

retrograde	4600 Mar 25 02:13	23° ✗ 37'30		retrograde	4606 Apr 07 17:12	6° ✗ 41'12	
opposition	4600 Jun 11 05:40	22° ✗ 15'33	1°32'38	opposition	4606 Jun 25 03:36	5° ✗ 19'17	1°25'55
min. Earth dist.	4600 Jun 12 00:37	22° ✗ 14'16	29.32324 AU	min. Earth dist.	4606 Jun 25 21:14	5° ✗ 18'05	29.32531 AU
direct	4600 Aug 31 09:38	20° ✗ 50'57		direct	4606 Sep 14 04:38	3° ✗ 54'56	
evening set	4600 Nov 29 15:47	22° ✗ 46'36		evening set	4606 Dec 13 05:50	5° ✗ 50'24	
max. Earth dist.	4600 Dec 14 10:02	23° ✗ 19'24	31.32399 AU				
conjunction	4600 Dec 15 05:44	23° ✗ 21'15	1°26'22	conjunction	4606 Dec 28 17:45	6° ✗ 24'58	1°19'43
minimum elong	4600 Dec 15 05:44	23° ✗ 21'15	1°26'21	minimum elong	4606 Dec 28 17:45	6° ✗ 24'58	1°19'43
morning rise	4600 Dec 30 16:55	23° ✗ 55'41		max. Earth dist.	4606 Dec 27 23:58	6° ✗ 23'18	31.32254 AU
retrograde	4601 Mar 27 12:25	25° ✗ 47'53		morning rise	4607 Jan 13 03:01	6° ✗ 59'19	
opposition	4601 Jun 13 17:00	24° ✗ 25'59	1°31'50	retrograde	4607 Apr 10 02:46	8° ✗ 51'53	
min. Earth dist.	4601 Jun 14 10:44	24° ✗ 24'46	29.32630 AU	opposition	4607 Jun 27 15:21	7° ✗ 29'56	1°24'22
direct	4601 Sep 02 20:57	23° ✗ 01'27		min. Earth dist.	4607 Jun 28 08:54	7° ✗ 28'44	29.32101 AU
evening set	4601 Dec 02 02:12	24° ✗ 57'04		direct	4607 Sep 16 17:34	6° ✗ 05'35	
				evening set	4607 Dec 15 15:57	8° ✗ 00'59	
conjunction	4601 Dec 17 15:51	25° ✗ 31'43	1°25'33	max. Earth dist.	4607 Dec 30 08:55	8° ✗ 33'48	31.31793 AU
minimum elong	4601 Dec 17 15:51	25° ✗ 31'43	1°25'34	conjunction	4607 Dec 31 03:24	8° ✗ 35'32	1°18'12
max. Earth dist.	4601 Dec 16 20:59	25° ✗ 29'57	31.32675 AU	minimum elong	4607 Dec 31 03:24	8° ✗ 35'32	1°18'13
morning rise	4602 Jan 02 02:34	26° ✗ 06'08		morning rise	4608 Jan 15 12:38	9° ✗ 09'52	
retrograde	4602 Mar 29 21:30	27° ✗ 58'24		retrograde	4608 Apr 11 14:40	11° ✗ 02'28	
opposition	4602 Jun 16 04:42	26° ✗ 36'32	1°30'54	opposition	4608 Jun 29 03:07	9° ✗ 40'28	1°22'42
min. Earth dist.	4602 Jun 16 23:15	26° ✗ 35'16	29.32874 AU	min. Earth dist.	4608 Jun 29 19:46	9° ✗ 39'20	29.31615 AU
direct	4602 Sep 05 07:27	25° ✗ 12'03		direct	4608 Sep 18 06:01	8° ✗ 16'07	
evening set	4602 Dec 04 12:32	27° ✗ 07'39		evening set	4608 Dec 17 01:48	10° ✗ 11'28	
max. Earth dist.	4602 Dec 19 06:50	27° ✗ 40'30	31.32877 AU				
conjunction	4602 Dec 20 01:44	27° ✗ 42'17	1°24'37	conjunction	4609 Jan 01 13:05	10° ✗ 46'00	1°16'35
minimum elong	4602 Dec 20 01:44	27° ✗ 42'17	1°24'37	minimum elong	4609 Jan 01 13:05	10° ✗ 46'00	1°16'35
morning rise	4603 Jan 04 12:14	28° ✗ 16'41		max. Earth dist.	4608 Dec 31 20:14	10° ✗ 44'25	31.31295 AU
	4603 Mar 09 07:59	0° ✗		morning rise	4609 Jan 16 21:54	11° ✗ 20'20	
retrograde	4603 Apr 01 08:03	0° ✗ 09'01		retrograde	4609 Apr 14 00:17	13° ✗ 12'59	
	4603 Apr 24 19:31	30° ✗ 41'00		opposition	4609 Jul 01 15:05	11° ✗ 50'55	1°20'54
opposition	4603 Jun 18 16:17	28° ✗ 47'10	1°29'51	min. Earth dist.	4609 Jul 02 07:55	11° ✗ 49'47	29.31125 AU
min. Earth dist.	4603 Jun 19 09:45	28° ✗ 45'58	29.33007 AU	direct	4609 Sep 20 18:39	10° ✗ 26'35	
direct	4603 Sep 07 18:35	27° ✗ 22'44		evening set	4609 Dec 19 11:45	12° ✗ 21'52	
evening set	4603 Dec 06 22:59	29° ✗ 18'19		conjunction	4610 Jan 03 22:36	12° ✗ 56'23	1°14'51
conjunction	4603 Dec 22 11:49	29° ✗ 52'55	1°23'34	minimum elong	4610 Jan 03 22:36	12° ✗ 56'23	1°14'52
minimum elong	4603 Dec 22 11:49	29° ✗ 52'55	1°23'35	max. Earth dist.	4610 Jan 03 05:45	12° ✗ 54'48	31.30842 AU
max. Earth dist.	4603 Dec 21 16:49	29° ✗ 51'08	31.32939 AU	morning rise	4610 Jan 19 07:20	13° ✗ 30'43	
	4603 Dec 25 15:23	0° ✗		retrograde	4610 Apr 16 10:18	15° ✗ 23'26	
morning rise	4604 Jan 06 21:59	0° ✗ 27'19		opposition	4610 Jul 04 02:57	14° ✗ 01'20	1°19'00
retrograde	4604 Apr 02 18:37	2° ✗ 19'43		min. Earth dist.	4610 Jul 04 17:58	14° ✗ 00'19	29.30708 AU
opposition	4604 Jun 20 03:56	0° ✗ 57'51	1°28'40	direct	4610 Sep 23 06:21	12° ✗ 37'01	
min. Earth dist.	4604 Jun 20 22:14	0° ✗ 56'37	29.33004 AU	evening set	4610 Dec 21 21:24	14° ✗ 32'15	
	4604 Jul 29 05:26	30° ✗ 41'00		conjunction	4611 Jan 06 08:04	15° ✗ 06'45	1°13'01
direct	4604 Sep 09 05:03	29° ✗ 33'28		minimum elong	4611 Jan 06 08:04	15° ✗ 06'46	1°13'01
	4604 Oct 20 03:16	0° ✗		max. Earth dist.	4611 Jan 05 16:29	15° ✗ 05'18	31.30464 AU
evening set	4604 Dec 08 09:24	1° ✗ 29'02		morning rise	4611 Jan 21 16:32	15° ✗ 41'05	
conjunction	4604 Dec 23 21:56	2° ✗ 03'37	1°22'24	retrograde	4611 Apr 18 19:17	17° ✗ 33'54	
minimum elong	4604 Dec 23 21:56	2° ✗ 03'37	1°22'24	opposition	4611 Jul 06 14:59	16° ✗ 11'46	1°16'59
max. Earth dist.	4604 Dec 23 03:35	2° ✗ 01'54	31.32862 AU	min. Earth dist.	4611 Jul 07 06:13	16° ✗ 10'44	29.30373 AU
morning rise	4605 Jan 08 07:45	2° ✗ 37'59		direct	4611 Sep 25 17:09	14° ✗ 47'30	
retrograde	4605 Apr 05 05:27	4° ✗ 30'27		evening set	4611 Dec 24 07:12	16° ✗ 42'42	
opposition	4605 Jun 22 15:44	3° ✗ 08'35	1°27'21	conjunction	4612 Jan 08 17:35	17° ✗ 17'12	1°11'05
min. Earth dist.	4605 Jun 23 09:23	3° ✗ 07'23	29.32836 AU	minimum elong	4612 Jan 08 17:35	17° ✗ 17'12	1°11'06
direct	4605 Sep 11 17:57	1° ✗ 44'13		max. Earth dist.	4612 Jan 08 02:37	17° ✗ 15'47	31.30176 AU
evening set	4605 Dec 10 19:42	3° ✗ 39'44		morning rise	4612 Jan 24 01:54	17° ✗ 51'31	
conjunction	4605 Dec 26 07:46	4° ✗ 14'18	1°21'07	retrograde	4612 Apr 20 05:42	19° ✗ 44'25	
minimum elong	4605 Dec 26 07:46	4° ✗ 14'18	1°21'08	opposition	4612 Jul 08 02:47	18° ✗ 22'18	1°14'51
max. Earth dist.	4605 Dec 25 12:46	4° ✗ 12'32	31.32621 AU	min. Earth dist.	4612 Jul 08 16:22	18° ✗ 21'22	29.30100 AU
morning rise	4606 Jan 10 17:25	4° ✗ 48'40		direct	4612 Sep 27 04:09	16° ✗ 58'05	
				evening set	4612 Dec 25 17:01	18° ✗ 53'15	

conjunction	4613 Jan 10 03:06	19° 3 27'44	1°09'02	retrograde	4619 May 06 12:13	5° ~ 01'06	
minimum elong	4613 Jan 10 03:06	19° 3 27'44	1°09'02	opposition	4619 Jul 24 16:57	3° ~ 38'44	0°57'06
max. Earth dist.	4613 Jan 09 12:33	19° 3 26'22	31.29926 AU	min. Earth dist.	4619 Jul 25 03:12	3° ~ 38'02	29.26693 AU
morning rise	4613 Jan 25 11:16	20° 3 02'05		direct	4619 Oct 13 13:00	2° ~ 14'45	
retrograde	4613 Apr 22 16:22	21° 3 55'05		evening set	4620 Jan 10 13:11	4° ~ 09'34	
opposition	4613 Jul 10 14:58	20° 3 32'57	1°12'37				
min. Earth dist.	4613 Jul 11 04:45	20° 3 32'01	29.29863 AU	conjunction	4620 Jan 25 21:53	4° ~ 44'02	0°52'06
direct	4613 Sep 29 14:17	19° 3 08'48		minimum elong	4620 Jan 25 21:53	4° ~ 44'02	0°52'06
evening set	4613 Dec 28 02:38	21° 3 03'56		max. Earth dist.	4620 Jan 25 11:03	4° ~ 43'01	31.26198 AU
				morning rise	4620 Feb 10 05:17	5° ~ 18'23	
conjunction	4614 Jan 12 12:33	21° 3 38'25	1°06'53	retrograde	4620 May 07 21:57	7° ~ 12'03	
minimum elong	4614 Jan 12 12:33	21° 3 38'25	1°06'54	opposition	4620 Jul 26 05:23	5° ~ 49'35	0°54'12
max. Earth dist.	4614 Jan 11 23:23	21° 3 37'11	31.29690 AU	min. Earth dist.	4620 Jul 26 16:05	5° ~ 48'52	29.25756 AU
morning rise	4614 Jan 27 20:30	22° 3 12'46		direct	4620 Oct 15 00:57	4° ~ 25'36	
retrograde	4614 Apr 25 03:04	24° 3 05'53		evening set	4621 Jan 11 22:45	6° ~ 20'19	
opposition	4614 Jul 13 03:10	22° 3 43'45	1°10'16				
min. Earth dist.	4614 Jul 13 15:53	22° 3 42'53	29.29597 AU	conjunction	4621 Jan 27 07:18	6° ~ 54'47	0°49'21
direct	4614 Oct 02 01:54	21° 3 19'39		minimum elong	4621 Jan 27 07:18	6° ~ 54'47	0°49'21
evening set	4614 Dec 30 12:29	23° 3 14'46		max. Earth dist.	4621 Jan 26 21:17	6° ~ 53'50	31.25256 AU
				morning rise	4621 Feb 11 14:41	7° ~ 29'08	
conjunction	4615 Jan 14 22:02	23° 3 49'15	1°04'38	retrograde	4621 May 10 08:25	9° ~ 22'52	
minimum elong	4615 Jan 14 22:02	23° 3 49'15	1°04'38	opposition	4621 Jul 28 17:51	8° ~ 00'19	0°51'14
max. Earth dist.	4615 Jan 14 08:30	23° 3 47'58	31.29400 AU	min. Earth dist.	4621 Jul 29 02:43	7° ~ 59'43	29.24805 AU
morning rise	4615 Jan 30 05:59	24° 3 23'35		direct	4621 Oct 17 13:19	6° ~ 36'19	
retrograde	4615 Apr 27 15:14	26° 3 16'49		evening set	4622 Jan 14 08:12	8° ~ 30'58	
opposition	4615 Jul 15 15:18	24° 3 54'40	1°07'49				
min. Earth dist.	4615 Jul 16 03:44	24° 3 53'49	29.29275 AU	conjunction	4622 Jan 29 16:31	9° ~ 05'25	0°46'33
direct	4615 Oct 04 11:14	23° 3 30'37		minimum elong	4622 Jan 29 16:31	9° ~ 05'25	0°46'34
evening set	4616 Jan 01 22:12	25° 3 25'42		max. Earth dist.	4622 Jan 29 07:02	9° ~ 04'31	31.24323 AU
				morning rise	4622 Feb 13 23:55	9° ~ 39'47	
conjunction	4616 Jan 17 07:43	26° 3 00'10	1°02'18	retrograde	4622 May 12 18:45	11° ~ 33'37	
minimum elong	4616 Jan 17 07:43	26° 3 00'10	1°02'19	opposition	4622 Jul 31 06:25	10° ~ 10'59	0°48'12
max. Earth dist.	4616 Jan 16 19:35	25° 3 59'02	31.29025 AU	min. Earth dist.	4622 Jul 31 15:08	10° ~ 10'23	29.23916 AU
morning rise	4616 Feb 01 15:23	26° 3 34'31		direct	4622 Oct 19 23:35	8° ~ 46'59	
retrograde	4616 Apr 29 01:46	28° 3 27'51		evening set	4623 Jan 16 17:36	10° ~ 41'34	
opposition	4616 Jul 17 03:40	27° 3 05'40	1°05'16				
min. Earth dist.	4616 Jul 17 15:53	27° 3 04'50	29.28831 AU	conjunction	4623 Feb 01 01:55	11° ~ 16'01	0°43'40
direct	4616 Oct 06 00:06	25° 3 41'40		minimum elong	4623 Feb 01 01:55	11° ~ 16'01	0°43'40
evening set	4617 Jan 03 08:05	27° 3 36'42		max. Earth dist.	4623 Jan 31 18:14	11° ~ 15'17	31.23482 AU
				morning rise	4623 Feb 16 09:12	11° ~ 50'23	
conjunction	4617 Jan 18 17:11	28° 3 11'10	0°59'52	retrograde	4623 May 15 04:52	13° ~ 44'20	
minimum elong	4617 Jan 18 17:11	28° 3 11'10	0°59'52	opposition	4623 Aug 02 18:43	12° ~ 21'38	0°45'05
max. Earth dist.	4617 Jan 18 04:24	28° 3 09'58	31.28522 AU	min. Earth dist.	4623 Aug 03 01:57	12° ~ 21'09	29.23116 AU
morning rise	4617 Feb 03 00:53	28° 3 45'31		direct	4623 Oct 22 11:00	10° ~ 57'40	
	4617 Mar 13 17:57	0° ~		evening set	4624 Jan 19 03:09	12° ~ 52'12	
retrograde	4617 May 01 14:53	0° ~ 38'56					
	4617 Jun 21 14:08	30° ~ R		conjunction	4624 Feb 03 11:13	13° ~ 26'39	0°40'44
opposition	4617 Jul 19 16:03	29° 3 16'43	1°02'38	minimum elong	4624 Feb 03 11:13	13° ~ 26'39	0°40'45
min. Earth dist.	4617 Jul 20 03:20	29° 3 15'57	29.28260 AU	max. Earth dist.	4624 Feb 03 03:30	13° ~ 25'56	31.22740 AU
direct	4617 Oct 08 12:12	27° 3 52'44		morning rise	4624 Feb 18 18:38	14° ~ 01'03	
evening set	4618 Jan 05 17:49	29° 3 47'43			4624 Mar 18 23:29	15° ~	
	4618 Jan 11 06:40	0° ~		retrograde	4624 May 16 17:13	15° ~ 55'08	
					4624 Jul 17 23:25	15° ~ R	
conjunction	4618 Jan 21 02:52	0° ~ 22'11	0°57'21	opposition	4624 Aug 04 07:15	14° ~ 32'23	0°41'55
minimum elong	4618 Jan 21 02:53	0° ~ 22'11	0°57'23	min. Earth dist.	4624 Aug 04 13:37	14° ~ 31'58	29.22428 AU
max. Earth dist.	4618 Jan 20 15:25	0° ~ 21'06	31.27876 AU	direct	4624 Oct 23 20:01	13° ~ 08'28	
morning rise	4618 Feb 05 10:20	0° ~ 56'32			4625 Jan 19 03:53	15° ~	
retrograde	4618 May 04 01:12	2° ~ 50'03		evening set	4625 Jan 20 12:25	15° ~ 02'59	
opposition	4618 Jul 22 04:35	1° ~ 27'45	0°59'54				
min. Earth dist.	4618 Jul 22 16:18	1° ~ 26'58	29.27540 AU	conjunction	4625 Feb 04 20:32	15° ~ 37'26	0°37'43
direct	4618 Oct 11 00:31	0° ~ 03'48		minimum elong	4625 Feb 04 20:32	15° ~ 37'26	0°37'43
evening set	4619 Jan 08 03:31	1° ~ 58'42		max. Earth dist.	4625 Feb 04 14:51	15° ~ 36'54	31.22092 AU
				morning rise	4625 Feb 20 03:47	16° ~ 11'51	
conjunction	4619 Jan 23 12:20	2° ~ 33'09	0°54'46	retrograde	4625 May 19 04:05	18° ~ 06'04	
minimum elong	4619 Jan 23 12:20	2° ~ 33'09	0°54'46	opposition	4625 Aug 06 19:53	16° ~ 43'18	0°38'40
max. Earth dist.	4619 Jan 23 00:41	2° ~ 32'03	31.27101 AU	min. Earth dist.	4625 Aug 07 01:27	16° ~ 42'56	29.21804 AU
morning rise	4619 Feb 07 19:52	3° ~ 07'30		direct	4625 Oct 26 08:12	15° ~ 19'28	

evening set	4626 Jan 22 21:57	17° \approx 13'56		behind sun begin	4632 Feb 20 13:19	0° \mathbb{H} 57'55	
				behind sun end	4632 Feb 20 17:37	0° \mathbb{H} 58'19	
conjunction	4626 Feb 07 05:49	17° \approx 48'24	0°34'40	max. Earth dist.	4632 Feb 20 14:23	0° \mathbb{H} 58'01	31.16896 AU
minimum elong	4626 Feb 07 05:49	17° \approx 48'24	0°34'41	morning rise	4632 Mar 06 23:11	1° \mathbb{H} 32'39	
max. Earth dist.	4626 Feb 07 00:02	17° \approx 47'51	31.21508 AU	retrograde	4632 Jun 03 13:10	3° \mathbb{H} 27'51	
morning rise	4626 Feb 22 13:16	18° \approx 22'50		opposition	4632 Aug 22 13:44	2° \mathbb{H} 04'47	0°14'36
retrograde	4626 May 21 18:00	20° \approx 17'12		min. Earth dist.	4632 Aug 22 14:30	2° \mathbb{H} 04'44	29.16334 AU
opposition	4626 Aug 09 08:28	18° \approx 54'25	0°35'22	direct	4632 Nov 10 17:57	0° \mathbb{H} 41'15	
min. Earth dist.	4626 Aug 09 12:40	18° \approx 54'08	29.21236 AU	evening set	4633 Feb 06 17:23	2° \mathbb{H} 35'25	
direct	4626 Oct 28 19:08	17° \approx 30'39					
evening set	4627 Jan 25 07:20	19° \approx 25'07		conjunction	4633 Feb 22 00:56	3° \mathbb{H} 09'56	0°12'02
				minimum elong	4633 Feb 22 00:56	3° \mathbb{H} 09'56	0°12'02
conjunction	4627 Feb 09 15:16	19° \approx 59'35	0°31'33	behind sun begin	4633 Feb 21 20:29	3° \mathbb{H} 09'32	
minimum elong	4627 Feb 09 15:16	19° \approx 59'35	0°31'32	behind sun end	4633 Feb 22 05:23	3° \mathbb{H} 10'20	
max. Earth dist.	4627 Feb 09 11:10	19° \approx 59'12	31.20934 AU	max. Earth dist.	4633 Feb 21 23:38	3° \mathbb{H} 09'49	31.15769 AU
morning rise	4627 Feb 24 22:39	20° \approx 34'02		morning rise	4633 Mar 09 08:56	3° \mathbb{H} 44'30	
retrograde	4627 May 24 05:13	22° \approx 28'34		retrograde	4633 Jun 06 01:39	5° \mathbb{H} 39'49	
opposition	4627 Aug 11 21:16	21° \approx 05'46	0°32'01	opposition	4633 Aug 25 02:46	4° \mathbb{H} 16'37	0°11'02
min. Earth dist.	4627 Aug 12 01:36	21° \approx 05'28	29.20648 AU	min. Earth dist.	4633 Aug 25 02:53	4° \mathbb{H} 16'37	29.15200 AU
direct	4627 Oct 31 06:28	19° \approx 42'04		direct	4633 Nov 13 03:41	2° \mathbb{H} 53'04	
evening set	4628 Jan 27 16:57	21° \approx 36'31		evening set	4634 Feb 09 02:55	4° \mathbb{H} 47'09	
conjunction	4628 Feb 12 00:43	22° \approx 11'00	0°28'23	conjunction	4634 Feb 24 10:39	5° \mathbb{H} 21'41	0°08'42
minimum elong	4628 Feb 12 00:43	22° \approx 11'00	0°28'23	minimum elong	4634 Feb 24 10:39	5° \mathbb{H} 21'41	0°08'43
max. Earth dist.	4628 Feb 11 20:47	22° \approx 10'38	31.20333 AU	behind sun begin	4634 Feb 24 05:05	5° \mathbb{H} 21'10	
morning rise	4628 Feb 27 08:13	22° \approx 45'28		behind sun end	4634 Feb 24 16:13	5° \mathbb{H} 22'11	
retrograde	4628 May 25 17:25	24° \approx 40'08		max. Earth dist.	4634 Feb 24 11:17	5° \mathbb{H} 21'44	31.14633 AU
opposition	4628 Aug 13 09:56	23° \approx 17'19	0°28'36	morning rise	4634 Mar 11 18:36	5° \mathbb{H} 56'15	
min. Earth dist.	4628 Aug 13 12:39	23° \approx 17'08	29.20009 AU	retrograde	4634 Jun 08 12:11	7° \mathbb{H} 51'40	
direct	4628 Nov 01 18:41	21° \approx 53'41		opposition	4634 Aug 27 15:39	6° \mathbb{H} 28'23	0°07'27
evening set	4629 Jan 29 02:38	23° \approx 48'07		min. Earth dist.	4634 Aug 27 14:59	6° \mathbb{H} 28'25	29.14084 AU
				direct	4634 Nov 15 16:07	5° \mathbb{H} 04'49	
conjunction	4629 Feb 13 10:21	24° \approx 22'36	0°25'10	evening set	4635 Feb 11 12:35	6° \mathbb{H} 58'50	
minimum elong	4629 Feb 13 10:21	24° \approx 22'36	0°25'10				
max. Earth dist.	4629 Feb 13 07:11	24° \approx 22'19	31.19646 AU	conjunction	4635 Feb 26 20:11	7° \mathbb{H} 33'22	0°05'22
morning rise	4629 Feb 28 17:51	24° \approx 57'05		minimum elong	4635 Feb 26 20:11	7° \mathbb{H} 33'22	0°05'21
retrograde	4629 May 28 04:59	26° \approx 51'56		behind sun begin	4635 Feb 26 14:00	7° \mathbb{H} 32'48	
opposition	4629 Aug 15 23:00	25° \approx 29'04	0°25'09	behind sun end	4635 Feb 27 02:23	7° \mathbb{H} 33'55	
min. Earth dist.	4629 Aug 16 02:06	25° \approx 28'51	29.19278 AU	max. Earth dist.	4635 Feb 26 20:50	7° \mathbb{H} 33'24	31.13558 AU
direct	4629 Nov 04 06:41	24° \approx 05'30		morning rise	4635 Mar 14 04:26	8° \mathbb{H} 07'57	
evening set	4630 Jan 31 12:14	25° \approx 59'52		retrograde	4635 Jun 11 01:47	10° \mathbb{H} 03'29	
				opposition	4635 Aug 30 04:32	8° \mathbb{H} 40'06	0°03'51
conjunction	4630 Feb 15 19:57	26° \approx 34'22	0°21'56	min. Earth dist.	4635 Aug 30 02:18	8° \mathbb{H} 40'15	29.13056 AU
minimum elong	4630 Feb 15 19:57	26° \approx 34'22	0°21'57	direct	4635 Nov 18 02:29	7° \mathbb{H} 16'32	
max. Earth dist.	4630 Feb 15 17:31	26° \approx 34'09	31.18863 AU	evening set	4636 Feb 13 22:09	9° \mathbb{H} 10'30	
morning rise	4630 Mar 03 03:31	27° \approx 08'53					
retrograde	4630 May 30 16:37	29° \approx 03'51		conjunction	4636 Feb 29 05:53	9° \mathbb{H} 45'02	0°01'59
opposition	4630 Aug 18 11:54	27° \approx 40'57	0°21'40	minimum elong	4636 Feb 29 05:52	9° \mathbb{H} 45'02	0°02'00
min. Earth dist.	4630 Aug 18 13:27	27° \approx 40'50	29.18420 AU	behind sun begin	4636 Feb 28 23:28	9° \mathbb{H} 44'28	
direct	4630 Nov 06 19:24	26° \approx 17'24		behind sun end	4636 Feb 29 12:16	9° \mathbb{H} 45'37	
evening set	4631 Feb 02 22:04	28° \approx 11'44		max. Earth dist.	4636 Feb 29 08:19	9° \mathbb{H} 45'13	31.12568 AU
				morning rise	4636 Mar 15 14:07	10° \mathbb{H} 19'39	
conjunction	4631 Feb 18 05:40	28° \approx 46'14	0°18'39	retrograde	4636 Jun 12 12:48	12° \mathbb{H} 15'19	
minimum elong	4631 Feb 18 05:40	28° \approx 46'14	0°18'39	opposition	4636 Aug 31 17:31	10° \mathbb{H} 51'51	0°00'15
max. Earth dist.	4631 Feb 18 03:09	28° \approx 46'00	31.17937 AU	min. Earth dist.	4636 Aug 31 15:04	10° \mathbb{H} 52'01	29.12118 AU
morning rise	4631 Mar 05 13:24	29° \approx 20'46		desc. node	4636 Sep 26 14:45	10° \mathbb{H} 11'23	
	4631 Mar 24 03:57	0° \mathbb{H}		direct	4636 Nov 19 13:23	9° \mathbb{H} 28'19	
retrograde	4631 Jun 02 03:10	1° \mathbb{H} 15'51		evening set	4637 Feb 15 07:52	11° \mathbb{H} 22'14	
	4631 Aug 16 15:25	30° \mathbb{R} \approx					
opposition	4631 Aug 21 00:48	29° \approx 52'52	0°18'09	conjunction	4637 Mar 02 15:33	11° \mathbb{H} 56'47	-0°01'29
min. Earth dist.	4631 Aug 21 02:42	29° \approx 52'45	29.17435 AU	minimum elong	4637 Mar 02 15:34	11° \mathbb{H} 56'47	0°01'30
direct	4631 Nov 09 05:52	28° \approx 29'21		behind sun begin	4637 Mar 02 09:10	11° \mathbb{H} 56'12	
	4632 Jan 25 09:02	0° \mathbb{H}		behind sun end	4637 Mar 02 21:57	11° \mathbb{H} 57'21	
evening set	4632 Feb 05 07:44	0° \mathbb{H} 23'36		max. Earth dist.	4637 Mar 02 18:37	11° \mathbb{H} 57'01	31.11695 AU
				morning rise	4637 Mar 18 00:02	12° \mathbb{H} 31'25	
conjunction	4632 Feb 20 15:28	0° \mathbb{H} 58'07	0°15'21	retrograde	4637 Jun 15 02:12	14° \mathbb{H} 27'12	
minimum elong	4632 Feb 20 15:28	0° \mathbb{H} 58'07	0°15'22	opposition	4637 Sep 03 06:28	13° \mathbb{H} 03'41	-0°03'21

min. Earth dist.	4637 Sep 03 01:59	13° ✕ 03'59	29.11290 AU	opposition	4643 Sep 17 13:17	26° ✕ 18'34	-0°24'48
direct	4637 Nov 22 01:40	11° ✕ 40'11		min. Earth dist.	4643 Sep 17 05:37	26° ✕ 19'05	29.06275 AU
evening set	4638 Feb 17 17:28	13° ✕ 34'05		direct	4643 Dec 05 22:40	24° ✕ 55'21	
				evening set	4644 Mar 02 05:39	26° ✕ 49'06	
conjunction	4638 Mar 05 01:15	14° ✕ 08'39	-0°04'53				
minimum elong	4638 Mar 05 01:14	14° ✕ 08'39	0°04'53	conjunction	4644 Mar 17 13:54	27° ✕ 23'45	-0°24'50
behind sun begin	4638 Mar 04 18:59	14° ✕ 08'05		minimum elong	4644 Mar 17 13:54	27° ✕ 23'45	0°24'50
behind sun end	4638 Mar 05 07:29	14° ✕ 09'12		max. Earth dist.	4644 Mar 17 21:15	27° ✕ 24'27	31.05696 AU
max. Earth dist.	4638 Mar 05 05:20	14° ✕ 09'00	31.10898 AU	morning rise	4644 Apr 01 23:47	27° ✕ 58'35	
morning rise	4638 Mar 20 09:53	14° ✕ 43'18		retrograde	4644 Jun 30 16:20	29° ✕ 55'25	
retrograde	4638 Jun 17 14:51	16° ✕ 39'15		opposition	4644 Sep 19 02:32	28° ✕ 31'33	-0°28'16
opposition	4638 Sep 05 19:35	15° ✕ 15'40	-0°06'58	min. Earth dist.	4644 Sep 18 17:53	28° ✕ 32'09	29.05103 AU
min. Earth dist.	4638 Sep 05 15:13	15° ✕ 15'58	29.10528 AU	direct	4644 Dec 07 09:01	27° ✕ 08'20	
direct	4638 Nov 24 13:24	13° ✕ 52'14		evening set	4645 Mar 04 15:50	29° ✕ 02'02	
evening set	4639 Feb 20 03:16	15° ✕ 46'06					
				conjunction	4645 Mar 20 00:19	29° ✕ 36'42	-0°28'04
conjunction	4639 Mar 07 11:10	16° ✕ 20'41	-0°08'15	minimum elong	4645 Mar 20 00:19	29° ✕ 36'42	0°28'05
minimum elong	4639 Mar 07 11:10	16° ✕ 20'41	0°08'15	max. Earth dist.	4645 Mar 20 08:58	29° ✕ 37'31	31.04469 AU
behind sun begin	4639 Mar 07 05:29	16° ✕ 20'10			4645 Mar 30 06:23	0° ∇	
behind sun end	4639 Mar 07 16:51	16° ✕ 21'12		morning rise	4645 Apr 04 10:22	0° ∇ 11'33	
max. Earth dist.	4639 Mar 07 16:23	16° ✕ 21'09	31.10162 AU	retrograde	4645 Jul 03 03:48	2° ∇ 08'31	
morning rise	4639 Mar 22 19:56	16° ✕ 55'22		opposition	4645 Sep 21 15:50	0° ∇ 44'33	-0°31'43
retrograde	4639 Jun 20 03:04	18° ✕ 51'27		min. Earth dist.	4645 Sep 21 07:23	0° ∇ 45'07	29.03848 AU
opposition	4639 Sep 08 08:24	17° ✕ 27'51	-0°10'34		4645 Oct 20 08:10	30° ℞ ✕	
min. Earth dist.	4639 Sep 08 02:17	17° ✕ 28'16	29.09793 AU	direct	4645 Dec 09 19:56	29° ✕ 21'19	
direct	4639 Nov 27 01:53	16° ✕ 04'28			4646 Jan 27 07:43	0° ∇	
evening set	4640 Feb 22 13:13	17° ✕ 58'19		evening set	4646 Mar 07 01:58	1° ∇ 14'57	
conjunction	4640 Mar 08 21:03	18° ✕ 32'55	-0°11'36	conjunction	4646 Mar 22 10:36	1° ∇ 49'38	-0°31'15
minimum elong	4640 Mar 08 21:03	18° ✕ 32'55	0°11'35	minimum elong	4646 Mar 22 10:35	1° ∇ 49'38	0°31'15
behind sun begin	4640 Mar 08 16:25	18° ✕ 32'29		max. Earth dist.	4646 Mar 22 19:39	1° ∇ 50'30	31.03208 AU
behind sun end	4640 Mar 09 01:42	18° ✕ 33'20		morning rise	4646 Apr 06 20:58	2° ∇ 24'31	
max. Earth dist.	4640 Mar 09 02:24	18° ✕ 33'24	31.09422 AU	retrograde	4646 Jul 05 17:51	4° ∇ 21'34	
morning rise	4640 Mar 24 06:07	19° ✕ 07'38		opposition	4646 Sep 24 04:56	2° ∇ 57'30	-0°35'06
retrograde	4640 Jun 21 14:50	21° ✕ 03'53		min. Earth dist.	4646 Sep 23 18:49	2° ∇ 58'12	29.02588 AU
opposition	4640 Sep 09 21:38	19° ✕ 40'15	-0°14'09	direct	4646 Dec 12 08:43	1° ∇ 34'14	
min. Earth dist.	4640 Sep 09 15:40	19° ✕ 40'39	29.09049 AU	evening set	4647 Mar 09 12:14	3° ∇ 27'51	
direct	4640 Nov 28 12:19	18° ✕ 16'56					
evening set	4641 Feb 23 23:03	20° ✕ 10'45		conjunction	4647 Mar 24 20:58	4° ∇ 02'33	-0°34'24
				minimum elong	4647 Mar 24 20:58	4° ∇ 02'33	0°34'25
conjunction	4641 Mar 11 07:06	20° ✕ 45'22	-0°14'56	max. Earth dist.	4647 Mar 25 06:46	4° ∇ 03'29	31.01954 AU
minimum elong	4641 Mar 11 07:06	20° ✕ 45'22	0°14'57	morning rise	4647 Apr 09 07:35	4° ∇ 37'27	
behind sun begin	4641 Mar 11 04:31	20° ✕ 45'08		retrograde	4647 Jul 08 07:03	6° ∇ 34'37	
behind sun end	4641 Mar 11 09:41	20° ✕ 45'36		opposition	4647 Sep 26 18:01	5° ∇ 10'27	-0°38'27
max. Earth dist.	4641 Mar 11 14:06	20° ✕ 46'01	31.08651 AU	min. Earth dist.	4647 Sep 26 08:06	5° ∇ 11'07	29.01378 AU
morning rise	4641 Mar 26 16:12	21° ✕ 20'06		direct	4647 Dec 14 20:37	3° ∇ 47'11	
retrograde	4641 Jun 24 01:58	23° ✕ 16'31		evening set	4648 Mar 10 22:26	5° ∇ 40'45	
opposition	4641 Sep 12 10:51	21° ✕ 52'51	-0°17'44				
min. Earth dist.	4641 Sep 12 03:45	21° ✕ 53'20	29.08235 AU	conjunction	4648 Mar 26 07:24	6° ∇ 15'28	-0°37'30
direct	4641 Dec 01 00:37	20° ✕ 29'35		minimum elong	4648 Mar 26 07:24	6° ∇ 15'28	0°37'29
evening set	4642 Feb 26 09:16	22° ✕ 23'23		max. Earth dist.	4648 Mar 26 18:29	6° ∇ 16'31	31.00793 AU
				morning rise	4648 Apr 10 18:12	6° ∇ 50'24	
conjunction	4642 Mar 13 17:15	22° ✕ 58'01	-0°18'16	retrograde	4648 Jul 09 19:40	8° ∇ 47'41	
minimum elong	4642 Mar 13 17:15	22° ✕ 58'01	0°18'15	opposition	4648 Sep 28 07:04	7° ∇ 23'26	-0°41'44
max. Earth dist.	4642 Mar 13 23:43	22° ✕ 58'37	31.07791 AU	min. Earth dist.	4648 Sep 27 19:09	7° ∇ 24'15	29.00268 AU
morning rise	4642 Mar 29 02:43	23° ✕ 32'47		direct	4648 Dec 16 09:21	6° ∇ 00'10	
retrograde	4642 Jun 26 15:23	25° ✕ 29'21		evening set	4649 Mar 13 08:40	7° ∇ 53'42	
opposition	4642 Sep 15 00:01	24° ✕ 05'38	-0°21'17				
min. Earth dist.	4642 Sep 14 16:42	24° ✕ 06'08	29.07330 AU	conjunction	4649 Mar 28 17:41	8° ∇ 28'27	-0°40'33
direct	4642 Dec 03 10:23	22° ✕ 42'24		minimum elong	4649 Mar 28 17:41	8° ∇ 28'27	0°40'33
evening set	4643 Feb 28 19:23	24° ✕ 36'11		max. Earth dist.	4649 Mar 29 05:01	8° ∇ 29'31	30.99733 AU
				morning rise	4649 Apr 13 04:53	9° ∇ 03'25	
conjunction	4643 Mar 16 03:40	25° ✕ 10'50	-0°21'34	retrograde	4649 Jul 12 08:01	11° ∇ 00'49	
minimum elong	4643 Mar 16 03:40	25° ✕ 10'50	0°21'34	opposition	4649 Sep 30 20:17	9° ∇ 36'30	-0°44'57
max. Earth dist.	4643 Mar 16 11:31	25° ✕ 11'34	31.06810 AU	min. Earth dist.	4649 Sep 30 08:20	9° ∇ 37'19	28.99277 AU
morning rise	4643 Mar 31 13:12	25° ✕ 45'38		direct	4649 Dec 18 20:22	8° ∇ 13'15	
retrograde	4643 Jun 29 02:27	27° ✕ 42'21		evening set	4650 Mar 15 18:56	10° ∇ 06'46	

conjunction	4650 Mar 31 04:19	10° Υ 41'32	-0°43'32	direct	4657 Jan 03 03:30	23° Υ 49'02	
minimum elong	4650 Mar 31 04:19	10° Υ 41'32	0°43'31	evening set	4657 Mar 30 22:08	25° Υ 42'28	
max. Earth dist.	4650 Mar 31 17:31	10° Υ 42'47	30.98794 AU				
morning rise	4650 Apr 15 15:40	11° Υ 16'31		conjunction	4657 Apr 15 09:09	26° Υ 17'23	-1°02'25
retrograde	4650 Jul 14 20:01	13° Υ 14'03		minimum elong	4657 Apr 15 09:09	26° Υ 17'23	1°02'26
opposition	4650 Oct 03 09:12	11° Υ 49'41	-0°48'07	max. Earth dist.	4657 Apr 16 01:30	26° Υ 18'56	30.92715 AU
min. Earth dist.	4650 Oct 02 19:53	11° Υ 50'36	28.98383 AU	morning rise	4657 Apr 30 22:44	26° Υ 52'35	
direct	4650 Dec 21 09:18	10° Υ 26'28		retrograde	4657 Jul 30 14:46	28° Υ 50'53	
evening set	4651 Mar 18 05:26	12° Υ 19'58		opposition	4657 Oct 19 05:11	27° Υ 26'09	-1°08'01
				min. Earth dist.	4657 Oct 18 12:37	27° Υ 27'17	28.92202 AU
conjunction	4651 Apr 02 14:52	12° Υ 54'46	-0°46'27	direct	4658 Jan 05 16:28	26° Υ 02'58	
minimum elong	4651 Apr 02 14:52	12° Υ 54'46	0°46'28	evening set	4658 Apr 02 09:16	27° Υ 56'22	
max. Earth dist.	4651 Apr 03 03:47	12° Υ 56'00	30.97945 AU				
morning rise	4651 Apr 18 02:41	13° Υ 29'47		conjunction	4658 Apr 17 20:26	28° Υ 31'18	-1°04'47
retrograde	4651 Jul 17 09:25	15° Υ 27'27		minimum elong	4658 Apr 17 20:26	28° Υ 31'18	1°04'47
opposition	4651 Oct 05 22:20	14° Υ 03'03	-0°51'12	max. Earth dist.	4658 Apr 18 12:28	28° Υ 32'49	30.91592 AU
min. Earth dist.	4651 Oct 05 08:35	14° Υ 03'59	28.97579 AU	morning rise	4658 May 03 10:32	29° Υ 06'32	
direct	4651 Dec 23 19:28	12° Υ 39'52			4658 May 29 08:06	0° \mathcal{B}	
evening set	4652 Mar 19 15:48	14° Υ 33'21		retrograde	4658 Aug 02 04:11	1° \mathcal{B} 04'53	
					4658 Oct 09 13:44	30° $\mathcal{R}\Upsilon$	
conjunction	4652 Apr 04 01:34	15° Υ 08'10	-0°49'18	opposition	4658 Oct 21 18:09	29° Υ 40'03	-1°10'30
minimum elong	4652 Apr 04 01:34	15° Υ 08'10	0°49'18	min. Earth dist.	4658 Oct 21 02:08	29° Υ 41'09	28.91087 AU
max. Earth dist.	4652 Apr 04 16:15	15° Υ 09'34	30.97157 AU	direct	4659 Jan 08 04:07	28° Υ 16'49	
morning rise	4652 Apr 19 13:30	15° Υ 43'13			4659 Mar 31 05:06	0° \mathcal{B}	
retrograde	4652 Jul 18 19:58	17° Υ 41'01		evening set	4659 Apr 04 20:14	0° \mathcal{B} 10'10	
opposition	4652 Oct 07 11:29	16° Υ 16'35	-0°54'13				
min. Earth dist.	4652 Oct 06 21:08	16° Υ 17'34	28.96806 AU	conjunction	4659 Apr 20 07:53	0° \mathcal{B} 45'09	-1°07'03
direct	4652 Dec 25 07:29	14° Υ 53'27		minimum elong	4659 Apr 20 07:52	0° \mathcal{B} 45'09	1°07'03
evening set	4653 Mar 22 02:31	16° Υ 46'55		max. Earth dist.	4659 Apr 21 01:27	0° \mathcal{B} 46'49	30.90487 AU
				morning rise	4659 May 05 22:10	1° \mathcal{B} 20'24	
conjunction	4653 Apr 06 12:23	17° Υ 21'46	-0°52'05	retrograde	4659 Aug 04 17:06	3° \mathcal{B} 18'48	
minimum elong	4653 Apr 06 12:22	17° Υ 21'46	0°52'06	opposition	4659 Oct 24 07:03	1° \mathcal{B} 53'53	-1°12'52
max. Earth dist.	4653 Apr 07 02:46	17° Υ 23'07	30.96398 AU	min. Earth dist.	4659 Oct 23 13:51	1° \mathcal{B} 55'04	28.90011 AU
morning rise	4653 Apr 22 00:45	17° Υ 56'50		direct	4660 Jan 10 17:47	0° \mathcal{B} 30'37	
retrograde	4653 Jul 21 09:52	19° Υ 54'46		evening set	4660 Apr 06 07:17	2° \mathcal{B} 23'57	
min. Earth dist.	4653 Oct 09 09:21	18° Υ 31'21	28.96049 AU				
opposition	4653 Oct 10 00:36	18° Υ 30'18	-0°57'10	conjunction	4660 Apr 21 19:02	2° \mathcal{B} 58'56	-1°09'12
direct	4653 Dec 27 17:15	17° Υ 07'11		minimum elong	4660 Apr 21 19:02	2° \mathcal{B} 58'56	1°09'12
evening set	4654 Mar 24 13:15	19° Υ 00'40		max. Earth dist.	4660 Apr 22 12:15	3° \mathcal{B} 00'34	30.89455 AU
				morning rise	4660 May 07 09:51	3° \mathcal{B} 34'13	
conjunction	4654 Apr 08 23:26	19° Υ 35'31	-0°54'48	retrograde	4660 Aug 06 06:15	5° \mathcal{B} 32'42	
minimum elong	4654 Apr 08 23:26	19° Υ 35'31	0°54'48	opposition	4660 Oct 25 20:03	4° \mathcal{B} 07'42	-1°15'07
max. Earth dist.	4654 Apr 09 14:57	19° Υ 37'00	30.95607 AU	min. Earth dist.	4660 Oct 25 02:33	4° \mathcal{B} 08'54	28.89047 AU
morning rise	4654 Apr 24 12:03	20° Υ 10'38		direct	4661 Jan 12 04:34	2° \mathcal{B} 44'25	
retrograde	4654 Jul 23 21:50	22° Υ 08'41		evening set	4661 Apr 08 18:21	4° \mathcal{B} 37'44	
opposition	4654 Oct 12 13:49	20° Υ 44'10	-1°00'01				
min. Earth dist.	4654 Oct 11 23:00	20° Υ 45'11	28.95229 AU	conjunction	4661 Apr 24 06:34	5° \mathcal{B} 12'45	-1°11'16
direct	4654 Dec 30 04:02	19° Υ 21'04		minimum elong	4661 Apr 24 06:34	5° \mathcal{B} 12'45	1°11'17
evening set	4655 Mar 27 00:12	21° Υ 14'33		max. Earth dist.	4661 Apr 25 01:29	5° \mathcal{B} 14'32	30.88545 AU
				morning rise	4661 May 09 21:36	5° \mathcal{B} 48'04	
conjunction	4655 Apr 11 10:36	21° Υ 49'26	-0°57'26	retrograde	4661 Aug 08 17:18	7° \mathcal{B} 46'37	
minimum elong	4655 Apr 11 10:36	21° Υ 49'26	0°57'26	opposition	4661 Oct 28 08:51	6° \mathcal{B} 21'33	-1°17'16
max. Earth dist.	4655 Apr 12 02:05	21° Υ 50'54	30.94746 AU	min. Earth dist.	4661 Oct 27 14:42	6° \mathcal{B} 22'49	28.88209 AU
morning rise	4655 Apr 26 23:33	22° Υ 24'34		direct	4662 Jan 14 16:54	4° \mathcal{B} 58'17	
retrograde	4655 Jul 26 12:05	24° Υ 22'43		evening set	4662 Apr 11 05:34	6° \mathcal{B} 51'35	
min. Earth dist.	4655 Oct 14 10:53	22° Υ 59'15	28.94319 AU				
opposition	4655 Oct 15 02:49	22° Υ 58'09	-1°02'47	conjunction	4662 Apr 26 18:02	7° \mathcal{B} 26'38	-1°13'13
direct	4656 Jan 01 16:13	21° Υ 35'02		minimum elong	4662 Apr 26 18:01	7° \mathcal{B} 26'38	1°13'13
evening set	4656 Mar 28 11:16	23° Υ 28'30		max. Earth dist.	4662 Apr 27 12:39	7° \mathcal{B} 28'24	30.87782 AU
				morning rise	4662 May 12 09:36	8° \mathcal{B} 01'59	
conjunction	4656 Apr 12 21:53	24° Υ 03'25	-0°59'58	retrograde	4662 Aug 11 07:18	10° \mathcal{B} 00'37	
minimum elong	4656 Apr 12 21:53	24° Υ 03'25	0°59'58	opposition	4662 Oct 30 21:40	8° \mathcal{B} 35'31	-1°19'18
max. Earth dist.	4656 Apr 13 13:31	24° Υ 04'53	30.93773 AU	min. Earth dist.	4662 Oct 30 02:31	8° \mathcal{B} 36'51	28.87520 AU
morning rise	4656 Apr 28 11:11	24° Υ 38'35		direct	4663 Jan 17 02:57	7° \mathcal{B} 12'15	
retrograde	4656 Jul 28 01:20	26° Υ 36'49		evening set	4663 Apr 13 16:48	9° \mathcal{B} 05'34	
opposition	4656 Oct 16 16:08	25° Υ 12'10	-1°05'27				
min. Earth dist.	4656 Oct 16 00:55	25° Υ 13'13	28.93301 AU	conjunction	4663 Apr 29 05:39	9° \mathcal{B} 40'39	-1°15'04

minimum elong	4663 Apr 29 05:39	9° 8 40'39	1°15'05	opposition	4669 Nov 15 15:16	24° 8 18'35	-1°30'02
max. Earth dist.	4663 Apr 30 01:34	9° 8 42'32	30.87144 AU	min. Earth dist.	4669 Nov 14 19:34	24° 8 19'57	28.84081 AU
morning rise	4663 May 14 21:29	10° 8 16'02		direct	4670 Feb 01 11:55	22° 8 55'22	
retrograde	4663 Aug 13 18:56	12° 8 14'45		evening set	4670 Apr 29 03:00	24° 8 48'50	
opposition	4663 Nov 02 10:27	10° 8 49'39	-1°21'13				
min. Earth dist.	4663 Nov 01 15:29	10° 8 50'58	28.86947 AU	conjunction	4670 May 14 18:36	25° 8 24'07	-1°24'41
direct	4664 Jan 19 13:38	9° 8 26'25		minimum elong	4670 May 14 18:36	25° 8 24'07	1°24'41
evening set	4664 Apr 15 04:09	11° 8 19'46		max. Earth dist.	4670 May 15 15:53	25° 8 26'08	30.83654 AU
				morning rise	4670 May 30 13:19	25° 8 59'44	
conjunction	4664 Apr 30 17:20	11° 8 54'52	-1°16'48	retrograde	4670 Aug 29 19:33	27° 8 58'50	
minimum elong	4664 Apr 30 17:20	11° 8 54'51	1°16'48	min. Earth dist.	4670 Nov 17 08:11	26° 8 35'00	28.83392 AU
max. Earth dist.	4664 May 01 13:31	11° 8 56'46	30.86639 AU	opposition	4670 Nov 18 03:55	26° 8 33'37	-1°31'02
morning rise	4664 May 16 09:37	12° 8 30'16		direct	4671 Feb 04 01:32	25° 8 10'22	
retrograde	4664 Aug 15 09:03	14° 8 29'05		evening set	4671 May 01 15:05	27° 8 03'49	
opposition	4664 Nov 03 23:14	13° 8 04'00	-1°23'01				
min. Earth dist.	4664 Nov 03 02:58	13° 8 05'24	28.86491 AU	conjunction	4671 May 17 06:58	27° 8 39'08	-1°25'33
direct	4665 Jan 21 01:01	11° 8 40'47		minimum elong	4671 May 17 06:58	27° 8 39'08	1°25'34
evening set	4665 Apr 17 15:35	13° 8 34'10		max. Earth dist.	4671 May 18 03:22	27° 8 41'04	30.82967 AU
				morning rise	4671 Jun 02 02:13	28° 8 14'45	
conjunction	4665 May 03 05:06	14° 8 09'18	-1°18'25		4671 Aug 03 04:27	0° II	
minimum elong	4665 May 03 05:06	14° 8 09'18	1°18'26	retrograde	4671 Sep 01 09:58	0° II 13'51	
max. Earth dist.	4665 May 04 01:41	14° 8 11'15	30.86208 AU		4671 Sep 30 22:05	30° R 8	
morning rise	4665 May 18 21:49	14° 8 44'45		opposition	4671 Nov 20 16:26	28° 8 48'34	-1°31'54
	4665 May 25 21:07	15° 8		min. Earth dist.	4671 Nov 19 20:17	28° 8 49'59	28.82722 AU
retrograde	4665 Aug 17 22:10	16° 8 43'39		direct	4672 Feb 06 13:02	27° 8 25'15	
opposition	4665 Nov 06 12:10	15° 8 18'34	-1°24'41	evening set	4672 May 03 03:07	29° 8 18'41	
min. Earth dist.	4665 Nov 05 16:39	15° 8 19'55	28.86090 AU				
	4665 Nov 17 18:12	15° R 8		conjunction	4672 May 18 19:29	29° 8 54'01	-1°26'18
direct	4666 Jan 23 11:08	13° 8 55'23		minimum elong	4672 May 18 19:29	29° 8 54'01	1°26'18
	4666 Mar 27 14:21	15° 8		max. Earth dist.	4672 May 19 16:50	29° 8 56'03	30.82315 AU
evening set	4666 Apr 20 03:14	15° 8 48'48			4672 May 21 10:36	0° II	
				morning rise	4672 Jun 03 15:05	0° II 29'41	
conjunction	4666 May 05 17:13	16° 8 23'58	-1°19'55	retrograde	4672 Sep 02 20:52	2° II 28'45	
minimum elong	4666 May 05 17:13	16° 8 23'58	1°19'55	min. Earth dist.	4672 Nov 21 09:15	1° II 04'48	28.82115 AU
max. Earth dist.	4666 May 06 14:24	16° 8 25'59	30.85821 AU	opposition	4672 Nov 22 04:57	1° II 03'25	-1°32'38
morning rise	4666 May 21 10:16	16° 8 59'27			4673 Jan 04 03:50	30° R 8	
retrograde	4666 Aug 20 12:29	18° 8 58'26		direct	4673 Feb 08 00:52	29° 8 40'03	
min. Earth dist.	4666 Nov 08 04:10	17° 8 34'48	28.85694 AU		4673 Mar 14 01:47	0° II	
opposition	4666 Nov 09 00:45	17° 8 33'22	-1°26'13	evening set	4673 May 05 15:10	1° II 33'28	
direct	4667 Jan 25 23:13	16° 8 10'12					
evening set	4667 Apr 22 15:09	18° 8 03'40		conjunction	4673 May 21 07:59	2° II 08'49	-1°26'55
				minimum elong	4673 May 21 07:59	2° II 08'49	1°26'55
conjunction	4667 May 08 05:22	18° 8 38'52	-1°21'17	max. Earth dist.	4673 May 22 05:16	2° II 10'50	30.81767 AU
minimum elong	4667 May 08 05:21	18° 8 38'52	1°21'18	morning rise	4673 Jun 06 04:05	2° II 44'31	
max. Earth dist.	4667 May 09 01:51	18° 8 40'48	30.85397 AU	retrograde	4673 Sep 05 09:53	4° II 43'34	
morning rise	4667 May 23 22:55	19° 8 14'23		opposition	4673 Nov 24 17:19	3° II 18'12	-1°33'13
retrograde	4667 Aug 23 03:12	21° 8 13'26		min. Earth dist.	4673 Nov 23 20:37	3° II 19'39	28.81624 AU
opposition	4667 Nov 11 13:41	19° 8 48'21	-1°27'37	direct	4674 Feb 10 12:18	1° II 54'46	
min. Earth dist.	4667 Nov 10 18:02	19° 8 49'43	28.85249 AU	evening set	4674 May 08 03:25	3° II 48'12	
direct	4668 Jan 28 10:53	18° 8 25'12					
evening set	4668 Apr 24 02:54	20° 8 18'41		conjunction	4674 May 23 20:37	4° II 23'35	-1°27'24
				minimum elong	4674 May 23 20:37	4° II 23'35	1°27'24
conjunction	4668 May 09 17:40	20° 8 53'55	-1°22'33	max. Earth dist.	4674 May 24 18:08	4° II 25'37	30.81327 AU
minimum elong	4668 May 09 17:40	20° 8 53'55	1°22'33	morning rise	4674 Jun 08 17:11	4° II 59'18	
max. Earth dist.	4668 May 10 15:08	20° 8 55'57	30.84906 AU	retrograde	4674 Sep 07 21:58	6° II 58'20	
morning rise	4668 May 25 11:29	21° 8 29'28		min. Earth dist.	4674 Nov 26 09:45	5° II 34'20	28.81259 AU
retrograde	4668 Aug 24 17:34	23° 8 28'34		opposition	4674 Nov 27 05:38	5° II 32'57	-1°33'40
min. Earth dist.	4668 Nov 12 06:16	22° 8 04'52	28.84705 AU	direct	4675 Feb 12 22:13	4° II 09'29	
opposition	4668 Nov 13 02:32	22° 8 03'27	-1°28'54	evening set	4675 May 10 15:36	6° II 02'56	
direct	4669 Jan 30 00:55	20° 8 40'17					
evening set	4669 Apr 26 15:02	22° 8 33'46		conjunction	4675 May 26 09:21	6° II 38'20	-1°27'45
				minimum elong	4675 May 26 09:21	6° II 38'20	1°27'45
conjunction	4669 May 12 06:02	23° 8 09'02	-1°23'40	max. Earth dist.	4675 May 27 07:25	6° II 40'26	30.81038 AU
minimum elong	4669 May 12 06:02	23° 8 09'02	1°23'41	morning rise	4675 Jun 11 06:16	7° II 14'05	
max. Earth dist.	4669 May 13 02:21	23° 8 10'57	30.84317 AU	retrograde	4675 Sep 10 11:36	9° II 13'06	
morning rise	4669 May 28 00:28	23° 8 44'37		opposition	4675 Nov 29 17:55	7° II 47'43	-1°33'58
retrograde	4669 Aug 27 07:08	25° 8 43'44		min. Earth dist.	4675 Nov 28 20:45	7° II 49'12	28.81033 AU

direct	4676 Feb 15 10:23	6°II24'15		retrograde	4682 Sep 26 12:03	24°II59'48	
evening set	4676 May 12 03:51	8°II17'43		opposition	4682 Dec 15 07:31	23°II34'35	-1°32'00
				min. Earth dist.	4682 Dec 14 12:29	23°II35'55	28.80509 AU
conjunction	4676 May 27 21:55	8°II53'09	-1°27'58	direct	4683 Mar 02 22:16	22°II11'02	
minimum elong	4676 May 27 21:55	8°II53'09	1°27'58	evening set	4683 May 28 21:21	24°II04'46	
max. Earth dist.	4676 May 28 19:32	8°II55'12	30.80876 AU				
morning rise	4676 Jun 12 19:25	9°II28'55		conjunction	4683 Jun 13 18:48	24°II40'26	-1°25'40
retrograde	4676 Sep 12 01:17	11°II27'58		minimum elong	4683 Jun 13 18:48	24°II40'26	1°25'40
min. Earth dist.	4676 Nov 30 09:59	10°II04'00	28.80938 AU	max. Earth dist.	4683 Jun 14 14:40	24°II42'18	30.80281 AU
opposition	4676 Dec 01 06:22	10°II02'35	-1°34'07	morning rise	4683 Jun 29 19:20	25°II16'24	
direct	4677 Feb 16 21:24	8°II39'06		retrograde	4683 Sep 29 00:15	27°II15'15	
evening set	4677 May 14 16:12	10°II32'36		opposition	4683 Dec 17 19:38	25°II50'00	-1°31'09
				min. Earth dist.	4683 Dec 17 01:56	25°II51'15	28.80228 AU
conjunction	4677 May 30 10:56	11°II08'05	-1°28'02	direct	4684 Mar 04 08:24	24°II26'23	
minimum elong	4677 May 30 10:56	11°II08'05	1°28'03	evening set	4684 May 30 10:08	26°II20'07	
max. Earth dist.	4677 May 31 09:37	11°II10'14	30.80835 AU				
morning rise	4677 Jun 15 08:44	11°II43'53		conjunction	4684 Jun 15 08:10	26°II55'49	-1°24'49
retrograde	4677 Sep 14 15:10	13°II42'55		minimum elong	4684 Jun 15 08:10	26°II55'49	1°24'49
opposition	4677 Dec 03 18:29	12°II17'34	-1°34'08	max. Earth dist.	4684 Jun 16 04:01	26°II57'41	30.80016 AU
min. Earth dist.	4677 Dec 02 21:30	12°II19'02	28.80930 AU	morning rise	4684 Jul 01 09:06	27°II31'48	
direct	4678 Feb 19 10:26	10°II54'06		retrograde	4684 Sep 30 12:49	29°II30'34	
evening set	4678 May 17 04:54	12°II47'40		opposition	4684 Dec 19 07:29	28°II05'18	-1°30'10
				min. Earth dist.	4684 Dec 18 13:02	28°II06'36	28.79974 AU
conjunction	4678 Jun 01 23:55	13°II23'10	-1°27'59	direct	4685 Mar 06 21:00	26°II41'37	
minimum elong	4678 Jun 01 23:55	13°II23'10	1°28'00	evening set	4685 Jun 01 23:14	28°II35'23	
max. Earth dist.	4678 Jun 02 21:28	13°II25'12	30.80859 AU				
morning rise	4678 Jun 17 22:21	13°II59'00		conjunction	4685 Jun 17 21:37	29°II11'05	-1°23'50
retrograde	4678 Sep 17 05:41	15°II58'03		minimum elong	4685 Jun 17 21:37	29°II11'05	1°23'50
min. Earth dist.	4678 Dec 05 10:31	14°II34'09	28.80972 AU	max. Earth dist.	4685 Jun 18 16:36	29°II12'53	30.79791 AU
opposition	4678 Dec 06 06:48	14°II32'44	-1°33'59	morning rise	4685 Jul 03 23:05	29°II47'06	
direct	4679 Feb 21 21:01	13°II09'17			4685 Jul 09 21:15	0°☾	
evening set	4679 May 19 17:29	15°II02'54		retrograde	4685 Oct 03 01:01	1°☾45'47	
				opposition	4685 Dec 21 19:16	0°☾20'30	-1°29'03
conjunction	4679 Jun 04 13:06	15°II38'27	-1°27'47	min. Earth dist.	4685 Dec 21 01:58	0°☾21'43	28.79798 AU
minimum elong	4679 Jun 04 13:06	15°II38'27	1°27'48		4686 Jan 03 01:23	30°☾II	
max. Earth dist.	4679 Jun 05 11:30	15°II40'34	30.80889 AU	direct	4686 Mar 09 07:53	28°II56'45	
morning rise	4679 Jun 20 11:45	16°II14'18			4686 May 10 21:21	0°☾	
retrograde	4679 Sep 19 19:24	18°II13'20		evening set	4686 Jun 04 12:11	0°☾50'32	
opposition	4679 Dec 08 19:03	16°II48'05	-1°33'42				
min. Earth dist.	4679 Dec 07 23:01	16°II49'29	28.80980 AU	conjunction	4686 Jun 20 11:13	1°☾26'16	-1°22'43
direct	4680 Feb 24 10:30	15°II24'38		minimum elong	4686 Jun 20 11:13	1°☾26'16	1°22'44
evening set	4680 May 21 06:25	17°II18'18		max. Earth dist.	4686 Jun 21 06:54	1°☾28'08	30.79669 AU
				morning rise	4686 Jul 06 12:56	2°☾02'18	
conjunction	4680 Jun 06 02:22	17°II53'53	-1°27'27	retrograde	4686 Oct 05 13:50	4°☾00'54	
minimum elong	4680 Jun 06 02:22	17°II53'53	1°27'28	opposition	4686 Dec 24 06:54	2°☾35'37	-1°27'48
max. Earth dist.	4680 Jun 06 23:18	17°II55'51	30.80874 AU	min. Earth dist.	4686 Dec 23 13:02	2°☾36'53	28.79729 AU
morning rise	4680 Jun 22 01:37	18°II29'46		direct	4687 Mar 11 20:30	1°☾11'48	
retrograde	4680 Sep 21 10:42	20°II28'47		evening set	4687 Jun 07 01:11	3°☾05'37	
min. Earth dist.	4680 Dec 09 11:26	19°II04'57	28.80926 AU				
opposition	4680 Dec 10 07:18	19°II03'33	-1°33'17	conjunction	4687 Jun 23 00:29	3°☾41'23	-1°21'29
direct	4681 Feb 25 22:12	17°II40'06		minimum elong	4687 Jun 23 00:29	3°☾41'23	1°21'29
evening set	4681 May 23 19:19	19°II33'47		max. Earth dist.	4687 Jun 23 19:04	3°☾43'07	30.79669 AU
				morning rise	4687 Jul 09 02:46	4°☾17'25	
conjunction	4681 Jun 08 15:52	20°II09'24	-1°26'59	retrograde	4687 Oct 08 03:34	6°☾15'57	
minimum elong	4681 Jun 08 15:52	20°II09'24	1°27'00	opposition	4687 Dec 26 18:38	4°☾50'40	-1°26'25
max. Earth dist.	4681 Jun 09 13:01	20°II11'24	30.80760 AU	min. Earth dist.	4687 Dec 26 01:22	4°☾51'53	28.79807 AU
morning rise	4681 Jun 24 15:28	20°II45'20		direct	4688 Mar 13 07:05	3°☾26'49	
retrograde	4681 Sep 23 22:29	22°II44'19		evening set	4688 Jun 08 14:11	5°☾20'39	
opposition	4681 Dec 12 19:34	21°II19'05	-1°32'43				
min. Earth dist.	4681 Dec 12 00:47	21°II20'24	28.80756 AU	conjunction	4688 Jun 24 14:08	5°☾56'27	-1°20'07
direct	4682 Feb 28 10:28	19°II55'36		minimum elong	4688 Jun 24 14:08	5°☾56'27	1°20'08
evening set	4682 May 26 08:21	21°II49'18		max. Earth dist.	4688 Jun 25 09:40	5°☾58'17	30.79820 AU
				morning rise	4688 Jul 10 16:39	6°☾32'31	
conjunction	4682 Jun 11 05:21	22°II24'57	-1°26'23	retrograde	4688 Oct 09 17:07	8°☾30'57	
minimum elong	4682 Jun 11 05:21	22°II24'57	1°26'24	opposition	4688 Dec 28 06:11	7°☾05'43	-1°24'53
max. Earth dist.	4682 Jun 12 01:30	22°II26'51	30.80556 AU	min. Earth dist.	4688 Dec 27 12:57	7°☾06'55	28.80025 AU
morning rise	4682 Jun 27 05:27	23°II00'54		direct	4689 Mar 15 20:54	5°☾41'50	

evening set	4689 Jun 11 03:23	7° $\mathring{\text{E}}$ 35'42	opposition	4696 Jan 13 14:28	22° $\mathring{\text{E}}$ 51'55 -1°10'44
			min. Earth dist.	4696 Jan 13 01:06	22° $\mathring{\text{E}}$ 52'52 28.82659 AU
conjunction	4689 Jun 27 03:41	8° $\mathring{\text{E}}$ 11'32 -1°18'38	direct	4696 Mar 31 07:20	21° $\mathring{\text{E}}$ 27'49
minimum elong	4689 Jun 27 03:41	8° $\mathring{\text{E}}$ 11'32 1°18'39	evening set	4696 Jun 27 01:48	23° $\mathring{\text{E}}$ 21'58
max. Earth dist.	4689 Jun 27 21:54	8° $\mathring{\text{E}}$ 13'15 30.80120 AU			
morning rise	4689 Jul 13 06:46	8° $\mathring{\text{E}}$ 47'37	conjunction	4696 Jul 13 05:07	23° $\mathring{\text{E}}$ 57'56 -1°05'01
retrograde	4689 Oct 12 07:34	10° $\mathring{\text{E}}$ 45'59	minimum elong	4696 Jul 13 05:08	23° $\mathring{\text{E}}$ 57'56 1°05'02
opposition	4689 Dec 30 17:45	9° $\mathring{\text{E}}$ 20'47 -1°23'14	max. Earth dist.	4696 Jul 13 18:35	23° $\mathring{\text{E}}$ 59'12 30.82730 AU
min. Earth dist.	4689 Dec 30 00:31	9° $\mathring{\text{E}}$ 21'59 28.80385 AU	morning rise	4696 Jul 29 10:37	24° $\mathring{\text{E}}$ 34'07
direct	4690 Mar 18 08:48	7° $\mathring{\text{E}}$ 56'53	retrograde	4696 Oct 28 00:20	26° $\mathring{\text{E}}$ 31'45
evening set	4690 Jun 13 16:37	9° $\mathring{\text{E}}$ 50'49	opposition	4697 Jan 15 01:40	25° $\mathring{\text{E}}$ 06'48 -1°08'15
			min. Earth dist.	4697 Jan 14 13:28	25° $\mathring{\text{E}}$ 07'40 28.82901 AU
conjunction	4690 Jun 29 17:27	10° $\mathring{\text{E}}$ 26'40 -1°17'02	direct	4697 Apr 02 18:11	23° $\mathring{\text{E}}$ 42'37
minimum elong	4690 Jun 29 17:27	10° $\mathring{\text{E}}$ 26'40 1°17'02	evening set	4697 Jun 29 15:18	25° $\mathring{\text{E}}$ 36'47
max. Earth dist.	4690 Jun 30 12:11	10° $\mathring{\text{E}}$ 28'26 30.80526 AU			
morning rise	4690 Jul 15 20:46	11° $\mathring{\text{E}}$ 02'46	conjunction	4697 Jul 15 19:13	26° $\mathring{\text{E}}$ 12'47 -1°02'39
retrograde	4690 Oct 14 19:50	13° $\mathring{\text{E}}$ 01'03	minimum elong	4697 Jul 15 19:13	26° $\mathring{\text{E}}$ 12'47 1°02'40
opposition	4691 Jan 02 05:14	11° $\mathring{\text{E}}$ 35'55 -1°21'27	max. Earth dist.	4697 Jul 16 09:09	26° $\mathring{\text{E}}$ 14'05 30.82987 AU
min. Earth dist.	4691 Jan 01 12:59	11° $\mathring{\text{E}}$ 37'04 28.80826 AU	morning rise	4697 Aug 01 00:51	26° $\mathring{\text{E}}$ 48'57
direct	4691 Mar 20 20:50	10° $\mathring{\text{E}}$ 12'02	retrograde	4697 Oct 30 12:32	28° $\mathring{\text{E}}$ 46'27
evening set	4691 Jun 16 05:59	12° $\mathring{\text{E}}$ 06'00	opposition	4698 Jan 17 12:45	27° $\mathring{\text{E}}$ 21'31 -1°05'41
			min. Earth dist.	4698 Jan 17 00:58	27° $\mathring{\text{E}}$ 22'21 28.83175 AU
conjunction	4691 Jul 02 07:13	12° $\mathring{\text{E}}$ 41'53 -1°15'18	direct	4698 Apr 05 07:48	25° $\mathring{\text{E}}$ 57'16
minimum elong	4691 Jul 02 07:13	12° $\mathring{\text{E}}$ 41'53 1°15'18	evening set	4698 Jul 02 04:55	27° $\mathring{\text{E}}$ 51'28
max. Earth dist.	4691 Jul 03 00:55	12° $\mathring{\text{E}}$ 43'33 30.81008 AU			
morning rise	4691 Jul 18 10:59	13° $\mathring{\text{E}}$ 18'00	conjunction	4698 Jul 18 09:01	28° $\mathring{\text{E}}$ 27'28 -1°00'12
retrograde	4691 Oct 17 10:41	15° $\mathring{\text{E}}$ 16'13	minimum elong	4698 Jul 18 09:01	28° $\mathring{\text{E}}$ 27'28 1°00'13
opposition	4692 Jan 04 16:42	13° $\mathring{\text{E}}$ 51'08 -1°19'32	max. Earth dist.	4698 Jul 18 21:18	28° $\mathring{\text{E}}$ 28'37 30.83308 AU
min. Earth dist.	4692 Jan 04 00:15	13° $\mathring{\text{E}}$ 52'18 28.81314 AU	morning rise	4698 Aug 03 15:04	29° $\mathring{\text{E}}$ 03'39
direct	4692 Mar 22 08:57	12° $\mathring{\text{E}}$ 27'14		4698 Aug 31 12:05	0° $\mathring{\text{N}}$
evening set	4692 Jun 17 19:24	14° $\mathring{\text{E}}$ 21'16	retrograde	4698 Nov 02 02:01	1° $\mathring{\text{N}}$ 01'00
				4699 Jan 05 17:24	30° $\mathring{\text{R}}$ $\mathring{\text{E}}$
conjunction	4692 Jul 03 21:04	14° $\mathring{\text{E}}$ 57'11 -1°13'27	opposition	4699 Jan 19 23:44	29° $\mathring{\text{E}}$ 36'06 -1°03'01
minimum elong	4692 Jul 03 21:04	14° $\mathring{\text{E}}$ 57'11 1°13'28	min. Earth dist.	4699 Jan 19 12:09	29° $\mathring{\text{E}}$ 36'55 28.83549 AU
max. Earth dist.	4692 Jul 04 14:23	14° $\mathring{\text{E}}$ 58'48 30.81481 AU	direct	4699 Apr 07 19:36	28° $\mathring{\text{E}}$ 11'47
morning rise	4692 Jul 20 01:11	15° $\mathring{\text{E}}$ 33'19		4699 Jul 01 23:59	0° $\mathring{\text{N}}$
retrograde	4692 Oct 18 23:05	17° $\mathring{\text{E}}$ 31'27	evening set	4699 Jul 04 18:23	0° $\mathring{\text{N}}$ 06'01
opposition	4693 Jan 06 04:19	16° $\mathring{\text{E}}$ 06'25 -1°17'30			
min. Earth dist.	4693 Jan 05 13:35	16° $\mathring{\text{E}}$ 07'28 28.81764 AU	conjunction	4699 Jul 20 22:57	0° $\mathring{\text{N}}$ 42'02 -0°57'40
direct	4693 Mar 24 19:46	14° $\mathring{\text{E}}$ 42'30	minimum elong	4699 Jul 20 22:57	0° $\mathring{\text{N}}$ 42'02 0°57'40
evening set	4693 Jun 20 09:00	16° $\mathring{\text{E}}$ 36'34	max. Earth dist.	4699 Jul 21 11:43	0° $\mathring{\text{N}}$ 43'14 30.83736 AU
			morning rise	4699 Aug 06 05:05	1° $\mathring{\text{N}}$ 18'14
conjunction	4693 Jul 06 11:12	17° $\mathring{\text{E}}$ 12'30 -1°11'30	retrograde	4699 Nov 04 14:02	3° $\mathring{\text{N}}$ 15'27
minimum elong	4693 Jul 06 11:12	17° $\mathring{\text{E}}$ 12'30 1°11'30	opposition	4700 Jan 22 10:45	1° $\mathring{\text{N}}$ 50'35 -1°00'15
max. Earth dist.	4693 Jul 07 03:44	17° $\mathring{\text{E}}$ 14'03 30.81904 AU	min. Earth dist.	4700 Jan 22 00:02	1° $\mathring{\text{N}}$ 51'20 28.84042 AU
morning rise	4693 Jul 22 15:38	17° $\mathring{\text{E}}$ 48'39	direct	4700 Apr 10 07:51	0° $\mathring{\text{N}}$ 26'14
retrograde	4693 Oct 21 11:38	19° $\mathring{\text{E}}$ 46'40	evening set	4700 Jul 07 07:51	2° $\mathring{\text{N}}$ 20'30
opposition	4694 Jan 08 15:38	18° $\mathring{\text{E}}$ 21'41 -1°15'21			
min. Earth dist.	4694 Jan 08 00:42	18° $\mathring{\text{E}}$ 22'45 28.82135 AU	conjunction	4700 Jul 23 12:44	2° $\mathring{\text{N}}$ 56'32 -0°55'02
direct	4694 Mar 27 08:24	16° $\mathring{\text{E}}$ 57'43	minimum elong	4700 Jul 23 12:44	2° $\mathring{\text{N}}$ 56'32 0°55'03
evening set	4694 Jun 22 22:44	18° $\mathring{\text{E}}$ 51'50	max. Earth dist.	4700 Jul 24 00:23	2° $\mathring{\text{N}}$ 57'38 30.84315 AU
			morning rise	4700 Aug 08 19:15	3° $\mathring{\text{N}}$ 32'44
conjunction	4694 Jul 09 01:15	19° $\mathring{\text{E}}$ 27'46 -1°09'26	retrograde	4700 Nov 07 04:40	5° $\mathring{\text{N}}$ 29'50
minimum elong	4694 Jul 09 01:15	19° $\mathring{\text{E}}$ 27'46 1°09'27	opposition	4701 Jan 24 21:39	4° $\mathring{\text{N}}$ 05'01 -0°57'24
max. Earth dist.	4694 Jul 09 16:19	19° $\mathring{\text{E}}$ 29'11 30.82231 AU	min. Earth dist.	4701 Jan 24 10:33	4° $\mathring{\text{N}}$ 05'48 28.84690 AU
morning rise	4694 Jul 25 06:04	20° $\mathring{\text{E}}$ 03'56	direct	4701 Apr 12 20:27	2° $\mathring{\text{N}}$ 40'39
retrograde	4694 Oct 23 23:28	22° $\mathring{\text{E}}$ 01'50	evening set	4701 Jul 09 21:29	4° $\mathring{\text{N}}$ 34'58
opposition	4695 Jan 11 03:10	20° $\mathring{\text{E}}$ 36'53 -1°13'06			
min. Earth dist.	4695 Jan 10 13:52	20° $\mathring{\text{E}}$ 37'49 28.82426 AU	conjunction	4701 Jul 26 02:43	5° $\mathring{\text{N}}$ 11'02 -0°52'20
direct	4695 Mar 29 18:53	19° $\mathring{\text{E}}$ 12'51	minimum elong	4701 Jul 26 02:43	5° $\mathring{\text{N}}$ 11'02 0°52'20
evening set	4695 Jun 25 12:08	21° $\mathring{\text{E}}$ 06'58	max. Earth dist.	4701 Jul 26 14:17	5° $\mathring{\text{N}}$ 12'06 30.85032 AU
			morning rise	4701 Aug 11 09:22	5° $\mathring{\text{N}}$ 47'14
conjunction	4695 Jul 11 15:12	21° $\mathring{\text{E}}$ 42'56 -1°07'17	retrograde	4701 Nov 09 16:23	7° $\mathring{\text{N}}$ 44'13
minimum elong	4695 Jul 11 15:12	21° $\mathring{\text{E}}$ 42'56 1°07'17	opposition	4702 Jan 27 08:32	6° $\mathring{\text{N}}$ 19'28 -0°54'27
max. Earth dist.	4695 Jul 12 06:20	21° $\mathring{\text{E}}$ 44'21 30.82497 AU	min. Earth dist.	4702 Jan 26 22:51	6° $\mathring{\text{N}}$ 20'10 28.85480 AU
morning rise	4695 Jul 27 20:13	22° $\mathring{\text{E}}$ 19'06	direct	4702 Apr 15 07:22	4° $\mathring{\text{N}}$ 55'07
retrograde	4695 Oct 26 11:45	24° $\mathring{\text{E}}$ 16'52	evening set	4702 Jul 12 11:05	6° $\mathring{\text{N}}$ 49'29

conjunction	4702 Jul 28 16:40	7° <i>Ω</i> 25'34	-0°49'32	retrograde	4708 Nov 25 04:37	23° <i>Ω</i> 26'16	
minimum elong	4702 Jul 28 16:40	7° <i>Ω</i> 25'34	0°49'33	opposition	4709 Feb 11 12:15	22° <i>Ω</i> 02'03	-0°31'48
max. Earth dist.	4702 Jul 29 03:42	7° <i>Ω</i> 26'36	30.85902 AU	min. Earth dist.	4709 Feb 11 08:09	22° <i>Ω</i> 02'21	28.91520 AU
morning rise	4702 Aug 13 23:31	8° <i>Ω</i> 01'46		direct	4709 Apr 30 16:36	20° <i>Ω</i> 37'32	
retrograde	4702 Nov 12 05:00	9° <i>Ω</i> 58'39		evening set	4709 Jul 28 12:03	22° <i>Ω</i> 32'16	
opposition	4703 Jan 29 19:21	8° <i>Ω</i> 34'01	-0°51'25				
min. Earth dist.	4703 Jan 29 09:10	8° <i>Ω</i> 34'44	28.86395 AU	conjunction	4709 Aug 13 19:12	23° <i>Ω</i> 08'22	-0°28'09
direct	4703 Apr 17 19:39	7° <i>Ω</i> 09'39		minimum elong	4709 Aug 13 19:12	23° <i>Ω</i> 08'22	0°28'08
evening set	4703 Jul 15 00:41	9° <i>Ω</i> 04'06		max. Earth dist.	4709 Aug 13 23:03	23° <i>Ω</i> 08'44	30.91848 AU
				morning rise	4709 Aug 30 02:51	23° <i>Ω</i> 44'32	
conjunction	4703 Jul 31 06:27	9° <i>Ω</i> 40'12	-0°46'40	retrograde	4709 Nov 27 18:23	25° <i>Ω</i> 40'29	
minimum elong	4703 Jul 31 06:27	9° <i>Ω</i> 40'12	0°46'40	opposition	4710 Feb 13 22:44	24° <i>Ω</i> 16'17	-0°28'20
max. Earth dist.	4703 Jul 31 16:31	9° <i>Ω</i> 41'08	30.86860 AU	min. Earth dist.	4710 Feb 13 18:40	24° <i>Ω</i> 16'34	28.92185 AU
morning rise	4703 Aug 16 13:31	10° <i>Ω</i> 16'24		direct	4710 May 03 06:13	22° <i>Ω</i> 51'42	
retrograde	4703 Nov 14 17:02	12° <i>Ω</i> 13'11		evening set	4710 Jul 31 01:51	24° <i>Ω</i> 46'27	
opposition	4704 Feb 01 06:18	10° <i>Ω</i> 48'39	-0°48'19				
min. Earth dist.	4704 Jan 31 21:40	10° <i>Ω</i> 49'16	28.87384 AU	conjunction	4710 Aug 16 09:12	25° <i>Ω</i> 22'33	-0°24'54
direct	4704 Apr 19 05:22	9° <i>Ω</i> 24'19		minimum elong	4710 Aug 16 09:12	25° <i>Ω</i> 22'33	0°24'55
evening set	4704 Jul 16 14:26	11° <i>Ω</i> 18'50		max. Earth dist.	4710 Aug 16 12:47	25° <i>Ω</i> 22'53	30.92516 AU
				morning rise	4710 Sep 01 16:46	25° <i>Ω</i> 58'42	
conjunction	4704 Aug 01 20:36	11° <i>Ω</i> 54'57	-0°43'43	retrograde	4710 Nov 30 05:11	27° <i>Ω</i> 54'29	
minimum elong	4704 Aug 01 20:37	11° <i>Ω</i> 54'57	0°43'45	opposition	4711 Feb 16 09:23	26° <i>Ω</i> 30'18	-0°24'51
max. Earth dist.	4704 Aug 02 06:31	11° <i>Ω</i> 55'52	30.87862 AU	min. Earth dist.	4711 Feb 16 06:57	26° <i>Ω</i> 30'28	28.92878 AU
morning rise	4704 Aug 18 03:44	12° <i>Ω</i> 31'09		direct	4711 May 05 18:13	25° <i>Ω</i> 05'39	
retrograde	4704 Nov 16 05:15	14° <i>Ω</i> 27'50		evening set	4711 Aug 02 15:24	27° <i>Ω</i> 00'25	
opposition	4705 Feb 02 17:00	13° <i>Ω</i> 03'24	-0°45'08				
min. Earth dist.	4705 Feb 02 08:33	13° <i>Ω</i> 04'00	28.88365 AU	conjunction	4711 Aug 18 22:53	27° <i>Ω</i> 36'30	-0°21'37
direct	4705 Apr 21 16:46	11° <i>Ω</i> 39'04		minimum elong	4711 Aug 18 22:54	27° <i>Ω</i> 36'30	0°21'37
evening set	4705 Jul 19 04:30	13° <i>Ω</i> 33'40		max. Earth dist.	4711 Aug 19 01:43	27° <i>Ω</i> 36'46	30.93249 AU
				morning rise	4711 Sep 04 06:31	28° <i>Ω</i> 12'38	
conjunction	4705 Aug 04 10:46	14° <i>Ω</i> 09'46	-0°40'43		4711 Nov 10 13:24	0° <i>♊</i>	
minimum elong	4705 Aug 04 10:46	14° <i>Ω</i> 09'46	0°40'43	retrograde	4711 Dec 02 17:51	0° <i>♊</i> 08'15	
max. Earth dist.	4705 Aug 04 18:40	14° <i>Ω</i> 10'30	30.88818 AU		4711 Dec 24 23:10	30° <i>♋</i> <i>Ω</i>	
morning rise	4705 Aug 20 18:09	14° <i>Ω</i> 45'59		opposition	4712 Feb 18 19:50	28° <i>Ω</i> 44'06	-0°21'19
	4705 Aug 27 06:26	15° <i>Ω</i>		min. Earth dist.	4712 Feb 18 16:59	28° <i>Ω</i> 44'18	28.93644 AU
retrograde	4705 Nov 18 16:58	16° <i>Ω</i> 42'33		direct	4712 May 07 07:12	27° <i>Ω</i> 19'24	
opposition	4706 Feb 05 03:56	15° <i>Ω</i> 18'12	-0°41'53	evening set	4712 Aug 04 05:11	29° <i>Ω</i> 14'11	
min. Earth dist.	4706 Feb 04 20:55	15° <i>Ω</i> 18'42	28.89288 AU				
	4706 Feb 15 23:06	15° <i>♋</i> <i>Ω</i>		conjunction	4712 Aug 20 12:42	29° <i>Ω</i> 50'16	-0°18'18
direct	4706 Apr 24 03:30	13° <i>Ω</i> 53'51		minimum elong	4712 Aug 20 12:42	29° <i>Ω</i> 50'16	0°18'19
	4706 Jun 28 00:15	15° <i>Ω</i>		max. Earth dist.	4712 Aug 20 14:36	29° <i>Ω</i> 50'26	30.94059 AU
evening set	4706 Jul 21 18:19	15° <i>Ω</i> 48'30			4712 Aug 24 21:27	0° <i>♊</i>	
				morning rise	4712 Sep 05 20:19	0° <i>♊</i> 26'22	
conjunction	4706 Aug 07 00:58	16° <i>Ω</i> 24'36	-0°37'39	retrograde	4712 Dec 04 05:34	2° <i>♊</i> 21'50	
minimum elong	4706 Aug 07 00:58	16° <i>Ω</i> 24'36	0°37'40	opposition	4713 Feb 20 06:17	0° <i>♊</i> 57'44	-0°17'46
max. Earth dist.	4706 Aug 07 08:53	16° <i>Ω</i> 25'21	30.89689 AU	min. Earth dist.	4713 Feb 20 04:51	0° <i>♊</i> 57'50	28.94518 AU
morning rise	4706 Aug 23 08:15	17° <i>Ω</i> 00'48			4713 Mar 29 15:21	30° <i>♋</i> <i>Ω</i>	
retrograde	4706 Nov 21 04:06	18° <i>Ω</i> 57'15		direct	4713 May 09 17:50	29° <i>Ω</i> 32'59	
opposition	4707 Feb 07 14:46	17° <i>Ω</i> 32'58	-0°38'34		4713 Jun 19 05:58	0° <i>♊</i>	
min. Earth dist.	4707 Feb 07 08:34	17° <i>Ω</i> 33'24	28.90102 AU	evening set	4713 Aug 06 18:51	1° <i>♊</i> 27'48	
direct	4707 Apr 26 16:30	16° <i>Ω</i> 08'34					
evening set	4707 Jul 24 08:18	18° <i>Ω</i> 03'15		conjunction	4713 Aug 23 02:34	2° <i>♊</i> 03'53	-0°14'58
				minimum elong	4713 Aug 23 02:34	2° <i>♊</i> 03'53	0°14'58
conjunction	4707 Aug 09 15:01	18° <i>Ω</i> 39'22	-0°34'32	behind sun begin	4713 Aug 23 00:26	2° <i>♊</i> 03'42	
minimum elong	4707 Aug 09 15:01	18° <i>Ω</i> 39'22	0°34'32	behind sun end	4713 Aug 23 04:42	2° <i>♊</i> 04'04	
max. Earth dist.	4707 Aug 09 20:42	18° <i>Ω</i> 39'53	30.90470 AU	max. Earth dist.	4713 Aug 23 04:23	2° <i>♊</i> 04'03	30.94997 AU
morning rise	4707 Aug 25 22:34	19° <i>Ω</i> 15'33		morning rise	4713 Sep 08 10:03	2° <i>♊</i> 39'58	
retrograde	4707 Nov 23 17:13	21° <i>Ω</i> 11'51		retrograde	4713 Dec 06 16:45	4° <i>♊</i> 35'17	
opposition	4708 Feb 10 01:30	19° <i>Ω</i> 47'36	-0°35'12	opposition	4714 Feb 22 16:42	3° <i>♊</i> 11'15	-0°14'11
min. Earth dist.	4708 Feb 09 19:58	19° <i>Ω</i> 47'59	28.90846 AU	min. Earth dist.	4714 Feb 22 15:02	3° <i>♊</i> 11'22	28.95510 AU
direct	4708 Apr 28 03:47	18° <i>Ω</i> 23'08		direct	4714 May 12 05:56	1° <i>♊</i> 46'29	
evening set	4708 Jul 25 22:06	20° <i>Ω</i> 17'52		evening set	4714 Aug 09 08:31	3° <i>♊</i> 41'21	
conjunction	4708 Aug 11 05:11	20° <i>Ω</i> 53'58	-0°31'22	conjunction	4714 Aug 25 16:07	4° <i>♊</i> 17'25	-0°11'37
minimum elong	4708 Aug 11 05:11	20° <i>Ω</i> 53'58	0°31'22	minimum elong	4714 Aug 25 16:07	4° <i>♊</i> 17'25	0°11'38
max. Earth dist.	4708 Aug 11 10:49	20° <i>Ω</i> 54'29	30.91176 AU	behind sun begin	4714 Aug 25 11:30	4° <i>♊</i> 17'01	
morning rise	4708 Aug 27 12:40	21° <i>Ω</i> 30'09		behind sun end	4714 Aug 25 20:44	4° <i>♊</i> 17'50	

max. Earth dist.	4714 Aug 25 16:30	4° 17 '27	30.96052 AU	evening set	4720 Aug 22 19:00	17° 17 '03'24	
morning rise	4714 Sep 10 23:37	4° 17 '53'30					
retrograde	4714 Dec 09 03:38	6° 17 '48'42		conjunction	4720 Sep 08 02:32	17° 17 '39'25	0°08'49
opposition	4715 Feb 25 03:11	5° 17 '24'45	-0°10'35	minimum elong	4720 Sep 08 02:32	17° 17 '39'25	0°08'48
min. Earth dist.	4715 Feb 25 02:29	5° 17 '24'47	28.96629 AU	behind sun begin	4720 Sep 07 20:52	17° 17 '38'54	
direct	4715 May 14 16:13	3° 17 '59'59		behind sun end	4720 Sep 08 08:11	17° 17 '39'55	
evening set	4715 Aug 11 22:06	5° 17 '54'54		max. Earth dist.	4720 Sep 07 21:28	17° 17 '38'58	31.02585 AU
				morning rise	4720 Sep 24 09:02	18° 17 '15'21	
conjunction	4715 Aug 28 05:55	6° 17 '30'59	-0°08'15	retrograde	4720 Dec 22 02:26	20° 17 '09'52	
minimum elong	4715 Aug 28 05:54	6° 17 '30'59	0°08'15	opposition	4721 Mar 09 17:35	18° 17 '46'25	0°11'09
behind sun begin	4715 Aug 28 00:06	6° 17 '30'28		min. Earth dist.	4721 Mar 09 21:45	18° 17 '46'08	29.02987 AU
behind sun end	4715 Aug 28 11:43	6° 17 '31'30		direct	4721 May 27 17:11	17° 17 '21'38	
max. Earth dist.	4715 Aug 28 06:45	6° 17 '31'03	30.97220 AU	evening set	4721 Aug 25 08:46	19° 17 '16'55	
morning rise	4715 Sep 13 13:10	7° 17 '07'02					
retrograde	4715 Dec 11 14:05	9° 17 '02'07		conjunction	4721 Sep 10 16:08	19° 17 '52'54	0°12'10
opposition	4716 Feb 27 13:32	7° 17 '38'17	-0°06'57	minimum elong	4721 Sep 10 16:08	19° 17 '52'54	0°12'10
min. Earth dist.	4716 Feb 27 13:28	7° 17 '38'17	28.97822 AU	behind sun begin	4721 Sep 10 11:47	19° 17 '52'31	
direct	4716 May 16 03:58	6° 17 '13'32		behind sun end	4721 Sep 10 20:29	19° 17 '53'17	
evening set	4716 Aug 13 11:54	8° 17 '08'32		max. Earth dist.	4721 Sep 10 09:52	19° 17 '52'20	31.03369 AU
				morning rise	4721 Sep 26 22:23	20° 17 '28'48	
conjunction	4716 Aug 29 19:34	8° 17 '44'36	-0°04'53	retrograde	4721 Dec 24 14:18	22° 17 '23'12	
minimum elong	4716 Aug 29 19:34	8° 17 '44'36	0°04'53	opposition	4722 Mar 12 04:01	20° 17 '59'46	0°14'44
behind sun begin	4716 Aug 29 13:09	8° 17 '44'02		min. Earth dist.	4722 Mar 12 09:53	20° 17 '59'22	29.03750 AU
behind sun end	4716 Aug 30 02:00	8° 17 '45'10		direct	4722 May 30 04:38	19° 17 '34'57	
max. Earth dist.	4716 Aug 29 18:25	8° 17 '44'31	30.98435 AU	evening set	4722 Aug 27 22:10	21° 17 '30'14	
morning rise	4716 Sep 15 02:54	9° 17 '20'38					
retrograde	4716 Dec 13 02:49	11° 17 '15'38		conjunction	4722 Sep 13 05:29	22° 17 '06'13	0°15'29
opposition	4717 Feb 28 23:55	9° 17 '51'53	-0°03'20	minimum elong	4722 Sep 13 05:29	22° 17 '06'13	0°15'29
min. Earth dist.	4717 Mar 01 00:26	9° 17 '51'51	28.99035 AU	behind sun begin	4722 Sep 13 04:11	22° 17 '06'06	
direct	4717 May 18 14:21	8° 17 '27'10		behind sun end	4722 Sep 13 06:47	22° 17 '06'19	
evening set	4717 Aug 16 01:41	10° 17 '22'15		max. Earth dist.	4722 Sep 12 22:53	22° 17 '05'37	31.04115 AU
				morning rise	4722 Sep 29 11:25	22° 17 '42'05	
conjunction	4717 Sep 01 09:28	10° 17 '58'18	-0°01'27	retrograde	4722 Dec 27 00:40	24° 17 '36'19	
minimum elong	4717 Sep 01 09:28	10° 17 '58'18	0°01'27	opposition	4723 Mar 14 14:16	23° 17 '12'56	0°18'17
behind sun begin	4717 Sep 01 02:52	10° 17 '57'43		min. Earth dist.	4723 Mar 14 20:09	23° 17 '12'31	29.04482 AU
behind sun end	4717 Sep 01 16:04	10° 17 '58'53		direct	4723 Jun 01 17:35	21° 17 '48'03	
max. Earth dist.	4717 Sep 01 08:17	10° 17 '58'15	30.99615 AU	evening set	4723 Aug 30 11:42	23° 17 '43'21	
morning rise	4717 Sep 17 16:26	11° 17 '34'19					
retrograde	4717 Dec 15 13:37	13° 17 '29'13		conjunction	4723 Sep 15 18:44	24° 17 '19'18	0°18'48
asc. node	4718 Jan 31 12:21	12° 17 '54'33		minimum elong	4723 Sep 15 18:44	24° 17 '19'18	0°18'48
opposition	4718 Mar 03 10:24	12° 17 '05'34	0°00'18	max. Earth dist.	4723 Sep 15 10:34	24° 17 '18'33	31.04853 AU
min. Earth dist.	4718 Mar 03 12:27	12° 17 '05'26	29.00178 AU	morning rise	4723 Oct 02 00:30	24° 17 '55'09	
direct	4718 May 21 02:40	10° 17 '40'52		retrograde	4723 Dec 29 10:44	26° 17 '49'14	
evening set	4718 Aug 18 15:34	12° 17 '36'01		opposition	4724 Mar 16 00:25	25° 17 '25'53	0°21'48
				min. Earth dist.	4724 Mar 16 07:23	25° 17 '25'23	29.05250 AU
conjunction	4718 Sep 03 23:09	13° 17 '12'03	0°02'03	direct	4724 Jun 03 04:14	24° 17 '00'57	
minimum elong	4718 Sep 03 23:10	13° 17 '12'03	0°02'03	evening set	4724 Sep 01 01:01	25° 17 '56'15	
behind sun begin	4718 Sep 03 16:34	13° 17 '11'28					
behind sun end	4718 Sep 04 05:46	13° 17 '12'38		conjunction	4724 Sep 17 08:03	26° 17 '32'11	0°22'04
max. Earth dist.	4718 Sep 03 19:58	13° 17 '11'48	31.00718 AU	minimum elong	4724 Sep 17 08:03	26° 17 '32'11	0°22'04
morning rise	4718 Sep 20 06:06	13° 17 '48'02		max. Earth dist.	4724 Sep 17 00:19	26° 17 '31'29	31.05643 AU
retrograde	4718 Dec 18 03:02	15° 17 '42'49		morning rise	4724 Oct 03 13:24	27° 17 '07'59	
opposition	4719 Mar 05 20:49	14° 17 '19'16	0°03'56	retrograde	4724 Dec 30 20:04	29° 17 '01'56	
min. Earth dist.	4719 Mar 05 23:01	14° 17 '19'06	29.01229 AU	opposition	4725 Mar 18 10:39	27° 17 '38'37	0°25'17
direct	4719 May 23 15:50	12° 17 '54'32		min. Earth dist.	4725 Mar 18 18:06	27° 17 '38'05	29.06073 AU
evening set	4719 Aug 21 05:12	14° 17 '49'45		direct	4725 Jun 05 15:58	26° 17 '13'38	
				evening set	4725 Sep 03 14:26	28° 17 '08'58	
conjunction	4719 Sep 06 12:49	15° 17 '25'46	0°05'27				
minimum elong	4719 Sep 06 12:49	15° 17 '25'46	0°05'27	conjunction	4725 Sep 19 21:03	28° 17 '44'52	0°25'18
behind sun begin	4719 Sep 06 06:28	15° 17 '25'12		minimum elong	4725 Sep 19 21:03	28° 17 '44'52	0°25'19
behind sun end	4719 Sep 06 19:10	15° 17 '26'20		max. Earth dist.	4725 Sep 19 11:41	28° 17 '44'01	31.06516 AU
max. Earth dist.	4719 Sep 06 09:07	15° 17 '25'28	31.01702 AU	morning rise	4725 Oct 06 02:13	29° 17 '20'39	
morning rise	4719 Sep 22 19:28	16° 17 '01'44			4725 Oct 25 03:31	0° 17 '01'48	
retrograde	4719 Dec 20 13:42	17° 17 '56'24		retrograde	4726 Jan 02 07:22	1° 17 '01'48	
opposition	4720 Mar 07 07:23	16° 17 '32'54	0°07'33		4726 Mar 15 15:14	30° 17 '01'48	
min. Earth dist.	4720 Mar 07 11:33	16° 17 '32'36	29.02158 AU	opposition	4726 Mar 20 20:47	29° 17 '51'11	0°28'44
direct	4720 May 25 03:52	15° 17 '08'10		min. Earth dist.	4726 Mar 21 04:17	29° 17 '50'40	29.07014 AU

direct	4726 Jun 08 02:00	28° 17 26'11	morning rise	4732 Oct 21 17:52	14° 14 47'41	
	4726 Aug 26 23:09	0° 15	retrograde	4733 Jan 17 11:55	16° 14 40'50	
evening set	4726 Sep 06 03:36	0° 15 21'33	opposition	4733 Apr 04 20:33	15° 14 18'03	0°51'20
			min. Earth dist.	4733 Apr 05 09:07	15° 14 17'10	29.14710 AU
conjunction	4726 Sep 22 10:09	0° 15 57'25	0°28'31	direct	4733 Jun 23 14:30	13° 14 53'05
minimum elong	4726 Sep 22 10:09	0° 15 57'25	0°28'30	evening set	4733 Sep 21 23:41	15° 14 48'43
max. Earth dist.	4726 Sep 22 01:22	0° 15 56'36	31.07513 AU			
morning rise	4726 Oct 08 14:48	1° 15 33'09		conjunction	4733 Oct 08 04:08	16° 14 24'24
retrograde	4727 Jan 04 16:20	3° 15 26'52		minimum elong	4733 Oct 08 04:08	16° 14 24'24
opposition	4727 Mar 23 07:03	2° 15 03'39	0°32'08	max. Earth dist.	4733 Oct 07 14:00	16° 14 23'05
min. Earth dist.	4727 Mar 23 15:31	2° 15 03'03	29.08075 AU	morning rise	4733 Oct 24 05:59	16° 14 59'52
direct	4727 Jun 10 14:02	0° 15 38'39		retrograde	4734 Jan 19 21:09	18° 14 52'55
evening set	4727 Sep 08 16:44	2° 15 34'03		opposition	4734 Apr 07 06:52	17° 14 30'10
				min. Earth dist.	4734 Apr 07 20:13	17° 14 29'14
conjunction	4727 Sep 24 22:57	3° 15 09'54	0°31'40	direct	4734 Jun 26 02:44	16° 14 05'11
minimum elong	4727 Sep 24 22:57	3° 15 09'53	0°31'41	evening set	4734 Sep 24 12:41	18° 14 00'50
max. Earth dist.	4727 Sep 24 12:45	3° 15 08'57	31.08642 AU			
morning rise	4727 Oct 11 03:27	3° 15 45'36		conjunction	4734 Oct 10 16:36	18° 14 36'28
retrograde	4728 Jan 07 04:23	5° 15 39'13		minimum elong	4734 Oct 10 16:36	18° 14 36'28
opposition	4728 Mar 24 17:10	4° 15 16'04	0°35'29	max. Earth dist.	4734 Oct 10 00:39	18° 14 34'59
min. Earth dist.	4728 Mar 25 01:17	4° 15 15'30	29.09248 AU	morning rise	4734 Oct 26 18:10	19° 14 11'54
direct	4728 Jun 12 02:15	2° 15 51'05		retrograde	4735 Jan 22 07:59	21° 14 04'51
evening set	4728 Sep 10 05:58	4° 15 46'32		opposition	4735 Apr 09 17:05	19° 14 42'07
				min. Earth dist.	4735 Apr 10 06:38	19° 14 41'10
conjunction	4728 Sep 26 12:01	5° 15 22'22	0°34'47	direct	4735 Jun 28 13:12	18° 14 17'05
minimum elong	4728 Sep 26 12:00	5° 15 22'22	0°34'46	evening set	4735 Sep 27 01:19	20° 14 12'45
max. Earth dist.	4728 Sep 26 01:52	5° 15 21'25	31.09840 AU			
morning rise	4728 Oct 12 16:00	5° 15 58'02		conjunction	4735 Oct 13 05:04	20° 14 48'21
retrograde	4729 Jan 08 14:32	7° 15 51'34		minimum elong	4735 Oct 13 05:04	20° 14 48'21
opposition	4729 Mar 27 03:22	6° 15 28'30	0°38'47	max. Earth dist.	4735 Oct 12 13:34	20° 14 46'55
min. Earth dist.	4729 Mar 27 13:10	6° 15 27'49	29.10467 AU	morning rise	4735 Oct 29 06:01	21° 14 23'45
direct	4729 Jun 14 13:12	5° 15 03'32		retrograde	4736 Jan 24 16:13	23° 14 16'35
evening set	4729 Sep 12 19:15	6° 15 59'04		opposition	4736 Apr 11 03:24	21° 14 53'53
				min. Earth dist.	4736 Apr 11 18:10	21° 14 52'51
conjunction	4729 Sep 29 00:57	7° 15 34'51	0°37'50	direct	4736 Jun 30 01:16	20° 14 28'50
minimum elong	4729 Sep 29 00:56	7° 15 34'51	0°37'51	evening set	4736 Sep 28 14:07	22° 14 24'29
max. Earth dist.	4729 Sep 28 13:48	7° 15 33'49	31.11061 AU			
morning rise	4729 Oct 15 04:37	8° 15 10'29		conjunction	4736 Oct 14 17:18	23° 14 00'03
retrograde	4730 Jan 11 03:04	10° 15 03'55		minimum elong	4736 Oct 14 17:18	23° 14 00'03
opposition	4730 Mar 29 13:35	8° 15 40'57	0°42'01	max. Earth dist.	4736 Oct 14 00:22	22° 14 58'29
min. Earth dist.	4730 Mar 29 23:10	8° 15 40'17	29.11668 AU	morning rise	4736 Oct 30 17:57	23° 14 35'24
direct	4730 Jun 17 02:36	7° 15 16'00		retrograde	4737 Jan 26 03:13	25° 14 28'09
evening set	4730 Sep 15 08:21	9° 15 11'35		opposition	4737 Apr 13 13:30	24° 14 05'28
				min. Earth dist.	4737 Apr 14 03:48	24° 14 04'28
conjunction	4730 Oct 01 13:43	9° 15 47'20	0°40'51	direct	4737 Jul 02 13:07	22° 14 40'23
minimum elong	4730 Oct 01 13:43	9° 15 47'20	0°40'50	evening set	4737 Oct 01 02:41	24° 14 36'04
max. Earth dist.	4730 Oct 01 01:39	9° 15 46'14	31.12219 AU			
morning rise	4730 Oct 17 16:56	10° 15 22'56		conjunction	4737 Oct 17 05:33	25° 14 11'36
retrograde	4731 Jan 13 14:44	12° 15 16'18		minimum elong	4737 Oct 17 05:33	25° 14 11'36
opposition	4731 Mar 31 23:59	10° 15 53'24	0°45'12	max. Earth dist.	4737 Oct 16 12:59	25° 14 10'04
min. Earth dist.	4731 Apr 01 11:09	10° 15 52'37	29.12796 AU	morning rise	4737 Nov 02 05:34	25° 14 46'55
direct	4731 Jun 19 14:21	9° 15 28'27		retrograde	4738 Jan 28 12:37	27° 14 39'35
evening set	4731 Sep 17 21:29	11° 15 24'04		opposition	4738 Apr 15 23:55	26° 14 16'56
				min. Earth dist.	4738 Apr 16 15:26	26° 14 15'51
conjunction	4731 Oct 04 02:37	11° 15 59'48	0°43'47	direct	4738 Jul 04 23:44	24° 14 51'51
minimum elong	4731 Oct 04 02:37	11° 15 59'48	0°43'48	evening set	4738 Oct 03 15:02	26° 14 47'33
max. Earth dist.	4731 Oct 03 14:03	11° 15 58'38	31.13293 AU			
morning rise	4731 Oct 20 05:24	12° 15 35'21		conjunction	4738 Oct 19 17:25	27° 14 23'02
retrograde	4732 Jan 16 01:11	14° 15 28'37		minimum elong	4738 Oct 19 17:25	27° 14 23'02
opposition	4732 Apr 02 10:10	13° 15 05'46	0°48'18	max. Earth dist.	4738 Oct 19 00:26	27° 14 21'27
min. Earth dist.	4732 Apr 02 21:35	13° 15 04'58	29.13807 AU	morning rise	4738 Nov 04 17:02	27° 14 58'18
direct	4732 Jun 21 03:38	11° 15 40'50		retrograde	4739 Jan 31 00:14	29° 14 50'55
evening set	4732 Sep 19 10:45	13° 15 36'28		opposition	4739 Apr 18 10:08	28° 14 28'19
				min. Earth dist.	4739 Apr 19 00:50	28° 14 27'17
conjunction	4732 Oct 05 15:25	14° 15 12'10	0°46'40	direct	4739 Jul 07 13:12	27° 14 03'14
minimum elong	4732 Oct 05 15:25	14° 15 12'10	0°46'39	evening set	4739 Oct 06 03:28	28° 14 58'58
max. Earth dist.	4732 Oct 05 01:05	14° 15 10'50	31.14241 AU			

conjunction	4739 Oct 22 05:26	29° <u>♂</u> 34'26	1°04'35			4746 Jan 20 08:04	15° <u>♂</u>	
minimum elong	4739 Oct 22 05:26	29° <u>♂</u> 34'26	1°04'36	retrograde		4746 Feb 15 00:14	15° <u>♂</u> 11'18	
max. Earth dist.	4739 Oct 21 12:08	29° <u>♂</u> 32'50	31.19823 AU			4746 Mar 13 02:14	15° <u>♂</u>	
	4739 Nov 02 18:15	0° <u>♂</u>		opposition		4746 May 03 11:24	13° <u>♂</u> 49'10	1°22'22
morning rise	4739 Nov 07 04:32	0° <u>♂</u> 09'40		min. Earth dist.		4746 May 04 05:15	13° <u>♂</u> 47'56	29.25980 AU
retrograde	4740 Feb 02 11:43	2° <u>♂</u> 02'13		direct		4746 Jul 22 22:25	12° <u>♂</u> 24'18	
opposition	4740 Apr 19 20:23	0° <u>♂</u> 39'41	1°10'11	evening set		4746 Oct 21 17:20	14° <u>♂</u> 20'13	
min. Earth dist.	4740 Apr 20 12:06	0° <u>♂</u> 38'36	29.20402 AU					
	4740 May 14 13:27	30° <u>♂</u>		conjunction		4746 Nov 06 16:06	14° <u>♂</u> 55'27	1°17'54
direct	4740 Jul 09 00:46	29° <u>♂</u> 14'40		minimum elong		4746 Nov 06 16:06	14° <u>♂</u> 55'27	1°17'54
	4740 Sep 01 00:35	0° <u>♂</u>		max. Earth dist.		4746 Nov 05 19:44	14° <u>♂</u> 53'33	31.26180 AU
evening set	4740 Oct 07 15:52	1° <u>♂</u> 10'27				4746 Nov 08 17:06	15° <u>♂</u>	
				morning rise		4746 Nov 22 11:35	15° <u>♂</u> 30'25	
conjunction	4740 Oct 23 17:27	1° <u>♂</u> 45'53	1°06'48	retrograde		4747 Feb 17 09:12	17° <u>♂</u> 22'41	
minimum elong	4740 Oct 23 17:27	1° <u>♂</u> 45'52	1°06'48	opposition		4747 May 05 22:07	16° <u>♂</u> 00'33	1°24'00
max. Earth dist.	4740 Oct 23 00:19	1° <u>♂</u> 44'17	31.20890 AU	min. Earth dist.		4747 May 06 17:30	15° <u>♂</u> 59'13	29.26507 AU
morning rise	4740 Nov 08 16:02	2° <u>♂</u> 21'04				4747 Jun 15 13:56	15° <u>♂</u>	
retrograde	4741 Feb 03 21:52	4° <u>♂</u> 13'35		direct		4747 Jul 25 08:53	14° <u>♂</u> 35'40	
opposition	4741 Apr 22 06:43	2° <u>♂</u> 51'09	1°12'29			4747 Sep 02 14:54	15° <u>♂</u>	
min. Earth dist.	4741 Apr 22 22:12	2° <u>♂</u> 50'04	29.21487 AU	evening set		4747 Oct 24 05:22	16° <u>♂</u> 31'34	
direct	4741 Jul 11 13:47	1° <u>♂</u> 26'10		max. Earth dist.		4747 Nov 08 06:35	17° <u>♂</u> 04'47	31.26659 AU
evening set	4741 Oct 10 04:14	3° <u>♂</u> 22'01						
max. Earth dist.	4741 Oct 25 10:59	3° <u>♂</u> 55'43	31.21982 AU	conjunction		4747 Nov 09 03:36	17° <u>♂</u> 06'45	1°19'22
				minimum elong		4747 Nov 09 03:36	17° <u>♂</u> 06'45	1°19'23
conjunction	4741 Oct 26 05:14	3° <u>♂</u> 57'24	1°08'55	morning rise		4747 Nov 24 22:41	17° <u>♂</u> 41'41	
minimum elong	4741 Oct 26 05:14	3° <u>♂</u> 57'24	1°08'56	retrograde		4748 Feb 19 19:51	19° <u>♂</u> 33'52	
morning rise	4741 Nov 11 03:22	4° <u>♂</u> 32'34		opposition		4748 May 07 08:33	18° <u>♂</u> 11'44	1°25'30
retrograde	4742 Feb 06 09:01	6° <u>♂</u> 25'03		min. Earth dist.		4748 May 08 03:25	18° <u>♂</u> 10'26	29.26939 AU
opposition	4742 Apr 24 17:09	5° <u>♂</u> 02'42	1°14'41	direct		4748 Jul 26 22:43	16° <u>♂</u> 46'49	
min. Earth dist.	4742 Apr 25 09:19	5° <u>♂</u> 01'35	29.22586 AU	evening set		4748 Oct 25 17:15	18° <u>♂</u> 42'41	
direct	4742 Jul 14 00:30	3° <u>♂</u> 37'47						
evening set	4742 Oct 12 16:30	5° <u>♂</u> 33'40		conjunction		4748 Nov 10 15:00	19° <u>♂</u> 17'50	1°20'43
				minimum elong		4748 Nov 10 15:00	19° <u>♂</u> 17'50	1°20'44
conjunction	4742 Oct 28 17:11	6° <u>♂</u> 09'02	1°10'55	max. Earth dist.		4748 Nov 09 17:35	19° <u>♂</u> 15'51	31.27056 AU
minimum elong	4742 Oct 28 17:10	6° <u>♂</u> 09'02	1°10'56	morning rise		4748 Nov 26 09:33	19° <u>♂</u> 52'43	
max. Earth dist.	4742 Oct 27 23:30	6° <u>♂</u> 07'24	31.23053 AU	retrograde		4749 Feb 21 06:32	21° <u>♂</u> 44'51	
morning rise	4742 Nov 13 14:40	6° <u>♂</u> 44'09		opposition		4749 May 09 19:17	20° <u>♂</u> 22'42	1°26'53
retrograde	4743 Feb 08 18:46	8° <u>♂</u> 36'36		min. Earth dist.		4749 May 10 15:06	20° <u>♂</u> 21'20	29.27332 AU
opposition	4743 Apr 27 03:37	7° <u>♂</u> 14'20	1°16'47	direct		4749 Jul 29 10:15	18° <u>♂</u> 57'45	
min. Earth dist.	4743 Apr 27 20:29	7° <u>♂</u> 13'10	29.23618 AU	evening set		4749 Oct 28 04:48	20° <u>♂</u> 53'36	
direct	4743 Jul 16 12:49	5° <u>♂</u> 49'28		max. Earth dist.		4749 Nov 12 05:09	21° <u>♂</u> 26'45	31.27446 AU
evening set	4743 Oct 15 04:52	7° <u>♂</u> 45'22						
max. Earth dist.	4743 Oct 30 09:34	8° <u>♂</u> 18'54	31.24034 AU	conjunction		4749 Nov 13 02:07	21° <u>♂</u> 28'42	1°21'57
				minimum elong		4749 Nov 13 02:07	21° <u>♂</u> 28'42	1°21'58
conjunction	4743 Oct 31 04:56	8° <u>♂</u> 20'42	1°12'50	morning rise		4749 Nov 28 20:07	22° <u>♂</u> 03'33	
minimum elong	4743 Oct 31 04:56	8° <u>♂</u> 20'42	1°12'51	retrograde		4750 Feb 23 16:06	23° <u>♂</u> 55'37	
morning rise	4743 Nov 16 02:06	8° <u>♂</u> 55'48		opposition		4750 May 12 05:59	22° <u>♂</u> 33'28	1°28'09
retrograde	4744 Feb 11 05:38	10° <u>♂</u> 48'12		min. Earth dist.		4750 May 13 01:17	22° <u>♂</u> 32'08	29.27731 AU
opposition	4744 Apr 28 14:08	9° <u>♂</u> 26'00	1°18'46	direct		4750 Jul 31 23:37	21° <u>♂</u> 08'30	
min. Earth dist.	4744 Apr 29 07:05	9° <u>♂</u> 24'50	29.24547 AU	evening set		4750 Oct 30 16:24	23° <u>♂</u> 04'19	
direct	4744 Jul 17 23:38	8° <u>♂</u> 01'09						
evening set	4744 Oct 16 17:07	9° <u>♂</u> 57'05		conjunction		4750 Nov 15 13:07	23° <u>♂</u> 39'23	1°23'04
				minimum elong		4750 Nov 15 13:07	23° <u>♂</u> 39'23	1°23'05
conjunction	4744 Nov 01 16:52	10° <u>♂</u> 32'22	1°14'38	max. Earth dist.		4750 Nov 14 15:24	23° <u>♂</u> 37'22	31.27871 AU
minimum elong	4744 Nov 01 16:52	10° <u>♂</u> 32'22	1°14'38	morning rise		4750 Dec 01 06:43	24° <u>♂</u> 14'12	
max. Earth dist.	4744 Oct 31 21:53	10° <u>♂</u> 30'37	31.24883 AU	retrograde		4751 Feb 26 03:07	26° <u>♂</u> 06'14	
morning rise	4744 Nov 17 13:19	11° <u>♂</u> 07'25		opposition		4751 May 14 16:35	24° <u>♂</u> 44'05	1°29'17
retrograde	4745 Feb 12 13:23	12° <u>♂</u> 59'47		min. Earth dist.		4751 May 15 12:00	24° <u>♂</u> 42'44	29.28209 AU
opposition	4745 May 01 00:48	11° <u>♂</u> 37'38	1°20'38	direct		4751 Aug 03 10:56	23° <u>♂</u> 19'07	
min. Earth dist.	4745 May 01 19:04	11° <u>♂</u> 36'22	29.25328 AU	evening set		4751 Nov 02 03:47	25° <u>♂</u> 14'56	
direct	4745 Jul 20 11:20	10° <u>♂</u> 12'47		max. Earth dist.		4751 Nov 17 03:37	25° <u>♂</u> 48'03	31.28388 AU
evening set	4745 Oct 19 05:26	12° <u>♂</u> 08'43						
max. Earth dist.	4745 Nov 03 08:02	12° <u>♂</u> 42'04	31.25600 AU	conjunction		4751 Nov 18 00:12	25° <u>♂</u> 49'58	1°24'04
				minimum elong		4751 Nov 18 00:12	25° <u>♂</u> 49'58	1°24'05
conjunction	4745 Nov 04 04:32	12° <u>♂</u> 43'59	1°16'19	morning rise		4751 Dec 03 17:11	26° <u>♂</u> 24'44	
minimum elong	4745 Nov 04 04:32	12° <u>♂</u> 43'59	1°16'20	retrograde		4752 Feb 28 12:28	28° <u>♂</u> 16'45	
morning rise	4745 Nov 20 00:38	13° <u>♂</u> 18'59		opposition		4752 May 16 03:22	26° <u>♂</u> 54'38	1°30'17

min. Earth dist.	4752 May 16 22:54	26° \mathbb{M} 53'17	29.28761 AU	evening set	4758 Nov 17 10:45	10° \mathbb{X} 30'46	
direct	4752 Aug 04 23:59	25° \mathbb{M} 29'42		max. Earth dist.	4758 Dec 02 06:29	11° \mathbb{X} 03'37	31.31810 AU
evening set	4752 Nov 03 15:18	27° \mathbb{M} 25'31					
				conjunction	4758 Dec 03 03:48	11° \mathbb{X} 05'37	1°27'36
conjunction	4752 Nov 19 11:03	28° \mathbb{M} 00'31	1°24'57	minimum elong	4758 Dec 03 03:47	11° \mathbb{X} 05'37	1°27'36
minimum elong	4752 Nov 19 11:02	28° \mathbb{M} 00'31	1°24'57	morning rise	4758 Dec 18 17:35	11° \mathbb{X} 40'12	
max. Earth dist.	4752 Nov 18 13:32	27° \mathbb{M} 58'31	31.28985 AU	retrograde	4759 Mar 15 11:26	13° \mathbb{X} 32'20	
morning rise	4752 Dec 05 03:42	28° \mathbb{M} 35'16		opposition	4759 Jun 01 08:13	12° \mathbb{X} 10'29	1°33'35
	4753 Jan 20 15:01	0° \mathbb{X}		min. Earth dist.	4759 Jun 02 04:23	12° \mathbb{X} 09'06	29.31936 AU
retrograde	4753 Mar 01 23:13	0° \mathbb{X} 27'17		direct	4759 Aug 21 07:16	10° \mathbb{X} 45'50	
	4753 Apr 12 07:22	30° \mathbb{K} \mathbb{M}		evening set	4759 Nov 19 21:52	12° \mathbb{X} 41'42	
opposition	4753 May 18 14:05	29° \mathbb{M} 05'13	1°31'09				
min. Earth dist.	4753 May 19 08:58	29° \mathbb{M} 03'55	29.29394 AU	conjunction	4759 Dec 05 14:22	13° \mathbb{X} 16'30	1°27'36
direct	4753 Aug 07 10:50	27° \mathbb{M} 40'20		minimum elong	4759 Dec 05 14:22	13° \mathbb{X} 16'30	1°27'37
evening set	4753 Nov 06 02:35	29° \mathbb{M} 36'10		max. Earth dist.	4759 Dec 04 16:01	13° \mathbb{X} 14'25	31.31850 AU
	4753 Nov 16 22:08	0° \mathbb{X}		morning rise	4759 Dec 21 03:52	13° \mathbb{X} 51'04	
				retrograde	4760 Mar 16 23:11	15° \mathbb{X} 43'12	
conjunction	4753 Nov 21 22:01	0° \mathbb{X} 11'09	1°25'42	opposition	4760 Jun 02 19:25	14° \mathbb{X} 21'20	1°33'31
minimum elong	4753 Nov 21 22:01	0° \mathbb{X} 11'09	1°25'43	min. Earth dist.	4760 Jun 03 15:50	14° \mathbb{X} 19'56	29.31923 AU
max. Earth dist.	4753 Nov 21 01:37	0° \mathbb{X} 09'15	31.29632 AU	direct	4760 Aug 22 19:17	12° \mathbb{X} 56'40	
morning rise	4753 Dec 07 14:01	0° \mathbb{X} 45'52		evening set	4760 Nov 21 08:40	14° \mathbb{X} 52'29	
retrograde	4754 Mar 04 07:23	2° \mathbb{X} 37'53		max. Earth dist.	4760 Dec 06 03:38	15° \mathbb{X} 25'18	31.31786 AU
opposition	4754 May 21 01:02	1° \mathbb{X} 15'54	1°31'53				
min. Earth dist.	4754 May 21 20:43	1° \mathbb{X} 14'32	29.30046 AU	conjunction	4760 Dec 07 00:53	15° \mathbb{X} 27'17	1°27'29
	4754 Jul 17 01:34	30° \mathbb{K} \mathbb{M}		minimum elong	4760 Dec 07 00:53	15° \mathbb{X} 27'17	1°27'30
direct	4754 Aug 09 22:04	29° \mathbb{M} 51'05		morning rise	4760 Dec 22 13:49	16° \mathbb{X} 01'49	
	4754 Sep 02 10:39	0° \mathbb{X}		retrograde	4761 Mar 19 08:47	17° \mathbb{X} 53'56	
evening set	4754 Nov 08 13:51	1° \mathbb{X} 46'56		opposition	4761 Jun 05 06:40	16° \mathbb{X} 32'02	1°33'20
max. Earth dist.	4754 Nov 23 11:23	2° \mathbb{X} 19'54	31.30279 AU	min. Earth dist.	4761 Jun 06 03:19	16° \mathbb{X} 30'37	29.31816 AU
				direct	4761 Aug 25 09:17	15° \mathbb{X} 07'22	
conjunction	4754 Nov 24 08:40	2° \mathbb{X} 21'53	1°26'20	evening set	4761 Nov 23 19:30	17° \mathbb{X} 03'08	
minimum elong	4754 Nov 24 08:40	2° \mathbb{X} 21'53	1°26'20				
morning rise	4754 Dec 10 00:24	2° \mathbb{X} 56'35		conjunction	4761 Dec 09 11:06	17° \mathbb{X} 37'53	1°27'14
retrograde	4755 Mar 06 18:19	4° \mathbb{X} 48'37		minimum elong	4761 Dec 09 11:06	17° \mathbb{X} 37'53	1°27'15
opposition	4755 May 23 11:52	3° \mathbb{X} 26'41	1°32'30	max. Earth dist.	4761 Dec 08 13:04	17° \mathbb{X} 35'50	31.31669 AU
min. Earth dist.	4755 May 24 06:47	3° \mathbb{X} 25'23	29.30663 AU	morning rise	4761 Dec 24 23:49	18° \mathbb{X} 12'24	
direct	4755 Aug 12 08:38	2° \mathbb{X} 01'56		retrograde	4762 Mar 21 19:15	20° \mathbb{X} 04'30	
evening set	4755 Nov 11 01:09	3° \mathbb{X} 57'48		opposition	4762 Jun 07 17:50	18° \mathbb{X} 42'34	1°33'01
				min. Earth dist.	4762 Jun 08 13:36	18° \mathbb{X} 41'13	29.31705 AU
conjunction	4755 Nov 26 19:36	4° \mathbb{X} 32'44	1°26'50	direct	4762 Aug 27 20:41	17° \mathbb{X} 17'52	
minimum elong	4755 Nov 26 19:36	4° \mathbb{X} 32'44	1°26'50	evening set	4762 Nov 26 05:55	19° \mathbb{X} 13'35	
max. Earth dist.	4755 Nov 25 22:41	4° \mathbb{X} 30'47	31.30846 AU				
morning rise	4755 Dec 12 10:43	5° \mathbb{X} 07'24		conjunction	4762 Dec 11 21:17	19° \mathbb{X} 48'19	1°26'53
retrograde	4756 Mar 08 03:35	6° \mathbb{X} 59'29		minimum elong	4762 Dec 11 21:17	19° \mathbb{X} 48'19	1°26'53
opposition	4756 May 24 22:52	5° \mathbb{X} 37'35	1°32'58	max. Earth dist.	4762 Dec 11 00:38	19° \mathbb{X} 46'24	31.31563 AU
min. Earth dist.	4756 May 25 19:06	5° \mathbb{X} 36'12	29.31185 AU	morning rise	4762 Dec 27 09:28	20° \mathbb{X} 22'48	
direct	4756 Aug 13 18:30	4° \mathbb{X} 12'53		retrograde	4763 Mar 24 02:54	22° \mathbb{X} 14'55	
evening set	4756 Nov 12 12:31	6° \mathbb{X} 08'46		opposition	4763 Jun 10 05:08	20° \mathbb{X} 52'57	1°32'33
max. Earth dist.	4756 Nov 27 09:08	6° \mathbb{X} 41'41	31.31311 AU	min. Earth dist.	4763 Jun 11 01:19	20° \mathbb{X} 51'34	29.31625 AU
				direct	4763 Aug 30 08:57	19° \mathbb{X} 28'15	
conjunction	4756 Nov 28 06:25	6° \mathbb{X} 43'40	1°27'13	evening set	4763 Nov 28 16:31	21° \mathbb{X} 23'55	
minimum elong	4756 Nov 28 06:25	6° \mathbb{X} 43'40	1°27'13	max. Earth dist.	4763 Dec 13 10:19	21° \mathbb{X} 56'40	31.31530 AU
morning rise	4756 Dec 13 21:08	7° \mathbb{X} 18'19					
retrograde	4757 Mar 10 14:29	9° \mathbb{X} 10'24		conjunction	4763 Dec 14 07:19	21° \mathbb{X} 58'37	1°26'23
opposition	4757 May 27 09:57	7° \mathbb{X} 48'33	1°33'18	minimum elong	4763 Dec 14 07:19	21° \mathbb{X} 58'37	1°26'23
min. Earth dist.	4757 May 28 05:28	7° \mathbb{X} 47'13	29.31577 AU	morning rise	4763 Dec 29 19:16	22° \mathbb{X} 33'05	
direct	4757 Aug 16 07:37	6° \mathbb{X} 23'53		retrograde	4764 Mar 25 13:26	24° \mathbb{X} 25'12	
evening set	4757 Nov 14 23:39	8° \mathbb{X} 19'46		opposition	4764 Jun 11 16:15	23° \mathbb{X} 03'14	1°31'58
				min. Earth dist.	4764 Jun 12 10:58	23° \mathbb{X} 01'57	29.31635 AU
conjunction	4757 Nov 30 17:04	8° \mathbb{X} 54'39	1°27'28	direct	4764 Aug 31 20:08	21° \mathbb{X} 38'32	
minimum elong	4757 Nov 30 17:04	8° \mathbb{X} 54'39	1°27'28	evening set	4764 Nov 30 02:58	23° \mathbb{X} 34'10	
max. Earth dist.	4757 Nov 29 19:25	8° \mathbb{X} 52'38	31.31627 AU				
morning rise	4757 Dec 16 07:19	9° \mathbb{X} 29'16		conjunction	4764 Dec 15 17:27	24° \mathbb{X} 08'52	1°25'47
retrograde	4758 Mar 13 01:42	11° \mathbb{X} 21'23		minimum elong	4764 Dec 15 17:27	24° \mathbb{X} 08'52	1°25'47
opposition	4758 May 29 21:11	9° \mathbb{X} 59'32	1°33'30	max. Earth dist.	4764 Dec 14 21:27	24° \mathbb{X} 06'59	31.31587 AU
min. Earth dist.	4758 May 30 17:36	9° \mathbb{X} 58'09	29.31833 AU	morning rise	4764 Dec 31 04:55	24° \mathbb{X} 43'19	
direct	4758 Aug 18 18:22	8° \mathbb{X} 34'53		retrograde	4765 Mar 27 22:13	26° \mathbb{X} 35'28	

opposition	4765 Jun 14 03:43	25° \mathring{A} 13'29	1°31'15	conjunction	4771 Dec 31 14:54	9° \mathring{B} 22'05	1°18'07
min. Earth dist.	4765 Jun 14 22:58	25° \mathring{A} 12'10	29.31742 AU	minimum elong	4771 Dec 31 14:54	9° \mathring{B} 22'05	1°18'08
direct	4765 Sep 03 06:16	23° \mathring{A} 48'51		max. Earth dist.	4771 Dec 30 21:17	9° \mathring{B} 20'26	31.31766 AU
evening set	4765 Dec 02 13:12	25° \mathring{A} 44'27		morning rise	4772 Jan 16 00:15	9° \mathring{B} 56'27	
max. Earth dist.	4765 Dec 17 07:49	26° \mathring{A} 17'17	31.31740 AU	retrograde	4772 Apr 12 00:01	11° \mathring{B} 49'01	
				opposition	4772 Jun 29 13:05	10° \mathring{B} 27'03	1°22'39
conjunction	4765 Dec 18 03:16	26° \mathring{A} 19'07	1°25'03	min. Earth dist.	4772 Jun 30 06:40	10° \mathring{B} 25'51	29.31650 AU
minimum elong	4765 Dec 18 03:16	26° \mathring{A} 19'07	1°25'03	direct	4772 Sep 18 16:28	9° \mathring{B} 02'42	
morning rise	4766 Jan 02 14:28	26° \mathring{A} 53'33		evening set	4772 Dec 17 13:09	10° \mathring{B} 58'06	
retrograde	4766 Mar 30 08:11	28° \mathring{A} 45'45		max. Earth dist.	4773 Jan 01 06:40	11° \mathring{B} 30'57	31.31371 AU
opposition	4766 Jun 16 15:02	27° \mathring{A} 23'47	1°30'24				
min. Earth dist.	4766 Jun 17 08:56	27° \mathring{A} 22'34	29.31909 AU	conjunction	4773 Jan 02 00:41	11° \mathring{B} 32'39	1°16'34
direct	4766 Sep 05 18:14	25° \mathring{A} 59'12		minimum elong	4773 Jan 02 00:41	11° \mathring{B} 32'39	1°16'35
evening set	4766 Dec 04 23:33	27° \mathring{A} 54'47		morning rise	4773 Jan 17 09:56	12° \mathring{B} 07'00	
				retrograde	4773 Apr 14 11:06	13° \mathring{B} 59'37	
conjunction	4766 Dec 20 13:13	28° \mathring{A} 29'26	1°24'11	opposition	4773 Jul 02 00:55	12° \mathring{B} 37'36	1°20'56
minimum elong	4766 Dec 20 13:13	28° \mathring{A} 29'26	1°24'12	min. Earth dist.	4773 Jul 02 17:09	12° \mathring{B} 36'30	29.31199 AU
max. Earth dist.	4766 Dec 19 17:52	28° \mathring{A} 27'37	31.31920 AU	direct	4773 Sep 21 04:25	11° \mathring{B} 13'15	
morning rise	4767 Jan 05 00:07	29° \mathring{A} 03'51		evening set	4773 Dec 19 23:00	13° \mathring{B} 08'35	
	4767 Feb 01 21:28	0° \mathring{B}					
retrograde	4767 Apr 01 19:10	0° \mathring{B} 56'07		conjunction	4774 Jan 04 10:19	13° \mathring{B} 43'07	1°14'55
	4767 Jun 03 00:42	30° \mathring{R} \mathring{A}		minimum elong	4774 Jan 04 10:19	13° \mathring{B} 43'07	1°14'55
opposition	4767 Jun 19 02:25	29° \mathring{A} 34'10	1°29'26	max. Earth dist.	4774 Jan 03 17:08	13° \mathring{B} 41'30	31.30883 AU
min. Earth dist.	4767 Jun 19 20:44	29° \mathring{A} 32'56	29.32095 AU	morning rise	4774 Jan 19 19:17	14° \mathring{B} 17'28	
direct	4767 Sep 08 03:27	28° \mathring{A} 09'38		retrograde	4774 Apr 16 20:02	16° \mathring{B} 10'09	
	4767 Dec 05 00:22	0° \mathring{B}		opposition	4774 Jul 04 12:53	14° \mathring{B} 48'04	1°19'06
evening set	4767 Dec 07 09:52	0° \mathring{B} 05'12		min. Earth dist.	4774 Jul 05 05:44	14° \mathring{B} 46'55	29.30694 AU
				direct	4774 Sep 23 15:13	13° \mathring{B} 23'43	
conjunction	4767 Dec 22 23:15	0° \mathring{B} 39'50	1°23'13	evening set	4774 Dec 22 08:54	15° \mathring{B} 18'59	
minimum elong	4767 Dec 22 23:15	0° \mathring{B} 39'50	1°23'13				
max. Earth dist.	4767 Dec 22 04:49	0° \mathring{B} 38'07	31.32092 AU	conjunction	4775 Jan 06 19:56	15° \mathring{B} 53'30	1°13'09
morning rise	4768 Jan 07 09:46	1° \mathring{B} 14'15		minimum elong	4775 Jan 06 19:56	15° \mathring{B} 53'30	1°13'10
retrograde	4768 Apr 03 05:18	3° \mathring{B} 06'35		max. Earth dist.	4775 Jan 06 03:28	15° \mathring{B} 51'57	31.30381 AU
opposition	4768 Jun 20 14:00	1° \mathring{B} 44'39	1°28'19	morning rise	4775 Jan 22 04:44	16° \mathring{B} 27'51	
min. Earth dist.	4768 Jun 21 07:41	1° \mathring{B} 43'27	29.32225 AU	retrograde	4775 Apr 19 05:40	18° \mathring{B} 20'34	
direct	4768 Sep 09 15:57	0° \mathring{B} 20'10		opposition	4775 Jul 07 00:34	16° \mathring{B} 58'27	1°17'10
evening set	4768 Dec 08 20:14	2° \mathring{B} 15'43		min. Earth dist.	4775 Jul 07 15:54	16° \mathring{B} 57'24	29.30195 AU
				direct	4775 Sep 26 03:12	15° \mathring{B} 34'06	
conjunction	4768 Dec 24 09:04	2° \mathring{B} 50'20	1°22'07	evening set	4775 Dec 24 18:48	17° \mathring{B} 29'19	
minimum elong	4768 Dec 24 09:04	2° \mathring{B} 50'20	1°22'07				
max. Earth dist.	4768 Dec 23 13:59	2° \mathring{B} 48'33	31.32184 AU	conjunction	4776 Jan 09 05:29	18° \mathring{B} 03'50	1°11'17
morning rise	4769 Jan 08 19:23	3° \mathring{B} 24'44		minimum elong	4776 Jan 09 05:29	18° \mathring{B} 03'50	1°11'18
retrograde	4769 Apr 05 17:37	5° \mathring{B} 17'08		max. Earth dist.	4776 Jan 08 13:19	18° \mathring{B} 02'18	31.29909 AU
opposition	4769 Jun 23 01:42	3° \mathring{B} 55'12	1°27'05	morning rise	4776 Jan 24 14:06	18° \mathring{B} 38'10	
min. Earth dist.	4769 Jun 23 19:16	3° \mathring{B} 54'01	29.32278 AU	retrograde	4776 Apr 20 16:39	20° \mathring{B} 30'58	
direct	4769 Sep 12 03:13	2° \mathring{B} 30'46		opposition	4776 Jul 08 12:36	19° \mathring{B} 08'48	1°15'07
evening set	4769 Dec 11 06:28	4° \mathring{B} 26'18		min. Earth dist.	4776 Jul 09 03:47	19° \mathring{B} 07'46	29.29771 AU
				direct	4776 Sep 27 12:07	17° \mathring{B} 44'28	
conjunction	4769 Dec 26 19:06	5° \mathring{B} 00'54	1°20'54	evening set	4776 Dec 26 04:27	19° \mathring{B} 39'39	
minimum elong	4769 Dec 26 19:07	5° \mathring{B} 00'54	1°20'54				
max. Earth dist.	4769 Dec 26 01:19	4° \mathring{B} 59'14	31.32179 AU	conjunction	4777 Jan 10 14:57	20° \mathring{B} 14'09	1°09'19
morning rise	4770 Jan 11 04:58	5° \mathring{B} 35'16		minimum elong	4777 Jan 10 14:57	20° \mathring{B} 14'09	1°09'20
retrograde	4770 Apr 08 03:48	7° \mathring{B} 27'44		max. Earth dist.	4777 Jan 10 00:22	20° \mathring{B} 12'47	31.29535 AU
opposition	4770 Jun 25 13:28	6° \mathring{B} 05'49	1°25'43	morning rise	4777 Jan 25 23:17	20° \mathring{B} 48'29	
min. Earth dist.	4770 Jun 26 07:13	6° \mathring{B} 04'36	29.32204 AU	retrograde	4777 Apr 23 02:41	22° \mathring{B} 41'23	
direct	4770 Sep 14 16:24	4° \mathring{B} 41'25		opposition	4777 Jul 11 00:37	21° \mathring{B} 19'12	1°12'58
evening set	4770 Dec 13 16:45	6° \mathring{B} 36'55		min. Earth dist.	4777 Jul 11 14:32	21° \mathring{B} 18'15	29.29432 AU
max. Earth dist.	4770 Dec 28 10:15	7° \mathring{B} 09'45	31.32046 AU	direct	4777 Sep 30 00:23	19° \mathring{B} 54'55	
				evening set	4777 Dec 28 14:16	21° \mathring{B} 50'04	
conjunction	4770 Dec 29 04:55	7° \mathring{B} 11'29	1°19'34	max. Earth dist.	4778 Jan 12 09:37	22° \mathring{B} 23'10	31.29250 AU
minimum elong	4770 Dec 29 04:55	7° \mathring{B} 11'29	1°19'34				
morning rise	4771 Jan 13 14:42	7° \mathring{B} 45'52		conjunction	4778 Jan 13 00:22	22° \mathring{B} 24'33	1°07'15
retrograde	4771 Apr 10 15:15	9° \mathring{B} 38'23		minimum elong	4778 Jan 13 00:22	22° \mathring{B} 24'33	1°07'16
opposition	4771 Jun 28 01:12	8° \mathring{B} 16'26	1°24'14	morning rise	4778 Jan 28 08:41	22° \mathring{B} 58'54	
min. Earth dist.	4771 Jun 28 18:07	8° \mathring{B} 15'17	29.32000 AU	retrograde	4778 Apr 25 15:35	24° \mathring{B} 51'54	
direct	4771 Sep 17 03:44	6° \mathring{B} 52'04		opposition	4778 Jul 13 12:34	23° \mathring{B} 29'42	1°10'42
evening set	4771 Dec 16 02:56	8° \mathring{B} 47'31		min. Earth dist.	4778 Jul 14 01:45	23° \mathring{B} 28'48	29.29191 AU

direct	4778 Oct 02 10:49	22°30'52.9		minimum elong	4785 Jan 27 19:07	7°41'13	0°50'11
evening set	4778 Dec 30 23:50	24°30'03.7		max. Earth dist.	4785 Jan 27 08:15	7°40'12	31.26481 AU
				morning rise	4785 Feb 12 02:40	8°15'35	
conjunction	4779 Jan 15 09:54	24°33'50.6	1°05'05	retrograde	4785 May 10 19:20	10°09'20	
minimum elong	4779 Jan 15 09:54	24°33'50.6	1°05'05	opposition	4785 Jul 29 03:09	8°46'57	0°52'08
max. Earth dist.	4779 Jan 14 20:59	24°33'53	31.29034 AU	min. Earth dist.	4785 Jul 29 13:18	8°46'16	29.26092 AU
morning rise	4779 Jan 30 17:56	25°30'26		direct	4785 Oct 17 20:20	7°23'03	
retrograde	4779 Apr 28 02:21	27°30'23.3		evening set	4786 Jan 14 20:03	9°17'50	
opposition	4779 Jul 16 00:42	25°34'02.2	1°08'20				
min. Earth dist.	4779 Jul 16 13:37	25°33'29.2	29.28974 AU	conjunction	4786 Jan 30 04:45	9°52'18	0°47'25
direct	4779 Oct 04 23:13	24°31'16.4		minimum elong	4786 Jan 30 04:45	9°52'18	0°47'26
evening set	4780 Jan 02 09:38	26°31'12.0		max. Earth dist.	4786 Jan 29 19:14	9°51'25	31.25619 AU
				morning rise	4786 Feb 14 12:10	10°26'41	
conjunction	4780 Jan 17 19:17	26°34'54.9	1°02'49	retrograde	4786 May 13 05:22	12°20'30	
minimum elong	4780 Jan 17 19:17	26°34'54.9	1°02'49	opposition	4786 Jul 31 15:34	10°58'02	0°49'09
max. Earth dist.	4780 Jan 17 06:03	26°34'34	31.28828 AU	min. Earth dist.	4786 Aug 01 00:47	10°57'25	29.25173 AU
morning rise	4780 Feb 02 03:20	27°32'01.0		direct	4786 Oct 20 09:10	9°34'07	
retrograde	4780 Apr 29 14:25	29°31'32.3		evening set	4787 Jan 17 05:44	11°28'49	
opposition	4780 Jul 17 12:48	27°31'12	1°05'51				
min. Earth dist.	4780 Jul 18 00:28	27°30'25	29.28755 AU	conjunction	4787 Feb 01 14:08	12°03'16	0°44'35
direct	4780 Oct 06 09:53	26°32'08		minimum elong	4787 Feb 01 14:08	12°03'16	0°44'36
evening set	4781 Jan 03 19:19	28°32'21.3		max. Earth dist.	4787 Feb 01 04:17	12°02'21	31.24679 AU
				morning rise	4787 Feb 16 21:42	12°37'40	
conjunction	4781 Jan 19 04:52	28°35'42	1°00'27	retrograde	4787 May 15 17:47	14°31'34	
minimum elong	4781 Jan 19 04:52	28°35'42	1°00'27	opposition	4787 Aug 03 04:07	13°08'59	0°46'06
max. Earth dist.	4781 Jan 18 17:02	28°35'35	31.28582 AU	min. Earth dist.	4787 Aug 03 12:37	13°08'25	29.24225 AU
morning rise	4781 Feb 03 12:39	29°31'03		direct	4787 Oct 22 19:26	11°45'03	
	4781 Feb 17 02:45	0°		evening set	4788 Jan 19 15:09	13°39'41	
retrograde	4781 May 02 00:35	1°24'24					
opposition	4781 Jul 20 01:14	0°02'12	1°03'17	conjunction	4788 Feb 03 23:34	14°14'08	0°41'42
min. Earth dist.	4781 Jul 20 13:15	0°01'23	29.28474 AU	minimum elong	4788 Feb 03 23:35	14°14'08	0°41'42
	4781 Jul 21 09:44	30°8'3		max. Earth dist.	4788 Feb 03 15:42	14°13'24	31.23732 AU
direct	4781 Oct 08 22:54	28°38'12		morning rise	4788 Feb 19 06:55	14°48'31	
	4781 Dec 21 11:44	0°			4788 Feb 24 13:05	15°	
evening set	4782 Jan 06 05:01	0°33'15		retrograde	4788 May 17 04:06	16°42'31	
				opposition	4788 Aug 04 16:45	15°19'51	0°42'59
conjunction	4782 Jan 21 14:17	1°07'44	0°58'00	min. Earth dist.	4788 Aug 05 00:41	15°19'19	29.23296 AU
minimum elong	4782 Jan 21 14:18	1°07'44	0°58'00		4788 Aug 17 00:36	15°8'	
max. Earth dist.	4782 Jan 21 02:24	1°06'37	31.28265 AU	direct	4788 Oct 24 07:32	13°55'56	
morning rise	4782 Feb 05 22:05	1°42'05			4788 Dec 27 10:59	15°	
retrograde	4782 May 04 13:00	3°35'32		evening set	4789 Jan 21 00:45	15°50'29	
opposition	4782 Jul 22 13:33	2°13'20	1°00'37				
min. Earth dist.	4782 Jul 23 00:07	2°12'37	29.28094 AU	conjunction	4789 Feb 05 08:54	16°24'56	0°38'46
direct	4782 Oct 11 11:18	0°49'23		minimum elong	4789 Feb 05 08:54	16°24'56	0°38'46
evening set	4783 Jan 08 14:50	2°44'23		max. Earth dist.	4789 Feb 05 01:04	16°24'12	31.22850 AU
				morning rise	4789 Feb 20 16:24	16°59'20	
conjunction	4783 Jan 23 23:57	3°18'52	0°55'28	retrograde	4789 May 19 16:41	18°53'26	
minimum elong	4783 Jan 23 23:57	3°18'52	0°55'28	opposition	4789 Aug 07 05:18	17°30'42	0°39'49
max. Earth dist.	4783 Jan 23 12:36	3°17'48	31.27813 AU	min. Earth dist.	4789 Aug 07 11:30	17°30'17	29.22461 AU
morning rise	4783 Feb 08 07:35	3°53'14		direct	4789 Oct 26 18:20	16°06'48	
retrograde	4783 May 06 22:19	5°46'47		evening set	4790 Jan 23 10:06	18°01'18	
opposition	4783 Jul 25 01:58	4°24'32	0°57'52				
min. Earth dist.	4783 Jul 25 13:16	4°23'46	29.27575 AU	conjunction	4790 Feb 07 18:17	18°35'46	0°35'46
direct	4783 Oct 13 22:17	3°00'38		minimum elong	4790 Feb 07 18:17	18°35'46	0°35'46
evening set	4784 Jan 11 00:41	4°55'34		max. Earth dist.	4790 Feb 07 12:10	18°35'11	31.22055 AU
				morning rise	4790 Feb 23 01:41	19°10'10	
conjunction	4784 Jan 26 09:37	5°30'03	0°52'51	retrograde	4790 May 22 03:35	21°04'24	
minimum elong	4784 Jan 26 09:38	5°30'03	0°52'52	opposition	4790 Aug 09 18:00	19°41'37	0°36'34
max. Earth dist.	4784 Jan 25 22:53	5°29'02	31.27228 AU	min. Earth dist.	4790 Aug 10 00:05	19°41'12	29.21707 AU
morning rise	4784 Feb 10 17:10	6°04'25		direct	4790 Oct 29 07:00	18°17'46	
retrograde	4784 May 08 08:13	7°58'04		evening set	4791 Jan 25 19:39	20°12'14	
opposition	4784 Jul 26 14:29	6°35'46	0°55'03				
min. Earth dist.	4784 Jul 27 00:27	6°35'05	29.26901 AU	conjunction	4791 Feb 10 03:40	20°46'42	0°32'42
direct	4784 Oct 15 10:41	5°11'52		minimum elong	4791 Feb 10 03:40	20°46'42	0°32'43
evening set	4785 Jan 12 10:25	7°06'44		max. Earth dist.	4791 Feb 09 22:01	20°46'10	31.21350 AU
				morning rise	4791 Feb 25 11:10	21°21'07	
conjunction	4785 Jan 27 19:07	7°41'13	0°50'10	retrograde	4791 May 24 16:20	23°15'29	

opposition	4791 Aug 12 06:27	21° \approx 52'40	0°33'17	direct	4797 Nov 13 12:57	3° \mathbb{H} 39'33	
min. Earth dist.	4791 Aug 12 10:36	21° \approx 52'23	29.21023 AU	evening set	4798 Feb 09 15:21	5° \mathbb{H} 33'47	
direct	4791 Oct 31 19:07	20° \approx 28'52					
evening set	4792 Jan 28 05:13	22° \approx 23'19		conjunction	4798 Feb 24 23:00	6° \mathbb{H} 08'18	0°10'11
				minimum elong	4798 Feb 24 23:00	6° \mathbb{H} 08'18	0°10'11
conjunction	4792 Feb 12 13:08	22° \approx 57'48	0°29'36	behind sun begin	4798 Feb 24 17:51	6° \mathbb{H} 07'50	
minimum elong	4792 Feb 12 13:09	22° \approx 57'48	0°29'36	behind sun end	4798 Feb 25 04:09	6° \mathbb{H} 08'46	
max. Earth dist.	4792 Feb 12 08:27	22° \approx 57'22	31.20686 AU	max. Earth dist.	4798 Feb 24 21:44	6° \mathbb{H} 08'12	31.15584 AU
morning rise	4792 Feb 27 20:39	23° \approx 32'15		morning rise	4798 Mar 12 07:03	6° \mathbb{H} 42'53	
retrograde	4792 May 26 02:39	25° \approx 26'46		retrograde	4798 Jun 09 01:22	8° \mathbb{H} 38'16	
opposition	4792 Aug 13 19:20	24° \approx 03'56	0°29'56	opposition	4798 Aug 28 00:50	7° \mathbb{H} 15'07	0°09'04
min. Earth dist.	4792 Aug 13 23:43	24° \approx 03'38	29.20373 AU	min. Earth dist.	4798 Aug 28 00:45	7° \mathbb{H} 15'07	29.14977 AU
direct	4792 Nov 02 05:55	22° \approx 40'13		direct	4798 Nov 16 00:02	5° \mathbb{H} 51'36	
evening set	4793 Jan 29 14:39	24° \approx 34'37		evening set	4799 Feb 12 01:01	7° \mathbb{H} 45'46	
conjunction	4793 Feb 13 22:34	25° \approx 09'06	0°26'27	conjunction	4799 Feb 27 08:47	8° \mathbb{H} 20'18	0°06'53
minimum elong	4793 Feb 13 22:34	25° \approx 09'06	0°26'27	minimum elong	4799 Feb 27 08:47	8° \mathbb{H} 20'18	0°06'53
max. Earth dist.	4793 Feb 13 19:07	25° \approx 08'47	31.20044 AU	behind sun begin	4799 Feb 27 02:49	8° \mathbb{H} 19'45	
morning rise	4793 Mar 01 06:05	25° \approx 43'35		behind sun end	4799 Feb 27 14:45	8° \mathbb{H} 20'50	
retrograde	4793 May 28 13:20	27° \approx 38'15		max. Earth dist.	4799 Feb 27 08:48	8° \mathbb{H} 20'18	31.14352 AU
opposition	4793 Aug 16 08:07	26° \approx 15'24	0°26'32	morning rise	4799 Mar 14 16:50	8° \mathbb{H} 54'53	
min. Earth dist.	4793 Aug 16 10:51	26° \approx 15'13	29.19710 AU	retrograde	4799 Jun 11 13:08	10° \mathbb{H} 50'22	
direct	4793 Nov 04 18:07	24° \approx 51'45		opposition	4799 Aug 30 13:49	9° \mathbb{H} 27'06	0°05'31
evening set	4794 Feb 01 00:22	26° \approx 46'08		min. Earth dist.	4799 Aug 30 13:52	9° \mathbb{H} 27'06	29.13726 AU
				direct	4799 Nov 18 13:08	8° \mathbb{H} 03'34	
conjunction	4794 Feb 16 08:07	27° \approx 20'38	0°23'15	evening set	4800 Feb 14 10:44	9° \mathbb{H} 57'40	
minimum elong	4794 Feb 16 08:07	27° \approx 20'38	0°23'15				
max. Earth dist.	4794 Feb 16 04:41	27° \approx 20'19	31.19358 AU	conjunction	4800 Feb 29 18:27	10° \mathbb{H} 32'12	0°03'35
morning rise	4794 Mar 03 15:48	27° \approx 55'08		minimum elong	4800 Feb 29 18:27	10° \mathbb{H} 32'12	0°03'34
retrograde	4794 May 31 01:17	29° \approx 49'58		behind sun begin	4800 Feb 29 12:06	10° \mathbb{H} 31'38	
opposition	4794 Aug 18 20:55	28° \approx 27'05	0°23'06	behind sun end	4800 Mar 01 00:48	10° \mathbb{H} 32'46	
min. Earth dist.	4794 Aug 18 23:44	28° \approx 26'54	29.19000 AU	max. Earth dist.	4800 Feb 29 19:02	10° \mathbb{H} 32'14	31.13112 AU
direct	4794 Nov 07 03:21	27° \approx 03'30		morning rise	4800 Mar 16 02:42	11° \mathbb{H} 06'48	
evening set	4795 Feb 03 10:02	28° \approx 57'52		retrograde	4800 Jun 13 02:24	13° \mathbb{H} 02'24	
				opposition	4800 Sep 01 02:46	11° \mathbb{H} 39'01	0°01'57
conjunction	4795 Feb 18 17:53	29° \approx 32'22	0°20'01	min. Earth dist.	4800 Sep 01 00:47	11° \mathbb{H} 39'09	29.12502 AU
minimum elong	4795 Feb 18 17:53	29° \approx 32'22	0°20'02	direct	4800 Nov 20 01:30	10° \mathbb{H} 15'28	
max. Earth dist.	4795 Feb 18 15:52	29° \approx 32'11	31.18601 AU	evening set	4801 Feb 15 20:18	12° \mathbb{H} 09'29	
	4795 Mar 02 23:13	0° \mathbb{H}					
morning rise	4795 Mar 06 01:29	0° \mathbb{H} 06'53		conjunction	4801 Mar 03 04:03	12° \mathbb{H} 44'02	0°00'11
retrograde	4795 Jun 02 12:02	2° \mathbb{H} 01'52		minimum elong	4801 Mar 03 04:02	12° \mathbb{H} 44'02	0°00'11
opposition	4795 Aug 21 09:49	0° \mathbb{H} 38'58	0°19'38	behind sun begin	4801 Mar 02 21:42	12° \mathbb{H} 43'27	
min. Earth dist.	4795 Aug 21 11:41	0° \mathbb{H} 38'50	29.18180 AU	behind sun end	4801 Mar 03 10:22	12° \mathbb{H} 44'36	
	4795 Sep 15 08:03	30° \mathbb{R}		max. Earth dist.	4801 Mar 03 05:37	12° \mathbb{H} 44'06	31.11915 AU
direct	4795 Nov 09 15:54	29° \approx 15'25		morning rise	4801 Mar 18 12:26	13° \mathbb{H} 18'39	
	4796 Jan 01 06:17	0° \mathbb{H}		desc. node	4801 Mar 22 06:47	13° \mathbb{H} 26'56	
evening set	4796 Feb 05 19:50	1° \mathbb{H} 09'46		retrograde	4801 Jun 15 12:57	15° \mathbb{H} 14'22	
				opposition	4801 Sep 03 15:52	13° \mathbb{H} 50'52	-0°01'36
conjunction	4796 Feb 21 03:27	1° \mathbb{H} 44'16	0°16'46	min. Earth dist.	4801 Sep 03 13:54	13° \mathbb{H} 51'00	29.11360 AU
minimum elong	4796 Feb 21 03:27	1° \mathbb{H} 44'16	0°16'46	direct	4801 Nov 22 12:56	12° \mathbb{H} 27'19	
max. Earth dist.	4796 Feb 21 00:56	1° \mathbb{H} 44'02	31.17724 AU	evening set	4802 Feb 18 05:58	14° \mathbb{H} 21'16	
morning rise	4796 Mar 07 11:16	2° \mathbb{H} 18'48					
retrograde	4796 Jun 04 01:07	4° \mathbb{H} 13'57		conjunction	4802 Mar 05 13:49	14° \mathbb{H} 55'50	-0°03'14
opposition	4796 Aug 22 22:52	2° \mathbb{H} 50'58	0°16'08	minimum elong	4802 Mar 05 13:49	14° \mathbb{H} 55'50	0°03'14
min. Earth dist.	4796 Aug 23 00:12	2° \mathbb{H} 50'53	29.17243 AU	behind sun begin	4802 Mar 05 07:27	14° \mathbb{H} 55'15	
direct	4796 Nov 11 01:35	1° \mathbb{H} 27'28		behind sun end	4802 Mar 05 20:11	14° \mathbb{H} 56'25	
evening set	4797 Feb 07 05:35	3° \mathbb{H} 21'45		max. Earth dist.	4802 Mar 05 16:55	14° \mathbb{H} 56'05	31.10831 AU
				morning rise	4802 Mar 20 22:19	15° \mathbb{H} 30'29	
conjunction	4797 Feb 22 13:21	3° \mathbb{H} 56'17	0°13'29	retrograde	4802 Jun 18 00:16	17° \mathbb{H} 26'17	
minimum elong	4797 Feb 22 13:21	3° \mathbb{H} 56'17	0°13'30	opposition	4802 Sep 06 04:35	16° \mathbb{H} 02'44	-0°05'10
behind sun begin	4797 Feb 22 09:40	3° \mathbb{H} 55'57		min. Earth dist.	4802 Sep 06 00:41	16° \mathbb{H} 03'00	29.10328 AU
behind sun end	4797 Feb 22 17:02	3° \mathbb{H} 56'37		direct	4802 Nov 25 02:00	14° \mathbb{H} 39'12	
max. Earth dist.	4797 Feb 22 12:24	3° \mathbb{H} 56'12	31.16714 AU	evening set	4803 Feb 20 15:45	16° \mathbb{H} 33'06	
morning rise	4797 Mar 09 21:06	4° \mathbb{H} 30'50					
retrograde	4797 Jun 06 12:04	6° \mathbb{H} 26'06		conjunction	4803 Mar 07 23:31	17° \mathbb{H} 07'41	-0°06'33
opposition	4797 Aug 25 11:54	5° \mathbb{H} 03'03	0°12'36	minimum elong	4803 Mar 07 23:32	17° \mathbb{H} 07'41	0°06'33
min. Earth dist.	4797 Aug 25 13:04	5° \mathbb{H} 02'58	29.16163 AU	behind sun begin	4803 Mar 07 17:30	17° \mathbb{H} 07'08	

behind sun end	4803 Mar 08 05:33	17° ✕ 08'14		minimum elong	4809 Mar 20 11:45	0° Υ 21'58	0°26'12
max. Earth dist.	4803 Mar 08 02:52	17° ✕ 07'58	31.09853 AU	max. Earth dist.	4809 Mar 20 20:00	0° Υ 22'45	31.04881 AU
morning rise	4803 Mar 23 08:18	17° ✕ 42'21		morning rise	4809 Apr 04 21:38	0° Υ 56'48	
retrograde	4803 Jun 20 12:35	19° ✕ 38'18		retrograde	4809 Jul 03 15:37	2° Υ 53'40	
opposition	4803 Sep 08 17:38	18° ✕ 14'40	-0°08'43	opposition	4809 Sep 22 00:28	1° Υ 29'45	-0°29'43
min. Earth dist.	4803 Sep 08 13:24	18° ✕ 14'57	29.09413 AU	min. Earth dist.	4809 Sep 21 15:12	1° Υ 30'23	29.04377 AU
direct	4803 Nov 27 12:19	16° ✕ 51'10		direct	4809 Dec 10 07:30	0° Υ 06'30	
evening set	4804 Feb 23 01:19	18° ✕ 45'02		evening set	4810 Mar 07 13:46	2° Υ 00'14	
conjunction	4804 Mar 09 09:18	19° ✕ 19'37	-0°09'52	conjunction	4810 Mar 22 22:13	2° Υ 34'55	-0°29'23
minimum elong	4804 Mar 09 09:18	19° ✕ 19'37	0°09'52	minimum elong	4810 Mar 22 22:13	2° Υ 34'55	0°29'23
behind sun begin	4804 Mar 09 04:03	19° ✕ 19'09		max. Earth dist.	4810 Mar 23 06:42	2° Υ 35'43	31.03820 AU
behind sun end	4804 Mar 09 14:33	19° ✕ 20'06		morning rise	4810 Apr 07 08:22	3° Υ 09'46	
max. Earth dist.	4804 Mar 09 14:36	19° ✕ 20'06	31.08985 AU	retrograde	4810 Jul 06 03:40	5° Υ 06'45	
morning rise	4804 Mar 24 18:05	19° ✕ 54'19		opposition	4810 Sep 24 13:38	3° Υ 42'46	-0°33'05
retrograde	4804 Jun 21 22:56	21° ✕ 50'25		min. Earth dist.	4810 Sep 24 05:02	3° Υ 43'21	29.03267 AU
opposition	4804 Sep 10 06:40	20° ✕ 26'44	-0°12'17	direct	4810 Dec 12 19:03	2° Υ 19'31	
min. Earth dist.	4804 Sep 10 00:59	20° ✕ 27'07	29.08579 AU	evening set	4811 Mar 10 00:00	4° Υ 13'12	
direct	4804 Nov 29 00:40	19° ✕ 03'17		conjunction	4811 Mar 25 08:43	4° Υ 47'54	-0°32'31
evening set	4805 Feb 24 11:13	20° ✕ 57'07		minimum elong	4811 Mar 25 08:43	4° Υ 47'54	0°32'31
conjunction	4805 Mar 11 19:06	21° ✕ 31'43	-0°13'10	max. Earth dist.	4811 Mar 25 18:18	4° Υ 48'48	31.02670 AU
minimum elong	4805 Mar 11 19:06	21° ✕ 31'43	0°13'10	morning rise	4811 Apr 09 19:02	5° Υ 22'47	
behind sun begin	4805 Mar 11 15:14	21° ✕ 31'22		retrograde	4811 Jul 08 16:28	7° Υ 19'51	
behind sun end	4805 Mar 11 22:59	21° ✕ 32'04		opposition	4811 Sep 27 02:46	5° Υ 55'47	-0°36'25
max. Earth dist.	4805 Mar 12 00:17	21° ✕ 32'11	31.08190 AU	min. Earth dist.	4811 Sep 26 16:41	5° Υ 56'28	29.02080 AU
morning rise	4805 Mar 27 04:15	22° ✕ 06'26		direct	4811 Dec 15 08:44	4° Υ 32'31	
retrograde	4805 Jun 24 11:39	24° ✕ 02'41		evening set	4812 Mar 11 10:15	6° Υ 26'09	
opposition	4805 Sep 12 19:42	22° ✕ 38'58	-0°15'49	conjunction	4812 Mar 26 18:58	7° Υ 00'52	-0°35'36
min. Earth dist.	4805 Sep 12 13:14	22° ✕ 39'25	29.07815 AU	minimum elong	4812 Mar 26 18:58	7° Υ 00'52	0°35'37
direct	4805 Dec 01 10:02	21° ✕ 15'34		max. Earth dist.	4812 Mar 27 04:28	7° Υ 01'46	31.01466 AU
evening set	4806 Feb 26 21:00	23° ✕ 09'22		morning rise	4812 Apr 11 05:41	7° Υ 35'47	
conjunction	4806 Mar 14 05:10	23° ✕ 44'00	-0°16'28	retrograde	4812 Jul 10 05:21	9° Υ 32'58	
minimum elong	4806 Mar 14 05:09	23° ✕ 44'00	0°16'28	opposition	4812 Sep 28 16:02	8° Υ 08'47	-0°39'42
max. Earth dist.	4806 Mar 14 12:11	23° ✕ 44'39	31.07429 AU	min. Earth dist.	4812 Sep 28 05:57	8° Υ 09'29	29.00892 AU
morning rise	4806 Mar 29 14:21	24° ✕ 18'45		direct	4812 Dec 16 19:49	6° Υ 45'31	
retrograde	4806 Jun 26 22:56	26° ✕ 15'09		evening set	4813 Mar 13 20:26	8° Υ 39'06	
opposition	4806 Sep 15 08:49	24° ✕ 51'24	-0°19'20	conjunction	4813 Mar 29 05:29	9° Υ 13'50	-0°38'39
min. Earth dist.	4806 Sep 15 02:01	24° ✕ 51'52	29.07048 AU	minimum elong	4813 Mar 29 05:29	9° Υ 13'50	0°38'39
direct	4806 Dec 03 21:04	23° ✕ 28'03		max. Earth dist.	4813 Mar 29 16:47	9° Υ 14'54	31.00295 AU
evening set	4807 Mar 01 07:05	25° ✕ 21'50		morning rise	4813 Apr 13 16:18	9° Υ 48'46	
conjunction	4807 Mar 16 15:10	25° ✕ 56'28	-0°19'44	retrograde	4813 Jul 12 15:49	11° Υ 46'04	
minimum elong	4807 Mar 16 15:10	25° ✕ 56'28	0°19'44	opposition	4813 Oct 01 05:00	10° Υ 21'48	-0°42'55
max. Earth dist.	4807 Mar 16 22:04	25° ✕ 57'07	31.06653 AU	min. Earth dist.	4813 Sep 30 17:36	10° Υ 22'35	28.99757 AU
morning rise	4807 Apr 01 00:41	26° ✕ 31'15		direct	4813 Dec 19 08:32	8° Υ 58'31	
retrograde	4807 Jun 29 12:52	28° ✕ 27'49		evening set	4814 Mar 16 06:50	10° Υ 52'04	
opposition	4807 Sep 17 21:54	27° ✕ 04'01	-0°22'49	conjunction	4814 Mar 31 15:54	11° Υ 26'49	-0°41'38
min. Earth dist.	4807 Sep 17 13:52	27° ✕ 04'34	29.06251 AU	minimum elong	4814 Mar 31 15:54	11° Υ 26'49	0°41'38
direct	4807 Dec 06 07:40	25° ✕ 40'43		max. Earth dist.	4814 Apr 01 02:59	11° Υ 27'52	30.99207 AU
evening set	4808 Mar 02 17:13	27° ✕ 34'30		morning rise	4814 Apr 16 03:11	12° Υ 01'47	
conjunction	4808 Mar 18 01:28	28° ✕ 09'08	-0°22'59	retrograde	4814 Jul 15 04:23	13° Υ 59'12	
minimum elong	4808 Mar 18 01:28	28° ✕ 09'08	0°22'59	opposition	4814 Oct 03 18:05	12° Υ 34'51	-0°46'05
max. Earth dist.	4808 Mar 18 09:28	28° ✕ 09'53	31.05810 AU	min. Earth dist.	4814 Oct 03 05:55	12° Υ 35'41	28.98732 AU
morning rise	4808 Apr 02 11:05	28° ✕ 43'57		direct	4814 Dec 21 18:26	11° Υ 11'35	
retrograde	4808 May 11 16:03	0° Υ		evening set	4815 Mar 18 17:04	13° Υ 05'06	
retrograde	4808 Jul 01 01:34	0° Υ 40'40		conjunction	4815 Apr 03 02:28	13° Υ 39'53	-0°44'33
retrograde	4808 Aug 22 16:50	30° ✕		minimum elong	4815 Apr 03 02:27	13° Υ 39'53	0°44'33
opposition	4808 Sep 19 11:15	29° ✕ 16'49	-0°26'17	max. Earth dist.	4815 Apr 03 15:29	13° Υ 41'07	30.98227 AU
min. Earth dist.	4808 Sep 19 03:31	29° ✕ 17'21	29.05368 AU	morning rise	4815 Apr 18 13:49	14° Υ 14'52	
direct	4808 Dec 07 19:32	27° ✕ 53'33		retrograde	4815 Jul 17 15:40	16° Υ 12'25	
evening set	4809 Mar 05 03:23	29° ✕ 47'19		opposition	4815 Oct 06 07:09	14° Υ 48'01	-0°49'10
evening set	4809 Mar 10 19:39	0° Υ		min. Earth dist.	4815 Oct 05 18:22	14° Υ 48'54	28.97812 AU
conjunction	4809 Mar 20 11:45	0° Υ 21'58	-0°26'12	direct	4815 Dec 24 05:35	13° Υ 24'46	

evening set	4816 Mar 20 03:32	15° Υ 18'16	retrograde	4822 Aug 02 13:47	1° \mathcal{B} 49'38
			min. Earth dist.	4822 Oct 21 10:39	0° \mathcal{B} 26'07 28.92592 AU
conjunction	4816 Apr 04 13:01	15° Υ 53'04 -0°47'25	opposition	4822 Oct 22 03:06	0° \mathcal{B} 24'59 -1°08'35
minimum elong	4816 Apr 04 13:01	15° Υ 53'04 0°47'25		4822 Nov 06 11:51	30° $\mathcal{R}\Upsilon$
max. Earth dist.	4816 Apr 05 02:09	15° Υ 54'18 30.97375 AU	direct	4823 Jan 08 15:19	29° Υ 01'54
morning rise	4816 Apr 20 00:49	16° Υ 28'06		4823 Mar 09 06:05	0° \mathcal{B}
retrograde	4816 Jul 19 05:24	18° Υ 25'46	evening set	4823 Apr 05 07:31	0° \mathcal{B} 55'21
opposition	4816 Oct 07 20:15	17° Υ 01'20 -0°52'12			
min. Earth dist.	4816 Oct 07 06:02	17° Υ 02'18 28.97021 AU	conjunction	4823 Apr 20 18:42	1° \mathcal{B} 30'19 -1°05'16
direct	4816 Dec 25 16:03	15° Υ 38'07	minimum elong	4823 Apr 20 18:42	1° \mathcal{B} 30'19 1°05'16
evening set	4817 Mar 22 13:56	17° Υ 31'36	max. Earth dist.	4823 Apr 21 10:47	1° \mathcal{B} 31'50 30.92043 AU
			morning rise	4823 May 06 08:48	2° \mathcal{B} 05'33
conjunction	4817 Apr 06 23:43	18° Υ 06'25 -0°50'12	retrograde	4823 Aug 05 03:24	4° \mathcal{B} 03'58
minimum elong	4817 Apr 06 23:43	18° Υ 06'25 0°50'12	opposition	4823 Oct 24 16:18	2° \mathcal{B} 39'14 -1°10'59
max. Earth dist.	4817 Apr 07 14:11	18° Υ 07'48 30.96621 AU	min. Earth dist.	4823 Oct 23 23:45	2° \mathcal{B} 40'22 28.91579 AU
morning rise	4817 Apr 22 11:46	18° Υ 41'29	direct	4824 Jan 11 02:48	1° \mathcal{B} 16'06
retrograde	4817 Jul 21 17:53	20° Υ 39'17	evening set	4824 Apr 06 18:37	3° \mathcal{B} 09'31
opposition	4817 Oct 10 09:25	19° Υ 14'49 -0°55'09			
min. Earth dist.	4817 Oct 09 19:19	19° Υ 15'47 28.96310 AU	conjunction	4824 Apr 22 06:16	3° \mathcal{B} 44'30 -1°07'27
direct	4817 Dec 28 03:00	17° Υ 51'39	minimum elong	4824 Apr 22 06:15	3° \mathcal{B} 44'30 1°07'29
evening set	4818 Mar 25 00:34	19° Υ 45'08	max. Earth dist.	4824 Apr 22 23:44	3° \mathcal{B} 46'09 30.90994 AU
			morning rise	4824 May 07 20:35	4° \mathcal{B} 19'46
conjunction	4818 Apr 09 10:35	20° Υ 19'59 -0°52'55	retrograde	4824 Aug 06 14:54	6° \mathcal{B} 18'14
minimum elong	4818 Apr 09 10:35	20° Υ 19'59 0°52'56	opposition	4824 Oct 26 05:23	4° \mathcal{B} 53'23 -1°13'16
max. Earth dist.	4818 Apr 10 01:31	20° Υ 21'24 30.95946 AU	min. Earth dist.	4824 Oct 25 12:42	4° \mathcal{B} 54'33 28.90516 AU
morning rise	4818 Apr 24 22:56	20° Υ 55'04	direct	4825 Jan 12 15:14	3° \mathcal{B} 30'13
retrograde	4818 Jul 24 08:00	22° Υ 53'00	evening set	4825 Apr 09 05:48	5° \mathcal{B} 23'35
opposition	4818 Oct 12 22:20	21° Υ 28'31 -0°58'01			
min. Earth dist.	4818 Oct 12 06:39	21° Υ 29'35 28.95653 AU	conjunction	4825 Apr 24 17:40	5° \mathcal{B} 58'35 -1°09'33
direct	4818 Dec 30 13:44	20° Υ 05'22	minimum elong	4825 Apr 24 17:40	5° \mathcal{B} 58'35 1°09'33
evening set	4819 Mar 27 11:22	21° Υ 58'53	max. Earth dist.	4825 Apr 25 10:51	6° \mathcal{B} 00'13 30.89940 AU
			morning rise	4825 May 10 08:31	6° \mathcal{B} 33'53
conjunction	4819 Apr 11 21:32	22° Υ 33'45 -0°55'34	retrograde	4825 Aug 09 03:52	8° \mathcal{B} 32'24
minimum elong	4819 Apr 11 21:32	22° Υ 33'45 0°55'34	opposition	4825 Oct 28 18:20	7° \mathcal{B} 07'28 -1°15'27
max. Earth dist.	4819 Apr 12 12:51	22° Υ 35'12 30.95288 AU	min. Earth dist.	4825 Oct 28 00:44	7° \mathcal{B} 08'41 28.89485 AU
morning rise	4819 Apr 27 10:15	23° Υ 08'52	direct	4826 Jan 15 02:19	5° \mathcal{B} 44'15
retrograde	4819 Jul 26 21:26	25° Υ 06'56	evening set	4826 Apr 11 17:02	7° \mathcal{B} 37'36
opposition	4819 Oct 15 11:37	23° Υ 42'25 -1°00'48			
min. Earth dist.	4819 Oct 14 20:31	23° Υ 43'27 28.95001 AU	conjunction	4826 Apr 27 05:15	8° \mathcal{B} 12'37 -1°11'32
direct	4820 Jan 02 01:13	22° Υ 19'19	minimum elong	4826 Apr 27 05:14	8° \mathcal{B} 12'37 1°11'33
evening set	4820 Mar 28 22:06	24° Υ 12'50	max. Earth dist.	4826 Apr 27 23:28	8° \mathcal{B} 14'21 30.88924 AU
			morning rise	4826 May 12 20:22	8° \mathcal{B} 47'56
conjunction	4820 Apr 13 08:36	24° Υ 47'43 -0°58'07	retrograde	4826 Aug 11 15:15	10° \mathcal{B} 46'31
minimum elong	4820 Apr 13 08:36	24° Υ 47'43 0°58'08	opposition	4826 Oct 31 07:11	9° \mathcal{B} 21'30 -1°17'31
max. Earth dist.	4820 Apr 14 01:01	24° Υ 49'16 30.94620 AU	min. Earth dist.	4826 Oct 30 13:52	9° \mathcal{B} 22'42 28.88520 AU
morning rise	4820 Apr 28 21:32	25° Υ 22'52	direct	4827 Jan 17 13:19	7° \mathcal{B} 58'15
retrograde	4820 Jul 28 12:07	27° Υ 21'02	evening set	4827 Apr 14 04:17	9° \mathcal{B} 51'35
min. Earth dist.	4820 Oct 16 08:26	25° Υ 57'37 28.94301 AU			
opposition	4820 Oct 17 00:46	25° Υ 56'30 -1°03'29	conjunction	4827 Apr 29 16:49	10° \mathcal{B} 26'37 -1°13'25
direct	4821 Jan 03 14:50	24° Υ 33'25	minimum elong	4827 Apr 29 16:49	10° \mathcal{B} 26'37 1°13'24
evening set	4821 Mar 31 09:15	26° Υ 26'56	max. Earth dist.	4827 Apr 30 11:27	10° \mathcal{B} 28'23 30.88019 AU
			morning rise	4827 May 15 08:19	11° \mathcal{B} 01'58
conjunction	4821 Apr 15 19:52	27° Υ 01'51 -1°00'36	retrograde	4827 Aug 14 05:09	13° \mathcal{B} 00'36
minimum elong	4821 Apr 15 19:52	27° Υ 01'51 1°00'35	opposition	4827 Nov 02 20:00	11° \mathcal{B} 35'32 -1°19'28
max. Earth dist.	4821 Apr 16 11:42	27° Υ 03'21 30.93871 AU	min. Earth dist.	4827 Nov 02 01:03	11° \mathcal{B} 36'51 28.87678 AU
morning rise	4821 May 01 09:17	27° Υ 37'02	direct	4828 Jan 20 00:13	10° \mathcal{B} 12'16
retrograde	4821 Jul 31 01:51	29° Υ 35'19	evening set	4828 Apr 15 15:30	12° \mathcal{B} 05'36
opposition	4821 Oct 19 13:57	28° Υ 10'43 -1°06'05			
min. Earth dist.	4821 Oct 18 22:14	28° Υ 11'47 28.93512 AU	conjunction	4828 May 01 04:19	12° \mathcal{B} 40'40 -1°15'11
direct	4822 Jan 06 02:03	26° Υ 47'38	minimum elong	4828 May 01 04:19	12° \mathcal{B} 40'40 1°15'11
evening set	4822 Apr 02 20:20	28° Υ 41'08	max. Earth dist.	4828 May 01 23:24	12° \mathcal{B} 42'29 30.87230 AU
			morning rise	4828 May 16 20:17	13° \mathcal{B} 16'03
conjunction	4822 Apr 18 07:25	29° Υ 16'05 -1°02'59		4828 Jul 16 16:07	15° \mathcal{B}
minimum elong	4822 Apr 18 07:24	29° Υ 16'04 1°02'59	retrograde	4828 Aug 15 18:14	15° \mathcal{B} 14'46
max. Earth dist.	4822 Apr 19 00:21	29° Υ 17'41 30.93017 AU		4828 Sep 15 10:33	15° $\mathcal{R}\mathcal{B}$
morning rise	4822 May 03 21:00	29° Υ 51'17	opposition	4828 Nov 04 08:57	13° \mathcal{B} 49'39 -1°21'18
	4822 May 07 19:58	0° \mathcal{B}	min. Earth dist.	4828 Nov 03 14:29	13° \mathcal{B} 50'56 28.86961 AU

direct	4829 Jan 21 11:32	12° 8 26'23		minimum elong	4835 May 17 17:19	28° 8 23'37	1°24'14
evening set	4829 Apr 18 02:52	14° 8 19'43		max. Earth dist.	4835 May 18 14:16	28° 8 25'36	30.83586 AU
				morning rise	4835 Jun 02 12:05	28° 8 59'14	
conjunction	4829 May 03 16:11	14° 8 54'50	-1°16'50		4835 Jul 02 10:18	0° II	
minimum elong	4829 May 03 16:11	14° 8 54'50	1°16'50	retrograde	4835 Sep 01 16:37	0° II 58'21	
max. Earth dist.	4829 May 04 12:24	14° 8 56'45	30.86578 AU		4835 Nov 04 17:59	30° R 8	
	4829 May 05 22:43	15° 8		min. Earth dist.	4835 Nov 20 06:58	29° 8 34'32	28.83340 AU
morning rise	4829 May 19 08:26	15° 8 30'14		opposition	4835 Nov 21 02:16	29° 8 33'11	-1°30'31
retrograde	4829 Aug 18 08:47	17° 8 29'01		direct	4836 Feb 06 22:21	28° 8 09'57	
opposition	4829 Nov 06 21:32	16° 8 03'53	-1°23'00		4836 May 02 00:12	0° II	
min. Earth dist.	4829 Nov 06 01:42	16° 8 05'16	28.86364 AU	evening set	4836 May 03 13:45	0° II 03'27	
	4829 Dec 20 14:16	15° R 8					
direct	4830 Jan 24 00:23	14° 8 40'38		conjunction	4836 May 19 05:47	0° II 38'46	-1°25'02
	4830 Feb 26 14:54	15° 8		minimum elong	4836 May 19 05:47	0° II 38'46	1°25'03
evening set	4830 Apr 20 14:27	16° 8 34'00		max. Earth dist.	4836 May 20 02:27	0° II 40'44	30.82914 AU
				morning rise	4836 Jun 04 01:02	1° II 14'25	
conjunction	4830 May 06 03:58	17° 8 09'08	-1°18'22	retrograde	4836 Sep 03 06:31	3° II 13'32	
minimum elong	4830 May 06 03:58	17° 8 09'08	1°18'23	opposition	4836 Nov 22 14:51	1° II 48'19	-1°31'18
max. Earth dist.	4830 May 06 23:48	17° 8 11'01	30.86030 AU	min. Earth dist.	4836 Nov 21 18:40	1° II 49'43	28.82643 AU
morning rise	4830 May 21 20:46	17° 8 44'35		direct	4837 Feb 08 09:33	0° II 25'01	
retrograde	4830 Aug 20 22:41	19° 8 43'27		evening set	4837 May 06 01:58	2° II 18'30	
opposition	4830 Nov 09 10:24	18° 8 18'19	-1°24'35				
min. Earth dist.	4830 Nov 08 15:02	18° 8 19'39	28.85871 AU	conjunction	4837 May 21 18:22	2° II 53'50	-1°25'42
direct	4831 Jan 26 11:04	16° 8 55'05		minimum elong	4837 May 21 18:22	2° II 53'50	1°25'42
evening set	4831 Apr 23 01:52	18° 8 48'29		max. Earth dist.	4837 May 22 14:53	2° II 55'47	30.82202 AU
				morning rise	4837 Jun 06 14:06	3° II 29'31	
conjunction	4831 May 08 15:54	19° 8 23'39	-1°19'47	retrograde	4837 Sep 05 18:13	5° II 28'36	
minimum elong	4831 May 08 15:54	19° 8 23'39	1°19'48	min. Earth dist.	4837 Nov 24 08:10	4° II 04'40	28.81948 AU
max. Earth dist.	4831 May 09 13:10	19° 8 25'40	30.85570 AU	opposition	4837 Nov 25 03:19	4° II 03'19	-1°31'57
morning rise	4831 May 24 08:56	19° 8 59'08		direct	4838 Feb 10 21:07	2° II 39'57	
retrograde	4831 Aug 23 11:57	21° 8 58'04		evening set	4838 May 08 14:04	4° II 33'26	
opposition	4831 Nov 11 23:10	20° 8 32'57	-1°26'02				
min. Earth dist.	4831 Nov 11 02:57	20° 8 34'21	28.85431 AU	conjunction	4838 May 24 07:01	5° II 08'48	-1°26'15
direct	4832 Jan 29 00:06	19° 8 09'45		minimum elong	4838 May 24 07:01	5° II 08'48	1°26'16
evening set	4832 Apr 24 13:42	21° 8 03'11		max. Earth dist.	4838 May 25 04:15	5° II 10'48	30.81538 AU
				morning rise	4838 Jun 09 03:06	5° II 44'29	
conjunction	4832 May 10 03:58	21° 8 38'23	-1°21'05	retrograde	4838 Sep 08 07:42	7° II 43'33	
minimum elong	4832 May 10 03:58	21° 8 38'23	1°21'07	opposition	4838 Nov 27 15:40	6° II 18'13	-1°32'28
max. Earth dist.	4832 May 11 00:22	21° 8 40'19	30.85148 AU	min. Earth dist.	4838 Nov 26 19:25	6° II 19'38	28.81320 AU
morning rise	4832 May 25 21:35	22° 8 13'55		direct	4839 Feb 13 09:39	4° II 54'47	
retrograde	4832 Aug 25 03:13	24° 8 12'55		evening set	4839 May 11 02:11	6° II 48'15	
opposition	4832 Nov 13 11:58	22° 8 47'48	-1°27'22				
min. Earth dist.	4832 Nov 12 15:54	22° 8 49'12	28.85018 AU	conjunction	4839 May 26 19:25	7° II 23'39	-1°26'39
direct	4833 Jan 30 11:29	21° 8 24'37		minimum elong	4839 May 26 19:25	7° II 23'39	1°26'39
evening set	4833 Apr 27 01:33	23° 8 18'06		max. Earth dist.	4839 May 27 16:08	7° II 25'36	30.80957 AU
				morning rise	4839 Jun 11 16:04	7° II 59'22	
conjunction	4833 May 12 16:22	23° 8 53'20	-1°22'16	retrograde	4839 Sep 10 21:03	9° II 58'25	
minimum elong	4833 May 12 16:21	23° 8 53'20	1°22'16	min. Earth dist.	4839 Nov 29 08:33	8° II 34'24	28.80811 AU
max. Earth dist.	4833 May 13 13:51	23° 8 55'22	30.84706 AU	opposition	4839 Nov 30 04:09	8° II 33'02	-1°32'50
morning rise	4833 May 28 10:15	24° 8 28'53		direct	4840 Feb 15 20:13	7° II 09'32	
retrograde	4833 Aug 27 15:30	26° 8 27'57		evening set	4840 May 12 14:20	9° II 03'00	
min. Earth dist.	4833 Nov 15 04:55	25° 8 04'14	28.84545 AU				
opposition	4833 Nov 16 00:45	25° 8 02'51	-1°28'33	conjunction	4840 May 28 08:11	9° II 38'26	-1°26'56
direct	4834 Feb 02 00:02	23° 8 39'41		minimum elong	4840 May 28 08:11	9° II 38'26	1°26'57
evening set	4834 Apr 29 13:40	25° 8 33'10		max. Earth dist.	4840 May 29 06:10	9° II 40'30	30.80514 AU
				morning rise	4840 Jun 13 05:07	10° II 14'10	
conjunction	4834 May 15 04:46	26° 8 08'26	-1°23'19	retrograde	4840 Sep 12 10:37	12° II 13'11	
minimum elong	4834 May 15 04:46	26° 8 08'26	1°23'19	opposition	4840 Dec 01 16:19	10° II 47'46	-1°33'03
max. Earth dist.	4834 May 16 01:18	26° 8 10'23	30.84196 AU	min. Earth dist.	4840 Nov 30 19:54	10° II 49'12	28.80438 AU
morning rise	4834 May 30 23:10	26° 8 44'02		direct	4841 Feb 17 09:45	9° II 24'15	
retrograde	4834 Aug 30 04:54	28° 8 43'08		evening set	4841 May 15 02:42	11° II 17'44	
opposition	4834 Nov 18 13:27	27° 8 18'00	-1°29'36				
min. Earth dist.	4834 Nov 17 17:20	27° 8 19'24	28.83991 AU	conjunction	4841 May 30 20:51	11° II 53'11	-1°27'05
direct	4835 Feb 04 11:15	25° 8 54'49		minimum elong	4841 May 30 20:51	11° II 53'11	1°27'05
evening set	4835 May 02 01:46	27° 8 48'19		max. Earth dist.	4841 May 31 17:54	11° II 55'10	30.80220 AU
				morning rise	4841 Jun 15 18:26	12° II 28'57	
conjunction	4835 May 17 17:19	28° 8 23'37	-1°24'14	retrograde	4841 Sep 15 01:48	14° II 27'57	

min. Earth dist.	4841 Dec 03 08:15	13° Π 03'57	28.80224 AU	max. Earth dist.	4848 Jun 16 12:49	27° Π 40'59	30.80282 AU
opposition	4841 Dec 04 04:37	13° Π 02'31	-1°33'09	morning rise	4848 Jul 01 17:40	28° Π 15'05	
direct	4842 Feb 19 21:35	11° Π 38'58			4848 Sep 01 18:22	0° \mathfrak{E}	
evening set	4842 May 17 14:57	13° Π 32'28		retrograde	4848 Sep 30 21:24	0° \mathfrak{E} 13'56	
					4848 Oct 30 10:55	30° \mathfrak{R} Π	
conjunction	4842 Jun 02 09:42	14° Π 07'58	-1°27'05	opposition	4848 Dec 19 17:30	28° Π 48'41	-1°29'43
minimum elong	4842 Jun 02 09:42	14° Π 07'58	1°27'07	min. Earth dist.	4848 Dec 18 23:30	28° Π 49'57	28.80307 AU
max. Earth dist.	4842 Jun 03 08:01	14° Π 10'04	30.80070 AU	direct	4849 Mar 07 05:25	27° Π 25'03	
morning rise	4842 Jun 18 07:31	14° Π 43'45		evening set	4849 Jun 02 08:33	29° Π 18'49	
retrograde	4842 Sep 17 13:44	16° Π 42'44					
opposition	4842 Dec 06 16:45	15° Π 17'20	-1°33'05	conjunction	4849 Jun 18 06:41	29° Π 54'31	-1°23'26
min. Earth dist.	4842 Dec 05 20:22	15° Π 18'45	28.80138 AU	minimum elong	4849 Jun 18 06:41	29° Π 54'31	1°23'27
direct	4843 Feb 22 10:04	13° Π 53'47		max. Earth dist.	4849 Jun 19 02:57	29° Π 56'25	30.80155 AU
evening set	4843 May 20 03:25	15° Π 47'18			4849 Jun 20 16:53	0° \mathfrak{E}	
				morning rise	4849 Jul 04 07:36	0° \mathfrak{E} 30'30	
conjunction	4843 Jun 04 22:31	16° Π 22'49	-1°26'58	retrograde	4849 Oct 03 10:46	2° \mathfrak{E} 29'15	
minimum elong	4843 Jun 04 22:32	16° Π 22'49	1°26'58	min. Earth dist.	4849 Dec 21 11:09	1° \mathfrak{E} 05'18	28.80159 AU
max. Earth dist.	4843 Jun 05 20:07	16° Π 24'51	30.80061 AU	opposition	4849 Dec 22 05:22	1° \mathfrak{E} 04'01	-1°28'41
morning rise	4843 Jun 20 20:56	16° Π 58'39			4850 Feb 03 08:11	30° \mathfrak{R} Π	
retrograde	4843 Sep 20 04:20	18° Π 57'37		direct	4850 Mar 09 19:10	29° Π 40'19	
min. Earth dist.	4843 Dec 08 08:09	17° Π 33'42	28.80185 AU		4850 Apr 12 16:31	0° \mathfrak{E}	
opposition	4843 Dec 09 04:56	17° Π 32'14	-1°32'53	evening set	4850 Jun 04 21:37	1° \mathfrak{E} 34'06	
direct	4844 Feb 24 21:24	16° Π 08'42					
evening set	4844 May 21 15:54	18° Π 02'16		conjunction	4850 Jun 20 20:02	2° \mathfrak{E} 09'49	-1°22'24
				minimum elong	4850 Jun 20 20:02	2° \mathfrak{E} 09'49	1°22'25
conjunction	4844 Jun 06 11:33	18° Π 37'49	-1°26'43	max. Earth dist.	4850 Jun 21 14:50	2° \mathfrak{E} 11'36	30.80016 AU
minimum elong	4844 Jun 06 11:33	18° Π 37'49	1°26'44	morning rise	4850 Jul 06 21:31	2° \mathfrak{E} 45'50	
max. Earth dist.	4844 Jun 07 09:47	18° Π 39'55	30.80139 AU	retrograde	4850 Oct 06 01:18	4° \mathfrak{E} 44'30	
morning rise	4844 Jun 22 10:20	19° Π 13'41		opposition	4850 Dec 24 17:13	3° \mathfrak{E} 19'15	-1°27'30
retrograde	4844 Sep 21 16:51	21° Π 12'38		min. Earth dist.	4850 Dec 23 23:36	3° \mathfrak{E} 20'29	28.80043 AU
opposition	4844 Dec 10 17:09	19° Π 47'18	-1°32'32	direct	4851 Mar 12 07:13	1° \mathfrak{E} 55'29	
min. Earth dist.	4844 Dec 09 21:17	19° Π 48'42	28.80287 AU	evening set	4851 Jun 07 10:34	3° \mathfrak{E} 49'17	
direct	4845 Feb 26 08:43	18° Π 23'47					
evening set	4845 May 24 04:40	20° Π 17'23		conjunction	4851 Jun 23 09:37	4° \mathfrak{E} 25'03	-1°21'15
				minimum elong	4851 Jun 23 09:37	4° \mathfrak{E} 25'03	1°21'15
conjunction	4845 Jun 09 00:47	20° Π 52'58	-1°26'19	max. Earth dist.	4851 Jun 24 05:16	4° \mathfrak{E} 26'53	30.79928 AU
minimum elong	4845 Jun 09 00:47	20° Π 52'58	1°26'19	morning rise	4851 Jul 09 11:21	5° \mathfrak{E} 01'04	
max. Earth dist.	4845 Jun 09 22:24	20° Π 55'01	30.80261 AU	retrograde	4851 Oct 08 13:19	6° \mathfrak{E} 59'39	
morning rise	4845 Jun 25 00:02	21° Π 28'52		min. Earth dist.	4851 Dec 26 11:33	5° \mathfrak{E} 35'37	28.79993 AU
retrograde	4845 Sep 24 06:55	23° Π 27'49		opposition	4851 Dec 27 04:55	5° \mathfrak{E} 34'23	-1°26'12
min. Earth dist.	4845 Dec 12 08:43	22° Π 03'57	28.80398 AU	direct	4852 Mar 13 19:49	4° \mathfrak{E} 10'35	
opposition	4845 Dec 13 05:05	22° Π 02'31	-1°32'02	evening set	4852 Jun 08 23:38	6° \mathfrak{E} 04'24	
direct	4846 Feb 28 20:01	20° Π 39'00					
evening set	4846 May 26 17:39	22° Π 32'40		conjunction	4852 Jun 24 23:03	6° \mathfrak{E} 40'11	-1°19'57
				minimum elong	4852 Jun 24 23:03	6° \mathfrak{E} 40'11	1°19'58
conjunction	4846 Jun 11 14:09	23° Π 08'17	-1°25'48	max. Earth dist.	4852 Jun 25 17:35	6° \mathfrak{E} 41'55	30.79941 AU
minimum elong	4846 Jun 11 14:10	23° Π 08'17	1°25'49	morning rise	4852 Jul 11 01:22	7° \mathfrak{E} 16'13	
max. Earth dist.	4846 Jun 12 11:14	23° Π 10'16	30.80341 AU	retrograde	4852 Oct 10 04:20	9° \mathfrak{E} 14'43	
morning rise	4846 Jun 27 13:51	23° Π 44'12		opposition	4852 Dec 28 16:34	7° \mathfrak{E} 49'28	-1°24'45
retrograde	4846 Sep 26 18:43	25° Π 43'08		min. Earth dist.	4852 Dec 27 23:05	7° \mathfrak{E} 50'42	28.80065 AU
opposition	4846 Dec 15 17:21	24° Π 17'53	-1°31'24	direct	4853 Mar 16 08:04	6° \mathfrak{E} 25'37	
min. Earth dist.	4846 Dec 14 22:24	24° Π 19'12	28.80449 AU	evening set	4853 Jun 11 12:44	8° \mathfrak{E} 19'27	
direct	4847 Mar 03 06:54	22° Π 54'20					
evening set	4847 May 29 06:26	24° Π 48'03		conjunction	4853 Jun 27 12:41	8° \mathfrak{E} 55'16	-1°18'33
				minimum elong	4853 Jun 27 12:42	8° \mathfrak{E} 55'16	1°18'33
conjunction	4847 Jun 14 03:32	25° Π 23'41	-1°25'08	max. Earth dist.	4853 Jun 28 07:46	8° \mathfrak{E} 57'03	30.80066 AU
minimum elong	4847 Jun 14 03:32	25° Π 23'41	1°25'08	morning rise	4853 Jul 13 15:17	9° \mathfrak{E} 31'19	
max. Earth dist.	4847 Jun 15 00:36	25° Π 25'41	30.80358 AU	retrograde	4853 Oct 12 16:51	11° \mathfrak{E} 29'44	
morning rise	4847 Jun 30 03:35	25° Π 59'38		min. Earth dist.	4853 Dec 30 11:31	10° \mathfrak{E} 05'40	28.80258 AU
retrograde	4847 Sep 29 08:16	27° Π 58'31		opposition	4853 Dec 31 04:07	10° \mathfrak{E} 04'30	-1°23'11
min. Earth dist.	4847 Dec 17 10:01	26° Π 34'39	28.80413 AU	direct	4854 Mar 18 20:10	8° \mathfrak{E} 40'37	
opposition	4847 Dec 18 05:27	26° Π 33'17	-1°30'38	evening set	4854 Jun 14 01:52	10° \mathfrak{E} 34'30	
direct	4848 Mar 04 19:02	25° Π 09'43					
evening set	4848 May 30 19:34	27° Π 03'27		conjunction	4854 Jun 30 02:16	11° \mathfrak{E} 10'20	-1°17'01
				minimum elong	4854 Jun 30 02:16	11° \mathfrak{E} 10'20	1°17'03
conjunction	4848 Jun 15 17:02	27° Π 39'07	-1°24'21	max. Earth dist.	4854 Jun 30 20:41	11° \mathfrak{E} 12'03	30.80345 AU
minimum elong	4848 Jun 15 17:02	27° Π 39'07	1°24'23	morning rise	4854 Jul 16 05:18	11° \mathfrak{E} 46'25	

retrograde	4854 Oct 15 06:23	13°☾44'44		minimum elong	4861 Jul 16 03:36	26°☾57'12	1°03'08
opposition	4855 Jan 02 15:39	12°☾19'33 -1°21'29		max. Earth dist.	4861 Jul 16 17:05	26°☾58'28	30.83744 AU
min. Earth dist.	4855 Jan 01 22:16	12°☾20'46 28.80604 AU		morning rise	4861 Aug 01 09:05	27°☾33'23	
direct	4855 Mar 21 08:00	10°☾55'39		retrograde	4861 Oct 31 00:25	29°☾31'01	
evening set	4855 Jun 16 14:56	12°☾49'34		opposition	4862 Jan 17 23:42	28°☾06'11 -1°06'14	
				min. Earth dist.	4862 Jan 17 11:07	28°☾07'04 28.83929 AU	
conjunction	4855 Jul 02 15:46	13°☾25'25 -1°15'23		direct	4862 Apr 05 17:38	26°☾42'04	
minimum elong	4855 Jul 02 15:46	13°☾25'25 1°15'23		evening set	4862 Jul 02 13:51	28°☾36'17	
max. Earth dist.	4855 Jul 03 10:02	13°☾27'08 30.80756 AU					
morning rise	4855 Jul 18 19:12	14°☾01'31		conjunction	4862 Jul 18 17:42	29°☾12'17 -1°00'45	
retrograde	4855 Oct 17 17:42	15°☾59'46		minimum elong	4862 Jul 18 17:42	29°☾12'17 1°00'46	
min. Earth dist.	4856 Jan 04 11:10	14°☾35'47 28.81077 AU		max. Earth dist.	4862 Jul 19 07:16	29°☾13'33 30.84015 AU	
opposition	4856 Jan 05 03:19	14°☾34'38 -1°19'40		morning rise	4862 Aug 03 23:19	29°☾48'27	
direct	4856 Mar 22 18:35	13°☾10'44			4862 Aug 09 07:20	0°♈	
evening set	4856 Jun 18 04:12	15°☾04'42		retrograde	4862 Nov 02 12:15	1°♈45'57	
				opposition	4863 Jan 20 10:57	0°♈21'07 -1°03'38	
conjunction	4856 Jul 04 05:36	15°☾40'35 -1°13'37		min. Earth dist.	4863 Jan 19 23:42	0°♈21'54 28.84188 AU	
minimum elong	4856 Jul 04 05:36	15°☾40'35 1°13'38			4863 Feb 02 00:23	30°♈☾	
max. Earth dist.	4856 Jul 04 23:51	15°☾42'18 30.81293 AU		direct	4863 Apr 08 06:28	28°☾56'56	
morning rise	4856 Jul 20 09:21	16°☾16'42			4863 Jun 10 00:49	0°♈	
retrograde	4856 Oct 19 07:30	18°☾14'52		evening set	4863 Jul 05 03:22	0°♈51'09	
opposition	4857 Jan 06 14:38	16°☾49'49 -1°17'42					
min. Earth dist.	4857 Jan 05 22:00	16°☾50'59 28.81642 AU		conjunction	4863 Jul 21 07:34	1°♈27'10 -0°58'17	
direct	4857 Mar 25 05:49	15°☾25'55		minimum elong	4863 Jul 21 07:34	1°♈27'10 0°58'17	
evening set	4857 Jun 20 17:45	17°☾19'56		max. Earth dist.	4863 Jul 21 19:56	1°♈28'19 30.84294 AU	
				morning rise	4863 Aug 06 13:35	2°♈03'21	
conjunction	4857 Jul 06 19:26	17°☾55'50 -1°11'44		retrograde	4863 Nov 05 01:51	4°♈00'41	
minimum elong	4857 Jul 06 19:26	17°☾55'50 1°11'44		opposition	4864 Jan 22 22:01	2°♈35'51 -1°00'56	
max. Earth dist.	4857 Jul 07 12:31	17°☾57'27 30.81881 AU		min. Earth dist.	4864 Jan 22 10:29	2°♈36'40 28.84477 AU	
morning rise	4857 Jul 22 23:39	18°☾31'59		direct	4864 Apr 09 19:12	1°♈11'36	
retrograde	4857 Oct 21 19:30	20°☾30'05		evening set	4864 Jul 06 17:03	3°♈05'50	
min. Earth dist.	4858 Jan 08 11:06	19°☾06'10 28.82241 AU					
opposition	4858 Jan 09 02:12	19°☾05'06 -1°15'38		conjunction	4864 Jul 22 21:36	3°♈41'52 -0°55'43	
direct	4858 Mar 27 15:44	17°☾41'11		minimum elong	4864 Jul 22 21:36	3°♈41'52 0°55'44	
evening set	4858 Jun 23 07:08	19°☾35'16		max. Earth dist.	4864 Jul 23 09:29	3°♈42'58 30.84604 AU	
				morning rise	4864 Aug 08 03:50	4°♈18'03	
conjunction	4858 Jul 09 09:23	20°☾11'12 -1°09'44		retrograde	4864 Nov 06 13:20	6°♈15'15	
minimum elong	4858 Jul 09 09:23	20°☾11'12 1°09'45		opposition	4865 Jan 24 09:00	4°♈50'26 -0°58'09	
max. Earth dist.	4858 Jul 10 02:42	20°☾12'49 30.82470 AU		min. Earth dist.	4865 Jan 23 22:59	4°♈51'08 28.84828 AU	
morning rise	4858 Jul 25 13:45	20°☾47'21		direct	4865 Apr 12 06:23	3°♈26'07	
retrograde	4858 Oct 24 07:51	22°☾45'22		evening set	4865 Jul 09 06:39	5°♈20'22	
opposition	4859 Jan 11 13:38	21°☾20'27 -1°13'27					
min. Earth dist.	4859 Jan 10 22:37	21°☾21'30 28.82794 AU		conjunction	4865 Jul 25 11:37	5°♈56'25 -0°53'04	
direct	4859 Mar 30 04:56	19°☾56'31		minimum elong	4865 Jul 25 11:37	5°♈56'25 0°53'05	
evening set	4859 Jun 25 20:51	21°☾50'39		max. Earth dist.	4865 Jul 25 23:09	5°♈57'29 30.85013 AU	
				morning rise	4865 Aug 10 18:02	6°♈32'36	
conjunction	4859 Jul 11 23:21	22°☾26'36 -1°07'38		retrograde	4865 Nov 09 02:37	8°♈29'39	
minimum elong	4859 Jul 11 23:21	22°☾26'36 1°07'39		opposition	4866 Jan 26 19:54	7°♈04'52 -0°55'17	
max. Earth dist.	4859 Jul 12 14:39	22°☾28'02 30.82989 AU		min. Earth dist.	4866 Jan 26 09:20	7°♈05'37 28.85285 AU	
morning rise	4859 Jul 28 04:13	23°☾02'45		direct	4866 Apr 14 18:18	5°♈40'31	
retrograde	4859 Oct 26 21:34	25°☾00'40		evening set	4866 Jul 11 20:11	7°♈34'48	
min. Earth dist.	4860 Jan 13 11:12	23°☾36'46 28.83272 AU					
opposition	4860 Jan 14 01:06	23°☾35'48 -1°11'09		conjunction	4866 Jul 28 01:20	8°♈10'51 -0°50'21	
direct	4860 Mar 31 16:05	22°☾11'49		minimum elong	4866 Jul 28 01:20	8°♈10'51 0°50'22	
evening set	4860 Jun 27 10:27	24°☾06'00		max. Earth dist.	4866 Jul 28 11:55	8°♈11'50 30.85532 AU	
				morning rise	4866 Aug 13 08:01	8°♈47'02	
conjunction	4860 Jul 13 13:33	24°☾41'57 -1°05'26		retrograde	4866 Nov 11 13:22	10°♈43'58	
minimum elong	4860 Jul 13 13:33	24°☾41'58 1°05'27		opposition	4867 Jan 29 06:54	9°♈19'14 -0°52'20	
max. Earth dist.	4860 Jul 14 04:59	24°☾43'24 30.83414 AU		min. Earth dist.	4867 Jan 28 21:35	9°♈19'54 28.85881 AU	
morning rise	4860 Jul 29 18:35	25°☾18'08		direct	4867 Apr 17 04:23	7°♈54'51	
retrograde	4860 Oct 28 09:51	27°☾15'55		evening set	4867 Jul 14 09:42	9°♈49'11	
opposition	4861 Jan 15 12:30	25°☾51'04 -1°08'44					
min. Earth dist.	4861 Jan 14 23:26	25°☾51'59 28.83634 AU		conjunction	4867 Jul 30 15:19	10°♈25'14 -0°47'33	
direct	4861 Apr 03 04:46	24°☾27'02		minimum elong	4867 Jul 30 15:19	10°♈25'14 0°47'34	
evening set	4861 Jun 30 00:15	26°☾21'13		max. Earth dist.	4867 Jul 31 02:18	10°♈26'15 30.86206 AU	
				morning rise	4867 Aug 15 22:05	11°♈01'26	
conjunction	4861 Jul 16 03:36	26°☾57'12 -1°03'09		retrograde	4867 Nov 14 00:46	12°♈58'15	

opposition	4868 Jan 31 17:38	11° Ω 33'35	-0°49'18	direct	4874 May 02 16:26	23° Ω 36'22	
min. Earth dist.	4868 Jan 31 08:08	11° Ω 34'15	28.86616 AU	evening set	4874 Jul 30 10:16	25° Ω 31'06	
direct	4868 Apr 18 16:48	10° Ω 09'11					
evening set	4868 Jul 15 23:26	12° Ω 03'35		conjunction	4874 Aug 15 17:27	26° Ω 07'13	-0°26'12
				minimum elong	4874 Aug 15 17:27	26° Ω 07'13	0°26'13
conjunction	4868 Aug 01 05:12	12° Ω 39'39	-0°44'41	max. Earth dist.	4874 Aug 15 21:46	26° Ω 07'37	30.92082 AU
minimum elong	4868 Aug 01 05:12	12° Ω 39'39	0°44'42	morning rise	4874 Sep 01 01:00	26° Ω 43'23	
max. Earth dist.	4868 Aug 01 14:33	12° Ω 40'31	30.87014 AU	retrograde	4874 Nov 29 18:19	28° Ω 39'21	
morning rise	4868 Aug 17 12:19	13° Ω 15'51		opposition	4875 Feb 15 20:59	27° Ω 15'10	-0°26'16
	4868 Oct 19 02:55	15° Ω		min. Earth dist.	4875 Feb 15 16:56	27° Ω 15'27	28.92406 AU
retrograde	4868 Nov 15 13:36	15° Ω 12'34		direct	4875 May 05 05:25	25° Ω 50'38	
	4868 Dec 13 07:27	15° $\kappa\Omega$		evening set	4875 Aug 02 00:08	27° Ω 45'23	
opposition	4869 Feb 02 04:30	13° Ω 47'59	-0°46'11				
min. Earth dist.	4869 Feb 01 19:49	13° Ω 48'36	28.87483 AU	conjunction	4875 Aug 18 07:22	28° Ω 21'30	-0°22'58
direct	4869 Apr 21 02:54	12° Ω 23'34		minimum elong	4875 Aug 18 07:22	28° Ω 21'30	0°22'59
evening set	4869 Jul 18 13:04	14° Ω 18'03		max. Earth dist.	4875 Aug 18 10:21	28° Ω 21'46	30.92719 AU
				morning rise	4875 Sep 03 14:59	28° Ω 57'39	
conjunction	4869 Aug 03 19:14	14° Ω 54'08	-0°41'44		4875 Oct 05 02:42	0° η	
minimum elong	4869 Aug 03 19:14	14° Ω 54'08	0°41'44	retrograde	4875 Dec 02 04:24	0° η 53'26	
max. Earth dist.	4869 Aug 04 05:02	14° Ω 55'03	30.87923 AU		4876 Jan 30 19:10	30° $\kappa\Omega$	
	4869 Aug 06 10:02	15° Ω		opposition	4876 Feb 18 07:32	29° Ω 29'17	-0°22'48
morning rise	4869 Aug 20 02:18	15° Ω 30'20		min. Earth dist.	4876 Feb 18 05:11	29° Ω 29'27	28.93047 AU
retrograde	4869 Nov 18 01:15	17° Ω 26'57		direct	4876 May 06 16:10	28° Ω 04'40	
opposition	4870 Feb 04 15:15	16° Ω 02'29	-0°43'01	evening set	4876 Aug 03 13:49	29° Ω 59'27	
min. Earth dist.	4870 Feb 04 07:16	16° Ω 03'03	28.88412 AU		4876 Aug 03 19:56	0° η	
	4870 Mar 18 00:37	15° $\kappa\Omega$					
direct	4870 Apr 23 14:35	14° Ω 38'05		conjunction	4876 Aug 19 21:20	0° η 35'33	-0°19'43
	4870 May 29 20:01	15° Ω		minimum elong	4876 Aug 19 21:20	0° η 35'33	0°19'43
evening set	4870 Jul 21 02:55	16° Ω 32'39		max. Earth dist.	4876 Aug 20 00:16	0° η 35'49	30.93371 AU
				morning rise	4876 Sep 05 04:51	1° η 11'40	
conjunction	4870 Aug 06 09:11	17° Ω 08'44	-0°38'44	retrograde	4876 Dec 03 15:12	3° η 07'18	
minimum elong	4870 Aug 06 09:11	17° Ω 08'44	0°38'44	opposition	4877 Feb 19 17:57	1° η 43'10	-0°19'18
max. Earth dist.	4870 Aug 06 17:06	17° Ω 09'28	30.88878 AU	min. Earth dist.	4877 Feb 19 15:42	1° η 43'20	28.93708 AU
morning rise	4870 Aug 22 16:32	17° Ω 44'56		direct	4877 May 09 04:45	0° η 18'29	
retrograde	4870 Nov 20 15:35	19° Ω 41'27		evening set	4877 Aug 06 03:33	2° η 13'16	
opposition	4871 Feb 07 02:01	18° Ω 17'04	-0°39'46				
min. Earth dist.	4871 Feb 06 18:31	18° Ω 17'36	28.89366 AU	conjunction	4877 Aug 22 10:58	2° η 49'22	-0°16'26
direct	4871 Apr 26 03:04	16° Ω 52'41		minimum elong	4877 Aug 22 10:58	2° η 49'22	0°16'26
evening set	4871 Jul 23 16:39	18° Ω 47'19		max. Earth dist.	4877 Aug 22 12:12	2° η 49'28	30.94062 AU
				morning rise	4877 Sep 07 18:33	3° η 25'28	
conjunction	4871 Aug 08 23:17	19° Ω 23'25	-0°35'40	retrograde	4877 Dec 06 02:40	5° η 20'56	
minimum elong	4871 Aug 08 23:17	19° Ω 23'25	0°35'40	opposition	4878 Feb 22 04:23	3° η 56'50	-0°15'46
max. Earth dist.	4871 Aug 09 07:11	19° Ω 24'09	30.89801 AU	min. Earth dist.	4878 Feb 22 02:57	3° η 56'56	28.94451 AU
morning rise	4871 Aug 25 06:36	19° Ω 59'37		direct	4878 May 11 14:37	2° η 32'05	
retrograde	4871 Nov 23 03:11	21° Ω 56'02		evening set	4878 Aug 08 17:05	4° η 26'53	
opposition	4872 Feb 09 12:55	20° Ω 31'43	-0°36'28				
min. Earth dist.	4872 Feb 09 07:03	20° Ω 32'08	28.90250 AU	conjunction	4878 Aug 25 00:44	5° η 02'58	-0°13'08
direct	4872 Apr 27 15:45	19° Ω 07'19		minimum elong	4878 Aug 25 00:44	5° η 02'58	0°13'08
evening set	4872 Jul 25 06:40	21° Ω 02'01		behind sun begin	4878 Aug 24 20:57	5° η 02'38	
				behind sun end	4878 Aug 25 04:31	5° η 03'18	
conjunction	4872 Aug 10 13:26	21° Ω 38'07	-0°32'34	max. Earth dist.	4878 Aug 25 02:26	5° η 03'07	30.94855 AU
minimum elong	4872 Aug 10 13:26	21° Ω 38'07	0°32'34	morning rise	4878 Sep 10 08:06	5° η 39'03	
max. Earth dist.	4872 Aug 10 19:30	21° Ω 38'41	30.90652 AU	retrograde	4878 Dec 08 12:28	7° η 34'21	
morning rise	4872 Aug 26 20:57	22° Ω 14'18		opposition	4879 Feb 24 14:44	6° η 10'18	-0°12'13
retrograde	4872 Nov 24 17:04	24° Ω 10'35		min. Earth dist.	4879 Feb 24 13:49	6° η 10'22	28.95301 AU
opposition	4873 Feb 10 23:33	22° Ω 46'20	-0°33'06	direct	4879 May 14 02:44	4° η 45'30	
min. Earth dist.	4873 Feb 10 17:47	22° Ω 46'45	28.91049 AU	evening set	4879 Aug 11 06:41	6° η 40'20	
direct	4873 Apr 30 04:29	21° Ω 21'54					
evening set	4873 Jul 27 20:37	23° Ω 16'38		conjunction	4879 Aug 27 14:15	7° η 16'24	-0°09'48
				minimum elong	4879 Aug 27 14:15	7° η 16'24	0°09'48
conjunction	4873 Aug 13 03:35	23° Ω 52'45	-0°29'24	behind sun begin	4879 Aug 27 08:55	7° η 15'55	
minimum elong	4873 Aug 13 03:35	23° Ω 52'45	0°29'24	behind sun end	4879 Aug 27 19:36	7° η 16'52	
max. Earth dist.	4873 Aug 13 08:49	23° Ω 53'14	30.91398 AU	max. Earth dist.	4879 Aug 27 14:17	7° η 16'24	30.95781 AU
morning rise	4873 Aug 29 11:05	24° Ω 28'55		morning rise	4879 Sep 12 21:44	7° η 52'28	
retrograde	4873 Nov 27 05:12	26° Ω 25'03		retrograde	4879 Dec 11 00:44	9° η 47'38	
opposition	4874 Feb 13 10:25	25° Ω 00'50	-0°29'43	opposition	4880 Feb 27 01:06	8° η 23'37	-0°08'39
min. Earth dist.	4874 Feb 13 06:29	25° Ω 01'07	28.91756 AU	min. Earth dist.	4880 Feb 27 00:15	8° η 23'41	28.96298 AU

direct	4880 May 15 14:31	6° \mathring{M} 58'48		behind sun end	4885 Sep 10 05:15	20° \mathring{M} 37'20	
evening set	4880 Aug 12 20:17	8° \mathring{M} 53'41		max. Earth dist.	4885 Sep 09 20:03	20° \mathring{M} 36'31	31.02827 AU
				morning rise	4885 Sep 26 06:27	21° \mathring{M} 12'48	
conjunction	4880 Aug 29 04:02	9° \mathring{M} 29'44	-0°06'29	retrograde	4885 Dec 23 23:16	23° \mathring{M} 07'18	
minimum elong	4880 Aug 29 04:01	9° \mathring{M} 29'44	0°06'29	opposition	4886 Mar 11 15:19	21° \mathring{M} 43'51	0°12'49
behind sun begin	4880 Aug 28 21:50	9° \mathring{M} 29'11		min. Earth dist.	4886 Mar 11 19:19	21° \mathring{M} 43'34	29.03331 AU
behind sun end	4880 Aug 29 10:13	9° \mathring{M} 30'17		direct	4886 May 29 14:38	20° \mathring{M} 19'05	
max. Earth dist.	4880 Aug 29 04:28	9° \mathring{M} 29'46	30.96840 AU	evening set	4886 Aug 27 06:24	22° \mathring{M} 14'19	
morning rise	4880 Sep 14 11:14	10° \mathring{M} 05'46					
retrograde	4880 Dec 12 11:11	12° \mathring{M} 00'49		conjunction	4886 Sep 12 13:37	22° \mathring{M} 50'18	0°13'42
opposition	4881 Feb 28 11:27	10° \mathring{M} 36'54	-0°05'05	minimum elong	4886 Sep 12 13:37	22° \mathring{M} 50'18	0°13'42
min. Earth dist.	4881 Feb 28 11:51	10° \mathring{M} 36'52	28.97420 AU	behind sun begin	4886 Sep 12 10:13	22° \mathring{M} 50'00	
direct	4881 May 18 02:16	9° \mathring{M} 12'04		behind sun end	4886 Sep 12 17:00	22° \mathring{M} 50'36	
evening set	4881 Aug 15 09:58	11° \mathring{M} 07'01		max. Earth dist.	4886 Sep 12 07:31	22° \mathring{M} 49'45	31.03808 AU
				morning rise	4886 Sep 28 19:50	23° \mathring{M} 26'12	
conjunction	4881 Aug 31 17:35	11° \mathring{M} 43'03	-0°03'08	retrograde	4886 Dec 26 10:40	25° \mathring{M} 20'35	
minimum elong	4881 Aug 31 17:36	11° \mathring{M} 43'03	0°03'08	opposition	4887 Mar 14 01:38	23° \mathring{M} 57'11	0°16'21
behind sun begin	4881 Aug 31 11:02	11° \mathring{M} 42'29		min. Earth dist.	4887 Mar 14 06:46	23° \mathring{M} 56'49	29.04277 AU
behind sun end	4881 Sep 01 00:10	11° \mathring{M} 43'38		direct	4887 Jun 01 00:24	22° \mathring{M} 32'23	
max. Earth dist.	4881 Aug 31 16:42	11° \mathring{M} 43'01	30.98032 AU	evening set	4887 Aug 29 19:54	24° \mathring{M} 27'39	
morning rise	4881 Sep 17 00:48	12° \mathring{M} 19'05					
retrograde	4881 Dec 15 00:32	14° \mathring{M} 14'01		conjunction	4887 Sep 15 03:11	25° \mathring{M} 03'37	0°16'59
opposition	4882 Mar 02 21:45	12° \mathring{M} 50'11	-0°01'29	minimum elong	4887 Sep 15 03:11	25° \mathring{M} 03'37	0°16'59
min. Earth dist.	4882 Mar 02 21:49	12° \mathring{M} 50'11	28.98653 AU	max. Earth dist.	4887 Sep 14 21:06	25° \mathring{M} 03'04	31.04709 AU
direct	4882 May 20 14:32	11° \mathring{M} 25'23		morning rise	4887 Oct 01 09:01	25° \mathring{M} 39'29	
asc. node	4882 Aug 02 05:12	12° \mathring{M} 47'30		retrograde	4887 Dec 28 19:52	27° \mathring{M} 33'44	
evening set	4882 Aug 17 23:27	13° \mathring{M} 20'24		opposition	4888 Mar 15 11:59	26° \mathring{M} 10'23	0°19'51
				min. Earth dist.	4888 Mar 15 18:05	26° \mathring{M} 09'57	29.05135 AU
conjunction	4882 Sep 03 07:07	13° \mathring{M} 56'26	0°00'18	direct	4888 Jun 02 12:51	24° \mathring{M} 45'33	
minimum elong	4882 Sep 03 07:06	13° \mathring{M} 56'26	0°00'18	evening set	4888 Aug 31 09:34	26° \mathring{M} 40'51	
behind sun begin	4882 Sep 03 00:32	13° \mathring{M} 55'51					
behind sun end	4882 Sep 03 13:40	13° \mathring{M} 57'01		conjunction	4888 Sep 16 16:31	27° \mathring{M} 16'47	0°20'14
max. Earth dist.	4882 Sep 03 05:54	13° \mathring{M} 56'23	30.99286 AU	minimum elong	4888 Sep 16 16:31	27° \mathring{M} 16'47	0°20'15
morning rise	4882 Sep 19 14:05	14° \mathring{M} 32'26		max. Earth dist.	4888 Sep 16 08:22	27° \mathring{M} 16'02	31.05548 AU
retrograde	4882 Dec 17 12:21	16° \mathring{M} 27'16		morning rise	4888 Oct 02 22:13	27° \mathring{M} 52'37	
opposition	4883 Mar 05 08:12	15° \mathring{M} 03'32	0°02'06	retrograde	4888 Dec 30 07:06	29° \mathring{M} 46'43	
min. Earth dist.	4883 Mar 05 10:01	15° \mathring{M} 03'25	28.99921 AU	opposition	4889 Mar 17 22:09	28° \mathring{M} 23'25	0°23'20
direct	4883 May 23 02:19	13° \mathring{M} 38'46		min. Earth dist.	4889 Mar 18 04:36	28° \mathring{M} 22'58	29.05967 AU
evening set	4883 Aug 20 13:10	15° \mathring{M} 33'51		direct	4889 Jun 05 00:24	26° \mathring{M} 58'32	
				evening set	4889 Sep 02 22:56	28° \mathring{M} 53'51	
conjunction	4883 Sep 05 20:46	16° \mathring{M} 09'53	0°03'43				
minimum elong	4883 Sep 05 20:47	16° \mathring{M} 09'53	0°03'43	conjunction	4889 Sep 19 05:51	29° \mathring{M} 29'46	0°23'28
behind sun begin	4883 Sep 05 14:16	16° \mathring{M} 09'18		minimum elong	4889 Sep 19 05:50	29° \mathring{M} 29'46	0°23'28
behind sun end	4883 Sep 06 03:19	16° \mathring{M} 10'27		max. Earth dist.	4889 Sep 18 22:01	29° \mathring{M} 29'03	31.06370 AU
max. Earth dist.	4883 Sep 05 18:33	16° \mathring{M} 09'43	31.00551 AU		4889 Oct 02 21:40	0° \mathring{A}	
morning rise	4883 Sep 22 03:38	16° \mathring{M} 45'51		morning rise	4889 Oct 05 11:05	0° \mathring{A} 05'34	
retrograde	4883 Dec 20 01:17	18° \mathring{M} 40'35		retrograde	4890 Jan 01 16:40	1° \mathring{A} 59'33	
opposition	4884 Mar 06 18:25	17° \mathring{M} 16'58	0°05'41	opposition	4890 Mar 20 08:29	0° \mathring{A} 36'16	0°26'46
min. Earth dist.	4884 Mar 06 20:14	17° \mathring{M} 16'50	29.01154 AU	min. Earth dist.	4890 Mar 20 16:18	0° \mathring{A} 35'43	29.06802 AU
direct	4884 May 24 15:20	15° \mathring{M} 52'12			4890 Apr 11 12:38	30° \mathring{R} \mathring{M}	
evening set	4884 Aug 22 03:02	17° \mathring{M} 47'22		direct	4890 Jun 07 11:42	29° \mathring{M} 11'21	
					4890 Aug 02 04:40	0° \mathring{A}	
conjunction	4884 Sep 07 10:31	18° \mathring{M} 23'23	0°07'04	evening set	4890 Sep 05 12:08	1° \mathring{A} 06'41	
minimum elong	4884 Sep 07 10:31	18° \mathring{M} 23'23	0°07'04				
behind sun begin	4884 Sep 07 04:26	18° \mathring{M} 22'50		conjunction	4890 Sep 21 18:45	1° \mathring{A} 42'34	0°26'40
behind sun end	4884 Sep 07 16:35	18° \mathring{M} 23'55		minimum elong	4890 Sep 21 18:45	1° \mathring{A} 42'34	0°26'40
max. Earth dist.	4884 Sep 07 06:49	18° \mathring{M} 23'04	31.01736 AU	max. Earth dist.	4890 Sep 21 09:35	1° \mathring{A} 41'44	31.07233 AU
morning rise	4884 Sep 23 17:09	18° \mathring{M} 59'20		morning rise	4890 Oct 07 23:51	2° \mathring{A} 18'20	
retrograde	4884 Dec 21 12:08	20° \mathring{M} 53'57		retrograde	4891 Jan 04 04:48	4° \mathring{A} 12'11	
opposition	4885 Mar 09 04:56	19° \mathring{M} 30'25	0°09'16	opposition	4891 Mar 22 18:38	2° \mathring{A} 48'57	0°30'09
min. Earth dist.	4885 Mar 09 08:34	19° \mathring{M} 30'10	29.02301 AU	min. Earth dist.	4891 Mar 23 02:02	2° \mathring{A} 48'25	29.07697 AU
direct	4885 May 27 02:01	18° \mathring{M} 05'40		direct	4891 Jun 10 00:18	1° \mathring{A} 23'59	
evening set	4885 Aug 24 16:39	20° \mathring{M} 00'52		evening set	4891 Sep 08 01:23	3° \mathring{A} 19'21	
conjunction	4885 Sep 10 00:07	20° \mathring{M} 36'52	0°10'23	conjunction	4891 Sep 24 07:50	3° \mathring{A} 55'13	0°29'49
minimum elong	4885 Sep 10 00:07	20° \mathring{M} 36'52	0°10'23	minimum elong	4891 Sep 24 07:50	3° \mathring{A} 55'13	0°29'48
behind sun begin	4885 Sep 09 18:59	20° \mathring{M} 36'25		max. Earth dist.	4891 Sep 23 22:35	3° \mathring{A} 54'22	31.08159 AU

morning rise	4891 Oct 10 12:29	4° <u>♂</u> 30'56	conjunction	4898 Oct 10 01:42	19° <u>♂</u> 22'30	0°50'21
retrograde	4892 Jan 06 15:41	6° <u>♂</u> 24'40	minimum elong	4898 Oct 10 01:42	19° <u>♂</u> 22'30	0°50'21
opposition	4892 Mar 24 04:49	5° <u>♂</u> 01'28 0°33'29	morning rise	4898 Oct 26 03:29	19° <u>♂</u> 57'59	
min. Earth dist.	4892 Mar 24 13:38	5° <u>♂</u> 00'51 29.08682 AU	retrograde	4899 Jan 21 18:04	21° <u>♂</u> 51'04	
direct	4892 Jun 11 12:44	3° <u>♂</u> 36'30	opposition	4899 Apr 09 04:52	20° <u>♂</u> 28'22	0°55'12
evening set	4892 Sep 09 14:37	5° <u>♂</u> 31'54	min. Earth dist.	4899 Apr 09 18:22	20° <u>♂</u> 27'25	29.16435 AU
			direct	4899 Jun 27 22:08	19° <u>♂</u> 03'27	
conjunction	4892 Sep 25 20:48	6° <u>♂</u> 07'44 0°32'55	evening set	4899 Sep 26 10:27	20° <u>♂</u> 59'07	
minimum elong	4892 Sep 25 20:48	6° <u>♂</u> 07'44 0°32'55				
max. Earth dist.	4892 Sep 25 10:53	6° <u>♂</u> 06'49 31.09202 AU	conjunction	4899 Oct 12 14:20	21° <u>♂</u> 34'45	0°53'00
morning rise	4892 Oct 12 01:09	6° <u>♂</u> 43'25	minimum elong	4899 Oct 12 14:20	21° <u>♂</u> 34'45	0°53'00
retrograde	4893 Jan 08 03:36	8° <u>♂</u> 37'02	max. Earth dist.	4899 Oct 11 22:43	21° <u>♂</u> 33'18	31.16794 AU
opposition	4893 Mar 26 15:00	7° <u>♂</u> 13'54 0°36'47	morning rise	4899 Oct 28 15:49	22° <u>♂</u> 10'11	
min. Earth dist.	4893 Mar 26 23:15	7° <u>♂</u> 13'19 29.09775 AU	retrograde	4900 Jan 24 05:11	24° <u>♂</u> 03'09	
direct	4893 Jun 14 02:18	5° <u>♂</u> 48'56	opposition	4900 Apr 11 15:03	22° <u>♂</u> 40'30	0°58'00
evening set	4893 Sep 12 03:43	7° <u>♂</u> 44'23	min. Earth dist.	4900 Apr 12 04:23	22° <u>♂</u> 39'34	29.17192 AU
			direct	4900 Jun 30 10:49	21° <u>♂</u> 15'33	
conjunction	4893 Sep 28 09:34	8° <u>♂</u> 20'11 0°35'58	evening set	4900 Sep 28 23:22	23° <u>♂</u> 11'13	
minimum elong	4893 Sep 28 09:34	8° <u>♂</u> 20'11 0°35'58	max. Earth dist.	4900 Oct 14 11:03	23° <u>♂</u> 45'20	31.17492 AU
max. Earth dist.	4893 Sep 27 22:57	8° <u>♂</u> 19'12 31.10343 AU				
morning rise	4893 Oct 14 13:31	8° <u>♂</u> 53'50	conjunction	4900 Oct 15 02:57	23° <u>♂</u> 46'49	0°55'35
retrograde	4894 Jan 10 14:20	10° <u>♂</u> 49'22	minimum elong	4900 Oct 15 02:57	23° <u>♂</u> 46'49	0°55'36
opposition	4894 Mar 29 01:18	9° <u>♂</u> 26'19 0°40'01	morning rise	4900 Oct 31 03:51	24° <u>♂</u> 22'12	
min. Earth dist.	4894 Mar 29 10:47	9° <u>♂</u> 25'39 29.10971 AU	retrograde	4901 Jan 26 15:14	26° <u>♂</u> 15'05	
direct	4894 Jun 16 12:51	8° <u>♂</u> 01'22	opposition	4901 Apr 14 01:30	24° <u>♂</u> 52'26	1°00'43
evening set	4894 Sep 14 16:47	9° <u>♂</u> 56'52	min. Earth dist.	4901 Apr 14 16:27	24° <u>♂</u> 51'23	29.17859 AU
			direct	4901 Jul 02 23:00	23° <u>♂</u> 27'27	
conjunction	4894 Sep 30 22:27	10° <u>♂</u> 32'39 0°38'58	evening set	4901 Oct 01 12:01	25° <u>♂</u> 23'07	
minimum elong	4894 Sep 30 22:27	10° <u>♂</u> 32'39 0°38'59				
max. Earth dist.	4894 Sep 30 11:57	10° <u>♂</u> 31'41 31.11574 AU	conjunction	4901 Oct 17 15:10	25° <u>♂</u> 58'40	0°58'05
morning rise	4894 Oct 17 01:59	11° <u>♂</u> 08'16	minimum elong	4901 Oct 17 15:10	25° <u>♂</u> 58'40	0°58'05
retrograde	4895 Jan 13 01:49	13° <u>♂</u> 01'42	max. Earth dist.	4901 Oct 16 22:32	25° <u>♂</u> 57'08	31.18133 AU
opposition	4895 Mar 31 11:24	11° <u>♂</u> 38'45 0°43'12	morning rise	4901 Nov 02 15:40	26° <u>♂</u> 34'01	
min. Earth dist.	4895 Mar 31 21:03	11° <u>♂</u> 38'04 29.12208 AU	retrograde	4902 Jan 29 02:16	28° <u>♂</u> 26'48	
direct	4895 Jun 19 01:49	10° <u>♂</u> 13'50	opposition	4902 Apr 16 11:45	27° <u>♂</u> 04'09	1°03'20
evening set	4895 Sep 17 06:03	12° <u>♂</u> 09'23	min. Earth dist.	4902 Apr 17 02:17	27° <u>♂</u> 03'08	29.18478 AU
			direct	4902 Jul 05 12:38	25° <u>♂</u> 39'08	
conjunction	4895 Oct 03 11:18	12° <u>♂</u> 45'08 0°41'55	evening set	4902 Oct 04 00:40	27° <u>♂</u> 34'49	
minimum elong	4895 Oct 03 11:18	12° <u>♂</u> 45'08 0°41'55	max. Earth dist.	4902 Oct 19 10:01	28° <u>♂</u> 08'43	31.18741 AU
max. Earth dist.	4895 Oct 02 23:09	12° <u>♂</u> 44'01 31.12805 AU				
morning rise	4895 Oct 19 14:32	13° <u>♂</u> 20'44	conjunction	4902 Oct 20 03:23	28° <u>♂</u> 10'20	1°00'30
retrograde	4896 Jan 15 13:02	15° <u>♂</u> 14'05	minimum elong	4902 Oct 20 03:23	28° <u>♂</u> 10'20	1°00'31
opposition	4896 Apr 01 21:42	13° <u>♂</u> 51'13 0°46'18	morning rise	4902 Nov 05 03:25	28° <u>♂</u> 45'38	
min. Earth dist.	4896 Apr 02 08:16	13° <u>♂</u> 50'28 29.13429 AU		4902 Dec 14 08:12	0° <u>♂</u>	
direct	4896 Jun 20 12:04	12° <u>♂</u> 26'19	retrograde	4903 Jan 31 12:38	0° <u>♂</u> 38'19	
evening set	4896 Sep 18 19:11	14° <u>♂</u> 21'55		4903 Mar 21 23:26	30° <u>♂</u>	
			opposition	4903 Apr 18 21:59	29° <u>♂</u> 15'41	1°05'52
conjunction	4896 Oct 05 00:14	14° <u>♂</u> 57'39 0°44'47	min. Earth dist.	4903 Apr 19 13:44	29° <u>♂</u> 14'35	29.19111 AU
minimum elong	4896 Oct 05 00:14	14° <u>♂</u> 57'39 0°44'48	direct	4903 Jul 07 23:41	27° <u>♂</u> 50'38	
max. Earth dist.	4896 Oct 04 12:15	14° <u>♂</u> 56'32 31.13977 AU	evening set	4903 Oct 06 13:09	29° <u>♂</u> 46'19	
morning rise	4896 Oct 21 02:53	15° <u>♂</u> 33'12		4903 Oct 12 19:40	0° <u>♂</u>	
retrograde	4897 Jan 16 21:51	17° <u>♂</u> 26'28				
opposition	4897 Apr 04 08:03	16° <u>♂</u> 03'41 0°49'21	conjunction	4903 Oct 22 15:33	0° <u>♂</u> 21'48	1°02'49
min. Earth dist.	4897 Apr 04 19:37	16° <u>♂</u> 02'52 29.14549 AU	minimum elong	4903 Oct 22 15:33	0° <u>♂</u> 21'48	1°02'49
direct	4897 Jun 23 00:30	14° <u>♂</u> 38'48	max. Earth dist.	4903 Oct 21 22:30	0° <u>♂</u> 20'13	31.19393 AU
evening set	4897 Sep 21 08:26	16° <u>♂</u> 34'26	morning rise	4903 Nov 07 15:04	0° <u>♂</u> 57'03	
			retrograde	4904 Feb 02 23:19	2° <u>♂</u> 49'39	
conjunction	4897 Oct 07 12:59	17° <u>♂</u> 10'07 0°47'36	opposition	4904 Apr 20 08:17	1° <u>♂</u> 27'03	1°08'18
minimum elong	4897 Oct 07 12:58	17° <u>♂</u> 10'07 0°47'36	min. Earth dist.	4904 Apr 20 23:51	1° <u>♂</u> 25'58	29.19790 AU
max. Earth dist.	4897 Oct 06 22:55	17° <u>♂</u> 08'49 31.15043 AU	direct	4904 Jul 09 13:24	0° <u>♂</u> 01'59	
morning rise	4897 Oct 23 15:21	17° <u>♂</u> 45'38	evening set	4904 Oct 08 01:38	1° <u>♂</u> 57'41	
retrograde	4898 Jan 19 08:48	19° <u>♂</u> 38'49	max. Earth dist.	4904 Oct 23 09:18	2° <u>♂</u> 31'27	31.20112 AU
opposition	4898 Apr 06 18:25	18° <u>♂</u> 16'05 0°52'19				
min. Earth dist.	4898 Apr 07 06:15	18° <u>♂</u> 15'15 29.15563 AU	conjunction	4904 Oct 24 03:27	2° <u>♂</u> 33'08	1°05'03
direct	4898 Jun 25 11:10	16° <u>♂</u> 51'11	minimum elong	4904 Oct 24 03:26	2° <u>♂</u> 33'08	1°05'04
evening set	4898 Sep 23 21:20	18° <u>♂</u> 46'50	morning rise	4904 Nov 09 02:32	3° <u>♂</u> 08'21	
max. Earth dist.	4898 Oct 09 11:47	19° <u>♂</u> 21'13 31.15980 AU	retrograde	4905 Feb 04 09:57	5° <u>♂</u> 00'52	

opposition	4905 Apr 22 18:36	3° ℓ 38'19	1°10'38	conjunction	4911 Nov 09 13:35	17° ℓ 53'01	1°17'49
min. Earth dist.	4905 Apr 23 10:22	3° ℓ 37'13	29.20576 AU	minimum elong	4911 Nov 09 13:35	17° ℓ 53'01	1°17'49
direct	4905 Jul 12 00:05	2° ℓ 13'16		max. Earth dist.	4911 Nov 08 16:57	17° ℓ 51'07	31.26112 AU
evening set	4905 Oct 10 13:53	4° ℓ 08'59		morning rise	4911 Nov 25 09:06	18° ℓ 28'00	
				retrograde	4912 Feb 20 08:34	20° ℓ 20'17	
conjunction	4905 Oct 26 15:25	4° ℓ 44'24	1°07'11	opposition	4912 May 07 19:57	18° ℓ 58'09	1°23'53
minimum elong	4905 Oct 26 15:25	4° ℓ 44'24	1°07'11	min. Earth dist.	4912 May 08 14:56	18° ℓ 56'50	29.26465 AU
max. Earth dist.	4905 Oct 25 22:09	4° ℓ 42'48	31.20950 AU	direct	4912 Jul 27 07:32	17° ℓ 33'17	
morning rise	4905 Nov 11 13:52	5° ℓ 19'35		evening set	4912 Oct 26 02:50	19° ℓ 29'12	
retrograde	4906 Feb 06 18:21	7° ℓ 12'03		max. Earth dist.	4912 Nov 10 04:40	20° ℓ 02'29	31.26628 AU
opposition	4906 Apr 25 04:58	5° ℓ 49'34	1°12'51				
min. Earth dist.	4906 Apr 25 21:06	5° ℓ 48'27	29.21464 AU	conjunction	4912 Nov 11 01:04	20° ℓ 04'23	1°19'13
direct	4906 Jul 14 12:13	4° ℓ 24'33		minimum elong	4912 Nov 11 01:04	20° ℓ 04'23	1°19'14
evening set	4906 Oct 13 02:06	6° ℓ 20'18		morning rise	4912 Nov 26 20:01	20° ℓ 39'19	
max. Earth dist.	4906 Oct 28 08:29	6° ℓ 53'58	31.21887 AU	retrograde	4913 Feb 21 19:29	22° ℓ 31'32	
				opposition	4913 May 10 06:37	21° ℓ 09'25	1°25'18
conjunction	4906 Oct 29 03:04	6° ℓ 55'41	1°09'13	min. Earth dist.	4913 May 11 01:38	21° ℓ 08'06	29.26918 AU
minimum elong	4906 Oct 29 03:03	6° ℓ 55'41	1°09'14	direct	4913 Jul 29 22:05	19° ℓ 44'32	
morning rise	4906 Nov 14 01:13	7° ℓ 30'50		evening set	4913 Oct 28 14:45	21° ℓ 40'26	
retrograde	4907 Feb 09 04:58	9° ℓ 23'16					
opposition	4907 Apr 27 15:14	8° ℓ 00'52	1°14'58	conjunction	4913 Nov 13 12:23	22° ℓ 15'34	1°20'29
min. Earth dist.	4907 Apr 28 07:05	7° ℓ 59'46	29.22435 AU	minimum elong	4913 Nov 13 12:23	22° ℓ 15'34	1°20'30
direct	4907 Jul 16 22:15	6° ℓ 35'53		max. Earth dist.	4913 Nov 12 14:45	22° ℓ 13'34	31.27037 AU
evening set	4907 Oct 15 14:18	8° ℓ 31'42		morning rise	4913 Nov 29 06:57	22° ℓ 50'28	
				retrograde	4914 Feb 24 05:56	24° ℓ 42'38	
conjunction	4907 Oct 31 14:57	9° ℓ 07'04	1°11'09	opposition	4914 May 12 17:12	23° ℓ 20'30	1°26'36
minimum elong	4907 Oct 31 14:57	9° ℓ 07'04	1°11'09	min. Earth dist.	4914 May 13 12:32	23° ℓ 19'10	29.27303 AU
max. Earth dist.	4907 Oct 30 21:06	9° ℓ 05'24	31.22864 AU	direct	4914 Aug 01 09:31	21° ℓ 55'35	
morning rise	4907 Nov 16 12:25	9° ℓ 42'11		evening set	4914 Oct 31 02:18	23° ℓ 51'27	
retrograde	4908 Feb 11 14:05	11° ℓ 34'35					
opposition	4908 Apr 29 01:40	10° ℓ 12'16	1°16'59	conjunction	4914 Nov 15 23:40	24° ℓ 26'34	1°21'39
min. Earth dist.	4908 Apr 29 18:50	10° ℓ 11'05	29.23411 AU	minimum elong	4914 Nov 15 23:39	24° ℓ 26'33	1°21'41
direct	4908 Jul 18 08:09	8° ℓ 47'20		max. Earth dist.	4914 Nov 15 02:50	24° ℓ 24'38	31.27390 AU
evening set	4908 Oct 17 02:36	10° ℓ 43'11		morning rise	4914 Dec 01 17:38	25° ℓ 01'25	
max. Earth dist.	4908 Nov 01 07:36	11° ℓ 16'45	31.23827 AU	retrograde	4915 Feb 26 14:13	26° ℓ 53'30	
				opposition	4915 May 15 03:52	25° ℓ 31'22	1°27'47
conjunction	4908 Nov 02 02:39	11° ℓ 18'31	1°12'59	min. Earth dist.	4915 May 15 23:44	25° ℓ 30'00	29.27635 AU
minimum elong	4908 Nov 02 02:38	11° ℓ 18'31	1°13'00	direct	4915 Aug 03 22:31	24° ℓ 06'26	
morning rise	4908 Nov 17 23:45	11° ℓ 53'36		evening set	4915 Nov 02 13:59	26° ℓ 02'15	
retrograde	4909 Feb 13 00:52	13° ℓ 45'59					
opposition	4909 May 01 12:08	12° ℓ 23'45	1°18'53	conjunction	4915 Nov 18 10:40	26° ℓ 37'19	1°22'42
min. Earth dist.	4909 May 02 04:45	12° ℓ 22'36	29.24344 AU	minimum elong	4915 Nov 18 10:40	26° ℓ 37'19	1°22'42
direct	4909 Jul 20 20:11	10° ℓ 58'51		max. Earth dist.	4915 Nov 17 12:41	26° ℓ 35'17	31.27726 AU
evening set	4909 Oct 19 14:36	12° ℓ 54'44		morning rise	4915 Dec 04 04:18	27° ℓ 12'08	
				retrograde	4916 Feb 29 00:31	29° ℓ 04'10	
conjunction	4909 Nov 04 14:15	13° ℓ 30'02	1°14'42	opposition	4916 May 16 14:25	27° ℓ 42'02	1°28'51
minimum elong	4909 Nov 04 14:15	13° ℓ 30'02	1°14'42	min. Earth dist.	4916 May 17 09:40	27° ℓ 40'42	29.27994 AU
max. Earth dist.	4909 Nov 03 19:15	13° ℓ 28'16	31.24704 AU	direct	4916 Aug 05 09:48	26° ℓ 17'03	
morning rise	4909 Nov 20 10:44	14° ℓ 05'05		evening set	4916 Nov 04 01:22	28° ℓ 12'51	
	4909 Dec 17 19:56	15° ℓ					
retrograde	4910 Feb 15 10:49	15° ℓ 57'27		conjunction	4916 Nov 19 21:43	28° ℓ 47'54	1°23'38
	4910 Apr 18 19:49	15° ℓ		minimum elong	4916 Nov 19 21:43	28° ℓ 47'54	1°23'39
opposition	4910 May 03 22:49	14° ℓ 35'15	1°20'40	max. Earth dist.	4916 Nov 19 00:52	28° ℓ 45'57	31.28108 AU
min. Earth dist.	4910 May 04 16:53	14° ℓ 34'00	29.25178 AU	morning rise	4916 Dec 05 14:41	29° ℓ 22'40	
direct	4910 Jul 23 07:25	13° ℓ 10'24			4916 Dec 23 13:53	0° ♂	
	4910 Oct 19 04:34	15° ℓ		retrograde	4917 Mar 02 08:58	1° ♂ 14'40	
evening set	4910 Oct 22 02:46	15° ℓ 06'18			4917 May 14 12:38	30° ℓ	
max. Earth dist.	4910 Nov 06 06:11	15° ℓ 39'43	31.25479 AU	opposition	4917 May 19 01:16	29° ℓ 52'31	1°29'46
				min. Earth dist.	4917 May 19 21:14	29° ℓ 51'09	29.28423 AU
conjunction	4910 Nov 07 01:55	15° ℓ 41'33	1°16'19	direct	4917 Aug 07 20:44	28° ℓ 27'34	
minimum elong	4910 Nov 07 01:55	15° ℓ 41'33	1°16'20		4917 Oct 26 12:09	0° ♂	
morning rise	4910 Nov 22 21:58	16° ℓ 16'34		evening set	4917 Nov 06 12:38	0° ♂ 23'20	
retrograde	4911 Feb 17 21:41	18° ℓ 08'54		max. Earth dist.	4917 Nov 21 11:05	0° ♂ 56'21	31.28594 AU
opposition	4911 May 06 09:14	16° ℓ 46'45	1°22'20				
min. Earth dist.	4911 May 07 02:59	16° ℓ 45'31	29.25884 AU	conjunction	4917 Nov 22 08:23	0° ♂ 58'20	1°24'26
direct	4911 Jul 25 20:08	15° ℓ 21'53		minimum elong	4917 Nov 22 08:23	0° ♂ 58'20	1°24'26
evening set	4911 Oct 24 14:56	17° ℓ 17'48		morning rise	4917 Dec 08 01:02	1° ♂ 33'05	

retrograde	4918 Mar 04 18:44	3°♂25'03		minimum elong	4924 Dec 07 11:22	16°♂13'03	1°26'39
opposition	4918 May 21 11:56	2°♂02'56	1°30'34	max. Earth dist.	4924 Dec 06 13:33	16°♂11'01	31.32232 AU
min. Earth dist.	4918 May 22 06:41	2°♂01'39	29.28959 AU	morning rise	4924 Dec 23 00:54	16°♂47'37	
direct	4918 Aug 10 08:21	0°♂38'00		retrograde	4925 Mar 19 20:27	18°♂39'44	
evening set	4918 Nov 08 23:53	2°♂33'46		opposition	4925 Jun 05 17:00	17°♂17'54	1°32'27
				min. Earth dist.	4925 Jun 06 12:29	17°♂16'34	29.32387 AU
conjunction	4918 Nov 24 19:17	3°♂08'45	1°25'07	direct	4925 Aug 25 18:11	15°♂53'18	
minimum elong	4918 Nov 24 19:16	3°♂08'45	1°25'08	evening set	4925 Nov 24 05:37	17°♂49'07	
max. Earth dist.	4918 Nov 23 22:34	3°♂06'49	31.29173 AU				
morning rise	4918 Dec 10 11:21	3°♂43'27		conjunction	4925 Dec 09 21:52	18°♂23'55	1°26'27
retrograde	4919 Mar 07 04:09	5°♂35'26		minimum elong	4925 Dec 09 21:52	18°♂23'55	1°26'27
opposition	4919 May 23 22:39	4°♂13'22	1°31'14	max. Earth dist.	4925 Dec 09 00:55	18°♂21'57	31.32321 AU
min. Earth dist.	4919 May 24 18:17	4°♂12'01	29.29584 AU	morning rise	4925 Dec 25 10:51	18°♂58'27	
direct	4919 Aug 12 18:22	2°♂48'28		retrograde	4926 Mar 22 05:17	20°♂50'35	
evening set	4919 Nov 11 11:11	4°♂44'15		opposition	4926 Jun 08 04:20	19°♂28'45	1°32'12
max. Earth dist.	4919 Nov 26 09:24	5°♂17'17	31.29832 AU	min. Earth dist.	4926 Jun 09 00:53	19°♂27'21	29.32410 AU
				direct	4926 Aug 28 05:43	18°♂04'09	
conjunction	4919 Nov 27 06:04	5°♂19'12	1°25'41	evening set	4926 Nov 26 16:32	19°♂59'55	
minimum elong	4919 Nov 27 06:04	5°♂19'12	1°25'41	max. Earth dist.	4926 Dec 11 10:39	20°♂32'40	31.32298 AU
morning rise	4919 Dec 12 21:44	5°♂53'54					
retrograde	4920 Mar 08 14:49	7°♂45'53		conjunction	4926 Dec 12 08:14	20°♂34'41	1°26'09
opposition	4920 May 25 09:29	6°♂23'52	1°31'46	minimum elong	4926 Dec 12 08:14	20°♂34'41	1°26'10
min. Earth dist.	4920 May 26 04:13	6°♂22'35	29.30247 AU	morning rise	4926 Dec 27 20:59	21°♂09'13	
direct	4920 Aug 14 06:11	4°♂59'02		retrograde	4927 Mar 24 14:34	23°♂01'20	
evening set	4920 Nov 12 22:21	6°♂54'51		opposition	4927 Jun 10 15:24	21°♂39'29	1°31'48
				min. Earth dist.	4927 Jun 11 10:57	21°♂38'09	29.32336 AU
conjunction	4920 Nov 28 16:43	7°♂29'46	1°26'07	direct	4927 Aug 30 17:40	20°♂14'52	
minimum elong	4920 Nov 28 16:43	7°♂29'46	1°26'09	evening set	4927 Nov 29 03:15	22°♂10'35	
max. Earth dist.	4920 Nov 27 19:45	7°♂27'49	31.30489 AU				
morning rise	4920 Dec 14 07:55	8°♂04'26		conjunction	4927 Dec 14 18:36	22°♂45'20	1°25'43
retrograde	4921 Mar 11 01:57	9°♂56'28		minimum elong	4927 Dec 14 18:36	22°♂45'20	1°25'43
opposition	4921 May 27 20:30	8°♂34'30	1°32'10	max. Earth dist.	4927 Dec 13 21:32	22°♂43'22	31.32190 AU
min. Earth dist.	4921 May 28 15:58	8°♂33'10	29.30898 AU	morning rise	4927 Dec 30 06:53	23°♂19'50	
direct	4921 Aug 16 16:56	7°♂09'45		retrograde	4928 Mar 25 23:41	25°♂11'58	
evening set	4921 Nov 15 09:28	9°♂05'34		opposition	4928 Jun 12 02:50	23°♂50'05	1°31'17
max. Earth dist.	4921 Nov 30 07:11	9°♂38'35	31.31108 AU	min. Earth dist.	4928 Jun 12 23:07	23°♂48'42	29.32222 AU
				direct	4928 Sep 01 03:40	22°♂25'27	
conjunction	4921 Dec 01 03:28	9°♂40'28	1°26'26	evening set	4928 Nov 30 13:43	24°♂21'07	
minimum elong	4921 Dec 01 03:28	9°♂40'28	1°26'27	max. Earth dist.	4928 Dec 15 08:02	24°♂53'55	31.32083 AU
morning rise	4921 Dec 16 18:10	10°♂15'06					
retrograde	4922 Mar 13 12:59	12°♂07'10		conjunction	4928 Dec 16 04:37	24°♂55'50	1°25'10
opposition	4922 May 30 07:27	10°♂45'16	1°32'26	minimum elong	4928 Dec 16 04:37	24°♂55'50	1°25'12
min. Earth dist.	4922 May 31 02:49	10°♂43'56	29.31466 AU	morning rise	4928 Dec 31 16:34	25°♂30'19	
direct	4922 Aug 19 06:29	9°♂20'33		retrograde	4929 Mar 28 09:38	27°♂22'28	
evening set	4922 Nov 17 20:41	11°♂16'24		opposition	4929 Jun 14 14:10	26°♂00'33	1°30'39
				min. Earth dist.	4929 Jun 15 09:09	25°♂59'15	29.32126 AU
conjunction	4922 Dec 03 14:06	11°♂51'16	1°26'37	direct	4929 Sep 03 15:16	24°♂35'55	
minimum elong	4922 Dec 03 14:06	11°♂51'16	1°26'39	evening set	4929 Dec 03 00:13	26°♂31'32	
max. Earth dist.	4922 Dec 02 16:42	11°♂49'17	31.31621 AU				
morning rise	4922 Dec 19 04:30	12°♂25'53		conjunction	4929 Dec 18 14:41	27°♂06'14	1°24'31
retrograde	4923 Mar 16 00:18	14°♂17'59		minimum elong	4929 Dec 18 14:41	27°♂06'14	1°24'31
opposition	4923 Jun 01 18:33	12°♂56'06	1°32'35	max. Earth dist.	4929 Dec 17 18:08	27°♂04'18	31.32018 AU
min. Earth dist.	4923 Jun 02 14:02	12°♂54'46	29.31923 AU	morning rise	4930 Jan 03 02:18	27°♂40'41	
direct	4923 Aug 21 17:33	11°♂31'27		retrograde	4930 Mar 30 20:32	29°♂32'52	
evening set	4923 Nov 20 07:44	13°♂27'18		opposition	4930 Jun 17 01:28	28°♂10'55	1°29'52
max. Earth dist.	4923 Dec 05 04:17	14°♂00'14	31.31999 AU	min. Earth dist.	4930 Jun 17 20:36	28°♂09'37	29.32112 AU
				direct	4930 Sep 06 02:09	26°♂46'18	
conjunction	4923 Dec 06 00:50	14°♂02'09	1°26'41	evening set	4930 Dec 05 10:34	28°♂41'54	
minimum elong	4923 Dec 06 00:50	14°♂02'09	1°26'41	max. Earth dist.	4930 Dec 20 05:31	29°♂14'47	31.32048 AU
morning rise	4923 Dec 21 14:38	14°♂36'44					
retrograde	4924 Mar 17 09:18	16°♂28'51		conjunction	4930 Dec 21 00:46	29°♂16'35	1°23'43
opposition	4924 Jun 03 05:46	15°♂07'01	1°32'35	minimum elong	4930 Dec 21 00:46	29°♂16'35	1°23'45
min. Earth dist.	4924 Jun 04 01:50	15°♂05'38	29.32222 AU	morning rise	4931 Jan 05 11:58	29°♂51'01	
direct	4924 Aug 23 06:32	13°♂42'23			4931 Jan 09 15:23	0°♂	
evening set	4924 Nov 21 18:52	15°♂38'14		retrograde	4931 Apr 02 07:21	1°♂43'14	
				opposition	4931 Jun 19 12:53	0°♂21'17	1°28'58
conjunction	4924 Dec 07 11:22	16°♂13'03	1°26'38	min. Earth dist.	4931 Jun 20 07:16	0°♂20'02	29.32167 AU

	4931 Jul 02 16:27	30°R 2	max. Earth dist.	4938 Jan 04 04:47	14° 3 29'02	31.31752 AU
direct	4931 Sep 08 15:08	28° 2 56'43	morning rise	4938 Jan 20 07:27	15° 3 05'02	
	4931 Nov 12 02:19	0° 3	retrograde	4938 Apr 17 07:33	16° 3 57'40	
evening set	4931 Dec 07 20:59	0° 3 52'18	opposition	4938 Jul 04 22:48	15° 3 35'43	1°19'07
			min. Earth dist.	4938 Jul 05 15:10	15° 3 34'36	29.31575 AU
conjunction	4931 Dec 23 10:38	1° 3 26'57 1°22'49	direct	4938 Sep 24 00:30	14° 3 11'24	
minimum elong	4931 Dec 23 10:38	1° 3 26'57 1°22'49	evening set	4938 Dec 22 20:40	16° 3 06'45	
max. Earth dist.	4931 Dec 22 14:57	1° 3 25'06 31.32142 AU				
morning rise	4932 Jan 07 21:38	2° 3 01'22	conjunction	4939 Jan 07 08:00	16° 3 41'18	1°13'12
retrograde	4932 Apr 03 18:38	3° 3 53'39	minimum elong	4939 Jan 07 08:00	16° 3 41'18	1°13'14
opposition	4932 Jun 21 00:20	2° 3 31'43 1°27'56	max. Earth dist.	4939 Jan 06 14:14	16° 3 39'38	31.31240 AU
min. Earth dist.	4932 Jun 21 18:08	2° 3 30'30 29.32287 AU	morning rise	4939 Jan 22 17:07	17° 3 15'40	
direct	4932 Sep 10 01:29	1° 3 07'11	retrograde	4939 Apr 19 18:33	19° 3 08'22	
evening set	4932 Dec 09 07:13	3° 3 02'46	opposition	4939 Jul 07 10:46	17° 3 46'20	1°17'15
			min. Earth dist.	4939 Jul 08 03:28	17° 3 45'12	29.31009 AU
conjunction	4932 Dec 24 20:39	3° 3 37'24 1°21'47	direct	4939 Sep 26 11:12	16° 3 22'02	
minimum elong	4932 Dec 24 20:40	3° 3 37'24 1°21'48	evening set	4939 Dec 25 06:33	18° 3 17'19	
max. Earth dist.	4932 Dec 24 02:29	3° 3 35'42 31.32272 AU				
morning rise	4933 Jan 09 07:12	4° 3 11'48	conjunction	4940 Jan 09 17:42	18° 3 51'51	1°11'24
retrograde	4933 Apr 06 04:29	6° 3 04'09	minimum elong	4940 Jan 09 17:42	18° 3 51'51	1°11'24
opposition	4933 Jun 23 11:57	4° 3 42'14 1°26'46	max. Earth dist.	4940 Jan 09 01:17	18° 3 50'18	31.30632 AU
min. Earth dist.	4933 Jun 24 05:52	4° 3 41'00 29.32408 AU	morning rise	4940 Jan 25 02:30	19° 3 26'12	
direct	4933 Sep 12 14:30	3° 3 17'46	retrograde	4940 Apr 21 04:58	21° 3 18'57	
evening set	4933 Dec 11 17:29	5° 3 13'19	opposition	4940 Jul 08 22:46	19° 3 56'52	1°15'17
max. Earth dist.	4933 Dec 26 11:33	5° 3 46'10 31.32384 AU	min. Earth dist.	4940 Jul 09 14:47	19° 3 55'46	29.30359 AU
			direct	4940 Sep 27 23:54	18° 3 32'32	
conjunction	4933 Dec 27 06:25	5° 3 47'56 1°20'38	evening set	4940 Dec 26 16:29	20° 3 27'46	
minimum elong	4933 Dec 27 06:25	5° 3 47'56 1°20'38	max. Earth dist.	4941 Jan 10 10:26	21° 3 00'42	31.29979 AU
morning rise	4934 Jan 11 16:51	6° 3 22'20				
retrograde	4934 Apr 08 16:28	8° 3 14'44	conjunction	4941 Jan 11 03:13	21° 3 02'17	1°09'30
opposition	4934 Jun 25 23:31	6° 3 52'50 1°25'29	minimum elong	4941 Jan 11 03:13	21° 3 02'17	1°09'31
min. Earth dist.	4934 Jun 26 16:28	6° 3 51'41 29.32488 AU	morning rise	4941 Jan 26 11:59	21° 3 36'37	
direct	4934 Sep 15 02:37	5° 3 28'25	retrograde	4941 Apr 23 16:28	23° 3 29'27	
evening set	4934 Dec 14 03:45	7° 3 23'57	opposition	4941 Jul 11 10:41	22° 3 07'17	1°13'12
			min. Earth dist.	4941 Jul 12 01:53	22° 3 06'15	29.29721 AU
conjunction	4934 Dec 29 16:27	7° 3 58'34 1°19'22	direct	4941 Sep 30 10:07	20° 3 42'57	
minimum elong	4934 Dec 29 16:27	7° 3 58'34 1°19'23	evening set	4941 Dec 29 02:05	22° 3 38'07	
max. Earth dist.	4934 Dec 28 22:40	7° 3 56'54 31.32414 AU				
morning rise	4935 Jan 14 02:26	8° 3 32'57	conjunction	4942 Jan 13 12:44	23° 3 12'37	1°07'30
retrograde	4935 Apr 11 01:46	10° 3 25'25	minimum elong	4942 Jan 13 12:44	23° 3 12'37	1°07'30
opposition	4935 Jun 28 11:15	9° 3 03'31 1°24'04	max. Earth dist.	4942 Jan 12 21:46	23° 3 11'13	31.29359 AU
min. Earth dist.	4935 Jun 29 05:04	9° 3 02'19 29.32464 AU	morning rise	4942 Jan 28 21:11	23° 3 46'58	
direct	4935 Sep 17 14:22	7° 3 39'10	retrograde	4942 Apr 26 02:25	25° 3 39'51	
evening set	4935 Dec 16 14:08	9° 3 34'40	opposition	4942 Jul 13 22:44	24° 3 17'38	1°11'01
max. Earth dist.	4935 Dec 31 08:16	10° 3 07'33 31.32339 AU	min. Earth dist.	4942 Jul 14 13:35	24° 3 16'38	29.29129 AU
			direct	4942 Oct 02 23:19	22° 3 53'20	
conjunction	4936 Jan 01 02:23	10° 3 09'15 1°17'59	evening set	4942 Dec 31 11:55	24° 3 48'27	
minimum elong	4936 Jan 01 02:24	10° 3 09'15 1°17'59				
morning rise	4936 Jan 16 12:12	10° 3 43'38	conjunction	4943 Jan 15 22:08	25° 3 22'57	1°05'24
retrograde	4936 Apr 12 11:45	12° 3 36'09	minimum elong	4943 Jan 15 22:08	25° 3 22'57	1°05'25
opposition	4936 Jun 29 23:04	11° 3 14'15 1°22'32	max. Earth dist.	4943 Jan 15 06:59	25° 3 21'32	31.28820 AU
min. Earth dist.	4936 Jun 30 15:39	11° 3 13'08 29.32315 AU	morning rise	4943 Jan 31 06:33	25° 3 57'17	
direct	4936 Sep 19 02:18	9° 3 49'55	retrograde	4943 Apr 28 14:43	27° 3 50'16	
evening set	4936 Dec 18 00:17	11° 3 45'23	opposition	4943 Jul 16 10:38	26° 3 28'01	1°08'43
			min. Earth dist.	4943 Jul 16 23:52	26° 3 27'07	29.28636 AU
conjunction	4937 Jan 02 12:15	12° 3 19'58 1°16'30	direct	4943 Oct 05 11:25	25° 3 03'45	
minimum elong	4937 Jan 02 12:15	12° 3 19'58 1°16'31	evening set	4944 Jan 02 21:35	26° 3 58'50	
max. Earth dist.	4937 Jan 01 18:31	12° 3 18'18 31.32113 AU				
morning rise	4937 Jan 17 21:44	12° 3 54'20	conjunction	4944 Jan 18 07:41	27° 3 33'20	1°03'13
retrograde	4937 Apr 14 21:27	14° 3 46'56	minimum elong	4944 Jan 18 07:41	27° 3 33'20	1°03'13
opposition	4937 Jul 02 11:05	13° 3 25'00 1°20'53	max. Earth dist.	4944 Jan 17 18:09	27° 3 32'04	31.28374 AU
min. Earth dist.	4937 Jul 03 04:26	13° 3 23'49 29.32022 AU	morning rise	4944 Feb 02 15:48	28° 3 07'41	
direct	4937 Sep 21 12:36	12° 3 00'42		4944 Apr 23 06:04	0° 3	
evening set	4937 Dec 20 10:30	13° 3 56'06	retrograde	4944 Apr 30 00:31	0° 3 00'46	
				4944 May 06 17:22	30° 3	
conjunction	4938 Jan 04 22:11	14° 3 30'40 1°14'54	opposition	4944 Jul 17 22:52	28° 3 38'30	1°06'20
minimum elong	4938 Jan 04 22:11	14° 3 30'40 1°14'55	min. Earth dist.	4944 Jul 18 12:15	28° 3 37'35	29.28231 AU

direct	4944 Oct 06 22:59	27°31'18"		minimum elong	4951 Feb 02 02:13	12°49'54"	0°45'30"
evening set	4945 Jan 04 07:10	29°30'21"		max. Earth dist.	4951 Feb 01 16:57	12°49'02"	31.25012 AU
				morning rise	4951 Feb 17 09:41	13°24'18"	
conjunction	4945 Jan 19 16:58	29°34'50"	1°00'56"		4951 Apr 13 03:26	15°	
minimum elong	4945 Jan 19 16:58	29°34'50"	1°00'57"	retrograde	4951 May 16 04:38	15°18'11"	
max. Earth dist.	4945 Jan 19 03:55	29°34'23"	31.28016 AU		4951 Jun 19 04:35	15°	
	4945 Jan 26 20:58	0°		opposition	4951 Aug 03 13:25	13°55'43"	0°47'05"
morning rise	4945 Feb 04 01:05	0°18'11"		min. Earth dist.	4951 Aug 03 22:50	13°55'05"	29.24602 AU
retrograde	4945 May 02 10:39	2°11'23"		direct	4951 Oct 23 05:18	12°31'49"	
opposition	4945 Jul 20 10:58	0°49'07"	1°03'51"	evening set	4952 Jan 20 03:14	14°26'35"	
min. Earth dist.	4945 Jul 20 22:34	0°48'20"	29.27885 AU				
	4945 Aug 21 16:29	30°		conjunction	4952 Feb 04 11:43	15°01'03"	0°42'39"
direct	4945 Oct 09 10:50	29°32'45"		minimum elong	4952 Feb 04 11:43	15°01'03"	0°42'39"
	4945 Nov 25 05:53	0°		max. Earth dist.	4952 Feb 04 02:05	15°00'09"	31.24132 AU
evening set	4946 Jan 06 16:51	1°20'01"			4952 Feb 04 00:32	15°	
				morning rise	4952 Feb 19 19:19	15°35'27"	
conjunction	4946 Jan 22 02:27	1°54'31"	0°58'33"	retrograde	4952 May 17 17:42	17°29'25"	
minimum elong	4946 Jan 22 02:27	1°54'31"	0°58'34"	opposition	4952 Aug 05 01:59	16°06'51"	0°44'02"
max. Earth dist.	4946 Jan 21 14:09	1°53'22"	31.27679 AU	min. Earth dist.	4952 Aug 05 09:58	16°06'19"	29.23679 AU
morning rise	4946 Feb 06 10:25	2°28'53"			4952 Sep 21 14:38	15°	
retrograde	4946 May 04 20:52	4°22'11"		direct	4952 Oct 24 17:28	14°42'57"	
opposition	4946 Jul 22 23:07	2°59'56"	1°01'16"		4952 Nov 26 01:05	15°	
min. Earth dist.	4946 Jul 23 11:06	2°59'07"	29.27550 AU	evening set	4953 Jan 21 12:40	16°37'37"	
direct	4946 Oct 11 20:51	1°35'52"					
evening set	4947 Jan 09 02:33	3°30'52"		conjunction	4953 Feb 05 21:09	17°12'05"	0°39'46"
				minimum elong	4953 Feb 05 21:09	17°12'06"	0°39'47"
conjunction	4947 Jan 24 11:59	4°05'22"	0°56'06"	max. Earth dist.	4953 Feb 05 12:57	17°11'19"	31.23179 AU
minimum elong	4947 Jan 24 11:59	4°05'22"	0°56'07"	morning rise	4953 Feb 21 04:39	17°46'30"	
max. Earth dist.	4947 Jan 24 00:35	4°04'17"	31.27336 AU	retrograde	4953 May 20 03:41	19°40'33"	
morning rise	4947 Feb 08 19:49	4°39'44"		opposition	4953 Aug 07 14:39	18°17'53"	0°40'55"
retrograde	4947 May 07 07:22	6°33'10"		min. Earth dist.	4953 Aug 07 22:54	18°17'20"	29.22718 AU
opposition	4947 Jul 25 11:24	5°10'54"	0°58'35"	direct	4953 Oct 27 05:19	16°53'58"	
min. Earth dist.	4947 Jul 25 22:00	5°10'11"	29.27169 AU	evening set	4954 Jan 23 22:14	18°48'33"	
direct	4947 Oct 14 08:35	3°46'54"					
evening set	4948 Jan 11 12:16	5°41'53"		conjunction	4954 Feb 08 06:33	19°23'01"	0°36'50"
				minimum elong	4954 Feb 08 06:33	19°23'01"	0°36'50"
conjunction	4948 Jan 26 21:23	6°16'22"	0°53'33"	max. Earth dist.	4954 Feb 07 22:58	19°22'18"	31.22238 AU
minimum elong	4948 Jan 26 21:23	6°16'22"	0°53'33"	morning rise	4954 Feb 23 14:06	19°57'26"	
max. Earth dist.	4948 Jan 26 09:53	6°15'17"	31.26920 AU	retrograde	4954 May 22 14:28	21°51'33"	
morning rise	4948 Feb 11 05:11	6°50'45"		opposition	4954 Aug 10 02:59	20°28'49"	0°37'45"
retrograde	4948 May 08 18:44	8°44'19"		min. Earth dist.	4954 Aug 10 09:18	20°28'23"	29.21797 AU
opposition	4948 Jul 26 23:55	7°22'01"	0°55'50"	direct	4954 Oct 29 18:10	19°04'53"	
min. Earth dist.	4948 Jul 27 10:34	7°21'18"	29.26717 AU	evening set	4955 Jan 26 07:49	20°59'24"	
direct	4948 Oct 15 18:36	5°58'04"					
evening set	4949 Jan 12 21:58	7°53'00"		conjunction	4955 Feb 10 15:59	21°33'53"	0°33'50"
				minimum elong	4955 Feb 10 15:59	21°33'53"	0°33'51"
conjunction	4949 Jan 28 07:02	8°27'29"	0°50'56"	max. Earth dist.	4955 Feb 10 09:15	21°33'15"	31.21352 AU
minimum elong	4949 Jan 28 07:02	8°27'30"	0°50'57"	morning rise	4955 Feb 25 23:32	22°08'18"	
max. Earth dist.	4949 Jan 27 20:59	8°26'33"	31.26416 AU	retrograde	4955 May 25 01:21	24°02'32"	
morning rise	4949 Feb 12 14:38	9°01'52"		opposition	4955 Aug 12 15:42	22°39'43"	0°34'31"
retrograde	4949 May 11 05:27	10°55'34"		min. Earth dist.	4955 Aug 12 21:57	22°39'17"	29.20966 AU
opposition	4949 Jul 29 12:21	9°33'14"	0°52'59"	direct	4955 Nov 01 05:16	21°15'49"	
min. Earth dist.	4949 Jul 29 22:22	9°32'33"	29.26144 AU	evening set	4956 Jan 28 17:10	23°10'16"	
direct	4949 Oct 18 06:01	8°09'19"					
evening set	4950 Jan 15 07:47	10°04'12"		conjunction	4956 Feb 13 01:19	23°44'44"	0°30'47"
				minimum elong	4956 Feb 13 01:19	23°44'44"	0°30'47"
conjunction	4950 Jan 30 16:32	10°38'41"	0°48'14"	max. Earth dist.	4956 Feb 12 20:04	23°44'15"	31.20577 AU
minimum elong	4950 Jan 30 16:33	10°38'41"	0°48'14"	morning rise	4956 Feb 28 08:48	24°19'11"	
max. Earth dist.	4950 Jan 30 05:51	10°37'41"	31.25784 AU	retrograde	4956 May 26 11:41	26°13'32"	
morning rise	4950 Feb 15 00:15	11°13'05"		opposition	4956 Aug 14 04:19	24°50'40"	0°31'15"
retrograde	4950 May 13 17:46	13°06'53"		min. Earth dist.	4956 Aug 14 08:37	24°50'22"	29.20230 AU
opposition	4950 Aug 01 00:51	11°44'29"	0°50'04"	direct	4956 Nov 02 17:28	23°26'49"	
min. Earth dist.	4950 Aug 01 10:16	11°43'51"	29.25445 AU	evening set	4957 Jan 30 02:43	25°21'13"	
direct	4950 Oct 20 15:59	10°20'35"					
evening set	4951 Jan 17 17:27	12°15'25"		conjunction	4957 Feb 14 10:40	25°55'42"	0°27'42"
				minimum elong	4957 Feb 14 10:40	25°55'42"	0°27'43"
conjunction	4951 Feb 02 02:13	12°49'54"	0°45'29"	max. Earth dist.	4957 Feb 14 05:39	25°55'14"	31.19891 AU

morning rise	4957 Mar 01 18:20	26° \approx 30'10		behind sun end	4963 Feb 28 02:15	9° \times 06'10	
retrograde	4957 May 28 23:05	28° \approx 24'40		max. Earth dist.	4963 Feb 27 20:10	9° \times 05'37	31.15669 AU
opposition	4957 Aug 16 16:58	27° \approx 01'45	0°27'55	morning rise	4963 Mar 15 04:38	9° \times 40'14	
min. Earth dist.	4957 Aug 16 20:55	27° \approx 01'29	29.19591 AU	retrograde	4963 Jun 12 00:29	11° \times 35'39	
direct	4957 Nov 05 03:00	25° \approx 37'58		opposition	4963 Aug 30 22:33	10° \times 12'33	0°07'10
evening set	4958 Feb 01 12:08	27° \approx 32'20		min. Earth dist.	4963 Aug 30 21:55	10° \times 12'35	29.15149 AU
				direct	4963 Nov 18 23:51	8° \times 49'06	
conjunction	4958 Feb 16 20:12	28° \approx 06'50	0°24'34	evening set	4964 Feb 14 22:38	10° \times 43'18	
minimum elong	4958 Feb 16 20:12	28° \approx 06'50	0°24'33				
max. Earth dist.	4958 Feb 16 17:06	28° \approx 06'32	31.19280 AU	conjunction	4964 Mar 01 06:22	11° \times 17'51	0°05'08
morning rise	4958 Mar 04 03:47	28° \approx 41'18		minimum elong	4964 Mar 01 06:22	11° \times 17'51	0°05'08
	4958 Apr 14 10:42	0° \times		behind sun begin	4964 Mar 01 00:09	11° \times 17'18	
retrograde	4958 May 31 09:47	0° \times 35'57		behind sun end	4964 Mar 01 12:35	11° \times 18'25	
	4958 Jul 19 12:28	30° \times		max. Earth dist.	4964 Mar 01 06:15	11° \times 17'51	31.14598 AU
opposition	4958 Aug 19 05:42	29° \approx 13'02	0°24'32	morning rise	4964 Mar 16 14:33	11° \times 52'27	
min. Earth dist.	4958 Aug 19 08:37	29° \approx 12'50	29.18984 AU	retrograde	4964 Jun 13 12:48	13° \times 48'00	
direct	4958 Nov 07 14:06	27° \approx 49'19		opposition	4964 Sep 01 11:47	12° \times 24'48	0°03'38
evening set	4959 Feb 03 21:46	29° \approx 43'40		min. Earth dist.	4964 Sep 01 11:33	12° \times 24'49	29.14025 AU
	4959 Feb 11 05:10	0° \times		direct	4964 Nov 20 11:46	11° \times 01'21	
				evening set	4965 Feb 16 08:24	12° \times 55'29	
conjunction	4959 Feb 19 05:35	0° \times 18'10	0°21'23				
minimum elong	4959 Feb 19 05:35	0° \times 18'10	0°21'24	conjunction	4965 Mar 03 16:16	13° \times 30'03	0°01'49
max. Earth dist.	4959 Feb 19 02:17	0° \times 17'51	31.18685 AU	minimum elong	4965 Mar 03 16:16	13° \times 30'03	0°01'50
morning rise	4959 Mar 06 13:22	0° \times 52'40		behind sun begin	4965 Mar 03 09:53	13° \times 29'28	
retrograde	4959 Jun 02 22:49	2° \times 47'29		behind sun end	4965 Mar 03 22:40	13° \times 30'38	
opposition	4959 Aug 21 18:32	1° \times 24'32	0°21'07	max. Earth dist.	4965 Mar 03 17:22	13° \times 30'05	31.13435 AU
min. Earth dist.	4959 Aug 21 20:31	1° \times 24'24	29.18388 AU	morning rise	4965 Mar 19 00:32	14° \times 04'40	
direct	4959 Nov 09 23:36	0° \times 00'53		retrograde	4965 Jun 15 23:15	16° \times 00'19	
evening set	4960 Feb 06 07:22	1° \times 55'14		opposition	4965 Sep 04 00:38	14° \times 37'01	0°00'07
				min. Earth dist.	4965 Sep 03 22:52	14° \times 37'08	29.12824 AU
conjunction	4960 Feb 21 15:17	2° \times 29'44	0°18'11	desc. node	4965 Sep 15 12:11	14° \times 18'28	
minimum elong	4960 Feb 21 15:17	2° \times 29'44	0°18'10	direct	4965 Nov 23 00:41	13° \times 13'33	
max. Earth dist.	4960 Feb 21 13:42	2° \times 29'35	31.18069 AU	evening set	4966 Feb 18 18:15	15° \times 07'37	
morning rise	4960 Mar 07 22:58	3° \times 04'15					
retrograde	4960 Jun 04 10:37	4° \times 59'14		conjunction	4966 Mar 06 02:02	15° \times 42'11	-0°01'36
opposition	4960 Aug 23 07:33	3° \times 36'16	0°17'40	minimum elong	4966 Mar 06 02:00	15° \times 42'11	0°01'36
min. Earth dist.	4960 Aug 23 09:18	3° \times 36'09	29.17742 AU	behind sun begin	4966 Mar 05 19:36	15° \times 41'36	
direct	4960 Nov 11 11:49	2° \times 12'42		behind sun end	4966 Mar 06 08:24	15° \times 42'45	
evening set	4961 Feb 07 17:05	4° \times 07'01		max. Earth dist.	4966 Mar 06 03:02	15° \times 42'13	31.12221 AU
				morning rise	4966 Mar 21 10:33	16° \times 16'50	
conjunction	4961 Feb 23 00:51	4° \times 41'32	0°14'56	retrograde	4966 Jun 18 10:18	18° \times 12'35	
minimum elong	4961 Feb 23 00:51	4° \times 41'31	0°14'57	opposition	4966 Sep 06 13:43	16° \times 49'10	-0°03'25
behind sun begin	4961 Feb 22 22:15	4° \times 41'17		min. Earth dist.	4966 Sep 06 11:42	16° \times 49'18	29.11626 AU
behind sun end	4961 Feb 23 03:27	4° \times 41'46		direct	4966 Nov 25 11:09	15° \times 25'42	
max. Earth dist.	4961 Feb 22 23:04	4° \times 41'22	31.17392 AU	evening set	4967 Feb 21 03:53	17° \times 19'41	
morning rise	4961 Mar 10 08:46	5° \times 16'04					
retrograde	4961 Jun 07 00:47	7° \times 11'12		conjunction	4967 Mar 08 11:48	17° \times 54'16	-0°04'55
opposition	4961 Aug 25 20:29	5° \times 48'12	0°14'11	minimum elong	4967 Mar 08 11:48	17° \times 54'16	0°04'54
min. Earth dist.	4961 Aug 25 20:53	5° \times 48'11	29.17013 AU	behind sun begin	4967 Mar 08 05:34	17° \times 53'42	
direct	4961 Nov 13 23:08	4° \times 24'41		behind sun end	4967 Mar 08 18:03	17° \times 54'50	
evening set	4962 Feb 10 02:56	6° \times 19'00		max. Earth dist.	4967 Mar 08 14:52	17° \times 54'31	31.11040 AU
				morning rise	4967 Mar 23 20:18	18° \times 28'55	
conjunction	4962 Feb 25 10:44	6° \times 53'31	0°11'41	retrograde	4967 Jun 20 20:28	20° \times 24'48	
minimum elong	4962 Feb 25 10:44	6° \times 53'31	0°11'40	opposition	4967 Sep 09 02:46	19° \times 01'17	-0°06'57
behind sun begin	4962 Feb 25 06:07	6° \times 53'06		min. Earth dist.	4967 Sep 08 23:29	19° \times 01'31	29.10476 AU
behind sun end	4962 Feb 25 15:20	6° \times 53'56		direct	4967 Nov 27 22:55	17° \times 37'49	
max. Earth dist.	4962 Feb 25 09:58	6° \times 53'27	31.16593 AU	evening set	4968 Feb 23 13:46	19° \times 31'45	
morning rise	4962 Mar 12 18:37	7° \times 28'05					
retrograde	4962 Jun 09 12:02	9° \times 23'22		conjunction	4968 Mar 09 21:33	20° \times 06'20	-0°08'11
opposition	4962 Aug 28 09:29	8° \times 00'19	0°10'41	minimum elong	4968 Mar 09 21:33	20° \times 06'20	0°08'12
min. Earth dist.	4962 Aug 28 10:26	8° \times 00'16	29.16150 AU	behind sun begin	4968 Mar 09 15:52	20° \times 05'49	
direct	4962 Nov 16 10:28	6° \times 36'51		behind sun end	4968 Mar 10 03:15	20° \times 06'51	
evening set	4963 Feb 12 12:51	8° \times 31'07		max. Earth dist.	4968 Mar 10 00:36	20° \times 06'36	31.09942 AU
				morning rise	4968 Mar 25 06:23	20° \times 41'01	
conjunction	4963 Feb 27 20:36	9° \times 05'39	0°08'24	retrograde	4968 Jun 22 09:30	22° \times 37'02	
minimum elong	4963 Feb 27 20:36	9° \times 05'39	0°08'25	opposition	4968 Sep 10 15:47	21° \times 13'26	-0°10'28
behind sun begin	4963 Feb 27 14:58	9° \times 05'09		min. Earth dist.	4968 Sep 10 11:21	21° \times 13'44	29.09440 AU

direct	4968 Nov 29 08:55	19° ✕ 49'58	direct	4974 Dec 13 06:54	3° Υ 05'43
evening set	4969 Feb 24 23:25	21° ✕ 43'51	evening set	4975 Mar 10 11:52	4° Υ 59'28
conjunction	4969 Mar 12 07:27	22° ✕ 18'27 -0°11'28	conjunction	4975 Mar 25 20:18	5° Υ 34'09 -0°30'41
minimum elong	4969 Mar 12 07:27	22° ✕ 18'27 0°11'27	minimum elong	4975 Mar 25 20:18	5° Υ 34'09 0°30'41
behind sun begin	4969 Mar 12 02:45	22° ✕ 18'01	max. Earth dist.	4975 Mar 26 04:37	5° Υ 34'56 31.03705 AU
behind sun end	4969 Mar 12 12:09	22° ✕ 18'52	morning rise	4975 Apr 10 06:32	6° Υ 09'01
max. Earth dist.	4969 Mar 12 12:26	22° ✕ 18'54 31.08948 AU	retrograde	4975 Jul 09 02:02	8° Υ 06'01
morning rise	4969 Mar 27 16:19	22° ✕ 53'09	opposition	4975 Sep 27 11:49	6° Υ 42'03 -0°34'28
retrograde	4969 Jun 24 20:41	24° ✕ 49'18	min. Earth dist.	4975 Sep 27 02:49	6° Υ 42'40 29.03183 AU
opposition	4969 Sep 13 04:51	23° ✕ 25'38 -0°13'58	direct	4975 Dec 15 17:56	5° Υ 18'50
min. Earth dist.	4969 Sep 12 23:51	23° ✕ 25'59 29.08490 AU	evening set	4976 Mar 11 22:11	7° Υ 12'32
direct	4969 Dec 01 20:30	22° ✕ 02'13	conjunction	4976 Mar 27 06:57	7° Υ 47'15 -0°33'46
evening set	4970 Feb 27 09:21	23° ✕ 56'04	minimum elong	4976 Mar 27 06:57	7° Υ 47'15 0°33'47
conjunction	4970 Mar 14 17:20	24° ✕ 30'40 -0°14'44	max. Earth dist.	4976 Mar 27 16:45	7° Υ 48'11 31.02596 AU
minimum elong	4970 Mar 14 17:20	24° ✕ 30'40 0°14'44	morning rise	4976 Apr 11 17:16	8° Υ 22'08
behind sun begin	4970 Mar 14 14:33	24° ✕ 30'25	retrograde	4976 Jul 10 13:14	10° Υ 19'16
behind sun end	4970 Mar 14 20:07	24° ✕ 30'55	opposition	4976 Sep 29 01:03	8° Υ 55'12 -0°37'44
max. Earth dist.	4970 Mar 14 22:27	24° ✕ 31'08 31.08049 AU	min. Earth dist.	4976 Sep 28 15:20	8° Υ 55'52 29.02013 AU
morning rise	4970 Mar 30 02:29	25° ✕ 05'24	direct	4976 Dec 17 06:27	7° Υ 31'59
retrograde	4970 Jun 27 10:27	27° ✕ 01'41	evening set	4977 Mar 14 08:37	9° Υ 25'38
opposition	4970 Sep 15 17:44	25° ✕ 37'58 -0°17'28	conjunction	4977 Mar 29 17:25	10° Υ 00'22 -0°36'48
min. Earth dist.	4970 Sep 15 11:04	25° ✕ 38'25 29.07628 AU	minimum elong	4977 Mar 29 17:25	10° Υ 00'22 0°36'48
direct	4970 Dec 04 06:45	24° ✕ 14'34	max. Earth dist.	4977 Mar 30 02:40	10° Υ 01'14 31.01383 AU
evening set	4971 Mar 01 19:15	26° ✕ 08'24	morning rise	4977 Apr 14 04:12	10° Υ 35'17
conjunction	4971 Mar 17 03:22	26° ✕ 43'02 -0°17'58	retrograde	4977 Jul 13 02:22	12° Υ 32'31
minimum elong	4971 Mar 17 03:21	26° ✕ 43'02 0°17'58	opposition	4977 Oct 01 14:17	11° Υ 08'21 -0°40'57
max. Earth dist.	4971 Mar 17 09:50	26° ✕ 43'38 31.07208 AU	min. Earth dist.	4977 Oct 01 04:01	11° Υ 09'03 29.00766 AU
morning rise	4971 Apr 01 12:38	27° ✕ 17'47	direct	4977 Dec 19 17:08	9° Υ 45'06
retrograde	4971 Jun 29 22:24	29° ✕ 14'13	evening set	4978 Mar 16 18:55	11° Υ 38'42
opposition	4971 Sep 18 06:57	27° ✕ 50'27 -0°20'56	conjunction	4978 Apr 01 04:00	12° Υ 13'27 -0°39'47
min. Earth dist.	4971 Sep 18 00:26	27° ✕ 50'54 29.06810 AU	minimum elong	4978 Apr 01 04:00	12° Υ 13'27 0°39'48
direct	4971 Dec 06 17:36	26° ✕ 27'07	max. Earth dist.	4978 Apr 01 14:47	12° Υ 14'28 31.00104 AU
evening set	4972 Mar 03 05:09	28° ✕ 20'55	morning rise	4978 Apr 16 14:53	12° Υ 48'24
conjunction	4972 Mar 18 13:22	28° ✕ 55'33 -0°21'12	retrograde	4978 Jul 15 13:06	14° Υ 45'43
minimum elong	4972 Mar 18 13:22	28° ✕ 55'33 0°21'13	opposition	4978 Oct 04 03:23	13° Υ 21'28 -0°44'06
max. Earth dist.	4972 Mar 18 20:39	28° ✕ 56'14 31.06409 AU	min. Earth dist.	4978 Oct 03 16:51	13° Υ 22'11 28.99487 AU
morning rise	4972 Apr 02 22:52	29° ✕ 30'20	direct	4978 Dec 22 04:57	11° Υ 58'11
retrograde	4972 Apr 16 18:25	0° Υ	evening set	4979 Mar 19 05:20	13° Υ 51'45
opposition	4972 Jul 01 12:18	1° Υ 26'55	conjunction	4979 Apr 03 14:29	14° Υ 26'30 -0°42'42
min. Earth dist.	4972 Sep 19 20:05	0° Υ 03'07 -0°24'22	minimum elong	4979 Apr 03 14:29	14° Υ 26'30 0°42'42
direct	4972 Sep 19 11:50	0° Υ 03'40 29.06005 AU	max. Earth dist.	4979 Apr 04 01:21	14° Υ 27'32 30.98853 AU
evening set	4972 Sep 21 17:50	30° ✕	morning rise	4979 Apr 19 01:44	15° Υ 01'28
conjunction	4972 Dec 08 06:38	28° ✕ 39'49	retrograde	4979 Jul 18 02:44	16° Υ 58'54
minimum elong	4972 Dec 17 20:40	0° Υ	opposition	4979 Oct 06 16:30	15° Υ 34'33 -0°47'11
max. Earth dist.	4972 Dec 17 20:40	0° Υ	min. Earth dist.	4979 Oct 06 04:23	15° Υ 35'22 28.98277 AU
morning rise	4973 Mar 05 15:19	0° Υ 33'36	direct	4979 Dec 24 15:15	14° Υ 11'15
retrograde	4973 Mar 20 23:35	1° Υ 08'16 -0°24'24	evening set	4980 Mar 20 15:37	16° Υ 04'46
opposition	4973 Mar 20 23:35	1° Υ 08'16 0°24'23	conjunction	4980 Apr 05 01:00	16° Υ 39'33 -0°45'33
min. Earth dist.	4973 Mar 21 07:13	1° Υ 08'59 31.05580 AU	minimum elong	4980 Apr 05 01:00	16° Υ 39'33 0°45'34
morning rise	4973 Apr 05 09:21	1° Υ 43'04	max. Earth dist.	4980 Apr 05 13:11	16° Υ 40'42 30.97676 AU
retrograde	4973 Jul 04 01:45	3° Υ 39'48	morning rise	4980 Apr 20 12:29	17° Υ 14'33
opposition	4973 Sep 22 09:13	2° Υ 15'57 -0°27'46	retrograde	4980 Jul 19 14:44	19° Υ 12'06
min. Earth dist.	4973 Sep 22 01:28	2° Υ 16'29 29.05162 AU	opposition	4980 Oct 08 05:41	17° Υ 47'39 -0°50'12
direct	4973 Dec 10 17:59	0° Υ 52'41	min. Earth dist.	4980 Oct 07 17:38	17° Υ 48'29 28.97165 AU
evening set	4974 Mar 08 01:31	2° Υ 46'28	direct	4980 Dec 26 02:09	16° Υ 24'21
conjunction	4974 Mar 23 10:01	3° Υ 21'08 -0°27'34	evening set	4981 Mar 23 02:03	18° Υ 17'51
minimum elong	4974 Mar 23 10:00	3° Υ 21'08 0°27'35	conjunction	4981 Apr 07 11:41	18° Υ 52'39 -0°48'20
max. Earth dist.	4974 Mar 23 18:45	3° Υ 21'58 31.04699 AU	minimum elong	4981 Apr 07 11:40	18° Υ 52'39 0°48'20
morning rise	4974 Apr 07 19:53	3° Υ 55'59	max. Earth dist.	4981 Apr 08 00:46	18° Υ 53'53 30.96630 AU
retrograde	4974 Jul 06 13:29	5° Υ 52'50	morning rise	4981 Apr 22 23:27	19° Υ 27'41
opposition	4974 Sep 24 22:24	4° Υ 28'57 -0°31'08			
min. Earth dist.	4974 Sep 24 13:16	4° Υ 29'34 29.04227 AU			

retrograde	4981 Jul 22 05:01	21° Υ 25'20	opposition	4987 Oct 25 01:05	3° \mathcal{B} 23'41 -1°09'04
opposition	4981 Oct 10 18:30	20° Υ 00'50 -0°53'09	direct	4988 Jan 11 13:00	2° \mathcal{B} 00'35
min. Earth dist.	4981 Oct 10 04:37	20° Υ 01'47 28.96183 AU	evening set	4988 Apr 07 05:36	3° \mathcal{B} 54'05
direct	4981 Dec 28 14:57	18° Υ 37'32			
evening set	4982 Mar 25 12:36	20° Υ 31'03	conjunction	4988 Apr 22 16:53	4° \mathcal{B} 29'03 -1°05'41
			minimum elong	4988 Apr 22 16:53	4° \mathcal{B} 29'03 1°05'42
conjunction	4982 Apr 09 22:21	21° Υ 05'52 -0°51'03	max. Earth dist.	4988 Apr 23 09:37	4° \mathcal{B} 30'39 30.91415 AU
minimum elong	4982 Apr 09 22:21	21° Υ 05'52 0°51'04	morning rise	4988 May 08 06:59	5° \mathcal{B} 04'18
max. Earth dist.	4982 Apr 10 11:55	21° Υ 07'09 30.95704 AU	retrograde	4988 Aug 07 00:09	7° \mathcal{B} 02'46
morning rise	4982 Apr 25 10:29	21° Υ 40'55	opposition	4988 Oct 26 14:12	5° \mathcal{B} 38'02 -1°11'23
retrograde	4982 Jul 24 18:51	23° Υ 38'42	min. Earth dist.	4988 Oct 25 20:57	5° \mathcal{B} 39'13 28.91037 AU
opposition	4982 Oct 13 07:39	22° Υ 14'09 -0°56'01	direct	4989 Jan 12 23:30	4° \mathcal{B} 14'55
min. Earth dist.	4982 Oct 12 17:56	22° Υ 15'06 28.95329 AU	evening set	4989 Apr 09 16:54	6° \mathcal{B} 08'23
direct	4982 Dec 31 01:59	20° Υ 50'54			
evening set	4983 Mar 27 22:58	22° Υ 44'23	conjunction	4989 Apr 25 04:31	6° \mathcal{B} 43'23 -1°07'48
			minimum elong	4989 Apr 25 04:31	6° \mathcal{B} 43'23 1°07'48
conjunction	4983 Apr 12 09:04	23° Υ 19'14 -0°53'42	max. Earth dist.	4989 Apr 25 21:45	6° \mathcal{B} 45'01 30.90520 AU
minimum elong	4983 Apr 12 09:03	23° Υ 19'14 0°53'42	morning rise	4989 May 10 18:56	7° \mathcal{B} 18'40
max. Earth dist.	4983 Apr 13 00:10	23° Υ 20'40 30.94908 AU	retrograde	4989 Aug 09 11:44	9° \mathcal{B} 17'11
morning rise	4983 Apr 27 21:23	23° Υ 54'19	min. Earth dist.	4989 Oct 28 10:43	7° \mathcal{B} 53'31 28.90103 AU
retrograde	4983 Jul 27 07:15	25° Υ 52'14	opposition	4989 Oct 29 03:13	7° \mathcal{B} 52'22 -1°13'36
opposition	4983 Oct 15 20:41	24° Υ 27'39 -0°58'49	direct	4990 Jan 15 10:51	6° \mathcal{B} 29'13
min. Earth dist.	4983 Oct 15 05:15	24° Υ 28'43 28.94579 AU	evening set	4990 Apr 12 04:08	8° \mathcal{B} 22'39
direct	4984 Jan 02 14:38	23° Υ 04'26			
evening set	4984 Mar 29 09:43	24° Υ 57'56	conjunction	4990 Apr 27 16:06	8° \mathcal{B} 57'40 -1°09'49
			minimum elong	4990 Apr 27 16:06	8° \mathcal{B} 57'40 1°09'50
conjunction	4984 Apr 13 19:53	25° Υ 32'48 -0°56'16	max. Earth dist.	4990 Apr 28 09:42	8° \mathcal{B} 59'20 30.89566 AU
minimum elong	4984 Apr 13 19:53	25° Υ 32'48 0°56'17	morning rise	4990 May 13 06:53	9° \mathcal{B} 32'58
max. Earth dist.	4984 Apr 14 10:49	25° Υ 34'13 30.94200 AU	retrograde	4990 Aug 12 01:37	11° \mathcal{B} 31'32
morning rise	4984 Apr 29 08:42	26° Υ 07'56	opposition	4990 Oct 31 16:10	10° \mathcal{B} 06'38 -1°15'42
retrograde	4984 Jul 28 21:10	28° Υ 05'58	min. Earth dist.	4990 Oct 30 22:23	10° \mathcal{B} 07'51 28.89133 AU
opposition	4984 Oct 17 09:46	26° Υ 41'22 -1°01'31	direct	4991 Jan 17 23:23	8° \mathcal{B} 43'25
min. Earth dist.	4984 Oct 16 18:24	26° Υ 42'25 28.93916 AU	evening set	4991 Apr 14 15:19	10° \mathcal{B} 36'49
direct	4985 Jan 04 01:48	25° Υ 18'11			
evening set	4985 Mar 31 20:25	27° Υ 11'41	conjunction	4991 Apr 30 03:30	11° \mathcal{B} 11'51 -1°11'44
			minimum elong	4991 Apr 30 03:30	11° \mathcal{B} 11'51 1°11'44
conjunction	4985 Apr 16 07:01	27° Υ 46'35 -0°58'46	max. Earth dist.	4991 Apr 30 21:14	11° \mathcal{B} 13'32 30.88591 AU
minimum elong	4985 Apr 16 07:01	27° Υ 46'35 0°58'46	morning rise	4991 May 15 18:44	11° \mathcal{B} 47'11
max. Earth dist.	4985 Apr 16 23:37	27° Υ 48'10 30.93550 AU	retrograde	4991 Aug 14 14:39	13° \mathcal{B} 45'48
morning rise	4985 May 01 19:59	28° Υ 21'45	opposition	4991 Nov 03 05:16	12° \mathcal{B} 20'48 -1°17'41
	4985 Jun 26 08:10	0° \mathcal{B}	min. Earth dist.	4991 Nov 02 12:04	12° \mathcal{B} 21'59 28.88190 AU
retrograde	4985 Jul 31 09:39	0° \mathcal{B} 19'54	direct	4992 Jan 20 10:12	10° \mathcal{B} 57'33
	4985 Sep 05 05:24	30° $\mathcal{R}\Upsilon$	evening set	4992 Apr 16 02:33	12° \mathcal{B} 50'55
opposition	4985 Oct 19 22:48	28° Υ 55'17 -1°04'08			
min. Earth dist.	4985 Oct 19 06:39	28° Υ 56'23 28.93270 AU	conjunction	4992 May 01 15:13	13° \mathcal{B} 25'58 -1°13'32
direct	4986 Jan 06 14:39	27° Υ 32'09	minimum elong	4992 May 01 15:13	13° \mathcal{B} 25'58 1°13'33
evening set	4986 Apr 03 07:24	29° Υ 25'39	max. Earth dist.	4992 May 02 10:10	13° \mathcal{B} 27'46 30.87683 AU
			morning rise	4992 May 17 06:43	14° \mathcal{B} 01'20
conjunction	4986 Apr 18 18:04	0° \mathcal{B} 00'35 -1°01'09		4992 Jun 15 00:35	15° \mathcal{B}
minimum elong	4986 Apr 18 18:04	0° \mathcal{B} 00'35 1°01'11	retrograde	4992 Aug 16 03:57	15° \mathcal{B} 59'58
	4986 Apr 18 11:58	0° \mathcal{B}		4992 Oct 20 09:39	15° $\mathcal{R}\mathcal{B}$
max. Earth dist.	4986 Apr 19 10:06	0° \mathcal{B} 02'06 30.92898 AU	opposition	4992 Nov 04 17:58	14° \mathcal{B} 34'54 -1°19'33
morning rise	4986 May 04 07:30	0° \mathcal{B} 35'46	min. Earth dist.	4992 Nov 03 23:20	14° \mathcal{B} 36'12 28.87328 AU
retrograde	4986 Aug 02 22:55	2° \mathcal{B} 34'03	direct	4993 Jan 21 23:20	13° \mathcal{B} 11'37
opposition	4986 Oct 22 11:54	1° \mathcal{B} 09'24 -1°06'39		4993 Apr 16 07:56	15° \mathcal{B}
min. Earth dist.	4986 Oct 21 19:27	1° \mathcal{B} 10'32 28.92609 AU	evening set	4993 Apr 18 13:59	15° \mathcal{B} 04'58
	4986 Dec 11 02:43	30° $\mathcal{R}\Upsilon$			
direct	4987 Jan 09 01:14	29° Υ 46'18	conjunction	4993 May 04 02:50	15° \mathcal{B} 40'03 -1°15'13
	4987 Feb 06 07:11	0° \mathcal{B}	minimum elong	4993 May 04 02:50	15° \mathcal{B} 40'03 1°15'14
evening set	4987 Apr 05 18:27	1° \mathcal{B} 39'49	max. Earth dist.	4993 May 04 21:23	15° \mathcal{B} 41'48 30.86871 AU
			morning rise	4993 May 19 18:53	16° \mathcal{B} 15'26
conjunction	4987 Apr 21 05:30	2° \mathcal{B} 14'45 -1°03'28	retrograde	4993 Aug 18 18:26	18° \mathcal{B} 14'07
minimum elong	4987 Apr 21 05:30	2° \mathcal{B} 14'45 1°03'28	opposition	4993 Nov 07 06:51	16° \mathcal{B} 49'00 -1°21'18
max. Earth dist.	4987 Apr 21 22:45	2° \mathcal{B} 16'24 30.92196 AU	min. Earth dist.	4993 Nov 06 12:22	16° \mathcal{B} 50'17 28.86589 AU
morning rise	4987 May 06 19:08	2° \mathcal{B} 49'59	direct	4994 Jan 24 10:54	15° \mathcal{B} 25'41
retrograde	4987 Aug 05 09:52	4° \mathcal{B} 48'22	evening set	4994 Apr 21 01:14	17° \mathcal{B} 19'02
min. Earth dist.	4987 Oct 24 08:42	3° \mathcal{B} 24'49 28.91870 AU			

conjunction	4994 May 06 14:35	17° 8 54'09	-1°16'48	retrograde	5000 Sep 04 14:23	3° II 56'55	
minimum elong	4994 May 06 14:35	17° 8 54'09	1°16'49	min. Earth dist.	5000 Nov 23 04:36	2° II 33'10	28.83801 AU
max. Earth dist.	4994 May 07 10:49	17° 8 56'04	30.86188 AU	opposition	5000 Nov 24 00:07	2° II 31'48	-1°29'59
morning rise	4994 May 22 06:50	18° 8 29'34		direct	5001 Feb 09 17:40	1° II 08'36	
retrograde	4994 Aug 21 07:04	20° 8 28'18		evening set	5001 May 07 12:06	3° II 02'09	
opposition	4994 Nov 09 19:36	19° 8 03'09	-1°22'56				
min. Earth dist.	4994 Nov 09 00:10	19° 8 04'30	28.85971 AU	conjunction	5001 May 23 04:14	3° II 37'28	-1°24'29
direct	4995 Jan 27 00:07	17° 8 39'51		minimum elong	5001 May 23 04:14	3° II 37'28	1°24'30
evening set	4995 Apr 23 12:46	19° 8 33'12		max. Earth dist.	5001 May 24 01:36	3° II 39'30	30.83465 AU
				morning rise	5001 Jun 07 23:27	4° II 13'07	
conjunction	4995 May 09 02:20	20° 8 08'20	-1°18'16	retrograde	5001 Sep 07 04:28	6° II 12'15	
minimum elong	4995 May 09 02:20	20° 8 08'20	1°18'17	opposition	5001 Nov 26 12:45	4° II 47'07	-1°30'41
max. Earth dist.	4995 May 09 22:06	20° 8 10'13	30.85644 AU	min. Earth dist.	5001 Nov 25 16:29	4° II 48'32	28.83274 AU
morning rise	4995 May 24 19:09	20° 8 43'47		direct	5002 Feb 12 07:06	3° II 23'53	
retrograde	4995 Aug 23 20:52	22° 8 42'36		evening set	5002 May 10 00:21	5° II 17'26	
opposition	4995 Nov 12 08:25	21° 8 17'25	-1°24'26				
min. Earth dist.	4995 Nov 11 12:35	21° 8 18'48	28.85500 AU	conjunction	5002 May 25 16:44	5° II 52'47	-1°25'05
direct	4996 Jan 29 10:44	19° 8 54'08		minimum elong	5002 May 25 16:44	5° II 52'47	1°25'06
evening set	4996 Apr 25 00:13	21° 8 47'30		max. Earth dist.	5002 May 26 13:01	5° II 54'42	30.82893 AU
				morning rise	5002 Jun 10 12:31	6° II 28'27	
conjunction	4996 May 10 14:18	22° 8 22'40	-1°19'37	retrograde	5002 Sep 09 19:20	8° II 27'35	
minimum elong	4996 May 10 14:18	22° 8 22'40	1°19'38	min. Earth dist.	5002 Nov 28 06:02	7° II 03'45	28.82676 AU
max. Earth dist.	4996 May 11 11:30	22° 8 24'41	30.85221 AU	opposition	5002 Nov 29 01:28	7° II 02'24	-1°31'15
morning rise	4996 May 26 07:25	22° 8 58'09		direct	5003 Feb 14 19:07	5° II 39'07	
retrograde	4996 Aug 25 08:35	24° 8 57'02		evening set	5003 May 12 12:30	7° II 32'39	
opposition	4996 Nov 13 21:12	23° 8 31'52	-1°25'49				
min. Earth dist.	4996 Nov 13 01:18	23° 8 33'15	28.85124 AU	conjunction	5003 May 28 05:30	8° II 08'02	-1°25'33
direct	4997 Jan 30 22:42	22° 8 08'37		minimum elong	5003 May 28 05:30	8° II 08'02	1°25'34
evening set	4997 Apr 27 11:58	24° 8 02'00		max. Earth dist.	5003 May 29 02:52	8° II 10'03	30.82280 AU
				morning rise	5003 Jun 13 01:35	8° II 43'44	
conjunction	4997 May 13 02:22	24° 8 37'12	-1°20'50	retrograde	5003 Sep 12 08:08	10° II 42'50	
minimum elong	4997 May 13 02:21	24° 8 37'12	1°20'51	opposition	5003 Dec 01 13:53	9° II 17'36	-1°31'41
max. Earth dist.	4997 May 13 23:08	24° 8 39'11	30.84892 AU	min. Earth dist.	5003 Nov 30 18:04	9° II 18'59	28.82057 AU
morning rise	4997 May 28 19:59	25° 8 12'44		direct	5004 Feb 17 08:46	7° II 54'14	
retrograde	4997 Aug 27 23:23	27° 8 11'40		evening set	5004 May 14 00:50	9° II 47'46	
opposition	4997 Nov 16 09:47	25° 8 46'32	-1°27'03				
min. Earth dist.	4997 Nov 15 13:04	25° 8 47'58	28.84826 AU	conjunction	5004 May 29 18:09	10° II 23'11	-1°25'53
direct	4998 Feb 02 09:03	24° 8 23'18		minimum elong	5004 May 29 18:09	10° II 23'11	1°25'54
evening set	4998 Apr 29 23:49	26° 8 16'45		max. Earth dist.	5004 May 30 14:32	10° II 25'06	30.81680 AU
				morning rise	5004 Jun 14 14:52	10° II 58'55	
conjunction	4998 May 15 14:35	26° 8 51'59	-1°21'57	retrograde	5004 Sep 13 22:19	12° II 57'59	
minimum elong	4998 May 15 14:35	26° 8 51'59	1°21'58	min. Earth dist.	5004 Dec 02 06:39	11° II 34'03	28.81489 AU
max. Earth dist.	4998 May 16 12:00	26° 8 54'00	30.84599 AU	opposition	5004 Dec 03 02:20	11° II 32'41	-1°31'58
morning rise	4998 May 31 08:34	27° 8 27'32		direct	5005 Feb 18 20:05	10° II 09'16	
retrograde	4998 Aug 30 11:03	29° 8 26'33		evening set	5005 May 16 13:07	12° II 02'47	
opposition	4998 Nov 18 22:38	28° 8 01'26	-1°28'10				
min. Earth dist.	4998 Nov 18 02:42	28° 8 02'49	28.84539 AU	conjunction	5005 Jun 01 06:58	12° II 38'14	-1°26'05
direct	4999 Feb 04 19:56	26° 8 38'14		minimum elong	5005 Jun 01 06:58	12° II 38'14	1°26'06
evening set	4999 May 02 11:40	28° 8 31'43		max. Earth dist.	5005 Jun 02 04:27	12° II 40'16	30.81137 AU
				morning rise	5005 Jun 17 03:58	13° II 13'59	
conjunction	4999 May 18 02:54	29° 8 06'59	-1°22'55	retrograde	5005 Sep 16 10:49	15° II 13'01	
minimum elong	4999 May 18 02:54	29° 8 06'59	1°22'55	opposition	5005 Dec 05 14:34	13° II 47'41	-1°32'07
max. Earth dist.	4999 May 19 00:23	29° 8 09'01	30.84306 AU	min. Earth dist.	5005 Dec 04 19:01	13° II 49'03	28.80996 AU
morning rise	4999 Jun 02 21:17	29° 8 42'34		direct	5006 Feb 21 09:27	12° II 24'13	
	4999 Jun 10 21:14	0° II		evening set	5006 May 19 01:28	14° II 17'44	
retrograde	4999 Sep 02 01:14	1° II 41'39					
opposition	4999 Nov 21 11:23	0° II 16'32	-1°29'08	conjunction	5006 Jun 03 19:42	14° II 53'12	-1°26'10
min. Earth dist.	4999 Nov 20 14:35	0° II 17'59	28.84216 AU	minimum elong	5006 Jun 03 19:43	14° II 53'12	1°26'11
	4999 Dec 01 11:05	30° 8		max. Earth dist.	5006 Jun 04 16:32	14° II 55'10	30.80713 AU
direct	5000 Feb 07 07:44	28° 8 53'21		morning rise	5006 Jun 19 17:14	15° II 28'59	
	5000 Apr 12 11:06	0° II		retrograde	5006 Sep 19 01:14	17° II 27'59	
evening set	5000 May 04 23:55	0° II 46'53		min. Earth dist.	5006 Dec 07 06:31	16° II 04'02	28.80639 AU
				opposition	5006 Dec 08 02:50	16° II 02'37	-1°32'08
conjunction	5000 May 20 15:28	1° II 22'10	-1°23'46	direct	5007 Feb 23 20:59	14° II 39'06	
minimum elong	5000 May 20 15:28	1° II 22'10	1°23'47	evening set	5007 May 21 13:45	16° II 32'38	
max. Earth dist.	5000 May 21 12:28	1° II 24'10	30.83932 AU				
morning rise	5000 Jun 05 10:22	1° II 57'47		conjunction	5007 Jun 06 08:29	17° II 08'07	-1°26'07

minimum elong	5007 Jun 06 08:29	17° Π 08'07	1°26'07	opposition	5013 Dec 23 15:42	1° \mathfrak{D} 48'36	-1°28'14
max. Earth dist.	5007 Jun 07 05:59	17° Π 10'09	30.80414 AU	min. Earth dist.	5013 Dec 22 21:18	1° \mathfrak{D} 49'53	28.80523 AU
morning rise	5007 Jun 22 06:25	17° Π 43'56		direct	5014 Mar 11 05:21	0° \mathfrak{D} 24'58	
retrograde	5007 Sep 21 12:05	19° Π 42'54		evening set	5014 Jun 06 07:14	2° \mathfrak{D} 18'44	
opposition	5007 Dec 10 15:09	18° Π 17'32	-1°32'00				
min. Earth dist.	5007 Dec 09 19:30	18° Π 18'55	28.80410 AU	conjunction	5014 Jun 22 05:22	2° \mathfrak{D} 54'26	-1°22'01
direct	5008 Feb 26 08:21	16° Π 54'00		minimum elong	5014 Jun 22 05:22	2° \mathfrak{D} 54'26	1°22'02
evening set	5008 May 23 02:13	18° Π 47'32		max. Earth dist.	5014 Jun 23 01:32	2° \mathfrak{D} 56'20	30.80384 AU
				morning rise	5014 Jul 08 06:17	3° \mathfrak{D} 30'26	
conjunction	5008 Jun 07 21:28	19° Π 23'03	-1°25'55	retrograde	5014 Oct 07 10:46	5° \mathfrak{D} 29'09	
minimum elong	5008 Jun 07 21:29	19° Π 23'03	1°25'56	min. Earth dist.	5014 Dec 25 09:59	4° \mathfrak{D} 05'10	28.80396 AU
max. Earth dist.	5008 Jun 08 19:00	19° Π 25'06	30.80264 AU	opposition	5014 Dec 26 03:43	4° \mathfrak{D} 03'56	-1°27'08
morning rise	5008 Jun 23 19:52	19° Π 58'54		direct	5015 Mar 13 19:00	2° \mathfrak{D} 40'15	
retrograde	5008 Sep 23 01:39	21° Π 57'50		evening set	5015 Jun 08 20:15	4° \mathfrak{D} 34'02	
min. Earth dist.	5008 Dec 11 06:32	20° Π 33'55	28.80320 AU				
opposition	5008 Dec 12 03:08	20° Π 32'28	-1°31'43	conjunction	5015 Jun 24 18:47	5° \mathfrak{D} 09'46	-1°20'56
direct	5009 Feb 27 19:41	19° Π 08'55		minimum elong	5015 Jun 24 18:48	5° \mathfrak{D} 09'46	1°20'56
evening set	5009 May 25 14:51	21° Π 02'29		max. Earth dist.	5015 Jun 25 13:36	5° \mathfrak{D} 11'32	30.80248 AU
				morning rise	5015 Jul 10 20:18	5° \mathfrak{D} 45'46	
conjunction	5009 Jun 10 10:29	21° Π 38'03	-1°25'36	retrograde	5015 Oct 10 01:02	7° \mathfrak{D} 44'25	
minimum elong	5009 Jun 10 10:29	21° Π 38'03	1°25'37	opposition	5015 Dec 28 15:34	6° \mathfrak{D} 19'10	-1°25'54
max. Earth dist.	5009 Jun 11 07:49	21° Π 40'03	30.80227 AU	min. Earth dist.	5015 Dec 27 21:45	6° \mathfrak{D} 20'25	28.80243 AU
morning rise	5009 Jun 26 09:23	22° Π 13'54		direct	5016 Mar 15 07:12	4° \mathfrak{D} 55'26	
retrograde	5009 Sep 25 14:09	24° Π 12'50		evening set	5016 Jun 10 09:22	6° \mathfrak{D} 49'13	
opposition	5009 Dec 14 15:23	22° Π 47'30	-1°31'18				
min. Earth dist.	5009 Dec 13 19:53	22° Π 48'52	28.80338 AU	conjunction	5016 Jun 26 08:26	7° \mathfrak{D} 24'59	-1°19'43
direct	5010 Mar 02 05:11	21° Π 23'56		minimum elong	5016 Jun 26 08:26	7° \mathfrak{D} 24'59	1°19'44
evening set	5010 May 28 03:18	23° Π 17'32		max. Earth dist.	5016 Jun 27 03:23	7° \mathfrak{D} 26'46	30.80089 AU
				morning rise	5016 Jul 12 10:17	8° \mathfrak{D} 01'01	
conjunction	5010 Jun 12 23:32	23° Π 53'07	-1°25'08	retrograde	5016 Oct 11 12:24	9° \mathfrak{D} 59'33	
minimum elong	5010 Jun 12 23:32	23° Π 53'07	1°25'10	min. Earth dist.	5016 Dec 29 10:37	8° \mathfrak{D} 35'29	28.80098 AU
max. Earth dist.	5010 Jun 13 21:27	23° Π 55'11	30.80292 AU	opposition	5016 Dec 30 03:15	8° \mathfrak{D} 34'18	-1°24'32
morning rise	5010 Jun 28 22:45	24° Π 29'01		direct	5017 Mar 17 19:04	7° \mathfrak{D} 10'30	
retrograde	5010 Sep 28 03:27	26° Π 27'55		evening set	5017 Jun 12 22:27	9° \mathfrak{D} 04'18	
min. Earth dist.	5010 Dec 16 07:10	25° Π 04'03	28.80423 AU				
opposition	5010 Dec 17 03:28	25° Π 02'37	-1°30'45	conjunction	5017 Jun 28 21:59	9° \mathfrak{D} 40'05	-1°18'23
direct	5011 Mar 04 18:10	23° Π 39'04		minimum elong	5017 Jun 28 21:59	9° \mathfrak{D} 40'05	1°18'24
evening set	5011 May 30 16:12	25° Π 32'43		max. Earth dist.	5017 Jun 29 16:26	9° \mathfrak{D} 41'49	30.79985 AU
				morning rise	5017 Jul 15 00:15	10° \mathfrak{D} 16'08	
conjunction	5011 Jun 15 12:45	26° Π 08'20	-1°24'33	retrograde	5017 Oct 14 02:15	12° \mathfrak{D} 14'35	
minimum elong	5011 Jun 15 12:45	26° Π 08'20	1°24'34	opposition	5018 Jan 01 14:50	10° \mathfrak{D} 49'20	-1°23'03
max. Earth dist.	5011 Jun 16 09:31	26° Π 10'17	30.80390 AU	min. Earth dist.	5017 Dec 31 21:32	10° \mathfrak{D} 50'33	28.80031 AU
morning rise	5011 Jul 01 12:34	26° Π 44'15		direct	5018 Mar 20 06:51	9° \mathfrak{D} 25'28	
retrograde	5011 Sep 30 17:28	28° Π 43'08		evening set	5018 Jun 15 11:25	11° \mathfrak{D} 19'17	
opposition	5011 Dec 19 15:36	27° Π 17'52	-1°30'03				
min. Earth dist.	5011 Dec 18 20:27	27° Π 19'13	28.80526 AU	conjunction	5018 Jul 01 11:20	11° \mathfrak{D} 55'05	-1°16'56
direct	5012 Mar 06 04:53	25° Π 54'18		minimum elong	5018 Jul 01 11:20	11° \mathfrak{D} 55'05	1°16'56
evening set	5012 Jun 01 05:06	27° Π 48'01		max. Earth dist.	5018 Jul 02 05:30	11° \mathfrak{D} 56'48	30.79964 AU
				morning rise	5018 Jul 17 14:02	12° \mathfrak{D} 31'09	
conjunction	5012 Jun 17 02:18	28° Π 23'39	-1°23'50	retrograde	5018 Oct 16 13:48	14° \mathfrak{D} 29'31	
minimum elong	5012 Jun 17 02:18	28° Π 23'39	1°23'51	min. Earth dist.	5019 Jan 03 10:26	13° \mathfrak{D} 05'25	28.80075 AU
max. Earth dist.	5012 Jun 17 23:39	28° Π 25'40	30.80471 AU	opposition	5019 Jan 04 02:32	13° \mathfrak{D} 04'17	-1°21'26
morning rise	5012 Jul 03 02:23	28° Π 59'36		direct	5019 Mar 22 16:31	11° \mathfrak{D} 40'22	
	5012 Aug 01 23:25	0° \mathfrak{D}		evening set	5019 Jun 18 00:29	13° \mathfrak{D} 34'12	
retrograde	5012 Oct 02 06:44	0° \mathfrak{D} 58'27					
	5012 Dec 04 23:19	30° \mathfrak{R} Π		conjunction	5019 Jul 04 00:59	14° \mathfrak{D} 10'02	-1°15'22
min. Earth dist.	5012 Dec 20 08:31	29° Π 34'34	28.80564 AU	minimum elong	5019 Jul 04 00:59	14° \mathfrak{D} 10'02	1°15'23
opposition	5012 Dec 21 03:39	29° Π 33'13	-1°29'12	max. Earth dist.	5019 Jul 04 19:27	14° \mathfrak{D} 11'46	30.80085 AU
direct	5013 Mar 08 17:55	28° Π 09'38		morning rise	5019 Jul 20 03:59	14° \mathfrak{D} 46'07	
	5013 Jun 02 05:19	0° \mathfrak{D}		retrograde	5019 Oct 19 01:49	16° \mathfrak{D} 44'23	
evening set	5013 Jun 03 18:14	0° \mathfrak{D} 03'23		opposition	5020 Jan 06 13:52	15° \mathfrak{D} 19'10	-1°19'42
				min. Earth dist.	5020 Jan 05 21:01	15° \mathfrak{D} 20'22	28.80262 AU
conjunction	5013 Jun 19 15:44	0° \mathfrak{D} 39'03	-1°22'59	direct	5020 Mar 24 05:25	13° \mathfrak{D} 55'13	
minimum elong	5013 Jun 19 15:44	0° \mathfrak{D} 39'03	1°23'00	evening set	5020 Jun 19 13:43	15° \mathfrak{D} 49'06	
max. Earth dist.	5013 Jun 20 11:25	0° \mathfrak{D} 40'54	30.80470 AU				
morning rise	5013 Jul 05 16:23	1° \mathfrak{D} 15'01		conjunction	5020 Jul 05 14:33	16° \mathfrak{D} 24'57	-1°13'41
retrograde	5013 Oct 04 21:31	3° \mathfrak{D} 13'49		minimum elong	5020 Jul 05 14:33	16° \mathfrak{D} 24'57	1°13'42

max. Earth dist.	5020 Jul 06 07:56	16°026'35	30.80347 AU	min. Earth dist.	5027 Jan 21 08:21	1°005'41	28.84052 AU
morning rise	5020 Jul 21 18:04	17°001'03			5027 Mar 06 10:37	30°000'	
retrograde	5020 Oct 20 14:24	18°059'15		direct	5027 Apr 09 16:56	29°040'41	
min. Earth dist.	5021 Jan 07 09:29	17°035'11	28.80606 AU		5027 May 13 09:09	0°00'	
opposition	5021 Jan 08 01:24	17°034'04	-1°17'50	evening set	5027 Jul 06 11:58	1°034'54	
direct	5021 Mar 26 15:22	16°010'05					
evening set	5021 Jun 22 02:48	18°004'01		conjunction	5027 Jul 22 15:46	2°010'55	-0°58'53
				minimum elong	5027 Jul 22 15:46	2°010'55	0°58'54
conjunction	5021 Jul 08 04:13	18°039'54	-1°11'53	max. Earth dist.	5027 Jul 23 05:09	2°012'10	30.84223 AU
minimum elong	5021 Jul 08 04:13	18°039'54	1°11'54	morning rise	5027 Aug 07 21:29	2°047'06	
max. Earth dist.	5021 Jul 08 22:23	18°041'36	30.80767 AU	retrograde	5027 Nov 06 11:12	4°044'35	
morning rise	5021 Jul 24 07:55	19°016'00		opposition	5028 Jan 24 08:45	3°019'47	-1°01'37
retrograde	5021 Oct 23 02:57	21°014'07		min. Earth dist.	5028 Jan 23 21:25	3°020'35	28.84468 AU
opposition	5022 Jan 10 12:45	19°049'00	-1°15'51	direct	5028 Apr 11 03:45	1°055'39	
min. Earth dist.	5022 Jan 09 20:33	19°050'09	28.81085 AU	evening set	5028 Jul 08 01:37	3°049'53	
direct	5022 Mar 29 03:24	18°025'00					
evening set	5022 Jun 24 16:08	20°019'00		conjunction	5028 Jul 24 05:54	4°025'54	-0°56'23
				minimum elong	5028 Jul 24 05:54	4°025'54	0°56'24
conjunction	5022 Jul 10 17:49	20°054'54	-1°09'59	max. Earth dist.	5028 Jul 24 18:49	4°027'06	30.84630 AU
minimum elong	5022 Jul 10 17:50	20°054'54	1°09'59	morning rise	5028 Aug 09 11:50	5°002'05	
max. Earth dist.	5022 Jul 11 10:37	20°056'29	30.81321 AU	retrograde	5028 Nov 07 23:09	6°059'25	
morning rise	5022 Jul 26 22:03	21°031'02		opposition	5029 Jan 25 19:48	5°034'38	-0°58'54
retrograde	5022 Oct 25 17:15	23°029'04		min. Earth dist.	5029 Jan 25 08:15	5°035'27	28.84853 AU
min. Earth dist.	5023 Jan 12 08:33	22°005'07	28.81694 AU	direct	5029 Apr 13 16:47	4°010'25	
opposition	5023 Jan 13 00:09	22°004'01	-1°13'45	evening set	5029 Jul 10 15:15	6°004'40	
direct	5023 Mar 31 14:27	20°040'02					
evening set	5023 Jun 27 05:23	22°034'05		conjunction	5029 Jul 26 19:44	6°040'41	-0°53'48
				minimum elong	5029 Jul 26 19:44	6°040'41	0°53'49
conjunction	5023 Jul 13 07:41	23°010'01	-1°07'58	max. Earth dist.	5029 Jul 27 07:13	6°041'46	30.85017 AU
minimum elong	5023 Jul 13 07:41	23°010'01	1°07'58	morning rise	5029 Aug 12 02:00	7°016'53	
max. Earth dist.	5023 Jul 14 01:08	23°011'39	30.81964 AU	retrograde	5029 Nov 10 10:56	9°014'04	
morning rise	5023 Jul 29 12:07	23°046'10		opposition	5030 Jan 28 06:54	7°049'18	-0°56'06
retrograde	5023 Oct 28 06:27	25°044'07		min. Earth dist.	5030 Jan 27 20:41	7°050'01	28.85262 AU
opposition	5024 Jan 15 11:32	24°019'09	-1°11'32	direct	5030 Apr 16 02:49	6°025'00	
min. Earth dist.	5024 Jan 14 20:44	24°020'11	28.82347 AU	evening set	5030 Jul 13 04:45	8°019'16	
direct	5024 Apr 02 03:58	22°055'10					
evening set	5024 Jun 28 19:02	24°049'17		conjunction	5030 Jul 29 09:44	8°055'18	-0°51'09
				minimum elong	5030 Jul 29 09:44	8°055'18	0°51'09
conjunction	5024 Jul 14 21:38	25°025'14	-1°05'50	max. Earth dist.	5030 Jul 29 21:34	8°056'24	30.85457 AU
minimum elong	5024 Jul 14 21:38	25°025'14	1°05'50	morning rise	5030 Aug 14 16:05	9°031'29	
max. Earth dist.	5024 Jul 15 13:22	25°026'42	30.82627 AU	retrograde	5030 Nov 12 22:20	11°028'31	
morning rise	5024 Jul 31 02:30	26°001'23		opposition	5031 Jan 30 17:46	10°003'46	-0°53'13
retrograde	5024 Oct 29 20:38	27°059'16		min. Earth dist.	5031 Jan 30 07:33	10°004'30	28.85731 AU
opposition	5025 Jan 16 22:46	26°034'21	-1°09'12	direct	5031 Apr 18 15:03	8°039'25	
min. Earth dist.	5025 Jan 16 08:12	26°035'23	28.82994 AU	evening set	5031 Jul 15 18:24	10°033'42	
direct	5025 Apr 04 15:48	25°010'21					
evening set	5025 Jul 01 08:41	27°004'32		conjunction	5031 Jul 31 23:33	11°009'44	-0°48'25
				minimum elong	5031 Jul 31 23:34	11°009'45	0°48'26
conjunction	5025 Jul 17 11:43	27°040'30	-1°03'37	max. Earth dist.	5031 Aug 01 09:47	11°010'42	30.85980 AU
minimum elong	5025 Jul 17 11:44	27°040'30	1°03'37	morning rise	5031 Aug 17 06:19	11°045'56	
max. Earth dist.	5025 Jul 18 03:15	27°041'58	30.83237 AU	retrograde	5031 Nov 15 10:54	13°042'50	
morning rise	5025 Aug 02 16:47	28°016'41		opposition	5032 Feb 02 04:42	12°018'06	-0°50'16
	5025 Oct 02 18:42	0°00'		min. Earth dist.	5032 Feb 01 19:10	12°018'47	28.86312 AU
retrograde	5025 Nov 01 09:20	0°014'26		direct	5032 Apr 20 02:11	10°053'42	
	5025 Dec 01 06:24	30°000'		evening set	5032 Jul 17 07:57	12°048'01	
opposition	5026 Jan 19 10:14	28°049'35	-1°06'46				
min. Earth dist.	5026 Jan 18 21:10	28°050'31	28.83564 AU	conjunction	5032 Aug 02 13:33	13°024'04	-0°45'37
direct	5026 Apr 07 04:05	27°025'34		minimum elong	5032 Aug 02 13:34	13°024'04	0°45'37
evening set	5026 Jul 03 22:12	29°019'46		max. Earth dist.	5032 Aug 03 00:23	13°025'05	30.86616 AU
				morning rise	5032 Aug 18 20:17	14°000'15	
conjunction	5026 Jul 20 01:39	29°055'45	-1°01'17		5032 Sep 17 17:04	15°00'	
minimum elong	5026 Jul 20 01:39	29°055'46	1°01'18	retrograde	5032 Nov 16 22:26	15°057'02	
max. Earth dist.	5026 Jul 20 15:56	29°057'06	30.83777 AU		5033 Jan 18 01:32	15°000'	
	5026 Jul 21 22:55	0°00'		opposition	5033 Feb 03 15:28	14°032'21	-0°47'14
morning rise	5026 Aug 05 07:05	0°031'56		min. Earth dist.	5033 Feb 03 06:34	14°032'59	28.87007 AU
retrograde	5026 Nov 03 23:59	2°029'34		direct	5033 Apr 22 15:04	13°007'55	
opposition	5027 Jan 21 21:31	1°004'45	-1°04'15		5033 Jul 18 20:16	15°00'	

evening set	5033 Jul 19 21:36	15°02'18		retrograde	5039 Dec 03 14:01	1°03'29
				opposition	5040 Feb 19 18:49	0°03'24 -0°24'14
conjunction	5033 Aug 05 03:21	15°03'21 -0°42'45		min. Earth dist.	5040 Feb 19 14:57	0°03'41 28.93518 AU
minimum elong	5033 Aug 05 03:21	15°03'21 0°42'46			5040 Feb 27 17:04	30°08'02
max. Earth dist.	5033 Aug 05 12:40	15°03'13 30.87393 AU		direct	5040 May 08 00:51	28°02'48'57
morning rise	5033 Aug 21 10:25	16°01'43'2			5040 Jul 14 15:42	0°00'00
retrograde	5033 Nov 19 12:05	18°01'11'1		evening set	5040 Aug 04 22:20	0°00'43'44
opposition	5034 Feb 06 02:17	16°04'35 -0°44'07				
min. Earth dist.	5034 Feb 05 17:14	16°04'13 28.87855 AU		conjunction	5040 Aug 21 05:29	1°00'19'50 -0°21'04
direct	5034 Apr 25 02:29	15°02'22'08		minimum elong	5040 Aug 21 05:29	1°00'19'50 0°21'04
evening set	5034 Jul 22 11:03	17°01'16'34		max. Earth dist.	5040 Aug 21 08:11	1°00'20'04 30.93864 AU
				morning rise	5040 Sep 06 13:03	1°00'55'59
conjunction	5034 Aug 07 17:11	17°02'38 -0°39'48		retrograde	5040 Dec 05 01:16	3°00'51'48
minimum elong	5034 Aug 07 17:11	17°02'38 0°39'48		opposition	5041 Feb 21 05:25	2°00'27'45 -0°20'46
max. Earth dist.	5034 Aug 08 02:46	17°02'32 30.88302 AU		min. Earth dist.	5041 Feb 21 02:40	2°00'27'57 28.94205 AU
morning rise	5034 Aug 24 00:16	18°02'48'49		direct	5041 May 10 12:00	1°00'03'14
retrograde	5034 Nov 22 00:27	20°02'25'22		evening set	5041 Aug 07 12:04	2°00'58'02
opposition	5035 Feb 08 13:10	19°02'00'51 -0°40'56				
min. Earth dist.	5035 Feb 08 05:22	19°02'01'24 28.88816 AU		conjunction	5041 Aug 23 19:30	3°00'34'08 -0°17'50
direct	5035 Apr 27 14:41	17°02'36'26		minimum elong	5041 Aug 23 19:31	3°00'34'08 0°17'50
evening set	5035 Jul 25 00:48	19°02'30'56		max. Earth dist.	5041 Aug 23 22:25	3°00'34'24 30.94524 AU
				morning rise	5041 Sep 09 02:54	4°00'10'15
conjunction	5035 Aug 10 07:08	20°02'07'01 -0°36'48		retrograde	5041 Dec 07 11:39	6°00'05'55
minimum elong	5035 Aug 10 07:09	20°02'07'01 0°36'49		opposition	5042 Feb 23 16:00	4°00'41'54 -0°17'17
max. Earth dist.	5035 Aug 10 15:33	20°02'07'48 30.89322 AU		min. Earth dist.	5042 Feb 23 14:16	4°00'42'01 28.94846 AU
morning rise	5035 Aug 26 14:27	20°02'43'12		direct	5042 May 13 00:27	3°00'17'19
retrograde	5035 Nov 24 14:59	22°02'39'38		evening set	5042 Aug 10 01:46	5°00'12'08
opposition	5036 Feb 10 23:44	21°02'15'14 -0°37'42				
min. Earth dist.	5036 Feb 10 15:46	21°02'15'48 28.89857 AU		conjunction	5042 Aug 26 09:11	5°00'48'13 -0°14'34
direct	5036 Apr 29 03:21	19°02'50'50		minimum elong	5042 Aug 26 09:11	5°00'48'13 0°14'33
evening set	5036 Jul 26 14:42	21°02'45'25		behind sun begin	5042 Aug 26 06:34	5°00'47'59
				behind sun end	5042 Aug 26 11:48	5°00'48'27
conjunction	5036 Aug 11 21:14	22°02'21'31 -0°33'45		max. Earth dist.	5042 Aug 26 10:12	5°00'48'18 30.95172 AU
minimum elong	5036 Aug 11 21:14	22°02'21'31 0°33'45		morning rise	5042 Sep 11 16:45	6°00'24'19
max. Earth dist.	5036 Aug 12 04:57	22°02'22'13 30.90368 AU		retrograde	5042 Dec 10 00:15	8°00'19'50
morning rise	5036 Aug 28 04:35	22°02'57'41		opposition	5043 Feb 26 02:28	6°00'55'49 -0°13'47
retrograde	5036 Nov 26 02:28	24°02'54'02		min. Earth dist.	5043 Feb 26 00:55	6°00'55'56 28.95501 AU
opposition	5037 Feb 12 10:36	23°02'29'44 -0°34'24		direct	5043 May 15 11:46	5°00'31'09
min. Earth dist.	5037 Feb 12 04:32	23°02'30'10 28.90899 AU		evening set	5043 Aug 12 15:29	7°00'26'00
direct	5037 May 01 14:06	22°02'05'21				
evening set	5037 Jul 29 04:27	24°02'00'00		conjunction	5043 Aug 28 23:05	8°00'02'04 -0°11'17
				minimum elong	5043 Aug 28 23:05	8°00'02'04 0°11'18
conjunction	5037 Aug 14 11:14	24°02'36'06 -0°30'38		behind sun begin	5043 Aug 28 18:19	8°00'01'39
minimum elong	5037 Aug 14 11:14	24°02'36'06 0°30'39		behind sun end	5043 Aug 29 03:51	8°00'02'30
max. Earth dist.	5037 Aug 14 18:14	24°02'36'45 30.91390 AU		max. Earth dist.	5043 Aug 29 00:09	8°00'02'10 30.95838 AU
morning rise	5037 Aug 30 18:36	25°02'12'17		morning rise	5043 Sep 14 06:26	8°00'38'09
retrograde	5037 Nov 28 15:00	27°02'08'31		retrograde	5043 Dec 12 11:13	10°00'33'29
opposition	5038 Feb 14 21:20	25°02'44'19 -0°31'03		opposition	5044 Feb 28 12:51	9°00'09'30 -0°10'15
min. Earth dist.	5038 Feb 14 15:15	25°02'44'45 28.91876 AU		min. Earth dist.	5044 Feb 28 12:44	9°00'09'31 28.96198 AU
direct	5038 May 04 02:49	24°02'19'56		direct	5044 May 17 00:54	7°00'44'47
evening set	5038 Jul 31 18:27	26°02'14'38		evening set	5044 Aug 14 05:11	9°00'39'39
conjunction	5038 Aug 17 01:18	26°02'50'45 -0°27'29		conjunction	5044 Aug 30 12:46	10°00'15'42 -0°08'00
minimum elong	5038 Aug 17 01:18	26°02'50'45 0°27'29		minimum elong	5044 Aug 30 12:45	10°00'15'42 0°07'59
max. Earth dist.	5038 Aug 17 06:31	26°02'51'14 30.92317 AU		behind sun begin	5044 Aug 30 06:53	10°00'15'11
morning rise	5038 Sep 02 08:49	27°02'26'55		behind sun end	5044 Aug 30 18:38	10°00'16'13
retrograde	5038 Dec 01 03:19	29°02'23'02		max. Earth dist.	5044 Aug 30 12:33	10°00'15'41 30.96584 AU
opposition	5039 Feb 17 08:07	27°02'58'54 -0°27'40		morning rise	5044 Sep 15 20:08	10°00'51'45
min. Earth dist.	5039 Feb 17 03:46	27°02'59'12 28.92757 AU		retrograde	5044 Dec 14 00:12	12°00'46'56
direct	5039 May 06 12:28	26°02'34'29		opposition	5045 Mar 01 23:12	11°00'22'59 -0°06'43
evening set	5039 Aug 03 08:19	28°02'29'14		min. Earth dist.	5045 Mar 01 22:39	11°00'23'01 28.96994 AU
				direct	5045 May 19 14:20	9°00'58'12
conjunction	5039 Aug 19 15:31	29°02'05'21 -0°24'18		evening set	5045 Aug 16 18:39	11°00'53'06
minimum elong	5039 Aug 19 15:31	29°02'05'21 0°24'18				
max. Earth dist.	5039 Aug 19 20:23	29°02'05'48 30.93144 AU		conjunction	5045 Sep 02 02:15	12°00'29'08 -0°04'42
morning rise	5039 Sep 04 22:57	29°02'41'30		minimum elong	5045 Sep 02 02:14	12°00'29'08 0°04'43
	5039 Sep 13 14:48	0°00'00		behind sun begin	5045 Sep 01 19:47	12°00'28'34

behind sun end	5045 Sep 02 08:41	12° <u>17</u> 29'43		direct	5051 Jun 02 10:54	23° <u>17</u> 17'44	
max. Earth dist.	5045 Sep 02 01:46	12° <u>17</u> 29'07	30.97431 AU	evening set	5051 Aug 31 04:22	25° <u>17</u> 12'56	
morning rise	5045 Sep 18 09:25	13° <u>17</u> 05'10					
retrograde	5045 Dec 16 10:59	15° <u>17</u> 00'13		conjunction	5051 Sep 16 11:32	25° <u>17</u> 48'54	0°15'13
opposition	5046 Mar 04 09:41	13° <u>17</u> 36'18	-0°03'11	minimum elong	5051 Sep 16 11:32	25° <u>17</u> 48'54	0°15'12
min. Earth dist.	5046 Mar 04 10:34	13° <u>17</u> 36'14	28.97913 AU	behind sun begin	5051 Sep 16 09:43	25° <u>17</u> 48'45	
direct	5046 May 22 01:38	12° <u>17</u> 11'30		behind sun end	5051 Sep 16 13:20	25° <u>17</u> 49'04	
evening set	5046 Aug 19 08:10	14° <u>17</u> 06'25		max. Earth dist.	5051 Sep 16 05:31	25° <u>17</u> 48'22	31.04063 AU
				morning rise	5051 Oct 02 17:42	26° <u>17</u> 24'48	
conjunction	5046 Sep 04 15:49	14° <u>17</u> 42'27	-0°01'22	retrograde	5051 Dec 30 07:08	28° <u>17</u> 19'09	
minimum elong	5046 Sep 04 15:49	14° <u>17</u> 42'27	0°01'22	opposition	5052 Mar 16 23:33	26° <u>17</u> 55'45	0°17'58
behind sun begin	5046 Sep 04 09:14	14° <u>17</u> 41'52		min. Earth dist.	5052 Mar 17 04:16	26° <u>17</u> 55'25	29.04543 AU
behind sun end	5046 Sep 04 22:25	14° <u>17</u> 43'02		direct	5052 Jun 03 21:52	25° <u>17</u> 30'56	
max. Earth dist.	5046 Sep 04 14:58	14° <u>17</u> 42'26	30.98425 AU	evening set	5052 Sep 01 17:57	27° <u>17</u> 26'11	
morning rise	5046 Sep 20 22:54	15° <u>17</u> 18'27					
retrograde	5046 Dec 18 23:28	17° <u>17</u> 13'21		conjunction	5052 Sep 18 01:06	28° <u>17</u> 02'08	0°18'27
asc. node	5047 Jan 28 03:28	16° <u>17</u> 47'22		minimum elong	5052 Sep 18 01:06	28° <u>17</u> 02'08	0°18'28
opposition	5047 Mar 06 19:51	15° <u>17</u> 49'31	0°00'22	max. Earth dist.	5052 Sep 17 18:55	28° <u>17</u> 01'35	31.04982 AU
min. Earth dist.	5047 Mar 06 20:22	15° <u>17</u> 49'29	28.98962 AU	morning rise	5052 Oct 04 06:50	28° <u>17</u> 38'00	
direct	5047 May 24 14:30	14° <u>17</u> 24'42			5052 Nov 17 13:31	0° <u>17</u> 00	
evening set	5047 Aug 21 21:50	16° <u>17</u> 19'41		retrograde	5052 Dec 31 17:27	0° <u>17</u> 32'14	
					5053 Feb 14 19:38	30° <u>17</u> 00	
conjunction	5047 Sep 07 05:23	16° <u>17</u> 55'42	0°02'04	opposition	5053 Mar 19 10:00	29° <u>17</u> 08'52	0°21'25
minimum elong	5047 Sep 07 05:23	16° <u>17</u> 55'42	0°02'03	min. Earth dist.	5053 Mar 19 16:23	29° <u>17</u> 08'25	29.05416 AU
behind sun begin	5047 Sep 06 22:47	16° <u>17</u> 55'07		direct	5053 Jun 06 10:41	27° <u>17</u> 44'02	
behind sun end	5047 Sep 07 11:59	16° <u>17</u> 56'17		evening set	5053 Sep 04 07:23	29° <u>17</u> 39'19	
max. Earth dist.	5047 Sep 07 03:21	16° <u>17</u> 55'35	30.99530 AU		5053 Sep 13 17:45	0° <u>17</u> 00	
morning rise	5047 Sep 23 12:22	17° <u>17</u> 31'41					
retrograde	5047 Dec 21 11:28	19° <u>17</u> 26'29		conjunction	5053 Sep 20 14:17	0° <u>17</u> 15'14	0°21'40
opposition	5048 Mar 08 06:14	18° <u>17</u> 02'43	0°03'55	minimum elong	5053 Sep 20 14:17	0° <u>17</u> 15'14	0°21'39
min. Earth dist.	5048 Mar 08 08:03	18° <u>17</u> 02'36	29.00118 AU	max. Earth dist.	5053 Sep 20 06:28	0° <u>17</u> 14'32	31.05823 AU
direct	5048 May 26 00:44	16° <u>17</u> 37'55		morning rise	5053 Oct 06 19:52	0° <u>17</u> 51'04	
evening set	5048 Aug 23 11:21	18° <u>17</u> 32'57		retrograde	5054 Jan 03 05:45	2° <u>17</u> 45'11	
				opposition	5054 Mar 21 20:14	1° <u>17</u> 21'51	0°24'49
conjunction	5048 Sep 08 18:57	19° <u>17</u> 08'58	0°05'23	min. Earth dist.	5054 Mar 22 02:28	1° <u>17</u> 21'24	29.06221 AU
minimum elong	5048 Sep 08 18:57	19° <u>17</u> 08'58	0°05'24		5054 May 26 11:26	30° <u>17</u> 00	
behind sun begin	5048 Sep 08 12:35	19° <u>17</u> 08'24		direct	5054 Jun 09 00:03	29° <u>17</u> 56'59	
behind sun end	5048 Sep 09 01:19	19° <u>17</u> 09'32			5054 Jun 22 10:39	0° <u>17</u> 00	
max. Earth dist.	5048 Sep 08 16:59	19° <u>17</u> 08'49	31.00714 AU	evening set	5054 Sep 06 20:50	1° <u>17</u> 52'17	
morning rise	5048 Sep 25 01:38	19° <u>17</u> 44'56					
retrograde	5048 Dec 22 21:42	21° <u>17</u> 39'37		conjunction	5054 Sep 23 03:36	2° <u>17</u> 28'11	0°24'50
opposition	5049 Mar 10 16:31	20° <u>17</u> 15'58	0°07'27	minimum elong	5054 Sep 23 03:36	2° <u>17</u> 28'11	0°24'51
min. Earth dist.	5049 Mar 10 18:38	20° <u>17</u> 15'49	29.01306 AU	max. Earth dist.	5054 Sep 22 19:14	2° <u>17</u> 27'25	31.06597 AU
direct	5049 May 28 13:03	18° <u>17</u> 51'11		morning rise	5054 Oct 09 08:49	3° <u>17</u> 03'59	
evening set	5049 Aug 26 01:03	20° <u>17</u> 46'16		retrograde	5055 Jan 05 16:11	4° <u>17</u> 57'57	
				opposition	5055 Mar 24 06:26	3° <u>17</u> 34'40	0°28'12
conjunction	5049 Sep 11 08:25	21° <u>17</u> 22'16	0°08'41	min. Earth dist.	5055 Mar 24 14:29	3° <u>17</u> 34'06	29.06991 AU
minimum elong	5049 Sep 11 08:24	21° <u>17</u> 22'16	0°08'40	direct	5055 Jun 11 11:30	2° <u>17</u> 09'45	
behind sun begin	5049 Sep 11 02:43	21° <u>17</u> 21'46		evening set	5055 Sep 09 10:12	4° <u>17</u> 05'05	
behind sun end	5049 Sep 11 14:06	21° <u>17</u> 22'47					
max. Earth dist.	5049 Sep 11 04:30	21° <u>17</u> 21'56	31.01900 AU	conjunction	5055 Sep 25 16:48	4° <u>17</u> 40'57	0°27'58
morning rise	5049 Sep 27 15:02	21° <u>17</u> 58'13		minimum elong	5055 Sep 25 16:48	4° <u>17</u> 40'57	0°27'58
retrograde	5049 Dec 25 08:59	23° <u>17</u> 52'48		max. Earth dist.	5055 Sep 25 07:46	4° <u>17</u> 40'07	31.07368 AU
opposition	5050 Mar 13 02:51	22° <u>17</u> 29'14	0°10'58	morning rise	5055 Oct 11 21:44	5° <u>17</u> 16'42	
min. Earth dist.	5050 Mar 13 05:58	22° <u>17</u> 29'01	29.02483 AU	retrograde	5056 Jan 08 04:17	7° <u>17</u> 10'33	
direct	5050 May 30 23:12	21° <u>17</u> 04'28		opposition	5056 Mar 25 16:34	5° <u>17</u> 47'17	0°31'31
evening set	5050 Aug 28 14:33	22° <u>17</u> 59'37		min. Earth dist.	5056 Mar 26 00:23	5° <u>17</u> 46'44	29.07765 AU
				direct	5056 Jun 13 01:10	4° <u>17</u> 22'20	
conjunction	5050 Sep 13 22:00	23° <u>17</u> 35'36	0°11'57	evening set	5056 Sep 10 23:27	6° <u>17</u> 17'41	
minimum elong	5050 Sep 13 22:00	23° <u>17</u> 35'36	0°11'58				
behind sun begin	5050 Sep 13 17:33	23° <u>17</u> 35'13		conjunction	5056 Sep 27 05:43	6° <u>17</u> 53'32	0°31'04
behind sun end	5050 Sep 14 02:27	23° <u>17</u> 36'00		minimum elong	5056 Sep 27 05:43	6° <u>17</u> 53'32	0°31'05
max. Earth dist.	5050 Sep 13 18:13	23° <u>17</u> 35'16	31.03033 AU	max. Earth dist.	5056 Sep 26 19:39	6° <u>17</u> 52'37	31.08156 AU
morning rise	5050 Sep 30 04:15	24° <u>17</u> 11'31		morning rise	5056 Oct 13 10:19	7° <u>17</u> 29'15	
retrograde	5050 Dec 27 19:04	26° <u>17</u> 05'59		retrograde	5057 Jan 09 15:43	9° <u>17</u> 22'58	
opposition	5051 Mar 15 13:18	24° <u>17</u> 42'31	0°14'29	opposition	5057 Mar 28 02:47	7° <u>17</u> 59'44	0°34'48
min. Earth dist.	5051 Mar 15 17:38	24° <u>17</u> 42'13	29.03562 AU	min. Earth dist.	5057 Mar 28 11:43	7° <u>17</u> 59'07	29.08602 AU

direct	5057 Jun 15 12:14	6° <u>♂</u> 34'45		retrograde	5064 Jan 25 15:37	24° <u>♂</u> 48'15	
evening set	5057 Sep 13 12:30	8° <u>♂</u> 30'07		opposition	5064 Apr 12 02:19	23° <u>♂</u> 25'33	0°56'01
				min. Earth dist.	5064 Apr 12 15:23	23° <u>♂</u> 24'39	29.16532 AU
conjunction	5057 Sep 29 18:39	9° <u>♂</u> 05'57	0°34'06	direct	5064 Jun 30 19:29	22° <u>♂</u> 00'40	
minimum elong	5057 Sep 29 18:38	9° <u>♂</u> 05'57	0°34'06	evening set	5064 Sep 29 07:39	23° <u>♂</u> 56'20	
max. Earth dist.	5057 Sep 29 08:51	9° <u>♂</u> 05'03	31.09037 AU				
morning rise	5057 Oct 15 22:49	9° <u>♂</u> 41'38		conjunction	5064 Oct 15 11:30	24° <u>♂</u> 31'57	0°53'44
retrograde	5058 Jan 12 00:56	11° <u>♂</u> 35'13		minimum elong	5064 Oct 15 11:29	24° <u>♂</u> 31'57	0°53'45
opposition	5058 Mar 30 12:53	10° <u>♂</u> 12'03	0°38'01	max. Earth dist.	5064 Oct 14 20:55	24° <u>♂</u> 30'36	31.16986 AU
min. Earth dist.	5058 Mar 30 21:47	10° <u>♂</u> 11'25	29.09535 AU	morning rise	5064 Oct 31 12:49	25° <u>♂</u> 07'22	
direct	5058 Jun 18 00:59	8° <u>♂</u> 47'03		retrograde	5065 Jan 27 03:27	27° <u>♂</u> 00'23	
evening set	5058 Sep 16 01:37	10° <u>♂</u> 42'27		opposition	5065 Apr 14 12:38	25° <u>♂</u> 37'44	0°58'45
				min. Earth dist.	5065 Apr 15 01:36	25° <u>♂</u> 36'49	29.17480 AU
conjunction	5058 Oct 02 07:22	11° <u>♂</u> 18'14	0°37'06	direct	5065 Jul 03 09:39	24° <u>♂</u> 12'49	
minimum elong	5058 Oct 02 07:22	11° <u>♂</u> 18'14	0°37'06	evening set	5065 Oct 01 20:34	26° <u>♂</u> 08'30	
max. Earth dist.	5058 Oct 01 20:07	11° <u>♂</u> 17'12	31.10033 AU				
morning rise	5058 Oct 18 11:19	11° <u>♂</u> 53'53		conjunction	5065 Oct 17 23:59	26° <u>♂</u> 44'05	0°56'15
retrograde	5059 Jan 14 11:32	13° <u>♂</u> 47'22		minimum elong	5065 Oct 17 23:59	26° <u>♂</u> 44'05	0°56'15
opposition	5059 Apr 01 23:04	12° <u>♂</u> 24'16	0°41'11	max. Earth dist.	5065 Oct 17 08:10	26° <u>♂</u> 42'38	31.17871 AU
min. Earth dist.	5059 Apr 02 08:21	12° <u>♂</u> 23'37	29.10602 AU	morning rise	5065 Nov 03 00:53	27° <u>♂</u> 19'28	
direct	5059 Jun 20 11:08	10° <u>♂</u> 59'16		retrograde	5066 Jan 29 14:41	29° <u>♂</u> 12'23	
evening set	5059 Sep 18 14:38	12° <u>♂</u> 54'42		opposition	5066 Apr 16 22:59	27° <u>♂</u> 49'46	1°01'23
				min. Earth dist.	5066 Apr 17 13:17	27° <u>♂</u> 48'46	29.18324 AU
conjunction	5059 Oct 04 20:16	13° <u>♂</u> 30'29	0°40'02	direct	5066 Jul 05 21:23	26° <u>♂</u> 24'50	
minimum elong	5059 Oct 04 20:15	13° <u>♂</u> 30'29	0°40'01	evening set	5066 Oct 04 09:17	28° <u>♂</u> 20'31	
max. Earth dist.	5059 Oct 04 09:42	13° <u>♂</u> 29'30	31.11154 AU				
morning rise	5059 Oct 20 23:39	14° <u>♂</u> 06'05		conjunction	5066 Oct 20 12:27	28° <u>♂</u> 56'04	0°58'41
retrograde	5060 Jan 16 20:55	15° <u>♂</u> 59'29		minimum elong	5066 Oct 20 12:27	28° <u>♂</u> 56'04	0°58'42
opposition	5060 Apr 03 09:13	14° <u>♂</u> 36'28	0°44'18	max. Earth dist.	5066 Oct 19 20:35	28° <u>♂</u> 54'36	31.18661 AU
min. Earth dist.	5060 Apr 03 19:17	14° <u>♂</u> 35'45	29.11771 AU	morning rise	5066 Nov 05 12:51	29° <u>♂</u> 31'25	
direct	5060 Jun 21 21:58	13° <u>♂</u> 11'29			5066 Nov 19 03:37	0° <u>♂</u>	
evening set	5060 Sep 20 03:45	15° <u>♂</u> 06'59		retrograde	5067 Feb 01 00:06	1° <u>♂</u> 24'13	
				opposition	5067 Apr 19 09:18	0° <u>♂</u> 01'37	1°03'56
conjunction	5060 Oct 06 08:55	15° <u>♂</u> 42'43	0°42'54	min. Earth dist.	5067 Apr 19 23:57	0° <u>♂</u> 00'36	29.19061 AU
minimum elong	5060 Oct 06 08:54	15° <u>♂</u> 42'43	0°42'55		5067 Apr 20 08:28	30° <u>♂</u>	
max. Earth dist.	5060 Oct 05 20:49	15° <u>♂</u> 41'36	31.12374 AU	direct	5067 Jul 08 10:43	28° <u>♂</u> 36'40	
morning rise	5060 Oct 22 12:04	16° <u>♂</u> 18'18			5067 Sep 21 09:34	0° <u>♂</u>	
retrograde	5061 Jan 18 08:07	18° <u>♂</u> 11'38		evening set	5067 Oct 06 22:05	0° <u>♂</u> 32'21	
opposition	5061 Apr 05 19:24	16° <u>♂</u> 48'42	0°47'20	max. Earth dist.	5067 Oct 22 07:09	1° <u>♂</u> 06'14	31.19363 AU
min. Earth dist.	5061 Apr 06 05:18	16° <u>♂</u> 48'00	29.13025 AU				
direct	5061 Jun 24 08:17	15° <u>♂</u> 23'45		conjunction	5067 Oct 23 00:41	1° <u>♂</u> 07'51	1°01'02
evening set	5061 Sep 22 16:34	17° <u>♂</u> 19'18		minimum elong	5067 Oct 23 00:41	1° <u>♂</u> 07'51	1°01'02
				morning rise	5067 Nov 08 00:42	1° <u>♂</u> 43'09	
conjunction	5061 Oct 08 21:33	17° <u>♂</u> 55'01	0°45'43	retrograde	5068 Feb 03 10:46	3° <u>♂</u> 35'51	
minimum elong	5061 Oct 08 21:33	17° <u>♂</u> 55'01	0°45'43	opposition	5068 Apr 20 19:36	2° <u>♂</u> 13'16	1°06'24
max. Earth dist.	5061 Oct 08 09:50	17° <u>♂</u> 53'56	31.13627 AU	min. Earth dist.	5068 Apr 21 10:46	2° <u>♂</u> 12'13	29.19750 AU
morning rise	5061 Oct 25 00:09	18° <u>♂</u> 30'34		direct	5068 Jul 09 21:48	0° <u>♂</u> 48'17	
retrograde	5062 Jan 20 17:23	20° <u>♂</u> 23'49		evening set	5068 Oct 08 10:34	2° <u>♂</u> 43'57	
opposition	5062 Apr 08 05:43	19° <u>♂</u> 00'59	0°50'18				
min. Earth dist.	5062 Apr 08 17:09	19° <u>♂</u> 00'11	29.14272 AU	conjunction	5068 Oct 24 12:55	3° <u>♂</u> 19'26	1°03'17
direct	5062 Jun 26 20:11	17° <u>♂</u> 36'04		minimum elong	5068 Oct 24 12:54	3° <u>♂</u> 19'26	1°03'18
evening set	5062 Sep 25 05:40	19° <u>♂</u> 31'40		max. Earth dist.	5068 Oct 23 20:04	3° <u>♂</u> 17'53	31.20036 AU
				morning rise	5068 Nov 09 12:17	3° <u>♂</u> 54'42	
conjunction	5062 Oct 11 10:13	20° <u>♂</u> 07'21	0°48'28	retrograde	5069 Feb 04 19:35	5° <u>♂</u> 47'17	
minimum elong	5062 Oct 11 10:13	20° <u>♂</u> 07'21	0°48'29	opposition	5069 Apr 23 06:00	4° <u>♂</u> 24'44	1°08'45
max. Earth dist.	5062 Oct 10 20:58	20° <u>♂</u> 06'08	31.14851 AU	min. Earth dist.	5069 Apr 23 21:58	4° <u>♂</u> 23'37	29.20426 AU
morning rise	5062 Oct 27 12:32	20° <u>♂</u> 42'52		direct	5069 Jul 12 09:33	2° <u>♂</u> 59'43	
retrograde	5063 Jan 23 05:09	22° <u>♂</u> 36'02		evening set	5069 Oct 10 22:56	4° <u>♂</u> 55'23	
opposition	5063 Apr 10 15:50	21° <u>♂</u> 13'17	0°53'12	max. Earth dist.	5069 Oct 26 06:32	5° <u>♂</u> 29'08	31.20729 AU
min. Earth dist.	5063 Apr 11 03:06	21° <u>♂</u> 12'30	29.15456 AU				
direct	5063 Jun 29 08:20	19° <u>♂</u> 48'23		conjunction	5069 Oct 27 00:41	5° <u>♂</u> 30'49	1°05'26
evening set	5063 Sep 27 18:46	21° <u>♂</u> 44'02		minimum elong	5069 Oct 27 00:41	5° <u>♂</u> 30'49	1°05'26
				morning rise	5069 Nov 11 23:47	6° <u>♂</u> 06'03	
conjunction	5063 Oct 13 23:00	22° <u>♂</u> 19'41	0°51'08	retrograde	5070 Feb 07 05:54	7° <u>♂</u> 58'34	
minimum elong	5063 Oct 13 23:00	22° <u>♂</u> 19'41	0°51'08	opposition	5070 Apr 25 16:16	6° <u>♂</u> 36'02	1°11'01
max. Earth dist.	5063 Oct 13 09:11	22° <u>♂</u> 18'24	31.15972 AU	min. Earth dist.	5070 Apr 26 07:47	6° <u>♂</u> 34'57	29.21153 AU
morning rise	5063 Oct 30 00:45	22° <u>♂</u> 55'09		direct	5070 Jul 14 20:31	5° <u>♂</u> 10'59	

evening set	5070 Oct 13 11:14	7° \mathbb{M} 06'40		max. Earth dist.	5076 Nov 10 14:18	20° \mathbb{M} 48'17	31.26849 AU
				morning rise	5076 Nov 27 06:23	21° \mathbb{M} 25'09	
conjunction	5070 Oct 29 12:42	7° \mathbb{M} 42'04	1°07'30	retrograde	5077 Feb 22 07:56	23° \mathbb{M} 17'26	
minimum elong	5070 Oct 29 12:42	7° \mathbb{M} 42'04	1°07'31	opposition	5077 May 10 17:40	21° \mathbb{M} 55'22	1°23'43
max. Earth dist.	5070 Oct 28 19:14	7° \mathbb{M} 40'27	31.21482 AU	min. Earth dist.	5077 May 11 11:53	21° \mathbb{M} 54'06	29.27255 AU
morning rise	5070 Nov 14 11:08	8° \mathbb{M} 17'15		direct	5077 Jul 30 07:10	20° \mathbb{M} 30'35	
retrograde	5071 Feb 09 14:19	10° \mathbb{M} 09'42		evening set	5077 Oct 29 00:07	22° \mathbb{M} 26'29	
opposition	5071 Apr 28 02:37	8° \mathbb{M} 47'13	1°13'10				
min. Earth dist.	5071 Apr 28 19:11	8° \mathbb{M} 46'03	29.21955 AU	conjunction	5077 Nov 13 22:23	23° \mathbb{M} 01'41	1°19'02
direct	5071 Jul 17 07:51	7° \mathbb{M} 22'11		minimum elong	5077 Nov 13 22:23	23° \mathbb{M} 01'41	1°19'02
evening set	5071 Oct 15 23:36	9° \mathbb{M} 17'53		max. Earth dist.	5077 Nov 13 02:26	22° \mathbb{M} 59'50	31.27462 AU
max. Earth dist.	5071 Oct 31 06:09	9° \mathbb{M} 51'33	31.22339 AU	morning rise	5077 Nov 29 17:18	23° \mathbb{M} 36'37	
				retrograde	5078 Feb 24 17:07	25° \mathbb{M} 28'52	
conjunction	5071 Nov 01 00:30	9° \mathbb{M} 53'16	1°09'28	opposition	5078 May 13 04:26	24° \mathbb{M} 06'49	1°25'04
minimum elong	5071 Nov 01 00:30	9° \mathbb{M} 53'16	1°09'28	min. Earth dist.	5078 May 13 23:39	24° \mathbb{M} 05'29	29.27789 AU
morning rise	5071 Nov 16 22:34	10° \mathbb{M} 28'24		direct	5078 Aug 01 19:35	22° \mathbb{M} 42'02	
retrograde	5072 Feb 12 01:24	12° \mathbb{M} 20'48		evening set	5078 Oct 31 12:10	24° \mathbb{M} 37'56	
opposition	5072 Apr 29 12:58	10° \mathbb{M} 58'22	1°15'12				
min. Earth dist.	5072 Apr 30 04:39	10° \mathbb{M} 57'17	29.22858 AU	conjunction	5078 Nov 16 09:48	25° \mathbb{M} 13'05	1°20'14
direct	5072 Jul 18 19:12	9° \mathbb{M} 33'23		minimum elong	5078 Nov 16 09:47	25° \mathbb{M} 13'05	1°20'15
evening set	5072 Oct 17 11:40	11° \mathbb{M} 29'07		max. Earth dist.	5078 Nov 15 12:17	25° \mathbb{M} 11'05	31.27929 AU
				morning rise	5078 Dec 02 04:23	25° \mathbb{M} 47'59	
conjunction	5072 Nov 02 12:11	12° \mathbb{M} 04'28	1°11'20	retrograde	5079 Feb 27 03:01	27° \mathbb{M} 40'11	
minimum elong	5072 Nov 02 12:11	12° \mathbb{M} 04'28	1°11'21	opposition	5079 May 15 14:59	26° \mathbb{M} 18'09	1°26'18
max. Earth dist.	5072 Nov 01 18:02	12° \mathbb{M} 02'47	31.23275 AU	min. Earth dist.	5079 May 16 09:55	26° \mathbb{M} 16'50	29.28195 AU
morning rise	5072 Nov 18 09:38	12° \mathbb{M} 39'34		direct	5079 Aug 04 07:05	24° \mathbb{M} 53'20	
retrograde	5073 Feb 13 11:30	14° \mathbb{M} 31'57		evening set	5079 Nov 02 23:56	26° \mathbb{M} 49'14	
opposition	5073 May 01 23:29	13° \mathbb{M} 09'36	1°17'08				
min. Earth dist.	5073 May 02 16:24	13° \mathbb{M} 08'26	29.23832 AU	conjunction	5079 Nov 18 21:14	27° \mathbb{M} 24'21	1°21'19
direct	5073 Jul 21 05:41	11° \mathbb{M} 44'40		minimum elong	5079 Nov 18 21:13	27° \mathbb{M} 24'21	1°21'20
evening set	5073 Oct 19 23:49	13° \mathbb{M} 40'27		max. Earth dist.	5079 Nov 18 00:14	27° \mathbb{M} 22'24	31.28269 AU
				morning rise	5079 Dec 04 15:09	27° \mathbb{M} 59'12	
conjunction	5073 Nov 04 23:53	14° \mathbb{M} 15'46	1°13'05	retrograde	5080 Feb 29 10:48	29° \mathbb{M} 51'21	
minimum elong	5073 Nov 04 23:53	14° \mathbb{M} 15'45	1°13'06	opposition	5080 May 17 01:50	28° \mathbb{M} 29'19	1°27'24
max. Earth dist.	5073 Nov 04 05:34	14° \mathbb{M} 14'04	31.24267 AU	min. Earth dist.	5080 May 17 22:00	28° \mathbb{M} 27'55	29.28489 AU
morning rise	5073 Nov 20 20:53	14° \mathbb{M} 50'50		direct	5080 Aug 05 18:19	27° \mathbb{M} 04'29	
	5073 Nov 25 03:08	15° \mathbb{M}		evening set	5080 Nov 04 11:29	29° \mathbb{M} 00'19	
retrograde	5074 Feb 15 23:13	16° \mathbb{M} 43'11		max. Earth dist.	5080 Nov 19 10:23	29° \mathbb{M} 33'23	31.28534 AU
opposition	5074 May 04 09:46	15° \mathbb{M} 20'56	1°18'58				
min. Earth dist.	5074 May 05 02:18	15° \mathbb{M} 19'47	29.24815 AU	conjunction	5080 Nov 20 08:12	29° \mathbb{M} 35'24	1°22'18
	5074 May 17 02:47	15° \mathbb{R} \mathbb{M}		minimum elong	5080 Nov 20 08:12	29° \mathbb{M} 35'24	1°22'19
direct	5074 Jul 23 19:14	13° \mathbb{M} 56'02			5080 Dec 01 09:46	0° \mathbb{Z}	
	5074 Sep 26 18:13	15° \mathbb{M}		morning rise	5080 Dec 06 01:48	0° \mathbb{Z} 10'14	
evening set	5074 Oct 22 12:02	15° \mathbb{M} 51'53		retrograde	5081 Mar 02 21:08	2° \mathbb{Z} 02'19	
				opposition	5081 May 19 12:30	0° \mathbb{Z} 40'15	1°28'22
conjunction	5074 Nov 07 11:36	16° \mathbb{M} 27'10	1°14'45	min. Earth dist.	5081 May 20 07:49	0° \mathbb{Z} 38'56	29.28728 AU
minimum elong	5074 Nov 07 11:36	16° \mathbb{M} 27'10	1°14'46		5081 Jun 13 21:02	30° \mathbb{R} \mathbb{M}	
max. Earth dist.	5074 Nov 06 16:24	16° \mathbb{M} 25'23	31.25224 AU	direct	5081 Aug 08 05:27	29° \mathbb{M} 15'23	
morning rise	5074 Nov 23 08:08	17° \mathbb{M} 02'12			5081 Sep 30 22:03	0° \mathbb{Z}	
retrograde	5075 Feb 18 10:52	18° \mathbb{M} 54'33		evening set	5081 Nov 06 22:56	1° \mathbb{Z} 11'12	
opposition	5075 May 06 20:22	17° \mathbb{M} 32'22	1°20'40				
min. Earth dist.	5075 May 07 13:56	17° \mathbb{M} 31'09	29.25748 AU	conjunction	5081 Nov 22 19:15	1° \mathbb{Z} 46'14	1°23'09
direct	5075 Jul 26 06:43	16° \mathbb{M} 07'31		minimum elong	5081 Nov 22 19:14	1° \mathbb{Z} 46'14	1°23'10
evening set	5075 Oct 25 00:08	18° \mathbb{M} 03'25		max. Earth dist.	5081 Nov 21 21:40	1° \mathbb{Z} 44'14	31.28757 AU
				morning rise	5081 Dec 08 12:17	2° \mathbb{Z} 21'02	
conjunction	5075 Nov 09 23:18	18° \mathbb{M} 38'39	1°16'17	retrograde	5082 Mar 05 06:12	4° \mathbb{Z} 13'04	
minimum elong	5075 Nov 09 23:17	18° \mathbb{M} 38'39	1°16'17	opposition	5082 May 21 23:09	2° \mathbb{Z} 50'59	1°29'13
max. Earth dist.	5075 Nov 09 04:19	18° \mathbb{M} 36'54	31.26101 AU	min. Earth dist.	5082 May 22 19:33	2° \mathbb{Z} 49'35	29.28968 AU
morning rise	5075 Nov 25 19:13	19° \mathbb{M} 13'39		direct	5082 Aug 10 16:19	1° \mathbb{Z} 26'05	
retrograde	5076 Feb 20 20:27	21° \mathbb{M} 05'59		evening set	5082 Nov 09 10:19	3° \mathbb{Z} 21'52	
opposition	5076 May 08 07:00	19° \mathbb{M} 43'52	1°22'15	max. Earth dist.	5082 Nov 24 08:49	3° \mathbb{Z} 54'53	31.29020 AU
min. Earth dist.	5076 May 09 00:49	19° \mathbb{M} 42'38	29.26561 AU				
direct	5076 Jul 27 19:40	18° \mathbb{M} 19'03		conjunction	5082 Nov 25 06:10	3° \mathbb{Z} 56'52	1°23'53
evening set	5076 Oct 26 12:19	20° \mathbb{M} 14'58		minimum elong	5082 Nov 25 06:10	3° \mathbb{Z} 56'52	1°23'54
				morning rise	5082 Dec 10 22:46	4° \mathbb{Z} 31'37	
conjunction	5076 Nov 11 10:51	20° \mathbb{M} 50'11	1°17'43	retrograde	5083 Mar 07 16:38	6° \mathbb{Z} 23'37	
minimum elong	5076 Nov 11 10:51	20° \mathbb{M} 50'11	1°17'44	opposition	5083 May 24 09:54	5° \mathbb{Z} 01'31	1°29'56

min. Earth dist.	5083 May 25 05:23	5°♊00'11	29.29257 AU	morning rise	5089 Dec 25 22:09	19°♊45'11	
direct	5083 Aug 13 05:44	3°♊36'36		retrograde	5090 Mar 22 15:50	21°♊37'17	
evening set	5083 Nov 11 21:37	5°♊32'22		opposition	5090 Jun 08 14:41	20°♊15'25	1°31'20
				min. Earth dist.	5090 Jun 09 09:54	20°♊14'06	29.32152 AU
conjunction	5083 Nov 27 16:54	6°♊07'20	1°24'30	direct	5090 Aug 28 14:24	18°♊50'46	
minimum elong	5083 Nov 27 16:53	6°♊07'20	1°24'31	evening set	5090 Nov 27 02:59	20°♊46'33	
max. Earth dist.	5083 Nov 26 19:18	6°♊05'20	31.29347 AU				
morning rise	5083 Dec 13 09:02	6°♊42'03		conjunction	5090 Dec 12 19:11	21°♊21'21	1°25'22
retrograde	5084 Mar 09 03:31	8°♊34'03		minimum elong	5090 Dec 12 19:11	21°♊21'21	1°25'23
opposition	5084 May 25 20:45	7°♊11'57	1°30'32	max. Earth dist.	5090 Dec 11 22:01	21°♊19'22	31.32112 AU
min. Earth dist.	5084 May 26 16:28	7°♊10'36	29.29646 AU	morning rise	5090 Dec 28 08:16	21°♊55'54	
direct	5084 Aug 14 16:36	5°♊47'03		retrograde	5091 Mar 25 01:29	23°♊48'01	
evening set	5084 Nov 13 08:44	7°♊42'48		opposition	5091 Jun 11 02:03	22°♊26'10	1°31'00
max. Earth dist.	5084 Nov 28 07:06	8°♊15'50	31.29786 AU	min. Earth dist.	5091 Jun 11 22:23	22°♊24'47	29.32222 AU
				direct	5091 Aug 31 01:07	21°♊01'32	
conjunction	5084 Nov 29 03:40	8°♊17'44	1°24'59	evening set	5091 Nov 29 13:47	22°♊57'17	
minimum elong	5084 Nov 29 03:40	8°♊17'44	1°25'01	max. Earth dist.	5091 Dec 14 08:37	23°♊30'06	31.32120 AU
morning rise	5084 Dec 14 19:16	8°♊52'26					
retrograde	5085 Mar 11 13:04	10°♊44'25		conjunction	5091 Dec 15 05:33	23°♊32'03	1°25'00
opposition	5085 May 28 07:34	9°♊22'21	1°31'00	minimum elong	5091 Dec 15 05:33	23°♊32'03	1°25'01
min. Earth dist.	5085 May 29 02:53	9°♊21'01	29.30119 AU	morning rise	5091 Dec 30 18:16	24°♊06'35	
direct	5085 Aug 17 05:19	7°♊57'29		retrograde	5092 Mar 26 11:58	25°♊58'43	
evening set	5085 Nov 15 19:51	9°♊53'15		opposition	5092 Jun 12 13:19	24°♊36'51	1°30'33
				min. Earth dist.	5092 Jun 13 08:55	24°♊35'31	29.32160 AU
conjunction	5085 Dec 01 14:12	10°♊28'09	1°25'22	direct	5092 Sep 01 14:00	23°♊12'14	
minimum elong	5085 Dec 01 14:12	10°♊28'09	1°25'22	evening set	5092 Dec 01 00:34	25°♊07'56	
max. Earth dist.	5085 Nov 30 16:47	10°♊26'10	31.30296 AU				
morning rise	5085 Dec 17 05:32	11°♊02'49		conjunction	5092 Dec 16 15:52	25°♊42'41	1°24'31
retrograde	5086 Mar 14 00:50	12°♊54'49		minimum elong	5092 Dec 16 15:52	25°♊42'41	1°24'33
opposition	5086 May 30 18:25	11°♊32'48	1°31'20	max. Earth dist.	5092 Dec 15 18:26	25°♊40'41	31.32011 AU
min. Earth dist.	5086 May 31 13:30	11°♊31'29	29.30649 AU	morning rise	5093 Jan 01 04:15	26°♊17'12	
direct	5086 Aug 19 16:55	10°♊07'59		retrograde	5093 Mar 28 23:03	28°♊09'21	
evening set	5086 Nov 18 06:53	12°♊03'45		opposition	5093 Jun 15 00:34	26°♊47'27	1°29'59
max. Earth dist.	5086 Dec 03 04:42	12°♊36'46	31.30820 AU	min. Earth dist.	5093 Jun 15 20:32	26°♊46'05	29.32023 AU
				direct	5093 Sep 04 00:23	25°♊22'49	
conjunction	5086 Dec 04 00:57	12°♊38'39	1°25'36	evening set	5093 Dec 03 11:02	27°♊18'29	
minimum elong	5086 Dec 04 00:57	12°♊38'39	1°25'37	max. Earth dist.	5093 Dec 18 05:42	27°♊51'18	31.31848 AU
morning rise	5086 Dec 19 15:39	13°♊13'17					
retrograde	5087 Mar 16 10:07	15°♊05'18		conjunction	5093 Dec 19 02:05	27°♊53'12	1°23'55
opposition	5087 Jun 02 05:23	13°♊43'20	1°31'31	minimum elong	5093 Dec 19 02:05	27°♊53'12	1°23'56
min. Earth dist.	5087 Jun 03 01:07	13°♊41'59	29.31154 AU	morning rise	5094 Jan 03 14:03	28°♊27'41	
direct	5087 Aug 22 05:19	12°♊18'35			5094 Feb 25 01:29	0°♊	
evening set	5087 Nov 20 18:05	14°♊14'22		retrograde	5094 Mar 31 08:32	0°♊19'52	
					5094 May 05 13:03	30°♊	
conjunction	5087 Dec 06 11:30	14°♊49'14	1°25'44	opposition	5094 Jun 17 11:52	28°♊57'55	1°29'17
minimum elong	5087 Dec 06 11:30	14°♊49'14	1°25'44	min. Earth dist.	5094 Jun 18 07:28	28°♊56'35	29.31835 AU
max. Earth dist.	5087 Dec 05 14:16	14°♊47'15	31.31306 AU	direct	5094 Sep 06 13:26	27°♊33'17	
morning rise	5087 Dec 22 01:56	15°♊23'51		evening set	5094 Dec 05 21:34	29°♊28'54	
retrograde	5088 Mar 17 20:45	17°♊15'53			5094 Dec 19 21:30	0°♊	
opposition	5088 Jun 03 16:26	15°♊53'58	1°31'35				
min. Earth dist.	5088 Jun 04 11:25	15°♊52'40	29.31606 AU	conjunction	5094 Dec 21 12:03	0°♊03'36	1°23'12
direct	5088 Aug 23 16:32	14°♊29'16		minimum elong	5094 Dec 21 12:03	0°♊03'36	1°23'13
evening set	5088 Nov 22 04:55	16°♊25'03		max. Earth dist.	5094 Dec 20 15:02	0°♊01'38	31.31669 AU
				morning rise	5095 Jan 05 23:48	0°♊38'04	
conjunction	5088 Dec 07 22:03	16°♊59'54	1°25'44	retrograde	5095 Apr 02 20:32	2°♊30'15	
minimum elong	5088 Dec 07 22:03	16°♊59'54	1°25'45	opposition	5095 Jun 19 23:08	1°♊08'16	1°28'27
max. Earth dist.	5088 Dec 07 01:37	16°♊57'59	31.31699 AU	min. Earth dist.	5095 Jun 20 18:05	1°♊06'59	29.31686 AU
morning rise	5088 Dec 23 11:54	17°♊34'29			5095 Aug 07 11:19	30°♊	
retrograde	5089 Mar 20 05:15	19°♊26'34		direct	5095 Sep 09 01:43	29°♊43'38	
opposition	5089 Jun 06 03:41	18°♊04'41	1°31'31		5095 Oct 11 01:00	0°♊	
min. Earth dist.	5089 Jun 06 23:45	18°♊03'18	29.31945 AU	evening set	5095 Dec 08 07:53	1°♊39'13	
direct	5089 Aug 26 03:30	16°♊40'01					
evening set	5089 Nov 24 16:00	18°♊35'47		conjunction	5095 Dec 23 22:07	2°♊13'54	1°22'22
max. Earth dist.	5089 Dec 09 11:24	19°♊08'38	31.31980 AU	minimum elong	5095 Dec 23 22:07	2°♊13'54	1°22'22
				max. Earth dist.	5095 Dec 23 02:46	2°♊12'05	31.31553 AU
conjunction	5089 Dec 10 08:34	19°♊10'37	1°25'37	morning rise	5096 Jan 08 09:21	2°♊48'20	
minimum elong	5089 Dec 10 08:34	19°♊10'37	1°25'37	retrograde	5096 Apr 04 05:56	4°♊40'33	

opposition	5096 Jun 21 10:38	3°38'18"33	1°27'30"
min. Earth dist.	5096 Jun 22 05:35	3°38'17"16	29.31614 AU
direct	5096 Sep 10 14:26	1°38'53"57	
evening set	5096 Dec 09 18:06	3°38'49"30	
conjunction	5096 Dec 25 07:49	4°38'24"09	1°21'25"
minimum elong	5096 Dec 25 07:50	4°38'24"09	1°21'25"
max. Earth dist.	5096 Dec 24 12:10	4°38'22"19	31.31541 AU
morning rise	5097 Jan 09 18:55	4°38'58"35	
retrograde	5097 Apr 06 16:18	6°38'50"50	
opposition	5097 Jun 23 21:59	5°38'28"51	1°26'25"
min. Earth dist.	5097 Jun 24 15:28	5°38'27"39	29.31648 AU
direct	5097 Sep 13 01:48	4°38'04"16	
evening set	5097 Dec 12 04:17	5°38'59"49	
conjunction	5097 Dec 27 17:47	6°38'34"27	1°20'20"
minimum elong	5097 Dec 27 17:47	6°38'34"27	1°20'21"
max. Earth dist.	5097 Dec 26 23:26	6°38'32"44	31.31614 AU
morning rise	5098 Jan 12 04:27	7°38'08"52	
retrograde	5098 Apr 09 00:57	9°38'01"11	
opposition	5098 Jun 26 09:25	7°38'39"13	1°25'12"
min. Earth dist.	5098 Jun 27 03:26	7°38'37"59	29.31751 AU
direct	5098 Sep 15 13:06	6°38'14"42	
evening set	5098 Dec 14 14:34	8°38'10"13	
max. Earth dist.	5098 Dec 29 09:18	8°38'43"08	31.31748 AU
conjunction	5098 Dec 30 03:38	8°38'44"51	1°19'09"
minimum elong	5098 Dec 30 03:38	8°38'44"51	1°19'10"
morning rise	5099 Jan 14 14:06	9°38'19"15	
retrograde	5099 Apr 11 11:50	11°38'11"38	
opposition	5099 Jun 28 20:57	9°38'49"42	1°23'52"
min. Earth dist.	5099 Jun 29 13:32	9°38'48"34	29.31881 AU
direct	5099 Sep 18 00:18	8°38'25"15	
evening set	5099 Dec 17 00:41	10°38'20"45	
conjunction	5100 Jan 01 13:24	10°38'55"21	1°17'51"
minimum elong	5100 Jan 01 13:24	10°38'55"21	1°17'52"
max. Earth dist.	5099 Dec 31 19:35	10°38'53"41	31.31867 AU
morning rise	5100 Jan 16 23:31	11°38'29"46	
retrograde	5100 Apr 13 21:19	13°38'22"13	
opposition	5100 Jul 01 08:47	12°38'00"18	1°22'25"
min. Earth dist.	5100 Jul 02 02:00	11°38'59"07	29.31985 AU
direct	5100 Sep 20 10:33	10°38'35"55	
evening set	5100 Dec 19 10:52	12°38'31"23	
conjunction	5101 Jan 03 23:17	13°38'05"59	1°16'26"
minimum elong	5101 Jan 03 23:17	13°38'05"59	1°16'27"
max. Earth dist.	5101 Jan 03 06:11	13°38'04"22	31.31943 AU
morning rise	5101 Jan 19 09:08	13°38'40"22	
retrograde	5101 Apr 16 07:29	15°38'32"54	
opposition	5101 Jul 03 20:25	14°38'10"59	1°20'51"
min. Earth dist.	5101 Jul 04 12:44	14°38'09"53	29.32007 AU
direct	5101 Sep 22 22:12	12°38'46"39	
evening set	5101 Dec 21 21:08	14°38'42"06	
conjunction	5102 Jan 06 09:08	15°38'16"41	1°14'54"
minimum elong	5102 Jan 06 09:08	15°38'16"41	1°14'55"
max. Earth dist.	5102 Jan 05 15:34	15°38'15"02	31.31909 AU