838 Jun 29 04:07	10° $\mathring{B}$ 08'57 -0°08'58	opposition	4844 Jul 26 08:03	6° $\mathring{B}$ 50'02 -0°31'02
min. Earth dist.	4838 Jun 29 07:16	10° $\mathring{B}$ 08'37 17.79826 AU	min. Earth dist.	4844 Jul 26 02:57	6° $\mathring{B}$ 50'34 18.16898 AU
direct	4838 Sep 14 08:03	8° $\mathring{B}$ 05'30	direct	4844 Oct 11 14:32	4° $\mathring{B}$ 48'43
evening set	4838 Dec 17 22:37	11° $\mathring{B}$ 27'24	evening set	4845 Jan 12 21:41	8° $\mathring{B}$ 04'05
conjunction	4839 Jan 02 21:08	12° $\mathring{B}$ 26'00 -0°09'57	conjunction	4845 Jan 28 15:40	9° $\mathring{B}$ 00'55 -0°29'24
minimum elong	4839 Jan 02 21:08	12° $\mathring{B}$ 26'00 0°09'57	minimum elong	4845 Jan 28 15:40	9° $\mathring{B}$ 00'55 0°29'23
behind sun begin	4839 Jan 02 15:45	12° $\mathring{B}$ 25'12	max. Earth dist.	4845 Jan 28 20:57	9° $\mathring{B}$ 01'42 20.19955 AU
behind sun end	4839 Jan 03 02:30	12° $\mathring{B}$ 26'49	morning rise	4845 Feb 13 08:16	9° $\mathring{B}$ 57'33
max. Earth dist.	4839 Jan 02 17:44	12° $\mathring{B}$ 25'30 19.82822 AU	retrograde	4845 May 16 00:31	13° $\mathring{B}$ 10'01
morning rise	4839 Jan 18 17:07	13° $\mathring{B}$ 24'14	opposition	4845 Jul 31 02:44	11° $\mathring{B}$ 10'36 -0°34'07
retrograde	4839 Apr 20 00:03	16° $\mathring{B}$ 40'13	min. Earth dist.	4845 Jul 30 21:23	11° $\mathring{B}$ 11'09 18.22978 AU
opposition	4839 Jul 04 01:58	14° $\mathring{B}$ 39'58 -0°12'58	direct	4845 Oct 16 08:00	9° $\mathring{B}$ 09'34
min. Earth dist.	4839 Jul 04 04:17	14° $\mathring{B}$ 39'44 17.85836 AU	evening set	4846 Jan 17 10:17	12° $\mathring{B}$ 23'46

conjunction	4846 Feb 02 03:43	13° $\approx$ 20'19 -0°32'05	minimum elong	4852 Feb 27 13:12	8° $\mathbb{H}$ 41'11 0°43'42
minimum elong	4846 Feb 02 03:42	13° $\approx$ 20'19 0°32'05	max. Earth dist.	4852 Feb 28 03:51	8° $\mathbb{H}$ 43'21 20.60977 AU
max. Earth dist.	4846 Feb 02 10:02	13° $\approx$ 21'16 20.26000 AU	morning rise	4852 Mar 14 05:05	9° $\mathbb{H}$ 36'23
morning rise	4846 Feb 17 20:06	14° $\approx$ 16'43	retrograde	4852 Jun 14 15:24	12° $\mathbb{H}$ 45'33
	4846 Mar 02 10:00	15° $\approx$	opposition	4852 Aug 30 18:16	10° $\mathbb{H}$ 46'43 -0°49'03
retrograde	4846 May 20 15:35	17° $\approx$ 28'37	min. Earth dist.	4852 Aug 30 02:36	10° $\mathbb{H}$ 48'17 18.63704 AU
opposition	4846 Aug 04 20:32	15° $\approx$ 29'14 -0°36'59	direct	4852 Nov 15 15:22	8° $\mathbb{H}$ 47'59
min. Earth dist.	4846 Aug 04 12:47	15° $\approx$ 30'01 18.28984 AU	evening set	4853 Feb 15 05:32	11° $\mathbb{H}$ 54'57
	4846 Aug 16 21:45	15° $\mathbb{R}$			
direct	4846 Oct 21 02:40	13° $\approx$ 28'29	conjunction	4853 Mar 02 20:56	12° $\mathbb{H}$ 49'55 -0°44'51
	4846 Dec 21 08:29	15° $\approx$	minimum elong	4853 Mar 02 20:56	12° $\mathbb{H}$ 49'55 0°44'51
evening set	4847 Jan 21 22:05	16° $\approx$ 41'33	max. Earth dist.	4853 Mar 03 13:26	12° $\mathbb{H}$ 52'20 20.66336 AU
			morning rise	4853 Mar 18 12:51	13° $\mathbb{H}$ 44'58
conjunction	4847 Feb 06 15:03	17° $\approx$ 37'50 -0°34'34	retrograde	4853 Jun 19 01:12	16° $\mathbb{H}$ 53'47
minimum elong	4847 Feb 06 15:02	17° $\approx$ 37'50 0°34'34	opposition	4853 Sep 04 07:53	14° $\mathbb{H}$ 55'04 -0°50'10
max. Earth dist.	4847 Feb 06 23:19	17° $\approx$ 39'04 20.31967 AU	min. Earth dist.	4853 Sep 03 16:11	14° $\mathbb{H}$ 56'38 18.68937 AU
morning rise	4847 Feb 22 07:05	18° $\approx$ 34'00	direct	4853 Nov 20 02:37	12° $\mathbb{H}$ 56'40
retrograde	4847 May 25 03:02	21° $\approx$ 45'21	evening set	4854 Feb 19 12:51	16° $\mathbb{H}$ 02'44
opposition	4847 Aug 09 13:44	19° $\approx$ 46'01 -0°39'37			
min. Earth dist.	4847 Aug 09 05:37	19° $\approx$ 46'51 18.34939 AU	conjunction	4854 Mar 07 04:10	16° $\mathbb{H}$ 57'32 -0°45'45
direct	4847 Oct 25 18:20	17° $\approx$ 45'34	minimum elong	4854 Mar 07 04:09	16° $\mathbb{H}$ 57'32 0°45'46
evening set	4848 Jan 26 09:07	20° $\approx$ 57'31	max. Earth dist.	4854 Mar 07 20:36	16° $\mathbb{H}$ 59'57 20.71424 AU
			morning rise	4854 Mar 22 20:26	17° $\mathbb{H}$ 52'28
conjunction	4848 Feb 11 01:33	21° $\approx$ 53'32 -0°36'51	retrograde	4854 Jun 23 13:14	21° $\mathbb{H}$ 00'58
minimum elong	4848 Feb 11 01:33	21° $\approx$ 53'32 0°36'50	opposition	4854 Sep 08 20:56	19° $\mathbb{H}$ 02'19 -0°51'02
max. Earth dist.	4848 Feb 11 10:50	21° $\approx$ 54'56 20.37908 AU	min. Earth dist.	4854 Sep 08 03:45	19° $\mathbb{H}$ 04'03 18.73863 AU
morning rise	4848 Feb 26 17:29	22° $\approx$ 49'29	direct	4854 Nov 24 13:46	17° $\mathbb{H}$ 04'14
retrograde	4848 May 28 17:08	26° $\approx$ 00'19	evening set	4855 Feb 23 19:42	20° $\mathbb{H}$ 09'28
opposition	4848 Aug 13 06:16	24° $\approx$ 01'04 -0°42'00			
min. Earth dist.	4848 Aug 12 19:35	24° $\approx$ 02'09 18.40865 AU	conjunction	4855 Mar 11 11:07	21° $\mathbb{H}$ 04'07 -0°46'25
direct	4848 Oct 29 10:45	22° $\approx$ 00'56	minimum elong	4855 Mar 11 11:07	21° $\mathbb{H}$ 04'07 0°46'25
evening set	4849 Jan 29 19:11	25° $\approx$ 11'48	max. Earth dist.	4855 Mar 12 05:05	21° $\mathbb{H}$ 06'45 20.76155 AU
			morning rise	4855 Mar 27 03:30	21° $\mathbb{H}$ 58'56
conjunction	4849 Feb 14 11:21	26° $\approx$ 07'35 -0°38'54	retrograde	4855 Jun 27 22:16	25° $\mathbb{H}$ 07'07
minimum elong	4849 Feb 14 11:21	26° $\approx$ 07'35 0°38'54	opposition	4855 Sep 13 09:34	23° $\mathbb{H}$ 08'32 -0°51'37
max. Earth dist.	4849 Feb 14 22:49	26° $\approx$ 09'18 20.43806 AU	min. Earth dist.	4855 Sep 12 16:33	23° $\mathbb{H}$ 10'15 18.78403 AU
morning rise	4849 Mar 02 03:04	27° $\approx$ 03'19	direct	4855 Nov 28 23:51	21° $\mathbb{H}$ 10'44
	4849 May 10 02:29	0° $\mathbb{H}$	evening set	4856 Feb 28 02:18	24° $\mathbb{H}$ 15'09
retrograde	4849 Jun 02 03:45	0° $\mathbb{H}$ 13'42			
	4849 Jun 25 17:33	30° $\mathbb{R}$	conjunction	4856 Mar 14 17:43	25° $\mathbb{H}$ 09'40 -0°46'51
opposition	4849 Aug 17 22:17	28° $\approx$ 14'31 -0°44'08	minimum elong	4856 Mar 14 17:43	25° $\mathbb{H}$ 09'40 0°46'52
min. Earth dist.	4849 Aug 17 11:09	28° $\approx$ 15'39 18.46746 AU	max. Earth dist.	4856 Mar 15 11:16	25° $\mathbb{H}$ 12'13 20.80496 AU
direct	4849 Nov 03 00:43	26° $\approx$ 14'44	morning rise	4856 Mar 30 10:34	26° $\mathbb{H}$ 04'22
evening set	4850 Feb 03 04:44	29° $\approx$ 24'34	retrograde	4856 Jul 01 09:43	29° $\mathbb{H}$ 12'18
	4850 Feb 13 05:30	0° $\mathbb{H}$	opposition	4856 Sep 16 21:42	27° $\mathbb{H}$ 13'43 -0°51'57
			min. Earth dist.	4856 Sep 16 03:36	27° $\mathbb{H}$ 15'32 18.82534 AU
conjunction	4850 Feb 18 20:32	0° $\mathbb{H}$ 20'07 -0°40'44	direct	4856 Dec 02 10:35	25° $\mathbb{H}$ 16'08
minimum elong	4850 Feb 18 20:32	0° $\mathbb{H}$ 20'07 0°40'42	evening set	4857 Mar 03 08:19	28° $\mathbb{H}$ 19'46
max. Earth dist.	4850 Feb 19 08:44	0° $\mathbb{H}$ 21'56 20.49656 AU			
morning rise	4850 Mar 06 12:19	1° $\mathbb{H}$ 15'40	conjunction	4857 Mar 19 00:04	29° $\mathbb{H}$ 14'10 -0°47'03
retrograde	4850 Jun 06 16:48	4° $\mathbb{H}$ 25'36	minimum elong	4857 Mar 19 00:04	29° $\mathbb{H}$ 14'10 0°47'02
opposition	4850 Aug 22 13:19	2° $\mathbb{H}$ 26'32 -0°46'02	max. Earth dist.	4857 Mar 19 18:56	29° $\mathbb{H}$ 16'55 20.84389 AU
min. Earth dist.	4850 Aug 21 23:56	2° $\mathbb{H}$ 27'53 18.52551 AU		4857 Apr 01 03:39	0° $\mathbb{Y}$
direct	4850 Nov 07 14:39	0° $\mathbb{H}$ 27'05	morning rise	4857 Apr 03 17:11	0° $\mathbb{Y}$ 08'48
evening set	4851 Feb 07 13:34	3° $\mathbb{H}$ 35'56	retrograde	4857 Jul 05 18:20	3° $\mathbb{Y}$ 16'27
			opposition	4857 Sep 21 09:20	1° $\mathbb{Y}$ 17'52 -0°52'02
conjunction	4851 Feb 23 05:15	4° $\mathbb{H}$ 31'17 -0°42'20	min. Earth dist.	4857 Sep 20 15:31	1° $\mathbb{Y}$ 19'39 18.86196 AU
minimum elong	4851 Feb 23 05:14	4° $\mathbb{H}$ 31'17 0°42'20		4857 Oct 26 19:45	30° $\mathbb{R}$ $\mathbb{H}$
max. Earth dist.	4851 Feb 23 19:27	4° $\mathbb{H}$ 33'23 20.55393 AU	direct	4857 Dec 06 19:39	29° $\mathbb{H}$ 20'28
morning rise	4851 Mar 10 20:56	5° $\mathbb{H}$ 26'39		4858 Jan 15 14:07	0° $\mathbb{Y}$
retrograde	4851 Jun 11 03:03	8° $\mathbb{H}$ 36'10	evening set	4858 Mar 07 14:10	2° $\mathbb{Y}$ 23'21
opposition	4851 Aug 27 04:07	6° $\mathbb{H}$ 37'14 -0°47'40			
min. Earth dist.	4851 Aug 26 14:26	6° $\mathbb{H}$ 38'36 18.58219 AU	conjunction	4858 Mar 23 06:03	3° $\mathbb{Y}$ 17'39 -0°47'00
direct	4851 Nov 12 03:09	4° $\mathbb{H}$ 38'09	minimum elong	4858 Mar 23 06:03	3° $\mathbb{Y}$ 17'39 0°47'00
evening set	4852 Feb 11 21:48	7° $\mathbb{H}$ 46'02	max. Earth dist.	4858 Mar 24 00:16	3° $\mathbb{Y}$ 20'18 20.87830 AU
			morning rise	4858 Apr 07 23:47	4° $\mathbb{Y}$ 12'12
conjunction	4852 Feb 27 13:12	8° $\mathbb{H}$ 41'11 -0°43'42	retrograde	4858 Jul 10 04:20	7° $\mathbb{Y}$ 19'36

opposition	4858 Sep 25 20:13	5° $\Upsilon$ 20'56	-0°51'50	conjunction	4865 Apr 19 18:36	1° $\mathcal{B}$ 19'26	-0°40'20
min. Earth dist.	4858 Sep 25 01:41	5° $\Upsilon$ 22'48	18.89414 AU	minimum elong	4865 Apr 19 18:36	1° $\mathcal{B}$ 19'26	0°40'21
direct	4858 Dec 11 05:38	3° $\Upsilon$ 23'40		max. Earth dist.	4865 Apr 20 16:04	1° $\mathcal{B}$ 22'31	21.01482 AU
evening set	4859 Mar 11 19:30	6° $\Upsilon$ 25'52		morning rise	4865 May 05 16:46	2° $\mathcal{B}$ 13'57	
				retrograde	4865 Aug 07 14:33	5° $\mathcal{B}$ 20'42	
conjunction	4859 Mar 27 11:49	7° $\Upsilon$ 20'05	-0°46'43	opposition	4865 Oct 24 13:25	3° $\mathcal{B}$ 21'37	-0°43'35
minimum elong	4859 Mar 27 11:49	7° $\Upsilon$ 20'05	0°46'43	min. Earth dist.	4865 Oct 23 17:38	3° $\mathcal{B}$ 23'36	19.01849 AU
max. Earth dist.	4859 Mar 28 07:23	7° $\Upsilon$ 22'55	20.90826 AU	direct	4866 Jan 08 08:47	1° $\mathcal{B}$ 25'02	
morning rise	4859 Apr 12 05:55	8° $\Upsilon$ 14'34		evening set	4866 Apr 08 03:57	4° $\mathcal{B}$ 24'16	
retrograde	4859 Jul 14 12:29	11° $\Upsilon$ 21'44					
opposition	4859 Sep 30 06:48	9° $\Upsilon$ 23'00	-0°51'23	conjunction	4866 Apr 23 23:53	5° $\mathcal{B}$ 18'25	-0°38'33
min. Earth dist.	4859 Sep 29 12:23	9° $\Upsilon$ 24'51	18.92206 AU	minimum elong	4866 Apr 23 23:53	5° $\mathcal{B}$ 18'25	0°38'33
direct	4859 Dec 15 14:06	7° $\Upsilon$ 25'50		max. Earth dist.	4866 Apr 24 20:10	5° $\mathcal{B}$ 21'20	21.02052 AU
evening set	4860 Mar 15 00:27	10° $\Upsilon$ 27'23		morning rise	4866 May 09 23:00	6° $\mathcal{B}$ 13'01	
				retrograde	4866 Aug 12 00:10	9° $\mathcal{B}$ 19'52	
conjunction	4860 Mar 30 17:01	11° $\Upsilon$ 21'31	-0°46'11	opposition	4866 Oct 28 21:34	7° $\mathcal{B}$ 20'45	-0°41'31
minimum elong	4860 Mar 30 17:01	11° $\Upsilon$ 21'31	0°46'12	min. Earth dist.	4866 Oct 28 02:00	7° $\mathcal{B}$ 22'43	19.02219 AU
max. Earth dist.	4860 Mar 31 12:09	11° $\Upsilon$ 24'17	20.93435 AU	direct	4867 Jan 12 14:10	5° $\mathcal{B}$ 24'14	
morning rise	4860 Apr 15 11:50	12° $\Upsilon$ 15'59		evening set	4867 Apr 12 08:46	8° $\mathcal{B}$ 23'22	
retrograde	4860 Jul 17 21:32	15° $\Upsilon$ 22'58					
opposition	4860 Oct 03 16:52	13° $\Upsilon$ 24'07	-0°50'40	conjunction	4867 Apr 28 05:32	9° $\mathcal{B}$ 17'35	-0°36'35
min. Earth dist.	4860 Oct 02 21:41	13° $\Upsilon$ 26'02	18.94641 AU	minimum elong	4867 Apr 28 05:33	9° $\mathcal{B}$ 17'35	0°36'36
direct	4860 Dec 18 22:36	11° $\Upsilon$ 27'03		max. Earth dist.	4867 Apr 29 02:36	9° $\mathcal{B}$ 20'37	21.02206 AU
evening set	4861 Mar 19 05:13	14° $\Upsilon$ 28'01		morning rise	4867 May 14 05:20	10° $\mathcal{B}$ 12'16	
				retrograde	4867 Aug 16 07:57	13° $\mathcal{B}$ 19'15	
conjunction	4861 Apr 03 22:20	15° $\Upsilon$ 22'07	-0°45'27	min. Earth dist.	4867 Nov 01 10:35	11° $\mathcal{B}$ 22'03	19.02145 AU
minimum elong	4861 Apr 03 22:20	15° $\Upsilon$ 22'07	0°45'27	opposition	4867 Nov 02 05:42	11° $\mathcal{B}$ 20'08	-0°39'15
max. Earth dist.	4861 Apr 04 18:54	15° $\Upsilon$ 25'05	20.95689 AU	direct	4868 Jan 16 20:30	9° $\mathcal{B}$ 23'41	
morning rise	4861 Apr 19 17:37	16° $\Upsilon$ 16'33		evening set	4868 Apr 15 13:53	12° $\mathcal{B}$ 22'45	
retrograde	4861 Jul 22 05:19	19° $\Upsilon$ 23'22					
min. Earth dist.	4861 Oct 07 07:12	17° $\Upsilon$ 26'22	18.96733 AU	conjunction	4868 May 01 11:17	13° $\mathcal{B}$ 17'03	-0°34'27
opposition	4861 Oct 08 02:20	17° $\Upsilon$ 24'27	-0°49'43	minimum elong	4868 May 01 11:17	13° $\mathcal{B}$ 17'03	0°34'28
direct	4861 Dec 23 06:20	15° $\Upsilon$ 27'28		max. Earth dist.	4868 May 02 06:50	13° $\mathcal{B}$ 19'52	21.01908 AU
evening set	4862 Mar 23 09:53	18° $\Upsilon$ 27'56		morning rise	4868 May 17 12:06	14° $\mathcal{B}$ 11'50	
					4868 Jun 01 07:39	15° $\mathcal{B}$	
conjunction	4862 Apr 08 03:22	19° $\Upsilon$ 22'00	-0°44'29	retrograde	4868 Aug 19 18:05	17° $\mathcal{B}$ 19'01	
minimum elong	4862 Apr 08 03:22	19° $\Upsilon$ 22'00	0°44'29	opposition	4868 Nov 05 13:47	15° $\mathcal{B}$ 19'50	-0°36'47
max. Earth dist.	4862 Apr 08 23:16	19° $\Upsilon$ 24'53	20.97626 AU	min. Earth dist.	4868 Nov 04 19:23	15° $\mathcal{B}$ 21'41	19.01601 AU
morning rise	4862 Apr 23 23:27	20° $\Upsilon$ 16'26			4868 Nov 13 20:10	15° $\mathcal{R}\mathcal{B}$	
retrograde	4862 Jul 26 14:00	23° $\Upsilon$ 23'10		direct	4869 Jan 20 02:07	13° $\mathcal{B}$ 23'24	
opposition	4862 Oct 12 11:30	21° $\Upsilon$ 24'11	-0°48'31		4869 Mar 24 09:21	15° $\mathcal{B}$	
min. Earth dist.	4862 Oct 11 15:47	21° $\Upsilon$ 26'09	18.98515 AU	evening set	4869 Apr 19 19:20	16° $\mathcal{B}$ 22'29	
direct	4862 Dec 27 13:05	19° $\Upsilon$ 27'17					
evening set	4863 Mar 27 14:14	22° $\Upsilon$ 27'20		conjunction	4869 May 05 17:42	17° $\mathcal{B}$ 16'54	-0°32'09
				minimum elong	4869 May 05 17:42	17° $\mathcal{B}$ 16'54	0°32'08
conjunction	4863 Apr 12 08:23	23° $\Upsilon$ 21'24	-0°43'18	max. Earth dist.	4869 May 06 13:33	17° $\mathcal{B}$ 19'45	21.01098 AU
minimum elong	4863 Apr 12 08:23	23° $\Upsilon$ 21'24	0°43'19	morning rise	4869 May 21 19:14	18° $\mathcal{B}$ 11'47	
max. Earth dist.	4863 Apr 13 05:36	23° $\Upsilon$ 24'27	20.99239 AU	retrograde	4869 Aug 24 01:55	21° $\mathcal{B}$ 19'09	
morning rise	4863 Apr 28 05:00	24° $\Upsilon$ 15'50		opposition	4869 Nov 09 21:37	19° $\mathcal{B}$ 19'55	-0°34'08
retrograde	4863 Jul 30 21:39	27° $\Upsilon$ 22'32		min. Earth dist.	4869 Nov 09 03:59	19° $\mathcal{B}$ 21'41	19.00517 AU
opposition	4863 Oct 16 20:25	25° $\Upsilon$ 23'29	-0°47'06	direct	4870 Jan 24 08:20	17° $\mathcal{B}$ 23'27	
min. Earth dist.	4863 Oct 16 00:40	25° $\Upsilon$ 25'28	18.99963 AU	evening set	4870 Apr 24 01:13	20° $\mathcal{B}$ 22'37	
direct	4863 Dec 31 20:20	23° $\Upsilon$ 26'43					
evening set	4864 Mar 30 18:47	26° $\Upsilon$ 26'24		conjunction	4870 May 10 00:16	21° $\mathcal{B}$ 17'08	-0°29'40
				minimum elong	4870 May 10 00:16	21° $\mathcal{B}$ 17'08	0°29'41
conjunction	4864 Apr 15 13:23	27° $\Upsilon$ 20'29	-0°41'55	max. Earth dist.	4870 May 10 18:08	21° $\mathcal{B}$ 19'42	20.99754 AU
minimum elong	4864 Apr 15 13:23	27° $\Upsilon$ 20'29	0°41'55	morning rise	4870 May 26 02:52	22° $\mathcal{B}$ 12'09	
max. Earth dist.	4864 Apr 16 09:47	27° $\Upsilon$ 23'25	21.00535 AU	retrograde	4870 Aug 28 11:37	25° $\mathcal{B}$ 19'44	
morning rise	4864 May 01 10:54	28° $\Upsilon$ 14'57		opposition	4870 Nov 14 05:36	23° $\mathcal{B}$ 20'23	-0°31'20
	4864 Jun 04 23:30	0° $\mathcal{B}$		min. Earth dist.	4870 Nov 13 13:00	23° $\mathcal{B}$ 22'03	18.98902 AU
retrograde	4864 Aug 03 06:44	1° $\mathcal{B}$ 21'40		direct	4871 Jan 28 14:16	21° $\mathcal{B}$ 23'50	
	4864 Oct 04 08:56	30° $\mathcal{R}\Upsilon$		evening set	4871 Apr 28 07:06	24° $\mathcal{B}$ 23'06	
min. Earth dist.	4864 Oct 19 09:02	29° $\Upsilon$ 24'35	19.01094 AU				
opposition	4864 Oct 20 05:02	29° $\Upsilon$ 22'35	-0°45'27	conjunction	4871 May 14 07:10	25° $\mathcal{B}$ 17'45	-0°27'03
direct	4865 Jan 04 02:03	27° $\Upsilon$ 25'53		minimum elong	4871 May 14 07:10	25° $\mathcal{B}$ 17'45	0°27'03
	4865 Mar 27 07:43	0° $\mathcal{B}$		max. Earth dist.	4871 May 15 01:14	25° $\mathcal{B}$ 20'21	20.97871 AU
evening set	4865 Apr 03 23:12	0° $\mathcal{B}$ 25'19		morning rise	4871 May 30 10:31	26° $\mathcal{B}$ 12'54	

retrograde	4871 Sep 01 20:08	29° <b>8</b> 20'43		max. Earth dist.	4877 Jun 07 22:14	19° <b>II</b> 34'35	20.78235 AU
opposition	4871 Nov 18 13:31	27° <b>8</b> 21'13	-0°28'21	morning rise	4877 Jun 23 18:23	20° <b>II</b> 29'00	
min. Earth dist.	4871 Nov 17 21:35	27° <b>8</b> 22'49	18.96757 AU	retrograde	4877 Sep 26 07:42	23° <b>II</b> 38'47	
direct	4872 Feb 01 20:52	25° <b>8</b> 24'33		opposition	4877 Dec 12 13:03	21° <b>II</b> 38'19	-0°07'57
evening set	4872 May 01 13:33	28° <b>8</b> 23'58		min. Earth dist.	4877 Dec 12 02:11	21° <b>II</b> 39'26	18.76130 AU
				direct	4878 Feb 25 11:06	19° <b>II</b> 40'26	
conjunction	4872 May 17 14:23	29° <b>8</b> 18'46	-0°24'18	evening set	4878 May 26 13:29	22° <b>II</b> 42'21	
minimum elong	4872 May 17 14:23	29° <b>8</b> 18'46	0°24'19				
max. Earth dist.	4872 May 18 06:28	29° <b>8</b> 21'04	20.95502 AU	conjunction	4878 Jun 11 19:52	23° <b>II</b> 38'18	-0°05'37
	4872 May 29 14:53	0° <b>II</b>		minimum elong	4878 Jun 11 19:52	23° <b>II</b> 38'18	0°05'38
morning rise	4872 Jun 02 18:50	0° <b>II</b> 14'04		behind sun begin	4878 Jun 11 13:27	23° <b>II</b> 37'24	
retrograde	4872 Sep 05 05:15	3° <b>II</b> 22'08		behind sun end	4878 Jun 12 02:17	23° <b>II</b> 39'12	
opposition	4872 Nov 21 21:18	1° <b>II</b> 22'27	-0°25'14	max. Earth dist.	4878 Jun 12 06:22	23° <b>II</b> 39'48	20.73977 AU
min. Earth dist.	4872 Nov 21 06:34	1° <b>II</b> 23'57	18.94165 AU	morning rise	4878 Jun 28 05:46	24° <b>II</b> 34'46	
	4872 Dec 29 11:21	30° <b>R</b> 8		retrograde	4878 Sep 30 19:21	27° <b>II</b> 45'01	
direct	4873 Feb 05 02:41	29° <b>8</b> 25'36		opposition	4878 Dec 16 21:44	25° <b>II</b> 44'26	-0°04'16
	4873 Mar 13 19:25	0° <b>II</b>		min. Earth dist.	4878 Dec 16 12:23	25° <b>II</b> 45'24	18.71759 AU
evening set	4873 May 05 20:14	2° <b>II</b> 25'16		direct	4879 Mar 01 17:41	23° <b>II</b> 46'20	
				evening set	4879 May 30 23:27	26° <b>II</b> 48'54	
conjunction	4873 May 21 22:08	3° <b>II</b> 20'13	-0°21'25				
minimum elong	4873 May 21 22:08	3° <b>II</b> 20'13	0°21'25	conjunction	4879 Jun 16 06:58	27° <b>II</b> 45'07	-0°02'16
max. Earth dist.	4873 May 22 14:27	3° <b>II</b> 22'34	20.92698 AU	minimum elong	4879 Jun 16 06:57	27° <b>II</b> 45'07	0°02'18
morning rise	4873 Jun 07 03:22	4° <b>II</b> 15'41		behind sun begin	4879 Jun 16 00:16	27° <b>II</b> 44'11	
retrograde	4873 Sep 09 14:36	7° <b>II</b> 24'01		behind sun end	4879 Jun 16 13:39	27° <b>II</b> 46'03	
opposition	4873 Nov 26 05:04	5° <b>II</b> 24'10	-0°21'59	max. Earth dist.	4879 Jun 16 17:31	27° <b>II</b> 46'38	20.69490 AU
min. Earth dist.	4873 Nov 25 14:53	5° <b>II</b> 25'36	18.91160 AU	morning rise	4879 Jul 02 17:32	28° <b>II</b> 41'48	
direct	4874 Feb 09 09:27	3° <b>II</b> 27'07			4879 Jul 27 06:24	0° <b>III</b>	
evening set	4874 May 10 03:27	6° <b>II</b> 27'05		retrograde	4879 Oct 05 08:12	1° <b>III</b> 52'33	
					4879 Dec 18 00:07	30° <b>R</b> <b>II</b>	
conjunction	4874 May 26 06:04	7° <b>II</b> 22'13	-0°18'25	opposition	4879 Dec 21 06:41	29° <b>II</b> 51'53	-0°00'33
minimum elong	4874 May 26 06:04	7° <b>II</b> 22'13	0°18'26	min. Earth dist.	4879 Dec 20 21:50	29° <b>II</b> 52'48	18.67145 AU
max. Earth dist.	4874 May 26 20:25	7° <b>II</b> 24'16	20.89522 AU	asc. node	4880 Feb 12 21:39	28° <b>II</b> 05'07	
morning rise	4874 Jun 11 12:22	8° <b>II</b> 17'51		direct	4880 Mar 05 01:52	27° <b>II</b> 53'35	
retrograde	4874 Sep 13 23:53	11° <b>II</b> 26'30			4880 May 16 23:31	0° <b>III</b>	
opposition	4874 Nov 30 12:53	9° <b>II</b> 26'28	-0°18'37	evening set	4880 Jun 03 10:37	0° <b>III</b> 56'54	
min. Earth dist.	4874 Nov 29 23:52	9° <b>II</b> 27'48	18.87821 AU				
direct	4875 Feb 13 15:14	7° <b>II</b> 29'12		conjunction	4880 Jun 19 18:52	1° <b>III</b> 53'21	0°01'13
evening set	4875 May 14 10:59	10° <b>II</b> 29'33		minimum elong	4880 Jun 19 18:52	1° <b>III</b> 53'21	0°01'12
				behind sun begin	4880 Jun 19 12:11	1° <b>III</b> 52'24	
conjunction	4875 May 30 14:42	11° <b>II</b> 24'52	-0°15'20	behind sun end	4880 Jun 20 01:34	1° <b>III</b> 54'17	
minimum elong	4875 May 30 14:42	11° <b>II</b> 24'52	0°15'20	max. Earth dist.	4880 Jun 20 02:59	1° <b>III</b> 54'30	20.64762 AU
behind sun begin	4875 May 30 12:47	11° <b>II</b> 24'36		morning rise	4880 Jul 06 06:27	2° <b>III</b> 50'17	
behind sun end	4875 May 30 16:37	11° <b>II</b> 25'08		retrograde	4880 Oct 08 20:49	6° <b>III</b> 01'33	
max. Earth dist.	4875 May 31 05:19	11° <b>II</b> 26'58	20.86028 AU	opposition	4880 Dec 24 15:58	4° <b>III</b> 00'48	0°03'12
morning rise	4875 Jun 15 21:44	12° <b>II</b> 20'42		min. Earth dist.	4880 Dec 24 09:09	4° <b>III</b> 01'30	18.62290 AU
retrograde	4875 Sep 18 10:01	15° <b>II</b> 29'41		direct	4881 Mar 09 08:55	2° <b>III</b> 02'16	
opposition	4875 Dec 04 20:47	13° <b>II</b> 29'30	-0°15'08	evening set	4881 Jun 07 22:31	5° <b>III</b> 06'24	
min. Earth dist.	4875 Dec 04 08:10	13° <b>II</b> 30'47	18.84179 AU				
direct	4876 Feb 17 21:56	11° <b>II</b> 32'02		conjunction	4881 Jun 24 07:51	6° <b>III</b> 03'07	0°04'38
evening set	4876 May 17 19:11	14° <b>II</b> 32'49		minimum elong	4881 Jun 24 07:50	6° <b>III</b> 03'07	0°04'37
				behind sun begin	4881 Jun 24 01:17	6° <b>III</b> 02'11	
conjunction	4876 Jun 02 23:41	15° <b>II</b> 28'20	-0°12'09	behind sun end	4881 Jun 24 14:24	6° <b>III</b> 04'03	
minimum elong	4876 Jun 02 23:41	15° <b>II</b> 28'20	0°12'09	max. Earth dist.	4881 Jun 24 15:31	6° <b>III</b> 04'13	20.59765 AU
behind sun begin	4876 Jun 02 19:13	15° <b>II</b> 27'43		morning rise	4881 Jul 10 20:01	7° <b>III</b> 00'17	
behind sun end	4876 Jun 03 04:09	15° <b>II</b> 28'58		retrograde	4881 Oct 13 11:19	10° <b>III</b> 12'07	
max. Earth dist.	4876 Jun 03 12:16	15° <b>II</b> 30'08	20.82260 AU	opposition	4881 Dec 29 01:40	8° <b>III</b> 11'16	0°06'58
morning rise	4876 Jun 19 07:50	16° <b>II</b> 24'22		min. Earth dist.	4881 Dec 28 19:39	8° <b>III</b> 11'53	18.57140 AU
retrograde	4876 Sep 21 20:30	19° <b>II</b> 33'45		direct	4882 Mar 13 18:40	6° <b>III</b> 12'30	
opposition	4876 Dec 08 04:55	17° <b>II</b> 33'24	-0°11'35	evening set	4882 Jun 12 11:20	9° <b>III</b> 17'29	
min. Earth dist.	4876 Dec 07 17:36	17° <b>II</b> 34'33	18.80283 AU				
direct	4877 Feb 21 04:06	15° <b>II</b> 35'43		conjunction	4882 Jun 28 21:20	10° <b>III</b> 14'27	0°08'01
evening set	4877 May 22 03:55	18° <b>II</b> 37'01		minimum elong	4882 Jun 28 21:21	10° <b>III</b> 14'28	0°08'00
				behind sun begin	4882 Jun 28 15:22	10° <b>III</b> 13'37	
conjunction	4877 Jun 07 09:33	19° <b>II</b> 32'46	-0°08'55	behind sun end	4882 Jun 29 03:19	10° <b>III</b> 15'18	
minimum elong	4877 Jun 07 09:32	19° <b>II</b> 32'46	0°08'56	max. Earth dist.	4882 Jun 29 02:13	10° <b>III</b> 15'09	20.54463 AU
behind sun begin	4877 Jun 07 03:50	19° <b>II</b> 31'58		morning rise	4882 Jul 15 10:24	11° <b>III</b> 11'53	
behind sun end	4877 Jun 07 15:15	19° <b>II</b> 33'34		retrograde	4882 Oct 18 00:32	14° <b>III</b> 24'17	

opposition	4883 Jan 02 11:59	12° $\mathring{U}$ 23'19	0°10'44	opposition	4889 Jan 27 10:34	8° $\mathring{O}$ 07'58	0°31'49
min. Earth dist.	4883 Jan 02 08:14	12° $\mathring{U}$ 23'42	18.51688 AU	min. Earth dist.	4889 Jan 27 15:40	8° $\mathring{O}$ 07'26	18.14472 AU
direct	4883 Mar 18 02:48	10° $\mathring{U}$ 24'15		direct	4889 Apr 12 01:11	6° $\mathring{O}$ 06'39	
evening set	4883 Jun 17 00:56	13° $\mathring{U}$ 30'08		evening set	4889 Jul 13 04:16	9° $\mathring{O}$ 18'40	
conjunction	4883 Jul 03 11:59	14° $\mathring{U}$ 27'24	0°11'23	conjunction	4889 Jul 29 19:38	10° $\mathring{O}$ 17'37	0°30'04
minimum elong	4883 Jul 03 11:58	14° $\mathring{U}$ 27'23	0°11'22	minimum elong	4889 Jul 29 19:38	10° $\mathring{O}$ 17'37	0°30'03
behind sun begin	4883 Jul 03 07:08	14° $\mathring{U}$ 26'42		max. Earth dist.	4889 Jul 29 13:32	10° $\mathring{O}$ 16'43	20.11300 AU
behind sun end	4883 Jul 03 16:49	14° $\mathring{U}$ 28'05		morning rise	4889 Aug 15 12:20	11° $\mathring{O}$ 16'48	
max. Earth dist.	4883 Jul 03 16:08	14° $\mathring{U}$ 27'59	20.48856 AU	retrograde	4889 Nov 17 16:51	14° $\mathring{O}$ 33'09	
morning rise	4883 Jul 20 01:35	15° $\mathring{U}$ 25'03		opposition	4890 Feb 01 00:04	12° $\mathring{O}$ 31'00	0°34'53
retrograde	4883 Oct 22 16:20	18° $\mathring{U}$ 38'01		min. Earth dist.	4890 Feb 01 05:20	12° $\mathring{O}$ 30'26	18.08131 AU
opposition	4884 Jan 06 22:34	16° $\mathring{U}$ 36'54	0°14'27	direct	4890 Apr 16 16:04	10° $\mathring{O}$ 29'18	
min. Earth dist.	4884 Jan 06 19:38	16° $\mathring{U}$ 37'13	18.45925 AU	evening set	4890 Jul 17 23:41	13° $\mathring{O}$ 42'27	
direct	4884 Mar 21 14:00	14° $\mathring{U}$ 37'32		conjunction	4890 Aug 03 15:27	14° $\mathring{O}$ 41'40	0°32'44
evening set	4884 Jun 20 15:31	17° $\mathring{U}$ 44'21		minimum elong	4890 Aug 03 15:27	14° $\mathring{O}$ 41'40	0°32'44
conjunction	4884 Jul 07 03:15	18° $\mathring{U}$ 41'53	0°14'42	max. Earth dist.	4890 Aug 03 07:27	14° $\mathring{O}$ 40'29	20.05007 AU
minimum elong	4884 Jul 07 03:15	18° $\mathring{U}$ 41'53	0°14'41		4890 Aug 08 18:15	15° $\mathring{O}$	
behind sun begin	4884 Jul 07 00:39	18° $\mathring{U}$ 41'30		morning rise	4890 Aug 20 08:28	15° $\mathring{O}$ 41'06	
behind sun end	4884 Jul 07 05:51	18° $\mathring{U}$ 42'15		retrograde	4890 Nov 22 09:44	18° $\mathring{O}$ 58'02	
max. Earth dist.	4884 Jul 07 04:26	18° $\mathring{U}$ 42'03	20.42956 AU	opposition	4891 Feb 05 14:23	16° $\mathring{O}$ 55'45	0°37'46
morning rise	4884 Jul 23 17:41	19° $\mathring{U}$ 39'48		min. Earth dist.	4891 Feb 05 21:41	16° $\mathring{O}$ 54'58	18.01916 AU
retrograde	4884 Oct 26 06:19	22° $\mathring{U}$ 53'19			4891 Apr 05 21:44	15° $\mathring{R}$ $\mathring{O}$	
opposition	4885 Jan 10 09:45	20° $\mathring{U}$ 52'02	0°18'07	direct	4891 Apr 21 06:29	14° $\mathring{O}$ 53'42	
min. Earth dist.	4885 Jan 10 09:14	20° $\mathring{U}$ 52'06	18.39898 AU		4891 May 06 14:43	15° $\mathring{O}$	
direct	4885 Mar 25 23:41	18° $\mathring{U}$ 52'17		evening set	4891 Jul 22 20:00	18° $\mathring{O}$ 08'00	
evening set	4885 Jun 25 06:47	22° $\mathring{U}$ 00'05		conjunction	4891 Aug 08 12:20	19° $\mathring{O}$ 07'30	0°35'13
conjunction	4885 Jul 11 19:28	22° $\mathring{U}$ 57'54	0°17'59	minimum elong	4891 Aug 08 12:20	19° $\mathring{O}$ 07'30	0°35'12
minimum elong	4885 Jul 11 19:28	22° $\mathring{U}$ 57'54	0°17'59	max. Earth dist.	4891 Aug 08 03:25	19° $\mathring{O}$ 06'10	19.98876 AU
max. Earth dist.	4885 Jul 11 19:52	22° $\mathring{U}$ 57'57	20.36817 AU	morning rise	4891 Aug 25 05:32	20° $\mathring{O}$ 07'09	
morning rise	4885 Jul 28 10:20	23° $\mathring{U}$ 56'04		retrograde	4891 Nov 27 04:48	23° $\mathring{O}$ 24'40	
retrograde	4885 Oct 30 22:46	27° $\mathring{U}$ 10'08		opposition	4892 Feb 10 05:00	21° $\mathring{O}$ 22'18	0°40'26
opposition	4886 Jan 14 21:07	25° $\mathring{U}$ 08'41	0°21'43	min. Earth dist.	4892 Feb 10 12:26	21° $\mathring{O}$ 21'30	17.95872 AU
min. Earth dist.	4886 Jan 14 21:15	25° $\mathring{U}$ 08'40	18.33658 AU	direct	4892 Apr 24 22:51	19° $\mathring{O}$ 19'55	
direct	4886 Mar 30 11:57	23° $\mathring{U}$ 08'34		evening set	4892 Jul 26 17:21	22° $\mathring{O}$ 35'25	
evening set	4886 Jun 29 22:59	26° $\mathring{U}$ 17'21		conjunction	4892 Aug 12 10:03	23° $\mathring{O}$ 35'10	0°37'31
conjunction	4886 Jul 16 12:15	27° $\mathring{U}$ 15'27	0°21'10	minimum elong	4892 Aug 12 10:03	23° $\mathring{O}$ 35'10	0°37'30
minimum elong	4886 Jul 16 12:15	27° $\mathring{U}$ 15'27	0°21'10	max. Earth dist.	4892 Aug 11 23:31	23° $\mathring{O}$ 33'36	19.92917 AU
max. Earth dist.	4886 Jul 16 10:00	27° $\mathring{U}$ 15'07	20.30506 AU	morning rise	4892 Aug 29 03:22	24° $\mathring{O}$ 35'03	
morning rise	4886 Aug 02 03:48	28° $\mathring{U}$ 13'53		retrograde	4892 Nov 30 23:08	27° $\mathring{O}$ 53'08	
	4886 Sep 04 22:49	0° $\mathring{O}$		opposition	4893 Feb 13 20:35	25° $\mathring{O}$ 50'43	0°42'53
retrograde	4886 Nov 04 13:47	1° $\mathring{O}$ 28'31		min. Earth dist.	4893 Feb 14 06:07	25° $\mathring{O}$ 49'41	17.90015 AU
	4887 Jan 06 03:43	30° $\mathring{R}$ $\mathring{U}$		direct	4893 Apr 29 14:41	23° $\mathring{O}$ 48'02	
opposition	4887 Jan 19 09:11	29° $\mathring{U}$ 26'52	0°25'13	evening set	4893 Jul 31 15:31	27° $\mathring{O}$ 04'44	
min. Earth dist.	4887 Jan 19 11:38	29° $\mathring{U}$ 26'37	18.27301 AU	conjunction	4893 Aug 17 08:32	28° $\mathring{O}$ 04'45	0°39'36
direct	4887 Apr 03 23:04	27° $\mathring{U}$ 26'21		minimum elong	4893 Aug 17 08:32	28° $\mathring{O}$ 04'45	0°39'36
	4887 Jun 23 23:14	0° $\mathring{O}$		max. Earth dist.	4893 Aug 16 20:44	28° $\mathring{O}$ 02'58	19.87159 AU
evening set	4887 Jul 04 15:44	0° $\mathring{O}$ 36'10		morning rise	4893 Sep 03 01:54	29° $\mathring{O}$ 04'50	
conjunction	4887 Jul 21 05:53	1° $\mathring{O}$ 34'33	0°24'16		4893 Sep 19 05:50	0° $\mathring{O}$ $\mathring{P}$	
minimum elong	4887 Jul 21 05:52	1° $\mathring{O}$ 34'33	0°24'16	retrograde	4893 Dec 05 19:56	2° $\mathring{O}$ $\mathring{P}$ 23'30	
max. Earth dist.	4887 Jul 21 02:57	1° $\mathring{O}$ 34'08	20.24112 AU	opposition	4894 Feb 18 12:38	0° $\mathring{O}$ $\mathring{P}$ 21'02	0°45'05
morning rise	4887 Aug 06 21:49	2° $\mathring{O}$ 33'15		min. Earth dist.	4894 Feb 18 22:24	0° $\mathring{O}$ $\mathring{P}$ 19'59	17.84351 AU
retrograde	4887 Nov 09 06:57	5° $\mathring{O}$ 48'27			4894 Feb 26 16:26	30° $\mathring{R}$ $\mathring{O}$	
opposition	4888 Jan 23 21:36	3° $\mathring{O}$ 46'37	0°28'35	direct	4894 May 04 08:56	28° $\mathring{O}$ 18'03	
min. Earth dist.	4888 Jan 24 00:26	3° $\mathring{O}$ 46'19	18.20881 AU		4894 Jul 07 08:09	0° $\mathring{O}$ $\mathring{P}$	
direct	4888 Apr 07 12:33	1° $\mathring{O}$ 45'42		evening set	4894 Aug 05 14:39	1° $\mathring{O}$ $\mathring{P}$ 35'57	
evening set	4888 Jul 08 09:40	4° $\mathring{O}$ 56'36		conjunction	4894 Aug 22 07:54	2° $\mathring{O}$ $\mathring{P}$ 36'13	0°41'27
conjunction	4888 Jul 25 00:19	5° $\mathring{O}$ 55'16	0°27'14	minimum elong	4894 Aug 22 07:54	2° $\mathring{O}$ $\mathring{P}$ 36'13	0°41'26
minimum elong	4888 Jul 25 00:19	5° $\mathring{O}$ 55'16	0°27'14	max. Earth dist.	4894 Aug 21 18:51	2° $\mathring{O}$ $\mathring{P}$ 34'15	19.81575 AU
max. Earth dist.	4888 Jul 24 19:00	5° $\mathring{O}$ 54'29	20.17682 AU	morning rise	4894 Sep 08 01:09	3° $\mathring{O}$ $\mathring{P}$ 36'31	
morning rise	4888 Aug 10 16:46	6° $\mathring{O}$ 54'12		retrograde	4894 Dec 10 15:36	6° $\mathring{O}$ $\mathring{P}$ 55'42	
retrograde	4888 Nov 12 22:50	10° $\mathring{O}$ 09'58		opposition	4895 Feb 23 05:34	4° $\mathring{O}$ $\mathring{P}$ 53'14	0°47'02



min. Earth dist.	4895 Feb 23 17:28	4° <del>7</del> 51'57	17.78863 AU	conjunction	4901 Sep 25 20:34	4° <del>5</del> 59'34	0°46'46
direct	4895 May 09 01:54	2° <del>7</del> 49'58		minimum elong	4901 Sep 25 20:34	4° <del>5</del> 59'34	0°46'46
evening set	4895 Aug 10 14:37	6° <del>7</del> 09'02		max. Earth dist.	4901 Sep 24 22:50	4° <del>5</del> 56'13	19.48357 AU
				morning rise	4901 Oct 12 11:28	6° <del>5</del> 00'50	
conjunction	4895 Aug 27 08:01	7° <del>7</del> 09'31	0°43'03	retrograde	4902 Jan 13 03:40	9° <del>5</del> 22'32	
minimum elong	4895 Aug 27 08:01	7° <del>7</del> 09'31	0°43'04	opposition	4902 Mar 27 21:37	7° <del>5</del> 19'37	0°51'54
max. Earth dist.	4895 Aug 26 17:08	7° <del>7</del> 07'15	19.76173 AU	min. Earth dist.	4902 Mar 28 15:37	7° <del>5</del> 17'38	17.46652 AU
morning rise	4895 Sep 13 01:17	8° <del>7</del> 10'01		direct	4902 Jun 11 07:08	5° <del>5</del> 14'12	
retrograde	4895 Dec 15 14:07	11° <del>7</del> 29'43		evening set	4902 Sep 14 07:25	8° <del>5</del> 40'01	
opposition	4896 Feb 27 23:07	9° <del>7</del> 27'11	0°48'41				
min. Earth dist.	4896 Feb 28 11:29	9° <del>7</del> 25'51	17.73540 AU	conjunction	4902 Sep 30 23:51	9° <del>5</del> 41'37	0°46'19
direct	4896 May 12 21:52	7° <del>7</del> 23'37		minimum elong	4902 Sep 30 23:51	9° <del>5</del> 41'37	0°46'19
evening set	4896 Aug 14 15:29	10° <del>7</del> 43'49		max. Earth dist.	4902 Sep 30 02:59	9° <del>5</del> 38'23	19.44998 AU
				morning rise	4902 Oct 17 13:58	10° <del>5</del> 42'55	
conjunction	4896 Aug 31 09:02	11° <del>7</del> 44'31	0°44'24	retrograde	4903 Jan 18 03:03	14° <del>5</del> 04'47	
minimum elong	4896 Aug 31 09:02	11° <del>7</del> 44'31	0°44'24	opposition	4903 Apr 01 19:08	12° <del>5</del> 01'50	0°51'14
max. Earth dist.	4896 Aug 30 17:09	11° <del>7</del> 42'06	19.70913 AU	min. Earth dist.	4903 Apr 02 13:19	11° <del>5</del> 59'51	17.43547 AU
morning rise	4896 Sep 17 01:56	12° <del>7</del> 45'11		direct	4903 Jun 16 07:40	9° <del>5</del> 56'13	
retrograde	4896 Dec 19 11:03	16° <del>7</del> 05'20		evening set	4903 Sep 19 11:21	13° <del>5</del> 22'44	
opposition	4897 Mar 03 17:26	14° <del>7</del> 02'46	0°50'03	max. Earth dist.	4903 Oct 05 05:00	14° <del>5</del> 20'57	19.42165 AU
min. Earth dist.	4897 Mar 04 07:47	14° <del>7</del> 01'13	17.68371 AU				
direct	4897 May 17 16:44	11° <del>7</del> 58'52		conjunction	4903 Oct 06 03:10	14° <del>5</del> 24'24	0°45'32
evening set	4897 Aug 19 17:02	15° <del>7</del> 20'10		minimum elong	4903 Oct 06 03:10	14° <del>5</del> 24'24	0°45'33
				morning rise	4903 Oct 22 16:43	15° <del>5</del> 25'45	
conjunction	4897 Sep 05 10:29	16° <del>7</del> 21'04	0°45'29	retrograde	4904 Jan 23 01:13	18° <del>5</del> 47'44	
minimum elong	4897 Sep 05 10:29	16° <del>7</del> 21'04	0°45'29	opposition	4904 Apr 05 17:14	16° <del>5</del> 44'47	0°50'12
max. Earth dist.	4897 Sep 04 16:31	16° <del>7</del> 18'19	19.65843 AU	min. Earth dist.	4904 Apr 06 11:43	16° <del>5</del> 42'46	17.41005 AU
morning rise	4897 Sep 22 03:15	17° <del>7</del> 21'53		direct	4904 Jun 20 07:50	14° <del>5</del> 39'00	
retrograde	4897 Dec 24 10:01	20° <del>7</del> 42'27		evening set	4904 Sep 23 15:16	18° <del>5</del> 06'09	
opposition	4898 Mar 08 12:21	18° <del>7</del> 39'48	0°51'06	max. Earth dist.	4904 Oct 09 09:35	19° <del>5</del> 04'34	19.39909 AU
min. Earth dist.	4898 Mar 09 03:08	18° <del>7</del> 38'12	17.63410 AU				
direct	4898 May 22 13:56	16° <del>7</del> 35'35		conjunction	4904 Oct 10 06:39	19° <del>5</del> 07'51	0°44'27
evening set	4898 Aug 24 18:54	19° <del>7</del> 57'53		minimum elong	4904 Oct 10 06:39	19° <del>5</del> 07'51	0°44'27
				morning rise	4904 Oct 26 19:18	20° <del>5</del> 09'12	
conjunction	4898 Sep 10 12:25	20° <del>7</del> 58'59	0°46'16	retrograde	4905 Jan 27 01:04	23° <del>5</del> 31'17	
minimum elong	4898 Sep 10 12:25	20° <del>7</del> 58'59	0°46'16	opposition	4905 Apr 10 15:43	21° <del>5</del> 28'24	0°48'50
max. Earth dist.	4898 Sep 09 18:10	20° <del>7</del> 56'11	19.60989 AU	min. Earth dist.	4905 Apr 11 09:41	21° <del>5</del> 26'26	17.39041 AU
morning rise	4898 Sep 27 04:41	21° <del>7</del> 59'57		direct	4905 Jun 25 10:01	19° <del>5</del> 22'31	
retrograde	4898 Dec 29 07:50	25° <del>7</del> 20'51		evening set	4905 Sep 28 19:25	22° <del>5</del> 50'13	
opposition	4899 Mar 13 07:57	23° <del>7</del> 18'09	0°51'49				
min. Earth dist.	4899 Mar 14 00:14	23° <del>7</del> 16'22	17.58689 AU	conjunction	4905 Oct 15 10:04	23° <del>5</del> 51'56	0°43'04
direct	4899 May 27 10:46	21° <del>7</del> 13'37		minimum elong	4905 Oct 15 10:04	23° <del>5</del> 51'56	0°43'05
evening set	4899 Aug 29 21:35	24° <del>7</del> 36'53		max. Earth dist.	4905 Oct 14 12:20	23° <del>5</del> 48'33	19.38254 AU
				morning rise	4905 Oct 31 21:59	24° <del>5</del> 53'17	
conjunction	4899 Sep 15 14:49	25° <del>7</del> 38'08	0°46'45	retrograde	4906 Jan 31 23:24	28° <del>5</del> 15'25	
minimum elong	4899 Sep 15 14:49	25° <del>7</del> 38'08	0°46'44	opposition	4906 Apr 15 14:43	26° <del>5</del> 12'38	0°47'08
max. Earth dist.	4899 Sep 14 18:30	25° <del>7</del> 35'01	19.56421 AU	min. Earth dist.	4906 Apr 16 09:02	26° <del>5</del> 10'38	17.37698 AU
morning rise	4899 Oct 02 06:50	26° <del>7</del> 39'13		direct	4906 Jun 30 10:44	24° <del>5</del> 06'42	
	4899 Dec 30 07:14	0° <del>5</del>		evening set	4906 Oct 03 23:21	27° <del>5</del> 34'52	
retrograde	4900 Jan 03 06:38	0° <del>5</del> 00'26					
	4900 Jan 07 05:38	30° <del>8</del>		conjunction	4906 Oct 20 13:26	28° <del>5</del> 36'35	0°41'23
opposition	4900 Mar 18 03:52	27° <del>7</del> 57'39	0°52'12	minimum elong	4906 Oct 20 13:26	28° <del>5</del> 36'35	0°41'23
min. Earth dist.	4900 Mar 18 20:38	27° <del>7</del> 55'49	17.54287 AU	max. Earth dist.	4906 Oct 19 16:44	28° <del>5</del> 33'21	19.37211 AU
direct	4900 Jun 01 09:07	25° <del>7</del> 52'47		morning rise	4906 Nov 06 00:29	29° <del>5</del> 37'54	
evening set	4900 Sep 04 00:34	29° <del>7</del> 16'59			4906 Nov 12 02:54	0° <del>7</del>	
	4900 Sep 15 18:37	0° <del>5</del>		retrograde	4907 Feb 05 23:58	3° <del>7</del> 00'02	
				opposition	4907 Apr 20 13:59	0° <del>7</del> 57'24	0°45'06
conjunction	4900 Sep 20 17:45	0° <del>5</del> 18'23	0°46'55	min. Earth dist.	4907 Apr 21 07:25	0° <del>7</del> 55'30	17.36926 AU
minimum elong	4900 Sep 20 17:45	0° <del>5</del> 18'23	0°46'55		4907 May 13 08:32	30° <del>8</del>	
max. Earth dist.	4900 Sep 19 21:42	0° <del>5</del> 15'17	19.52187 AU	direct	4907 Jul 05 13:50	28° <del>5</del> 51'29	
morning rise	4900 Oct 07 09:04	1° <del>5</del> 19'34			4907 Aug 26 05:56	0° <del>7</del>	
retrograde	4901 Jan 08 05:16	4° <del>5</del> 41'01		evening set	4907 Oct 09 03:34	2° <del>7</del> 20'01	
opposition	4901 Mar 23 00:31	2° <del>5</del> 38'10	0°52'14				
min. Earth dist.	4901 Mar 23 18:11	2° <del>5</del> 36'15	17.50246 AU	conjunction	4907 Oct 25 16:49	3° <del>7</del> 21'43	0°39'26
direct	4901 Jun 06 07:56	0° <del>5</del> 33'02		minimum elong	4907 Oct 25 16:49	3° <del>7</del> 21'43	0°39'26
evening set	4901 Sep 09 03:55	3° <del>5</del> 58'04		max. Earth dist.	4907 Oct 24 19:57	3° <del>7</del> 18'27	19.36715 AU
				morning rise	4907 Nov 11 02:58	4° <del>7</del> 22'58	

retrograde	4908 Feb 10 22:54	7°M.45'04		opposition	4914 May 23 16:09	4°♂10'11	0°23'20
opposition	4908 Apr 24 13:41	5°M.42'36	0°42'46	min. Earth dist.	4914 May 24 07:17	4°♂08'33	17.44778 AU
min. Earth dist.	4908 Apr 25 07:47	5°M.40'37	17.36701 AU	direct	4914 Aug 08 07:01	2°♂04'41	
direct	4908 Jul 09 14:56	3°M.36'41		evening set	4914 Nov 12 00:17	5°♂32'38	
evening set	4908 Oct 13 07:38	7°M.05'31					
conjunction	4908 Oct 29 20:04	8°M.07'08	0°37'12	conjunction	4914 Nov 28 06:55	6°♂33'23	0°19'11
minimum elong	4908 Oct 29 20:04	8°M.07'08	0°37'13	minimum elong	4914 Nov 28 06:55	6°♂33'23	0°19'11
max. Earth dist.	4908 Oct 28 23:47	8°M.03'58	19.36745 AU	max. Earth dist.	4914 Nov 27 14:13	6°♂30'46	19.46133 AU
morning rise	4908 Nov 15 05:17	9°M.08'20		morning rise	4914 Dec 14 10:12	7°♂33'37	
retrograde	4909 Feb 14 23:54	12°M.30'19		retrograde	4915 Mar 15 17:18	10°♂53'45	
opposition	4909 Apr 29 13:43	10°M.28'00	0°40'09	opposition	4915 May 28 16:25	8°♂52'05	0°19'25
min. Earth dist.	4909 Apr 30 06:38	10°M.26'10	17.36963 AU	min. Earth dist.	4915 May 29 05:46	8°♂50'39	17.47617 AU
direct	4909 Jul 14 18:13	8°M.22'09		direct	4915 Aug 13 11:07	6°♂46'42	
evening set	4909 Oct 18 11:21	11°M.51'07		evening set	4915 Nov 17 00:50	10°♂14'08	
conjunction	4909 Nov 03 22:56	12°M.52'40	0°34'43	conjunction	4915 Dec 03 06:35	11°♂14'38	0°15'37
minimum elong	4909 Nov 03 22:56	12°M.52'40	0°34'43	minimum elong	4915 Dec 03 06:35	11°♂14'38	0°15'38
max. Earth dist.	4909 Nov 03 03:07	12°M.49'33	19.37236 AU	behind sun begin	4915 Dec 03 05:04	11°♂14'24	
morning rise	4909 Nov 20 07:06	13°M.53'44		behind sun end	4915 Dec 03 08:07	11°♂14'52	
	4909 Dec 09 02:48	15°M.		max. Earth dist.	4915 Dec 02 16:16	11°♂12'25	19.49195 AU
retrograde	4910 Feb 19 23:07	17°M.15'35		morning rise	4915 Dec 19 08:41	12°♂14'39	
opposition	4910 May 04 14:08	15°M.13'24	0°37'14	retrograde	4916 Mar 19 13:25	15°♂34'17	
min. Earth dist.	4910 May 05 07:42	15°M.11'30	17.37686 AU	opposition	4916 Jun 01 16:37	13°♂32'44	0°15'23
	4910 May 09 17:48	15°R.M.		min. Earth dist.	4916 Jun 02 05:30	13°♂31'21	17.50904 AU
direct	4910 Jul 19 19:25	13°M.07'36		direct	4916 Aug 17 13:17	11°♂27'29	
	4910 Sep 25 07:12	15°M.		evening set	4916 Nov 21 00:45	14°♂54'17	
evening set	4910 Oct 23 14:57	16°M.36'36		conjunction	4916 Dec 07 05:17	15°♂54'33	0°11'59
max. Earth dist.	4910 Nov 08 05:57	17°M.34'57	19.38183 AU	minimum elong	4916 Dec 07 05:16	15°♂54'33	0°11'59
conjunction	4910 Nov 09 01:34	17°M.38'02	0°32'00	behind sun begin	4916 Dec 07 00:41	15°♂53'51	
minimum elong	4910 Nov 09 01:34	17°M.38'02	0°32'01	behind sun end	4916 Dec 07 09:51	15°♂55'15	
morning rise	4910 Nov 25 08:51	18°M.38'59		max. Earth dist.	4916 Dec 06 15:22	15°♂52'23	19.52731 AU
retrograde	4911 Feb 24 23:50	22°M.00'35		morning rise	4916 Dec 23 06:33	16°♂54'20	
opposition	4911 May 09 14:25	19°M.58'33	0°34'05	retrograde	4917 Mar 24 10:48	20°♂13'28	
min. Earth dist.	4911 May 10 06:37	19°M.56'47	17.38836 AU	opposition	4917 Jun 06 16:33	18°♂12'01	0°11'17
direct	4911 Jul 24 23:06	17°M.52'48		min. Earth dist.	4917 Jun 07 03:25	18°♂10'51	17.54688 AU
evening set	4911 Oct 28 18:10	21°M.21'43		direct	4917 Aug 22 15:54	16°♂06'56	
max. Earth dist.	4911 Nov 13 09:20	22°M.20'06	19.39539 AU	evening set	4917 Nov 25 23:32	19°♂33'03	
conjunction	4911 Nov 14 03:55	22°M.23'01	0°29'03	conjunction	4917 Dec 12 03:12	20°♂33'04	0°08'17
minimum elong	4911 Nov 14 03:55	22°M.23'01	0°29'04	minimum elong	4917 Dec 12 03:12	20°♂33'04	0°08'18
morning rise	4911 Nov 30 10:04	23°M.23'49		behind sun begin	4917 Dec 11 21:20	20°♂32'10	
retrograde	4912 Feb 29 22:11	26°M.45'08		behind sun end	4917 Dec 12 09:04	20°♂33'57	
opposition	4912 May 13 15:07	24°M.43'12	0°30'41	max. Earth dist.	4917 Dec 11 16:07	20°♂31'21	19.56760 AU
min. Earth dist.	4912 May 14 07:48	24°M.41'24	17.40399 AU	morning rise	4917 Dec 28 03:22	21°♂32'36	
direct	4912 Jul 29 00:41	22°M.37'32		retrograde	4918 Mar 29 06:25	24°♂51'13	
evening set	4912 Nov 01 20:52	26°M.06'15		opposition	4918 Jun 11 16:15	22°♂49'55	0°07'08
max. Earth dist.	4912 Nov 17 10:56	27°M.04'28	19.41317 AU	min. Earth dist.	4918 Jun 12 02:01	22°♂48'52	17.58953 AU
conjunction	4912 Nov 18 05:30	27°M.07'23	0°25'55	direct	4918 Aug 27 17:13	20°♂45'05	
minimum elong	4912 Nov 18 05:30	27°M.07'23	0°25'56	evening set	4918 Nov 30 21:50	24°♂10'27	
morning rise	4912 Dec 04 10:45	28°M.08'01		conjunction	4918 Dec 17 00:19	25°♂10'11	0°04'34
	4913 Jan 06 23:26	0°♂		minimum elong	4918 Dec 17 00:18	25°♂10'11	0°04'34
retrograde	4913 Mar 05 21:48	1°♂28'59		behind sun begin	4918 Dec 16 17:48	25°♂09'12	
	4913 May 05 19:15	30°R.M.		behind sun end	4918 Dec 17 06:48	25°♂11'10	
opposition	4913 May 18 15:38	29°M.27'09	0°27'06	max. Earth dist.	4918 Dec 16 13:47	25°♂08'34	19.61272 AU
min. Earth dist.	4913 May 19 06:39	29°M.25'32	17.42377 AU	morning rise	4919 Jan 01 23:42	26°♂09'29	
direct	4913 Aug 03 04:49	27°M.21'34		retrograde	4919 Apr 03 02:44	29°♂27'33	
	4913 Oct 23 22:17	0°♂		opposition	4919 Jun 16 15:27	27°♂26'26	0°02'57
evening set	4913 Nov 06 22:52	0°♂49'57		min. Earth dist.	4919 Jun 16 23:26	27°♂25'35	17.63696 AU
conjunction	4913 Nov 23 06:39	1°♂50'54	0°22'37	direct	4919 Sep 01 17:41	25°♂21'53	
minimum elong	4913 Nov 23 06:39	1°♂50'54	0°22'38	evening set	4919 Dec 05 19:10	28°♂46'29	
max. Earth dist.	4913 Nov 22 13:52	1°♂48'17	19.43506 AU	conjunction	4919 Dec 21 20:46	29°♂45'57	0°00'46
morning rise	4913 Dec 09 10:44	2°♂51'21		minimum elong	4919 Dec 21 20:47	29°♂45'57	0°00'47
retrograde	4914 Mar 10 19:03	6°♂11'55		behind sun begin	4919 Dec 21 14:10	29°♂44'57	
				behind sun end	4919 Dec 22 03:24	29°♂46'57	

max. Earth dist.	4919 Dec 21 13:01	29° <del>7</del> 44'46	19.66235 AU	direct	4925 Sep 29 07:47	22° <del>3</del> 33'47	
	4919 Dec 25 15:04	0° <del>3</del>		evening set	4926 Jan 01 09:46	25° <del>3</del> 52'34	
morning rise	4920 Jan 06 19:09	0° <del>3</del> 44'59					
desc. node	4920 Mar 03 23:54	3° <del>3</del> 31'11		conjunction	4926 Jan 17 05:54	26° <del>3</del> 50'17	-0°20'43
retrograde	4920 Apr 06 22:20	4° <del>3</del> 02'31		minimum elong	4926 Jan 17 05:54	26° <del>3</del> 50'17	0°20'42
opposition	4920 Jun 20 14:33	2° <del>3</del> 01'38	-0°01'13	max. Earth dist.	4926 Jan 17 06:54	26° <del>3</del> 50'26	20.01395 AU
min. Earth dist.	4920 Jun 20 21:04	2° <del>3</del> 00'56	17.68845 AU	morning rise	4926 Feb 01 23:59	27° <del>3</del> 47'42	
	4920 Aug 26 17:33	30° <del>8</del> <del>7</del>			4926 Mar 16 13:06	0° <del>8</del>	
direct	4920 Sep 05 18:10	29° <del>7</del> 57'26		retrograde	4926 May 04 11:58	1° <del>8</del> 01'55	
	4920 Sep 15 15:55	0° <del>3</del>			4926 Jun 24 16:17	30° <del>8</del> <del>3</del>	
evening set	4920 Dec 09 15:42	3° <del>3</del> 21'10		opposition	4926 Jul 19 00:14	29° <del>3</del> 02'13	-0°24'46
				min. Earth dist.	4926 Jul 18 22:08	29° <del>3</del> 02'26	18.04451 AU
conjunction	4920 Dec 25 16:10	4° <del>3</del> 20'21	-0°03'04	direct	4926 Oct 04 06:04	27° <del>3</del> 00'13	
minimum elong	4920 Dec 25 16:10	4° <del>3</del> 20'21	0°03'02		4926 Dec 31 23:48	0° <del>8</del>	
behind sun begin	4920 Dec 25 09:34	4° <del>3</del> 19'21		evening set	4927 Jan 06 01:14	0° <del>8</del> 17'53	
behind sun end	4920 Dec 25 22:45	4° <del>3</del> 21'20					
max. Earth dist.	4920 Dec 25 09:13	4° <del>3</del> 19'17	19.71573 AU	conjunction	4927 Jan 21 20:34	1° <del>8</del> 15'19	-0°23'54
morning rise	4921 Jan 10 13:49	5° <del>3</del> 19'07		minimum elong	4927 Jan 21 20:34	1° <del>8</del> 15'19	0°23'55
retrograde	4921 Apr 11 17:37	8° <del>3</del> 36'09		max. Earth dist.	4927 Jan 21 22:40	1° <del>8</del> 15'38	20.07528 AU
opposition	4921 Jun 25 13:17	6° <del>3</del> 35'28	-0°05'22	morning rise	4927 Feb 06 14:07	2° <del>8</del> 12'29	
min. Earth dist.	4921 Jun 25 18:22	6° <del>3</del> 34'56	17.74352 AU	retrograde	4927 May 09 03:16	5° <del>8</del> 26'06	
direct	4921 Sep 10 16:36	4° <del>3</del> 31'38		opposition	4927 Jul 23 20:04	3° <del>8</del> 26'30	-0°28'13
evening set	4921 Dec 14 11:21	7° <del>3</del> 54'28		min. Earth dist.	4927 Jul 23 17:33	3° <del>8</del> 26'46	18.10579 AU
				direct	4927 Oct 09 00:42	1° <del>8</del> 24'50	
conjunction	4921 Dec 30 10:59	8° <del>3</del> 53'22	-0°06'45	evening set	4928 Jan 10 15:43	4° <del>8</del> 41'22	
minimum elong	4921 Dec 30 10:59	8° <del>3</del> 53'22	0°06'45				
behind sun begin	4921 Dec 30 04:49	8° <del>3</del> 52'26		conjunction	4928 Jan 26 10:25	5° <del>8</del> 38'30	-0°26'57
behind sun end	4921 Dec 30 17:10	8° <del>3</del> 54'18		minimum elong	4928 Jan 26 10:25	5° <del>8</del> 38'30	0°26'55
max. Earth dist.	4921 Dec 30 06:30	8° <del>3</del> 52'42	19.77224 AU	max. Earth dist.	4928 Jan 26 13:57	5° <del>8</del> 39'02	20.13644 AU
morning rise	4922 Jan 15 07:44	9° <del>3</del> 51'52		morning rise	4928 Feb 11 03:30	6° <del>8</del> 35'24	
retrograde	4922 Apr 16 12:57	13° <del>3</del> 08'20		retrograde	4928 May 12 18:51	9° <del>8</del> 48'26	
opposition	4922 Jun 30 11:28	11° <del>3</del> 07'54	-0°09'27	opposition	4928 Jul 27 15:13	7° <del>8</del> 48'55	-0°31'29
min. Earth dist.	4922 Jun 30 14:56	11° <del>3</del> 07'32	17.80116 AU	min. Earth dist.	4928 Jul 27 10:21	7° <del>8</del> 49'25	18.16672 AU
direct	4922 Sep 15 16:21	9° <del>3</del> 04'27		direct	4928 Oct 12 21:47	5° <del>8</del> 47'33	
evening set	4922 Dec 19 06:20	12° <del>3</del> 26'20		evening set	4929 Jan 14 05:08	9° <del>8</del> 02'55	
conjunction	4923 Jan 04 04:57	13° <del>3</del> 24'57	-0°10'23	conjunction	4929 Jan 29 23:12	9° <del>8</del> 59'46	-0°29'48
minimum elong	4923 Jan 04 04:56	13° <del>3</del> 24'56	0°10'21	minimum elong	4929 Jan 29 23:12	9° <del>8</del> 59'46	0°29'48
behind sun begin	4923 Jan 03 23:42	13° <del>3</del> 24'09		max. Earth dist.	4929 Jan 30 04:20	10° <del>8</del> 00'32	20.19721 AU
behind sun end	4923 Jan 04 10:11	13° <del>3</del> 25'44		morning rise	4929 Feb 14 15:55	10° <del>8</del> 56'24	
max. Earth dist.	4923 Jan 04 01:15	13° <del>3</del> 24'24	19.83093 AU	retrograde	4929 May 17 08:31	14° <del>8</del> 08'51	
morning rise	4923 Jan 20 01:01	14° <del>3</del> 23'11		opposition	4929 Aug 01 09:48	12° <del>8</del> 09'23	-0°34'33
retrograde	4923 Apr 21 07:00	17° <del>3</del> 39'06		min. Earth dist.	4929 Aug 01 04:30	12° <del>8</del> 09'56	18.22753 AU
opposition	4923 Jul 05 09:25	15° <del>3</del> 38'53	-0°13'27	direct	4929 Oct 17 15:12	10° <del>8</del> 08'19	
min. Earth dist.	4923 Jul 05 11:56	15° <del>3</del> 38'37	17.86080 AU	evening set	4930 Jan 18 17:45	13° <del>8</del> 22'32	
direct	4923 Sep 20 13:04	13° <del>3</del> 35'48					
evening set	4923 Dec 24 00:19	16° <del>3</del> 56'42		conjunction	4930 Feb 03 11:15	14° <del>8</del> 19'05	-0°32'28
				minimum elong	4930 Feb 03 11:15	14° <del>8</del> 19'05	0°32'27
conjunction	4924 Jan 08 22:05	17° <del>3</del> 55'00	-0°13'56	max. Earth dist.	4930 Feb 03 17:46	14° <del>8</del> 20'04	20.25800 AU
minimum elong	4924 Jan 08 22:05	17° <del>3</del> 55'00	0°13'55		4930 Feb 14 19:09	15° <del>8</del>	
behind sun begin	4924 Jan 08 18:37	17° <del>3</del> 54'29		morning rise	4930 Feb 19 03:40	15° <del>8</del> 15'29	
behind sun end	4924 Jan 09 01:34	17° <del>3</del> 55'32		retrograde	4930 May 21 22:29	18° <del>8</del> 27'21	
max. Earth dist.	4924 Jan 08 20:28	17° <del>3</del> 54'46	19.89124 AU	opposition	4930 Aug 06 03:22	16° <del>8</del> 27'57	-0°37'23
morning rise	4924 Jan 24 17:22	18° <del>3</del> 52'58		min. Earth dist.	4930 Aug 05 19:33	16° <del>8</del> 28'45	18.28831 AU
retrograde	4924 Apr 25 01:48	22° <del>3</del> 08'20			4930 Sep 15 07:43	15° <del>8</del> <del>8</del>	
opposition	4924 Jul 09 06:52	20° <del>3</del> 08'19	-0°17'21	direct	4930 Oct 22 09:53	14° <del>8</del> 27'10	
min. Earth dist.	4924 Jul 09 07:29	20° <del>3</del> 08'15	17.92154 AU		4930 Nov 27 08:49	15° <del>8</del>	
direct	4924 Sep 24 12:08	18° <del>3</del> 05'37		evening set	4931 Jan 23 05:33	17° <del>8</del> 40'15	
evening set	4924 Dec 27 17:34	21° <del>3</del> 25'28					
				conjunction	4931 Feb 07 22:33	18° <del>8</del> 36'33	-0°34'56
conjunction	4925 Jan 12 14:24	22° <del>3</del> 23'29	-0°17'23	minimum elong	4931 Feb 07 22:33	18° <del>8</del> 36'33	0°34'55
minimum elong	4925 Jan 12 14:24	22° <del>3</del> 23'29	0°17'22	max. Earth dist.	4931 Feb 08 06:53	18° <del>8</del> 37'48	20.31875 AU
max. Earth dist.	4925 Jan 12 13:45	22° <del>3</del> 23'23	19.95236 AU	morning rise	4931 Feb 23 14:38	19° <del>8</del> 32'43	
morning rise	4925 Jan 28 09:05	23° <del>3</del> 21'11		retrograde	4931 May 26 10:43	22° <del>8</del> 44'02	
retrograde	4925 Apr 29 18:35	26° <del>3</del> 35'59		opposition	4931 Aug 10 20:37	20° <del>8</del> 44'42	-0°40'00
opposition	4925 Jul 14 03:55	24° <del>3</del> 36'07	-0°21'08	min. Earth dist.	4931 Aug 10 12:16	20° <del>8</del> 45'33	18.34921 AU
min. Earth dist.	4925 Jul 14 03:53	24° <del>3</del> 36'08	17.98304 AU	direct	4931 Oct 27 01:27	18° <del>8</del> 44'14	

evening set	4932 Jan 27 16:25	21° $\approx$ 56'13		max. Earth dist.	4938 Mar 09 04:01	17° $\approx$ 58'34	20.71907 AU
				morning rise	4938 Mar 24 04:04	18° $\approx$ 51'07	
conjunction	4932 Feb 12 08:56	22° $\approx$ 52'14 -0°37'11		retrograde	4938 Jun 24 20:16	21° $\approx$ 59'31	
minimum elong	4932 Feb 12 08:56	22° $\approx$ 52'14 0°37'11		min. Earth dist.	4938 Sep 09 10:58	20° $\approx$ 02'34	18.74303 AU
max. Earth dist.	4932 Feb 12 18:31	22° $\approx$ 53'40 20.37967 AU		opposition	4938 Sep 10 03:43	20° $\approx$ 00'54 -0°51'16	
morning rise	4932 Feb 28 00:52	23° $\approx$ 48'11		direct	4938 Nov 25 21:30	18° $\approx$ 02'48	
retrograde	4932 May 29 23:53	26° $\approx$ 59'00		evening set	4939 Feb 25 03:30	21° $\approx$ 08'00	
opposition	4932 Aug 14 13:04	24° $\approx$ 59'45 -0°42'22					
min. Earth dist.	4932 Aug 14 02:06	25° $\approx$ 00'52 18.41005 AU		conjunction	4939 Mar 12 18:55	22° $\approx$ 02'39 -0°46'38	
direct	4932 Oct 30 17:57	22° $\approx$ 59'38		minimum elong	4939 Mar 12 18:55	22° $\approx$ 02'39 0°46'38	
evening set	4933 Jan 31 02:37	26° $\approx$ 10'32		max. Earth dist.	4939 Mar 13 12:20	22° $\approx$ 05'12 20.76541 AU	
				morning rise	4939 Mar 28 11:16	22° $\approx$ 57'26	
conjunction	4933 Feb 15 18:48	27° $\approx$ 06'19 -0°39'13		retrograde	4939 Jun 29 05:20	26° $\approx$ 05'32	
minimum elong	4933 Feb 15 18:48	27° $\approx$ 06'19 0°39'12		opposition	4939 Sep 14 16:27	24° $\approx$ 06'57 -0°51'51	
max. Earth dist.	4933 Feb 16 06:18	27° $\approx$ 08'02 20.44026 AU		min. Earth dist.	4939 Sep 14 00:04	24° $\approx$ 08'36 18.78728 AU	
morning rise	4933 Mar 03 10:34	28° $\approx$ 02'03		direct	4939 Nov 30 07:56	22° $\approx$ 09'07	
	4933 Apr 10 10:37	0° $\approx$		evening set	4940 Feb 29 09:59	25° $\approx$ 13'30	
retrograde	4933 Jun 03 11:09	1° $\approx$ 12'23					
	4933 Jul 30 10:50	30° $\approx$		conjunction	4940 Mar 16 01:26	26° $\approx$ 08'00 -0°47'02	
opposition	4933 Aug 19 04:57	29° $\approx$ 13'15 -0°44'29		minimum elong	4940 Mar 16 01:26	26° $\approx$ 08'00 0°47'01	
min. Earth dist.	4933 Aug 18 17:39	29° $\approx$ 14'24 18.47043 AU		max. Earth dist.	4940 Mar 16 18:34	26° $\approx$ 10'30 20.80752 AU	
direct	4933 Nov 04 07:15	27° $\approx$ 13'29		morning rise	4940 Mar 31 18:14	27° $\approx$ 02'42	
	4934 Jan 28 17:17	0° $\approx$			4940 Jun 12 02:33	0° $\approx$	
evening set	4934 Feb 04 12:07	0° $\approx$ 23'20		retrograde	4940 Jul 02 16:16	0° $\approx$ 10'31	
					4940 Jul 23 13:05	30° $\approx$	
conjunction	4934 Feb 20 03:59	1° $\approx$ 18'54 -0°41'02		min. Earth dist.	4940 Sep 17 10:56	28° $\approx$ 13'42 18.82717 AU	
minimum elong	4934 Feb 20 03:59	1° $\approx$ 18'54 0°41'02		opposition	4940 Sep 18 04:33	28° $\approx$ 11'56 -0°52'09	
max. Earth dist.	4934 Feb 20 16:18	1° $\approx$ 20'43 20.50021 AU		direct	4940 Dec 03 18:00	26° $\approx$ 14'18	
morning rise	4934 Mar 07 19:46	2° $\approx$ 14'26		evening set	4941 Mar 04 16:02	29° $\approx$ 17'54	
retrograde	4934 Jun 07 24:00	5° $\approx$ 24'19			4941 Mar 16 19:29	0° $\approx$	
opposition	4934 Aug 23 20:07	3° $\approx$ 25'18 -0°46'22					
min. Earth dist.	4934 Aug 23 06:34	3° $\approx$ 26'40 18.52971 AU		conjunction	4941 Mar 20 07:47	0° $\approx$ 12'18 -0°47'12	
direct	4934 Nov 08 21:52	1° $\approx$ 25'54		minimum elong	4941 Mar 20 07:47	0° $\approx$ 12'18 0°47'12	
evening set	4935 Feb 08 20:58	4° $\approx$ 34'45		max. Earth dist.	4941 Mar 21 02:06	0° $\approx$ 14'58 20.84508 AU	
				morning rise	4941 Apr 05 00:53	1° $\approx$ 06'54	
conjunction	4935 Feb 24 12:38	5° $\approx$ 30'05 -0°42'37		retrograde	4941 Jul 07 00:22	4° $\approx$ 14'27	
minimum elong	4935 Feb 24 12:38	5° $\approx$ 30'05 0°42'37		opposition	4941 Sep 22 16:00	2° $\approx$ 15'50 -0°52'11	
max. Earth dist.	4935 Feb 25 02:44	5° $\approx$ 32'10 20.55859 AU		min. Earth dist.	4941 Sep 21 22:48	2° $\approx$ 17'33 18.86257 AU	
morning rise	4935 Mar 12 04:20	6° $\approx$ 25'26		direct	4941 Dec 08 03:44	0° $\approx$ 18'22	
retrograde	4935 Jun 12 10:20	9° $\approx$ 34'54		evening set	4942 Mar 08 21:44	3° $\approx$ 21'14	
opposition	4935 Aug 28 10:55	7° $\approx$ 36'01 -0°47'59					
min. Earth dist.	4935 Aug 27 21:17	7° $\approx$ 37'23 18.58721 AU		conjunction	4942 Mar 24 13:38	4° $\approx$ 15'32 -0°47'08	
direct	4935 Nov 13 09:50	5° $\approx$ 36'58		minimum elong	4942 Mar 24 13:38	4° $\approx$ 15'32 0°47'07	
evening set	4936 Feb 13 05:21	8° $\approx$ 44'51		max. Earth dist.	4942 Mar 25 07:35	4° $\approx$ 18'08 20.87848 AU	
				morning rise	4942 Apr 09 07:20	5° $\approx$ 10'04	
conjunction	4936 Feb 28 20:47	9° $\approx$ 39'59 -0°43'58		retrograde	4942 Jul 11 10:48	8° $\approx$ 17'23	
minimum elong	4936 Feb 28 20:47	9° $\approx$ 39'59 0°43'59		min. Earth dist.	4942 Sep 26 08:38	6° $\approx$ 20'32 18.89401 AU	
max. Earth dist.	4936 Feb 29 11:22	9° $\approx$ 42'08 20.61504 AU		opposition	4942 Sep 27 02:58	6° $\approx$ 18'42 -0°51'58	
morning rise	4936 Mar 15 12:38	10° $\approx$ 35'10		direct	4942 Dec 12 12:29	4° $\approx$ 21'21	
retrograde	4936 Jun 15 22:54	13° $\approx$ 44'15		evening set	4943 Mar 13 02:53	7° $\approx$ 23'33	
min. Earth dist.	4936 Aug 31 09:31	11° $\approx$ 47'02 18.64242 AU					
opposition	4936 Sep 01 01:04	11° $\approx$ 45'28 -0°49'20		conjunction	4943 Mar 28 19:10	8° $\approx$ 17'46 -0°46'49	
direct	4936 Nov 16 22:53	9° $\approx$ 46'46		minimum elong	4943 Mar 28 19:10	8° $\approx$ 17'46 0°46'50	
evening set	4937 Feb 16 13:05	12° $\approx$ 53'42		max. Earth dist.	4943 Mar 29 14:29	8° $\approx$ 20'34 20.90795 AU	
				morning rise	4943 Apr 13 13:14	9° $\approx$ 12'15	
conjunction	4937 Mar 04 04:30	13° $\approx$ 48'40 -0°45'06		retrograde	4943 Jul 15 18:10	12° $\approx$ 19'22	
minimum elong	4937 Mar 04 04:30	13° $\approx$ 48'40 0°45'06		opposition	4943 Oct 01 13:32	10° $\approx$ 20'37 -0°51'29	
max. Earth dist.	4937 Mar 04 20:40	13° $\approx$ 51'03 20.66871 AU		min. Earth dist.	4943 Sep 30 19:20	10° $\approx$ 22'26 18.92176 AU	
morning rise	4937 Mar 19 20:25	14° $\approx$ 43'42		direct	4943 Dec 16 21:10	8° $\approx$ 23'25	
retrograde	4937 Jun 20 08:38	17° $\approx$ 52'26		evening set	4944 Mar 16 07:56	11° $\approx$ 24'59	
opposition	4937 Sep 05 14:48	15° $\approx$ 53'45 -0°50'26					
min. Earth dist.	4937 Sep 04 23:30	15° $\approx$ 55'17 18.69454 AU		conjunction	4944 Apr 01 00:29	12° $\approx$ 19'08 -0°46'16	
direct	4937 Nov 21 09:58	13° $\approx$ 55'22		minimum elong	4944 Apr 01 00:29	12° $\approx$ 19'08 0°46'17	
evening set	4938 Feb 20 20:34	17° $\approx$ 01'25		max. Earth dist.	4944 Apr 01 19:29	12° $\approx$ 21'53 20.93414 AU	
				morning rise	4944 Apr 16 19:13	13° $\approx$ 13'35	
conjunction	4938 Mar 08 11:52	17° $\approx$ 56'12 -0°45'59		retrograde	4944 Jul 19 04:28	16° $\approx$ 20'33	
minimum elong	4938 Mar 08 11:52	17° $\approx$ 56'12 0°45'59		opposition	4944 Oct 04 23:31	14° $\approx$ 21'43 -0°50'45	

min. Earth dist.	4944 Oct 04 04:15	14°♊23'39	18.94642 AU	conjunction	4951 Apr 29 13:16	10°♊17'32	-0°36'29
direct	4944 Dec 20 05:09	12°♊24'39		minimum elong	4951 Apr 29 13:16	10°♊17'32	0°36'29
evening set	4945 Mar 20 12:37	15°♊25'41		max. Earth dist.	4951 Apr 30 09:57	10°♊20'30	21.02188 AU
				morning rise	4951 May 15 12:59	11°♊12'13	
conjunction	4945 Apr 05 05:43	16°♊19'47	-0°45'30	retrograde	4951 Aug 17 16:17	14°♊19'18	
minimum elong	4945 Apr 05 05:43	16°♊19'47	0°45'30	opposition	4951 Nov 03 13:08	12°♊20'14	-0°39'06
max. Earth dist.	4945 Apr 06 02:03	16°♊22'43	20.95712 AU	min. Earth dist.	4951 Nov 02 18:38	12°♊22'05	19.02054 AU
morning rise	4945 Apr 21 00:57	17°♊14'13		direct	4952 Jan 18 03:50	10°♊23'50	
retrograde	4945 Jul 23 11:45	20°♊21'04		evening set	4952 Apr 16 21:56	13°♊22'59	
opposition	4945 Oct 09 09:09	18°♊22'12	-0°49'46				
min. Earth dist.	4945 Oct 08 14:03	18°♊24'07	18.96784 AU	conjunction	4952 May 02 19:17	14°♊17'18	-0°34'19
direct	4945 Dec 24 12:13	16°♊25'16		minimum elong	4952 May 02 19:17	14°♊17'18	0°34'19
evening set	4946 Mar 24 17:17	19°♊25'49		max. Earth dist.	4952 May 03 14:20	14°♊20'02	21.01732 AU
					4952 May 15 06:08	15°♊	
conjunction	4946 Apr 09 10:45	20°♊19'53	-0°44'30	morning rise	4952 May 18 19:59	15°♊12'05	
minimum elong	4946 Apr 09 10:45	20°♊19'53	0°44'31	retrograde	4952 Aug 21 01:11	18°♊19'18	
max. Earth dist.	4946 Apr 10 06:34	20°♊22'45	20.97702 AU	opposition	4952 Nov 06 21:14	16°♊20'09	-0°36'37
morning rise	4946 Apr 25 06:44	21°♊14'19		min. Earth dist.	4952 Nov 06 03:18	16°♊21'57	19.01332 AU
retrograde	4946 Jul 27 21:33	24°♊21'06			4952 Dec 13 11:55	15°♊	
opposition	4946 Oct 13 18:18	22°♊22'12	-0°48'32	direct	4953 Jan 21 09:43	14°♊23'42	
min. Earth dist.	4946 Oct 12 22:27	22°♊24'11	18.98614 AU		4953 Feb 28 06:10	15°♊	
direct	4946 Dec 28 19:50	20°♊25'23		evening set	4953 Apr 21 03:25	17°♊22'51	
evening set	4947 Mar 28 21:47	23°♊25'32					
				conjunction	4953 May 07 01:42	18°♊17'16	-0°31'58
conjunction	4947 Apr 13 15:52	24°♊19'37	-0°43'18	minimum elong	4953 May 07 01:42	18°♊17'16	0°31'59
minimum elong	4947 Apr 13 15:52	24°♊19'37	0°43'18	max. Earth dist.	4953 May 07 20:52	18°♊20'01	21.00729 AU
max. Earth dist.	4947 Apr 14 12:55	24°♊22'39	20.99363 AU	morning rise	4953 May 23 03:10	19°♊12'10	
morning rise	4947 Apr 29 12:26	25°♊14'04		retrograde	4953 Aug 25 09:40	22°♊19'32	
retrograde	4947 Aug 01 05:10	28°♊20'50		opposition	4953 Nov 11 05:17	20°♊20'16	-0°33'56
min. Earth dist.	4947 Oct 17 07:44	26°♊23'52	19.00103 AU	min. Earth dist.	4953 Nov 10 12:14	20°♊21'59	19.00049 AU
opposition	4947 Oct 18 03:20	26°♊21'54	-0°47'05	direct	4954 Jan 25 16:24	18°♊23'45	
direct	4948 Jan 02 01:58	24°♊25'13		evening set	4954 Apr 25 09:11	21°♊22'55	
evening set	4948 Apr 01 02:16	27°♊25'02					
				conjunction	4954 May 11 08:10	22°♊17'27	-0°29'28
conjunction	4948 Apr 16 20:51	28°♊19'07	-0°41'53	minimum elong	4954 May 11 08:10	22°♊17'27	0°29'28
minimum elong	4948 Apr 16 20:51	28°♊19'07	0°41'54	max. Earth dist.	4954 May 12 01:31	22°♊19'56	20.99192 AU
max. Earth dist.	4948 Apr 17 17:13	28°♊22'02	21.00686 AU	morning rise	4954 May 27 10:39	23°♊12'27	
morning rise	4948 May 02 18:19	29°♊13'36		retrograde	4954 Aug 29 18:47	26°♊20'01	
	4948 May 16 23:10	0°♊		opposition	4954 Nov 15 13:13	24°♊20'35	-0°31'05
retrograde	4948 Aug 04 14:41	2°♊20'23		min. Earth dist.	4954 Nov 14 20:54	24°♊22'14	18.98255 AU
opposition	4948 Oct 21 12:04	0°♊21'26	-0°45'24	direct	4955 Jan 29 22:18	22°♊23'56	
min. Earth dist.	4948 Oct 20 16:06	0°♊23'26	19.01240 AU	evening set	4955 Apr 29 15:09	25°♊23'12	
	4948 Oct 30 11:32	30°♊					
direct	4949 Jan 05 09:03	28°♊24'51		conjunction	4955 May 15 15:07	26°♊17'51	-0°26'49
	4949 Mar 09 06:12	0°♊		minimum elong	4955 May 15 15:07	26°♊17'51	0°26'51
evening set	4949 Apr 05 06:53	1°♊24'24		max. Earth dist.	4955 May 16 08:42	26°♊20'22	20.97158 AU
				morning rise	4955 May 31 18:22	27°♊13'00	
conjunction	4949 Apr 21 02:12	2°♊18'32	-0°40'17		4955 Aug 04 20:33	0°♊	
minimum elong	4949 Apr 21 02:13	2°♊18'32	0°40'17	retrograde	4955 Sep 03 03:06	0°♊20'46	
max. Earth dist.	4949 Apr 21 23:28	2°♊21'35	21.01620 AU		4955 Oct 02 19:33	30°♊	
morning rise	4949 May 07 00:19	3°♊13'04		opposition	4955 Nov 19 21:02	28°♊21'10	-0°28'04
retrograde	4949 Aug 08 22:41	6°♊19'54		min. Earth dist.	4955 Nov 19 05:30	28°♊22'44	18.95992 AU
opposition	4949 Oct 25 20:27	4°♊20'56	-0°43'31	direct	4956 Feb 03 04:53	26°♊24'22	
min. Earth dist.	4949 Oct 25 01:05	4°♊22'52	19.01966 AU	evening set	4956 May 02 21:26	29°♊23'47	
direct	4950 Jan 09 15:06	2°♊24'27			4956 May 13 12:51	0°♊	
evening set	4950 Apr 09 11:44	5°♊23'48					
				conjunction	4956 May 18 22:11	0°♊18'34	-0°24'02
conjunction	4950 Apr 25 07:37	6°♊17'58	-0°38'28	minimum elong	4956 May 18 22:11	0°♊18'34	0°24'02
minimum elong	4950 Apr 25 07:37	6°♊17'58	0°38'29	max. Earth dist.	4956 May 19 14:03	0°♊20'51	20.94700 AU
max. Earth dist.	4950 Apr 26 03:44	6°♊20'51	21.02140 AU	morning rise	4956 Jun 04 02:33	1°♊13'53	
morning rise	4950 May 11 06:39	7°♊12'35		retrograde	4956 Sep 06 13:02	4°♊21'54	
retrograde	4950 Aug 13 07:48	10°♊19'31		opposition	4956 Nov 23 04:50	2°♊22'06	-0°24'56
min. Earth dist.	4950 Oct 29 09:34	8°♊22'26	19.02260 AU	min. Earth dist.	4956 Nov 22 14:05	2°♊23'36	18.93338 AU
opposition	4950 Oct 30 04:49	8°♊20'30	-0°41'25	direct	4957 Feb 06 10:43	0°♊25'07	
direct	4951 Jan 13 21:25	6°♊24'04		evening set	4957 May 07 04:07	3°♊24'46	
evening set	4951 Apr 13 16:35	9°♊23'19					
				conjunction	4957 May 23 05:54	4°♊19'44	-0°21'07

minimum elong	4957 May 23 05:54	4°II19'44	0°21'08	conjunction	4963 Jun 17 14:54	28°II44'58	-0°01'52
max. Earth dist.	4957 May 23 22:02	4°II22'03	20.91859 AU	minimum elong	4963 Jun 17 14:54	28°II44'58	0°01'52
morning rise	4957 Jun 08 11:01	5°II15'12		behind sun begin	4963 Jun 17 08:13	28°II44'01	
retrograde	4957 Sep 10 21:29	8°II23'29		behind sun end	4963 Jun 17 21:36	28°II45'54	
opposition	4957 Nov 27 12:29	6°II23'32	-0°21'39	max. Earth dist.	4963 Jun 18 01:29	28°II46'29	20.68874 AU
min. Earth dist.	4957 Nov 26 22:24	6°II24'58	18.90324 AU	morning rise	4963 Jul 04 01:23	29°II41'40	
direct	4958 Feb 10 17:11	4°II26'22			4963 Jul 09 12:31	0°☾	
evening set	4958 May 11 11:18	7°II26'21		retrograde	4963 Oct 06 15:54	2°☾52'35	
				opposition	4963 Dec 22 14:42	0°☾51'58	-0°00'05
conjunction	4958 May 27 13:51	8°II21'29	-0°18'06	min. Earth dist.	4963 Dec 22 06:08	0°☾52'51	18.66517 AU
minimum elong	4958 May 27 13:51	8°II21'29	0°18'07	asc. node	4963 Dec 31 10:56	0°☾30'08	
max. Earth dist.	4958 May 28 04:13	8°II23'32	20.88699 AU		4964 Jan 13 06:57	30°☾II	
morning rise	4958 Jun 12 20:02	9°II17'07		direct	4964 Mar 06 09:51	28°II53'42	
retrograde	4958 Sep 15 08:01	12°II25'45			4964 Apr 26 17:36	0°☾	
opposition	4958 Dec 01 20:23	10°II25'38	-0°18'15	evening set	4964 Jun 04 18:46	1°☾57'11	
min. Earth dist.	4958 Dec 01 07:09	10°II26'59	18.87018 AU				
direct	4959 Feb 14 23:06	8°II28'17		conjunction	4964 Jun 21 02:57	2°☾53'40	0°01'39
evening set	4959 May 15 18:43	11°II28'39		minimum elong	4964 Jun 21 02:56	2°☾53'40	0°01'37
				behind sun begin	4964 Jun 20 20:14	2°☾52'43	
conjunction	4959 May 31 22:20	12°II23'59	-0°15'00	behind sun end	4964 Jun 21 09:38	2°☾54'36	
minimum elong	4959 May 31 22:20	12°II23'59	0°15'00	max. Earth dist.	4964 Jun 21 10:52	2°☾54'48	20.64104 AU
behind sun begin	4959 May 31 19:59	12°II23'39		morning rise	4964 Jul 07 14:25	3°☾50'37	
behind sun end	4959 Jun 01 00:42	12°II24'19		retrograde	4964 Oct 10 05:10	7°☾02'05	
max. Earth dist.	4959 Jun 01 13:03	12°II26'05	20.85249 AU	opposition	4964 Dec 26 00:13	5°☾01'22	0°03'41
morning rise	4959 Jun 17 05:18	13°II19'49		min. Earth dist.	4964 Dec 25 17:33	5°☾02'03	18.61590 AU
retrograde	4959 Sep 19 17:32	16°II28'50		direct	4965 Mar 10 17:44	3°☾02'52	
opposition	4959 Dec 06 04:24	14°II28'34	-0°14'46	evening set	4965 Jun 09 06:45	6°☾07'09	
min. Earth dist.	4959 Dec 05 15:45	14°II29'52	18.83426 AU				
direct	4960 Feb 19 05:50	12°II31'03		conjunction	4965 Jun 25 15:57	7°☾03'54	0°05'04
evening set	4960 May 19 02:59	15°II31'53		minimum elong	4965 Jun 25 15:58	7°☾03'54	0°05'04
				behind sun begin	4965 Jun 25 09:27	7°☾02'59	
conjunction	4960 Jun 04 07:26	16°II27'25	-0°11'48	behind sun end	4965 Jun 25 22:28	7°☾04'49	
minimum elong	4960 Jun 04 07:26	16°II27'25	0°11'49	max. Earth dist.	4965 Jun 25 23:21	7°☾04'57	20.59003 AU
behind sun begin	4960 Jun 04 02:48	16°II26'46		morning rise	4965 Jul 12 04:01	8°☾01'05	
behind sun end	4960 Jun 04 12:04	16°II28'04		retrograde	4965 Oct 14 18:54	11°☾13'06	
max. Earth dist.	4960 Jun 04 20:11	16°II29'15	20.81538 AU	opposition	4965 Dec 30 10:00	9°☾12'16	0°07'27
morning rise	4960 Jun 20 15:29	17°II23'28		min. Earth dist.	4965 Dec 30 04:18	9°☾12'52	18.56315 AU
retrograde	4960 Sep 23 04:33	20°II32'54		direct	4966 Mar 15 02:30	7°☾13'31	
opposition	4960 Dec 09 12:30	18°II32'31	-0°11'11	evening set	4966 Jun 13 19:42	10°☾18'39	
min. Earth dist.	4960 Dec 09 01:00	18°II33'42	18.79590 AU				
direct	4961 Feb 22 11:57	16°II34'48		conjunction	4966 Jun 30 05:37	11°☾15'39	0°08'27
evening set	4961 May 23 11:46	19°II36'12		minimum elong	4966 Jun 30 05:37	11°☾15'39	0°08'27
				behind sun begin	4966 Jun 29 23:45	11°☾14'49	
conjunction	4961 Jun 08 17:19	20°II31'58	-0°08'33	behind sun end	4966 Jun 30 11:29	11°☾16'29	
minimum elong	4961 Jun 08 17:19	20°II31'58	0°08'33	max. Earth dist.	4966 Jun 30 10:04	11°☾16'16	20.53570 AU
behind sun begin	4961 Jun 08 11:30	20°II31'09		morning rise	4966 Jul 16 18:36	12°☾13'05	
behind sun end	4961 Jun 08 23:08	20°II32'47		retrograde	4966 Oct 19 09:16	15°☾25'39	
max. Earth dist.	4961 Jun 09 06:10	20°II33'48	20.77571 AU	opposition	4967 Jan 03 20:24	13°☾24'40	0°11'13
morning rise	4961 Jun 25 02:05	21°II28'13		min. Earth dist.	4967 Jan 03 16:46	13°☾25'03	18.50724 AU
retrograde	4961 Sep 27 15:32	24°II38'06		direct	4967 Mar 19 11:46	11°☾25'35	
opposition	4961 Dec 13 20:55	22°II37'38	-0°07'32	evening set	4967 Jun 18 09:11	14°☾31'35	
min. Earth dist.	4961 Dec 13 10:04	22°II38'45	18.75489 AU				
direct	4962 Feb 26 19:13	20°II39'45		conjunction	4967 Jul 04 20:10	15°☾28'52	0°11'50
evening set	4962 May 27 21:16	23°II41'46		minimum elong	4967 Jul 04 20:10	15°☾28'52	0°11'49
				behind sun begin	4967 Jul 04 15:32	15°☾28'13	
conjunction	4962 Jun 13 03:35	24°II37'46	-0°05'14	behind sun end	4967 Jul 05 00:48	15°☾29'32	
minimum elong	4962 Jun 13 03:34	24°II37'46	0°05'16	max. Earth dist.	4967 Jul 05 00:01	15°☾29'25	20.47827 AU
behind sun begin	4962 Jun 12 21:06	24°II36'51		morning rise	4967 Jul 21 09:43	16°☾26'34	
behind sun end	4962 Jun 13 10:02	24°II38'40		retrograde	4967 Oct 24 00:05	19°☾39'40	
max. Earth dist.	4962 Jun 13 14:16	24°II39'17	20.73355 AU	opposition	4968 Jan 08 07:05	17°☾38'30	0°14'57
morning rise	4962 Jun 29 13:22	25°II34'14		min. Earth dist.	4968 Jan 08 04:19	17°☾38'48	18.44834 AU
retrograde	4962 Oct 02 03:24	28°II44'38		direct	4968 Mar 22 22:06	15°☾39'04	
opposition	4962 Dec 18 05:43	26°II44'05	-0°03'50	evening set	4968 Jun 21 23:47	18°☾45'59	
min. Earth dist.	4962 Dec 17 20:17	26°II45'03	18.71145 AU				
direct	4963 Mar 03 01:57	24°II46'01		conjunction	4968 Jul 08 11:26	19°☾43'32	0°15'09
evening set	4963 Jun 01 07:31	27°II48'44		minimum elong	4968 Jul 08 11:26	19°☾43'32	0°15'09
				behind sun begin	4968 Jul 08 09:25	19°☾43'15	

behind sun end	4968 Jul 08 13:27	19°♄43'49		max. Earth dist.	4974 Aug 04 16:06	15°♄42'09	20.04312 AU
max. Earth dist.	4968 Jul 08 12:24	19°♄43'40	20.41821 AU	morning rise	4974 Aug 21 16:31	16°♄42'41	
morning rise	4968 Jul 25 01:48	20°♄41'29		retrograde	4974 Nov 23 17:54	19°♄59'42	
retrograde	4968 Oct 27 14:51	23°♄55'07		opposition	4975 Feb 06 23:03	17°♄57'22	0°38'11
opposition	4969 Jan 11 18:08	21°♄53'45	0°18'37	min. Earth dist.	4975 Feb 07 05:52	17°♄56'38	18.01317 AU
min. Earth dist.	4969 Jan 11 17:35	21°♄53'49	18.38728 AU	direct	4975 Apr 22 14:29	15°♄55'17	
direct	4969 Mar 27 08:17	19°♄53'56		evening set	4975 Jul 24 04:14	19°♄09'38	
evening set	4969 Jun 26 14:59	23°♄01'48					
conjunction	4969 Jul 13 03:36	23°♄59'38	0°18'26	conjunction	4975 Aug 09 20:32	20°♄09'09	0°35'36
minimum elong	4969 Jul 13 03:36	23°♄59'38	0°18'24	minimum elong	4975 Aug 09 20:32	20°♄09'09	0°35'36
max. Earth dist.	4969 Jul 13 04:04	23°♄59'42	20.35631 AU	max. Earth dist.	4975 Aug 09 12:22	20°♄07'55	19.98369 AU
morning rise	4969 Jul 29 18:25	24°♄57'50		morning rise	4975 Aug 26 13:41	21°♄08'49	
retrograde	4969 Nov 01 06:52	28°♄12'00		retrograde	4975 Nov 28 14:08	24°♄26'25	
opposition	4970 Jan 16 05:38	26°♄10'27	0°22'13	opposition	4976 Feb 11 13:53	22°♄24'01	0°40'51
min. Earth dist.	4970 Jan 16 05:40	26°♄10'27	18.32468 AU	min. Earth dist.	4976 Feb 11 20:53	22°♄23'16	17.95449 AU
direct	4970 Mar 31 20:31	24°♄10'14		direct	4976 Apr 26 07:36	20°♄21'39	
evening set	4970 Jul 01 06:59	27°♄19'04		evening set	4976 Jul 28 01:47	23°♄37'11	
conjunction	4970 Jul 17 20:10	28°♄17'11	0°21'37	conjunction	4976 Aug 13 18:23	24°♄36'58	0°37'52
minimum elong	4970 Jul 17 20:10	28°♄17'11	0°21'37	minimum elong	4976 Aug 13 18:23	24°♄36'58	0°37'52
max. Earth dist.	4970 Jul 17 18:06	28°♄16'53	20.29326 AU	max. Earth dist.	4976 Aug 13 08:18	24°♄35'27	19.92571 AU
morning rise	4970 Aug 03 11:40	29°♄15'39		morning rise	4976 Aug 30 11:40	25°♄36'51	
retrograde	4970 Aug 16 16:36	0°♄		retrograde	4976 Dec 02 08:03	28°♄55'02	
opposition	4970 Nov 05 21:45	2°♄30'23		opposition	4977 Feb 15 05:30	26°♄52'37	0°43'17
min. Earth dist.	4971 Jan 20 17:44	0°♄28'37	0°25'42	min. Earth dist.	4977 Feb 15 14:46	26°♄51'37	17.89736 AU
direct	4971 Jan 20 19:51	0°♄28'23	18.26143 AU	direct	4977 Apr 30 22:39	24°♄49'58	
evening set	4971 Feb 01 02:28	30°♄		evening set	4977 Aug 02 00:08	28°♄06'43	
direct	4971 Apr 05 07:31	28°♄27'59		conjunction	4977 Aug 18 17:06	29°♄06'44	0°39'56
evening set	4971 Jun 05 04:46	0°♄		minimum elong	4977 Aug 18 17:06	29°♄06'44	0°39'56
conjunction	4971 Jul 05 23:49	1°♄37'52		max. Earth dist.	4977 Aug 18 05:50	29°♄05'03	19.86933 AU
minimum elong	4971 Jul 22 13:53	2°♄36'16	0°24'42		4977 Sep 02 12:01	0°♄	
max. Earth dist.	4971 Jul 22 13:52	2°♄36'16	0°24'41	morning rise	4977 Sep 04 10:25	0°♄06'51	
morning rise	4971 Aug 08 05:44	3°♄34'58		retrograde	4977 Dec 07 05:32	3°♄25'36	
retrograde	4971 Nov 10 15:07	6°♄50'15		opposition	4978 Feb 19 21:45	1°♄23'09	0°45'28
opposition	4972 Jan 25 06:04	4°♄48'18	0°29'04	min. Earth dist.	4978 Feb 20 07:18	1°♄22'07	17.84163 AU
min. Earth dist.	4972 Jan 25 08:35	4°♄48'02	18.19805 AU		4978 Mar 27 04:17	30°♄	
direct	4972 Apr 08 21:26	2°♄47'17		direct	4978 May 05 17:22	29°♄20'13	
evening set	4972 Jul 09 17:44	5°♄58'14		evening set	4978 Jun 13 15:05	0°♄	
conjunction	4972 Jul 26 08:18	6°♄56'54	0°27'39		4978 Aug 06 23:18	2°♄38'09	
minimum elong	4972 Jul 26 08:18	6°♄56'54	0°27'38	conjunction	4978 Aug 23 16:30	3°♄38'25	0°41'47
max. Earth dist.	4972 Jul 26 03:24	6°♄56'11	20.16664 AU	minimum elong	4978 Aug 23 16:29	3°♄38'25	0°41'47
morning rise	4972 Aug 12 00:41	7°♄55'52		max. Earth dist.	4978 Aug 23 03:36	3°♄36'28	19.81408 AU
retrograde	4972 Nov 14 06:37	11°♄11'43		morning rise	4978 Sep 09 09:45	4°♄38'44	
opposition	4973 Jan 28 19:11	9°♄09'36	0°32'17	retrograde	4978 Dec 12 00:52	7°♄58'01	
min. Earth dist.	4973 Jan 28 23:48	9°♄09'07	18.13525 AU	opposition	4979 Feb 24 14:54	5°♄55'33	0°47'23
direct	4973 Apr 13 09:35	7°♄08'12		min. Earth dist.	4979 Feb 25 02:45	5°♄54'16	17.78705 AU
evening set	4973 Jul 14 12:16	10°♄20'15		direct	4979 May 10 10:39	3°♄52'19	
conjunction	4973 Jul 31 03:32	11°♄19'12	0°30'28	evening set	4979 Aug 11 23:26	7°♄11'24	
minimum elong	4973 Jul 31 03:31	11°♄19'12	0°30'28	conjunction	4979 Aug 28 16:49	8°♄11'54	0°43'22
max. Earth dist.	4973 Jul 30 22:10	11°♄18'25	20.10426 AU	minimum elong	4979 Aug 28 16:49	8°♄11'54	0°43'21
morning rise	4973 Aug 16 20:08	12°♄18'24		max. Earth dist.	4979 Aug 28 02:10	8°♄09'41	19.76010 AU
retrograde	4973 Oct 13 03:21	15°♄		morning rise	4979 Sep 14 10:02	9°♄12'24	
opposition	4973 Nov 19 01:15	15°♄34'50		retrograde	4979 Dec 16 23:06	12°♄32'11	
min. Earth dist.	4973 Dec 26 07:13	15°♄		opposition	4980 Feb 29 08:26	10°♄29'39	0°49'01
direct	4974 Feb 02 08:43	13°♄32'35	0°35'20	min. Earth dist.	4980 Feb 29 20:41	10°♄28'20	17.73370 AU
evening set	4974 Jul 19 07:52	14°♄44'01		direct	4980 May 14 07:03	8°♄26'06	
conjunction	4974 Aug 04 23:33	15°♄43'15	0°33'07	evening set	4980 Aug 16 00:19	11°♄46'19	
minimum elong	4974 Aug 04 23:33	15°♄43'15	0°33'06	conjunction	4980 Sep 01 17:50	12°♄47'02	0°44'41
				minimum elong	4980 Sep 01 17:50	12°♄47'02	0°44'42
				max. Earth dist.	4980 Sep 01 01:57	12°♄44'37	19.70732 AU
				morning rise	4980 Sep 18 10:45	13°♄47'43	
				retrograde	4980 Dec 20 19:40	17°♄07'56	
				opposition	4981 Mar 05 02:53	15°♄05'21	0°50'21

min. Earth dist.	4981 Mar 05 17:11	15° <del>00</del> 03'48	17.68179 AU	conjunction	4987 Oct 06 11:41	15° <del>02</del> 27'31	0°45'36
direct	4981 May 19 02:02	13° <del>00</del> 01'29		minimum elong	4987 Oct 06 11:41	15° <del>02</del> 27'31	0°45'36
evening set	4981 Aug 21 01:42	16° <del>00</del> 22'46		max. Earth dist.	4987 Oct 05 13:56	15° <del>02</del> 24'08	19.42381 AU
				morning rise	4987 Oct 23 01:17	16° <del>02</del> 28'52	
conjunction	4981 Sep 06 19:08	17° <del>00</del> 23'40	0°45'44	retrograde	4988 Jan 23 10:59	19° <del>02</del> 50'54	
minimum elong	4981 Sep 06 19:08	17° <del>00</del> 23'40	0°45'44	opposition	4988 Apr 06 02:27	17° <del>02</del> 48'00	0°50'15
max. Earth dist.	4981 Sep 06 01:26	17° <del>00</del> 20'58	19.65642 AU	min. Earth dist.	4988 Apr 06 20:18	17° <del>02</del> 46'03	17.41296 AU
morning rise	4981 Sep 23 11:54	18° <del>00</del> 24'30		direct	4988 Jun 20 16:54	15° <del>02</del> 42'17	
retrograde	4981 Dec 25 18:51	21° <del>00</del> 45'08		evening set	4988 Sep 23 23:48	19° <del>02</del> 09'25	
opposition	4982 Mar 09 21:45	19° <del>00</del> 42'28	0°51'22				
min. Earth dist.	4982 Mar 10 12:18	19° <del>00</del> 40'54	17.63202 AU	conjunction	4988 Oct 10 15:14	20° <del>02</del> 11'08	0°44'29
direct	4982 May 23 23:53	17° <del>00</del> 38'16		minimum elong	4988 Oct 10 15:15	20° <del>02</del> 11'08	0°44'29
evening set	4982 Aug 26 03:41	21° <del>00</del> 00'35		max. Earth dist.	4988 Oct 09 18:40	20° <del>02</del> 07'56	19.40278 AU
				morning rise	4988 Oct 27 03:57	21° <del>02</del> 12'30	
conjunction	4982 Sep 11 21:11	22° <del>00</del> 01'40	0°46'29	retrograde	4989 Jan 27 10:04	24° <del>02</del> 34'37	
minimum elong	4982 Sep 11 21:11	22° <del>00</del> 01'40	0°46'29	opposition	4989 Apr 11 01:02	22° <del>02</del> 31'48	0°48'51
max. Earth dist.	4982 Sep 11 03:00	21° <del>00</del> 58'53	19.60782 AU	min. Earth dist.	4989 Apr 11 18:35	22° <del>02</del> 29'53	17.39476 AU
morning rise	4982 Sep 28 13:27	23° <del>00</del> 02'39		direct	4989 Jun 25 18:08	20° <del>02</del> 26'02	
retrograde	4982 Dec 30 16:20	26° <del>00</del> 23'37		evening set	4989 Sep 29 03:54	23° <del>02</del> 53'42	
opposition	4983 Mar 14 17:13	24° <del>00</del> 20'54	0°52'03				
min. Earth dist.	4983 Mar 15 09:23	24° <del>00</del> 19'08	17.58491 AU	conjunction	4989 Oct 15 18:34	24° <del>02</del> 55'25	0°43'04
direct	4983 May 28 19:49	22° <del>00</del> 16'22		minimum elong	4989 Oct 15 18:34	24° <del>02</del> 55'25	0°43'03
evening set	4983 Aug 31 06:17	25° <del>00</del> 39'39		max. Earth dist.	4989 Oct 14 21:11	24° <del>02</del> 52'05	19.38751 AU
				morning rise	4989 Nov 01 06:35	25° <del>02</del> 56'46	
conjunction	4983 Sep 16 23:32	26° <del>00</del> 40'54	0°46'56	retrograde	4990 Feb 01 09:10	29° <del>02</del> 18'57	
minimum elong	4983 Sep 16 23:32	26° <del>00</del> 40'54	0°46'57	opposition	4990 Apr 16 00:04	27° <del>02</del> 16'15	0°47'06
max. Earth dist.	4983 Sep 16 03:28	26° <del>00</del> 37'49	19.56237 AU	min. Earth dist.	4990 Apr 16 17:58	27° <del>02</del> 14'18	17.38234 AU
morning rise	4983 Oct 03 15:34	27° <del>00</del> 42'00		direct	4990 Jun 30 19:45	25° <del>02</del> 10'25	
	4983 Nov 16 16:02	0° <del>02</del>		evening set	4990 Oct 04 08:05	28° <del>02</del> 38'33	
retrograde	4984 Jan 04 16:04	1° <del>02</del> 03'16					
	4984 Feb 23 19:16	30° <del>02</del> 00'00		conjunction	4990 Oct 20 22:12	29° <del>02</del> 40'16	0°41'21
opposition	4984 Mar 18 13:11	29° <del>02</del> 00'28	0°52'24	minimum elong	4990 Oct 20 22:12	29° <del>02</del> 40'16	0°41'22
min. Earth dist.	4984 Mar 19 05:34	28° <del>02</del> 58'41	17.54124 AU	max. Earth dist.	4990 Oct 20 01:50	29° <del>02</del> 37'06	19.37776 AU
direct	4984 Jun 01 18:48	26° <del>02</del> 55'37			4990 Oct 26 04:20	0° <del>02</del>	
	4984 Aug 29 20:04	0° <del>02</del>		morning rise	4990 Nov 06 09:17	0° <del>02</del> 41'35	
evening set	4984 Sep 04 09:10	0° <del>02</del> 19'49		retrograde	4991 Feb 06 09:29	4° <del>02</del> 03'45	
max. Earth dist.	4984 Sep 20 06:33	1° <del>02</del> 18'10	19.52049 AU	opposition	4991 Apr 20 23:19	2° <del>02</del> 01'11	0°45'02
				min. Earth dist.	4991 Apr 21 16:42	1° <del>02</del> 59'18	17.37504 AU
conjunction	4984 Sep 21 02:19	1° <del>02</del> 21'13	0°47'04		4991 Jun 22 15:30	30° <del>02</del> 00'00	
minimum elong	4984 Sep 21 02:19	1° <del>02</del> 21'13	0°47'04	direct	4991 Jul 05 22:16	29° <del>02</del> 55'21	
morning rise	4984 Oct 07 17:40	2° <del>02</del> 22'24			4991 Jul 19 01:55	0° <del>02</del>	
retrograde	4985 Jan 08 14:07	5° <del>02</del> 43'56		evening set	4991 Oct 09 12:29	3° <del>02</del> 23'51	
opposition	4985 Mar 23 09:47	3° <del>02</del> 41'04	0°52'23	max. Earth dist.	4991 Oct 25 04:51	4° <del>02</del> 22'16	19.37291 AU
min. Earth dist.	4985 Mar 24 03:09	3° <del>02</del> 39'10	17.50149 AU				
direct	4985 Jun 06 16:06	1° <del>02</del> 35'57		conjunction	4991 Oct 26 01:45	4° <del>02</del> 25'32	0°39'21
evening set	4985 Sep 09 12:31	5° <del>02</del> 00'58		minimum elong	4991 Oct 26 01:45	4° <del>02</del> 25'32	0°39'21
max. Earth dist.	4985 Sep 25 07:50	5° <del>02</del> 59'11	19.48308 AU	morning rise	4991 Nov 11 11:57	5° <del>02</del> 26'48	
				retrograde	4992 Feb 11 08:34	8° <del>02</del> 48'54	
conjunction	4985 Sep 26 05:11	6° <del>02</del> 02'29	0°46'54	opposition	4992 Apr 24 23:11	6° <del>02</del> 46'28	0°42'40
minimum elong	4985 Sep 26 05:11	6° <del>02</del> 02'29	0°46'54	min. Earth dist.	4992 Apr 25 17:13	6° <del>02</del> 44'30	17.37263 AU
morning rise	4985 Oct 12 20:08	7° <del>02</del> 03'45		direct	4992 Jul 09 23:52	4° <del>02</del> 40'37	
retrograde	4986 Jan 13 13:39	10° <del>02</del> 25'30		evening set	4992 Oct 13 16:33	8° <del>02</del> 09'22	
opposition	4986 Mar 28 06:49	8° <del>02</del> 22'35	0°52'01	max. Earth dist.	4992 Oct 29 08:50	9° <del>02</del> 07'50	19.37278 AU
min. Earth dist.	4986 Mar 29 00:15	8° <del>02</del> 20'40	17.46661 AU				
direct	4986 Jun 11 16:21	6° <del>02</del> 17'12		conjunction	4992 Oct 30 05:02	9° <del>02</del> 10'59	0°37'05
evening set	4986 Sep 14 15:53	9° <del>02</del> 43'00		minimum elong	4992 Oct 30 05:02	9° <del>02</del> 10'59	0°37'06
max. Earth dist.	4986 Sep 30 11:56	10° <del>02</del> 41'26	19.45070 AU	morning rise	4992 Nov 15 14:16	10° <del>02</del> 12'10	
				retrograde	4993 Feb 15 09:35	13° <del>02</del> 34'08	
conjunction	4986 Oct 01 08:22	10° <del>02</del> 44'37	0°46'24	opposition	4993 Apr 29 23:15	11° <del>02</del> 31'50	0°40'00
minimum elong	4986 Oct 01 08:22	10° <del>02</del> 44'37	0°46'24	min. Earth dist.	4993 Apr 30 16:17	11° <del>02</del> 29'59	17.37462 AU
morning rise	4986 Oct 17 22:32	11° <del>02</del> 45'56		direct	4993 Jul 15 03:29	9° <del>02</del> 26'01	
retrograde	4987 Jan 18 11:50	15° <del>02</del> 07'50		evening set	4993 Oct 18 20:30	12° <del>02</del> 54'53	
opposition	4987 Apr 02 04:27	13° <del>02</del> 04'55	0°51'19				
min. Earth dist.	4987 Apr 02 22:11	13° <del>02</del> 02'58	17.43688 AU	conjunction	4993 Nov 04 08:06	13° <del>02</del> 56'25	0°34'34
direct	4987 Jun 16 15:34	10° <del>02</del> 59'21		minimum elong	4993 Nov 04 08:06	13° <del>02</del> 56'25	0°34'35
evening set	4987 Sep 19 19:51	14° <del>02</del> 25'51		max. Earth dist.	4993 Nov 03 12:02	13° <del>02</del> 53'17	19.37693 AU
				morning rise	4993 Nov 20 16:21	14° <del>02</del> 57'29	



	4993 Nov 21 08:45	15° $\mathbb{M}$	morning rise	4999 Dec 19 17:39	13° $\mathbb{X}$ 16'50	
retrograde	4994 Feb 20 08:06	18° $\mathbb{M}$ 19'16	retrograde	5000 Mar 20 23:00	16° $\mathbb{X}$ 36'24	
opposition	4994 May 04 23:34	16° $\mathbb{M}$ 17'06 0°37'03	opposition	5000 Jun 03 01:37	14° $\mathbb{X}$ 34'50	0°14'59
min. Earth dist.	4994 May 05 17:16	16° $\mathbb{M}$ 15'10 17.38100 AU	min. Earth dist.	5000 Jun 03 14:22	14° $\mathbb{X}$ 33'28	17.51121 AU
	4994 Jun 05 21:08	15° $\mathbb{R}\mathbb{M}$	direct	5000 Aug 18 21:45	12° $\mathbb{X}$ 29'35	
direct	4994 Jul 20 05:04	14° $\mathbb{M}$ 11'17	evening set	5000 Nov 22 09:21	15° $\mathbb{X}$ 56'20	
	4994 Sep 01 14:32	15° $\mathbb{M}$				
evening set	4994 Oct 24 00:05	17° $\mathbb{M}$ 40'11	conjunction	5000 Dec 08 13:57	16° $\mathbb{X}$ 56'36	0°11'37
			minimum elong	5000 Dec 08 13:57	16° $\mathbb{X}$ 56'36	0°11'38
conjunction	4994 Nov 09 10:48	18° $\mathbb{M}$ 41'36 0°31'48	behind sun begin	5000 Dec 08 09:12	16° $\mathbb{X}$ 55'53	
minimum elong	4994 Nov 09 10:48	18° $\mathbb{M}$ 41'36 0°31'48	behind sun end	5000 Dec 08 18:42	16° $\mathbb{X}$ 57'19	
max. Earth dist.	4994 Nov 08 15:03	18° $\mathbb{M}$ 38'31 19.38548 AU	max. Earth dist.	5000 Dec 08 00:24	16° $\mathbb{X}$ 54'30	19.52993 AU
morning rise	4994 Nov 25 18:08	19° $\mathbb{M}$ 42'33	morning rise	5000 Dec 24 15:20	17° $\mathbb{X}$ 56'23	
retrograde	4995 Feb 25 08:50	23° $\mathbb{M}$ 04'05	retrograde	5001 Mar 25 19:52	21° $\mathbb{X}$ 15'30	
opposition	4995 May 09 23:56	21° $\mathbb{M}$ 02'01 0°33'51	opposition	5001 Jun 08 01:25	19° $\mathbb{X}$ 14'03	0°10'52
min. Earth dist.	4995 May 10 16:18	21° $\mathbb{M}$ 00'14 17.39151 AU	min. Earth dist.	5001 Jun 08 11:57	19° $\mathbb{X}$ 12'56	17.55001 AU
direct	4995 Jul 25 08:55	18° $\mathbb{M}$ 56'15	direct	5001 Aug 24 00:10	17° $\mathbb{X}$ 09'01	
evening set	4995 Oct 29 03:17	22° $\mathbb{M}$ 25'03	evening set	5001 Nov 27 08:14	20° $\mathbb{X}$ 35'08	
conjunction	4995 Nov 14 13:05	23° $\mathbb{M}$ 26'20 0°28'50	conjunction	5001 Dec 13 12:00	21° $\mathbb{X}$ 35'09	0°07'54
minimum elong	4995 Nov 14 13:05	23° $\mathbb{M}$ 26'21 0°28'51	minimum elong	5001 Dec 13 12:00	21° $\mathbb{X}$ 35'09	0°07'54
max. Earth dist.	4995 Nov 13 18:13	23° $\mathbb{M}$ 23'23 19.39808 AU	behind sun begin	5001 Dec 13 06:02	21° $\mathbb{X}$ 34'14	
morning rise	4995 Nov 30 19:18	24° $\mathbb{M}$ 27'08	behind sun end	5001 Dec 13 17:58	21° $\mathbb{X}$ 36'03	
retrograde	4996 Mar 01 06:55	27° $\mathbb{M}$ 48'22	max. Earth dist.	5001 Dec 13 01:12	21° $\mathbb{X}$ 33'28	19.57128 AU
opposition	4996 May 14 00:30	25° $\mathbb{M}$ 46'24 0°30'25	morning rise	5001 Dec 29 12:16	22° $\mathbb{X}$ 34'41	
min. Earth dist.	4996 May 14 17:21	25° $\mathbb{M}$ 44'35 17.40626 AU	retrograde	5002 Mar 30 15:48	25° $\mathbb{X}$ 53'17	
direct	4996 Jul 29 10:44	23° $\mathbb{M}$ 40'41	opposition	5002 Jun 13 00:55	23° $\mathbb{X}$ 52'03	0°06'41
evening set	4996 Nov 02 05:57	27° $\mathbb{M}$ 09'18	min. Earth dist.	5002 Jun 13 10:35	23° $\mathbb{X}$ 51'01	17.59370 AU
			direct	5002 Aug 29 01:34	21° $\mathbb{X}$ 47'17	
conjunction	4996 Nov 18 14:41	28° $\mathbb{M}$ 10'25 0°25'40	evening set	5002 Dec 02 06:32	25° $\mathbb{X}$ 12'41	
minimum elong	4996 Nov 18 14:42	28° $\mathbb{M}$ 10'25 0°25'40				
max. Earth dist.	4996 Nov 17 20:07	28° $\mathbb{M}$ 07'30 19.41511 AU	conjunction	5002 Dec 18 09:06	26° $\mathbb{X}$ 12'26	0°04'09
morning rise	4996 Dec 04 20:02	29° $\mathbb{M}$ 11'02	minimum elong	5002 Dec 18 09:06	26° $\mathbb{X}$ 12'26	0°04'10
	4996 Dec 18 13:05	0° $\mathbb{X}$	behind sun begin	5002 Dec 18 02:34	26° $\mathbb{X}$ 11'26	
retrograde	4997 Mar 06 06:44	2° $\mathbb{X}$ 31'55	behind sun end	5002 Dec 18 15:38	26° $\mathbb{X}$ 13'25	
opposition	4997 May 19 00:55	0° $\mathbb{X}$ 30'03 0°26'47	max. Earth dist.	5002 Dec 17 22:47	26° $\mathbb{X}$ 10'50	19.61734 AU
min. Earth dist.	4997 May 19 16:01	0° $\mathbb{X}$ 28'25 17.42543 AU	morning rise	5003 Jan 03 08:37	27° $\mathbb{X}$ 11'43	
	4997 May 30 18:18	30° $\mathbb{R}\mathbb{M}$		5003 Mar 02 11:33	0° $\mathbb{Z}$	
direct	4997 Aug 03 14:22	28° $\mathbb{M}$ 24'24	retrograde	5003 Apr 04 11:48	0° $\mathbb{Z}$ 29'49	
	4997 Oct 04 13:08	0° $\mathbb{X}$		5003 May 08 09:39	30° $\mathbb{R}\mathbb{X}$	
evening set	4997 Nov 07 07:45	1° $\mathbb{X}$ 52'40	opposition	5003 Jun 18 00:10	28° $\mathbb{X}$ 28'47	0°02'29
			min. Earth dist.	5003 Jun 18 07:56	28° $\mathbb{X}$ 27'58	17.64187 AU
conjunction	4997 Nov 23 15:38	2° $\mathbb{X}$ 53'37 0°22'20	direct	5003 Sep 03 02:23	26° $\mathbb{X}$ 24'20	
minimum elong	4997 Nov 23 15:38	2° $\mathbb{X}$ 53'37 0°22'20	evening set	5003 Dec 07 03:47	29° $\mathbb{X}$ 48'57	
max. Earth dist.	4997 Nov 22 22:50	2° $\mathbb{X}$ 51'00 19.43654 AU		5003 Dec 10 04:25	0° $\mathbb{Z}$	
morning rise	4997 Dec 09 19:51	3° $\mathbb{X}$ 54'04				
retrograde	4998 Mar 11 04:04	7° $\mathbb{X}$ 14'33	conjunction	5003 Dec 23 05:31	0° $\mathbb{Z}$ 48'25	0°00'20
opposition	4998 May 24 01:22	5° $\mathbb{X}$ 12'46 0°22'59	minimum elong	5003 Dec 23 05:30	0° $\mathbb{Z}$ 48'25	0°00'21
min. Earth dist.	4998 May 24 16:36	5° $\mathbb{X}$ 11'07 17.44912 AU	behind sun begin	5003 Dec 22 22:54	0° $\mathbb{Z}$ 47'26	
direct	4998 Aug 08 16:12	3° $\mathbb{X}$ 07'12	behind sun end	5003 Dec 23 12:06	0° $\mathbb{Z}$ 49'25	
evening set	4998 Nov 12 09:07	6° $\mathbb{X}$ 35'04	max. Earth dist.	5003 Dec 22 21:55	0° $\mathbb{Z}$ 47'16	19.66745 AU
			morning rise	5004 Jan 08 03:57	1° $\mathbb{Z}$ 47'28	
conjunction	4998 Nov 28 15:50	7° $\mathbb{X}$ 35'48 0°18'51	desc. node	5004 Jan 23 09:11	2° $\mathbb{Z}$ 41'02	
minimum elong	4998 Nov 28 15:51	7° $\mathbb{X}$ 35'48 0°18'52	retrograde	5004 Apr 08 07:12	5° $\mathbb{Z}$ 05'02	
max. Earth dist.	4998 Nov 27 23:20	7° $\mathbb{X}$ 33'13 19.46269 AU	opposition	5004 Jun 21 23:15	3° $\mathbb{Z}$ 04'14	-0°01'42
morning rise	4998 Dec 14 19:13	8° $\mathbb{X}$ 36'02	min. Earth dist.	5004 Jun 22 05:53	3° $\mathbb{Z}$ 03'32	17.69362 AU
retrograde	4999 Mar 16 02:30	11° $\mathbb{X}$ 56'05	direct	5004 Sep 07 02:26	1° $\mathbb{Z}$ 00'08	
opposition	4999 May 29 01:25	9° $\mathbb{X}$ 54'23 0°19'02	evening set	5004 Dec 11 00:28	4° $\mathbb{Z}$ 23'53	
min. Earth dist.	4999 May 29 14:40	9° $\mathbb{X}$ 52'58 17.47766 AU				
direct	4999 Aug 13 19:32	7° $\mathbb{X}$ 48'57	conjunction	5004 Dec 27 01:02	5° $\mathbb{Z}$ 23'05	-0°03'30
evening set	4999 Nov 17 09:38	11° $\mathbb{X}$ 16'18	minimum elong	5004 Dec 27 01:01	5° $\mathbb{Z}$ 23'05	0°03'30
			behind sun begin	5004 Dec 26 18:26	5° $\mathbb{Z}$ 22'05	
conjunction	4999 Dec 03 15:27	12° $\mathbb{X}$ 16'49 0°15'16	behind sun end	5004 Dec 27 07:35	5° $\mathbb{Z}$ 24'04	
minimum elong	4999 Dec 03 15:27	12° $\mathbb{X}$ 16'49 0°15'16	max. Earth dist.	5004 Dec 26 17:58	5° $\mathbb{Z}$ 22'01	19.72084 AU
behind sun begin	4999 Dec 03 13:21	12° $\mathbb{X}$ 16'30	morning rise	5005 Jan 11 22:45	6° $\mathbb{Z}$ 21'51	
behind sun end	4999 Dec 03 17:33	12° $\mathbb{X}$ 17'09	retrograde	5005 Apr 13 02:45	9° $\mathbb{Z}$ 38'53	
max. Earth dist.	4999 Dec 03 01:23	12° $\mathbb{X}$ 14'38 19.49371 AU	opposition	5005 Jun 26 21:53	7° $\mathbb{Z}$ 38'18	-0°05'52

min. Earth dist.	5005 Jun 27 03:01	7° $\overline{3}$ 37'45	17.74848 AU	retrograde	5011 May 10 10:41	6° $\approx$ 28'02	
direct	5005 Sep 12 01:33	5° $\overline{3}$ 34'32		opposition	5011 Jul 25 04:18	4° $\approx$ 28'19	-0°28'43
evening set	5005 Dec 15 20:04	8° $\overline{3}$ 57'23		min. Earth dist.	5011 Jul 25 02:00	4° $\approx$ 28'33	18.10376 AU
				direct	5011 Oct 10 09:57	2° $\approx$ 26'30	
conjunction	5005 Dec 31 19:49	9° $\overline{3}$ 56'17	-0°07'12	evening set	5012 Jan 12 00:10	5° $\approx$ 42'55	
minimum elong	5005 Dec 31 19:50	9° $\overline{3}$ 56'17	0°07'11				
behind sun begin	5005 Dec 31 13:44	9° $\overline{3}$ 55'22		conjunction	5012 Jan 27 18:57	6° $\approx$ 40'02	-0°27'23
behind sun end	5006 Jan 01 01:55	9° $\overline{3}$ 57'12		minimum elong	5012 Jan 27 18:57	6° $\approx$ 40'02	0°27'23
max. Earth dist.	5005 Dec 31 15:13	9° $\overline{3}$ 55'36	19.77687 AU	max. Earth dist.	5012 Jan 27 22:24	6° $\approx$ 40'33	20.13412 AU
morning rise	5006 Jan 16 16:39	10° $\overline{3}$ 54'48		morning rise	5012 Feb 12 12:05	7° $\approx$ 36'55	
retrograde	5006 Apr 17 21:40	14° $\overline{3}$ 11'16		retrograde	5012 May 14 02:47	10° $\approx$ 49'48	
opposition	5006 Jul 01 20:12	12° $\overline{3}$ 10'53	-0°09'57	opposition	5012 Jul 28 23:18	8° $\approx$ 50'09	-0°31'58
min. Earth dist.	5006 Jul 01 23:58	12° $\overline{3}$ 10'30	17.80540 AU	min. Earth dist.	5012 Jul 28 18:40	8° $\approx$ 50'38	18.16427 AU
direct	5006 Sep 17 00:17	10° $\overline{3}$ 07'29		direct	5012 Oct 14 06:16	6° $\approx$ 48'38	
evening set	5006 Dec 20 15:07	13° $\overline{3}$ 29'22		evening set	5013 Jan 15 13:36	10° $\approx$ 03'54	
conjunction	5007 Jan 05 13:47	14° $\overline{3}$ 27'58	-0°10'50	conjunction	5013 Jan 31 07:42	11° $\approx$ 00'44	-0°30'14
minimum elong	5007 Jan 05 13:46	14° $\overline{3}$ 27'58	0°10'50	minimum elong	5013 Jan 31 07:42	11° $\approx$ 00'44	0°30'12
behind sun begin	5007 Jan 05 08:43	14° $\overline{3}$ 27'12		max. Earth dist.	5013 Jan 31 12:39	11° $\approx$ 01'29	20.19479 AU
behind sun end	5007 Jan 05 18:50	14° $\overline{3}$ 28'44		morning rise	5013 Feb 16 00:28	11° $\approx$ 57'22	
max. Earth dist.	5007 Jan 05 09:40	14° $\overline{3}$ 27'21	19.83463 AU		5013 Apr 29 11:05	15° $\approx$	
morning rise	5007 Jan 21 09:55	15° $\overline{3}$ 26'12		retrograde	5013 May 18 15:38	15° $\approx$ 09'40	
retrograde	5007 Apr 22 16:08	18° $\overline{3}$ 42'06			5013 Jun 07 03:17	15° $\approx$	
opposition	5007 Jul 06 18:03	16° $\overline{3}$ 41'54	-0°13'58	opposition	5013 Aug 02 17:37	13° $\approx$ 10'05	-0°35'01
min. Earth dist.	5007 Jul 06 20:44	16° $\overline{3}$ 41'37	17.86394 AU	min. Earth dist.	5013 Aug 02 12:21	13° $\approx$ 10'38	18.22535 AU
direct	5007 Sep 21 22:18	14° $\overline{3}$ 38'50		direct	5013 Oct 18 23:08	11° $\approx$ 08'52	
evening set	5007 Dec 25 09:10	17° $\overline{3}$ 59'42		evening set	5014 Jan 20 02:05	14° $\approx$ 23'01	
					5014 Jan 30 10:05	15° $\approx$	
conjunction	5008 Jan 10 07:03	18° $\overline{3}$ 58'01	-0°14'24				
minimum elong	5008 Jan 10 07:02	18° $\overline{3}$ 58'01	0°14'23	conjunction	5014 Feb 04 19:40	15° $\approx$ 19'34	-0°32'52
behind sun begin	5008 Jan 10 03:55	18° $\overline{3}$ 57'32		minimum elong	5014 Feb 04 19:40	15° $\approx$ 19'34	0°32'52
behind sun end	5008 Jan 10 10:09	18° $\overline{3}$ 58'29		max. Earth dist.	5014 Feb 05 02:18	15° $\approx$ 20'34	20.25613 AU
max. Earth dist.	5008 Jan 10 05:04	18° $\overline{3}$ 57'43	19.89372 AU	morning rise	5014 Feb 20 12:06	16° $\approx$ 15'57	
morning rise	5008 Jan 26 02:22	19° $\overline{3}$ 55'58		retrograde	5014 May 23 06:39	19° $\approx$ 27'42	
retrograde	5008 Apr 26 10:18	23° $\overline{3}$ 11'16		opposition	5014 Aug 07 11:12	17° $\approx$ 28'13	-0°37'50
opposition	5008 Jul 10 15:31	21° $\overline{3}$ 11'14	-0°17'53	min. Earth dist.	5014 Aug 07 03:22	17° $\approx$ 29'01	18.28687 AU
min. Earth dist.	5008 Jul 10 16:29	21° $\overline{3}$ 11'08	17.92336 AU	direct	5014 Oct 23 17:49	15° $\approx$ 27'20	
direct	5008 Sep 25 20:36	19° $\overline{3}$ 08'31		evening set	5015 Jan 24 13:48	18° $\approx$ 40'23	
evening set	5008 Dec 29 02:18	22° $\overline{3}$ 28'19					
				conjunction	5015 Feb 09 06:49	19° $\approx$ 36'40	-0°35'19
conjunction	5009 Jan 13 23:13	23° $\overline{3}$ 26'19	-0°17'51	minimum elong	5015 Feb 09 06:48	19° $\approx$ 36'40	0°35'19
minimum elong	5009 Jan 13 23:13	23° $\overline{3}$ 26'19	0°17'50	max. Earth dist.	5015 Feb 09 15:07	19° $\approx$ 37'55	20.31778 AU
max. Earth dist.	5009 Jan 13 21:59	23° $\overline{3}$ 26'08	19.95344 AU	morning rise	5015 Feb 24 22:56	20° $\approx$ 32'50	
morning rise	5009 Jan 29 18:00	24° $\overline{3}$ 24'00		retrograde	5015 May 27 18:30	23° $\approx$ 44'04	
retrograde	5009 May 01 03:03	27° $\overline{3}$ 38'43		opposition	5015 Aug 12 04:21	21° $\approx$ 44'42	-0°40'25
opposition	5009 Jul 15 12:27	25° $\overline{3}$ 38'49	-0°21'39	min. Earth dist.	5015 Aug 11 19:56	21° $\approx$ 45'34	18.34876 AU
min. Earth dist.	5009 Jul 15 12:39	25° $\overline{3}$ 38'47	17.98338 AU	direct	5015 Oct 28 08:45	19° $\approx$ 44'11	
direct	5009 Sep 30 17:14	23° $\overline{3}$ 36'24		evening set	5016 Jan 29 00:43	22° $\approx$ 56'10	
evening set	5010 Jan 02 18:32	26° $\overline{3}$ 55'06					
				conjunction	5016 Feb 13 17:18	23° $\approx$ 52'12	-0°37'33
conjunction	5010 Jan 18 14:47	27° $\overline{3}$ 52'48	-0°21'11	minimum elong	5016 Feb 13 17:18	23° $\approx$ 52'12	0°37'33
minimum elong	5010 Jan 18 14:47	27° $\overline{3}$ 52'48	0°21'10	max. Earth dist.	5016 Feb 14 03:03	23° $\approx$ 53'39	20.37973 AU
max. Earth dist.	5010 Jan 18 15:22	27° $\overline{3}$ 52'54	20.01357 AU	morning rise	5016 Feb 29 09:15	24° $\approx$ 48'08	
morning rise	5010 Feb 03 08:54	28° $\overline{3}$ 50'13		retrograde	5016 May 31 08:34	27° $\approx$ 58'53	
	5010 Feb 23 20:26	0° $\approx$		opposition	5016 Aug 15 20:44	25° $\approx$ 59'40	-0°42'46
retrograde	5010 May 05 20:06	2° $\approx$ 04'19		min. Earth dist.	5016 Aug 15 09:46	26° $\approx$ 00'46	18.41056 AU
opposition	5010 Jul 20 08:32	0° $\approx$ 04'31	-0°25'17	direct	5016 Nov 01 01:35	23° $\approx$ 59'32	
min. Earth dist.	5010 Jul 20 06:51	0° $\approx$ 04'42	18.04346 AU	evening set	5017 Feb 01 10:51	27° $\approx$ 10'28	
	5010 Jul 22 04:15	30° $\approx$					
direct	5010 Oct 05 14:51	28° $\overline{3}$ 02'24		conjunction	5017 Feb 17 03:06	28° $\approx$ 06'15	-0°39'34
	5010 Dec 14 14:17	0° $\approx$		minimum elong	5017 Feb 17 03:06	28° $\approx$ 06'15	0°39'35
evening set	5011 Jan 07 09:57	1° $\approx$ 19'59		max. Earth dist.	5017 Feb 17 14:31	28° $\approx$ 07'58	20.44118 AU
				morning rise	5017 Mar 04 18:55	29° $\approx$ 02'00	
conjunction	5011 Jan 23 05:22	2° $\approx$ 17'24	-0°24'22		5017 Mar 22 01:17	0° $\approx$	
minimum elong	5011 Jan 23 05:22	2° $\approx$ 17'24	0°24'21	retrograde	5017 Jun 04 19:40	2° $\approx$ 12'18	
max. Earth dist.	5011 Jan 23 06:57	2° $\approx$ 17'38	20.07371 AU	opposition	5017 Aug 20 12:40	0° $\approx$ 13'13	-0°44'52
morning rise	5011 Feb 07 23:00	3° $\approx$ 14'33		min. Earth dist.	5017 Aug 20 01:27	0° $\approx$ 14'21	18.47164 AU

	5017 Aug 25 23:23	30° $\mathbb{R}$	max. Earth dist.	5024 Mar 18 02:54	27° $\mathbb{H}$ 11'53	20.80675 AU
direct	5017 Nov 05 15:01	28° $\mathbb{R}$ 13'29	morning rise	5024 Apr 02 02:50	28° $\mathbb{H}$ 04'07	
	5018 Jan 11 05:53	0° $\mathbb{H}$		5024 May 10 06:07	0° $\mathbb{Y}$	
evening set	5018 Feb 05 20:26	1° $\mathbb{H}$ 23'24	retrograde	5024 Jul 04 00:07	1° $\mathbb{Y}$ 11'54	
				5024 Aug 30 12:36	30° $\mathbb{R}$ $\mathbb{H}$	
conjunction	5018 Feb 21 12:21	2° $\mathbb{H}$ 18'58 -0°41'22	opposition	5024 Sep 19 12:18	29° $\mathbb{H}$ 13'18 -0°52'21	
minimum elong	5018 Feb 21 12:20	2° $\mathbb{H}$ 18'58 0°41'21	min. Earth dist.	5024 Sep 18 18:49	29° $\mathbb{H}$ 15'03	18.82621 AU
max. Earth dist.	5018 Feb 22 00:44	2° $\mathbb{H}$ 20'48 20.50166 AU	direct	5024 Dec 05 02:45	27° $\mathbb{H}$ 15'38	
morning rise	5018 Mar 09 04:07	3° $\mathbb{H}$ 14'30		5025 Feb 28 07:44	0° $\mathbb{Y}$	
retrograde	5018 Jun 09 08:37	6° $\mathbb{H}$ 24'23	evening set	5025 Mar 06 00:29	0° $\mathbb{Y}$ 19'15	
opposition	5018 Aug 25 03:45	4° $\mathbb{H}$ 25'27 -0°46'43				
min. Earth dist.	5018 Aug 24 14:21	4° $\mathbb{H}$ 26'48 18.53131 AU	conjunction	5025 Mar 21 16:13	1° $\mathbb{Y}$ 13'38 -0°47'23	
direct	5018 Nov 10 05:49	2° $\mathbb{H}$ 26'06	minimum elong	5025 Mar 21 16:13	1° $\mathbb{Y}$ 13'38 0°47'22	
evening set	5019 Feb 10 05:26	5° $\mathbb{H}$ 35'02	max. Earth dist.	5025 Mar 22 10:16	1° $\mathbb{Y}$ 16'16 20.84412 AU	
			morning rise	5025 Apr 06 09:21	2° $\mathbb{Y}$ 08'14	
conjunction	5019 Feb 25 21:07	6° $\mathbb{H}$ 30'23 -0°42'56	retrograde	5025 Jul 08 08:16	5° $\mathbb{Y}$ 15'43	
minimum elong	5019 Feb 25 21:07	6° $\mathbb{H}$ 30'23 0°42'57	opposition	5025 Sep 23 23:48	3° $\mathbb{Y}$ 17'04 -0°52'22	
max. Earth dist.	5019 Feb 26 11:01	6° $\mathbb{H}$ 32'27 20.56032 AU	min. Earth dist.	5025 Sep 23 06:43	3° $\mathbb{Y}$ 18'47 18.86172 AU	
morning rise	5019 Mar 13 12:50	7° $\mathbb{H}$ 25'45	direct	5025 Dec 09 11:15	1° $\mathbb{Y}$ 19'32	
retrograde	5019 Jun 13 19:10	10° $\mathbb{H}$ 35'15	evening set	5026 Mar 10 06:03	4° $\mathbb{Y}$ 22'24	
opposition	5019 Aug 29 18:40	8° $\mathbb{H}$ 36'26 -0°48'19				
min. Earth dist.	5019 Aug 29 05:17	8° $\mathbb{H}$ 37'47 18.58896 AU	conjunction	5026 Mar 25 21:56	5° $\mathbb{Y}$ 16'40 -0°47'16	
direct	5019 Nov 14 17:58	6° $\mathbb{H}$ 37'28	minimum elong	5026 Mar 25 21:56	5° $\mathbb{Y}$ 16'40 0°47'17	
evening set	5020 Feb 14 13:46	9° $\mathbb{H}$ 45'26	max. Earth dist.	5026 Mar 26 15:59	5° $\mathbb{Y}$ 19'18 20.87789 AU	
			morning rise	5026 Apr 10 15:34	6° $\mathbb{Y}$ 11'12	
conjunction	5020 Mar 01 05:15	10° $\mathbb{H}$ 40'34 -0°44'16	retrograde	5026 Jul 12 18:04	9° $\mathbb{Y}$ 18'26	
minimum elong	5020 Mar 01 05:14	10° $\mathbb{H}$ 40'34 0°44'16	opposition	5026 Sep 28 10:37	7° $\mathbb{Y}$ 19'43 -0°52'06	
max. Earth dist.	5020 Mar 01 19:45	10° $\mathbb{H}$ 42'43 20.61673 AU	min. Earth dist.	5026 Sep 27 16:11	7° $\mathbb{Y}$ 21'33 18.89383 AU	
morning rise	5020 Mar 16 21:05	11° $\mathbb{H}$ 35'46	direct	5026 Dec 13 21:15	5° $\mathbb{Y}$ 22'19	
retrograde	5020 Jun 17 07:14	14° $\mathbb{H}$ 44'54	evening set	5027 Mar 14 11:15	8° $\mathbb{Y}$ 24'29	
opposition	5020 Sep 02 08:52	12° $\mathbb{H}$ 46'12 -0°49'39				
min. Earth dist.	5020 Sep 01 17:34	12° $\mathbb{H}$ 47'45 18.64394 AU	conjunction	5027 Mar 30 03:29	9° $\mathbb{Y}$ 18'41 -0°46'56	
direct	5020 Nov 18 07:13	10° $\mathbb{H}$ 47'34	minimum elong	5027 Mar 30 03:29	9° $\mathbb{Y}$ 18'41 0°46'56	
evening set	5021 Feb 17 21:42	13° $\mathbb{H}$ 54'37	max. Earth dist.	5027 Mar 30 22:51	9° $\mathbb{Y}$ 21'30 20.90830 AU	
			morning rise	5027 Apr 14 21:30	10° $\mathbb{Y}$ 13'09	
conjunction	5021 Mar 05 13:07	14° $\mathbb{H}$ 49'34 -0°45'23	retrograde	5027 Jul 17 02:06	13° $\mathbb{Y}$ 20'11	
minimum elong	5021 Mar 05 13:07	14° $\mathbb{H}$ 49'34 0°45'22	opposition	5027 Oct 02 21:09	11° $\mathbb{Y}$ 21'24 -0°51'35	
max. Earth dist.	5021 Mar 06 04:52	14° $\mathbb{H}$ 51'54 20.66999 AU	min. Earth dist.	5027 Oct 02 02:57	11° $\mathbb{Y}$ 23'14 18.92275 AU	
morning rise	5021 Mar 21 05:02	15° $\mathbb{H}$ 44'38	direct	5027 Dec 18 05:03	9° $\mathbb{Y}$ 24'10	
retrograde	5021 Jun 21 17:02	18° $\mathbb{H}$ 53'24	evening set	5028 Mar 17 16:07	12° $\mathbb{Y}$ 25'42	
opposition	5021 Sep 06 22:31	16° $\mathbb{H}$ 54'47 -0°50'44				
min. Earth dist.	5021 Sep 06 07:35	16° $\mathbb{H}$ 56'17 18.69555 AU	conjunction	5028 Apr 02 08:40	13° $\mathbb{Y}$ 19'50 -0°46'21	
direct	5021 Nov 22 17:55	14° $\mathbb{H}$ 56'27	minimum elong	5028 Apr 02 08:40	13° $\mathbb{Y}$ 19'50 0°46'22	
evening set	5022 Feb 22 05:12	18° $\mathbb{H}$ 02'36	max. Earth dist.	5028 Apr 03 03:57	13° $\mathbb{Y}$ 22'37 20.93576 AU	
			morning rise	5028 Apr 18 03:21	14° $\mathbb{Y}$ 14'16	
conjunction	5022 Mar 09 20:33	18° $\mathbb{H}$ 57'24 -0°46'14	retrograde	5028 Jul 20 11:33	17° $\mathbb{Y}$ 21'08	
minimum elong	5022 Mar 09 20:32	18° $\mathbb{H}$ 57'24 0°46'14	min. Earth dist.	5028 Oct 05 11:41	15° $\mathbb{Y}$ 24'15 18.94868 AU	
max. Earth dist.	5022 Mar 10 12:21	18° $\mathbb{H}$ 59'43 20.71972 AU	opposition	5028 Oct 06 07:07	15° $\mathbb{Y}$ 22'19 -0°50'49	
morning rise	5022 Mar 25 12:43	19° $\mathbb{H}$ 52'18	direct	5028 Dec 21 13:18	13° $\mathbb{Y}$ 25'13	
retrograde	5022 Jun 26 04:29	23° $\mathbb{H}$ 00'44	evening set	5029 Mar 21 20:52	16° $\mathbb{Y}$ 26'13	
opposition	5022 Sep 11 11:37	21° $\mathbb{H}$ 02'10 -0°51'32				
min. Earth dist.	5022 Sep 10 19:06	21° $\mathbb{H}$ 03'49 18.74328 AU	conjunction	5029 Apr 06 13:54	17° $\mathbb{Y}$ 20'18 -0°45'34	
direct	5022 Nov 27 06:00	19° $\mathbb{H}$ 04'06	minimum elong	5029 Apr 06 13:54	17° $\mathbb{Y}$ 20'18 0°45'34	
evening set	5023 Feb 26 12:04	22° $\mathbb{H}$ 09'22	max. Earth dist.	5029 Apr 07 10:19	17° $\mathbb{Y}$ 23'15 20.96000 AU	
			morning rise	5029 Apr 22 09:05	18° $\mathbb{Y}$ 14'43	
conjunction	5023 Mar 14 03:29	23° $\mathbb{H}$ 04'01 -0°46'52	retrograde	5029 Jul 24 19:10	21° $\mathbb{Y}$ 21'28	
minimum elong	5023 Mar 14 03:29	23° $\mathbb{H}$ 04'01 0°46'51	opposition	5029 Oct 10 16:38	19° $\mathbb{Y}$ 22'38 -0°49'49	
max. Earth dist.	5023 Mar 14 20:24	23° $\mathbb{H}$ 06'29 20.76527 AU	min. Earth dist.	5029 Oct 09 21:35	19° $\mathbb{Y}$ 24'32 18.97131 AU	
morning rise	5023 Mar 29 19:51	23° $\mathbb{H}$ 58'49	direct	5029 Dec 25 20:37	17° $\mathbb{Y}$ 25'41	
retrograde	5023 Jun 30 13:19	27° $\mathbb{H}$ 06'55	evening set	5030 Mar 26 01:31	20° $\mathbb{Y}$ 26'13	
min. Earth dist.	5023 Sep 15 08:16	25° $\mathbb{H}$ 09'58 18.78677 AU				
opposition	5023 Sep 16 00:22	25° $\mathbb{H}$ 08'21 -0°52'05	conjunction	5030 Apr 10 18:57	21° $\mathbb{Y}$ 20'17 -0°44'33	
direct	5023 Dec 01 15:36	23° $\mathbb{H}$ 10'30	minimum elong	5030 Apr 10 18:57	21° $\mathbb{Y}$ 20'17 0°44'32	
evening set	5024 Mar 01 18:34	26° $\mathbb{H}$ 14'56	max. Earth dist.	5030 Apr 11 14:58	21° $\mathbb{Y}$ 23'10 20.98106 AU	
			morning rise	5030 Apr 26 14:53	22° $\mathbb{Y}$ 14'42	
conjunction	5024 Mar 17 10:03	27° $\mathbb{H}$ 09'26 -0°47'14	retrograde	5030 Jul 29 04:48	25° $\mathbb{Y}$ 21'24	
minimum elong	5024 Mar 17 10:03	27° $\mathbb{H}$ 09'26 0°47'15	min. Earth dist.	5030 Oct 14 05:56	23° $\mathbb{Y}$ 24'32 18.99063 AU	

opposition	5030 Oct 15 01:54	23° $\Upsilon$ 22'32 -0°48'34	direct	5037 Jan 22 17:56	15° $\mathcal{B}$ 24'26
direct	5030 Dec 30 03:23	21° $\Upsilon$ 25'44	evening set	5037 Apr 22 12:03	18° $\mathcal{B}$ 23'36
evening set	5031 Mar 30 05:56	24° $\Upsilon$ 25'52			
conjunction	5031 Apr 14 23:58	25° $\Upsilon$ 19'56 -0°43'19	conjunction	5037 May 08 10:15	19° $\mathcal{B}$ 18'01 -0°31'49
minimum elong	5031 Apr 14 23:58	25° $\Upsilon$ 19'56 0°43'20	minimum elong	5037 May 08 10:15	19° $\mathcal{B}$ 18'01 0°31'49
max. Earth dist.	5031 Apr 15 20:59	25° $\Upsilon$ 22'57 20.99850 AU	max. Earth dist.	5037 May 09 04:53	19° $\mathcal{B}$ 20'41 21.00761 AU
morning rise	5031 Apr 30 20:29	26° $\Upsilon$ 14'22	morning rise	5037 May 24 11:37	20° $\mathcal{B}$ 12'54
retrograde	5031 Aug 02 12:15	29° $\Upsilon$ 21'04	retrograde	5037 Aug 26 17:50	23° $\mathcal{B}$ 20'16
opposition	5031 Oct 19 11:02	27° $\Upsilon$ 22'11 -0°47'05	opposition	5037 Nov 12 13:17	21° $\mathcal{B}$ 21'01 -0°33'45
min. Earth dist.	5031 Oct 18 15:34	27° $\Upsilon$ 24'08 19.00617 AU	min. Earth dist.	5037 Nov 11 20:44	21° $\mathcal{B}$ 22'41 19.00010 AU
direct	5032 Jan 03 10:20	25° $\Upsilon$ 25'32	direct	5038 Jan 26 23:50	19° $\mathcal{B}$ 24'30
evening set	5032 Apr 02 10:35	28° $\Upsilon$ 25'21	evening set	5038 Apr 26 17:45	22° $\mathcal{B}$ 23'42
conjunction	5032 Apr 18 05:08	29° $\Upsilon$ 19'25 -0°41'53	conjunction	5038 May 12 16:42	23° $\mathcal{B}$ 18'13 -0°29'17
minimum elong	5032 Apr 18 05:08	29° $\Upsilon$ 19'25 0°41'53	minimum elong	5038 May 12 16:42	23° $\mathcal{B}$ 18'13 0°29'18
max. Earth dist.	5032 Apr 19 01:27	29° $\Upsilon$ 22'21 21.01218 AU	max. Earth dist.	5038 May 13 09:50	23° $\mathcal{B}$ 20'40 20.99104 AU
	5032 Apr 30 00:10	0° $\mathcal{B}$	morning rise	5038 May 28 19:06	24° $\mathcal{B}$ 13'14
morning rise	5032 May 04 02:30	0° $\mathcal{B}$ 13'53	retrograde	5038 Aug 31 03:29	27° $\mathcal{B}$ 20'47
retrograde	5032 Aug 05 22:22	3° $\mathcal{B}$ 20'37	opposition	5038 Nov 16 21:14	25° $\mathcal{B}$ 21'22 -0°30'52
opposition	5032 Oct 22 19:42	1° $\mathcal{B}$ 21'45 -0°45'23	min. Earth dist.	5038 Nov 16 05:05	25° $\mathcal{B}$ 23'00 18.98124 AU
min. Earth dist.	5032 Oct 21 23:48	1° $\mathcal{B}$ 23'44 19.01777 AU	direct	5039 Jan 31 06:34	23° $\mathcal{B}$ 24'43
	5032 Nov 29 12:26	30° $\mathcal{R}\Upsilon$	evening set	5039 Apr 30 23:32	26° $\mathcal{B}$ 24'00
direct	5033 Jan 06 16:31	29° $\Upsilon$ 25'12	conjunction	5039 May 16 23:25	27° $\mathcal{B}$ 18'40 -0°26'36
	5033 Feb 12 20:23	0° $\mathcal{B}$	minimum elong	5039 May 16 23:26	27° $\mathcal{B}$ 18'40 0°26'36
evening set	5033 Apr 06 15:17	2° $\mathcal{B}$ 24'47	max. Earth dist.	5039 May 17 16:53	27° $\mathcal{B}$ 21'10 20.97001 AU
conjunction	5033 Apr 22 10:32	3° $\mathcal{B}$ 18'53 -0°40'14	morning rise	5039 Jun 02 02:38	28° $\mathcal{B}$ 13'49
minimum elong	5033 Apr 22 10:32	3° $\mathcal{B}$ 18'53 0°40'16		5039 Jul 07 03:08	0° $\mathcal{B}$
max. Earth dist.	5033 Apr 23 07:27	3° $\mathcal{B}$ 21'53 21.02147 AU	retrograde	5039 Sep 04 11:52	1° $\mathcal{B}$ 21'36
morning rise	5033 May 08 08:34	4° $\mathcal{B}$ 13'24		5039 Nov 05 06:34	30° $\mathcal{R}\mathcal{B}$
retrograde	5033 Aug 10 05:54	7° $\mathcal{B}$ 20'13	opposition	5039 Nov 21 05:06	29° $\mathcal{B}$ 22'00 -0°27'50
min. Earth dist.	5033 Oct 26 09:17	5° $\mathcal{B}$ 23'14 19.02470 AU	min. Earth dist.	5039 Nov 20 13:49	29° $\mathcal{B}$ 23'33 18.95819 AU
opposition	5033 Oct 27 04:19	5° $\mathcal{B}$ 21'19 -0°43'27	direct	5040 Feb 04 12:46	27° $\mathcal{B}$ 25'12
direct	5034 Jan 10 22:45	3° $\mathcal{B}$ 24'54		5040 Apr 26 18:55	0° $\mathcal{B}$
evening set	5034 Apr 10 20:11	6° $\mathcal{B}$ 24'17	evening set	5040 May 04 05:51	0° $\mathcal{B}$ 24'39
conjunction	5034 Apr 26 16:00	7° $\mathcal{B}$ 18'26 -0°38'24	conjunction	5040 May 20 06:32	1° $\mathcal{B}$ 19'27 -0°23'48
minimum elong	5034 Apr 26 16:00	7° $\mathcal{B}$ 18'26 0°38'25	minimum elong	5040 May 20 06:32	1° $\mathcal{B}$ 19'27 0°23'49
max. Earth dist.	5034 Apr 27 11:46	7° $\mathcal{B}$ 21'16 21.02604 AU	max. Earth dist.	5040 May 20 22:27	1° $\mathcal{B}$ 21'44 20.94525 AU
morning rise	5034 May 12 14:54	8° $\mathcal{B}$ 13'01	morning rise	5040 Jun 05 10:48	2° $\mathcal{B}$ 14'46
retrograde	5034 Aug 14 16:17	11° $\mathcal{B}$ 19'57	retrograde	5040 Sep 07 21:02	5° $\mathcal{B}$ 22'48
opposition	5034 Oct 31 12:46	9° $\mathcal{B}$ 21'01 -0°41'19	opposition	5040 Nov 24 12:45	3° $\mathcal{B}$ 23'02 -0°24'39
min. Earth dist.	5034 Oct 30 17:43	9° $\mathcal{B}$ 22'55 19.02673 AU	min. Earth dist.	5040 Nov 23 22:00	3° $\mathcal{B}$ 24'31 18.93171 AU
direct	5035 Jan 15 05:14	7° $\mathcal{B}$ 24'38	direct	5041 Feb 07 18:57	1° $\mathcal{B}$ 26'03
evening set	5035 Apr 15 01:16	10° $\mathcal{B}$ 23'54	evening set	5041 May 08 12:29	4° $\mathcal{B}$ 25'46
conjunction	5035 Apr 30 21:52	11° $\mathcal{B}$ 18'07 -0°36'23	conjunction	5041 May 24 14:10	5° $\mathcal{B}$ 20'44 -0°20'52
minimum elong	5035 Apr 30 21:52	11° $\mathcal{B}$ 18'07 0°36'24	minimum elong	5041 May 24 14:10	5° $\mathcal{B}$ 20'44 0°20'52
max. Earth dist.	5035 May 01 17:54	11° $\mathcal{B}$ 21'00 21.02534 AU	max. Earth dist.	5041 May 25 06:17	5° $\mathcal{B}$ 23'03 20.91706 AU
morning rise	5035 May 16 21:29	12° $\mathcal{B}$ 12'48	morning rise	5041 Jun 09 19:12	6° $\mathcal{B}$ 16'12
	5035 Jul 21 08:26	15° $\mathcal{B}$	retrograde	5041 Sep 12 06:17	9° $\mathcal{B}$ 24'32
retrograde	5035 Aug 18 23:58	15° $\mathcal{B}$ 19'51	opposition	5041 Nov 28 20:34	7° $\mathcal{B}$ 24'36 -0°21'21
	5035 Sep 17 01:53	15° $\mathcal{R}\mathcal{B}$	min. Earth dist.	5041 Nov 28 06:34	7° $\mathcal{B}$ 26'02 18.90193 AU
opposition	5035 Nov 04 21:08	13° $\mathcal{B}$ 20'51 -0°38'59	direct	5042 Feb 12 01:19	5° $\mathcal{B}$ 27'28
min. Earth dist.	5035 Nov 04 03:07	13° $\mathcal{B}$ 22'40 19.02329 AU	evening set	5042 May 12 19:29	8° $\mathcal{B}$ 27'30
direct	5036 Jan 19 11:00	11° $\mathcal{B}$ 24'29	conjunction	5042 May 28 21:57	9° $\mathcal{B}$ 22'38 -0°17'49
evening set	5036 Apr 18 06:34	14° $\mathcal{B}$ 23'41	minimum elong	5042 May 28 21:58	9° $\mathcal{B}$ 22'38 0°17'50
	5036 Apr 28 22:37	15° $\mathcal{B}$	max. Earth dist.	5042 May 29 12:29	9° $\mathcal{B}$ 24'43 20.88592 AU
conjunction	5036 May 04 03:53	15° $\mathcal{B}$ 17'59 -0°34'11	morning rise	5042 Jun 14 04:03	10° $\mathcal{B}$ 18'17
minimum elong	5036 May 04 03:53	15° $\mathcal{B}$ 17'59 0°34'12	retrograde	5042 Sep 16 15:55	13° $\mathcal{B}$ 26'59
max. Earth dist.	5036 May 04 22:25	15° $\mathcal{B}$ 20'38 21.01927 AU	opposition	5042 Dec 03 04:32	11° $\mathcal{B}$ 26'53 -0°17'56
morning rise	5036 May 20 04:30	16° $\mathcal{B}$ 12'46	min. Earth dist.	5042 Dec 02 15:06	11° $\mathcal{B}$ 28'15 18.86938 AU
retrograde	5036 Aug 22 10:12	19° $\mathcal{B}$ 19'58	direct	5043 Feb 16 07:26	9° $\mathcal{B}$ 29'34
min. Earth dist.	5036 Nov 07 11:41	17° $\mathcal{B}$ 22'38 19.01440 AU	evening set	5043 May 17 03:03	12° $\mathcal{B}$ 30'00
opposition	5036 Nov 08 05:20	17° $\mathcal{B}$ 20'51 -0°36'27	conjunction	5043 Jun 02 06:35	13° $\mathcal{B}$ 25'20 -0°14'41

minimum elong	5043 Jun 02 06:34	13° $\Pi$ 25'20	0°14'42	max. Earth dist.	5048 Jun 22 19:06	3° $\mathfrak{D}$ 56'53	20.63935 AU
behind sun begin	5043 Jun 02 03:53	13° $\Pi$ 24'58		morning rise	5048 Jul 08 22:51	4° $\mathfrak{D}$ 52'44	
behind sun end	5043 Jun 02 09:16	13° $\Pi$ 25'43		retrograde	5048 Oct 11 13:40	8° $\mathfrak{D}$ 04'13	
max. Earth dist.	5043 Jun 02 21:16	13° $\Pi$ 27'26	20.85195 AU	opposition	5048 Dec 27 08:47	6° $\mathfrak{D}$ 03'28	0°04'09
morning rise	5043 Jun 18 13:27	14° $\Pi$ 21'10		min. Earth dist.	5048 Dec 27 02:18	6° $\mathfrak{D}$ 04'08	18.61342 AU
retrograde	5043 Sep 21 01:52	17° $\Pi$ 30'14		direct	5049 Mar 12 02:25	4° $\mathfrak{D}$ 04'55	
opposition	5043 Dec 07 12:32	15° $\Pi$ 30'02	-0°14'25	evening set	5049 Jun 10 15:26	7° $\mathfrak{D}$ 09'12	
min. Earth dist.	5043 Dec 06 23:54	15° $\Pi$ 31'19	18.83402 AU				
direct	5044 Feb 20 13:58	13° $\Pi$ 32'33		conjunction	5049 Jun 27 00:33	8° $\mathfrak{D}$ 05'57	0°05'30
evening set	5044 May 20 11:18	16° $\Pi$ 33'27		minimum elong	5049 Jun 27 00:32	8° $\mathfrak{D}$ 05'57	0°05'29
				behind sun begin	5049 Jun 26 18:05	8° $\mathfrak{D}$ 05'02	
conjunction	5044 Jun 05 15:40	17° $\Pi$ 28'59	-0°11'29	behind sun end	5049 Jun 27 07:00	8° $\mathfrak{D}$ 06'51	
minimum elong	5044 Jun 05 15:40	17° $\Pi$ 28'59	0°11'29	max. Earth dist.	5049 Jun 27 07:33	8° $\mathfrak{D}$ 06'56	20.58672 AU
behind sun begin	5044 Jun 05 10:53	17° $\Pi$ 28'19		morning rise	5049 Jul 13 12:30	9° $\mathfrak{D}$ 03'08	
behind sun end	5044 Jun 05 20:27	17° $\Pi$ 29'39		retrograde	5049 Oct 16 03:15	12° $\mathfrak{D}$ 15'07	
max. Earth dist.	5044 Jun 06 04:28	17° $\Pi$ 30'49	20.81537 AU	opposition	5049 Dec 31 18:43	10° $\mathfrak{D}$ 14'13	0°07'56
morning rise	5044 Jun 21 23:37	18° $\Pi$ 25'01		min. Earth dist.	5049 Dec 31 13:21	10° $\mathfrak{D}$ 14'47	18.55897 AU
retrograde	5044 Sep 24 12:58	21° $\Pi$ 34'31		direct	5050 Mar 16 12:03	8° $\mathfrak{D}$ 15'23	
opposition	5044 Dec 10 20:48	19° $\Pi$ 34'11	-0°10'49	evening set	5050 Jun 15 04:09	11° $\mathfrak{D}$ 20'28	
min. Earth dist.	5044 Dec 10 09:06	19° $\Pi$ 35'23	18.79605 AU				
direct	5045 Feb 23 20:22	17° $\Pi$ 36'31		conjunction	5050 Jul 01 13:59	12° $\mathfrak{D}$ 17'28	0°08'54
evening set	5045 May 24 20:06	20° $\Pi$ 37'58		minimum elong	5050 Jul 01 13:59	12° $\mathfrak{D}$ 17'28	0°08'53
				behind sun begin	5050 Jul 01 08:15	12° $\mathfrak{D}$ 16'39	
conjunction	5045 Jun 10 01:31	21° $\Pi$ 33'44	-0°08'12	behind sun end	5050 Jul 01 19:44	12° $\mathfrak{D}$ 18'17	
minimum elong	5045 Jun 10 01:31	21° $\Pi$ 33'44	0°08'13	max. Earth dist.	5050 Jul 01 18:13	12° $\mathfrak{D}$ 18'04	20.53074 AU
behind sun begin	5045 Jun 09 19:37	21° $\Pi$ 32'54		morning rise	5050 Jul 18 02:54	13° $\mathfrak{D}$ 14'55	
behind sun end	5045 Jun 10 07:25	21° $\Pi$ 34'33		retrograde	5050 Oct 20 16:56	16° $\mathfrak{D}$ 27'27	
max. Earth dist.	5045 Jun 10 14:20	21° $\Pi$ 35'34	20.77595 AU	opposition	5051 Jan 05 05:06	14° $\mathfrak{D}$ 26'21	0°11'43
morning rise	5045 Jun 26 10:11	22° $\Pi$ 29'59		min. Earth dist.	5051 Jan 05 01:38	14° $\mathfrak{D}$ 26'43	18.50150 AU
retrograde	5045 Sep 28 23:48	25° $\Pi$ 39'55		direct	5051 Mar 20 21:00	12° $\mathfrak{D}$ 27'10	
opposition	5045 Dec 15 05:15	23° $\Pi$ 39'30	-0°07'08	evening set	5051 Jun 19 17:41	15° $\mathfrak{D}$ 33'08	
min. Earth dist.	5045 Dec 14 18:28	23° $\Pi$ 40'37	18.75514 AU				
direct	5046 Feb 28 03:25	21° $\Pi$ 41'40		conjunction	5051 Jul 06 04:35	16° $\mathfrak{D}$ 30'24	0°12'16
evening set	5046 May 29 05:46	24° $\Pi$ 43'44		minimum elong	5051 Jul 06 04:34	16° $\mathfrak{D}$ 30'24	0°12'16
				behind sun begin	5051 Jul 06 00:10	16° $\mathfrak{D}$ 29'46	
conjunction	5046 Jun 14 11:58	25° $\Pi$ 39'43	-0°04'52	behind sun end	5051 Jul 06 08:59	16° $\mathfrak{D}$ 31'02	
minimum elong	5046 Jun 14 11:58	25° $\Pi$ 39'43	0°04'53	max. Earth dist.	5051 Jul 06 08:18	16° $\mathfrak{D}$ 30'56	20.47192 AU
behind sun begin	5046 Jun 14 05:28	25° $\Pi$ 38'48		morning rise	5051 Jul 22 18:02	17° $\mathfrak{D}$ 28'05	
behind sun end	5046 Jun 14 18:29	25° $\Pi$ 40'38		retrograde	5051 Oct 25 07:37	20° $\mathfrak{D}$ 41'09	
max. Earth dist.	5046 Jun 14 22:36	25° $\Pi$ 41'14	20.73372 AU	opposition	5052 Jan 09 15:38	18° $\mathfrak{D}$ 39'52	0°15'27
morning rise	5046 Jun 30 21:40	26° $\Pi$ 36'11		min. Earth dist.	5052 Jan 09 13:08	18° $\mathfrak{D}$ 40'08	18.44148 AU
retrograde	5046 Oct 03 12:11	29° $\Pi$ 46'38		direct	5052 Mar 24 07:48	16° $\mathfrak{D}$ 40'19	
opposition	5046 Dec 19 14:07	27° $\Pi$ 46'06	-0°03'25	evening set	5052 Jun 23 08:10	19° $\mathfrak{D}$ 47'12	
min. Earth dist.	5046 Dec 19 04:40	27° $\Pi$ 47'05	18.71140 AU				
direct	5047 Mar 04 10:22	25° $\Pi$ 48'04		conjunction	5052 Jul 09 19:44	20° $\mathfrak{D}$ 44'45	0°15'36
evening set	5047 Jun 02 16:02	28° $\Pi$ 50'49		minimum elong	5052 Jul 09 19:44	20° $\mathfrak{D}$ 44'45	0°15'35
				behind sun begin	5052 Jul 09 18:30	20° $\mathfrak{D}$ 44'34	
conjunction	5047 Jun 18 23:18	29° $\Pi$ 47'03	-0°01'28	behind sun end	5052 Jul 09 20:58	20° $\mathfrak{D}$ 44'55	
minimum elong	5047 Jun 18 23:20	29° $\Pi$ 47'03	0°01'29	max. Earth dist.	5052 Jul 09 20:40	20° $\mathfrak{D}$ 44'53	20.41100 AU
behind sun begin	5047 Jun 18 16:38	29° $\Pi$ 46'07		morning rise	5052 Jul 26 10:02	21° $\mathfrak{D}$ 42'41	
behind sun end	5047 Jun 19 06:01	29° $\Pi$ 48'00		retrograde	5052 Oct 28 22:10	24° $\mathfrak{D}$ 56'19	
max. Earth dist.	5047 Jun 19 09:41	29° $\Pi$ 48'32	20.68829 AU	opposition	5053 Jan 13 02:44	22° $\mathfrak{D}$ 54'50	0°19'07
	5047 Jun 22 16:41	0° $\mathfrak{D}$		min. Earth dist.	5053 Jan 13 02:11	22° $\mathfrak{D}$ 54'53	18.37982 AU
morning rise	5047 Jul 05 09:43	0° $\mathfrak{D}$ 43'45		direct	5053 Mar 28 17:54	20° $\mathfrak{D}$ 54'53	
retrograde	5047 Oct 08 00:33	3° $\mathfrak{D}$ 54'42		evening set	5053 Jun 27 23:12	24° $\mathfrak{D}$ 02'44	
asc. node	5047 Nov 19 07:30	3° $\mathfrak{D}$ 12'48					
opposition	5047 Dec 23 23:17	1° $\mathfrak{D}$ 54'05	0°00'21	conjunction	5053 Jul 14 11:42	25° $\mathfrak{D}$ 00'33	0°18'52
min. Earth dist.	5047 Dec 23 15:00	1° $\mathfrak{D}$ 54'57	18.66417 AU	minimum elong	5053 Jul 14 11:41	25° $\mathfrak{D}$ 00'33	0°18'52
	5048 Feb 24 02:08	30° $\mathfrak{R}$ $\Pi$		max. Earth dist.	5053 Jul 14 12:19	25° $\mathfrak{D}$ 00'39	20.34868 AU
direct	5048 Mar 07 18:33	29° $\Pi$ 55'50		morning rise	5053 Jul 31 02:24	25° $\mathfrak{D}$ 58'45	
	5048 Mar 20 07:50	0° $\mathfrak{D}$		retrograde	5053 Nov 02 13:58	29° $\mathfrak{D}$ 12'57	
evening set	5048 Jun 06 03:25	2° $\mathfrak{D}$ 59'19		opposition	5054 Jan 17 14:10	27° $\mathfrak{D}$ 11'16	0°22'42
				min. Earth dist.	5054 Jan 17 14:13	27° $\mathfrak{D}$ 11'16	18.31705 AU
conjunction	5048 Jun 22 11:29	3° $\mathfrak{D}$ 55'48	0°02'04	direct	5054 Apr 02 05:25	25° $\mathfrak{D}$ 10'57	
minimum elong	5048 Jun 22 11:29	3° $\mathfrak{D}$ 55'48	0°02'04	evening set	5054 Jul 02 15:15	28° $\mathfrak{D}$ 19'48	
behind sun begin	5048 Jun 22 04:47	3° $\mathfrak{D}$ 54'51					
behind sun end	5048 Jun 22 18:11	3° $\mathfrak{D}$ 56'44		conjunction	5054 Jul 19 04:20	29° $\mathfrak{D}$ 17'55	0°22'03

minimum elong	5054 Jul 19 04:20	29° $\mathring{O}$ 17'55	0°22'02	max. Earth dist.	5060 Aug 14 16:34	25° $\mathring{O}$ 37'36	19.92134 AU
max. Earth dist.	5054 Jul 19 02:23	29° $\mathring{O}$ 17'38	20.28571 AU	morning rise	5060 Aug 31 19:57	26° $\mathring{O}$ 39'03	
	5054 Jul 31 02:42	0° $\mathring{O}$		retrograde	5060 Dec 03 17:38	29° $\mathring{O}$ 57'25	
morning rise	5054 Aug 04 19:45	0° $\mathring{O}$ 16'22		opposition	5061 Feb 16 14:27	27° $\mathring{O}$ 55'02	0°43'41
retrograde	5054 Nov 07 05:50	3° $\mathring{O}$ 31'09		min. Earth dist.	5061 Feb 16 23:40	27° $\mathring{O}$ 54'02	17.89277 AU
opposition	5055 Jan 22 02:10	1° $\mathring{O}$ 29'18	0°26'11	direct	5061 May 02 07:06	25° $\mathring{O}$ 52'26	
min. Earth dist.	5055 Jan 22 04:06	1° $\mathring{O}$ 29'05	18.25409 AU	evening set	5061 Aug 03 08:29	29° $\mathring{O}$ 09'18	
	5055 Mar 02 15:04	30° $\mathring{R}$ $\mathring{O}$			5061 Aug 17 11:34	0° $\mathring{N}$	
direct	5055 Apr 06 16:48	29° $\mathring{O}$ 28'35					
	5055 May 11 08:00	0° $\mathring{O}$		conjunction	5061 Aug 20 01:24	0° $\mathring{N}$ 09'21	0°40'18
evening set	5055 Jul 07 07:59	2° $\mathring{O}$ 38'30		minimum elong	5061 Aug 20 01:23	0° $\mathring{N}$ 09'21	0°40'17
				max. Earth dist.	5061 Aug 19 14:14	0° $\mathring{N}$ 07'40	19.86435 AU
conjunction	5055 Jul 23 21:58	3° $\mathring{O}$ 36'54	0°25'08	morning rise	5061 Sep 05 18:40	1° $\mathring{N}$ 09'29	
minimum elong	5055 Jul 23 21:58	3° $\mathring{O}$ 36'54	0°25'07	retrograde	5061 Dec 08 14:23	4° $\mathring{N}$ 28'24	
max. Earth dist.	5055 Jul 23 19:44	3° $\mathring{O}$ 36'34	20.22274 AU	opposition	5062 Feb 21 06:51	2° $\mathring{N}$ 25'58	0°45'51
morning rise	5055 Aug 09 13:45	4° $\mathring{O}$ 35'37		min. Earth dist.	5062 Feb 21 16:24	2° $\mathring{N}$ 24'56	17.83622 AU
retrograde	5055 Nov 11 22:46	7° $\mathring{O}$ 50'58		direct	5062 May 07 01:55	0° $\mathring{N}$ 23'03	
opposition	5056 Jan 26 14:36	5° $\mathring{O}$ 48'58	0°29'32	evening set	5062 Aug 08 07:52	3° $\mathring{N}$ 41'04	
min. Earth dist.	5056 Jan 26 16:56	5° $\mathring{O}$ 48'43	18.19125 AU	max. Earth dist.	5062 Aug 24 11:53	4° $\mathring{N}$ 39'23	19.80817 AU
direct	5056 Apr 10 05:20	3° $\mathring{O}$ 47'55					
evening set	5056 Jul 11 01:52	6° $\mathring{O}$ 58'54		conjunction	5062 Aug 25 01:00	4° $\mathring{N}$ 41'22	0°42'07
				minimum elong	5062 Aug 25 01:00	4° $\mathring{N}$ 41'22	0°42'06
conjunction	5056 Jul 27 16:19	7° $\mathring{O}$ 57'35	0°28'04	morning rise	5062 Sep 10 18:14	5° $\mathring{N}$ 41'42	
minimum elong	5056 Jul 27 16:19	7° $\mathring{O}$ 57'35	0°28'04	retrograde	5062 Dec 13 09:53	9° $\mathring{N}$ 01'08	
max. Earth dist.	5056 Jul 27 11:35	7° $\mathring{O}$ 56'53	20.16018 AU	opposition	5063 Feb 25 23:58	6° $\mathring{N}$ 58'37	0°47'45
morning rise	5056 Aug 13 08:38	8° $\mathring{O}$ 56'34		min. Earth dist.	5063 Feb 26 11:52	6° $\mathring{N}$ 57'20	17.78066 AU
retrograde	5056 Nov 15 15:44	12° $\mathring{O}$ 12'31		direct	5063 May 11 19:22	4° $\mathring{N}$ 55'22	
opposition	5057 Jan 30 03:41	10° $\mathring{O}$ 10'23	0°32'45	evening set	5063 Aug 13 08:00	8° $\mathring{N}$ 14'31	
min. Earth dist.	5057 Jan 30 07:55	10° $\mathring{O}$ 09'56	18.12920 AU	max. Earth dist.	5063 Aug 29 10:46	9° $\mathring{N}$ 12'49	19.75323 AU
direct	5057 Apr 14 18:05	8° $\mathring{O}$ 08'59					
evening set	5057 Jul 15 20:25	11° $\mathring{O}$ 21'06		conjunction	5063 Aug 30 01:22	9° $\mathring{N}$ 15'02	0°43'41
				minimum elong	5063 Aug 30 01:22	9° $\mathring{N}$ 15'02	0°43'41
conjunction	5057 Aug 01 11:38	12° $\mathring{O}$ 20'05	0°30'52	morning rise	5063 Sep 15 18:34	10° $\mathring{N}$ 15'33	
minimum elong	5057 Aug 01 11:37	12° $\mathring{O}$ 20'05	0°30'51	retrograde	5063 Dec 18 08:05	13° $\mathring{N}$ 35'26	
max. Earth dist.	5057 Aug 01 06:34	12° $\mathring{O}$ 19'20	20.09864 AU	opposition	5064 Mar 01 17:39	11° $\mathring{N}$ 32'50	0°49'21
morning rise	5057 Aug 18 04:10	13° $\mathring{O}$ 19'18		min. Earth dist.	5064 Mar 02 05:50	11° $\mathring{N}$ 31'31	17.72641 AU
	5057 Sep 18 14:29	15° $\mathring{O}$		direct	5064 May 15 16:06	9° $\mathring{N}$ 29'14	
retrograde	5057 Nov 20 09:48	16° $\mathring{O}$ 35'52		evening set	5064 Aug 17 08:49	12° $\mathring{N}$ 49'29	
	5058 Jan 24 08:46	15° $\mathring{R}$ $\mathring{O}$		max. Earth dist.	5064 Sep 02 10:21	13° $\mathring{N}$ 47'47	19.69972 AU
opposition	5058 Feb 03 17:20	14° $\mathring{O}$ 33'38	0°35'47				
min. Earth dist.	5058 Feb 03 21:46	14° $\mathring{O}$ 33'10	18.06823 AU	conjunction	5064 Sep 03 02:16	13° $\mathring{N}$ 50'12	0°44'59
direct	5058 Apr 19 08:23	12° $\mathring{O}$ 31'56		minimum elong	5064 Sep 03 02:16	13° $\mathring{N}$ 50'12	0°44'58
	5058 Jul 07 08:41	15° $\mathring{O}$		morning rise	5064 Sep 19 19:11	14° $\mathring{N}$ 50'54	
evening set	5058 Jul 20 15:56	15° $\mathring{O}$ 45'12		retrograde	5064 Dec 22 04:33	18° $\mathring{N}$ 11'12	
				opposition	5065 Mar 06 12:02	16° $\mathring{N}$ 08'31	0°50'39
conjunction	5058 Aug 06 07:34	16° $\mathring{O}$ 44'28	0°33'31	min. Earth dist.	5065 Mar 07 02:16	16° $\mathring{N}$ 06'58	17.67400 AU
minimum elong	5058 Aug 06 07:34	16° $\mathring{O}$ 44'28	0°33'31	direct	5065 May 20 11:03	14° $\mathring{N}$ 04'34	
max. Earth dist.	5058 Aug 06 00:17	16° $\mathring{O}$ 43'23	20.03831 AU	evening set	5065 Aug 22 10:14	17° $\mathring{N}$ 25'51	
morning rise	5058 Aug 23 00:32	17° $\mathring{O}$ 43'56		max. Earth dist.	5065 Sep 07 10:16	18° $\mathring{N}$ 24'06	19.64859 AU
retrograde	5058 Nov 25 03:34	21° $\mathring{O}$ 01'07					
opposition	5059 Feb 08 07:47	18° $\mathring{O}$ 58'49	0°38'37	conjunction	5065 Sep 08 03:41	18° $\mathring{N}$ 26'46	0°45'59
min. Earth dist.	5059 Feb 08 14:18	18° $\mathring{O}$ 58'07	18.00862 AU	minimum elong	5065 Sep 08 03:41	18° $\mathring{N}$ 26'46	0°46'00
direct	5059 Apr 23 22:39	16° $\mathring{O}$ 56'48		morning rise	5065 Sep 24 20:26	19° $\mathring{N}$ 27'37	
evening set	5059 Jul 25 12:29	20° $\mathring{O}$ 11'16		retrograde	5065 Dec 27 03:23	22° $\mathring{N}$ 48'17	
				opposition	5066 Mar 11 06:51	20° $\mathring{N}$ 45'30	0°51'38
conjunction	5059 Aug 11 04:43	21° $\mathring{O}$ 10'48	0°35'59	min. Earth dist.	5066 Mar 11 21:11	20° $\mathring{N}$ 43'56	17.62426 AU
minimum elong	5059 Aug 11 04:43	21° $\mathring{O}$ 10'48	0°35'58	direct	5066 May 25 08:45	18° $\mathring{N}$ 41'12	
max. Earth dist.	5059 Aug 10 20:49	21° $\mathring{O}$ 09'38	19.97933 AU	evening set	5066 Aug 27 12:07	22° $\mathring{N}$ 03'28	
morning rise	5059 Aug 27 21:49	22° $\mathring{O}$ 10'30		max. Earth dist.	5066 Sep 12 11:42	23° $\mathring{N}$ 01'50	19.60027 AU
retrograde	5059 Nov 29 22:57	25° $\mathring{O}$ 28'17					
opposition	5060 Feb 12 22:37	23° $\mathring{O}$ 25'56	0°41'16	conjunction	5066 Sep 13 05:37	23° $\mathring{N}$ 04'35	0°46'43
min. Earth dist.	5060 Feb 13 05:30	23° $\mathring{O}$ 25'12	17.95017 AU	minimum elong	5066 Sep 13 05:37	23° $\mathring{N}$ 04'35	0°46'43
direct	5060 Apr 27 15:06	21° $\mathring{O}$ 23'39		morning rise	5066 Sep 29 21:56	24° $\mathring{N}$ 05'34	
evening set	5060 Jul 29 10:10	24° $\mathring{O}$ 39'19		retrograde	5067 Jan 01 01:01	27° $\mathring{N}$ 26'34	
				opposition	5067 Mar 16 02:24	25° $\mathring{N}$ 23'42	0°52'17
conjunction	5060 Aug 15 02:41	25° $\mathring{O}$ 39'07	0°38'15	min. Earth dist.	5067 Mar 16 18:23	25° $\mathring{N}$ 21'57	17.57765 AU
minimum elong	5060 Aug 15 02:41	25° $\mathring{O}$ 39'07	0°38'14	direct	5067 May 30 05:20	23° $\mathring{N}$ 19'04	

evening set	5067 Sep 01 14:42	26° <del>0</del> 42'18		minimum elong	5073 Oct 17 03:23	25° <del>0</del> 57'57	0°43'05
				morning rise	5073 Nov 02 15:28	26° <del>0</del> 59'19	
conjunction	5067 Sep 18 07:57	27° <del>0</del> 43'33	0°47'07		5074 Jan 05 23:00	0° <del>0</del>	
minimum elong	5067 Sep 18 07:57	27° <del>0</del> 43'33	0°47'07	retrograde	5074 Feb 02 19:02	0° <del>0</del> 21'36	
max. Earth dist.	5067 Sep 17 12:28	27° <del>0</del> 40'33	19.55553 AU		5074 Mar 03 00:58	30° <del>0</del> R <del>0</del>	
morning rise	5067 Oct 04 23:59	28° <del>0</del> 44'39		opposition	5074 Apr 17 09:20	28° <del>0</del> 18'58	0°47'05
	5067 Oct 27 00:12	0° <del>0</del>		min. Earth dist.	5074 Apr 18 03:05	28° <del>0</del> 17'02	17.38446 AU
retrograde	5068 Jan 06 00:01	2° <del>0</del> 05'57		direct	5074 Jul 02 03:50	26° <del>0</del> 13'15	
opposition	5068 Mar 19 22:16	0° <del>0</del> 03'00	0°52'35	evening set	5074 Oct 05 17:02	29° <del>0</del> 41'28	
min. Earth dist.	5068 Mar 20 14:14	0° <del>0</del> 01'15	17.53495 AU		5074 Oct 10 17:54	0° <del>0</del>	
	5068 Mar 21 01:45	30° <del>0</del> R <del>0</del>		max. Earth dist.	5074 Oct 21 11:01	0° <del>0</del> 40'03	19.37985 AU
direct	5068 Jun 03 04:02	27° <del>0</del> 58'03					
	5068 Aug 12 13:57	0° <del>0</del>		conjunction	5074 Oct 22 07:12	0° <del>0</del> 43'12	0°41'19
evening set	5068 Sep 05 17:35	1° <del>0</del> 22'12		minimum elong	5074 Oct 22 07:12	0° <del>0</del> 43'12	0°41'19
				morning rise	5074 Nov 07 18:20	1° <del>0</del> 44'32	
conjunction	5068 Sep 22 10:44	2° <del>0</del> 23'36	0°47'14	retrograde	5075 Feb 07 19:26	5° <del>0</del> 06'48	
minimum elong	5068 Sep 22 10:44	2° <del>0</del> 23'36	0°47'14	opposition	5075 Apr 22 08:51	3° <del>0</del> 04'19	0°44'59
max. Earth dist.	5068 Sep 21 15:32	2° <del>0</del> 20'38	19.51488 AU	min. Earth dist.	5075 Apr 23 02:18	3° <del>0</del> 02'25	17.37699 AU
morning rise	5068 Oct 09 02:06	3° <del>0</del> 24'47		direct	5075 Jul 07 06:59	0° <del>0</del> 58'36	
retrograde	5069 Jan 09 22:32	6° <del>0</del> 46'19		evening set	5075 Oct 10 21:32	4° <del>0</del> 27'10	
opposition	5069 Mar 24 18:57	4° <del>0</del> 43'21	0°52'33				
min. Earth dist.	5069 Mar 25 11:55	4° <del>0</del> 41'29	17.49665 AU	conjunction	5075 Oct 27 10:49	5° <del>0</del> 28'51	0°39'17
direct	5069 Jun 08 02:02	2° <del>0</del> 38'09		minimum elong	5075 Oct 27 10:49	5° <del>0</del> 28'51	0°39'18
evening set	5069 Sep 10 20:46	6° <del>0</del> 03'07		max. Earth dist.	5075 Oct 26 13:48	5° <del>0</del> 25'34	19.37455 AU
				morning rise	5075 Nov 12 21:05	6° <del>0</del> 30'08	
conjunction	5069 Sep 27 13:27	7° <del>0</del> 04'37	0°47'01	retrograde	5076 Feb 12 18:14	9° <del>0</del> 52'21	
minimum elong	5069 Sep 27 13:27	7° <del>0</del> 04'37	0°47'00	opposition	5076 Apr 26 08:45	7° <del>0</del> 49'59	0°42'34
max. Earth dist.	5069 Sep 26 16:52	7° <del>0</del> 01'26	19.47909 AU	min. Earth dist.	5076 Apr 27 02:44	7° <del>0</del> 48'02	17.37394 AU
morning rise	5069 Oct 14 04:27	8° <del>0</del> 05'54		direct	5076 Jul 11 09:02	5° <del>0</del> 44'14	
retrograde	5070 Jan 14 21:39	11° <del>0</del> 27'40		evening set	5076 Oct 15 01:45	9° <del>0</del> 13'04	
opposition	5070 Mar 29 16:01	9° <del>0</del> 24'40	0°52'09				
min. Earth dist.	5070 Mar 30 08:49	9° <del>0</del> 22'49	17.46351 AU	conjunction	5076 Oct 31 14:18	10° <del>0</del> 14'42	0°36'59
direct	5070 Jun 13 01:28	7° <del>0</del> 19'15		minimum elong	5076 Oct 31 14:18	10° <del>0</del> 14'42	0°36'59
evening set	5070 Sep 16 00:19	10° <del>0</del> 45'00		max. Earth dist.	5076 Oct 30 18:04	10° <del>0</del> 11'31	19.37366 AU
				morning rise	5076 Nov 16 23:36	11° <del>0</del> 15'53	
conjunction	5070 Oct 02 16:48	11° <del>0</del> 46'37	0°46'29	retrograde	5077 Feb 16 18:58	14° <del>0</del> 37'57	
minimum elong	5070 Oct 02 16:48	11° <del>0</del> 46'37	0°46'30	opposition	5077 May 01 08:52	12° <del>0</del> 35'43	0°39'51
max. Earth dist.	5070 Oct 01 21:02	11° <del>0</del> 43'33	19.44852 AU	min. Earth dist.	5077 May 02 01:59	12° <del>0</del> 33'52	17.37508 AU
morning rise	5070 Oct 19 06:59	12° <del>0</del> 47'56		direct	5077 Jul 16 12:47	10° <del>0</del> 29'58	
retrograde	5071 Jan 19 21:09	16° <del>0</del> 09'53		evening set	5077 Oct 20 05:39	13° <del>0</del> 58'54	
opposition	5071 Apr 03 13:35	14° <del>0</del> 06'56	0°51'24				
min. Earth dist.	5071 Apr 04 06:53	14° <del>0</del> 05'02	17.43564 AU	conjunction	5077 Nov 05 17:20	15° <del>0</del> 00'27	0°34'25
direct	5071 Jun 18 00:56	12° <del>0</del> 01'22		minimum elong	5077 Nov 05 17:20	15° <del>0</del> 00'27	0°34'25
evening set	5071 Sep 21 04:21	15° <del>0</del> 27'51		max. Earth dist.	5077 Nov 04 21:00	14° <del>0</del> 57'16	19.37694 AU
					5077 Nov 05 14:26	15° <del>0</del>	
conjunction	5071 Oct 07 20:12	16° <del>0</del> 29'32	0°45'39	morning rise	5077 Nov 22 01:42	16° <del>0</del> 01'33	
minimum elong	5071 Oct 07 20:12	16° <del>0</del> 29'32	0°45'39	retrograde	5078 Feb 21 17:50	19° <del>0</del> 23'25	
max. Earth dist.	5071 Oct 06 23:06	16° <del>0</del> 26'15	19.42349 AU	opposition	5078 May 06 09:16	17° <del>0</del> 21'17	0°36'52
morning rise	5071 Oct 24 09:52	17° <del>0</del> 30'54		min. Earth dist.	5078 May 07 02:56	17° <del>0</del> 19'22	17.38054 AU
retrograde	5072 Jan 24 20:08	20° <del>0</del> 53'00		direct	5078 Jul 21 14:29	15° <del>0</del> 15'32	
opposition	5072 Apr 07 11:42	18° <del>0</del> 50'07	0°50'18	evening set	5078 Oct 25 09:19	18° <del>0</del> 44'29	
min. Earth dist.	5072 Apr 08 05:01	18° <del>0</del> 48'14	17.41341 AU				
direct	5072 Jun 22 01:11	16° <del>0</del> 44'28		conjunction	5078 Nov 10 20:08	19° <del>0</del> 45'55	0°31'38
evening set	5072 Sep 25 08:19	20° <del>0</del> 11'37		minimum elong	5078 Nov 10 20:08	19° <del>0</del> 45'55	0°31'39
				max. Earth dist.	5078 Nov 10 00:22	19° <del>0</del> 42'49	19.38461 AU
conjunction	5072 Oct 11 23:47	21° <del>0</del> 13'20	0°44'30	morning rise	5078 Nov 27 03:32	20° <del>0</del> 46'53	
minimum elong	5072 Oct 11 23:47	21° <del>0</del> 13'20	0°44'31	retrograde	5079 Feb 26 18:32	24° <del>0</del> 08'28	
max. Earth dist.	5072 Oct 11 03:49	21° <del>0</del> 10'14	19.40390 AU	opposition	5079 May 11 09:31	22° <del>0</del> 06'26	0°33'38
morning rise	5072 Oct 28 12:32	22° <del>0</del> 14'43		min. Earth dist.	5079 May 12 01:55	22° <del>0</del> 04'39	17.39026 AU
retrograde	5073 Jan 28 20:14	25° <del>0</del> 36'55		direct	5079 Jul 26 18:32	20° <del>0</del> 00'41	
opposition	5073 Apr 12 10:20	23° <del>0</del> 34'11	0°48'51	evening set	5079 Oct 30 12:33	23° <del>0</del> 29'32	
min. Earth dist.	5073 Apr 13 03:43	23° <del>0</del> 32'17	17.39637 AU				
direct	5073 Jun 27 02:26	21° <del>0</del> 28'30		conjunction	5079 Nov 15 22:25	24° <del>0</del> 03'50	0°28'37
evening set	5073 Sep 30 12:42	24° <del>0</del> 56'13		minimum elong	5079 Nov 15 22:26	24° <del>0</del> 03'50	0°28'38
max. Earth dist.	5073 Oct 16 06:17	25° <del>0</del> 54'40	19.38946 AU	max. Earth dist.	5079 Nov 15 03:24	24° <del>0</del> 27'51	19.39660 AU
				morning rise	5079 Dec 02 04:46	25° <del>0</del> 31'38	
conjunction	5073 Oct 17 03:23	25° <del>0</del> 57'57	0°43'03	retrograde	5080 Mar 02 16:30	28° <del>0</del> 52'55	

opposition	5080 May 15 10:07	26° $\overline{\text{M}}$ 50'57	0°30'10	morning rise	5085 Dec 29 21:47	23° $\overline{\text{X}}$ 39'02	
min. Earth dist.	5080 May 16 02:53	26° $\overline{\text{M}}$ 49'08	17.40459 AU	retrograde	5086 Mar 31 01:20	26° $\overline{\text{X}}$ 57'36	
direct	5080 Jul 30 19:42	24° $\overline{\text{M}}$ 45'14		opposition	5086 Jun 13 10:31	24° $\overline{\text{X}}$ 56'25	0°06'17
evening set	5080 Nov 03 15:02	28° $\overline{\text{M}}$ 13'50		min. Earth dist.	5086 Jun 13 20:02	24° $\overline{\text{X}}$ 55'24	17.59767 AU
				direct	5086 Aug 29 10:09	22° $\overline{\text{X}}$ 51'42	
conjunction	5080 Nov 19 23:53	29° $\overline{\text{M}}$ 14'58	0°25'25	evening set	5086 Dec 02 15:57	26° $\overline{\text{X}}$ 17'04	
minimum elong	5080 Nov 19 23:53	29° $\overline{\text{M}}$ 14'58	0°25'26				
max. Earth dist.	5080 Nov 19 05:30	29° $\overline{\text{M}}$ 12'06	19.41338 AU	conjunction	5086 Dec 18 18:35	27° $\overline{\text{X}}$ 16'48	0°03'47
	5080 Dec 01 23:59	0° $\overline{\text{X}}$		minimum elong	5086 Dec 18 18:35	27° $\overline{\text{X}}$ 16'48	0°03'48
morning rise	5080 Dec 06 05:20	0° $\overline{\text{X}}$ 15'37		behind sun begin	5086 Dec 18 12:01	27° $\overline{\text{X}}$ 15'49	
retrograde	5081 Mar 07 16:37	3° $\overline{\text{X}}$ 36'32		behind sun end	5086 Dec 19 01:10	27° $\overline{\text{X}}$ 17'48	
opposition	5081 May 20 10:29	1° $\overline{\text{X}}$ 34'37	0°26'30	max. Earth dist.	5086 Dec 18 08:26	27° $\overline{\text{X}}$ 15'15	19.62176 AU
min. Earth dist.	5081 May 21 01:26	1° $\overline{\text{X}}$ 33'00	17.42371 AU	morning rise	5087 Jan 03 18:11	28° $\overline{\text{X}}$ 16'06	
	5081 Jun 30 21:44	30° $\overline{\text{R}}$ $\overline{\text{M}}$			5087 Feb 03 20:17	0° $\overline{\text{Z}}$	
direct	5081 Aug 04 23:57	29° $\overline{\text{M}}$ 28'57		retrograde	5087 Apr 04 22:22	1° $\overline{\text{Z}}$ 34'10	
	5081 Sep 08 12:05	0° $\overline{\text{X}}$			5087 Jun 07 18:33	30° $\overline{\text{R}}$ $\overline{\text{X}}$	
evening set	5081 Nov 08 16:56	2° $\overline{\text{X}}$ 57'13		opposition	5087 Jun 18 09:46	29° $\overline{\text{X}}$ 33'11	0°02'04
max. Earth dist.	5081 Nov 24 08:09	3° $\overline{\text{X}}$ 55'33	19.43500 AU	min. Earth dist.	5087 Jun 18 17:23	29° $\overline{\text{X}}$ 32'23	17.64658 AU
				direct	5087 Sep 03 11:34	27° $\overline{\text{X}}$ 28'47	
conjunction	5081 Nov 25 00:53	3° $\overline{\text{X}}$ 58'10	0°22'04		5087 Nov 22 09:17	0° $\overline{\text{Z}}$	
minimum elong	5081 Nov 25 00:53	3° $\overline{\text{X}}$ 58'10	0°22'05	evening set	5087 Dec 07 13:24	0° $\overline{\text{Z}}$ 53'23	
morning rise	5081 Dec 11 05:13	4° $\overline{\text{X}}$ 58'37		desc. node	5087 Dec 16 01:45	1° $\overline{\text{Z}}$ 24'41	
retrograde	5082 Mar 12 13:18	8° $\overline{\text{X}}$ 19'06					
opposition	5082 May 25 10:46	6° $\overline{\text{X}}$ 17'17	0°22'40	conjunction	5087 Dec 23 15:11	1° $\overline{\text{Z}}$ 52'51	-0°00'05
min. Earth dist.	5082 May 26 01:47	6° $\overline{\text{X}}$ 15'40	17.44793 AU	minimum elong	5087 Dec 23 15:11	1° $\overline{\text{Z}}$ 52'51	0°00'05
direct	5082 Aug 10 01:12	4° $\overline{\text{X}}$ 11'42		behind sun begin	5087 Dec 23 09:00	1° $\overline{\text{Z}}$ 51'55	
evening set	5082 Nov 13 18:17	7° $\overline{\text{X}}$ 39'32		behind sun end	5087 Dec 23 21:23	1° $\overline{\text{Z}}$ 53'47	
max. Earth dist.	5082 Nov 29 08:55	8° $\overline{\text{X}}$ 37'44	19.46194 AU	max. Earth dist.	5087 Dec 23 07:39	1° $\overline{\text{Z}}$ 51'42	19.67237 AU
				morning rise	5088 Jan 08 13:43	2° $\overline{\text{Z}}$ 51'53	
conjunction	5082 Nov 30 01:06	8° $\overline{\text{X}}$ 40'16	0°18'34	retrograde	5088 Apr 08 17:21	6° $\overline{\text{Z}}$ 09'25	
minimum elong	5082 Nov 30 01:06	8° $\overline{\text{X}}$ 40'16	0°18'34	opposition	5088 Jun 22 08:57	4° $\overline{\text{Z}}$ 08'40	-0°02'09
morning rise	5082 Dec 16 04:34	9° $\overline{\text{X}}$ 40'31		min. Earth dist.	5088 Jun 22 15:42	4° $\overline{\text{Z}}$ 07'57	17.69863 AU
retrograde	5083 Mar 17 12:10	13° $\overline{\text{X}}$ 00'33		direct	5088 Sep 07 11:44	2° $\overline{\text{Z}}$ 04'37	
opposition	5083 May 30 10:57	10° $\overline{\text{X}}$ 58'49	0°18'42	evening set	5088 Dec 11 10:04	5° $\overline{\text{Z}}$ 28'20	
min. Earth dist.	5083 May 30 23:46	10° $\overline{\text{X}}$ 57'26	17.47750 AU				
direct	5083 Aug 15 05:21	8° $\overline{\text{X}}$ 53'22		conjunction	5088 Dec 27 10:42	6° $\overline{\text{Z}}$ 27'31	-0°03'55
evening set	5083 Nov 18 18:45	12° $\overline{\text{X}}$ 20'41		minimum elong	5088 Dec 27 10:42	6° $\overline{\text{Z}}$ 27'31	0°03'54
max. Earth dist.	5083 Dec 04 10:50	13° $\overline{\text{X}}$ 19'03	19.49421 AU	behind sun begin	5088 Dec 27 04:09	6° $\overline{\text{Z}}$ 26'32	
				behind sun end	5088 Dec 27 17:14	6° $\overline{\text{Z}}$ 28'30	
conjunction	5083 Dec 05 00:38	13° $\overline{\text{X}}$ 21'12	0°14'58	max. Earth dist.	5088 Dec 27 03:33	6° $\overline{\text{Z}}$ 26'26	19.72582 AU
minimum elong	5083 Dec 05 00:38	13° $\overline{\text{X}}$ 21'12	0°14'59	morning rise	5089 Jan 12 08:32	7° $\overline{\text{Z}}$ 26'18	
behind sun begin	5083 Dec 04 22:11	13° $\overline{\text{X}}$ 20'49		retrograde	5089 Apr 13 12:59	10° $\overline{\text{Z}}$ 43'17	
behind sun end	5083 Dec 05 03:06	13° $\overline{\text{X}}$ 21'34		opposition	5089 Jun 27 07:39	8° $\overline{\text{Z}}$ 42'44	-0°06'20
morning rise	5083 Dec 21 02:55	14° $\overline{\text{X}}$ 21'13		min. Earth dist.	5089 Jun 27 12:49	8° $\overline{\text{Z}}$ 42'12	17.75330 AU
retrograde	5084 Mar 21 08:01	17° $\overline{\text{X}}$ 40'47		direct	5089 Sep 12 11:12	6° $\overline{\text{Z}}$ 39'01	
opposition	5084 Jun 03 11:07	15° $\overline{\text{X}}$ 39'12	0°14'38	evening set	5089 Dec 16 05:53	10° $\overline{\text{Z}}$ 01'50	
min. Earth dist.	5084 Jun 03 23:29	15° $\overline{\text{X}}$ 37'52	17.51247 AU				
direct	5084 Aug 19 06:28	13° $\overline{\text{X}}$ 33'57		conjunction	5090 Jan 01 05:43	11° $\overline{\text{Z}}$ 00'44	-0°07'38
evening set	5084 Nov 22 18:38	17° $\overline{\text{X}}$ 00'40		minimum elong	5090 Jan 01 05:42	11° $\overline{\text{Z}}$ 00'44	0°07'38
				behind sun begin	5089 Dec 31 23:42	10° $\overline{\text{Z}}$ 59'50	
conjunction	5084 Dec 08 23:20	18° $\overline{\text{X}}$ 00'56	0°11'17	behind sun end	5090 Jan 01 11:42	11° $\overline{\text{Z}}$ 01'38	
minimum elong	5084 Dec 08 23:20	18° $\overline{\text{X}}$ 00'56	0°11'17	max. Earth dist.	5090 Jan 01 00:57	11° $\overline{\text{Z}}$ 00'01	19.78143 AU
behind sun begin	5084 Dec 08 18:26	18° $\overline{\text{X}}$ 00'12		morning rise	5090 Jan 17 02:34	11° $\overline{\text{Z}}$ 59'13	
behind sun end	5084 Dec 09 04:13	18° $\overline{\text{X}}$ 01'41		retrograde	5090 Apr 18 07:21	15° $\overline{\text{Z}}$ 15'38	
max. Earth dist.	5084 Dec 08 10:06	17° $\overline{\text{X}}$ 58'53	19.53197 AU	opposition	5090 Jul 02 05:51	13° $\overline{\text{Z}}$ 15'18	-0°10'26
morning rise	5084 Dec 25 00:48	19° $\overline{\text{X}}$ 00'44		min. Earth dist.	5090 Jul 02 09:58	13° $\overline{\text{Z}}$ 14'52	17.80965 AU
retrograde	5085 Mar 26 06:03	22° $\overline{\text{X}}$ 19'48		direct	5090 Sep 17 10:43	11° $\overline{\text{Z}}$ 11'55	
opposition	5085 Jun 08 10:51	20° $\overline{\text{X}}$ 18'24	0°10'29	evening set	5090 Dec 21 01:02	14° $\overline{\text{Z}}$ 33'46	
min. Earth dist.	5085 Jun 08 20:58	20° $\overline{\text{X}}$ 17'19	17.55278 AU				
direct	5085 Aug 24 09:32	18° $\overline{\text{X}}$ 13'23		conjunction	5091 Jan 05 23:45	15° $\overline{\text{Z}}$ 32'22	-0°11'17
evening set	5085 Nov 27 17:32	21° $\overline{\text{X}}$ 39'28		minimum elong	5091 Jan 05 23:45	15° $\overline{\text{Z}}$ 32'22	0°11'15
				behind sun begin	5091 Jan 05 18:51	15° $\overline{\text{Z}}$ 31'38	
conjunction	5085 Dec 13 21:24	22° $\overline{\text{X}}$ 39'29	0°07'33	behind sun end	5091 Jan 06 04:39	15° $\overline{\text{Z}}$ 33'06	
minimum elong	5085 Dec 13 21:25	22° $\overline{\text{X}}$ 39'29	0°07'34	max. Earth dist.	5091 Jan 05 19:21	15° $\overline{\text{Z}}$ 31'42	19.83851 AU
behind sun begin	5085 Dec 13 15:22	22° $\overline{\text{X}}$ 38'34		morning rise	5091 Jan 21 19:58	16° $\overline{\text{Z}}$ 30'36	
behind sun end	5085 Dec 14 03:27	22° $\overline{\text{X}}$ 40'24		retrograde	5091 Apr 23 01:42	19° $\overline{\text{Z}}$ 46'26	
max. Earth dist.	5085 Dec 13 10:50	22° $\overline{\text{X}}$ 37'51	19.57472 AU	opposition	5091 Jul 07 03:47	17° $\overline{\text{Z}}$ 46'16	-0°14'28



min. Earth dist.	5091 Jul 07 06:39	17° <del>3</del> 45'58	17.86740 AU	min. Earth dist.	5097 Aug 02 20:57	14° <del>≈</del> 14'04	18.22835 AU
direct	5091 Sep 22 08:12	15° <del>3</del> 43'12		direct	5097 Oct 19 08:09	12° <del>≈</del> 12'16	
evening set	5091 Dec 25 18:59	19° <del>3</del> 04'02		evening set	5098 Jan 12 21:12	15° <del>≈</del>	
conjunction	5092 Jan 10 16:56	20° <del>3</del> 02'20	-0°14'51	conjunction	5098 Jan 20 11:19	15° <del>≈</del> 26'24	
minimum elong	5092 Jan 10 16:56	20° <del>3</del> 02'20	0°14'50	minimum elong	5098 Feb 05 04:57	16° <del>≈</del> 22'57	-0°33'16
behind sun begin	5092 Jan 10 14:13	20° <del>3</del> 01'55		minimum elong	5098 Feb 05 04:57	16° <del>≈</del> 22'57	0°33'15
behind sun end	5092 Jan 10 19:39	20° <del>3</del> 02'44		max. Earth dist.	5098 Feb 05 11:47	16° <del>≈</del> 23'59	20.25972 AU
max. Earth dist.	5092 Jan 10 14:49	20° <del>3</del> 02'01	19.89670 AU	morning rise	5098 Feb 20 21:23	17° <del>≈</del> 19'20	
morning rise	5092 Jan 26 12:18	21° <del>3</del> 00'17		retrograde	5098 May 23 15:23	20° <del>≈</del> 31'01	
retrograde	5092 Apr 26 19:24	24° <del>3</del> 15'32		opposition	5098 Aug 07 19:54	18° <del>≈</del> 31'34	-0°38'15
opposition	5092 Jul 11 01:10	22° <del>3</del> 15'31	-0°18'23	min. Earth dist.	5098 Aug 07 11:53	18° <del>≈</del> 32'23	18.29107 AU
min. Earth dist.	5092 Jul 11 02:33	22° <del>3</del> 15'22	17.92587 AU	direct	5098 Oct 24 02:18	16° <del>≈</del> 30'42	
direct	5092 Sep 26 06:48	20° <del>3</del> 12'46		evening set	5099 Jan 24 23:00	19° <del>≈</del> 43'44	
evening set	5092 Dec 29 12:13	23° <del>3</del> 32'32		conjunction	5099 Feb 09 16:04	20° <del>≈</del> 40'01	-0°35'41
conjunction	5093 Jan 14 09:12	24° <del>3</del> 30'32	-0°18'18	minimum elong	5099 Feb 09 16:04	20° <del>≈</del> 40'01	0°35'41
minimum elong	5093 Jan 14 09:12	24° <del>3</del> 30'32	0°18'17	max. Earth dist.	5099 Feb 10 00:19	20° <del>≈</del> 41'15	20.32260 AU
max. Earth dist.	5093 Jan 14 07:38	24° <del>3</del> 30'18	19.95552 AU	morning rise	5099 Feb 25 08:15	21° <del>≈</del> 36'10	
morning rise	5093 Jan 30 04:02	25° <del>3</del> 28'13		retrograde	5099 May 28 03:59	24° <del>≈</del> 47'20	
retrograde	5093 May 01 12:23	28° <del>3</del> 42'51		opposition	5099 Aug 12 13:00	22° <del>≈</del> 48'01	-0°40'49
opposition	5093 Jul 15 21:50	26° <del>3</del> 42'57	-0°22'09	min. Earth dist.	5099 Aug 12 04:23	22° <del>≈</del> 48'54	18.35409 AU
min. Earth dist.	5093 Jul 15 22:18	26° <del>3</del> 42'54	17.98507 AU	direct	5099 Oct 28 17:49	20° <del>≈</del> 47'33	
direct	5093 Oct 01 02:49	24° <del>3</del> 40'29		evening set	5100 Jan 29 09:44	23° <del>≈</del> 59'30	
evening set	5094 Jan 03 04:19	27° <del>3</del> 59'10		conjunction	5100 Feb 14 02:24	24° <del>≈</del> 55'31	-0°37'54
conjunction	5094 Jan 19 00:39	28° <del>3</del> 56'52	-0°21'38	minimum elong	5100 Feb 14 02:24	24° <del>≈</del> 55'31	0°37'54
minimum elong	5094 Jan 19 00:39	28° <del>3</del> 56'52	0°21'36	max. Earth dist.	5100 Feb 14 12:17	24° <del>≈</del> 57'00	20.38552 AU
max. Earth dist.	5094 Jan 19 01:10	28° <del>3</del> 56'56	20.01497 AU	morning rise	5100 Mar 01 18:23	25° <del>≈</del> 51'27	
morning rise	5094 Feb 03 18:50	29° <del>3</del> 54'16		retrograde	5100 Jun 01 17:22	29° <del>≈</del> 02'08	
	5094 Feb 05 09:20	0° <del>≈</del>		opposition	5100 Aug 17 05:21	27° <del>≈</del> 02'57	-0°43'09
retrograde	5094 May 06 04:50	3° <del>≈</del> 08'17		min. Earth dist.	5100 Aug 16 18:23	27° <del>≈</del> 04'04	18.41665 AU
opposition	5094 Jul 20 17:55	1° <del>≈</del> 08'28	-0°25'46	direct	5100 Nov 02 10:11	25° <del>≈</del> 02'52	
min. Earth dist.	5094 Jul 20 16:32	1° <del>≈</del> 08'37	18.04466 AU	evening set	5101 Feb 02 19:59	28° <del>≈</del> 13'46	
	5094 Aug 19 01:01	30° <del>≈</del> 08'30		conjunction	5101 Feb 18 12:15	29° <del>≈</del> 09'33	-0°39'54
direct	5094 Oct 06 00:12	29° <del>3</del> 06'19		minimum elong	5101 Feb 18 12:15	29° <del>≈</del> 09'33	0°39'53
	5094 Nov 21 06:01	0° <del>≈</del>		max. Earth dist.	5101 Feb 18 23:28	29° <del>≈</del> 11'13	20.44753 AU
evening set	5095 Jan 07 19:30	2° <del>≈</del> 23'51			5101 Mar 04 16:03	0° <del>≈</del>	
conjunction	5095 Jan 23 14:58	3° <del>≈</del> 21'15	-0°24'48	morning rise	5101 Mar 06 04:06	0° <del>≈</del> 05'16	
minimum elong	5095 Jan 23 14:58	3° <del>≈</del> 21'15	0°24'48	retrograde	5101 Jun 06 04:36	3° <del>≈</del> 15'29	
max. Earth dist.	5095 Jan 23 16:28	3° <del>≈</del> 21'29	20.07484 AU	opposition	5101 Aug 21 21:06	1° <del>≈</del> 16'27	-0°45'14
morning rise	5095 Feb 08 08:40	4° <del>≈</del> 18'24		min. Earth dist.	5101 Aug 21 10:01	1° <del>≈</del> 17'34	18.47813 AU
retrograde	5095 May 10 20:31	7° <del>≈</del> 31'48			5101 Sep 24 23:20	30° <del>≈</del> 08'30	
opposition	5095 Jul 25 13:29	5° <del>≈</del> 32'03	-0°29'12	direct	5101 Nov 06 23:41	29° <del>≈</del> 16'44	
min. Earth dist.	5095 Jul 25 11:09	5° <del>≈</del> 32'18	18.10501 AU		5101 Dec 18 12:21	0° <del>≈</del>	
direct	5095 Oct 10 18:59	3° <del>≈</del> 30'11					
evening set	5096 Jan 12 09:40	6° <del>≈</del> 46'34					
conjunction	5096 Jan 28 04:31	7° <del>≈</del> 43'41	-0°27'49				
minimum elong	5096 Jan 28 04:31	7° <del>≈</del> 43'41	0°27'48				
max. Earth dist.	5096 Jan 28 08:09	7° <del>≈</del> 44'14	20.13560 AU				
morning rise	5096 Feb 12 21:41	8° <del>≈</del> 40'34					
retrograde	5096 May 14 11:23	11° <del>≈</del> 53'22					
opposition	5096 Jul 29 08:16	9° <del>≈</del> 53'42	-0°32'26				
min. Earth dist.	5096 Jul 29 03:35	9° <del>≈</del> 54'11	18.16619 AU				
direct	5096 Oct 14 15:02	7° <del>≈</del> 52'09					
evening set	5097 Jan 15 22:54	11° <del>≈</del> 07'23					
conjunction	5097 Jan 31 17:03	12° <del>≈</del> 04'13	-0°30'38				
minimum elong	5097 Jan 31 17:03	12° <del>≈</del> 04'13	0°30'38				
max. Earth dist.	5097 Jan 31 22:01	12° <del>≈</del> 04'58	20.19720 AU				
morning rise	5097 Feb 16 09:53	13° <del>≈</del> 00'50					
	5097 Mar 26 06:40	15° <del>≈</del>					
retrograde	5097 May 19 01:34	16° <del>≈</del> 13'04					
	5097 Jul 14 16:31	15° <del>≈</del> 08'30					
opposition	5097 Aug 03 02:30	14° <del>≈</del> 13'30	-0°35'27				