

retrograde	13100 Feb 17 02:24	26° \mathcal{M} 07'10	min. Earth dist.	13105 May 18 13:13	5° \mathcal{A} 59'32	28.83734 AU
opposition	13100 May 07 14:34	24° \mathcal{M} 42'12 -0°15'17	direct	13105 Aug 05 04:42	4° \mathcal{A} 34'44	
min. Earth dist.	13100 May 06 23:37	24° \mathcal{M} 43'15 28.80001 AU	evening set	13105 Oct 31 21:12	6° \mathcal{A} 28'58	
direct	13100 Jul 24 17:39	23° \mathcal{M} 18'19				
evening set	13100 Oct 20 04:10	25° \mathcal{M} 12'31	conjunction	13105 Nov 16 20:57	7° \mathcal{A} 04'47 -0°06'13	
			minimum elong	13105 Nov 16 20:58	7° \mathcal{A} 04'47 0°05'20	
conjunction	13100 Nov 05 02:22	25° \mathcal{M} 48'16 -0°13'40	behind sun begin	13105 Nov 16 14:38	7° \mathcal{A} 04'13	
minimum elong	13100 Nov 05 02:22	25° \mathcal{M} 48'16 0°12'53	behind sun end	13105 Nov 17 03:17	7° \mathcal{A} 05'22	
behind sun begin	13100 Nov 04 22:23	25° \mathcal{M} 47'55	max. Earth dist.	13105 Nov 17 10:34	7° \mathcal{A} 06'04 30.84004 AU	
behind sun end	13100 Nov 05 06:20	25° \mathcal{M} 48'38	morning rise	13105 Dec 02 22:38	7° \mathcal{A} 40'48	
max. Earth dist.	13100 Nov 05 17:37	25° \mathcal{M} 49'42 30.80352 AU	retrograde	13106 Mar 03 05:59	9° \mathcal{A} 38'28	
morning rise	13100 Nov 21 02:49	26° \mathcal{M} 24'15	opposition	13106 May 21 14:40	8° \mathcal{A} 13'45 -0°05'41	
retrograde	13101 Feb 19 16:05	28° \mathcal{M} 22'15	min. Earth dist.	13106 May 21 02:39	8° \mathcal{A} 14'36 28.84282 AU	
min. Earth dist.	13101 May 09 11:55	26° \mathcal{M} 58'22 28.80754 AU	direct	13106 Aug 07 15:31	6° \mathcal{A} 49'52	
opposition	13101 May 10 02:40	26° \mathcal{M} 57'20 -0°13'44	evening set	13106 Nov 03 10:15	8° \mathcal{A} 44'04	
direct	13101 Jul 27 04:55	25° \mathcal{M} 33'28				
evening set	13101 Oct 22 16:53	27° \mathcal{M} 27'41	conjunction	13106 Nov 19 10:25	9° \mathcal{A} 19'54 -0°04'41	
			minimum elong	13106 Nov 19 10:25	9° \mathcal{A} 19'54 0°03'47	
conjunction	13101 Nov 07 15:34	28° \mathcal{M} 03'28 -0°12'12	behind sun begin	13106 Nov 19 03:56	9° \mathcal{A} 19'19	
minimum elong	13101 Nov 07 15:34	28° \mathcal{M} 03'28 0°11'25	behind sun end	13106 Nov 19 16:53	9° \mathcal{A} 20'29	
behind sun begin	13101 Nov 07 10:51	28° \mathcal{M} 03'02	max. Earth dist.	13106 Nov 19 23:50	9° \mathcal{A} 21'09 30.84531 AU	
behind sun end	13101 Nov 07 20:17	28° \mathcal{M} 03'53	morning rise	13106 Dec 05 12:15	9° \mathcal{A} 55'54	
max. Earth dist.	13101 Nov 08 07:46	28° \mathcal{M} 04'59 30.81141 AU	retrograde	13107 Mar 05 18:48	11° \mathcal{A} 53'26	
morning rise	13101 Nov 23 16:09	28° \mathcal{M} 39'27	opposition	13107 May 24 02:23	10° \mathcal{A} 28'44 -0°04'03	
	13102 Jan 04 21:52	0° \mathcal{A}	min. Earth dist.	13107 May 23 13:50	10° \mathcal{A} 29'36 28.84782 AU	
retrograde	13102 Feb 22 04:07	0° \mathcal{A} 37'25	direct	13107 Aug 10 04:13	9° \mathcal{A} 04'47	
	13102 Apr 12 15:47	30° \mathcal{K} \mathcal{M}	evening set	13107 Nov 05 23:17	10° \mathcal{A} 58'58	
opposition	13102 May 12 14:44	29° \mathcal{M} 12'34 -0°12'09				
min. Earth dist.	13102 May 12 00:23	29° \mathcal{M} 13'34 28.81558 AU	conjunction	13107 Nov 21 23:33	11° \mathcal{A} 34'47 -0°03'09	
direct	13102 Jul 29 17:38	27° \mathcal{M} 48'45	minimum elong	13107 Nov 21 23:33	11° \mathcal{A} 34'47 0°02'14	
evening set	13102 Oct 25 05:57	29° \mathcal{M} 42'59	behind sun begin	13107 Nov 21 17:01	11° \mathcal{A} 34'12	
	13102 Nov 01 21:27	0° \mathcal{A}	behind sun end	13107 Nov 22 06:06	11° \mathcal{A} 35'22	
			max. Earth dist.	13107 Nov 22 11:57	11° \mathcal{A} 35'56 30.85022 AU	
conjunction	13102 Nov 10 04:49	0° \mathcal{A} 18'46 -0°10'44	morning rise	13107 Dec 08 01:42	12° \mathcal{A} 10'47	
minimum elong	13102 Nov 10 04:49	0° \mathcal{A} 18'46 0°09'54	retrograde	13108 Mar 07 07:22	14° \mathcal{A} 08'13	
behind sun begin	13102 Nov 09 23:31	0° \mathcal{A} 18'18	opposition	13108 May 25 14:11	12° \mathcal{A} 43'29 -0°02'24	
behind sun end	13102 Nov 10 10:06	0° \mathcal{A} 19'15	min. Earth dist.	13108 May 25 02:45	12° \mathcal{A} 44'17 28.85290 AU	
max. Earth dist.	13102 Nov 10 19:43	0° \mathcal{A} 20'10 30.81958 AU	direct	13108 Aug 11 16:00	11° \mathcal{A} 19'29	
morning rise	13102 Nov 26 05:47	0° \mathcal{A} 54'46	evening set	13108 Nov 07 12:12	13° \mathcal{A} 13'38	
retrograde	13103 Feb 24 18:25	2° \mathcal{A} 52'40				
opposition	13103 May 15 02:37	1° \mathcal{A} 27'54 -0°10'33	conjunction	13108 Nov 23 12:54	13° \mathcal{A} 49'27 -0°01'34	
min. Earth dist.	13103 May 14 12:14	1° \mathcal{A} 28'54 28.82366 AU	minimum elong	13108 Nov 23 12:54	13° \mathcal{A} 49'27 0°00'38	
direct	13103 Aug 01 04:57	0° \mathcal{A} 04'05	behind sun begin	13108 Nov 23 06:22	13° \mathcal{A} 48'52	
evening set	13103 Oct 27 19:02	1° \mathcal{A} 58'20	behind sun end	13108 Nov 23 19:26	13° \mathcal{A} 50'02	
			max. Earth dist.	13108 Nov 24 02:00	13° \mathcal{A} 50'40 30.85552 AU	
conjunction	13103 Nov 12 18:14	2° \mathcal{A} 34'09 -0°09'14	morning rise	13108 Dec 09 15:06	14° \mathcal{A} 25'27	
minimum elong	13103 Nov 12 18:15	2° \mathcal{A} 34'09 0°08'24	retrograde	13109 Mar 09 20:09	16° \mathcal{A} 22'46	
behind sun begin	13103 Nov 12 12:31	2° \mathcal{A} 33'38	opposition	13109 May 28 01:43	14° \mathcal{A} 58'01 -0°00'45	
behind sun end	13103 Nov 12 23:59	2° \mathcal{A} 34'40	min. Earth dist.	13109 May 27 14:02	14° \mathcal{A} 58'51 28.85845 AU	
max. Earth dist.	13103 Nov 13 09:23	2° \mathcal{A} 35'34 30.82728 AU	direct	13109 Aug 14 06:00	13° \mathcal{A} 33'58	
morning rise	13103 Nov 28 19:21	3° \mathcal{A} 10'09	evening set	13109 Nov 10 01:14	15° \mathcal{A} 28'06	
retrograde	13104 Feb 27 06:01	5° \mathcal{A} 08'00	asc. node	13109 Nov 25 18:52	16° \mathcal{A} 03'17	
opposition	13104 May 16 14:46	3° \mathcal{A} 43'16 -0°08'56				
min. Earth dist.	13104 May 16 01:40	3° \mathcal{A} 44'11 28.83096 AU	conjunction	13109 Nov 26 02:04	16° \mathcal{A} 03'56 0°00'02	
direct	13104 Aug 02 16:07	2° \mathcal{A} 19'28	minimum elong	13109 Nov 26 02:02	16° \mathcal{A} 03'56 0°00'59	
evening set	13104 Oct 29 08:02	4° \mathcal{A} 13'42	behind sun begin	13109 Nov 25 19:29	16° \mathcal{A} 03'21	
			behind sun end	13109 Nov 26 08:34	16° \mathcal{A} 04'31	
conjunction	13104 Nov 14 07:32	4° \mathcal{A} 49'31 -0°07'43	desc. node	13109 Nov 26 18:21	16° \mathcal{A} 05'27	
minimum elong	13104 Nov 14 07:32	4° \mathcal{A} 49'31 0°06'51	max. Earth dist.	13109 Nov 26 13:50	16° \mathcal{A} 05'02 30.86151 AU	
behind sun begin	13104 Nov 14 01:27	4° \mathcal{A} 48'58	asc. node	13109 Nov 28 05:16	16° \mathcal{A} 08'44	
behind sun end	13104 Nov 14 13:36	4° \mathcal{A} 50'04	morning rise	13109 Dec 12 04:37	16° \mathcal{A} 39'56	
max. Earth dist.	13104 Nov 14 21:45	4° \mathcal{A} 50'51 30.83420 AU	retrograde	13110 Mar 12 09:18	18° \mathcal{A} 37'07	
morning rise	13104 Nov 30 08:56	5° \mathcal{A} 25'32	opposition	13110 May 30 13:18	17° \mathcal{A} 12'23 0°00'53	
retrograde	13105 Feb 28 18:28	7° \mathcal{A} 23'18	min. Earth dist.	13110 May 30 02:00	17° \mathcal{A} 13'11 28.86499 AU	
opposition	13105 May 19 02:45	5° \mathcal{A} 58'35 -0°07'19	direct	13110 Aug 16 17:26	15° \mathcal{A} 48'17	

evening set	13110 Nov 12 14:09	17° \nearrow 42'26"			13115 Dec 23 22:48	0° \searrow	
				morning rise	13115 Dec 26 12:45	0° \searrow 05'41"	
conjunction	13110 Nov 28 15:21	18° \nearrow 18'16"	0°01'36"	retrograde	13116 Mar 25 11:01	2° \searrow 02'22"	
minimum elong	13110 Nov 28 15:21	18° \nearrow 18'16"	0°02'34"	opposition	13116 Jun 12 09:27	0° \searrow 38'03"	0°10'37"
behind sun begin	13110 Nov 28 08:48	18° \nearrow 17'40"		min. Earth dist.	13116 Jun 11 23:38	0° \searrow 38'44"	28.92479 AU
behind sun end	13110 Nov 28 21:54	18° \nearrow 18'51"			13116 Jul 05 19:48	30° \nwarrow 1'	
max. Earth dist.	13110 Nov 29 04:00	18° \nearrow 19'26"	30.86850 AU	direct	13116 Aug 29 14:47	29° \nearrow 14'01"	
morning rise	13110 Dec 14 17:55	18° \nearrow 54'15"			13116 Oct 21 20:43	0° \searrow	
retrograde	13111 Mar 14 21:15	20° \nearrow 51'20"		evening set	13116 Nov 25 20:31	1° \searrow 08'20"	
opposition	13111 Jun 02 00:41	19° \nearrow 26'38"	0°02'31"				
min. Earth dist.	13111 Jun 01 13:39	19° \nearrow 27'24"	28.87254 AU	conjunction	13116 Dec 11 22:48	1° \searrow 44'10"	0°10'38"
direct	13111 Aug 19 06:33	18° \nearrow 02'31"		minimum elong	13116 Dec 11 22:48	1° \searrow 44'10"	0°11'38"
evening set	13111 Nov 15 03:11	19° \nearrow 56'39"		behind sun begin	13116 Dec 11 18:11	1° \searrow 43'46"	
				behind sun end	13116 Dec 12 03:25	1° \searrow 44'35"	
conjunction	13111 Dec 01 04:29	20° \nearrow 32'29"	0°03'08"	max. Earth dist.	13116 Dec 12 08:05	1° \searrow 45'02"	30.92976 AU
minimum elong	13111 Dec 01 04:28	20° \nearrow 32'29"	0°04'06"	morning rise	13116 Dec 28 02:19	2° \searrow 20'09"	
behind sun begin	13111 Nov 30 22:00	20° \nearrow 31'55"		retrograde	13117 Mar 27 23:05	4° \searrow 16'45"	
behind sun end	13111 Dec 01 10:56	20° \nearrow 33'04"		opposition	13117 Jun 14 20:47	2° \searrow 52'30"	0°12'11"
max. Earth dist.	13111 Dec 01 15:57	20° \nearrow 33'33"	30.87681 AU	min. Earth dist.	13117 Jun 14 12:29	2° \searrow 53'05"	28.93466 AU
morning rise	13111 Dec 17 07:21	21° \nearrow 08'29"		direct	13117 Sep 01 01:59	1° \searrow 28'27"	
retrograde	13112 Mar 16 11:23	23° \nearrow 05'27"		evening set	13117 Nov 28 09:40	3° \searrow 22'47"	
opposition	13112 Jun 03 12:07	21° \nearrow 40'48"	0°04'10"				
min. Earth dist.	13112 Jun 03 00:40	21° \nearrow 41'36"	28.88155 AU	conjunction	13117 Dec 14 12:19	3° \searrow 58'38"	0°12'05"
direct	13112 Aug 20 18:14	20° \nearrow 16'41"		minimum elong	13117 Dec 14 12:19	3° \searrow 58'38"	0°13'06"
evening set	13112 Nov 16 15:58	22° \nearrow 10'50"		behind sun begin	13117 Dec 14 08:29	3° \searrow 58'17"	
				behind sun end	13117 Dec 14 16:08	3° \searrow 58'58"	
conjunction	13112 Dec 02 17:35	22° \nearrow 46'41"	0°04'39"	max. Earth dist.	13117 Dec 14 21:41	3° \searrow 59'29"	30.93909 AU
minimum elong	13112 Dec 02 17:35	22° \nearrow 46'41"	0°05'38"	morning rise	13117 Dec 30 15:48	4° \searrow 34'35"	
behind sun begin	13112 Dec 02 11:18	22° \nearrow 46'07"		retrograde	13118 Mar 30 11:20	6° \searrow 31'05"	
behind sun end	13112 Dec 02 23:53	22° \nearrow 47'15"		opposition	13118 Jun 17 07:59	5° \searrow 06'52"	0°13'44"
max. Earth dist.	13112 Dec 03 05:45	22° \nearrow 47'49"	30.88639 AU	min. Earth dist.	13118 Jun 16 23:55	5° \searrow 07'26"	28.94336 AU
morning rise	13112 Dec 18 20:32	23° \nearrow 22'40"		direct	13118 Sep 03 15:31	3° \searrow 42'47"	
retrograde	13113 Mar 18 22:25	25° \nearrow 19'35"		evening set	13118 Nov 30 22:59	5° \searrow 37'07"	
opposition	13113 Jun 05 23:36	23° \nearrow 55'00"	0°05'47"				
min. Earth dist.	13113 Jun 05 13:09	23° \nearrow 55'44"	28.89170 AU	conjunction	13118 Dec 17 01:36	6° \searrow 12'58"	0°13'32"
direct	13113 Aug 23 05:33	22° \nearrow 30'54"		minimum elong	13118 Dec 17 01:36	6° \searrow 12'58"	0°14'32"
evening set	13113 Nov 19 05:01	24° \nearrow 25'05"		behind sun begin	13118 Dec 16 22:54	6° \searrow 12'43"	
				behind sun end	13118 Dec 17 04:18	6° \searrow 13'12"	
conjunction	13113 Dec 05 06:51	25° \nearrow 00'55"	0°06'10"	max. Earth dist.	13118 Dec 17 09:08	6° \searrow 13'39"	30.94737 AU
minimum elong	13113 Dec 05 06:50	25° \nearrow 00'55"	0°07'09"	morning rise	13119 Jan 02 05:19	6° \searrow 48'55"	
behind sun begin	13113 Dec 05 00:49	25° \nearrow 00'23"		retrograde	13119 Apr 02 00:06	8° \searrow 45'17"	
behind sun end	13113 Dec 05 12:52	25° \nearrow 01'28"		opposition	13119 Jun 19 19:06	7° \searrow 21'05"	0°15'16"
max. Earth dist.	13113 Dec 05 18:16	25° \nearrow 01'59"	30.89716 AU	min. Earth dist.	13119 Jun 19 11:53	7° \searrow 21'35"	28.95135 AU
morning rise	13113 Dec 21 10:01	25° \nearrow 36'55"		direct	13119 Sep 06 02:29	5° \searrow 56'57"	
retrograde	13114 Mar 21 10:58	27° \nearrow 33'44"		evening set	13119 Dec 03 12:01	7° \searrow 51'17"	
opposition	13114 Jun 08 10:46	26° \nearrow 09'15"	0°07'25"				
min. Earth dist.	13114 Jun 07 23:48	26° \nearrow 10'01"	28.90277 AU	conjunction	13119 Dec 19 14:57	8° \searrow 27'07"	0°14'57"
direct	13114 Aug 25 17:14	24° \nearrow 45'11"		minimum elong	13119 Dec 19 14:57	8° \searrow 27'07"	0°15'57"
evening set	13114 Nov 21 18:10	26° \nearrow 39'25"		max. Earth dist.	13119 Dec 19 22:56	8° \searrow 27'51"	30.95508 AU
				morning rise	13120 Jan 04 18:34	9° \searrow 03'03"	
conjunction	13114 Dec 07 20:09	27° \nearrow 15'16"	0°07'40"	retrograde	13120 Apr 03 12:12	10° \searrow 59'17"	
minimum elong	13114 Dec 07 20:09	27° \nearrow 15'16"	0°08'40"	opposition	13120 Jun 21 06:10	9° \searrow 35'06"	0°16'46"
behind sun begin	13114 Dec 07 14:29	27° \nearrow 14'45"		min. Earth dist.	13120 Jun 20 23:35	9° \searrow 35'33"	28.95889 AU
behind sun end	13114 Dec 08 01:50	27° \nearrow 15'46"		direct	13120 Sep 07 16:11	8° \searrow 10'55"	
max. Earth dist.	13114 Dec 08 07:13	27° \nearrow 16'17"	30.90835 AU	evening set	13120 Dec 05 01:02	10° \searrow 05'14"	
morning rise	13114 Dec 23 23:26	27° \nearrow 51'15"					
retrograde	13115 Mar 23 22:30	29° \nearrow 48'00"		conjunction	13120 Dec 21 03:59	10° \searrow 41'04"	0°16'20"
opposition	13115 Jun 10 22:10	28° \nearrow 23'37"	0°09'01"	minimum elong	13120 Dec 21 03:58	10° \searrow 41'04"	0°17'21"
min. Earth dist.	13115 Jun 10 12:43	28° \nearrow 24'16"	28.91404 AU	max. Earth dist.	13120 Dec 21 10:22	10° \searrow 41'39"	30.96270 AU
direct	13115 Aug 28 03:00	26° \nearrow 59'34"		morning rise	13121 Jan 06 07:50	11° \searrow 16'59"	
evening set	13115 Nov 24 07:11	28° \nearrow 53'50"		retrograde	13121 Apr 06 01:59	13° \searrow 13'04"	
				opposition	13121 Jun 23 17:05	11° \searrow 48'53"	0°18'15"
conjunction	13115 Dec 10 09:25	29° \nearrow 29'42"	0°09'09"	min. Earth dist.	13121 Jun 23 10:30	11° \searrow 49'21"	28.96662 AU
minimum elong	13115 Dec 10 09:25	29° \nearrow 29'42"	0°10'09"	direct	13121 Sep 10 04:58	10° \searrow 24'39"	
behind sun begin	13115 Dec 10 04:12	29° \nearrow 29'14"		evening set	13121 Dec 07 14:02	12° \searrow 18'57"	
behind sun end	13115 Dec 10 14:37	29° \nearrow 30'10"					
max. Earth dist.	13115 Dec 10 20:07	29° \nearrow 30'41"	30.91948 AU	conjunction	13121 Dec 23 17:12	12° \searrow 54'46"	0°17'42"

minimum elong	13121 Dec 23 17:12	12°35'46"	0°18'42"	evening set	13128 Dec 23 08:14	27°35'11"	
max. Earth dist.	13121 Dec 23 23:59	12°35'23"	30.97053 AU				
morning rise	13122 Jan 08 20:58	13°33'40"		conjunction	13129 Jan 08 11:58	28°32'56"	0°26'25"
retrograde	13122 Apr 08 12:07	15°32'36"		minimum elong	13129 Jan 08 11:58	28°32'56"	0°27'21"
opposition	13122 Jun 26 03:54	14°30'26"	0°19'42"	max. Earth dist.	13129 Jan 08 15:52	28°32'18"	31.05199 AU
min. Earth dist.	13122 Jun 25 22:31	14°30'24"	28.97477 AU	morning rise	13129 Jan 24 15:35	29°30'24"	
direct	13122 Sep 12 17:00	12°33'09"			13129 Feb 22 06:25	0°00'00"	
evening set	13122 Dec 10 03:00	14°33'26"		retrograde	13129 Apr 23 20:24	0°00'57"52	
					13129 Jun 25 15:44	30°00'00"	
conjunction	13122 Dec 26 06:14	15°30'15"	0°19'03"	opposition	13129 Jul 11 06:55	29°33'40"09	0°28'52"
minimum elong	13122 Dec 26 06:14	15°30'15"	0°20'02"	min. Earth dist.	13129 Jul 11 04:15	29°33'42"21	29.05820 AU
max. Earth dist.	13122 Dec 26 12:08	15°30'47"	30.97918 AU	direct	13129 Sep 28 00:15	28°30'09"51	
morning rise	13123 Jan 11 10:06	15°34'40"08			13129 Dec 23 21:52	0°00'00"	
retrograde	13123 Apr 11 00:24	17°33'55"		evening set	13129 Dec 25 21:22	0°00'04"17	
opposition	13123 Jun 28 14:39	16°31'54"	0°21'06"				
min. Earth dist.	13123 Jun 28 08:37	16°31'12"	28.98392 AU	conjunction	13130 Jan 11 00:58	0°00'40"01	0°27'31"
direct	13123 Sep 15 05:08	14°35'12"27		minimum elong	13130 Jan 11 00:58	0°00'40"01	0°28'26"
evening set	13123 Dec 12 15:46	16°34'54"33		max. Earth dist.	13130 Jan 11 02:50	0°00'40"11	31.06402 AU
				morning rise	13130 Jan 27 04:41	1°00'15"46	
conjunction	13123 Dec 28 19:05	17°32'13"32	0°20'21"	retrograde	13130 Apr 26 09:44	3°00'10"49	
minimum elong	13123 Dec 28 19:05	17°32'13"32	0°21'21"	opposition	13130 Jul 13 17:26	1°00'47"10	0°30'02"
max. Earth dist.	13123 Dec 29 00:55	17°32'20"04	30.98882 AU	min. Earth dist.	13130 Jul 13 15:02	1°00'47"20	29.06970 AU
morning rise	13124 Jan 13 22:55	17°35'7"24		direct	13130 Sep 30 12:29	0°00'22"51	
retrograde	13124 Apr 12 11:26	19°35'03"03		evening set	13130 Dec 28 10:19	2°00'17"18	
opposition	13124 Jun 30 01:32	18°32'28"57	0°22'30"				
min. Earth dist.	13124 Jun 29 20:40	18°32'29"17	28.99428 AU	conjunction	13131 Jan 13 14:02	2°00'53"01	0°28'34"
direct	13124 Sep 16 15:20	17°30'43"36		minimum elong	13131 Jan 13 14:02	2°00'53"01	0°29'28"
evening set	13124 Dec 14 04:35	18°35'58"52		max. Earth dist.	13131 Jan 13 15:54	2°00'53"12	31.07487 AU
				morning rise	13131 Jan 29 17:31	3°00'28"45	
conjunction	13124 Dec 30 08:04	19°33'44"40	0°21'38"	retrograde	13131 Apr 28 20:14	5°00'23"41	
minimum elong	13124 Dec 30 08:04	19°33'44"40	0°22'37"	opposition	13131 Jul 16 04:11	4°00'00"05	0°31'08"
max. Earth dist.	13124 Dec 30 13:46	19°33'51"11	30.99993 AU	min. Earth dist.	13131 Jul 16 03:19	4°00'00"08	29.08003 AU
morning rise	13125 Jan 15 11:53	20°31'03"30		direct	13131 Oct 03 00:26	2°00'35"45	
retrograde	13125 Apr 14 22:27	22°30'06"03		evening set	13131 Dec 30 23:05	4°00'30"12	
opposition	13125 Jul 02 12:06	20°34'20"00	0°23'51"				
min. Earth dist.	13125 Jul 02 06:32	20°34'22"24	29.00599 AU	conjunction	13132 Jan 16 02:44	5°00'05"54	0°29'35"
direct	13125 Sep 19 03:05	19°31'17"39		minimum elong	13132 Jan 16 02:44	5°00'05"54	0°30'28"
evening set	13125 Dec 16 17:33	21°31'11"56		max. Earth dist.	13132 Jan 16 03:18	5°00'05"57	31.08485 AU
				morning rise	13132 Feb 01 06:15	5°00'41"37	
conjunction	13126 Jan 01 21:00	21°34'47"43	0°22'53"	retrograde	13132 Apr 30 08:47	7°00'36"25	
minimum elong	13126 Jan 01 21:00	21°34'47"43	0°23'51"	opposition	13132 Jul 17 14:40	6°00'12"51	0°32'11"
max. Earth dist.	13126 Jan 02 01:46	21°34'48"09	31.01224 AU	min. Earth dist.	13132 Jul 17 13:33	6°00'12"56	29.08960 AU
morning rise	13126 Jan 18 00:54	22°32'33"33		direct	13132 Oct 04 12:55	4°00'48"29	
retrograde	13126 Apr 17 09:08	24°31'18"59		evening set	13133 Jan 01 11:55	6°00'42"56	
opposition	13126 Jul 04 22:53	22°35'55"01	0°25'10"				
min. Earth dist.	13126 Jul 04 18:26	22°35'55"19	29.01888 AU	conjunction	13133 Jan 17 15:36	7°00'18"38	0°30'33"
direct	13126 Sep 21 13:14	21°33'30"40		minimum elong	13133 Jan 17 15:36	7°00'18"38	0°31'25"
evening set	13126 Dec 19 06:21	23°32'24"59		max. Earth dist.	13133 Jan 17 15:41	7°00'18"39	31.09407 AU
				morning rise	13133 Feb 02 18:58	7°00'54"19	
conjunction	13127 Jan 04 10:00	24°30'04"45	0°24'06"	retrograde	13133 May 02 19:43	9°00'49"00	
minimum elong	13127 Jan 04 10:00	24°30'04"45	0°25'04"	opposition	13133 Jul 20 01:07	8°00'25"28	0°33'12"
max. Earth dist.	13127 Jan 04 15:13	24°30'11"14	31.02551 AU	min. Earth dist.	13133 Jul 20 01:38	8°00'25"25	29.09869 AU
morning rise	13127 Jan 20 13:43	24°33'36"34		direct	13133 Oct 06 23:27	7°00'01"04	
retrograde	13127 Apr 19 20:13	26°33'15"55		evening set	13134 Jan 04 00:42	8°00'55"30	
opposition	13127 Jul 07 09:29	25°30'08"02	0°26'26"				
min. Earth dist.	13127 Jul 07 05:05	25°30'08"21	29.03226 AU	conjunction	13134 Jan 20 04:24	9°00'31"11	0°31'29"
direct	13127 Sep 24 01:07	23°34'43"43		minimum elong	13134 Jan 20 04:24	9°00'31"11	0°32'20"
evening set	13127 Dec 21 19:23	25°33'38"04		max. Earth dist.	13134 Jan 20 03:57	9°00'31"09	31.10312 AU
				morning rise	13134 Feb 05 07:40	10°00'06"51	
conjunction	13128 Jan 06 22:53	26°31'13"50	0°25'17"	retrograde	13134 May 05 06:06	12°00'01"24	
minimum elong	13128 Jan 06 22:53	26°31'13"50	0°26'14"	opposition	13134 Jul 22 11:28	10°00'37"54	0°34'10"
max. Earth dist.	13128 Jan 07 02:30	26°31'14"10	31.03897 AU	min. Earth dist.	13134 Jul 22 11:33	10°00'37"53	29.10768 AU
morning rise	13128 Jan 23 02:44	26°34'49"38		direct	13134 Oct 09 11:39	9°00'13"28	
retrograde	13128 Apr 21 08:51	28°34'44"53		evening set	13135 Jan 06 13:22	11°00'07"54	
opposition	13128 Jul 08 20:11	27°32'21"06	0°27'41"				
min. Earth dist.	13128 Jul 08 16:35	27°32'21"21	29.04569 AU	conjunction	13135 Jan 22 16:54	11°00'43"34	0°32'21"
direct	13128 Sep 25 11:09	25°35'56"47		minimum elong	13135 Jan 22 16:54	11°00'43"34	0°33'11"

max. Earth dist.	13135 Jan 22 15:27	11° \approx 43'26	31.11218 AU	min. Earth dist.	13141 Aug 06 14:40	26° \approx 02'26	29.18923 AU
morning rise	13135 Feb 07 20:04	12° \approx 19'13		direct	13141 Oct 24 18:29	24° \approx 38'17	
retrograde	13135 May 07 15:48	14° \approx 13'39		evening set	13142 Jan 22 05:08	26° \approx 32'55	
opposition	13135 Jul 24 21:53	12° \approx 50'10	0°35'04				
min. Earth dist.	13135 Jul 24 23:05	12° \approx 50'05	29.11710 AU	conjunction	13142 Feb 07 08:09	27° \approx 08'28	0°37'05
direct	13135 Oct 11 21:40	11° \approx 25'43		minimum elong	13142 Feb 07 08:09	27° \approx 08'28	0°37'44
evening set	13136 Jan 09 01:52	13° \approx 20'09		max. Earth dist.	13142 Feb 07 03:33	27° \approx 08'02	31.19475 AU
				morning rise	13142 Feb 23 10:05	27° \approx 43'56	
conjunction	13136 Jan 25 05:30	13° \approx 55'48	0°33'11	retrograde	13142 May 22 23:16	29° \approx 37'45	
minimum elong	13136 Jan 25 05:30	13° \approx 55'48	0°33'59	opposition	13142 Aug 08 22:05	28° \approx 14'46	0°39'55
max. Earth dist.	13136 Jan 25 04:31	13° \approx 55'43	31.12196 AU	min. Earth dist.	13142 Aug 09 02:55	28° \approx 14'25	29.20028 AU
morning rise	13136 Feb 10 08:25	14° \approx 31'24		direct	13142 Oct 27 05:45	26° \approx 50'25	
	13136 Feb 23 22:58	15° \approx		evening set	13143 Jan 24 17:34	28° \approx 45'02	
retrograde	13136 May 09 01:48	16° \approx 25'44					
opposition	13136 Jul 26 08:09	15° \approx 02'18	0°35'56	conjunction	13143 Feb 09 20:29	29° \approx 20'34	0°37'33
min. Earth dist.	13136 Jul 26 09:14	15° \approx 02'14	29.12727 AU	minimum elong	13143 Feb 09 20:29	29° \approx 20'34	0°38'09
	13136 Jul 27 17:00	15° \approx		max. Earth dist.	13143 Feb 09 15:09	29° \approx 20'04	31.20512 AU
direct	13136 Oct 13 08:53	13° \approx 37'50		morning rise	13143 Feb 25 22:12	29° \approx 56'00	
	13136 Dec 26 03:02	15° \approx			13143 Feb 27 18:44	0° \approx	
evening set	13137 Jan 10 14:27	15° \approx 32'17		retrograde	13143 May 25 09:35	1° \approx 49'43	
				opposition	13143 Aug 11 08:24	0° \approx 26'47	0°40'22
conjunction	13137 Jan 26 17:52	16° \approx 07'54	0°33'58	min. Earth dist.	13143 Aug 11 13:02	0° \approx 26'28	29.20987 AU
minimum elong	13137 Jan 26 17:52	16° \approx 07'54	0°34'44		13143 Aug 27 15:25	30° \approx	
max. Earth dist.	13137 Jan 26 15:33	16° \approx 07'41	31.13267 AU	direct	13143 Oct 29 18:23	29° \approx 02'25	
morning rise	13137 Feb 11 20:49	16° \approx 43'30			13143 Dec 29 13:45	0° \approx	
retrograde	13137 May 11 13:18	18° \approx 37'43		evening set	13144 Jan 27 06:07	0° \approx 57'02	
opposition	13137 Jul 28 18:29	17° \approx 14'21	0°36'44				
min. Earth dist.	13137 Jul 28 19:55	17° \approx 14'15	29.13861 AU	conjunction	13144 Feb 12 08:48	1° \approx 32'32	0°37'57
direct	13137 Oct 15 18:26	15° \approx 49'52		minimum elong	13144 Feb 12 08:48	1° \approx 32'32	0°38'32
evening set	13138 Jan 13 02:55	17° \approx 44'21		max. Earth dist.	13144 Feb 12 02:04	1° \approx 31'55	31.21401 AU
				morning rise	13144 Feb 28 10:22	2° \approx 07'57	
conjunction	13138 Jan 29 06:27	18° \approx 19'57	0°34'42	retrograde	13144 May 26 19:38	4° \approx 01'34	
minimum elong	13138 Jan 29 06:27	18° \approx 19'57	0°35'26	opposition	13144 Aug 12 18:44	2° \approx 38'39	0°40'46
max. Earth dist.	13138 Jan 29 04:51	18° \approx 19'49	31.14449 AU	min. Earth dist.	13144 Aug 13 00:47	2° \approx 38'13	29.21824 AU
morning rise	13138 Feb 14 09:03	18° \approx 55'31		direct	13144 Oct 31 04:26	1° \approx 14'15	
retrograde	13138 May 13 23:44	20° \approx 49'39		evening set	13145 Jan 28 18:25	3° \approx 08'51	
opposition	13138 Jul 31 04:44	19° \approx 26'21	0°37'29				
min. Earth dist.	13138 Jul 31 06:43	19° \approx 26'13	29.15086 AU	conjunction	13145 Feb 13 21:08	3° \approx 44'20	0°38'18
direct	13138 Oct 18 07:02	18° \approx 01'55		minimum elong	13145 Feb 13 21:08	3° \approx 44'20	0°38'50
evening set	13139 Jan 15 15:31	19° \approx 56'25		max. Earth dist.	13145 Feb 13 14:27	3° \approx 43'43	31.22179 AU
				morning rise	13145 Mar 01 22:24	4° \approx 19'43	
conjunction	13139 Jan 31 18:47	20° \approx 32'01	0°35'22	retrograde	13145 May 29 05:13	6° \approx 13'12	
minimum elong	13139 Jan 31 18:47	20° \approx 32'01	0°36'05	opposition	13145 Aug 15 05:00	4° \approx 50'19	0°41'07
max. Earth dist.	13139 Jan 31 15:43	20° \approx 31'44	31.15727 AU	min. Earth dist.	13145 Aug 15 11:23	4° \approx 49'52	29.22537 AU
morning rise	13139 Feb 16 21:23	21° \approx 07'33		direct	13145 Nov 02 16:07	3° \approx 25'52	
retrograde	13139 May 16 12:27	23° \approx 01'37		evening set	13146 Jan 31 06:51	5° \approx 20'28	
opposition	13139 Aug 02 15:00	21° \approx 38'24	0°38'10				
min. Earth dist.	13139 Aug 02 16:47	21° \approx 38'17	29.16394 AU	conjunction	13146 Feb 16 09:14	5° \approx 55'55	0°38'36
direct	13139 Oct 20 18:30	20° \approx 13'59		minimum elong	13146 Feb 16 09:14	5° \approx 55'55	0°39'07
evening set	13140 Jan 18 03:50	22° \approx 08'33		max. Earth dist.	13146 Feb 16 00:53	5° \approx 55'09	31.22850 AU
				morning rise	13146 Mar 04 10:24	6° \approx 31'17	
conjunction	13140 Feb 03 07:08	22° \approx 44'08	0°36'00	retrograde	13146 May 31 15:36	8° \approx 24'39	
minimum elong	13140 Feb 03 07:08	22° \approx 44'08	0°36'42	opposition	13146 Aug 17 15:12	7° \approx 01'46	0°41'24
max. Earth dist.	13140 Feb 03 04:29	22° \approx 43'53	31.17036 AU	min. Earth dist.	13146 Aug 17 22:12	7° \approx 01'17	29.23185 AU
morning rise	13140 Feb 19 09:26	23° \approx 19'39		direct	13146 Nov 05 02:13	5° \approx 37'16	
retrograde	13140 May 17 22:56	25° \approx 13'38		evening set	13147 Feb 02 18:57	7° \approx 31'51	
opposition	13140 Aug 04 01:25	23° \approx 50'31	0°38'49				
min. Earth dist.	13140 Aug 04 04:40	23° \approx 50'17	29.17693 AU	conjunction	13147 Feb 18 21:19	8° \approx 07'17	0°38'50
direct	13140 Oct 22 05:39	22° \approx 26'08		minimum elong	13147 Feb 18 21:20	8° \approx 07'17	0°39'18
evening set	13141 Jan 19 16:28	24° \approx 20'44		max. Earth dist.	13147 Feb 18 13:35	8° \approx 06'34	31.23474 AU
				morning rise	13147 Mar 06 22:06	8° \approx 42'36	
conjunction	13141 Feb 04 19:35	24° \approx 56'18	0°36'34	retrograde	13147 Jun 03 00:32	10° \approx 35'53	
minimum elong	13141 Feb 04 19:36	24° \approx 56'18	0°37'14	opposition	13147 Aug 20 01:26	9° \approx 12'59	0°41'37
max. Earth dist.	13141 Feb 04 15:37	24° \approx 55'56	31.18313 AU	min. Earth dist.	13147 Aug 20 09:08	9° \approx 12'27	29.23799 AU
morning rise	13141 Feb 20 21:49	25° \approx 31'47		direct	13147 Nov 07 14:20	7° \approx 48'28	
retrograde	13141 May 20 12:01	27° \approx 25'41		evening set	13148 Feb 05 06:57	9° \approx 43'01	
opposition	13141 Aug 06 11:35	26° \approx 02'39	0°39'23				

conjunction	13148 Feb 21 09:01	10° ✕ 18'25	0°39'01	direct	13154 Nov 22 21:11	23° ✕ 05'22	
minimum elong	13148 Feb 21 09:01	10° ✕ 18'25	0°39'28	evening set	13155 Feb 20 18:32	25° ✕ 00'07	
max. Earth dist.	13148 Feb 20 23:50	10° ✕ 17'35	31.24101 AU				
morning rise	13148 Mar 08 09:45	10° ✕ 53'43		conjunction	13155 Mar 08 19:04	25° ✕ 35'24	0°38'43
retrograde	13148 Jun 04 12:04	12° ✕ 46'54		minimum elong	13155 Mar 08 19:04	25° ✕ 35'24	0°38'54
opposition	13148 Aug 21 11:35	11° ✕ 24'01	0°41'47	max. Earth dist.	13155 Mar 08 07:08	25° ✕ 34'18	31.29732 AU
min. Earth dist.	13148 Aug 21 18:54	11° ✕ 23'30	29.24446 AU	morning rise	13155 Mar 24 17:53	26° ✕ 10'33	
direct	13148 Nov 09 01:29	9° ✕ 59'27		retrograde	13155 Jun 20 13:37	28° ✕ 03'24	
evening set	13149 Feb 06 18:58	11° ✕ 54'01		opposition	13155 Sep 06 11:06	26° ✕ 40'55	0°41'14
				min. Earth dist.	13155 Sep 06 21:26	26° ✕ 40'12	29.30065 AU
conjunction	13149 Feb 22 20:58	12° ✕ 29'24	0°39'09	direct	13155 Nov 25 07:00	25° ✕ 16'33	
minimum elong	13149 Feb 22 20:58	12° ✕ 29'24	0°39'32	evening set	13156 Feb 23 06:12	27° ✕ 11'18	
max. Earth dist.	13149 Feb 22 12:21	12° ✕ 28'36	31.24767 AU				
morning rise	13149 Mar 10 21:17	13° ✕ 04'40		conjunction	13156 Mar 10 06:42	27° ✕ 46'34	0°38'27
retrograde	13149 Jun 06 21:39	14° ✕ 57'46		minimum elong	13156 Mar 10 06:42	27° ✕ 46'34	0°38'36
opposition	13149 Aug 23 21:44	13° ✕ 34'54	0°41'53	max. Earth dist.	13156 Mar 09 19:14	27° ✕ 45'31	31.30310 AU
min. Earth dist.	13149 Aug 24 06:11	13° ✕ 34'19	29.25155 AU	morning rise	13156 Mar 26 05:06	28° ✕ 21'42	
direct	13149 Nov 11 12:32	12° ✕ 10'20			13156 May 23 15:22	0° ∇	
evening set	13150 Feb 09 07:00	14° ✕ 04'54		retrograde	13156 Jun 21 22:06	0° ∇ 14'29	
					13156 Jul 21 18:55	30° ℞ ✕	
conjunction	13150 Feb 25 08:43	14° ✕ 40'16	0°39'13	opposition	13156 Sep 07 21:30	28° ✕ 52'03	0°40'55
minimum elong	13150 Feb 25 08:44	14° ✕ 40'16	0°39'36	min. Earth dist.	13156 Sep 08 08:49	28° ✕ 51'16	29.30566 AU
max. Earth dist.	13150 Feb 24 23:19	14° ✕ 39'24	31.25531 AU	direct	13156 Nov 26 18:35	27° ✕ 27'40	
morning rise	13150 Mar 13 08:54	15° ✕ 15'30		evening set	13157 Feb 24 18:08	29° ✕ 22'25	
retrograde	13150 Jun 09 09:56	17° ✕ 08'32					
opposition	13150 Aug 26 07:52	15° ✕ 45'43	0°41'56	conjunction	13157 Mar 12 18:14	29° ✕ 57'40	0°38'08
min. Earth dist.	13150 Aug 26 15:31	15° ✕ 45'11	29.25962 AU	minimum elong	13157 Mar 12 18:14	29° ✕ 57'40	0°38'14
direct	13150 Nov 14 01:14	14° ✕ 21'10		max. Earth dist.	13157 Mar 12 05:01	29° ✕ 56'27	31.30750 AU
evening set	13151 Feb 11 18:49	16° ✕ 15'47			13157 Mar 13 19:25	0° ∇	
				morning rise	13157 Mar 28 16:30	0° ∇ 32'46	
conjunction	13151 Feb 27 20:21	16° ✕ 51'07	0°39'14	retrograde	13157 Jun 24 09:18	2° ∇ 25'30	
minimum elong	13151 Feb 27 20:21	16° ✕ 51'08	0°39'34	opposition	13157 Sep 10 07:40	1° ∇ 03'04	0°40'32
max. Earth dist.	13151 Feb 27 11:01	16° ✕ 50'16	31.26377 AU	min. Earth dist.	13157 Sep 10 18:49	1° ∇ 02'18	29.30944 AU
morning rise	13151 Mar 15 20:11	17° ✕ 26'21			13157 Oct 23 05:52	30° ℞ ✕	
retrograde	13151 Jun 11 20:49	19° ✕ 19'20		direct	13157 Nov 29 05:00	29° ✕ 38'39	
opposition	13151 Aug 28 18:10	17° ✕ 56'35	0°41'55		13158 Jan 04 16:55	0° ∇	
min. Earth dist.	13151 Aug 29 02:59	17° ✕ 55'58	29.26851 AU	evening set	13158 Feb 27 05:50	1° ∇ 33'25	
direct	13151 Nov 16 12:09	16° ✕ 32'05					
evening set	13152 Feb 14 06:41	18° ✕ 26'43		conjunction	13158 Mar 15 05:48	2° ∇ 08'38	0°37'46
				minimum elong	13158 Mar 15 05:49	2° ∇ 08'38	0°37'50
conjunction	13152 Mar 01 08:02	19° ✕ 02'03	0°39'12	max. Earth dist.	13158 Mar 14 16:53	2° ∇ 07'27	31.31066 AU
minimum elong	13152 Mar 01 08:03	19° ✕ 02'03	0°39'30	morning rise	13158 Mar 31 03:38	2° ∇ 43'43	
max. Earth dist.	13152 Feb 29 22:34	19° ✕ 01'11	31.27295 AU	retrograde	13158 Jun 26 18:36	4° ∇ 36'23	
morning rise	13152 Mar 17 07:38	19° ✕ 37'15		opposition	13158 Sep 12 18:06	3° ∇ 13'57	0°40'07
retrograde	13152 Jun 13 07:06	21° ✕ 30'12		min. Earth dist.	13158 Sep 13 06:39	3° ∇ 13'05	29.31214 AU
opposition	13152 Aug 30 04:12	20° ✕ 07'33	0°41'50	direct	13158 Dec 01 15:57	1° ∇ 49'30	
min. Earth dist.	13152 Aug 30 12:33	20° ✕ 06'58	29.27765 AU	evening set	13159 Mar 01 17:19	3° ∇ 44'14	
direct	13152 Nov 18 00:16	18° ✕ 43'05					
evening set	13153 Feb 15 18:40	20° ✕ 37'46		conjunction	13159 Mar 17 16:58	4° ∇ 19'26	0°37'20
				minimum elong	13159 Mar 17 16:58	4° ∇ 19'26	0°37'21
conjunction	13153 Mar 03 19:44	21° ✕ 13'06	0°39'06	max. Earth dist.	13159 Mar 17 03:11	4° ∇ 18'10	31.31308 AU
minimum elong	13153 Mar 03 19:45	21° ✕ 13'06	0°39'21	morning rise	13159 Apr 02 14:38	4° ∇ 54'28	
max. Earth dist.	13153 Mar 03 09:11	21° ✕ 12'07	31.28194 AU	retrograde	13159 Jun 29 06:18	6° ∇ 47'05	
morning rise	13153 Mar 19 19:07	21° ✕ 48'17		opposition	13159 Sep 15 04:20	5° ∇ 24'37	0°39'37
retrograde	13153 Jun 15 17:35	23° ✕ 41'12		min. Earth dist.	13159 Sep 15 16:13	5° ∇ 23'48	29.31426 AU
opposition	13153 Sep 01 14:30	22° ✕ 18'37	0°41'42	direct	13159 Dec 04 05:25	4° ∇ 00'08	
min. Earth dist.	13153 Sep 02 00:01	22° ✕ 17'57	29.28644 AU	evening set	13160 Mar 03 04:47	5° ∇ 54'51	
direct	13153 Nov 20 10:01	20° ✕ 54'12					
evening set	13154 Feb 18 06:32	22° ✕ 48'55		conjunction	13160 Mar 19 04:13	6° ∇ 30'01	0°36'51
				minimum elong	13160 Mar 19 04:13	6° ∇ 30'01	0°36'52
conjunction	13154 Mar 06 07:29	23° ✕ 24'14	0°38'56	max. Earth dist.	13160 Mar 18 14:23	6° ∇ 28'45	31.31503 AU
minimum elong	13154 Mar 06 07:29	23° ✕ 24'14	0°39'10	morning rise	13160 Apr 04 01:32	7° ∇ 05'02	
max. Earth dist.	13154 Mar 05 21:11	23° ✕ 23'17	31.29023 AU	retrograde	13160 Jun 30 16:31	8° ∇ 57'35	
morning rise	13154 Mar 22 06:27	23° ✕ 59'23		opposition	13160 Sep 16 14:34	7° ∇ 35'05	0°39'05
retrograde	13154 Jun 18 03:12	25° ✕ 52'16		min. Earth dist.	13160 Sep 17 03:39	7° ∇ 34'11	29.31633 AU
opposition	13154 Sep 04 00:46	24° ✕ 29'45	0°41'30	direct	13160 Dec 05 16:48	6° ∇ 10'34	
min. Earth dist.	13154 Sep 04 10:37	24° ✕ 29'04	29.29411 AU	evening set	13161 Mar 05 16:10	8° ∇ 05'16	

conjunction	13161 Mar 21 15:22	8° Υ 40'25	0°36'20	direct	13167 Dec 21 20:50	21° Υ 22'34	
minimum elong	13161 Mar 21 15:23	8° Υ 40'25	0°36'16	evening set	13168 Mar 20 22:41	23° Υ 17'20	
max. Earth dist.	13161 Mar 21 01:38	8° Υ 39'09	31.31730 AU				
morning rise	13161 Apr 06 12:25	9° Υ 15'24		conjunction	13168 Apr 05 19:50	23° Υ 52'22	0°31'13
retrograde	13161 Jul 03 02:20	11° Υ 07'53		minimum elong	13168 Apr 05 19:50	23° Υ 52'22	0°30'55
opposition	13161 Sep 19 00:49	9° Υ 45'23	0°38'29	max. Earth dist.	13168 Apr 05 04:48	23° Υ 50'59	31.34594 AU
min. Earth dist.	13161 Sep 19 13:04	9° Υ 44'32	29.31882 AU	morning rise	13168 Apr 21 14:49	24° Υ 27'14	
direct	13161 Dec 08 05:29	8° Υ 20'50		retrograde	13168 Jul 18 00:53	26° Υ 19'39	
evening set	13162 Mar 08 03:29	10° Υ 15'31		opposition	13168 Oct 04 01:51	24° Υ 57'25	0°32'50
max. Earth dist.	13162 Mar 23 11:57	10° Υ 49'19	31.32017 AU	min. Earth dist.	13168 Oct 04 15:13	24° Υ 56'30	29.34698 AU
				direct	13168 Dec 23 09:28	23° Υ 33'05	
				evening set	13169 Mar 23 09:57	25° Υ 27'52	
conjunction	13162 Mar 24 02:17	10° Υ 50'38	0°35'45				
minimum elong	13162 Mar 24 02:18	10° Υ 50'38	0°35'40				
morning rise	13162 Apr 08 23:03	11° Υ 25'36		conjunction	13169 Apr 08 06:50	26° Υ 02'53	0°30'18
retrograde	13162 Jul 05 12:50	13° Υ 18'02		minimum elong	13169 Apr 08 06:50	26° Υ 02'53	0°29'57
opposition	13162 Sep 21 11:09	11° Υ 55'33	0°37'50	max. Earth dist.	13169 Apr 07 15:27	26° Υ 01'28	31.34727 AU
min. Earth dist.	13162 Sep 21 23:52	11° Υ 54'40	29.32231 AU	morning rise	13169 Apr 24 01:27	26° Υ 37'44	
direct	13162 Dec 10 16:07	10° Υ 31'00		retrograde	13169 Jul 20 11:37	28° Υ 30'10	
evening set	13163 Mar 10 14:37	12° Υ 25'40		opposition	13169 Oct 06 12:38	27° Υ 07'56	0°31'49
				min. Earth dist.	13169 Oct 07 03:17	27° Υ 06'56	29.34768 AU
conjunction	13163 Mar 26 13:18	13° Υ 00'47	0°35'07	direct	13169 Dec 25 20:28	25° Υ 43'37	
minimum elong	13163 Mar 26 13:18	13° Υ 00'47	0°34'59	evening set	13170 Mar 25 21:01	27° Υ 38'24	
max. Earth dist.	13163 Mar 25 23:55	12° Υ 59'33	31.32420 AU				
morning rise	13163 Apr 11 09:40	13° Υ 35'44		conjunction	13170 Apr 10 17:38	28° Υ 13'24	0°29'20
retrograde	13163 Jul 07 22:05	15° Υ 28'08		minimum elong	13170 Apr 10 17:38	28° Υ 13'24	0°28'58
opposition	13163 Sep 23 21:29	14° Υ 05'40	0°37'08	max. Earth dist.	13170 Apr 10 02:14	28° Υ 11'59	31.34730 AU
min. Earth dist.	13163 Sep 24 09:57	14° Υ 04'48	29.32674 AU	morning rise	13170 Apr 26 11:56	28° Υ 48'14	
direct	13163 Dec 13 03:58	12° Υ 41'10			13170 Jun 02 23:55	0° \mathcal{B}	
evening set	13164 Mar 12 01:50	14° Υ 35'50		retrograde	13170 Jul 22 21:42	0° \mathcal{B} 40'40	
max. Earth dist.	13164 Mar 27 09:43	15° Υ 09'36	31.32908 AU		13170 Sep 12 12:59	30° $\mathcal{R}\Upsilon$	
				opposition	13170 Oct 08 23:17	29° Υ 18'26	0°30'46
conjunction	13164 Mar 28 00:06	15° Υ 10'56	0°34'26	min. Earth dist.	13170 Oct 09 13:25	29° Υ 17'28	29.34697 AU
minimum elong	13164 Mar 28 00:06	15° Υ 10'56	0°34'17	direct	13170 Dec 28 09:18	27° Υ 54'06	
morning rise	13164 Apr 12 20:20	15° Υ 45'52		evening set	13171 Mar 28 08:08	29° Υ 48'53	
retrograde	13164 Jul 09 08:13	17° Υ 38'15			13171 Apr 02 10:15	0° \mathcal{B}	
opposition	13164 Sep 25 07:48	16° Υ 15'51	0°36'23				
min. Earth dist.	13164 Sep 25 20:13	16° Υ 14'59	29.33189 AU	conjunction	13171 Apr 13 04:21	0° \mathcal{B} 23'53	0°28'20
direct	13164 Dec 14 13:44	14° Υ 51'22		minimum elong	13171 Apr 13 04:22	0° \mathcal{B} 23'53	0°27'55
evening set	13165 Mar 14 12:59	16° Υ 46'04		max. Earth dist.	13171 Apr 12 12:00	0° \mathcal{B} 22'22	31.34605 AU
				morning rise	13171 Apr 28 22:26	0° \mathcal{B} 58'42	
conjunction	13165 Mar 30 11:08	17° Υ 21'09	0°33'42	retrograde	13171 Jul 25 08:45	2° \mathcal{B} 51'07	
minimum elong	13165 Mar 30 11:08	17° Υ 21'09	0°33'29	opposition	13171 Oct 11 09:57	1° \mathcal{B} 28'52	0°29'40
max. Earth dist.	13165 Mar 29 21:44	17° Υ 19'55	31.33425 AU	min. Earth dist.	13171 Oct 12 00:46	1° \mathcal{B} 27'51	29.34535 AU
morning rise	13165 Apr 15 06:54	17° Υ 56'04		direct	13171 Dec 30 20:26	0° \mathcal{B} 04'32	
retrograde	13165 Jul 11 16:28	19° Υ 48'27		evening set	13172 Mar 29 18:58	1° \mathcal{B} 59'18	
opposition	13165 Sep 27 18:13	18° Υ 26'06	0°35'34				
min. Earth dist.	13165 Sep 28 07:22	18° Υ 25'12	29.33691 AU	conjunction	13172 Apr 14 15:05	2° \mathcal{B} 34'16	0°27'17
direct	13165 Dec 17 00:33	17° Υ 01'41		minimum elong	13172 Apr 14 15:05	2° \mathcal{B} 34'16	0°26'51
evening set	13166 Mar 17 00:21	18° Υ 56'24		max. Earth dist.	13172 Apr 13 23:33	2° \mathcal{B} 32'50	31.34405 AU
				morning rise	13172 Apr 30 08:47	3° \mathcal{B} 09'05	
conjunction	13166 Apr 01 22:01	19° Υ 31'28	0°32'55	retrograde	13172 Jul 26 17:58	5° \mathcal{B} 01'28	
minimum elong	13166 Apr 01 22:02	19° Υ 31'28	0°32'41	opposition	13172 Oct 12 20:39	3° \mathcal{B} 39'13	0°28'32
max. Earth dist.	13166 Apr 01 07:21	19° Υ 30'07	31.33912 AU	min. Earth dist.	13172 Oct 13 11:29	3° \mathcal{B} 38'11	29.34299 AU
morning rise	13166 Apr 17 17:38	20° Υ 06'22		direct	13173 Jan 01 09:13	2° \mathcal{B} 14'51	
retrograde	13166 Jul 14 03:50	21° Υ 58'47		evening set	13173 Apr 01 05:56	4° \mathcal{B} 09'36	
opposition	13166 Sep 30 04:43	20° Υ 36'28	0°34'42	max. Earth dist.	13173 Apr 16 09:05	4° \mathcal{B} 43'02	31.34166 AU
min. Earth dist.	13166 Sep 30 17:19	20° Υ 35'36	29.34144 AU				
direct	13166 Dec 19 10:21	19° Υ 12'05		conjunction	13173 Apr 17 01:34	4° \mathcal{B} 44'34	0°26'13
evening set	13167 Mar 19 11:23	21° Υ 06'50		minimum elong	13173 Apr 17 01:34	4° \mathcal{B} 44'34	0°25'43
				morning rise	13173 May 02 19:08	5° \mathcal{B} 19'21	
conjunction	13167 Apr 04 08:54	21° Υ 41'53	0°32'05	retrograde	13173 Jul 29 03:47	7° \mathcal{B} 11'45	
minimum elong	13167 Apr 04 08:54	21° Υ 41'53	0°31'48	opposition	13173 Oct 15 07:18	5° \mathcal{B} 49'28	0°27'22
max. Earth dist.	13167 Apr 03 18:42	21° Υ 40'34	31.34308 AU	min. Earth dist.	13173 Oct 15 21:48	5° \mathcal{B} 48'28	29.34077 AU
morning rise	13167 Apr 20 04:04	22° Υ 16'46		direct	13174 Jan 03 19:41	4° \mathcal{B} 25'05	
retrograde	13167 Jul 16 13:12	24° Υ 09'12		evening set	13174 Apr 03 16:40	6° \mathcal{B} 19'49	
opposition	13167 Oct 02 15:25	22° Υ 46'55	0°33'47				
min. Earth dist.	13167 Oct 03 05:21	22° Υ 45'58	29.34487 AU	conjunction	13174 Apr 19 12:09	6° \mathcal{B} 54'46	0°25'06

minimum elong	13174 Apr 19 12:09	6°8'54"46	0°24'35"	opposition	13180 Oct 30 11:53	21°8'02"27	0°18'08"
max. Earth dist.	13174 Apr 18 20:59	6°8'53"22	31.33962 AU	min. Earth dist.	13180 Oct 31 02:04	21°8'01"29	29.33503 AU
morning rise	13174 May 05 05:15	7°8'29"33		direct	13181 Jan 19 00:18	19°8'38"17	
retrograde	13174 Jul 31 11:30	9°8'21"57		evening set	13181 Apr 18 19:36	21°8'33"07	
opposition	13174 Oct 17 18:11	7°8'59"39	0°26'09"				
min. Earth dist.	13174 Oct 18 08:56	7°8'58"38	29.33909 AU	conjunction	13181 May 04 13:01	22°8'08"00	0°16'22"
direct	13175 Jan 06 06:41	6°8'35"17		minimum elong	13181 May 04 13:01	22°8'08"00	0°15'37"
evening set	13175 Apr 06 03:20	8°8'30"01		behind sun begin	13181 May 04 11:28	22°8'07"51	
				behind sun end	13181 May 04 14:34	22°8'08"08	
conjunction	13175 Apr 21 22:23	9°8'04"57	0°23'57"	max. Earth dist.	13181 May 03 22:22	22°8'06"38	31.33314 AU
minimum elong	13175 Apr 21 22:24	9°8'04"57	0°23'23"	morning rise	13181 May 20 04:12	22°8'42"42	
max. Earth dist.	13175 Apr 21 06:33	9°8'03"29	31.33846 AU	retrograde	13181 Aug 15 14:26	24°8'35"25	
morning rise	13175 May 07 15:22	9°8'39"43		opposition	13181 Nov 01 23:09	23°8'13"13	0°16'42"
retrograde	13175 Aug 02 22:35	11°8'32"08		min. Earth dist.	13181 Nov 02 13:27	23°8'12"14	29.33116 AU
opposition	13175 Oct 20 04:56	10°8'09"51	0°24'54"	direct	13182 Jan 21 13:32	21°8'49"03	
min. Earth dist.	13175 Oct 20 18:30	10°8'08"55	29.33837 AU	evening set	13182 Apr 21 06:26	23°8'43"53	
direct	13176 Jan 08 16:12	8°8'45"30					
evening set	13176 Apr 07 14:02	10°8'40"15		conjunction	13182 May 06 23:24	24°8'18"44	0°15'01"
				minimum elong	13182 May 06 23:24	24°8'18"44	0°14'16"
conjunction	13176 Apr 23 08:55	11°8'15"10	0°22'46"	behind sun begin	13182 May 06 20:19	24°8'18"28	
minimum elong	13176 Apr 23 08:55	11°8'15"10	0°22'11"	behind sun end	13182 May 07 02:29	24°8'19"01	
max. Earth dist.	13176 Apr 22 17:59	11°8'13"47	31.33808 AU	max. Earth dist.	13182 May 06 07:35	24°8'17"16	31.32857 AU
morning rise	13176 May 09 01:29	11°8'49"56		morning rise	13182 May 22 14:29	24°8'53"26	
retrograde	13176 Aug 04 07:30	13°8'42"24		retrograde	13182 Aug 18 01:12	26°8'46"11	
opposition	13176 Oct 21 15:44	12°8'20"08	0°23'37"	opposition	13182 Nov 04 10:28	25°8'23"57	0°15'14"
min. Earth dist.	13176 Oct 22 06:10	12°8'19"09	29.33830 AU	min. Earth dist.	13182 Nov 05 00:31	25°8'23"00	29.32590 AU
direct	13177 Jan 10 02:21	10°8'55"50		direct	13183 Jan 24 00:22	23°8'59"47	
evening set	13177 Apr 10 00:48	12°8'50"36		evening set	13183 Apr 23 16:56	25°8'54"35	
conjunction	13177 Apr 25 19:19	13°8'25"30	0°21'33"	conjunction	13183 May 09 09:49	26°8'29"26	0°13'39"
minimum elong	13177 Apr 25 19:19	13°8'25"30	0°20'55"	minimum elong	13183 May 09 09:49	26°8'29"26	0°12'51"
max. Earth dist.	13177 Apr 25 04:14	13°8'24"06	31.33829 AU	behind sun begin	13183 May 09 05:47	26°8'29"04	
morning rise	13177 May 11 11:42	14°8'00"15		behind sun end	13183 May 09 13:50	26°8'29"48	
	13177 Jun 10 13:46	15°8'		max. Earth dist.	13183 May 08 18:59	26°8'28"04	31.32253 AU
retrograde	13177 Aug 06 18:54	15°8'52"46		morning rise	13183 May 25 00:31	27°8'04"08	
	13177 Oct 05 18:28	15°8'		retrograde	13183 Aug 20 09:34	28°8'56"54	
opposition	13177 Oct 24 02:35	14°8'30"32	0°22'18"	opposition	13183 Nov 06 21:52	27°8'34"38	0°13'45"
min. Earth dist.	13177 Oct 24 15:58	14°8'29"37	29.33846 AU	min. Earth dist.	13183 Nov 07 12:35	27°8'33"37	29.31912 AU
direct	13178 Jan 12 14:15	13°8'06"17		direct	13184 Jan 26 12:33	26°8'10"26	
	13178 Apr 11 23:36	15°8'		evening set	13184 Apr 25 03:39	28°8'05"12	
evening set	13178 Apr 12 11:26	15°8'01"04					
				conjunction	13184 May 10 20:06	28°8'40"02	0°12'15"
conjunction	13178 Apr 28 05:38	15°8'35"58	0°20'18"	minimum elong	13184 May 10 20:07	28°8'40"03	0°11'27"
minimum elong	13178 Apr 28 05:38	15°8'35"58	0°19'39"	behind sun begin	13184 May 10 15:25	28°8'39"37	
max. Earth dist.	13178 Apr 27 14:42	15°8'34"35	31.33830 AU	behind sun end	13184 May 11 00:48	28°8'40"28	
morning rise	13178 May 13 21:43	16°8'10"43		max. Earth dist.	13184 May 10 04:22	28°8'38"35	31.31526 AU
retrograde	13178 Aug 09 05:49	18°8'03"17		morning rise	13184 May 26 10:45	29°8'14"44	
opposition	13178 Oct 26 13:42	16°8'41"05	0°20'56"		13184 Jun 17 10:57	0°II	
min. Earth dist.	13178 Oct 27 03:58	16°8'40"06	29.33832 AU	retrograde	13184 Aug 21 20:37	1°II07"31	
direct	13179 Jan 15 00:05	15°8'16"52			13184 Oct 30 07:05	30°R8	
evening set	13179 Apr 14 22:06	17°8'11"41		opposition	13184 Nov 08 09:00	29°8'45"12	0°12'15"
				min. Earth dist.	13184 Nov 08 22:48	29°8'44"15	29.31137 AU
conjunction	13179 Apr 30 16:04	17°8'46"34	0°19'01"	direct	13185 Jan 27 23:25	28°8'20"58	
minimum elong	13179 Apr 30 16:05	17°8'46"34	0°18'20"		13185 Apr 20 06:30	0°II	
max. Earth dist.	13179 Apr 30 01:31	17°8'45"13	31.33782 AU	evening set	13185 Apr 27 14:10	0°II15"42	
morning rise	13179 May 16 07:51	18°8'21"18					
retrograde	13179 Aug 11 16:28	20°8'13"55		conjunction	13185 May 13 06:27	0°II50"32	0°10'51"
opposition	13179 Oct 29 00:39	18°8'51"44	0°19'33"	minimum elong	13185 May 13 06:27	0°II50"32	0°10'00"
min. Earth dist.	13179 Oct 29 14:18	18°8'50"48	29.33727 AU	behind sun begin	13185 May 13 01:13	0°II50"04	
direct	13180 Jan 17 12:44	17°8'27"33		behind sun end	13185 May 13 11:41	0°II51"00	
evening set	13180 Apr 16 08:54	19°8'22"22		max. Earth dist.	13185 May 12 15:30	0°II49"09	31.30716 AU
max. Earth dist.	13180 May 01 11:00	19°8'55"49	31.33617 AU	morning rise	13185 May 28 20:43	1°II25"13	
				retrograde	13185 Aug 24 05:16	3°II18"02	
conjunction	13180 May 02 02:29	19°8'57"15	0°17'42"	opposition	13185 Nov 10 20:29	1°II55"39	0°10'44"
minimum elong	13180 May 02 02:29	19°8'57"15	0°17'00"	min. Earth dist.	13185 Nov 11 11:04	1°II54"40	29.30321 AU
morning rise	13180 May 17 18:06	20°8'31"58		direct	13186 Jan 30 10:17	0°II31"24	
retrograde	13180 Aug 13 04:44	22°8'24"39		evening set	13186 Apr 30 00:30	2°II26"06	

conjunction	13186 May 15 16:27	3°II00'55	0°09'26	opposition	13191 Nov 24 17:25	14°II59'19	0°01'23
minimum elong	13186 May 15 16:27	3°II00'55	0°08'35	min. Earth dist.	13191 Nov 25 04:43	14°II58'33	29.26616 AU
behind sun begin	13186 May 15 10:49	3°II00'25		direct	13192 Feb 13 06:31	13°II35'14	
behind sun end	13186 May 15 22:05	3°II01'25		evening set	13192 May 12 14:39	15°II30'04	
max. Earth dist.	13186 May 15 01:46	2°II59'33	31.29915 AU				
morning rise	13186 May 31 06:34	3°II35'36		conjunction	13192 May 28 05:10	16°II04'52	0°00'36
retrograde	13186 Aug 26 15:57	5°II28'27		minimum elong	13192 May 28 05:09	16°II04'52	0°00'21
opposition	13186 Nov 13 07:49	4°II06'02	0°09'12	behind sun begin	13192 May 27 22:44	16°II04'18	
min. Earth dist.	13186 Nov 13 20:57	4°II05'08	29.29539 AU	behind sun end	13192 May 28 11:34	16°II05'27	
direct	13187 Feb 01 22:02	2°II41'45		max. Earth dist.	13192 May 27 17:31	16°II03'48	31.26301 AU
evening set	13187 May 02 10:54	4°II36'27		morning rise	13192 Jun 12 17:57	16°II39'33	
				retrograde	13192 Sep 08 09:24	18°II32'58	
conjunction	13187 May 18 02:35	5°II11'16	0°08'00	desc. node	13192 Oct 16 01:35	18°II10'38	
minimum elong	13187 May 18 02:34	5°II11'15	0°07'07	opposition	13192 Nov 26 05:11	17°II10'32	-0°00'12
behind sun begin	13187 May 17 20:36	5°II10'44		min. Earth dist.	13192 Nov 26 16:59	17°II09'44	29.25981 AU
behind sun end	13187 May 18 08:32	5°II11'47		direct	13193 Feb 14 18:51	15°II46'30	
max. Earth dist.	13187 May 17 12:16	5°II09'56	31.29164 AU	evening set	13193 May 15 01:13	17°II41'20	
morning rise	13187 Jun 02 16:26	5°II45'56					
retrograde	13187 Aug 29 02:41	7°II38'52		conjunction	13193 May 30 15:20	18°II16'09	-0°00'55
opposition	13187 Nov 15 19:11	6°II16'24	0°07'40	minimum elong	13193 May 30 15:20	18°II16'09	0°01'54
min. Earth dist.	13187 Nov 16 08:42	6°II15'28	29.28845 AU	behind sun begin	13193 May 30 08:54	18°II15'34	
direct	13188 Feb 04 07:30	4°II52'08		behind sun end	13193 May 30 21:47	18°II16'43	
evening set	13188 May 03 21:14	6°II46'50		max. Earth dist.	13193 May 30 03:02	18°II15'00	31.25625 AU
				morning rise	13193 Jun 15 04:06	18°II50'50	
conjunction	13188 May 19 12:44	7°II21'38	0°06'34	retrograde	13193 Sep 10 21:40	20°II44'20	
minimum elong	13188 May 19 12:44	7°II21'38	0°05'41	opposition	13193 Nov 28 17:02	19°II21'54	-0°01'46
behind sun begin	13188 May 19 06:32	7°II21'05		min. Earth dist.	13193 Nov 29 03:43	19°II21'11	29.25249 AU
behind sun end	13188 May 19 18:55	7°II22'12		direct	13194 Feb 17 05:58	17°II57'53	
max. Earth dist.	13188 May 18 23:25	7°II20'25	31.28520 AU	evening set	13194 May 17 11:32	19°II52'44	
morning rise	13188 Jun 04 02:21	7°II56'19					
retrograde	13188 Aug 30 13:25	9°II49'19		conjunction	13194 Jun 02 01:32	20°II27'32	-0°02'25
opposition	13188 Nov 17 06:36	8°II26'51	0°06'06	minimum elong	13194 Jun 02 01:31	20°II27'32	0°03'23
min. Earth dist.	13188 Nov 17 18:54	8°II26'01	29.28232 AU	behind sun begin	13194 Jun 01 19:06	20°II26'58	
direct	13189 Feb 05 20:06	7°II02'37		behind sun end	13194 Jun 02 07:55	20°II28'07	
evening set	13189 May 06 07:37	8°II57'21		max. Earth dist.	13194 Jun 01 13:51	20°II26'27	31.24821 AU
				morning rise	13194 Jun 17 13:59	21°II02'14	
conjunction	13189 May 21 22:42	9°II32'09	0°05'07	retrograde	13194 Sep 13 06:28	22°II55'50	
minimum elong	13189 May 21 22:42	9°II32'09	0°04'11	opposition	13194 Dec 01 05:05	21°II33'22	-0°03'21
behind sun begin	13189 May 21 16:21	9°II31'35		min. Earth dist.	13194 Dec 01 16:40	21°II32'35	29.24384 AU
behind sun end	13189 May 22 05:04	9°II32'43		direct	13195 Feb 19 16:53	20°II09'22	
max. Earth dist.	13189 May 21 09:03	9°II30'53	31.27945 AU	evening set	13195 May 19 22:02	22°II04'12	
morning rise	13189 Jun 06 12:13	10°II06'50					
retrograde	13189 Sep 02 02:08	11°II59'56		conjunction	13195 Jun 04 11:46	22°II39'00	-0°03'53
opposition	13189 Nov 19 18:10	10°II37'28	0°04'33	minimum elong	13195 Jun 04 11:46	22°II39'00	0°04'53
min. Earth dist.	13189 Nov 20 06:20	10°II36'38	29.27691 AU	behind sun begin	13195 Jun 04 05:29	22°II38'26	
direct	13190 Feb 08 07:10	9°II13'17		behind sun end	13195 Jun 04 18:03	22°II39'34	
evening set	13190 May 08 17:53	11°II08'03		max. Earth dist.	13195 Jun 04 00:08	22°II37'55	31.23897 AU
				morning rise	13195 Jun 20 00:10	23°II13'42	
conjunction	13190 May 24 08:53	11°II42'51	0°03'38	retrograde	13195 Sep 15 17:07	25°II07'22	
minimum elong	13190 May 24 08:53	11°II42'51	0°02'43	opposition	13195 Dec 03 16:51	23°II44'52	-0°04'56
behind sun begin	13190 May 24 02:27	11°II42'17		min. Earth dist.	13195 Dec 04 03:21	23°II44'09	29.23387 AU
behind sun end	13190 May 24 15:19	11°II43'26		direct	13196 Feb 22 04:21	22°II20'50	
max. Earth dist.	13190 May 23 20:43	11°II41'44	31.27422 AU	evening set	13196 May 21 08:32	24°II15'39	
morning rise	13190 Jun 08 22:03	12°II17'32					
retrograde	13190 Sep 04 12:30	14°II10'44		conjunction	13196 Jun 05 22:02	24°II50'27	-0°05'21
opposition	13190 Nov 22 05:47	12°II48'17	0°02'58	minimum elong	13196 Jun 05 22:03	24°II50'27	0°06'20
min. Earth dist.	13190 Nov 22 17:39	12°II47'29	29.27164 AU	behind sun begin	13196 Jun 05 15:57	24°II49'54	
direct	13191 Feb 10 19:53	11°II24'10		behind sun end	13196 Jun 06 04:08	24°II51'00	
evening set	13191 May 11 04:16	13°II18'58		max. Earth dist.	13196 Jun 05 10:19	24°II49'22	31.22837 AU
				morning rise	13196 Jun 21 10:18	25°II25'09	
conjunction	13191 May 26 18:51	13°II53'46	0°02'08	retrograde	13196 Sep 17 04:03	27°II18'54	
minimum elong	13191 May 26 18:52	13°II53'46	0°01'11	opposition	13196 Dec 05 04:56	25°II56'19	-0°06'29
behind sun begin	13191 May 26 12:25	13°II53'11		min. Earth dist.	13196 Dec 05 16:06	25°II55'33	29.22282 AU
behind sun end	13191 May 27 01:18	13°II54'20		direct	13197 Feb 23 13:41	24°II32'15	
max. Earth dist.	13191 May 26 06:01	13°II52'34	31.26892 AU	evening set	13197 May 23 18:47	26°II27'02	
morning rise	13191 Jun 11 08:02	14°II28'27					
retrograde	13191 Sep 07 00:07	16°II21'45		conjunction	13197 Jun 08 08:11	27°II01'49	-0°06'48

minimum elong	13197 Jun 08 08:10	27° Π 01'49	0°07'49	morning rise	13202 Jul 04 21:58	8° \mathfrak{D} 32'41	
behind sun begin	13197 Jun 08 02:22	27° Π 01'18		retrograde	13202 Oct 01 00:58	10° \mathfrak{D} 26'57	
behind sun end	13197 Jun 08 13:58	27° Π 02'20		opposition	13202 Dec 19 05:32	9° \mathfrak{D} 04'02	-0°15'37
max. Earth dist.	13197 Jun 07 21:26	27° Π 00'50	31.21698 AU	min. Earth dist.	13202 Dec 19 11:49	9° \mathfrak{D} 03'36	29.16346 AU
morning rise	13197 Jun 23 20:13	27° Π 36'32		direct	13203 Mar 09 14:24	7° \mathfrak{D} 39'57	
retrograde	13197 Sep 19 14:46	29° Π 30'20		evening set	13203 Jun 06 08:15	9° \mathfrak{D} 34'41	
opposition	13197 Dec 07 16:57	28° Π 07'40	-0°08'03				
min. Earth dist.	13197 Dec 08 02:59	28° Π 06'59	29.21114 AU	conjunction	13203 Jun 21 20:33	10° \mathfrak{D} 09'29	-0°15'16
direct	13198 Feb 26 03:12	26° Π 43'34		minimum elong	13203 Jun 21 20:33	10° \mathfrak{D} 09'29	0°16'18
evening set	13198 May 26 05:09	28° Π 38'19		max. Earth dist.	13203 Jun 21 13:35	10° \mathfrak{D} 08'50	31.15964 AU
				morning rise	13203 Jul 07 08:01	10° \mathfrak{D} 44'13	
conjunction	13198 Jun 10 18:11	29° Π 13'05	-0°08'15	retrograde	13203 Oct 03 10:33	12° \mathfrak{D} 38'36	
minimum elong	13198 Jun 10 18:12	29° Π 13'05	0°09'15	opposition	13203 Dec 21 17:47	11° \mathfrak{D} 15'41	-0°17'05
behind sun begin	13198 Jun 10 12:45	29° Π 12'36		min. Earth dist.	13203 Dec 22 00:40	11° \mathfrak{D} 15'13	29.15597 AU
behind sun end	13198 Jun 10 23:39	29° Π 13'35		direct	13204 Mar 11 01:12	9° \mathfrak{D} 51'40	
max. Earth dist.	13198 Jun 10 07:07	29° Π 12'04	31.20533 AU	evening set	13204 Jun 07 18:41	11° \mathfrak{D} 46'25	
morning rise	13198 Jun 26 06:15	29° Π 47'48					
	13198 Jul 01 20:53	0° \mathfrak{D}		conjunction	13204 Jun 23 06:49	12° \mathfrak{D} 21'13	-0°16'37
retrograde	13198 Sep 22 03:34	1° \mathfrak{D} 41'40		minimum elong	13204 Jun 23 06:48	12° \mathfrak{D} 21'12	0°17'38
opposition	13198 Dec 10 04:59	0° \mathfrak{D} 18'54	-0°09'35	max. Earth dist.	13204 Jun 23 00:20	12° \mathfrak{D} 20'37	31.15218 AU
min. Earth dist.	13198 Dec 10 14:45	0° \mathfrak{D} 18'14	29.19981 AU	morning rise	13204 Jul 08 18:14	12° \mathfrak{D} 55'58	
	13198 Dec 21 20:29	30° \mathfrak{R} Π		retrograde	13204 Oct 04 21:57	14° \mathfrak{D} 50'28	
direct	13199 Feb 28 14:06	28° Π 54'46		opposition	13204 Dec 23 06:09	13° \mathfrak{D} 27'33	-0°18'31
	13199 May 04 12:19	0° \mathfrak{D}		min. Earth dist.	13204 Dec 23 11:38	13° \mathfrak{D} 27'11	29.14827 AU
evening set	13199 May 28 15:15	0° \mathfrak{D} 49'29		direct	13205 Mar 13 12:40	12° \mathfrak{D} 03'35	
				evening set	13205 Jun 10 05:06	13° \mathfrak{D} 58'21	
conjunction	13199 Jun 13 04:18	1° \mathfrak{D} 24'16	-0°09'40				
minimum elong	13199 Jun 13 04:17	1° \mathfrak{D} 24'16	0°10'42	conjunction	13205 Jun 25 17:00	14° \mathfrak{D} 33'09	-0°17'57
behind sun begin	13199 Jun 12 23:18	1° \mathfrak{D} 23'49		minimum elong	13205 Jun 25 17:00	14° \mathfrak{D} 33'09	0°18'58
behind sun end	13199 Jun 13 09:16	1° \mathfrak{D} 24'43		max. Earth dist.	13205 Jun 25 10:39	14° \mathfrak{D} 32'34	31.14415 AU
max. Earth dist.	13199 Jun 12 18:57	1° \mathfrak{D} 23'24	31.19428 AU	morning rise	13205 Jul 11 04:23	15° \mathfrak{D} 07'56	
morning rise	13199 Jun 28 16:05	1° \mathfrak{D} 58'58		retrograde	13205 Oct 07 09:42	17° \mathfrak{D} 02'35	
retrograde	13199 Sep 24 13:41	3° \mathfrak{D} 52'55		opposition	13205 Dec 25 18:47	15° \mathfrak{D} 39'39	-0°19'56
opposition	13199 Dec 12 17:04	2° \mathfrak{D} 30'05	-0°11'07	min. Earth dist.	13205 Dec 26 00:47	15° \mathfrak{D} 39'15	29.13999 AU
min. Earth dist.	13199 Dec 13 02:10	2° \mathfrak{D} 29'28	29.18914 AU	direct	13206 Mar 15 21:56	14° \mathfrak{D} 15'43	
direct	13200 Mar 02 02:51	1° \mathfrak{D} 05'56		evening set	13206 Jun 12 15:34	16° \mathfrak{D} 10'30	
evening set	13200 May 30 01:36	3° \mathfrak{D} 00'39					
				conjunction	13206 Jun 28 03:28	16° \mathfrak{D} 45'19	-0°19'16
conjunction	13200 Jun 14 14:16	3° \mathfrak{D} 35'25	-0°11'06	minimum elong	13206 Jun 28 03:28	16° \mathfrak{D} 45'19	0°20'15
minimum elong	13200 Jun 14 14:16	3° \mathfrak{D} 35'25	0°12'06	max. Earth dist.	13206 Jun 27 22:06	16° \mathfrak{D} 44'49	31.13543 AU
behind sun begin	13200 Jun 14 09:51	3° \mathfrak{D} 35'01		morning rise	13206 Jul 13 14:42	17° \mathfrak{D} 20'06	
behind sun end	13200 Jun 14 18:41	3° \mathfrak{D} 35'49		retrograde	13206 Oct 09 21:14	19° \mathfrak{D} 14'53	
max. Earth dist.	13200 Jun 14 04:38	3° \mathfrak{D} 34'32	31.18419 AU	opposition	13206 Dec 28 07:15	17° \mathfrak{D} 51'56	-0°21'19
morning rise	13200 Jun 30 02:06	4° \mathfrak{D} 10'08		min. Earth dist.	13206 Dec 28 12:17	17° \mathfrak{D} 51'36	29.13067 AU
retrograde	13200 Sep 26 01:58	6° \mathfrak{D} 04'10		direct	13207 Mar 18 10:47	16° \mathfrak{D} 28'02	
opposition	13200 Dec 14 05:05	4° \mathfrak{D} 41'17	-0°12'38	evening set	13207 Jun 15 02:13	18° \mathfrak{D} 22'50	
min. Earth dist.	13200 Dec 14 13:03	4° \mathfrak{D} 40'44	29.17967 AU				
direct	13201 Mar 04 13:59	3° \mathfrak{D} 17'08		conjunction	13207 Jun 30 13:52	18° \mathfrak{D} 57'39	-0°20'32
evening set	13201 Jun 01 11:47	5° \mathfrak{D} 11'51		minimum elong	13207 Jun 30 13:52	18° \mathfrak{D} 57'39	0°21'33
				max. Earth dist.	13207 Jun 30 07:45	18° \mathfrak{D} 57'05	31.12550 AU
conjunction	13201 Jun 17 00:26	5° \mathfrak{D} 46'38	-0°12'30	morning rise	13207 Jul 16 01:13	19° \mathfrak{D} 32'27	
minimum elong	13201 Jun 17 00:26	5° \mathfrak{D} 46'38	0°13'32	retrograde	13207 Oct 12 10:54	21° \mathfrak{D} 27'22	
behind sun begin	13201 Jun 16 20:47	5° \mathfrak{D} 46'18		opposition	13207 Dec 30 19:56	20° \mathfrak{D} 04'23	-0°22'40
behind sun end	13201 Jun 17 04:04	5° \mathfrak{D} 46'57		min. Earth dist.	13207 Dec 31 01:01	20° \mathfrak{D} 04'02	29.12016 AU
max. Earth dist.	13201 Jun 16 16:31	5° \mathfrak{D} 45'54	31.17522 AU	direct	13208 Mar 19 21:15	18° \mathfrak{D} 40'29	
morning rise	13201 Jul 02 12:00	6° \mathfrak{D} 21'21		evening set	13208 Jun 16 12:44	20° \mathfrak{D} 35'18	
retrograde	13201 Sep 28 12:23	8° \mathfrak{D} 15'29					
opposition	13201 Dec 16 17:22	6° \mathfrak{D} 52'35	-0°14'08	conjunction	13208 Jul 02 00:26	21° \mathfrak{D} 10'07	-0°21'47
min. Earth dist.	13201 Dec 17 01:14	6° \mathfrak{D} 52'02	29.17117 AU	minimum elong	13208 Jul 02 00:26	21° \mathfrak{D} 10'07	0°22'46
direct	13202 Mar 07 02:50	5° \mathfrak{D} 28'28		max. Earth dist.	13208 Jul 01 19:37	21° \mathfrak{D} 09'40	31.11428 AU
evening set	13202 Jun 03 21:58	7° \mathfrak{D} 23'11		morning rise	13208 Jul 17 11:35	21° \mathfrak{D} 44'55	
				retrograde	13208 Oct 13 21:47	23° \mathfrak{D} 39'57	
conjunction	13202 Jun 19 10:20	7° \mathfrak{D} 57'58	-0°13'54	opposition	13209 Jan 01 08:36	22° \mathfrak{D} 16'54	-0°23'59
minimum elong	13202 Jun 19 10:20	7° \mathfrak{D} 57'58	0°14'54	min. Earth dist.	13209 Jan 01 13:26	22° \mathfrak{D} 16'34	29.10826 AU
behind sun begin	13202 Jun 19 07:46	7° \mathfrak{D} 57'44		direct	13209 Mar 22 09:49	20° \mathfrak{D} 53'00	
behind sun end	13202 Jun 19 12:55	7° \mathfrak{D} 58'12		evening set	13209 Jun 18 23:23	22° \mathfrak{D} 47'48	
max. Earth dist.	13202 Jun 19 02:24	7° \mathfrak{D} 57'14	31.16724 AU				

conjunction	13209 Jul 04 10:50	23° $\overline{022}$ '38 -0°23'00	max. Earth dist.	13215 Jul 18 01:17	6° Ω 38'09 31.03495 AU
minimum elong	13209 Jul 04 10:50	23° $\overline{022}$ '38 0°23'59	morning rise	13215 Aug 02 12:46	7° Ω 13'05
max. Earth dist.	13209 Jul 04 05:24	23° $\overline{022}$ '07 31.10199 AU	retrograde	13215 Oct 30 07:57	9° Ω 08'52
morning rise	13209 Jul 19 22:09	23° $\overline{057}$ '27	opposition	13216 Jan 18 01:42	7° Ω 45'25 -0°32'08
retrograde	13209 Oct 16 11:12	25° $\overline{052}$ '34	min. Earth dist.	13216 Jan 18 01:22	7° Ω 45'26 29.03068 AU
opposition	13210 Jan 03 21:18	24° $\overline{029}$ '27 -0°25'16	direct	13216 Apr 06 21:43	6° Ω 21'33
min. Earth dist.	13210 Jan 04 01:20	24° $\overline{029}$ '10 29.09565 AU	evening set	13216 Jul 04 00:45	8° Ω 16'17
direct	13210 Mar 24 21:30	23° $\overline{005}$ '31			
evening set	13210 Jun 21 09:42	25° $\overline{000}$ '18	conjunction	13216 Jul 19 11:52	8° Ω 51'10 -0°30'29
			minimum elong	13216 Jul 19 11:52	8° Ω 51'10 0°31'20
conjunction	13210 Jul 06 21:14	25° $\overline{035}$ '08 -0°24'11	max. Earth dist.	13216 Jul 19 11:25	8° Ω 51'08 31.02635 AU
minimum elong	13210 Jul 06 21:14	25° $\overline{035}$ '08 0°25'08	morning rise	13216 Aug 03 23:26	9° Ω 26'06
max. Earth dist.	13210 Jul 06 17:18	25° $\overline{034}$ '46 31.08912 AU	retrograde	13216 Oct 31 21:09	11° Ω 22'02
morning rise	13210 Jul 22 08:26	26° $\overline{009}$ '58	opposition	13217 Jan 19 14:41	9° Ω 58'33 -0°33'07
retrograde	13210 Oct 18 22:38	28° $\overline{005}$ '11	min. Earth dist.	13217 Jan 19 14:07	9° Ω 58'36 29.02222 AU
opposition	13211 Jan 06 10:03	26° $\overline{041}$ '58 -0°26'31	direct	13217 Apr 09 07:11	8° Ω 34'43
min. Earth dist.	13211 Jan 06 14:10	26° $\overline{041}$ '41 29.08275 AU	evening set	13217 Jul 06 11:23	10° Ω 29'28
direct	13211 Mar 27 11:14	25° $\overline{018}$ '01			
evening set	13211 Jun 23 20:13	27° $\overline{012}$ '46	conjunction	13217 Jul 21 22:39	11° Ω 04'22 -0°31'23
			minimum elong	13217 Jul 21 22:39	11° Ω 04'22 0°32'14
conjunction	13211 Jul 09 07:34	27° $\overline{047}$ '37 -0°25'20	max. Earth dist.	13217 Jul 21 23:50	11° Ω 04'29 31.01782 AU
minimum elong	13211 Jul 09 07:34	27° $\overline{047}$ '37 0°26'17	morning rise	13217 Aug 06 10:08	11° Ω 39'19
max. Earth dist.	13211 Jul 09 03:38	27° $\overline{047}$ '15 31.07644 AU	retrograde	13217 Nov 03 08:45	13° Ω 35'23
morning rise	13211 Jul 24 18:54	28° $\overline{022}$ '27	opposition	13218 Jan 22 03:43	12° Ω 11'53 -0°34'03
	13211 Sep 18 15:34	0° Ω	min. Earth dist.	13218 Jan 22 02:41	12° Ω 11'57 29.01350 AU
retrograde	13211 Oct 21 11:35	0° Ω 17'46	direct	13218 Apr 11 19:06	10° Ω 48'05
	13211 Nov 23 22:45	30° \overline{R} $\overline{02}$	evening set	13218 Jul 08 22:12	12° Ω 42'50
opposition	13212 Jan 08 22:31	28° $\overline{054}$ '28 -0°27'43			
min. Earth dist.	13212 Jan 09 01:00	28° $\overline{054}$ '18 29.07040 AU	conjunction	13218 Jul 24 09:19	13° Ω 17'44 -0°32'15
direct	13212 Mar 28 23:27	27° $\overline{030}$ '31	minimum elong	13218 Jul 24 09:19	13° Ω 17'44 0°33'03
evening set	13212 Jun 25 06:41	29° $\overline{025}$ '15	max. Earth dist.	13218 Jul 24 09:57	13° Ω 17'48 31.00888 AU
			morning rise	13218 Aug 08 21:05	13° Ω 52'43
conjunction	13212 Jul 10 18:01	0° Ω 00'06 -0°26'27		13218 Sep 11 16:10	15° Ω
minimum elong	13212 Jul 10 18:01	0° Ω 00'06 0°27'22	retrograde	13218 Nov 05 23:11	15° Ω 48'55
	13212 Jul 10 16:56	0° Ω		13219 Jan 02 22:32	15° \overline{R} $\overline{02}$
max. Earth dist.	13212 Jul 10 15:10	29° $\overline{059}$ '50 31.06445 AU	opposition	13219 Jan 24 16:47	14° Ω 25'22 -0°34'57
morning rise	13212 Jul 26 05:17	0° Ω 34'58	min. Earth dist.	13219 Jan 24 15:05	14° Ω 25'29 29.00421 AU
retrograde	13212 Oct 22 21:21	2° Ω 30'23	direct	13219 Apr 14 06:36	13° Ω 01'35
opposition	13213 Jan 10 11:23	1° Ω 07'02 -0°28'53	evening set	13219 Jul 11 09:04	14° Ω 56'20
min. Earth dist.	13213 Jan 10 14:03	1° Ω 06'51 29.05900 AU		13219 Jul 13 00:40	15° Ω
	13213 Feb 26 16:54	30° \overline{R} $\overline{02}$			
direct	13213 Mar 31 11:08	29° $\overline{043}$ '05	conjunction	13219 Jul 26 20:20	15° Ω 31'16 -0°33'03
	13213 May 02 08:31	0° Ω	minimum elong	13219 Jul 26 20:20	15° Ω 31'16 0°33'50
evening set	13213 Jun 27 17:03	1° Ω 37'48	max. Earth dist.	13219 Jul 26 22:08	15° Ω 31'26 30.99897 AU
			morning rise	13219 Aug 11 08:02	16° Ω 06'15
conjunction	13213 Jul 13 04:20	2° Ω 12'39 -0°27'31	retrograde	13219 Nov 08 11:37	18° Ω 02'34
minimum elong	13213 Jul 13 04:20	2° Ω 12'39 0°28'26	opposition	13220 Jan 27 05:52	16° Ω 38'58 -0°35'47
max. Earth dist.	13213 Jul 13 02:26	2° Ω 12'28 31.05367 AU	min. Earth dist.	13220 Jan 27 04:34	16° Ω 39'03 28.99373 AU
morning rise	13213 Jul 28 15:38	2° Ω 47'32	direct	13220 Apr 15 19:46	15° Ω 15'11
retrograde	13213 Oct 25 09:03	4° Ω 43'03	evening set	13220 Jul 12 20:07	17° Ω 09'56
opposition	13214 Jan 13 00:07	3° Ω 19'40 -0°30'01			
min. Earth dist.	13214 Jan 13 00:56	3° Ω 19'37 29.04871 AU	conjunction	13220 Jul 28 07:19	17° Ω 44'52 -0°33'48
direct	13214 Apr 02 23:22	1° Ω 55'44	minimum elong	13220 Jul 28 07:19	17° Ω 44'52 0°34'33
evening set	13214 Jun 30 03:36	3° Ω 50'27	max. Earth dist.	13220 Jul 28 08:42	17° Ω 45'00 30.98799 AU
			morning rise	13220 Aug 12 19:13	18° Ω 19'53
conjunction	13214 Jul 15 14:47	4° Ω 25'20 -0°28'33	retrograde	13220 Nov 10 01:24	20° Ω 16'17
minimum elong	13214 Jul 15 14:47	4° Ω 25'20 0°29'26	opposition	13221 Jan 28 19:02	18° Ω 52'37 -0°36'34
max. Earth dist.	13214 Jul 15 13:16	4° Ω 25'11 31.04386 AU	min. Earth dist.	13221 Jan 28 16:28	18° Ω 52'48 28.98212 AU
morning rise	13214 Jul 31 02:12	5° Ω 00'13	direct	13221 Apr 18 08:08	17° Ω 28'50
retrograde	13214 Oct 27 20:51	6° Ω 55'53	evening set	13221 Jul 15 06:58	19° Ω 23'33
opposition	13215 Jan 15 12:54	5° Ω 32'27 -0°31'06			
min. Earth dist.	13215 Jan 15 13:55	5° Ω 32'23 29.03944 AU	conjunction	13221 Jul 30 18:16	19° Ω 58'30 -0°34'31
direct	13215 Apr 05 09:02	4° Ω 08'33	minimum elong	13221 Jul 30 18:16	19° Ω 58'30 0°35'15
evening set	13215 Jul 02 14:05	6° Ω 03'17	max. Earth dist.	13221 Jul 30 20:14	19° Ω 58'41 30.97575 AU
			morning rise	13221 Aug 15 06:16	20° Ω 33'32
conjunction	13215 Jul 18 01:23	6° Ω 38'09 -0°29'32	retrograde	13221 Nov 12 12:53	22° Ω 30'02
minimum elong	13215 Jul 18 01:23	6° Ω 38'09 0°30'26	opposition	13222 Jan 31 08:19	21° Ω 06'16 -0°37'17

min. Earth dist.	13222 Jan 31 06:25	21°06'24	28.96944 AU	conjunction	13228 Aug 14 23:23	5°03'33.53	-0°37'59
direct	13222 Apr 20 20:49	19°04'27		minimum elong	13228 Aug 14 23:24	5°03'33.53	0°38'29
evening set	13222 Jul 17 17:54	21°03'37.08		max. Earth dist.	13228 Aug 15 06:39	5°03'34.35	30.89946 AU
				morning rise	13228 Aug 30 12:33	6°03'09.05	
conjunction	13222 Aug 02 05:18	22°01'20.05	-0°35'10	retrograde	13228 Nov 28 04:01	8°03'06.18	
minimum elong	13222 Aug 02 05:18	22°01'20.05	0°35'52	opposition	13229 Feb 16 03:48	6°03'42.08	-0°40'47
max. Earth dist.	13222 Aug 02 07:52	22°01'20.05	30.96285 AU	min. Earth dist.	13229 Feb 15 20:57	6°03'42.36	28.89604 AU
morning rise	13222 Aug 17 17:27	22°01'47.08		direct	13229 May 06 06:42	5°03'18.21	
retrograde	13222 Nov 15 01:41	24°01'43.42		evening set	13229 Aug 01 22:24	7°03'12.58	
opposition	13223 Feb 02 21:14	23°01'19.51	-0°37'58				
min. Earth dist.	13223 Feb 02 17:53	23°01'20.05	28.95633 AU	conjunction	13229 Aug 17 10:30	7°03'48.03	-0°38'15
direct	13223 Apr 23 10:10	21°01'56.00		minimum elong	13229 Aug 17 10:30	7°03'48.03	0°38'44
evening set	13223 Jul 20 04:52	23°01'50.38		max. Earth dist.	13229 Aug 17 17:47	7°03'48.44	30.89249 AU
				morning rise	13229 Sep 01 23:59	8°03'23.16	
conjunction	13223 Aug 04 16:15	24°01'25.37	-0°35'46	retrograde	13229 Nov 30 18:26	10°03'20.37	
minimum elong	13223 Aug 04 16:16	24°01'25.37	0°36'27	opposition	13230 Feb 18 16:57	8°03'56.26	-0°41'03
max. Earth dist.	13223 Aug 04 18:58	24°01'25.52	30.94972 AU	min. Earth dist.	13230 Feb 18 08:43	8°03'57.00	28.88924 AU
morning rise	13223 Aug 20 04:38	25°01'00.41		direct	13230 May 08 18:06	7°03'32.41	
retrograde	13223 Nov 17 13:26	26°01'57.20		evening set	13230 Aug 04 09:40	9°03'27.20	
opposition	13224 Feb 05 10:24	25°01'33.23	-0°38'35				
min. Earth dist.	13224 Feb 05 07:23	25°01'33.36	28.94353 AU	conjunction	13230 Aug 19 21:55	10°03'02.26	-0°38'28
direct	13224 Apr 24 21:09	24°01'09.30		minimum elong	13230 Aug 19 21:56	10°03'02.26	0°38'55
evening set	13224 Jul 21 15:37	26°01'04.06		max. Earth dist.	13230 Aug 20 05:54	10°03'03.11	30.88566 AU
				morning rise	13230 Sep 04 11:36	10°03'37.41	
conjunction	13224 Aug 06 03:11	26°01'39.05	-0°36'19	retrograde	13230 Dec 03 07:27	12°03'35.09	
minimum elong	13224 Aug 06 03:11	26°01'39.05	0°36'58	opposition	13231 Feb 21 06:07	11°03'10.57	-0°41'15
max. Earth dist.	13224 Aug 06 07:27	26°01'39.30	30.93729 AU	min. Earth dist.	13231 Feb 20 22:33	11°03'11.28	28.88240 AU
morning rise	13224 Aug 21 15:35	27°01'14.11		direct	13231 May 11 06:50	9°03'47.14	
retrograde	13224 Nov 19 00:21	29°01'10.56		evening set	13231 Aug 06 21:01	11°03'41.54	
opposition	13225 Feb 06 23:27	27°01'46.54	-0°39'08				
min. Earth dist.	13225 Feb 06 18:51	27°01'47.13	28.93157 AU	conjunction	13231 Aug 22 09:29	12°03'17.01	-0°38'38
direct	13225 Apr 27 10:09	26°01'23.01		minimum elong	13231 Aug 22 09:29	12°03'17.01	0°39'03
evening set	13225 Jul 24 02:36	28°01'17.36		max. Earth dist.	13231 Aug 22 17:54	12°03'17.49	30.87869 AU
				morning rise	13231 Sep 06 23:21	12°03'52.18	
conjunction	13225 Aug 08 14:07	28°01'52.36	-0°36'49	retrograde	13231 Dec 05 22:23	14°03'49.52	
minimum elong	13225 Aug 08 14:07	28°01'52.36	0°37'27	opposition	13232 Feb 23 19:20	13°03'25.38	-0°41'23
max. Earth dist.	13225 Aug 08 18:09	28°01'52.59	30.92595 AU	min. Earth dist.	13232 Feb 23 10:29	13°03'26.15	28.87507 AU
morning rise	13225 Aug 24 02:50	29°01'27.43		direct	13232 May 12 20:35	12°03'01.57	
	13225 Sep 08 04:29	0°03'		evening set	13232 Aug 08 08:27	13°03'56.36	
retrograde	13225 Nov 21 13:13	1°03'24.34					
opposition	13226 Feb 09 12:32	0°03'00.29	-0°39'38	conjunction	13232 Aug 23 20:58	14°03'31.45	-0°38'44
min. Earth dist.	13226 Feb 09 07:31	0°03'00.50	28.92100 AU	minimum elong	13232 Aug 23 20:59	14°03'31.45	0°39'06
	13226 Feb 09 19:36	30°03'01		max. Earth dist.	13232 Aug 24 05:12	14°03'32.32	30.87089 AU
direct	13226 Apr 29 19:39	28°01'36.35		morning rise	13232 Sep 08 11:08	15°03'07.04	
	13226 Jul 12 00:05	0°03'		retrograde	13232 Dec 07 10:41	17°03'04.43	
evening set	13226 Jul 26 13:21	0°03'31.10		opposition	13233 Feb 25 08:47	15°03'40.27	-0°41'27
				min. Earth dist.	13233 Feb 25 00:40	15°03'41.01	28.86691 AU
conjunction	13226 Aug 11 01:10	1°03'06.12	-0°37'16	direct	13233 May 15 08:11	14°03'16.46	
minimum elong	13226 Aug 11 01:10	1°03'06.12	0°37'50	evening set	13233 Aug 10 19:54	16°03'11.23	
max. Earth dist.	13226 Aug 11 07:04	1°03'06.45	30.91598 AU				
morning rise	13226 Aug 26 13:55	1°03'41.20		conjunction	13233 Aug 26 08:46	16°03'46.33	-0°38'46
retrograde	13226 Nov 24 00:50	3°03'38.18		minimum elong	13233 Aug 26 08:46	16°03'46.33	0°39'07
opposition	13227 Feb 12 01:34	2°03'14.11	-0°40'05	max. Earth dist.	13233 Aug 26 17:57	16°03'47.25	30.86228 AU
min. Earth dist.	13227 Feb 11 19:42	2°03'14.35	28.91159 AU	morning rise	13233 Sep 10 23:04	17°03'21.53	
direct	13227 May 02 07:29	0°03'50.19		retrograde	13233 Dec 09 22:24	19°03'19.36	
evening set	13227 Jul 29 00:24	2°03'44.55		opposition	13234 Feb 27 21:58	17°03'55.16	-0°41'28
				min. Earth dist.	13234 Feb 27 12:51	17°03'55.54	28.85780 AU
conjunction	13227 Aug 13 12:10	3°03'19.57	-0°37'39	direct	13234 May 17 21:40	16°03'31.33	
minimum elong	13227 Aug 13 12:10	3°03'19.57	0°38'12	evening set	13234 Aug 13 07:26	18°03'26.08	
max. Earth dist.	13227 Aug 13 17:49	3°03'20.29	30.90723 AU				
morning rise	13227 Aug 29 01:16	3°03'55.07		conjunction	13234 Aug 28 20:22	19°03'01.19	-0°38'45
retrograde	13227 Nov 26 15:11	5°03'52.12		minimum elong	13234 Aug 28 20:22	19°03'01.19	0°39'03
opposition	13228 Feb 14 14:34	4°03'28.03	-0°40'28	max. Earth dist.	13234 Aug 29 04:47	19°03'02.07	30.85287 AU
min. Earth dist.	13228 Feb 14 07:46	4°03'28.31	28.90341 AU	morning rise	13234 Sep 13 11:07	19°03'36.41	
direct	13228 May 03 18:26	3°03'04.13		retrograde	13234 Dec 12 11:27	21°03'34.27	
evening set	13228 Jul 30 11:22	4°03'58.50		opposition	13235 Mar 02 11:13	20°03'10.01	-0°41'25
				min. Earth dist.	13235 Mar 02 02:16	20°03'10.38	28.84822 AU

direct	13235 May 20 08:28	18° 1 46'16	conjunction	13241 Sep 13 06:30	4° 1 43'15	-0°37'01
evening set	13235 Aug 15 18:47	20° 1 40'48	minimum elong	13241 Sep 13 06:30	4° 1 43'15	0°37'03
			max. Earth dist.	13241 Sep 13 19:22	4° 1 44'28	30.80728 AU
conjunction	13235 Aug 31 08:05	21° 1 16'00 -0°38'40	morning rise	13241 Sep 28 23:14	5° 1 18'46	
minimum elong	13235 Aug 31 08:05	21° 1 16'00 0°38'56	retrograde	13241 Dec 28 06:37	7° 1 16'55	
max. Earth dist.	13235 Aug 31 18:00	21° 1 16'56 30.84319 AU	opposition	13242 Mar 18 06:42	5° 1 52'10	-0°39'19
morning rise	13235 Sep 15 22:55	21° 1 51'22	min. Earth dist.	13242 Mar 17 18:13	5° 1 53'01	28.80649 AU
retrograde	13235 Dec 14 22:38	23° 1 49'10	direct	13242 Jun 04 20:24	4° 1 28'24	
opposition	13236 Mar 04 00:19	22° 1 24'40 -0°41'18	evening set	13242 Aug 31 03:38	6° 1 22'49	
min. Earth dist.	13236 Mar 03 14:46	22° 1 25'20 28.83863 AU				
direct	13236 May 21 21:30	21° 1 00'52	conjunction	13242 Sep 15 18:40	6° 1 58'09	-0°36'32
evening set	13236 Aug 17 06:18	22° 1 55'21	minimum elong	13242 Sep 15 18:40	6° 1 58'09	0°36'31
			max. Earth dist.	13242 Sep 16 08:39	6° 1 59'29	30.80537 AU
conjunction	13236 Sep 01 19:39	23° 1 30'33 -0°38'32	morning rise	13242 Oct 01 11:35	7° 1 33'42	
minimum elong	13236 Sep 01 19:39	23° 1 30'33 0°38'45	retrograde	13242 Dec 30 19:59	9° 1 31'55	
max. Earth dist.	13236 Sep 02 05:11	23° 1 31'28 30.83402 AU	opposition	13243 Mar 20 19:42	8° 1 07'11	-0°38'46
morning rise	13236 Sep 17 10:55	24° 1 05'57	min. Earth dist.	13243 Mar 20 06:10	8° 1 08'07	28.80466 AU
retrograde	13236 Dec 16 11:44	26° 1 03'48	direct	13243 Jun 07 09:49	6° 1 43'28	
opposition	13237 Mar 06 13:29	24° 1 39'12 -0°41'07	evening set	13243 Sep 02 15:36	8° 1 37'54	
min. Earth dist.	13237 Mar 06 03:08	24° 1 39'55 28.83002 AU				
direct	13237 May 24 08:25	23° 1 15'22	conjunction	13243 Sep 18 06:42	9° 1 13'16	-0°35'59
evening set	13237 Aug 19 17:36	25° 1 09'49	minimum elong	13243 Sep 18 06:42	9° 1 13'16	0°35'56
			max. Earth dist.	13243 Sep 18 19:55	9° 1 14'31	30.80356 AU
conjunction	13237 Sep 04 07:19	25° 1 45'02 -0°38'21	morning rise	13243 Oct 04 00:04	9° 1 48'50	
minimum elong	13237 Sep 04 07:20	25° 1 45'02 0°38'32	retrograde	13244 Jan 02 10:14	11° 1 47'08	
max. Earth dist.	13237 Sep 04 18:27	25° 1 46'06 30.82588 AU	opposition	13244 Mar 22 08:50	10° 1 22'25	-0°38'09
morning rise	13237 Sep 19 22:45	26° 1 20'27	min. Earth dist.	13244 Mar 21 19:42	10° 1 23'20	28.80283 AU
retrograde	13237 Dec 18 23:26	28° 1 18'21	direct	13244 Jun 08 20:44	8° 1 58'45	
opposition	13238 Mar 09 02:38	26° 1 53'41 -0°40'53	evening set	13244 Sep 04 03:35	10° 1 53'11	
min. Earth dist.	13238 Mar 08 16:11	26° 1 54'24 28.82253 AU				
direct	13238 May 26 20:11	25° 1 29'50	conjunction	13244 Sep 19 19:08	11° 1 28'35	-0°35'24
evening set	13238 Aug 22 05:09	27° 1 24'15	minimum elong	13244 Sep 19 19:08	11° 1 28'35	0°35'17
			max. Earth dist.	13244 Sep 20 09:29	11° 1 29'56	30.80144 AU
conjunction	13238 Sep 06 19:02	27° 1 59'29 -0°38'06	morning rise	13244 Oct 05 12:39	12° 1 04'11	
minimum elong	13238 Sep 06 19:03	27° 1 59'29 0°38'14	retrograde	13245 Jan 03 22:14	14° 1 02'33	
max. Earth dist.	13238 Sep 07 06:08	28° 1 00'32 30.81918 AU	opposition	13245 Mar 24 21:59	12° 1 37'49	-0°37'29
morning rise	13238 Sep 22 10:51	28° 1 34'55	min. Earth dist.	13245 Mar 24 08:34	12° 1 38'45	28.80030 AU
	13238 Nov 06 12:27	0° 1	direct	13245 Jun 11 09:47	11° 1 14'11	
retrograde	13238 Dec 21 13:39	0° 1 32'52	evening set	13245 Sep 06 15:45	13° 1 08'37	
	13239 Feb 06 01:14	30° 1 8'11				
opposition	13239 Mar 11 15:28	29° 1 08'09 -0°40'35	conjunction	13245 Sep 22 07:28	13° 1 44'02	-0°34'45
min. Earth dist.	13239 Mar 11 03:36	29° 1 08'59 28.81656 AU	minimum elong	13245 Sep 22 07:28	13° 1 44'02	0°34'36
direct	13239 May 29 07:27	27° 1 44'18	max. Earth dist.	13245 Sep 22 20:45	13° 1 45'17	30.79853 AU
evening set	13239 Aug 24 16:43	29° 1 38'42	morning rise	13245 Oct 08 01:30	14° 1 19'40	
	13239 Sep 03 03:48	0° 1	retrograde	13246 Jan 06 11:39	16° 1 18'04	
conjunction	13239 Sep 09 06:51	0° 1 13'58 -0°37'48	opposition	13246 Mar 27 11:08	14° 1 53'19	-0°36'45
minimum elong	13239 Sep 09 06:51	0° 1 13'58 0°37'54	min. Earth dist.	13246 Mar 26 21:40	14° 1 54'16	28.79692 AU
max. Earth dist.	13239 Sep 09 18:50	0° 1 15'06 30.81385 AU	direct	13246 Jun 13 20:43	13° 1 29'41	
morning rise	13239 Sep 24 22:54	0° 1 49'25	evening set	13246 Sep 09 03:54	15° 1 24'06	
retrograde	13239 Dec 24 02:45	2° 1 47'26	conjunction	13246 Sep 24 20:04	15° 1 59'32	-0°34'02
opposition	13240 Mar 13 04:38	1° 1 22'41 -0°40'13	minimum elong	13246 Sep 24 20:04	15° 1 59'32	0°33'52
min. Earth dist.	13240 Mar 12 17:05	1° 1 23'29 28.81198 AU	max. Earth dist.	13246 Sep 25 10:13	16° 1 00'52	30.79461 AU
	13240 May 22 15:49	30° 1 8'11	morning rise	13246 Oct 10 14:16	16° 1 35'11	
direct	13240 May 30 20:01	29° 1 58'51	retrograde	13247 Jan 08 23:21	18° 1 33'37	
	13240 Jun 08 00:54	0° 1	min. Earth dist.	13247 Mar 29 11:11	17° 1 09'44	28.79257 AU
evening set	13240 Aug 26 04:10	1° 1 53'15	opposition	13247 Mar 30 00:07	17° 1 08'50	-0°35'59
			direct	13247 Jun 16 08:21	15° 1 45'10	
conjunction	13240 Sep 10 18:36	2° 1 28'32 -0°37'26	evening set	13247 Sep 11 16:06	17° 1 39'34	
minimum elong	13240 Sep 10 18:36	2° 1 28'32 0°37'30				
max. Earth dist.	13240 Sep 11 07:20	2° 1 29'44 30.81004 AU	conjunction	13247 Sep 27 08:30	18° 1 15'00	-0°33'17
morning rise	13240 Sep 26 10:56	3° 1 04'01	minimum elong	13247 Sep 27 08:30	18° 1 15'00	0°33'04
retrograde	13240 Dec 25 17:33	5° 1 02'06	max. Earth dist.	13247 Sep 27 22:03	18° 1 16'17	30.79016 AU
opposition	13241 Mar 15 17:39	3° 1 37'20 -0°39'48	morning rise	13247 Oct 13 03:09	18° 1 50'41	
min. Earth dist.	13241 Mar 15 04:31	3° 1 38'15 28.80872 AU	retrograde	13248 Jan 11 13:30	20° 1 49'07	
direct	13241 Jun 02 09:13	2° 1 13'32	opposition	13248 Mar 31 13:06	19° 1 24'17	-0°35'08
evening set	13241 Aug 28 15:54	4° 1 07'56	min. Earth dist.	13248 Mar 30 23:16	19° 1 25'15	28.78803 AU

direct	13248 Jun 17 19:49	18° <u>00</u> '35		minimum elong	13254 Oct 12 23:58	4° <u>01</u> '54	0°26'12
evening set	13248 Sep 13 04:06	19° <u>05</u> '47		max. Earth dist.	13254 Oct 13 15:27	4° <u>03</u> '21	30.78056 AU
				morning rise	13254 Oct 28 21:00	4° <u>03</u> '43	
conjunction	13248 Sep 28 20:49	20° <u>03</u> '24	-0°32'29	retrograde	13255 Jan 27 11:27	6° <u>03</u> '07	
minimum elong	13248 Sep 28 20:49	20° <u>03</u> '24	0°32'14	opposition	13255 Apr 17 06:17	5° <u>03</u> '11	-0°27'53
max. Earth dist.	13248 Sep 29 10:59	20° <u>03</u> '44	30.78561 AU	min. Earth dist.	13255 Apr 16 14:55	5° <u>03</u> '12	28.78209 AU
morning rise	13248 Oct 14 15:46	21° <u>06</u> '06		direct	13255 Jul 04 11:18	3° <u>04</u> '25	
retrograde	13249 Jan 13 02:02	23° <u>04</u> '32		evening set	13255 Sep 29 17:47	5° <u>04</u> '41	
opposition	13249 Apr 03 02:08	21° <u>03</u> '39	-0°34'15				
min. Earth dist.	13249 Apr 02 12:57	21° <u>04</u> '34	28.78375 AU	conjunction	13255 Oct 15 12:50	6° <u>03</u> '17	-0°25'34
direct	13249 Jun 20 08:40	20° <u>05</u> '54		minimum elong	13255 Oct 15 12:50	6° <u>03</u> '17	0°25'02
evening set	13249 Sep 15 16:14	22° <u>05</u> '14		max. Earth dist.	13255 Oct 16 05:24	6° <u>03</u> '18	30.78330 AU
				morning rise	13255 Oct 31 10:02	6° <u>03</u> '53	
conjunction	13249 Oct 01 09:19	22° <u>05</u> '43	-0°31'38	retrograde	13256 Jan 29 23:39	8° <u>03</u> '51	
minimum elong	13249 Oct 01 09:19	22° <u>05</u> '43	0°31'21	opposition	13256 Apr 18 19:00	7° <u>03</u> '26	-0°26'39
max. Earth dist.	13249 Oct 01 23:49	22° <u>05</u> '47	30.78178 AU	min. Earth dist.	13256 Apr 18 04:07	7° <u>03</u> '27	28.78488 AU
morning rise	13249 Oct 17 04:35	23° <u>05</u> '21		direct	13256 Jul 05 23:04	6° <u>03</u> '02	
retrograde	13250 Jan 15 16:16	25° <u>05</u> '19		evening set	13256 Oct 01 06:18	7° <u>03</u> '57	
opposition	13250 Apr 05 14:46	23° <u>05</u> '55	-0°33'19				
min. Earth dist.	13250 Apr 05 00:19	23° <u>05</u> '55	28.78037 AU	conjunction	13256 Oct 17 01:36	8° <u>03</u> '32	-0°24'24
direct	13250 Jun 22 21:36	22° <u>05</u> '08		minimum elong	13256 Oct 17 01:36	8° <u>03</u> '32	0°23'51
evening set	13250 Sep 18 04:27	24° <u>05</u> '27		max. Earth dist.	13256 Oct 17 17:20	8° <u>03</u> '34	30.78610 AU
				morning rise	13256 Nov 01 23:15	9° <u>03</u> '08	
conjunction	13250 Oct 03 21:46	25° <u>05</u> '57	-0°30'44	retrograde	13257 Jan 31 13:22	11° <u>03</u> '07	
minimum elong	13250 Oct 03 21:46	25° <u>05</u> '57	0°30'24	opposition	13257 Apr 21 07:40	9° <u>03</u> '42	-0°25'23
max. Earth dist.	13250 Oct 04 12:15	25° <u>05</u> '02	30.77887 AU	min. Earth dist.	13257 Apr 20 16:18	9° <u>03</u> '43	28.78744 AU
morning rise	13250 Oct 19 17:26	25° <u>05</u> '36		direct	13257 Jul 08 10:40	8° <u>03</u> '18	
retrograde	13251 Jan 18 05:18	27° <u>05</u> '35		evening set	13257 Oct 03 19:04	10° <u>03</u> '12	
opposition	13251 Apr 08 03:37	26° <u>05</u> '10	-0°32'20				
min. Earth dist.	13251 Apr 07 13:51	26° <u>05</u> '11	28.77816 AU	conjunction	13257 Oct 19 14:43	10° <u>03</u> '48	-0°23'12
direct	13251 Jun 25 09:00	24° <u>05</u> '46		minimum elong	13257 Oct 19 14:44	10° <u>03</u> '48	0°22'37
evening set	13251 Sep 20 16:28	26° <u>05</u> '40		max. Earth dist.	13257 Oct 20 06:33	10° <u>03</u> '49	30.78816 AU
				morning rise	13257 Nov 04 12:38	11° <u>03</u> '24	
conjunction	13251 Oct 06 10:13	27° <u>05</u> '16	-0°29'47	retrograde	13258 Feb 03 01:03	13° <u>03</u> '22	
minimum elong	13251 Oct 06 10:13	27° <u>05</u> '16	0°29'25	opposition	13258 Apr 23 20:15	11° <u>03</u> '57	-0°24'05
max. Earth dist.	13251 Oct 07 01:50	27° <u>05</u> '17	30.77734 AU	min. Earth dist.	13258 Apr 23 06:06	11° <u>03</u> '58	28.78908 AU
morning rise	13251 Oct 22 06:05	27° <u>05</u> '51		direct	13258 Jul 10 22:24	10° <u>03</u> '33	
retrograde	13252 Jan 20 19:26	29° <u>05</u> '50		evening set	13258 Oct 06 07:49	12° <u>03</u> '28	
opposition	13252 Apr 09 16:18	28° <u>05</u> '25	-0°31'17				
min. Earth dist.	13252 Apr 09 01:17	28° <u>05</u> '26	28.77726 AU	conjunction	13258 Oct 22 03:51	13° <u>03</u> '03	-0°21'58
direct	13252 Jun 26 23:18	27° <u>05</u> '01		minimum elong	13258 Oct 22 03:51	13° <u>03</u> '03	0°21'21
evening set	13252 Sep 22 04:45	28° <u>05</u> '55		max. Earth dist.	13258 Oct 22 19:11	13° <u>03</u> '05	30.78940 AU
				morning rise	13258 Nov 07 02:04	13° <u>03</u> '39	
conjunction	13252 Oct 07 22:40	29° <u>05</u> '31	-0°28'48		13258 Dec 18 22:12	15° <u>03</u> '	
minimum elong	13252 Oct 07 22:41	29° <u>05</u> '31	0°28'24	retrograde	13259 Feb 05 14:58	15° <u>03</u> '38	
max. Earth dist.	13252 Oct 08 13:41	29° <u>05</u> '32	30.77716 AU		13259 Mar 27 18:50	15° <u>03</u> '	
	13252 Oct 20 14:15	0° <u>05</u> '		opposition	13259 Apr 26 08:46	14° <u>03</u> '13	-0°22'45
morning rise	13252 Oct 23 19:02	0° <u>05</u> '07		min. Earth dist.	13259 Apr 25 17:52	14° <u>03</u> '14	28.78978 AU
retrograde	13253 Jan 22 09:57	2° <u>05</u> '32		direct	13259 Jul 13 10:48	12° <u>03</u> '49	
opposition	13253 Apr 12 05:03	0° <u>05</u> '40	-0°30'12	evening set	13259 Oct 08 20:30	14° <u>03</u> '43	
min. Earth dist.	13253 Apr 11 14:18	0° <u>05</u> '41	28.77785 AU		13259 Oct 16 03:48	15° <u>03</u> '	
	13253 May 07 11:04	30° <u>05</u> '					
direct	13253 Jun 29 11:06	29° <u>05</u> '16		conjunction	13259 Oct 24 16:46	15° <u>03</u> '19	-0°20'42
	13253 Aug 19 11:42	0° <u>05</u> '		minimum elong	13259 Oct 24 16:46	15° <u>03</u> '19	0°20'03
evening set	13253 Sep 24 16:53	1° <u>05</u> '11		max. Earth dist.	13259 Oct 25 07:36	15° <u>03</u> '20	30.78968 AU
				morning rise	13259 Nov 09 15:22	15° <u>03</u> '55	
conjunction	13253 Oct 10 11:20	1° <u>05</u> '46	-0°27'46	retrograde	13260 Feb 08 03:42	17° <u>03</u> '53	
minimum elong	13253 Oct 10 11:20	1° <u>05</u> '46	0°27'19	opposition	13260 Apr 27 21:23	16° <u>03</u> '28	-0°21'22
max. Earth dist.	13253 Oct 11 03:42	1° <u>05</u> '48	30.77837 AU	min. Earth dist.	13260 Apr 27 07:43	16° <u>03</u> '29	28.78986 AU
morning rise	13253 Oct 26 07:54	2° <u>05</u> '22		direct	13260 Jul 14 22:28	15° <u>03</u> '04	
retrograde	13254 Jan 24 21:41	4° <u>05</u> '20		evening set	13260 Oct 10 09:08	16° <u>03</u> '58	
opposition	13254 Apr 14 17:42	2° <u>05</u> '55	-0°29'04				
min. Earth dist.	13254 Apr 14 02:25	2° <u>05</u> '56	28.77951 AU	conjunction	13260 Oct 26 05:52	17° <u>03</u> '34	-0°19'25
direct	13254 Jul 02 00:11	1° <u>05</u> '32		minimum elong	13260 Oct 26 05:52	17° <u>03</u> '34	0°18'44
evening set	13254 Sep 27 05:22	3° <u>05</u> '26		max. Earth dist.	13260 Oct 26 21:14	17° <u>03</u> '36	30.78975 AU
				morning rise	13260 Nov 11 04:41	18° <u>03</u> '10	
conjunction	13254 Oct 12 23:58	4° <u>05</u> '01	-0°26'41	retrograde	13261 Feb 09 17:35	20° <u>03</u> '08	

opposition	13261 Apr 30 09:38	18° M 43'48	-0°19'58	behind sun end	13266 Nov 09 16:57	1° 7 04'59	
min. Earth dist.	13261 Apr 29 19:15	18° M 44'49	28.78990 AU	max. Earth dist.	13266 Nov 10 03:14	1° 7 05'58	30.80822 AU
direct	13261 Jul 17 12:45	17° M 19'57		morning rise	13266 Nov 25 12:23	1° 7 40'30	
evening set	13261 Oct 12 21:52	19° M 14'08		retrograde	13267 Feb 23 21:22	3° 7 38'23	
				opposition	13267 May 14 10:15	2° 7 13'29	-0°11'02
conjunction	13261 Oct 28 18:48	19° M 49'50	-0°18'05	min. Earth dist.	13267 May 13 20:29	2° 7 14'27	28.81202 AU
minimum elong	13261 Oct 28 18:48	19° M 49'50	0°17'22	direct	13267 Jul 31 12:05	0° 7 49'35	
max. Earth dist.	13261 Oct 29 09:12	19° M 51'11	30.78997 AU	evening set	13267 Oct 27 01:51	2° 7 43'46	
morning rise	13261 Nov 13 18:06	20° M 25'45					
retrograde	13262 Feb 12 07:24	22° M 23'55		conjunction	13267 Nov 12 00:46	3° 7 19'33	-0°09'42
opposition	13262 May 02 21:58	20° M 58'54	-0°18'33	minimum elong	13267 Nov 12 00:46	3° 7 19'33	0°08'50
min. Earth dist.	13262 May 02 08:17	20° M 59'51	28.79051 AU	behind sun begin	13267 Nov 11 19:09	3° 7 19'02	
direct	13262 Jul 20 00:48	19° M 35'00		behind sun end	13267 Nov 12 06:22	3° 7 20'03	
evening set	13262 Oct 15 10:27	21° M 29'10		max. Earth dist.	13267 Nov 12 15:58	3° 7 20'58	30.81585 AU
				morning rise	13267 Nov 28 01:38	3° 7 55'32	
conjunction	13262 Oct 31 07:52	22° M 04'52	-0°16'45	retrograde	13268 Feb 26 11:15	5° 7 53'23	
minimum elong	13262 Oct 31 07:52	22° M 04'52	0°16'00	opposition	13268 May 15 22:11	4° 7 28'33	-0°09'28
max. Earth dist.	13262 Oct 31 23:19	22° M 06'19	30.79095 AU	min. Earth dist.	13268 May 15 07:34	4° 7 29'34	28.81993 AU
morning rise	13262 Nov 16 07:15	22° M 40'48		direct	13268 Aug 01 22:59	3° 7 04'40	
retrograde	13263 Feb 14 19:23	24° M 38'53		evening set	13268 Oct 28 14:50	4° 7 58'53	
opposition	13263 May 05 10:03	23° M 13'52	-0°17'05				
min. Earth dist.	13263 May 04 19:55	23° M 14'51	28.79195 AU	conjunction	13268 Nov 13 13:58	5° 7 34'41	-0°08'15
direct	13263 Jul 22 14:07	21° M 49'56		minimum elong	13268 Nov 13 13:58	5° 7 34'41	0°07'22
evening set	13263 Oct 17 23:11	23° M 44'05		behind sun begin	13268 Nov 13 07:59	5° 7 34'08	
				behind sun end	13268 Nov 13 19:56	5° 7 35'13	
conjunction	13263 Nov 02 20:44	24° M 19'49	-0°15'23	max. Earth dist.	13268 Nov 14 04:45	5° 7 36'04	30.82387 AU
minimum elong	13263 Nov 02 20:44	24° M 19'49	0°14'36	morning rise	13268 Nov 29 15:07	6° 7 10'41	
behind sun begin	13263 Nov 02 18:02	24° M 19'34		retrograde	13269 Feb 27 23:17	8° 7 08'29	
behind sun end	13263 Nov 02 23:27	24° M 20'03		opposition	13269 May 18 10:09	6° 7 43'43	-0°07'54
max. Earth dist.	13263 Nov 03 11:12	24° M 21'10	30.79310 AU	min. Earth dist.	13269 May 17 20:59	6° 7 44'38	28.82802 AU
morning rise	13263 Nov 18 20:35	24° M 55'45		direct	13269 Aug 04 09:55	5° 7 19'51	
retrograde	13264 Feb 17 09:31	26° M 53'46		evening set	13269 Oct 31 03:50	7° 7 14'06	
opposition	13264 May 06 22:13	25° M 28'45	-0°15'36				
min. Earth dist.	13264 May 06 07:58	25° M 29'45	28.79487 AU	conjunction	13269 Nov 16 03:24	7° 7 49'54	-0°06'46
direct	13264 Jul 24 01:46	24° M 04'49		minimum elong	13269 Nov 16 03:23	7° 7 49'54	0°05'52
evening set	13264 Oct 19 11:41	25° M 58'57		behind sun begin	13269 Nov 15 21:08	7° 7 49'20	
				behind sun end	13269 Nov 16 09:38	7° 7 50'28	
conjunction	13264 Nov 04 09:42	26° M 34'42	-0°13'59	max. Earth dist.	13269 Nov 16 18:15	7° 7 51'17	30.83180 AU
minimum elong	13264 Nov 04 09:42	26° M 34'42	0°13'12	morning rise	13269 Dec 02 04:41	8° 7 25'54	
behind sun begin	13264 Nov 04 05:55	26° M 34'22		retrograde	13270 Mar 02 12:51	10° 7 23'39	
behind sun end	13264 Nov 04 13:29	26° M 35'03		opposition	13270 May 20 22:02	8° 7 58'55	-0°06'18
max. Earth dist.	13264 Nov 05 01:23	26° M 36'10	30.79666 AU	min. Earth dist.	13270 May 20 08:30	8° 7 59'52	28.83554 AU
morning rise	13264 Nov 20 09:42	27° M 10'39		direct	13270 Aug 06 23:35	7° 7 35'03	
retrograde	13265 Feb 18 21:25	29° M 08'37		evening set	13270 Nov 02 16:59	9° 7 29'19	
opposition	13265 May 09 10:20	27° M 43'37	-0°14'06				
min. Earth dist.	13265 May 08 20:21	27° M 44'36	28.79914 AU	conjunction	13270 Nov 18 16:38	10° 7 05'08	-0°05'17
direct	13265 Jul 26 13:56	26° M 19'41		minimum elong	13270 Nov 18 16:38	10° 7 05'08	0°04'22
evening set	13265 Oct 22 00:27	28° M 13'50		behind sun begin	13270 Nov 18 10:13	10° 7 04'33	
				behind sun end	13270 Nov 18 23:04	10° 7 05'43	
conjunction	13265 Nov 06 22:42	28° M 49'35	-0°12'35	max. Earth dist.	13270 Nov 19 06:03	10° 7 06'23	30.83885 AU
minimum elong	13265 Nov 06 22:42	28° M 49'35	0°11'46	morning rise	13270 Dec 04 18:17	10° 7 41'08	
behind sun begin	13265 Nov 06 18:09	28° M 49'10		retrograde	13271 Mar 05 02:09	12° 7 38'48	
behind sun end	13265 Nov 07 03:16	28° M 50'00		opposition	13271 May 23 09:59	11° 7 14'06	-0°04'42
max. Earth dist.	13265 Nov 07 13:37	28° M 50'59	30.80178 AU	min. Earth dist.	13271 May 22 21:37	11° 7 14'58	28.84223 AU
morning rise	13265 Nov 22 23:07	29° M 25'34		direct	13271 Aug 09 11:03	9° 7 50'12	
	13265 Dec 09 04:42	0° 7		evening set	13271 Nov 05 05:59	11° 7 44'28	
retrograde	13266 Feb 21 10:21	1° 7 23'28					
opposition	13266 May 11 22:11	29° M 58'31	-0°12'35	conjunction	13271 Nov 21 06:06	12° 7 20'17	-0°03'47
min. Earth dist.	13266 May 11 07:33	29° M 59'32	28.80499 AU	minimum elong	13271 Nov 21 06:05	12° 7 20'17	0°02'51
	13266 May 11 01:00	30° 8 M		behind sun begin	13271 Nov 20 23:34	12° 7 19'42	
direct	13266 Jul 29 01:16	28° M 34'35		behind sun end	13271 Nov 21 12:37	12° 7 20'52	
	13266 Oct 11 01:39	0° 7		max. Earth dist.	13271 Nov 21 19:55	12° 7 21'34	30.84514 AU
evening set	13266 Oct 24 13:11	0° 7 28'45		morning rise	13271 Dec 07 07:48	12° 7 56'17	
				retrograde	13272 Mar 06 14:51	14° 7 53'50	
conjunction	13266 Nov 09 11:48	1° 7 04'31	-0°11'09	opposition	13272 May 24 21:47	13° 7 29'09	-0°03'06
minimum elong	13266 Nov 09 11:48	1° 7 04'31	0°10'19	min. Earth dist.	13272 May 24 09:29	13° 7 30'01	28.84808 AU
behind sun begin	13266 Nov 09 06:39	1° 7 04'03		direct	13272 Aug 11 00:29	12° 7 05'13	

evening set	13272 Nov 06 19:02	13°♏59'26		max. Earth dist.	13277 Dec 05 00:40	25°♏48'12	30.88536 AU
				morning rise	13277 Dec 20 16:11	26°♏23'07	
conjunction	13272 Nov 22 19:15	14°♏35'16	-0°02'16	retrograde	13278 Mar 20 15:55	28°♏19'58	
minimum elong	13272 Nov 22 19:16	14°♏35'16	0°01'19	opposition	13278 Jun 07 18:40	26°♏55'20	0°06'29
behind sun begin	13272 Nov 22 12:43	14°♏34'41		min. Earth dist.	13278 Jun 07 08:28	26°♏56'03	28.89052 AU
behind sun end	13272 Nov 23 01:48	14°♏35'51		direct	13278 Aug 24 23:51	25°♏31'10	
max. Earth dist.	13272 Nov 23 07:30	14°♏36'24	30.85082 AU	evening set	13278 Nov 21 00:34	27°♏25'19	
morning rise	13272 Dec 08 21:23	15°♏11'16					
retrograde	13273 Mar 09 05:28	17°♏08'42		conjunction	13278 Dec 07 02:22	28°♏01'09	0°06'47
opposition	13273 May 27 09:31	15°♏44'00	-0°01'30	minimum elong	13278 Dec 07 02:21	28°♏01'08	0°07'48
min. Earth dist.	13273 May 26 21:41	15°♏44'50	28.85365 AU	behind sun begin	13278 Dec 06 20:28	28°♏00'37	
direct	13273 Aug 13 13:16	14°♏20'00		behind sun end	13278 Dec 07 08:14	28°♏01'40	
evening set	13273 Nov 09 08:00	16°♏14'12		max. Earth dist.	13278 Dec 07 14:08	28°♏02'14	30.89582 AU
				morning rise	13278 Dec 23 05:21	28°♏37'07	
conjunction	13273 Nov 25 08:40	16°♏50'02	-0°00'43		13279 Feb 05 11:07	0°♏	
minimum elong	13273 Nov 25 08:39	16°♏50'02	0°00'16	retrograde	13279 Mar 23 04:09	0°♏33'52	
behind sun begin	13273 Nov 25 02:10	16°♏49'27			13279 May 08 23:17	30°♏♏	
behind sun end	13273 Nov 25 15:09	16°♏50'37		opposition	13279 Jun 10 05:54	29°♏09'19	0°08'03
max. Earth dist.	13273 Nov 25 21:34	16°♏51'14	30.85628 AU	min. Earth dist.	13279 Jun 09 19:00	29°♏10'05	28.90154 AU
morning rise	13273 Dec 11 10:49	17°♏26'02		direct	13279 Aug 27 12:14	27°♏45'10	
retrograde	13274 Mar 11 16:34	19°♏23'20		evening set	13279 Nov 23 13:37	29°♏39'21	
asc. node	13274 May 07 13:28	18°♏34'59			13279 Dec 02 21:16	0°♏	
opposition	13274 May 29 21:01	17°♏58'38	0°00'06				
min. Earth dist.	13274 May 29 09:55	17°♏59'25	28.85915 AU	conjunction	13279 Dec 09 15:28	0°♏15'10	0°08'15
direct	13274 Aug 16 02:24	16°♏34'35		minimum elong	13279 Dec 09 15:28	0°♏15'10	0°09'17
evening set	13274 Nov 11 21:03	18°♏28'46		behind sun begin	13279 Dec 09 09:58	0°♏14'41	
				behind sun end	13279 Dec 09 20:58	0°♏15'40	
conjunction	13274 Nov 27 21:48	19°♏04'35	0°00'50	max. Earth dist.	13279 Dec 10 02:15	0°♏16'10	30.90745 AU
minimum elong	13274 Nov 27 21:50	19°♏04'35	0°01'48	morning rise	13279 Dec 25 18:43	0°♏51'08	
behind sun begin	13274 Nov 27 15:17	19°♏04'00		retrograde	13280 Mar 24 16:55	2°♏47'49	
behind sun end	13274 Nov 28 04:23	19°♏05'10		opposition	13280 Jun 11 17:13	1°♏23'22	0°09'37
max. Earth dist.	13274 Nov 28 09:35	19°♏05'40	30.86211 AU	min. Earth dist.	13280 Jun 11 07:18	1°♏24'04	28.91370 AU
morning rise	13274 Dec 14 00:18	19°♏40'35			13280 Aug 22 07:16	30°♏♏	
retrograde	13275 Mar 14 05:34	21°♏37'45		direct	13280 Aug 28 22:20	29°♏59'14	
opposition	13275 Jun 01 08:30	20°♏13'03	0°01'42		13280 Sep 04 15:13	0°♏	
min. Earth dist.	13275 May 31 21:01	20°♏13'51	28.86534 AU	evening set	13280 Nov 25 02:32	1°♏53'28	
direct	13275 Aug 18 14:20	18°♏48'57					
evening set	13275 Nov 14 09:49	20°♏43'06		conjunction	13280 Dec 11 04:46	2°♏29'18	0°09'42
				minimum elong	13280 Dec 11 04:46	2°♏29'18	0°10'43
conjunction	13275 Nov 30 10:53	21°♏18'55	0°02'21	behind sun begin	13280 Dec 10 23:46	2°♏28'51	
minimum elong	13275 Nov 30 10:53	21°♏18'55	0°03'20	behind sun end	13280 Dec 11 09:46	2°♏29'45	
behind sun begin	13275 Nov 30 04:22	21°♏18'20		max. Earth dist.	13280 Dec 11 16:06	2°♏30'21	30.91988 AU
behind sun end	13275 Nov 30 17:24	21°♏19'31		morning rise	13280 Dec 27 08:00	3°♏05'15	
max. Earth dist.	13275 Nov 30 23:06	21°♏20'03	30.86863 AU	retrograde	13281 Mar 27 05:33	5°♏01'52	
morning rise	13275 Dec 16 13:27	21°♏54'55		opposition	13281 Jun 14 04:27	3°♏37'30	0°11'10
retrograde	13276 Mar 15 16:22	23°♏51'58		min. Earth dist.	13281 Jun 13 18:38	3°♏38'12	28.92611 AU
opposition	13276 Jun 02 20:02	22°♏27'16	0°03'18	direct	13281 Aug 31 11:07	2°♏13'25	
min. Earth dist.	13276 Jun 02 09:32	22°♏28'01	28.87241 AU	evening set	13281 Nov 27 15:50	4°♏07'42	
direct	13276 Aug 20 01:48	21°♏03'09					
evening set	13276 Nov 15 22:45	22°♏57'16		conjunction	13281 Dec 13 18:03	4°♏43'32	0°11'08
				minimum elong	13281 Dec 13 18:03	4°♏43'32	0°12'10
conjunction	13276 Dec 02 00:04	23°♏33'06	0°03'50	behind sun begin	13281 Dec 13 13:42	4°♏43'08	
minimum elong	13276 Dec 02 00:04	23°♏33'06	0°04'49	behind sun end	13281 Dec 13 22:24	4°♏43'55	
behind sun begin	13276 Dec 01 17:40	23°♏32'31		max. Earth dist.	13281 Dec 14 03:35	4°♏44'24	30.93220 AU
behind sun end	13276 Dec 02 06:27	23°♏33'40		morning rise	13281 Dec 29 21:32	5°♏19'29	
max. Earth dist.	13276 Dec 02 11:47	23°♏34'11	30.87639 AU	retrograde	13282 Mar 29 20:10	7°♏16'01	
morning rise	13276 Dec 18 02:50	24°♏09'05		opposition	13282 Jun 16 15:37	5°♏51'45	0°12'42
retrograde	13277 Mar 18 05:22	26°♏06'01		min. Earth dist.	13282 Jun 16 06:31	5°♏52'23	28.93822 AU
opposition	13277 Jun 05 07:15	24°♏41'21	0°04'54	direct	13282 Sep 02 23:10	4°♏27'41	
min. Earth dist.	13277 Jun 04 19:54	24°♏42'09	28.88078 AU	evening set	13282 Nov 30 05:00	6°♏22'00	
direct	13277 Aug 22 13:12	23°♏17'11					
evening set	13277 Nov 18 11:45	25°♏11'19		conjunction	13282 Dec 16 07:31	6°♏57'50	0°12'33
				minimum elong	13282 Dec 16 07:31	6°♏57'50	0°13'34
conjunction	13277 Dec 04 13:14	25°♏47'08	0°05'19	behind sun begin	13282 Dec 16 04:00	6°♏57'31	
minimum elong	13277 Dec 04 13:14	25°♏47'08	0°06'20	behind sun end	13282 Dec 16 11:02	6°♏58'09	
behind sun begin	13277 Dec 04 07:03	25°♏46'35		max. Earth dist.	13282 Dec 16 17:24	6°♏58'45	30.94381 AU
behind sun end	13277 Dec 04 19:25	25°♏47'42		morning rise	13283 Jan 01 10:54	7°♏33'47	

retrograde	13283 Apr 01 07:36	9°30'14		conjunction	13290 Jan 01 03:37	22°34'51	0°21'48
opposition	13283 Jun 19 02:56	8°06'02	0°14'13	minimum elong	13290 Jan 01 03:37	22°34'51	0°22'47
min. Earth dist.	13283 Jun 18 18:52	8°06'36	28.94929 AU	max. Earth dist.	13290 Jan 01 09:18	22°35'22	31.00818 AU
direct	13283 Sep 05 11:57	6°34'59		morning rise	13290 Jan 17 07:17	23°31'04	
evening set	13283 Dec 02 18:07	8°36'18		retrograde	13290 Apr 16 16:02	25°06'14	
				opposition	13290 Jul 04 07:27	23°34'15	0°23'59
conjunction	13283 Dec 18 20:42	9°31'08	0°13'57	min. Earth dist.	13290 Jul 04 02:37	23°34'35	29.01354 AU
minimum elong	13283 Dec 18 20:42	9°31'09	0°14'59	direct	13290 Sep 20 21:10	22°31'56	
behind sun begin	13283 Dec 18 18:29	9°31'57		evening set	13290 Dec 18 13:08	24°31'14	
behind sun end	13283 Dec 18 22:55	9°31'20					
max. Earth dist.	13283 Dec 19 04:52	9°31'54	30.95442 AU	conjunction	13291 Jan 03 16:26	24°34'00	0°23'00
morning rise	13284 Jan 04 00:19	9°34'05		minimum elong	13291 Jan 03 16:26	24°34'00	0°23'57
retrograde	13284 Apr 02 21:17	11°34'25		max. Earth dist.	13291 Jan 03 20:40	24°34'23	31.01910 AU
opposition	13284 Jun 20 14:09	10°32'01	0°15'42	morning rise	13291 Jan 19 20:15	25°32'49	
min. Earth dist.	13284 Jun 20 06:10	10°32'50	28.95936 AU	retrograde	13291 Apr 19 05:03	27°31'15	
direct	13284 Sep 07 00:04	8°35'12		opposition	13291 Jul 06 18:11	25°35'19	0°25'15
evening set	13284 Dec 04 07:18	10°35'32		min. Earth dist.	13291 Jul 06 13:33	25°35'39	29.02514 AU
				direct	13291 Sep 23 08:33	24°30'59	
conjunction	13284 Dec 20 10:08	11°32'22	0°15'20	evening set	13291 Dec 21 01:47	26°32'18	
minimum elong	13284 Dec 20 10:07	11°32'22	0°16'20				
max. Earth dist.	13284 Dec 20 18:11	11°32'07	30.96389 AU	conjunction	13292 Jan 06 05:21	27°30'04	0°24'10
morning rise	13285 Jan 05 13:43	12°30'18		minimum elong	13292 Jan 06 05:21	27°30'04	0°25'07
retrograde	13285 Apr 05 08:41	13°35'31		max. Earth dist.	13292 Jan 06 10:23	27°30'32	31.03122 AU
opposition	13285 Jun 23 01:14	12°33'24	0°17'09	morning rise	13292 Jan 22 08:59	27°33'52	
min. Earth dist.	13285 Jun 22 18:49	12°33'51	28.96840 AU	retrograde	13292 Apr 20 15:45	29°33'12	
direct	13285 Sep 09 11:54	11°31'01		opposition	13292 Jul 08 04:55	28°30'20	0°26'29
evening set	13285 Dec 06 20:28	13°30'38		min. Earth dist.	13292 Jul 08 01:01	28°30'37	29.03765 AU
				direct	13292 Sep 24 20:33	26°34'01	
conjunction	13285 Dec 22 23:24	13°34'02	0°16'41	evening set	13292 Dec 22 14:46	28°33'22	
minimum elong	13285 Dec 22 23:24	13°34'02	0°17'42				
max. Earth dist.	13285 Dec 23 06:18	13°34'06	30.97268 AU	conjunction	13293 Jan 07 18:15	29°31'40	0°25'17
morning rise	13286 Jan 08 03:07	14°31'22		minimum elong	13293 Jan 07 18:15	29°31'40	0°26'13
retrograde	13286 Apr 07 21:26	16°31'27		max. Earth dist.	13293 Jan 07 21:52	29°31'27	31.04419 AU
opposition	13286 Jun 25 12:11	14°34'22	0°18'35	morning rise	13293 Jan 23 22:01	29°34'54	
min. Earth dist.	13286 Jun 25 05:23	14°34'51	28.97689 AU		13293 Jan 28 14:31	0°	
direct	13286 Sep 11 23:48	13°32'13		retrograde	13293 Apr 23 05:28	1°45'08	
evening set	13286 Dec 09 09:27	15°31'32		opposition	13293 Jul 10 15:25	0°21'21	0°27'40
				min. Earth dist.	13293 Jul 10 11:27	0°21'38	29.05081 AU
conjunction	13286 Dec 25 12:28	15°35'21	0°18'00		13293 Jul 23 11:12	30°33'	
minimum elong	13286 Dec 25 12:28	15°35'21	0°19'00	direct	13293 Sep 27 08:27	28°35'03	
max. Earth dist.	13286 Dec 25 18:47	15°35'56	30.98097 AU		13293 Nov 29 17:29	0°	
morning rise	13287 Jan 10 16:11	16°30'15		evening set	13293 Dec 25 03:43	0°51'26	
retrograde	13287 Apr 10 06:47	18°32'12					
opposition	13287 Jun 27 23:15	17°30'08	0°19'59	conjunction	13294 Jan 10 07:19	1°27'11	0°26'23
min. Earth dist.	13287 Jun 27 17:54	17°30'23	28.98523 AU	minimum elong	13294 Jan 10 07:19	1°27'11	0°27'19
direct	13287 Sep 14 10:42	15°37'57		max. Earth dist.	13294 Jan 10 11:03	1°27'31	31.05724 AU
evening set	13287 Dec 11 22:22	17°32'15		morning rise	13294 Jan 26 10:53	2°02'56	
				retrograde	13294 Apr 25 17:03	3°58'05	
conjunction	13287 Dec 28 01:35	18°30'03	0°19'18	opposition	13294 Jul 13 02:10	2°34'23	0°28'48
minimum elong	13287 Dec 28 01:35	18°30'03	0°20'19	min. Earth dist.	13294 Jul 12 23:44	2°34'33	29.06370 AU
max. Earth dist.	13287 Dec 28 07:51	18°30'38	30.98947 AU	direct	13294 Sep 29 20:30	1°10'06	
morning rise	13288 Jan 13 05:18	18°34'56		evening set	13294 Dec 27 16:35	3°04'31	
retrograde	13288 Apr 11 17:57	20°39'44					
opposition	13288 Jun 29 09:58	19°31'54	0°21'21	conjunction	13295 Jan 12 20:09	3°40'15	0°27'26
min. Earth dist.	13288 Jun 29 04:13	19°31'06	28.99388 AU	minimum elong	13295 Jan 12 20:09	3°40'15	0°28'20
direct	13288 Sep 15 22:34	17°35'12		max. Earth dist.	13295 Jan 12 22:40	3°40'28	31.06984 AU
evening set	13288 Dec 13 11:21	19°34'54		morning rise	13295 Jan 28 23:43	4°15'59	
				retrograde	13295 Apr 28 05:35	6°11'01	
conjunction	13288 Dec 29 14:33	20°32'32	0°20'34	opposition	13295 Jul 15 12:49	4°47'24	0°29'54
minimum elong	13288 Dec 29 14:33	20°32'32	0°21'33	min. Earth dist.	13295 Jul 15 10:05	4°47'35	29.07581 AU
max. Earth dist.	13288 Dec 29 19:41	20°32'01	30.99838 AU	direct	13295 Oct 02 08:51	3°23'07	
morning rise	13289 Jan 14 18:24	20°35'24		evening set	13295 Dec 30 05:37	5°17'33	
retrograde	13289 Apr 14 05:17	22°35'05					
opposition	13289 Jul 01 20:50	21°32'04	0°22'41	conjunction	13296 Jan 15 09:10	5°53'16	0°28'26
min. Earth dist.	13289 Jul 01 16:06	21°32'24	29.00327 AU	minimum elong	13296 Jan 15 09:10	5°53'16	0°29'20
direct	13289 Sep 18 08:10	20°30'46		max. Earth dist.	13296 Jan 15 10:48	5°53'25	31.08131 AU
evening set	13289 Dec 16 00:12	21°35'04		morning rise	13296 Jan 31 12:38	6°29'00	

retrograde	13296 Apr 29 15:43	8° \approx 23'55		min. Earth dist.	13302 Jul 31 15:31	20° \approx 14'29	29.13880 AU
opposition	13296 Jul 16 23:29	7° \approx 00'21	0°30'58	direct	13302 Oct 18 16:26	18° \approx 50'05	
min. Earth dist.	13296 Jul 16 22:34	7° \approx 00'25	29.08676 AU	evening set	13303 Jan 15 22:19	20° \approx 44'32	
direct	13296 Oct 03 19:23	5° \approx 36'03					
evening set	13296 Dec 31 18:33	7° \approx 30'29		conjunction	13303 Feb 01 01:43	21° \approx 20'07	0°34'13
				minimum elong	13303 Feb 01 01:43	21° \approx 20'07	0°34'56
conjunction	13297 Jan 16 22:12	8° \approx 06'12	0°29'24	max. Earth dist.	13303 Jan 31 23:31	21° \approx 19'55	31.14356 AU
minimum elong	13297 Jan 16 22:12	8° \approx 06'12	0°30'16	morning rise	13303 Feb 17 04:17	21° \approx 55'40	
max. Earth dist.	13297 Jan 16 23:15	8° \approx 06'17	31.09168 AU	retrograde	13303 May 16 21:03	23° \approx 49'47	
morning rise	13297 Feb 02 01:34	8° \approx 41'54		opposition	13303 Aug 03 00:19	22° \approx 26'25	0°36'57
retrograde	13297 May 02 03:03	10° \approx 36'41		min. Earth dist.	13303 Aug 03 02:58	22° \approx 26'14	29.14895 AU
opposition	13297 Jul 19 10:03	9° \approx 13'10	0°31'58	direct	13303 Oct 21 04:37	21° \approx 01'55	
min. Earth dist.	13297 Jul 19 09:05	9° \approx 13'14	29.09644 AU	evening set	13304 Jan 18 10:45	22° \approx 56'23	
direct	13297 Oct 06 07:25	7° \approx 48'51					
evening set	13298 Jan 03 07:31	9° \approx 43'17		conjunction	13304 Feb 03 14:01	23° \approx 31'57	0°34'51
				minimum elong	13304 Feb 03 14:01	23° \approx 31'57	0°35'33
conjunction	13298 Jan 19 11:01	10° \approx 18'58	0°30'19	max. Earth dist.	13304 Feb 03 11:03	23° \approx 31'41	31.15440 AU
minimum elong	13298 Jan 19 11:01	10° \approx 18'58	0°31'11	morning rise	13304 Feb 19 16:32	24° \approx 07'29	
max. Earth dist.	13298 Jan 19 10:33	10° \approx 18'56	31.10080 AU	retrograde	13304 May 18 08:58	26° \approx 01'30	
morning rise	13298 Feb 04 14:20	10° \approx 54'39		opposition	13304 Aug 04 10:25	24° \approx 38'12	0°37'36
retrograde	13298 May 04 13:38	12° \approx 49'19		min. Earth dist.	13304 Aug 04 12:18	24° \approx 38'04	29.16030 AU
opposition	13298 Jul 21 20:35	11° \approx 25'50	0°32'55	direct	13304 Oct 22 16:48	23° \approx 13'43	
min. Earth dist.	13298 Jul 21 20:58	11° \approx 25'48	29.10522 AU	evening set	13305 Jan 19 23:11	25° \approx 08'13	
direct	13298 Oct 08 17:01	10° \approx 01'28					
evening set	13299 Jan 05 20:12	11° \approx 55'54		conjunction	13305 Feb 05 02:22	25° \approx 43'48	0°35'26
				minimum elong	13305 Feb 05 02:22	25° \approx 43'48	0°36'06
conjunction	13299 Jan 21 23:51	12° \approx 31'34	0°31'12	max. Earth dist.	13305 Feb 04 23:03	25° \approx 43'29	31.16619 AU
minimum elong	13299 Jan 21 23:51	12° \approx 31'34	0°32'01	morning rise	13305 Feb 21 04:41	26° \approx 19'18	
max. Earth dist.	13299 Jan 21 23:35	12° \approx 31'32	31.10925 AU	retrograde	13305 May 20 19:06	28° \approx 13'14	
morning rise	13299 Feb 07 02:56	13° \approx 07'13		opposition	13305 Aug 06 20:44	26° \approx 50'02	0°38'11
	13299 Apr 26 19:12	15° \approx		min. Earth dist.	13305 Aug 06 24:00	26° \approx 49'48	29.17249 AU
retrograde	13299 May 06 23:33	15° \approx 01'46		direct	13305 Oct 25 02:57	25° \approx 25'36	
	13299 May 17 07:51	15° \approx		evening set	13306 Jan 22 11:30	27° \approx 20'07	
opposition	13299 Jul 24 07:01	13° \approx 38'18	0°33'50				
min. Earth dist.	13299 Jul 24 07:39	13° \approx 38'15	29.11335 AU	conjunction	13306 Feb 07 14:37	27° \approx 55'41	0°35'58
direct	13299 Oct 11 05:44	12° \approx 13'54		minimum elong	13306 Feb 07 14:38	27° \approx 55'41	0°36'37
evening set	13300 Jan 08 08:53	14° \approx 08'19		max. Earth dist.	13306 Feb 07 11:12	27° \approx 55'22	31.17860 AU
				morning rise	13306 Feb 23 16:42	28° \approx 31'10	
conjunction	13300 Jan 24 12:20	14° \approx 43'58	0°32'01		13306 Apr 14 06:52	0° \approx	
minimum elong	13300 Jan 24 12:21	14° \approx 43'58	0°32'50	retrograde	13306 May 23 06:37	0° \approx 25'02	
max. Earth dist.	13300 Jan 24 10:22	14° \approx 43'47	31.11730 AU		13306 Jul 01 20:24	30° \approx	
	13300 Jan 31 17:15	15° \approx		opposition	13306 Aug 09 06:55	29° \approx 01'55	0°38'43
morning rise	13300 Feb 09 15:30	15° \approx 19'36		min. Earth dist.	13306 Aug 09 09:55	29° \approx 01'43	29.18482 AU
retrograde	13300 May 09 11:27	17° \approx 14'02		direct	13306 Oct 27 14:33	27° \approx 37'31	
opposition	13300 Jul 26 17:24	15° \approx 50'34	0°34'41	evening set	13307 Jan 25 00:01	29° \approx 32'05	
min. Earth dist.	13300 Jul 26 18:30	15° \approx 50'29	29.12143 AU		13307 Feb 06 16:34	0° \approx	
	13300 Aug 27 23:51	15° \approx					
direct	13300 Oct 13 16:42	14° \approx 26'07		conjunction	13307 Feb 10 02:53	0° \approx 07'38	0°36'27
	13300 Nov 28 12:39	15° \approx		minimum elong	13307 Feb 10 02:53	0° \approx 07'38	0°37'03
evening set	13301 Jan 10 21:27	16° \approx 20'33		max. Earth dist.	13307 Feb 09 22:12	0° \approx 07'12	31.19075 AU
				morning rise	13307 Feb 26 04:50	0° \approx 43'06	
conjunction	13301 Jan 27 01:02	16° \approx 56'11	0°32'48	retrograde	13307 May 25 16:51	2° \approx 36'54	
minimum elong	13301 Jan 27 01:02	16° \approx 56'11	0°33'34	opposition	13307 Aug 11 17:13	1° \approx 13'52	0°39'12
max. Earth dist.	13301 Jan 26 23:38	16° \approx 56'03	31.12539 AU	min. Earth dist.	13307 Aug 11 21:27	1° \approx 13'34	29.19679 AU
morning rise	13301 Feb 12 03:53	17° \approx 31'47			13307 Oct 04 12:26	30° \approx	
retrograde	13301 May 11 21:14	19° \approx 26'05		direct	13307 Oct 29 23:38	29° \approx 49'29	
opposition	13301 Jul 29 03:39	18° \approx 02'39	0°35'29		13307 Nov 24 06:20	0° \approx	
min. Earth dist.	13301 Jul 29 05:39	18° \approx 02'31	29.12968 AU	evening set	13308 Jan 27 12:20	1° \approx 44'05	
direct	13301 Oct 16 04:20	16° \approx 38'10					
evening set	13302 Jan 13 10:04	18° \approx 32'37		conjunction	13308 Feb 12 15:15	2° \approx 19'36	0°36'52
				minimum elong	13308 Feb 12 15:15	2° \approx 19'36	0°37'27
conjunction	13302 Jan 29 13:26	19° \approx 08'13	0°33'32	max. Earth dist.	13308 Feb 12 10:42	2° \approx 19'11	31.20221 AU
minimum elong	13302 Jan 29 13:26	19° \approx 08'13	0°34'17	morning rise	13308 Feb 28 16:53	2° \approx 55'03	
max. Earth dist.	13302 Jan 29 10:42	19° \approx 07'58	31.13403 AU	retrograde	13308 May 27 01:57	4° \approx 48'46	
morning rise	13302 Feb 14 16:18	19° \approx 43'48		opposition	13308 Aug 13 03:31	3° \approx 25'48	0°39'37
retrograde	13302 May 14 10:08	21° \approx 37'59		min. Earth dist.	13308 Aug 13 08:13	3° \approx 25'28	29.20759 AU
opposition	13302 Jul 31 13:56	20° \approx 14'35	0°36'15	direct	13308 Oct 31 11:56	2° \approx 01'26	

evening set	13309 Jan 29 00:56	3° $\mathbf{\text{H}}$ 56'02		opposition	13315 Aug 29 02:55	18° $\mathbf{\text{H}}$ 44'59	0°40'56
				min. Earth dist.	13315 Aug 29 10:49	18° $\mathbf{\text{H}}$ 44'26	29.25992 AU
conjunction	13309 Feb 14 03:32	4° $\mathbf{\text{H}}$ 31'32	0°37'14	direct	13315 Nov 16 21:20	17° $\mathbf{\text{H}}$ 20'25	
minimum elong	13309 Feb 14 03:32	4° $\mathbf{\text{H}}$ 31'32	0°37'46	evening set	13316 Feb 14 13:36	19° $\mathbf{\text{H}}$ 14'57	
max. Earth dist.	13309 Feb 13 20:58	4° $\mathbf{\text{H}}$ 30'56	31.21240 AU				
morning rise	13309 Mar 02 05:06	5° $\mathbf{\text{H}}$ 06'57		conjunction	13316 Mar 01 15:03	19° $\mathbf{\text{H}}$ 50'18	0°38'18
retrograde	13309 May 29 13:07	7° $\mathbf{\text{H}}$ 00'35		minimum elong	13316 Mar 01 15:03	19° $\mathbf{\text{H}}$ 50'18	0°38'35
opposition	13309 Aug 15 13:45	5° $\mathbf{\text{H}}$ 37'40	0°39'59	max. Earth dist.	13316 Mar 01 05:15	19° $\mathbf{\text{H}}$ 49'24	31.26378 AU
min. Earth dist.	13309 Aug 15 19:03	5° $\mathbf{\text{H}}$ 37'17	29.21721 AU	morning rise	13316 Mar 17 14:56	20° $\mathbf{\text{H}}$ 25'31	
direct	13309 Nov 02 21:48	4° $\mathbf{\text{H}}$ 13'16		retrograde	13316 Jun 13 14:39	22° $\mathbf{\text{H}}$ 18'27	
evening set	13310 Jan 31 13:16	6° $\mathbf{\text{H}}$ 07'53		opposition	13316 Aug 30 13:08	20° $\mathbf{\text{H}}$ 55'39	0°40'54
				min. Earth dist.	13316 Aug 30 21:39	20° $\mathbf{\text{H}}$ 55'04	29.26832 AU
conjunction	13310 Feb 16 15:53	6° $\mathbf{\text{H}}$ 43'22	0°37'33	direct	13316 Nov 18 06:52	19° $\mathbf{\text{H}}$ 31'07	
minimum elong	13310 Feb 16 15:53	6° $\mathbf{\text{H}}$ 43'22	0°38'04	evening set	13317 Feb 16 01:24	21° $\mathbf{\text{H}}$ 25'40	
max. Earth dist.	13310 Feb 16 09:37	6° $\mathbf{\text{H}}$ 42'47	31.22133 AU				
morning rise	13310 Mar 04 17:03	7° $\mathbf{\text{H}}$ 18'45		conjunction	13317 Mar 04 02:46	22° $\mathbf{\text{H}}$ 01'00	0°38'14
retrograde	13310 May 31 22:37	9° $\mathbf{\text{H}}$ 12'16		minimum elong	13317 Mar 04 02:47	22° $\mathbf{\text{H}}$ 01'00	0°38'28
opposition	13310 Aug 18 00:08	7° $\mathbf{\text{H}}$ 49'23	0°40'17	max. Earth dist.	13317 Mar 03 17:42	22° $\mathbf{\text{H}}$ 00'09	31.27262 AU
min. Earth dist.	13310 Aug 18 06:35	7° $\mathbf{\text{H}}$ 48'56	29.22552 AU	morning rise	13317 Mar 20 02:16	22° $\mathbf{\text{H}}$ 36'11	
direct	13310 Nov 05 08:52	6° $\mathbf{\text{H}}$ 24'58		retrograde	13317 Jun 15 23:22	24° $\mathbf{\text{H}}$ 29'05	
evening set	13311 Feb 03 01:29	8° $\mathbf{\text{H}}$ 19'34		opposition	13317 Sep 01 23:14	23° $\mathbf{\text{H}}$ 06'22	0°40'47
				min. Earth dist.	13317 Sep 02 07:49	23° $\mathbf{\text{H}}$ 05'46	29.27744 AU
conjunction	13311 Feb 19 03:49	8° $\mathbf{\text{H}}$ 55'01	0°37'49	direct	13317 Nov 20 18:29	21° $\mathbf{\text{H}}$ 41'52	
minimum elong	13311 Feb 19 03:49	8° $\mathbf{\text{H}}$ 55'01	0°38'16	evening set	13318 Feb 18 13:18	23° $\mathbf{\text{H}}$ 36'27	
max. Earth dist.	13311 Feb 18 19:56	8° $\mathbf{\text{H}}$ 54'18	31.22919 AU				
morning rise	13311 Mar 07 04:57	9° $\mathbf{\text{H}}$ 30'23		conjunction	13318 Mar 06 14:17	24° $\mathbf{\text{H}}$ 11'46	0°38'06
retrograde	13311 Jun 03 10:36	11° $\mathbf{\text{H}}$ 23'48		minimum elong	13318 Mar 06 14:18	24° $\mathbf{\text{H}}$ 11'46	0°38'19
opposition	13311 Aug 20 10:21	10° $\mathbf{\text{H}}$ 00'55	0°40'32	max. Earth dist.	13318 Mar 06 03:50	24° $\mathbf{\text{H}}$ 10'48	31.28209 AU
min. Earth dist.	13311 Aug 20 16:41	10° $\mathbf{\text{H}}$ 00'29	29.23290 AU	morning rise	13318 Mar 22 13:41	24° $\mathbf{\text{H}}$ 46'56	
direct	13311 Nov 07 21:15	8° $\mathbf{\text{H}}$ 36'28		retrograde	13318 Jun 18 10:29	26° $\mathbf{\text{H}}$ 39'48	
evening set	13312 Feb 05 13:41	10° $\mathbf{\text{H}}$ 31'03		opposition	13318 Sep 04 09:27	25° $\mathbf{\text{H}}$ 17'10	0°40'37
				min. Earth dist.	13318 Sep 04 18:05	25° $\mathbf{\text{H}}$ 16'34	29.28707 AU
conjunction	13312 Feb 21 15:58	11° $\mathbf{\text{H}}$ 06'29	0°38'01	direct	13318 Nov 23 03:29	23° $\mathbf{\text{H}}$ 52'43	
minimum elong	13312 Feb 21 15:59	11° $\mathbf{\text{H}}$ 06'29	0°38'28	evening set	13319 Feb 21 00:55	25° $\mathbf{\text{H}}$ 47'21	
max. Earth dist.	13312 Feb 21 08:13	11° $\mathbf{\text{H}}$ 05'46	31.23610 AU				
morning rise	13312 Mar 08 16:45	11° $\mathbf{\text{H}}$ 41'48		conjunction	13319 Mar 09 01:51	26° $\mathbf{\text{H}}$ 22'39	0°37'56
retrograde	13312 Jun 04 20:38	13° $\mathbf{\text{H}}$ 35'07		minimum elong	13319 Mar 09 01:52	26° $\mathbf{\text{H}}$ 22'39	0°38'05
opposition	13312 Aug 21 20:31	12° $\mathbf{\text{H}}$ 12'14	0°40'43	max. Earth dist.	13319 Mar 08 16:08	26° $\mathbf{\text{H}}$ 21'45	31.29158 AU
min. Earth dist.	13312 Aug 22 04:23	12° $\mathbf{\text{H}}$ 11'42	29.23953 AU	morning rise	13319 Mar 25 00:49	26° $\mathbf{\text{H}}$ 57'48	
direct	13312 Nov 09 09:23	10° $\mathbf{\text{H}}$ 47'45		retrograde	13319 Jun 20 19:51	28° $\mathbf{\text{H}}$ 50'40	
evening set	13313 Feb 07 01:52	12° $\mathbf{\text{H}}$ 42'19		opposition	13319 Sep 06 19:47	27° $\mathbf{\text{H}}$ 28'06	0°40'24
				min. Earth dist.	13319 Sep 07 05:30	27° $\mathbf{\text{H}}$ 27'26	29.29626 AU
conjunction	13313 Feb 23 03:56	13° $\mathbf{\text{H}}$ 17'43	0°38'10	direct	13319 Nov 25 13:43	26° $\mathbf{\text{H}}$ 03'42	
minimum elong	13313 Feb 23 03:57	13° $\mathbf{\text{H}}$ 17'43	0°38'34	evening set	13320 Feb 23 12:52	27° $\mathbf{\text{H}}$ 58'23	
max. Earth dist.	13313 Feb 22 19:11	13° $\mathbf{\text{H}}$ 16'55	31.24261 AU				
morning rise	13313 Mar 11 04:35	13° $\mathbf{\text{H}}$ 53'01		conjunction	13320 Mar 10 13:26	28° $\mathbf{\text{H}}$ 33'39	0°37'41
retrograde	13313 Jun 07 08:01	15° $\mathbf{\text{H}}$ 46'13		minimum elong	13320 Mar 10 13:26	28° $\mathbf{\text{H}}$ 33'39	0°37'49
opposition	13313 Aug 24 06:38	14° $\mathbf{\text{H}}$ 23'21	0°40'51	max. Earth dist.	13320 Mar 10 02:10	28° $\mathbf{\text{H}}$ 32'37	31.30040 AU
min. Earth dist.	13313 Aug 24 13:53	14° $\mathbf{\text{H}}$ 22'50	29.24592 AU	morning rise	13320 Mar 26 12:17	29° $\mathbf{\text{H}}$ 08'48	
direct	13313 Nov 11 22:04	12° $\mathbf{\text{H}}$ 58'48			13320 Apr 20 22:14	0° $\mathbf{\text{Y}}$	
evening set	13314 Feb 09 13:50	14° $\mathbf{\text{H}}$ 53'22		retrograde	13320 Jun 22 07:50	1° $\mathbf{\text{Y}}$ 01'38	
					13320 Aug 26 13:24	30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$	
conjunction	13314 Feb 25 15:41	15° $\mathbf{\text{H}}$ 28'45	0°38'16	opposition	13320 Sep 08 05:54	29° $\mathbf{\text{H}}$ 39'08	0°40'07
minimum elong	13314 Feb 25 15:41	15° $\mathbf{\text{H}}$ 28'45	0°38'38	min. Earth dist.	13320 Sep 08 15:28	29° $\mathbf{\text{H}}$ 38'29	29.30455 AU
max. Earth dist.	13314 Feb 25 06:37	15° $\mathbf{\text{H}}$ 27'54	31.24896 AU	direct	13320 Nov 27 01:24	28° $\mathbf{\text{H}}$ 14'46	
morning rise	13314 Mar 13 16:01	16° $\mathbf{\text{H}}$ 04'00			13321 Feb 20 14:13	0° $\mathbf{\text{Y}}$	
retrograde	13314 Jun 09 18:00	17° $\mathbf{\text{H}}$ 57'07		evening set	13321 Feb 25 00:43	0° $\mathbf{\text{Y}}$ 09'30	
opposition	13314 Aug 26 16:52	16° $\mathbf{\text{H}}$ 34'14	0°40'56				
min. Earth dist.	13314 Aug 27 01:20	16° $\mathbf{\text{H}}$ 33'39	29.25256 AU	conjunction	13321 Mar 13 01:09	0° $\mathbf{\text{Y}}$ 44'45	0°37'24
direct	13314 Nov 14 08:57	15° $\mathbf{\text{H}}$ 09'41		minimum elong	13321 Mar 13 01:09	0° $\mathbf{\text{Y}}$ 44'45	0°37'29
evening set	13315 Feb 12 01:42	17° $\mathbf{\text{H}}$ 04'13		max. Earth dist.	13321 Mar 12 13:58	0° $\mathbf{\text{Y}}$ 43'44	31.30793 AU
				morning rise	13321 Mar 28 23:34	1° $\mathbf{\text{Y}}$ 19'52	
conjunction	13315 Feb 28 03:25	17° $\mathbf{\text{H}}$ 39'35	0°38'19	retrograde	13321 Jun 24 18:09	3° $\mathbf{\text{Y}}$ 12'41	
minimum elong	13315 Feb 28 03:26	17° $\mathbf{\text{H}}$ 39'35	0°38'38	opposition	13321 Sep 10 16:25	1° $\mathbf{\text{Y}}$ 50'14	0°39'46
max. Earth dist.	13315 Feb 27 18:29	17° $\mathbf{\text{H}}$ 38'45	31.25596 AU	min. Earth dist.	13321 Sep 11 03:31	1° $\mathbf{\text{Y}}$ 49'28	29.31141 AU
morning rise	13315 Mar 16 03:29	18° $\mathbf{\text{H}}$ 14'49		direct	13321 Nov 29 12:58	0° $\mathbf{\text{Y}}$ 25'54	
retrograde	13315 Jun 12 04:48	20° $\mathbf{\text{H}}$ 07'49		evening set	13322 Feb 27 12:28	2° $\mathbf{\text{Y}}$ 20'39	

conjunction	13322 Mar 15 12:34	2° Υ 55'53	0°37'03	direct	13328 Dec 14 20:53	15° Υ 40'52	
minimum elong	13322 Mar 15 12:34	2° Υ 55'53	0°37'07	evening set	13329 Mar 14 20:50	17° Υ 35'32	
max. Earth dist.	13322 Mar 15 00:22	2° Υ 54'45	31.31409 AU				
morning rise	13322 Mar 31 10:46	3° Υ 30'58		conjunction	13329 Mar 30 19:05	18° Υ 10'37	0°33'13
retrograde	13322 Jun 27 05:37	5° Υ 23'45		minimum elong	13329 Mar 30 19:06	18° Υ 10'37	0°33'00
opposition	13322 Sep 13 02:45	4° Υ 01'20	0°39'22	max. Earth dist.	13329 Mar 30 04:32	18° Υ 09'17	31.33207 AU
min. Earth dist.	13322 Sep 13 13:22	4° Υ 00'36	29.31677 AU	morning rise	13329 Apr 15 15:18	18° Υ 45'34	
direct	13322 Dec 02 01:22	2° Υ 37'00		retrograde	13329 Jul 12 02:02	20° Υ 37'58	
evening set	13323 Mar 02 00:13	4° Υ 31'45		opposition	13329 Sep 28 03:12	19° Υ 15'34	0°35'04
max. Earth dist.	13323 Mar 17 11:11	5° Υ 05'47	31.31867 AU	min. Earth dist.	13329 Sep 28 15:31	19° Υ 14'43	29.33400 AU
				direct	13329 Dec 17 07:57	17° Υ 51'07	
				evening set	13330 Mar 17 07:52	19° Υ 45'47	
conjunction	13323 Mar 18 00:05	5° Υ 06'59	0°36'39				
minimum elong	13323 Mar 18 00:05	5° Υ 06'59	0°36'40				
morning rise	13323 Apr 02 21:58	5° Υ 42'03		conjunction	13330 Apr 02 05:56	20° Υ 20'52	0°32'29
retrograde	13323 Jun 29 16:13	7° Υ 34'46		minimum elong	13330 Apr 02 05:57	20° Υ 20'52	0°32'14
opposition	13323 Sep 15 13:08	6° Υ 12'22	0°38'55	max. Earth dist.	13330 Apr 01 16:08	20° Υ 19'35	31.33568 AU
min. Earth dist.	13323 Sep 16 01:14	6° Υ 11'32	29.32073 AU	morning rise	13330 Apr 18 01:44	20° Υ 55'47	
direct	13323 Dec 04 12:36	4° Υ 48'02		retrograde	13330 Jul 14 11:36	22° Υ 48'12	
evening set	13324 Mar 03 11:52	6° Υ 42'47		opposition	13330 Sep 30 13:44	21° Υ 25'49	0°34'15
				min. Earth dist.	13330 Oct 01 03:04	21° Υ 24'54	29.33787 AU
conjunction	13324 Mar 19 11:34	7° Υ 17'59	0°36'12	direct	13330 Dec 19 18:13	20° Υ 01'24	
minimum elong	13324 Mar 19 11:34	7° Υ 17'59	0°36'11	evening set	13331 Mar 19 19:03	21° Υ 56'05	
max. Earth dist.	13324 Mar 18 22:30	7° Υ 16'47	31.32201 AU				
morning rise	13324 Apr 04 09:10	7° Υ 53'01		conjunction	13331 Apr 04 16:48	22° Υ 31'09	0°31'41
retrograde	13324 Jul 01 03:25	9° Υ 45'41		minimum elong	13331 Apr 04 16:48	22° Υ 31'09	0°31'24
opposition	13324 Sep 16 23:27	8° Υ 23'18	0°38'24	max. Earth dist.	13331 Apr 04 02:35	22° Υ 29'50	31.33971 AU
min. Earth dist.	13324 Sep 17 11:24	8° Υ 22'28	29.32334 AU	morning rise	13331 Apr 20 12:24	23° Υ 06'03	
direct	13324 Dec 06 02:03	6° Υ 58'56		retrograde	13331 Jul 16 22:53	24° Υ 58'28	
evening set	13325 Mar 05 23:31	8° Υ 53'40		opposition	13331 Oct 03 00:01	23° Υ 36'08	0°33'23
				min. Earth dist.	13331 Oct 03 12:33	23° Υ 35'17	29.34175 AU
conjunction	13325 Mar 21 22:50	9° Υ 28'51	0°35'42	direct	13331 Dec 22 05:54	22° Υ 11'45	
minimum elong	13325 Mar 21 22:51	9° Υ 28'51	0°35'38	evening set	13332 Mar 21 06:18	24° Υ 06'28	
max. Earth dist.	13325 Mar 21 08:37	9° Υ 27'32	31.32410 AU				
morning rise	13325 Apr 06 20:12	10° Υ 03'52		conjunction	13332 Apr 06 03:46	24° Υ 41'31	0°30'51
retrograde	13325 Jul 03 12:45	11° Υ 56'28		minimum elong	13332 Apr 06 03:46	24° Υ 41'31	0°30'32
opposition	13325 Sep 19 09:48	10° Υ 34'04	0°37'50	max. Earth dist.	13332 Apr 05 13:09	24° Υ 40'11	31.34331 AU
min. Earth dist.	13325 Sep 19 22:33	10° Υ 33'11	29.32516 AU	morning rise	13332 Apr 21 23:02	25° Υ 16'24	
direct	13325 Dec 08 12:27	9° Υ 09'40		retrograde	13332 Jul 18 09:54	27° Υ 08'50	
evening set	13326 Mar 08 10:54	11° Υ 04'23		opposition	13332 Oct 04 10:39	25° Υ 46'32	0°32'28
				min. Earth dist.	13332 Oct 05 00:23	25° Υ 45'36	29.34505 AU
conjunction	13326 Mar 24 10:07	11° Υ 39'32	0°35'09	direct	13332 Dec 23 17:00	24° Υ 22'11	
minimum elong	13326 Mar 24 10:07	11° Υ 39'32	0°35'03	evening set	13333 Mar 23 17:27	26° Υ 16'56	
max. Earth dist.	13326 Mar 23 20:37	11° Υ 38'18	31.32568 AU				
morning rise	13326 Apr 09 07:04	12° Υ 14'32		conjunction	13333 Apr 08 14:40	26° Υ 51'58	0°29'59
retrograde	13326 Jul 05 20:48	14° Υ 07'04		minimum elong	13333 Apr 08 14:40	26° Υ 51'58	0°29'36
opposition	13326 Sep 21 20:09	12° Υ 44'39	0°37'13	max. Earth dist.	13333 Apr 08 00:14	26° Υ 50'38	31.34611 AU
min. Earth dist.	13326 Sep 22 09:00	12° Υ 43'46	29.32657 AU	morning rise	13333 Apr 24 09:34	27° Υ 26'50	
direct	13326 Dec 11 00:42	11° Υ 20'13		retrograde	13333 Jul 20 20:56	29° Υ 19'15	
evening set	13327 Mar 10 22:14	13° Υ 14'54		opposition	13333 Oct 06 21:15	27° Υ 57'00	0°31'30
				min. Earth dist.	13333 Oct 07 10:41	27° Υ 56'04	29.34719 AU
conjunction	13327 Mar 26 21:01	13° Υ 50'02	0°34'34	direct	13333 Dec 26 06:18	26° Υ 32'40	
minimum elong	13327 Mar 26 21:01	13° Υ 50'02	0°34'25	evening set	13334 Mar 26 04:43	28° Υ 27'26	
max. Earth dist.	13327 Mar 26 06:18	13° Υ 48'41	31.32718 AU	max. Earth dist.	13334 Apr 10 09:59	29° Υ 01'01	31.34761 AU
morning rise	13327 Apr 11 17:51	14° Υ 25'01					
retrograde	13327 Jul 08 07:08	16° Υ 17'29		conjunction	13334 Apr 11 01:31	29° Υ 02'27	0°29'03
opposition	13327 Sep 24 06:29	14° Υ 55'04	0°36'33	minimum elong	13334 Apr 11 01:31	29° Υ 02'27	0°28'39
min. Earth dist.	13327 Sep 24 19:04	14° Υ 54'12	29.32833 AU	morning rise	13334 Apr 26 20:13	29° Υ 37'18	
direct	13327 Dec 13 10:14	13° Υ 30'36			13334 May 07 13:13	0° \mathcal{B}	
evening set	13328 Mar 12 09:29	15° Υ 25'15		retrograde	13334 Jul 23 07:15	1° \mathcal{B} 29'44	
				opposition	13334 Oct 09 07:56	0° \mathcal{B} 07'30	0°30'29
conjunction	13328 Mar 28 08:10	16° Υ 00'23	0°33'55	min. Earth dist.	13334 Oct 09 22:02	0° \mathcal{B} 06'31	29.34814 AU
minimum elong	13328 Mar 28 08:10	16° Υ 00'23	0°33'44		13334 Oct 13 21:11	30° \mathcal{R} Υ	
max. Earth dist.	13328 Mar 27 18:28	15° Υ 59'07	31.32917 AU	direct	13334 Dec 28 16:35	28° Υ 43'11	
morning rise	13328 Apr 13 04:31	16° Υ 35'20			13335 Mar 10 07:19	0° \mathcal{B}	
retrograde	13328 Jul 09 15:22	18° Υ 27'46		evening set	13335 Mar 28 15:42	0° \mathcal{B} 37'57	
opposition	13328 Sep 25 16:49	17° Υ 05'21	0°35'50				
min. Earth dist.	13328 Sep 26 06:03	17° Υ 04'26	29.33069 AU	conjunction	13335 Apr 13 12:23	1° \mathcal{B} 12'57	0°28'06

minimum elong	13335 Apr 13 12:23	1°8'12"57 0°27'39			13341 Nov 05 10:05	15°8'8"	
max. Earth dist.	13335 Apr 12 21:29	1°8'11"35 31.34781 AU	direct		13342 Jan 12 22:20	13°8'55"08	
morning rise	13335 Apr 29 06:41	1°8'47"47			13342 Mar 19 05:08	15°8'	
retrograde	13335 Jul 25 15:59	3°8'40"13	evening set		13342 Apr 12 19:30	15°8'49"52	
opposition	13335 Oct 11 18:40	2°8'17"59 0°29'26					
min. Earth dist.	13335 Oct 12 09:07	2°8'17"00 29.34750 AU	conjunction		13342 Apr 28 14:05	16°8'24"46 0°20'23	
direct	13335 Dec 31 05:07	0°8'53"41	minimum elong		13342 Apr 28 14:06	16°8'24"46 0°19'43	
evening set	13336 Mar 30 02:56	2°8'48"26	max. Earth dist.		13342 Apr 27 23:19	16°8'23"24 31.32925 AU	
			morning rise		13342 May 14 06:26	16°8'59"31	
conjunction	13336 Apr 14 23:10	3°8'23"26 0°27'06	retrograde		13342 Aug 09 15:45	18°8'52"02	
minimum elong	13336 Apr 14 23:10	3°8'23"26 0°26'37	opposition		13342 Oct 26 21:59	17°8'29"42 0°21'03	
max. Earth dist.	13336 Apr 14 06:45	3°8'21"55 31.34651 AU	min. Earth dist.		13342 Oct 27 11:38	17°8'28"46 29.32890 AU	
morning rise	13336 Apr 30 17:19	3°8'58"15	direct		13343 Jan 15 11:24	16°8'05"22	
retrograde	13336 Jul 27 02:45	5°8'50"41	evening set		13343 Apr 15 06:08	18°8'00"08	
opposition	13336 Oct 13 05:18	4°8'28"26 0°28'21	max. Earth dist.		13343 Apr 30 09:01	18°8'33"37 31.32842 AU	
min. Earth dist.	13336 Oct 13 19:39	4°8'27"27 29.34559 AU					
direct	13337 Jan 01 15:10	3°8'04"07	conjunction		13343 May 01 00:20	18°8'35"02 0°19'09	
evening set	13337 Apr 01 13:54	4°8'58"52	minimum elong		13343 May 01 00:20	18°8'35"02 0°18'27	
			morning rise		13343 May 16 16:33	19°8'09"46	
conjunction	13337 Apr 17 10:00	5°8'33"51 0°26'03	retrograde		13343 Aug 12 02:20	21°8'02"20	
minimum elong	13337 Apr 17 10:00	5°8'33"51 0°25'33	opposition		13343 Oct 29 08:55	19°8'40"02 0°19'43	
max. Earth dist.	13337 Apr 16 18:23	5°8'32"24 31.34395 AU	min. Earth dist.		13343 Oct 29 22:40	19°8'39"06 29.32827 AU	
morning rise	13337 May 03 03:42	6°8'08"40	direct		13344 Jan 17 21:24	18°8'15"45	
retrograde	13337 Jul 29 11:04	8°8'01"05	evening set		13344 Apr 16 16:43	20°8'10"33	
opposition	13337 Oct 15 16:09	6°8'38"50 0°27'13					
min. Earth dist.	13337 Oct 16 07:23	6°8'37"47 29.34249 AU	conjunction		13344 May 02 10:47	20°8'45"26 0°17'53	
direct	13338 Jan 04 02:16	5°8'14"29	minimum elong		13344 May 02 10:47	20°8'45"26 0°17'09	
evening set	13338 Apr 04 00:44	7°8'09"13	max. Earth dist.		13344 May 01 20:38	20°8'44"08 31.32777 AU	
			morning rise		13344 May 18 02:33	21°8'20"10	
conjunction	13338 Apr 19 20:24	7°8'44"10 0°24'59	retrograde		13344 Aug 13 11:40	23°8'12"47	
minimum elong	13338 Apr 19 20:24	7°8'44"10 0°24'27	opposition		13344 Oct 30 19:54	21°8'50"32 0°18'21	
max. Earth dist.	13338 Apr 19 03:55	7°8'42"39 31.34057 AU	min. Earth dist.		13344 Oct 31 09:42	21°8'49"35 29.32741 AU	
morning rise	13338 May 05 13:59	8°8'18"59	direct		13345 Jan 19 10:13	20°8'26"18	
retrograde	13338 Jul 31 21:23	10°8'11"24	evening set		13345 Apr 19 03:30	22°8'21"06	
opposition	13338 Oct 18 02:50	8°8'49"06 0°26'03					
min. Earth dist.	13338 Oct 18 17:14	8°8'48"07 29.33884 AU	conjunction		13345 May 04 21:05	22°8'55"59 0°16'36	
direct	13339 Jan 06 13:28	7°8'24"44	minimum elong		13345 May 04 21:05	22°8'55"59 0°15'51	
evening set	13339 Apr 06 11:29	9°8'19"27	behind sun begin		13345 May 04 20:00	22°8'55"54	
			behind sun end		13345 May 04 22:11	22°8'56"05	
conjunction	13339 Apr 22 06:59	9°8'54"24 0°23'53	max. Earth dist.		13345 May 04 05:53	22°8'54"35 31.32673 AU	
minimum elong	13339 Apr 22 06:59	9°8'54"24 0°23'18	morning rise		13345 May 20 12:46	23°8'30"43	
max. Earth dist.	13339 Apr 21 15:11	9°8'52"56 31.33677 AU	retrograde		13345 Aug 15 23:26	25°8'23"23	
morning rise	13339 May 08 00:10	10°8'29"11	opposition		13345 Nov 02 07:01	24°8'01"09 0°16'57	
retrograde	13339 Aug 03 06:35	12°8'21"36	min. Earth dist.		13345 Nov 02 20:19	24°8'00"15 29.32608 AU	
opposition	13339 Oct 20 13:32	10°8'59"17 0°24'51	direct		13346 Jan 21 20:48	22°8'36"57	
min. Earth dist.	13339 Oct 21 04:52	10°8'58"14 29.33518 AU	evening set		13346 Apr 21 14:00	24°8'31"46	
direct	13340 Jan 08 23:27	9°8'34"53					
evening set	13340 Apr 07 22:16	11°8'29"36	conjunction		13346 May 07 07:27	25°8'06"39 0°15'17	
			minimum elong		13346 May 07 07:27	25°8'06"39 0°14'30	
conjunction	13340 Apr 23 17:25	12°8'04"32 0°22'45	behind sun begin		13346 May 07 04:34	25°8'06"24	
minimum elong	13340 Apr 23 17:25	12°8'04"32 0°22'08	behind sun end		13346 May 07 10:20	25°8'06"55	
max. Earth dist.	13340 Apr 23 01:36	12°8'03"04 31.33340 AU	max. Earth dist.		13346 May 06 17:15	25°8'05"21 31.32486 AU	
morning rise	13340 May 09 10:23	12°8'39"18	morning rise		13346 May 22 22:42	25°8'41"23	
retrograde	13340 Aug 04 17:23	14°8'31"44	retrograde		13346 Aug 18 07:56	27°8'34"07	
opposition	13340 Oct 22 00:17	13°8'09"23 0°23'37	opposition		13346 Nov 04 18:19	26°8'11"53 0°15'32	
min. Earth dist.	13340 Oct 22 14:18	13°8'08"26 29.33211 AU	min. Earth dist.		13346 Nov 05 08:28	26°8'10"55 29.32364 AU	
direct	13341 Jan 10 11:08	11°8'45"00	direct		13347 Jan 24 08:12	24°8'47"43	
evening set	13341 Apr 10 08:55	13°8'39"42	evening set		13347 Apr 24 00:47	26°8'42"32	
conjunction	13341 Apr 26 03:43	14°8'14"37 0°21'35	conjunction		13347 May 09 17:50	27°8'17"24 0°13'57	
minimum elong	13341 Apr 26 03:43	14°8'14"37 0°20'56	minimum elong		13347 May 09 17:50	27°8'17"24 0°13'09	
max. Earth dist.	13341 Apr 25 12:02	14°8'13"10 31.33074 AU	behind sun begin		13347 May 09 13:59	27°8'17"04	
morning rise	13341 May 11 20:23	14°8'49"23	behind sun end		13347 May 09 21:41	27°8'17"45	
	13341 May 16 18:36	15°8'	max. Earth dist.		13347 May 09 02:46	27°8'16"00 31.32187 AU	
retrograde	13341 Aug 07 04:29	16°8'41"51	morning rise		13347 May 25 08:59	27°8'52"07	
opposition	13341 Oct 24 11:12	15°8'19"30 0°22'21	retrograde		13347 Aug 20 18:06	29°8'44"53	
min. Earth dist.	13341 Oct 25 01:41	15°8'18"31 29.33007 AU	opposition		13347 Nov 07 05:22	28°8'22"40 0°14'06	

min. Earth dist.	13347 Nov 07 18:44	28° 8 21'45	29.31996 AU	conjunction	13353 May 22 07:29	10° II 21'02	0°05'39
direct	13348 Jan 26 19:02	26° 8 58'30		minimum elong	13353 May 22 07:28	10° II 21'02	0°04'43
evening set	13348 Apr 25 11:31	28° 8 53'19		behind sun begin	13353 May 22 01:10	10° II 20'28	
				behind sun end	13353 May 22 13:47	10° II 21'36	
conjunction	13348 May 11 04:22	29° 8 28'11	0°12'36	max. Earth dist.	13353 May 21 18:22	10° II 19'49	31.28196 AU
minimum elong	13348 May 11 04:21	29° 8 28'11	0°11'47	morning rise	13353 Jun 06 21:06	10° II 55'43	
behind sun begin	13348 May 10 23:48	29° 8 27'46		retrograde	13353 Sep 02 08:56	12° II 48'43	
behind sun end	13348 May 11 08:55	29° 8 28'35		opposition	13353 Nov 20 01:51	11° II 26'13	0°05'08
max. Earth dist.	13348 May 10 13:39	29° 8 26'49	31.31741 AU	min. Earth dist.	13353 Nov 20 14:34	11° II 25'21	29.27880 AU
	13348 May 25 11:27	0° II		direct	13354 Feb 08 16:51	10° II 01'58	
morning rise	13348 May 26 19:08	0° II 02'53		evening set	13354 May 09 02:14	11° II 56'40	
retrograde	13348 Aug 22 03:41	1° II 55'42					
opposition	13348 Nov 08 16:50	0° II 33'27	0°12'39	conjunction	13354 May 24 17:22	12° II 31'28	0°04'13
min. Earth dist.	13348 Nov 09 07:17	0° II 32'28	29.31483 AU	minimum elong	13354 May 24 17:22	12° II 31'28	0°03'16
	13348 Nov 29 16:07	30° 8		behind sun begin	13354 May 24 10:57	12° II 30'54	
direct	13349 Jan 28 04:48	29° 8 09'17		behind sun end	13354 May 24 23:47	12° II 32'03	
	13349 Mar 26 08:05	0° II		max. Earth dist.	13354 May 24 03:46	12° II 30'13	31.27572 AU
evening set	13349 Apr 27 22:07	1° II 04'04		morning rise	13354 Jun 09 06:59	13° II 06'09	
				retrograde	13354 Sep 04 20:59	14° II 59'14	
conjunction	13349 May 13 14:38	1° II 38'55	0°11'14	opposition	13354 Nov 22 13:19	13° II 36'44	0°03'36
minimum elong	13349 May 13 14:39	1° II 38'55	0°10'23	min. Earth dist.	13354 Nov 23 00:57	13° II 35'56	29.27303 AU
behind sun begin	13349 May 13 09:33	1° II 38'28		direct	13355 Feb 11 03:50	12° II 12'30	
behind sun end	13349 May 13 19:45	1° II 39'23		evening set	13355 May 11 12:31	14° II 07'14	
max. Earth dist.	13349 May 12 23:49	1° II 37'33	31.31166 AU				
morning rise	13349 May 29 05:14	2° II 13'38		conjunction	13355 May 27 03:36	14° II 42'02	0°02'46
retrograde	13349 Aug 24 14:26	4° II 06'29		minimum elong	13355 May 27 03:34	14° II 42'02	0°01'48
opposition	13349 Nov 11 04:09	2° II 44'11	0°11'10	behind sun begin	13355 May 26 21:07	14° II 41'28	
min. Earth dist.	13349 Nov 11 17:34	2° II 43'16	29.30837 AU	behind sun end	13355 May 27 10:02	14° II 42'37	
direct	13350 Jan 30 16:54	1° II 19'59		max. Earth dist.	13355 May 26 15:22	14° II 40'54	31.27027 AU
evening set	13350 Apr 30 08:43	3° II 14'46		morning rise	13355 Jun 11 16:50	15° II 16'43	
max. Earth dist.	13350 May 15 09:50	3° II 48'12	31.30464 AU	retrograde	13355 Sep 07 05:57	17° II 09'54	
				opposition	13355 Nov 25 00:52	15° II 47'24	0°02'04
conjunction	13350 May 16 00:57	3° II 49'36	0°09'51	min. Earth dist.	13355 Nov 25 12:55	15° II 46'35	29.26783 AU
minimum elong	13350 May 16 00:57	3° II 49'36	0°08'59	direct	13356 Feb 13 15:14	14° II 23'14	
behind sun begin	13350 May 15 19:25	3° II 49'06		evening set	13356 May 12 22:59	16° II 17'59	
behind sun end	13350 May 16 06:29	3° II 50'05					
morning rise	13350 May 31 15:20	4° II 24'18		conjunction	13356 May 28 13:40	16° II 52'48	0°01'17
retrograde	13350 Aug 27 01:29	6° II 17'11		minimum elong	13356 May 28 13:40	16° II 52'48	0°00'18
opposition	13350 Nov 13 15:30	4° II 54'49	0°09'41	behind sun begin	13356 May 28 07:16	16° II 52'13	
min. Earth dist.	13350 Nov 14 05:41	4° II 53'51	29.30101 AU	behind sun end	13356 May 28 20:04	16° II 53'22	
direct	13351 Feb 02 03:57	3° II 30'36		max. Earth dist.	13356 May 28 01:15	16° II 51'39	31.26534 AU
evening set	13351 May 02 19:08	5° II 25'20		morning rise	13356 Jun 13 02:52	17° II 27'29	
				retrograde	13356 Sep 08 16:46	19° II 20'46	
conjunction	13351 May 18 11:14	6° II 00'10	0°08'28	opposition	13356 Nov 26 12:30	17° II 58'18	0°00'31
minimum elong	13351 May 18 11:14	6° II 00'10	0°07'34	min. Earth dist.	13356 Nov 26 23:15	17° II 57'34	29.26289 AU
behind sun begin	13351 May 18 05:21	5° II 59'39		direct	13357 Feb 15 01:58	16° II 34'11	
behind sun end	13351 May 18 17:06	6° II 00'41		desc. node	13357 Apr 09 04:02	17° II 18'42	
max. Earth dist.	13351 May 17 20:59	5° II 58'51	31.29701 AU	evening set	13357 May 15 09:16	18° II 28'58	
morning rise	13351 Jun 03 01:21	6° II 34'51					
retrograde	13351 Aug 29 12:10	8° II 27'46		conjunction	13357 May 30 23:45	19° II 03'47	-0°00'14
opposition	13351 Nov 16 02:51	7° II 05'21	0°08'10	minimum elong	13357 May 30 23:45	19° II 03'47	0°01'13
min. Earth dist.	13351 Nov 16 16:17	7° II 04'26	29.29312 AU	behind sun begin	13357 May 30 17:18	19° II 03'12	
direct	13352 Feb 04 17:07	5° II 41'05		behind sun end	13357 May 31 06:12	19° II 04'21	
evening set	13352 May 04 05:37	7° II 35'49		max. Earth dist.	13357 May 30 12:07	19° II 02'42	31.26025 AU
				morning rise	13357 Jun 15 12:40	19° II 38'28	
conjunction	13352 May 19 21:16	8° II 10'38	0°07'04	retrograde	13357 Sep 11 03:00	21° II 31'52	
minimum elong	13352 May 19 21:17	8° II 10'38	0°06'08	opposition	13357 Nov 29 00:25	20° II 09'25	-0°01'02
behind sun begin	13352 May 19 15:09	8° II 10'05		min. Earth dist.	13357 Nov 29 11:54	20° II 08'38	29.25767 AU
behind sun end	13352 May 20 03:25	8° II 11'10		direct	13358 Feb 17 11:13	18° II 45'22	
max. Earth dist.	13352 May 19 06:35	8° II 09'16	31.28916 AU	evening set	13358 May 17 19:42	20° II 40'10	
morning rise	13352 Jun 04 11:17	8° II 45'19					
retrograde	13352 Aug 30 23:09	10° II 38'16		conjunction	13358 Jun 02 09:58	21° II 14'59	-0°01'42
opposition	13352 Nov 17 14:16	9° II 15'47	0°06'40	minimum elong	13358 Jun 02 09:58	21° II 14'59	0°02'42
min. Earth dist.	13352 Nov 18 03:28	9° II 14'53	29.28560 AU	behind sun begin	13358 Jun 02 03:32	21° II 14'24	
direct	13353 Feb 06 03:37	7° II 51'31		behind sun end	13358 Jun 02 16:23	21° II 15'33	
evening set	13353 May 06 15:55	9° II 46'14		max. Earth dist.	13358 Jun 01 22:36	21° II 13'56	31.25476 AU
				morning rise	13358 Jun 17 22:44	21° II 49'41	

retrograde	13358 Sep 13 14:18	23°II43'12		min. Earth dist.	13363 Dec 13 09:56	3°☾18'19	29.20273 AU
opposition	13358 Dec 01 12:07	22°II20'45	-0°02'35	direct	13364 Mar 02 10:49	1°☾54'55	
min. Earth dist.	13358 Dec 01 22:27	22°II20'03	29.25169 AU	evening set	13364 May 30 10:36	3°☾49'44	
direct	13359 Feb 19 22:50	20°II56'44					
evening set	13359 May 20 06:16	22°II51'35		conjunction	13364 Jun 14 23:40	4°☾24'31	-0°10'14
				minimum elong	13364 Jun 14 23:40	4°☾24'31	0°11'16
conjunction	13359 Jun 04 20:14	23°II26'23	-0°03'09	behind sun begin	13364 Jun 14 18:53	4°☾24'06	
minimum elong	13359 Jun 04 20:14	23°II26'23	0°04'10	behind sun end	13364 Jun 15 04:26	4°☾24'57	
behind sun begin	13359 Jun 04 13:53	23°II25'49		max. Earth dist.	13364 Jun 14 13:50	4°☾23'37	31.19654 AU
behind sun end	13359 Jun 05 02:35	23°II26'57		morning rise	13364 Jun 30 11:31	4°☾59'15	
max. Earth dist.	13359 Jun 04 08:32	23°II25'18	31.24820 AU	retrograde	13364 Sep 26 10:33	6°☾53'16	
morning rise	13359 Jun 20 08:53	24°II01'06		opposition	13364 Dec 14 12:41	5°☾30'30	-0°11'41
retrograde	13359 Sep 16 02:19	25°II54'44		min. Earth dist.	13364 Dec 14 22:27	5°☾29'50	29.19057 AU
opposition	13359 Dec 04 00:09	24°II32'16	-0°04'07	direct	13365 Mar 04 23:07	4°☾06'25	
min. Earth dist.	13359 Dec 04 11:09	24°II31'32	29.24460 AU	evening set	13365 Jun 01 20:52	6°☾01'12	
direct	13360 Feb 22 09:22	23°II08'17					
evening set	13360 May 21 16:44	25°II03'09		conjunction	13365 Jun 17 09:38	6°☾35'59	-0°11'36
				minimum elong	13365 Jun 17 09:38	6°☾35'59	0°12'38
conjunction	13360 Jun 06 06:35	25°II37'58	-0°04'35	behind sun begin	13365 Jun 17 05:29	6°☾35'37	
minimum elong	13360 Jun 06 06:34	25°II37'57	0°05'36	behind sun end	13365 Jun 17 13:47	6°☾36'21	
behind sun begin	13360 Jun 06 00:23	25°II37'24		max. Earth dist.	13365 Jun 16 23:57	6°☾35'05	31.18470 AU
behind sun end	13360 Jun 06 12:46	25°II38'31		morning rise	13365 Jul 02 21:30	7°☾10'42	
max. Earth dist.	13360 Jun 05 19:45	25°II36'57	31.24042 AU	retrograde	13365 Sep 28 21:19	9°☾04'48	
morning rise	13360 Jun 21 18:56	26°II12'40		opposition	13365 Dec 17 00:48	7°☾41'58	-0°13'10
retrograde	13360 Sep 17 13:45	28°II06'24		min. Earth dist.	13365 Dec 17 08:54	7°☾41'25	29.17911 AU
opposition	13360 Dec 05 12:12	26°II43'55	-0°05'40	direct	13366 Mar 07 11:14	6°☾17'52	
min. Earth dist.	13360 Dec 05 22:34	26°II43'13	29.23600 AU	evening set	13366 Jun 04 07:10	8°☾12'36	
direct	13361 Feb 23 21:55	25°II19'57					
evening set	13361 May 24 03:23	27°II14'50		conjunction	13366 Jun 19 19:49	8°☾47'24	-0°12'58
				minimum elong	13366 Jun 19 19:49	8°☾47'24	0°14'00
conjunction	13361 Jun 08 16:51	27°II49'37	-0°06'01	behind sun begin	13366 Jun 19 16:29	8°☾47'06	
minimum elong	13361 Jun 08 16:51	27°II49'37	0°07'02	behind sun end	13366 Jun 19 23:08	8°☾47'42	
behind sun begin	13361 Jun 08 10:53	27°II49'05		max. Earth dist.	13366 Jun 19 11:07	8°☾46'36	31.17363 AU
behind sun end	13361 Jun 08 22:49	27°II50'10		morning rise	13366 Jul 05 07:31	9°☾22'08	
max. Earth dist.	13361 Jun 08 05:13	27°II48'33	31.23114 AU	retrograde	13366 Oct 01 07:41	11°☾16'19	
morning rise	13361 Jun 24 05:13	28°II24'20		opposition	13366 Dec 19 12:56	9°☾53'26	-0°14'37
	13361 Aug 18 01:22	0°☾		min. Earth dist.	13366 Dec 19 21:22	9°☾52'51	29.16864 AU
retrograde	13361 Sep 20 01:50	0°☾18'10		direct	13367 Mar 09 21:35	8°☾29'19	
	13361 Oct 23 21:10	30°☾II		evening set	13367 Jun 06 17:28	10°☾24'04	
opposition	13361 Dec 08 00:19	28°II55'38	-0°07'11				
min. Earth dist.	13361 Dec 08 10:44	28°II54'56	29.22610 AU	conjunction	13367 Jun 22 05:59	10°☾58'51	-0°14'19
direct	13362 Feb 26 08:23	27°II31'39		minimum elong	13367 Jun 22 05:59	10°☾58'51	0°15'20
evening set	13362 May 26 13:43	29°II26'31		behind sun begin	13367 Jun 22 03:54	10°☾58'40	
	13362 Jun 10 13:01	0°☾		behind sun end	13367 Jun 22 08:04	10°☾59'03	
				max. Earth dist.	13367 Jun 21 22:05	10°☾58'07	31.16373 AU
conjunction	13362 Jun 11 03:12	0°☾01'19	-0°07'26	morning rise	13367 Jul 07 17:37	11°☾33'36	
minimum elong	13362 Jun 11 03:11	0°☾01'19	0°08'27	retrograde	13367 Oct 03 18:23	13°☾27'52	
behind sun begin	13362 Jun 10 21:32	0°☾00'49		opposition	13367 Dec 22 01:05	12°☾04'57	-0°16'02
behind sun end	13362 Jun 11 08:51	0°☾01'50		min. Earth dist.	13367 Dec 22 07:48	12°☾04'30	29.15909 AU
max. Earth dist.	13362 Jun 10 16:47	0°☾00'21	31.22051 AU	direct	13368 Mar 11 09:36	10°☾40'52	
morning rise	13362 Jun 26 15:16	0°☾36'02		evening set	13368 Jun 08 03:46	12°☾35'36	
retrograde	13362 Sep 22 12:50	2°☾29'56					
opposition	13362 Dec 10 12:27	1°☾07'20	-0°08'42	conjunction	13368 Jun 23 16:02	13°☾10'24	-0°15'38
min. Earth dist.	13362 Dec 10 22:50	1°☾06'38	29.21477 AU	minimum elong	13368 Jun 23 16:03	13°☾10'24	0°16'40
	13363 Jan 27 06:07	30°☾II		max. Earth dist.	13368 Jun 23 08:19	13°☾09'41	31.15455 AU
direct	13363 Feb 28 22:38	29°II43'20		morning rise	13368 Jul 09 03:39	13°☾45'10	
	13363 Apr 01 21:13	0°☾		retrograde	13368 Oct 05 05:51	15°☾39'34	
evening set	13363 May 29 00:16	1°☾38'10		opposition	13368 Dec 23 13:30	14°☾16'37	-0°17'27
				min. Earth dist.	13368 Dec 23 20:20	14°☾16'09	29.15030 AU
conjunction	13363 Jun 13 13:23	2°☾12'58	-0°08'50	direct	13369 Mar 13 19:22	12°☾52'33	
minimum elong	13363 Jun 13 13:23	2°☾12'58	0°09'52	evening set	13369 Jun 10 14:03	14°☾47'18	
behind sun begin	13363 Jun 13 08:07	2°☾12'30					
behind sun end	13363 Jun 13 18:39	2°☾13'27		conjunction	13369 Jun 26 02:18	15°☾22'07	-0°16'57
max. Earth dist.	13363 Jun 13 02:11	2°☾11'56	31.20878 AU	minimum elong	13369 Jun 26 02:18	15°☾22'07	0°17'58
morning rise	13363 Jun 29 01:31	2°☾47'41		max. Earth dist.	13369 Jun 25 20:02	15°☾21'32	31.14600 AU
retrograde	13363 Sep 25 01:31	4°☾41'38		morning rise	13369 Jul 11 13:44	15°☾56'52	
opposition	13363 Dec 13 00:25	3°☾18'58	-0°10'12	retrograde	13369 Oct 07 17:09	17°☾51'24	

opposition	13369 Dec 26 01:49	16°☾28'26	-0°18'50	conjunction	13376 Jul 11 03:13	0°♈48'18	-0°25'19
min. Earth dist.	13369 Dec 26 07:37	16°☾28'02	29.14178 AU	minimum elong	13376 Jul 11 03:13	0°♈48'18	0°26'15
direct	13370 Mar 16 06:57	15°☾04'24		max. Earth dist.	13376 Jul 10 23:29	0°♈47'57	31.07009 AU
evening set	13370 Jun 13 00:27	16°☾59'11		morning rise	13376 Jul 26 14:32	1°♈23'10	
				retrograde	13376 Oct 23 04:29	3°♈18'29	
conjunction	13370 Jun 28 12:26	17°☾33'59	-0°18'14	opposition	13377 Jan 10 18:19	1°♈55'12	-0°27'40
minimum elong	13370 Jun 28 12:26	17°☾33'59	0°19'15	min. Earth dist.	13377 Jan 10 21:06	1°♈55'00	29.06338 AU
max. Earth dist.	13370 Jun 28 05:45	17°☾33'22	31.13750 AU	direct	13377 Mar 31 19:22	0°♈31'13	
morning rise	13370 Jul 13 23:59	18°☾08'46		evening set	13377 Jun 28 02:15	2°♈25'57	
retrograde	13370 Oct 10 06:10	20°☾03'25					
opposition	13370 Dec 28 14:18	18°☾40'26	-0°20'12	conjunction	13377 Jul 13 13:36	3°♈00'49	-0°26'22
min. Earth dist.	13370 Dec 28 19:52	18°☾40'03	29.13322 AU	minimum elong	13377 Jul 13 13:36	3°♈00'49	0°27'18
direct	13371 Mar 18 17:15	17°☾16'27		max. Earth dist.	13377 Jul 13 10:00	3°♈00'28	31.05675 AU
evening set	13371 Jun 15 10:52	19°☾11'14		morning rise	13377 Jul 29 01:01	3°♈35'41	
				retrograde	13377 Oct 25 15:45	5°♈31'07	
conjunction	13371 Jun 30 22:52	19°☾46'03	-0°19'29	opposition	13378 Jan 13 07:04	4°♈07'44	-0°28'47
minimum elong	13371 Jun 30 22:52	19°☾46'03	0°20'29	min. Earth dist.	13378 Jan 13 09:53	4°♈07'33	29.05055 AU
max. Earth dist.	13371 Jun 30 17:40	19°☾45'34	31.12861 AU	direct	13378 Apr 03 05:17	2°♈43'44	
morning rise	13371 Jul 16 10:11	20°☾20'50		evening set	13378 Jun 30 12:38	4°♈38'28	
retrograde	13371 Oct 12 17:58	22°☾15'38					
opposition	13371 Dec 31 02:49	20°☾52'37	-0°21'32	conjunction	13378 Jul 16 00:05	5°♈13'20	-0°27'24
min. Earth dist.	13371 Dec 31 08:12	20°☾52'15	29.12395 AU	minimum elong	13378 Jul 16 00:05	5°♈13'20	0°28'18
direct	13372 Mar 20 06:31	19°☾28'40		max. Earth dist.	13378 Jul 15 22:09	5°♈13'09	31.04439 AU
evening set	13372 Jun 16 21:31	21°☾23'29		morning rise	13378 Jul 31 11:26	5°♈48'13	
				retrograde	13378 Oct 28 02:51	7°♈43'46	
conjunction	13372 Jul 02 09:14	21°☾58'18	-0°20'43	opposition	13379 Jan 15 19:45	6°♈20'19	-0°29'51
minimum elong	13372 Jul 02 09:14	21°☾58'18	0°21'43	min. Earth dist.	13379 Jan 15 21:12	6°♈20'13	29.03868 AU
max. Earth dist.	13372 Jul 02 03:20	21°☾57'45	31.11901 AU	direct	13379 Apr 05 16:42	4°♈56'19	
morning rise	13372 Jul 17 20:40	22°☾33'06		evening set	13379 Jul 02 23:13	6°♈51'02	
retrograde	13372 Oct 14 07:44	24°☾28'01					
opposition	13373 Jan 01 15:29	23°☾04'59	-0°22'50	conjunction	13379 Jul 18 10:26	7°♈25'54	-0°28'23
min. Earth dist.	13373 Jan 01 19:56	23°☾04'41	29.11391 AU	minimum elong	13379 Jul 18 10:26	7°♈25'54	0°29'15
direct	13373 Mar 22 18:11	21°☾41'03		max. Earth dist.	13379 Jul 18 08:22	7°♈25'43	31.03315 AU
evening set	13373 Jun 19 07:58	23°☾35'53		morning rise	13379 Aug 02 21:57	8°♈00'49	
				retrograde	13379 Oct 30 15:56	9°♈56'29	
conjunction	13373 Jul 04 19:42	24°☾10'42	-0°21'55	opposition	13380 Jan 18 08:29	8°♈32'59	-0°30'53
minimum elong	13373 Jul 04 19:42	24°☾10'42	0°22'53	min. Earth dist.	13380 Jan 18 09:18	8°♈32'56	29.02815 AU
max. Earth dist.	13373 Jul 04 14:56	24°☾10'16	31.10832 AU	direct	13380 Apr 07 03:06	7°♈09'00	
morning rise	13373 Jul 20 06:58	24°☾45'31		evening set	13380 Jul 04 09:39	9°♈03'44	
retrograde	13373 Oct 16 18:21	26°☾40'34					
opposition	13374 Jan 04 04:17	25°☾17'29	-0°24'06	conjunction	13380 Jul 19 21:01	9°♈38'37	-0°29'19
min. Earth dist.	13374 Jan 04 09:16	25°☾17'08	29.10262 AU	minimum elong	13380 Jul 19 21:01	9°♈38'37	0°30'11
direct	13374 Mar 25 06:35	23°☾53'34		max. Earth dist.	13380 Jul 19 20:51	9°♈38'36	31.02321 AU
evening set	13374 Jun 21 18:39	25°☾48'23		morning rise	13380 Aug 04 08:26	10°♈13'32	
				retrograde	13380 Nov 01 04:17	12°♈09'20	
conjunction	13374 Jul 07 06:14	26°☾23'13	-0°23'05	opposition	13381 Jan 19 21:21	10°♈45'49	-0°31'53
minimum elong	13374 Jul 07 06:14	26°☾23'13	0°24'03	min. Earth dist.	13381 Jan 19 21:29	10°♈45'48	29.01873 AU
max. Earth dist.	13374 Jul 07 01:12	26°☾22'45	31.09651 AU	direct	13381 Apr 09 15:46	9°♈21'52	
morning rise	13374 Jul 22 17:36	26°☾58'03		evening set	13381 Jul 06 20:11	11°♈16'36	
retrograde	13374 Oct 19 06:31	28°☾53'11					
opposition	13375 Jan 06 16:47	27°☾30'03	-0°25'19	conjunction	13381 Jul 22 07:24	11°♈51'30	-0°30'14
min. Earth dist.	13375 Jan 06 20:34	27°☾29'47	29.09019 AU	minimum elong	13381 Jul 22 07:24	11°♈51'30	0°31'03
direct	13375 Mar 27 19:16	26°☾06'07		max. Earth dist.	13381 Jul 22 07:02	11°♈51'28	31.01436 AU
evening set	13375 Jun 24 05:17	28°☾00'55		morning rise	13381 Aug 06 19:04	12°♈26'26	
				retrograde	13381 Nov 03 18:13	14°♈22'22	
conjunction	13375 Jul 09 16:49	28°☾35'46	-0°24'13	opposition	13382 Jan 22 10:09	12°♈58'49	-0°32'49
minimum elong	13375 Jul 09 16:49	28°☾35'46	0°25'10	min. Earth dist.	13382 Jan 22 09:02	12°♈58'53	29.01028 AU
max. Earth dist.	13375 Jul 09 12:18	28°☾35'21	31.08352 AU	direct	13382 Apr 12 02:36	11°♈34'54	
morning rise	13375 Jul 25 04:09	29°☾10'37		evening set	13382 Jul 09 06:47	13°♈29'40	
	13375 Aug 18 01:04	0°♈					
retrograde	13375 Oct 21 17:48	1°♈05'51		conjunction	13382 Jul 24 18:07	14°♈04'34	-0°31'05
	13375 Dec 29 13:12	30°♈☾		minimum elong	13382 Jul 24 18:07	14°♈04'34	0°31'54
opposition	13376 Jan 09 05:37	29°☾42'38	-0°26'31	max. Earth dist.	13382 Jul 24 19:10	14°♈04'40	31.00611 AU
min. Earth dist.	13376 Jan 09 10:03	29°☾42'20	29.07688 AU	morning rise	13382 Aug 09 05:43	14°♈39'32	
direct	13376 Mar 29 06:37	28°☾18'41			13382 Aug 18 15:52	15°♈	
	13376 Jun 19 11:43	0°♈		retrograde	13382 Nov 06 05:54	16°♈35'36	
evening set	13376 Jun 25 15:43	0°♈13'27		opposition	13383 Jan 24 23:00	15°♈12'01	-0°33'43

min. Earth dist.	13383 Jan 24 22:08	15°Ω12'05	29.00221 AU	minimum elong	13389 Aug 08 22:48	29°Ω39'52	0°36'20
	13383 Feb 01 07:02	15°κΩ		max. Earth dist.	13389 Aug 09 03:07	29°Ω40'16	30.93678 AU
direct	13383 Apr 14 14:45	13°Ω48'09			13389 Aug 17 19:09	0°η	
	13383 Jun 21 06:38	15°Ω		morning rise	13389 Aug 24 11:17	0°η14'58	
evening set	13383 Jul 11 17:35	15°Ω42'55		retrograde	13389 Nov 21 19:59	2°η11'45	
				opposition	13390 Feb 09 18:53	0°η47'45	-0°38'29
conjunction	13383 Jul 27 04:51	16°Ω17'51	-0°31'54	min. Earth dist.	13390 Feb 09 14:49	0°η48'02	28.93108 AU
minimum elong	13383 Jul 27 04:51	16°Ω17'51	0°32'41		13390 Mar 12 12:54	30°κΩ	
max. Earth dist.	13383 Jul 27 06:01	16°Ω17'57	30.99821 AU	direct	13390 Apr 30 03:38	29°Ω23'52	
morning rise	13383 Aug 11 16:38	16°Ω52'50			13390 Jun 15 22:55	0°η	
retrograde	13383 Nov 08 19:59	18°Ω49'01		evening set	13390 Jul 26 22:08	1°η18'29	
opposition	13384 Jan 27 11:56	17°Ω25'25	-0°34'33				
min. Earth dist.	13384 Jan 27 09:39	17°Ω25'35	28.99424 AU	conjunction	13390 Aug 11 09:47	1°η53'29	-0°36'11
direct	13384 Apr 16 03:59	16°Ω01'35		minimum elong	13390 Aug 11 09:47	1°η53'29	0°36'46
evening set	13384 Jul 13 04:19	17°Ω56'22		max. Earth dist.	13390 Aug 11 13:47	1°η53'52	30.92541 AU
				morning rise	13390 Aug 26 22:35	2°η28'36	
conjunction	13384 Jul 28 15:35	18°Ω31'19	-0°32'40	retrograde	13390 Nov 24 09:44	4°η25'28	
minimum elong	13384 Jul 28 15:35	18°Ω31'19	0°33'26	opposition	13391 Feb 12 07:50	3°η01'24	-0°38'56
max. Earth dist.	13384 Jul 28 17:25	18°Ω31'29	30.98998 AU	min. Earth dist.	13391 Feb 12 02:35	3°η01'45	28.92022 AU
morning rise	13384 Aug 13 03:26	19°Ω06'19		direct	13391 May 02 14:25	1°η37'29	
retrograde	13384 Nov 10 08:32	21°Ω02'38		evening set	13391 Jul 29 09:06	3°η32'06	
opposition	13385 Jan 29 01:09	19°Ω39'01	-0°35'21				
min. Earth dist.	13385 Jan 28 23:30	19°Ω39'07	28.98583 AU	conjunction	13391 Aug 13 20:56	4°η07'07	-0°36'36
direct	13385 Apr 18 15:50	18°Ω15'13		minimum elong	13391 Aug 13 20:57	4°η07'07	0°37'08
evening set	13385 Jul 15 15:14	20°Ω09'59		max. Earth dist.	13391 Aug 14 02:27	4°η07'38	30.91500 AU
				morning rise	13391 Aug 29 09:47	4°η42'16	
conjunction	13385 Jul 31 02:36	20°Ω44'57	-0°33'23	retrograde	13391 Nov 26 21:55	6°η39'14	
minimum elong	13385 Jul 31 02:36	20°Ω44'57	0°34'07	opposition	13392 Feb 14 21:03	5°η15'05	-0°39'21
max. Earth dist.	13385 Jul 31 05:01	20°Ω45'10	30.98123 AU	min. Earth dist.	13392 Feb 14 15:43	5°η15'27	28.91046 AU
morning rise	13385 Aug 15 14:32	21°Ω19'58		direct	13392 May 04 02:50	3°η51'12	
retrograde	13385 Nov 12 20:06	23°Ω16'24		evening set	13392 Jul 30 20:01	5°η45'48	
opposition	13386 Jan 31 14:08	21°Ω52'44	-0°36'05				
min. Earth dist.	13386 Jan 31 11:10	21°Ω52'56	28.97657 AU	conjunction	13392 Aug 15 07:55	6°η20'50	-0°36'56
direct	13386 Apr 21 04:41	20°Ω28'57		minimum elong	13392 Aug 15 07:55	6°η20'50	0°37'27
evening set	13386 Jul 18 02:18	22°Ω23'43		max. Earth dist.	13392 Aug 15 13:49	6°η21'23	30.90598 AU
				morning rise	13392 Aug 30 21:02	6°η56'00	
conjunction	13386 Aug 02 13:37	22°Ω58'41	-0°34'03	retrograde	13392 Nov 28 12:38	8°η53'04	
minimum elong	13386 Aug 02 13:38	22°Ω58'41	0°34'45	opposition	13393 Feb 16 10:09	7°η28'54	-0°39'41
max. Earth dist.	13386 Aug 02 15:36	22°Ω58'52	30.97137 AU	min. Earth dist.	13393 Feb 16 03:07	7°η29'23	28.90204 AU
morning rise	13386 Aug 18 01:47	23°Ω33'44		direct	13393 May 06 15:53	6°η05'02	
retrograde	13386 Nov 15 08:08	25°Ω30'16		evening set	13393 Aug 02 07:05	7°η59'38	
opposition	13387 Feb 03 03:24	24°Ω06'32	-0°36'46				
min. Earth dist.	13387 Feb 03 00:57	24°Ω06'42	28.96620 AU	conjunction	13393 Aug 17 19:08	8°η34'42	-0°37'14
direct	13387 Apr 23 15:35	22°Ω42'44		minimum elong	13393 Aug 17 19:08	8°η34'42	0°37'42
evening set	13387 Jul 20 13:13	24°Ω37'28		max. Earth dist.	13393 Aug 18 01:54	8°η35'20	30.89806 AU
				morning rise	13393 Sep 02 08:27	9°η09'53	
conjunction	13387 Aug 05 00:44	25°Ω12'27	-0°34'40	retrograde	13393 Dec 01 01:29	11°η07'05	
minimum elong	13387 Aug 05 00:45	25°Ω12'27	0°35'20	opposition	13394 Feb 18 23:16	9°η42'53	-0°39'58
max. Earth dist.	13387 Aug 05 03:54	25°Ω12'45	30.96045 AU	min. Earth dist.	13394 Feb 18 16:38	9°η43'20	28.89471 AU
morning rise	13387 Aug 20 12:53	25°Ω47'31		direct	13394 May 09 03:33	8°η19'03	
retrograde	13387 Nov 17 19:34	27°Ω44'08		evening set	13394 Aug 04 18:10	10°η13'40	
opposition	13388 Feb 05 16:32	26°Ω20'20	-0°37'24				
min. Earth dist.	13388 Feb 05 13:10	26°Ω20'34	28.95469 AU	conjunction	13394 Aug 20 06:26	10°η48'45	-0°37'28
direct	13388 Apr 25 04:11	24°Ω56'31		minimum elong	13394 Aug 20 06:27	10°η48'45	0°37'55
evening set	13388 Jul 22 00:18	26°Ω51'12		max. Earth dist.	13394 Aug 20 14:06	10°η49'28	30.89125 AU
				morning rise	13394 Sep 04 19:56	11°η23'58	
conjunction	13388 Aug 06 11:44	27°Ω26'11	-0°35'13	retrograde	13394 Dec 03 14:07	13°η21'16	
minimum elong	13388 Aug 06 11:44	27°Ω26'11	0°35'52	opposition	13395 Feb 21 12:21	11°η57'04	-0°40'11
max. Earth dist.	13388 Aug 06 14:21	27°Ω26'26	30.94869 AU	min. Earth dist.	13395 Feb 21 04:06	11°η57'38	28.88819 AU
morning rise	13388 Aug 22 00:13	28°Ω01'17		direct	13395 May 11 16:26	10°η33'18	
retrograde	13388 Nov 19 08:27	29°Ω57'59		evening set	13395 Aug 07 05:23	12°η27'55	
opposition	13389 Feb 07 05:45	28°Ω34'04	-0°37'58				
min. Earth dist.	13389 Feb 07 02:12	28°Ω34'19	28.94285 AU	conjunction	13395 Aug 22 17:39	13°η03'02	-0°37'39
direct	13389 Apr 27 15:07	27°Ω10'13		minimum elong	13395 Aug 22 17:40	13°η03'02	0°38'03
evening set	13389 Jul 24 11:05	29°Ω04'52		max. Earth dist.	13395 Aug 23 01:17	13°η03'45	30.88495 AU
				morning rise	13395 Sep 07 07:27	13°η38'17	
conjunction	13389 Aug 08 22:47	29°Ω39'52	-0°35'44	retrograde	13395 Dec 06 03:13	15°η35'43	

opposition	13396 Feb 24 01:40	14° <u>11</u> '30 -0°40'21	max. Earth dist.	13402 Sep 08 13:50	28° <u>14</u> '47'54 30.82958 AU
min. Earth dist.	13396 Feb 23 17:45	14° <u>12</u> '03 28.88215 AU	morning rise	13402 Sep 23 19:15	29° <u>12</u> '22'22
direct	13396 May 13 03:29	12° <u>14</u> '47'47		13402 Oct 11 11:46	0° <u>01</u> '
evening set	13396 Aug 08 16:38	14° <u>14</u> '42'25	retrograde	13402 Dec 22 21:37	1° <u>02</u> '20'19
				13403 Mar 10 08:14	30° <u>08</u> ' <u>11</u> '
conjunction	13396 Aug 24 05:13	15° <u>14</u> '17'33 -0°37'46	opposition	13403 Mar 12 22:20	29° <u>14</u> '55'43 -0°39'44
minimum elong	13396 Aug 24 05:13	15° <u>14</u> '17'33 0°38'09	min. Earth dist.	13403 Mar 12 12:38	29° <u>14</u> '56'23 28.82542 AU
max. Earth dist.	13396 Aug 24 14:11	15° <u>14</u> '18'24 30.87899 AU	direct	13403 May 30 15:06	28° <u>14</u> '31'55
morning rise	13396 Sep 08 19:05	15° <u>14</u> '52'50		13403 Aug 13 19:59	0° <u>01</u> '
retrograde	13396 Dec 07 15:41	17° <u>14</u> '50'23	evening set	13403 Aug 26 01:23	0° <u>01</u> '26'23
opposition	13397 Feb 25 14:52	16° <u>14</u> '26'10 -0°40'26			
min. Earth dist.	13397 Feb 25 05:59	16° <u>14</u> '26'46 28.87606 AU	conjunction	13403 Sep 10 15:24	1° <u>01</u> '01'38 -0°37'01
direct	13397 May 15 15:59	15° <u>14</u> '02'29	minimum elong	13403 Sep 10 15:24	1° <u>01</u> '01'38 0°37'06
evening set	13397 Aug 11 04:06	16° <u>14</u> '57'08	max. Earth dist.	13403 Sep 11 02:27	1° <u>01</u> '02'41 30.82119 AU
			morning rise	13403 Sep 26 07:11	1° <u>01</u> '37'05
conjunction	13397 Aug 26 16:42	17° <u>14</u> '32'17 -0°37'50	retrograde	13403 Dec 25 11:16	3° <u>01</u> '35'04
minimum elong	13397 Aug 26 16:42	17° <u>14</u> '32'17 0°38'09	opposition	13404 Mar 14 11:23	2° <u>01</u> '10'23 -0°39'24
max. Earth dist.	13397 Aug 27 01:00	17° <u>14</u> '33'04 30.87271 AU	min. Earth dist.	13404 Mar 14 00:01	2° <u>01</u> '11'10 28.81759 AU
morning rise	13397 Sep 11 07:00	18° <u>14</u> '07'36	direct	13404 Jun 01 05:01	0° <u>01</u> '46'34
retrograde	13397 Dec 10 04:41	20° <u>14</u> '05'16	evening set	13404 Aug 27 13:01	2° <u>01</u> '41'00
opposition	13398 Feb 28 04:12	18° <u>14</u> '41'02 -0°40'28			
min. Earth dist.	13398 Feb 27 19:27	18° <u>14</u> '41'38 28.86951 AU	conjunction	13404 Sep 12 03:10	3° <u>01</u> '16'17 -0°36'41
direct	13398 May 18 02:46	17° <u>14</u> '17'23	minimum elong	13404 Sep 12 03:10	3° <u>01</u> '16'17 0°36'45
evening set	13398 Aug 13 15:37	19° <u>14</u> '12'02	max. Earth dist.	13404 Sep 12 14:12	3° <u>01</u> '17'19 30.81398 AU
			morning rise	13404 Sep 27 19:21	3° <u>01</u> '51'45
conjunction	13398 Aug 29 04:33	19° <u>14</u> '47'12 -0°37'50	retrograde	13404 Dec 27 01:14	5° <u>01</u> '49'46
minimum elong	13398 Aug 29 04:33	19° <u>14</u> '47'12 0°38'08	opposition	13405 Mar 17 00:30	4° <u>01</u> '25'01 -0°39'01
max. Earth dist.	13398 Aug 29 14:04	19° <u>14</u> '48'06 30.86561 AU	min. Earth dist.	13405 Mar 16 13:24	4° <u>01</u> '25'48 28.81120 AU
morning rise	13398 Sep 13 18:53	20° <u>14</u> '22'33	direct	13405 Jun 03 17:04	3° <u>01</u> '01'11
retrograde	13398 Dec 12 16:10	22° <u>14</u> '20'18	evening set	13405 Aug 30 00:31	4° <u>01</u> '55'36
opposition	13399 Mar 02 17:25	20° <u>14</u> '56'02 -0°40'27			
min. Earth dist.	13399 Mar 02 08:35	20° <u>14</u> '56'38 28.86185 AU	conjunction	13405 Sep 14 15:05	5° <u>01</u> '30'54 -0°36'18
direct	13399 May 20 14:45	19° <u>14</u> '32'23	minimum elong	13405 Sep 14 15:06	5° <u>01</u> '30'54 0°36'18
evening set	13399 Aug 16 03:18	21° <u>14</u> '27'02	max. Earth dist.	13405 Sep 15 03:36	5° <u>01</u> '32'05 30.80830 AU
			morning rise	13405 Sep 30 07:27	6° <u>01</u> '06'24
conjunction	13399 Aug 31 16:18	22° <u>14</u> '02'13 -0°37'47	retrograde	13405 Dec 29 13:27	8° <u>01</u> '04'27
minimum elong	13399 Aug 31 16:18	22° <u>14</u> '02'13 0°38'02	opposition	13406 Mar 19 13:28	6° <u>01</u> '39'41 -0°38'34
max. Earth dist.	13399 Sep 01 00:56	22° <u>14</u> '03'02 30.85750 AU	min. Earth dist.	13406 Mar 19 01:05	6° <u>01</u> '40'32 28.80612 AU
morning rise	13399 Sep 16 07:03	22° <u>14</u> '37'35	direct	13406 Jun 06 06:28	5° <u>01</u> '15'51
retrograde	13399 Dec 15 06:28	24° <u>14</u> '35'24	evening set	13406 Sep 01 12:15	7° <u>01</u> '10'15
opposition	13400 Mar 05 06:46	23° <u>14</u> '11'05 -0°40'21			
min. Earth dist.	13400 Mar 04 21:18	23° <u>14</u> '11'44 28.85325 AU	conjunction	13406 Sep 17 02:54	7° <u>01</u> '45'34 -0°35'51
direct	13400 May 23 01:20	21° <u>14</u> '47'24	minimum elong	13406 Sep 17 02:55	7° <u>01</u> '45'34 0°35'49
evening set	13400 Aug 18 14:46	23° <u>14</u> '42'01	max. Earth dist.	13406 Sep 17 14:59	7° <u>01</u> '46'42 30.80390 AU
			morning rise	13406 Oct 02 19:43	8° <u>01</u> '21'05
conjunction	13400 Sep 03 04:05	24° <u>14</u> '17'13 -0°37'41	retrograde	13407 Jan 01 02:20	10° <u>01</u> '19'12
minimum elong	13400 Sep 03 04:06	24° <u>14</u> '17'13 0°37'54	opposition	13407 Mar 22 02:29	8° <u>01</u> '54'24 -0°38'04
max. Earth dist.	13400 Sep 03 13:43	24° <u>14</u> '18'08 30.84840 AU	min. Earth dist.	13407 Mar 21 14:01	8° <u>01</u> '55'16 28.80241 AU
morning rise	13400 Sep 18 19:01	24° <u>14</u> '52'36	direct	13407 Jun 08 17:13	7° <u>01</u> '30'36
retrograde	13400 Dec 17 18:37	26° <u>14</u> '50'29	evening set	13407 Sep 03 23:54	9° <u>01</u> '24'59
opposition	13401 Mar 07 20:07	25° <u>14</u> '26'04 -0°40'12			
min. Earth dist.	13401 Mar 07 11:04	25° <u>14</u> '26'42 28.84381 AU	conjunction	13407 Sep 19 14:59	10° <u>01</u> '00'20 -0°35'21
direct	13401 May 25 14:19	24° <u>14</u> '02'22	minimum elong	13407 Sep 19 15:00	10° <u>01</u> '00'20 0°35'16
evening set	13401 Aug 21 02:22	25° <u>14</u> '56'55	max. Earth dist.	13407 Sep 20 04:43	10° <u>01</u> '01'38 30.80074 AU
			morning rise	13407 Oct 05 07:56	10° <u>01</u> '35'52
conjunction	13401 Sep 05 15:53	26° <u>14</u> '32'08 -0°37'31	retrograde	13408 Jan 03 14:00	12° <u>01</u> '34'03
minimum elong	13401 Sep 05 15:53	26° <u>14</u> '32'08 0°37'41	opposition	13408 Mar 23 15:34	11° <u>01</u> '09'15 -0°37'30
max. Earth dist.	13401 Sep 06 01:24	26° <u>14</u> '33'02 30.83893 AU	min. Earth dist.	13408 Mar 23 02:37	11° <u>01</u> '10'09 28.79968 AU
morning rise	13401 Sep 21 07:11	27° <u>14</u> '07'33	direct	13408 Jun 10 05:23	9° <u>01</u> '45'29
retrograde	13401 Dec 20 09:14	29° <u>14</u> '05'27	evening set	13408 Sep 05 11:42	11° <u>01</u> '39'52
opposition	13402 Mar 10 09:06	27° <u>14</u> '40'57 -0°40'00			
min. Earth dist.	13402 Mar 09 22:51	27° <u>14</u> '41'39 28.83435 AU	conjunction	13408 Sep 21 02:56	12° <u>01</u> '15'14 -0°34'48
direct	13402 May 28 03:21	26° <u>14</u> '17'11	minimum elong	13408 Sep 21 02:56	12° <u>01</u> '15'14 0°34'42
evening set	13402 Aug 23 13:58	28° <u>14</u> '11'42	max. Earth dist.	13408 Sep 21 16:05	12° <u>01</u> '16'28 30.79849 AU
			morning rise	13408 Oct 06 20:22	12° <u>01</u> '50'48
conjunction	13402 Sep 08 03:42	28° <u>14</u> '46'57 -0°37'17	retrograde	13409 Jan 05 04:28	14° <u>01</u> '49'03
minimum elong	13402 Sep 08 03:42	28° <u>14</u> '46'57 0°37'26	opposition	13409 Mar 26 04:37	13° <u>01</u> '24'16 -0°36'52

min. Earth dist.	13409 Mar 25 15:05	13° <u>0</u> 25'12	28.79771 AU	morning rise	13415 Oct 23 13:36	28° <u>0</u> 37'58	
direct	13409 Jun 12 15:53	12° <u>0</u> 00'31			13415 Dec 05 12:41	0° <u>0</u>	
evening set	13409 Sep 07 23:39	13° <u>0</u> 54'55		retrograde	13416 Jan 22 02:33	0° <u>0</u> 36'21	
					13416 Mar 10 23:41	30° <u>0</u> 36'21	
conjunction	13409 Sep 23 15:16	14° <u>0</u> 30'18	-0°34'12	opposition	13416 Apr 10 23:14	29° <u>0</u> 11'22	-0°31'00
minimum elong	13409 Sep 23 15:16	14° <u>0</u> 30'18	0°34'02	min. Earth dist.	13416 Apr 10 09:24	29° <u>0</u> 12'20	28.77472 AU
max. Earth dist.	13409 Sep 24 05:25	14° <u>0</u> 31'39	30.79651 AU	direct	13416 Jun 28 07:06	27° <u>0</u> 47'33	
morning rise	13409 Oct 09 08:54	15° <u>0</u> 05'55		evening set	13416 Sep 23 12:34	29° <u>0</u> 41'51	
retrograde	13410 Jan 07 16:19	17° <u>0</u> 04'13			13416 Oct 01 14:57	0° <u>0</u>	
opposition	13410 Mar 28 17:35	15° <u>0</u> 39'26	-0°36'12				
min. Earth dist.	13410 Mar 28 04:35	15° <u>0</u> 40'20	28.79569 AU	conjunction	13416 Oct 09 06:23	0° <u>0</u> 17'23	-0°28'34
direct	13410 Jun 15 03:55	14° <u>0</u> 15'44		minimum elong	13416 Oct 09 06:23	0° <u>0</u> 17'23	0°28'08
evening set	13410 Sep 10 11:49	16° <u>0</u> 10'09		max. Earth dist.	13416 Oct 09 21:48	0° <u>0</u> 18'50	30.77347 AU
				morning rise	13416 Oct 25 02:16	0° <u>0</u> 15'30'08	
conjunction	13410 Sep 26 03:39	16° <u>0</u> 45'33	-0°33'32	retrograde	13417 Jan 23 14:38	2° <u>0</u> 15'30'30	
minimum elong	13410 Sep 26 03:39	16° <u>0</u> 45'33	0°33'21	opposition	13417 Apr 13 11:54	1° <u>0</u> 26'30	-0°29'58
max. Earth dist.	13410 Sep 26 17:19	16° <u>0</u> 46'51	30.79440 AU	min. Earth dist.	13417 Apr 12 21:37	1° <u>0</u> 27'29	28.77295 AU
morning rise	13410 Oct 11 21:39	17° <u>0</u> 21'11		direct	13417 Jun 30 20:07	0° <u>0</u> 02'41	
retrograde	13411 Jan 10 07:06	19° <u>0</u> 19'33		evening set	13417 Sep 26 00:53	1° <u>0</u> 15'56'56	
opposition	13411 Mar 31 06:38	17° <u>0</u> 54'46	-0°35'27				
min. Earth dist.	13411 Mar 30 16:46	17° <u>0</u> 55'43	28.79327 AU	conjunction	13417 Oct 11 18:52	2° <u>0</u> 13'22'29	-0°27'34
direct	13411 Jun 17 15:56	16° <u>0</u> 31'04		minimum elong	13417 Oct 11 18:52	2° <u>0</u> 13'22'29	0°27'06
evening set	13411 Sep 12 23:54	18° <u>0</u> 25'29		max. Earth dist.	13417 Oct 12 09:33	2° <u>0</u> 13'33'52	30.77249 AU
				morning rise	13417 Oct 27 15:14	3° <u>0</u> 13'08'16	
conjunction	13411 Sep 28 16:01	19° <u>0</u> 00'55	-0°32'49	retrograde	13418 Jan 26 04:14	5° <u>0</u> 13'06'38	
minimum elong	13411 Sep 28 16:01	19° <u>0</u> 00'55	0°32'35	min. Earth dist.	13418 Apr 15 09:34	3° <u>0</u> 13'42'39	28.77277 AU
max. Earth dist.	13411 Sep 29 05:54	19° <u>0</u> 02'14	30.79148 AU	opposition	13418 Apr 16 00:24	3° <u>0</u> 13'41'37	-0°28'53
morning rise	13411 Oct 14 10:19	19° <u>0</u> 36'34		direct	13418 Jul 03 07:07	2° <u>0</u> 13'17'47	
retrograde	13412 Jan 12 19:51	21° <u>0</u> 34'59		evening set	13418 Sep 28 13:04	4° <u>0</u> 13'12'02	
opposition	13412 Apr 01 19:51	20° <u>0</u> 10'10	-0°34'40				
min. Earth dist.	13412 Apr 01 07:00	20° <u>0</u> 11'04	28.78997 AU	conjunction	13418 Oct 14 07:29	4° <u>0</u> 13'47'36	-0°26'33
direct	13412 Jun 19 03:16	18° <u>0</u> 46'28		minimum elong	13418 Oct 14 07:29	4° <u>0</u> 13'47'36	0°26'03
evening set	13412 Sep 14 12:05	20° <u>0</u> 40'53		max. Earth dist.	13418 Oct 14 23:22	4° <u>0</u> 13'49'06	30.77299 AU
				morning rise	13418 Oct 30 04:03	5° <u>0</u> 13'23'24	
conjunction	13412 Sep 30 04:35	21° <u>0</u> 16'20	-0°32'04	retrograde	13419 Jan 28 14:50	7° <u>0</u> 13'21'46	
minimum elong	13412 Sep 30 04:35	21° <u>0</u> 16'20	0°31'48	opposition	13419 Apr 18 13:04	5° <u>0</u> 13'56'45	-0°27'45
max. Earth dist.	13412 Sep 30 18:39	21° <u>0</u> 17'40	30.78788 AU	min. Earth dist.	13419 Apr 17 22:24	5° <u>0</u> 13'57'47	28.77401 AU
morning rise	13412 Oct 15 23:11	21° <u>0</u> 52'00		direct	13419 Jul 05 18:55	4° <u>0</u> 13'32'56	
retrograde	13413 Jan 14 10:27	23° <u>0</u> 50'25		evening set	13419 Oct 01 01:14	6° <u>0</u> 13'27'11	
opposition	13413 Apr 04 08:43	22° <u>0</u> 25'35	-0°33'49				
min. Earth dist.	13413 Apr 03 18:52	22° <u>0</u> 26'32	28.78596 AU	conjunction	13419 Oct 16 19:55	7° <u>0</u> 13'02'46	-0°25'28
direct	13413 Jun 21 17:21	21° <u>0</u> 01'51		minimum elong	13419 Oct 16 19:55	7° <u>0</u> 13'02'46	0°24'56
evening set	13413 Sep 17 00:19	22° <u>0</u> 56'14		max. Earth dist.	13419 Oct 17 11:35	7° <u>0</u> 13'04'15	30.77508 AU
				morning rise	13419 Nov 01 16:55	7° <u>0</u> 13'38'35	
conjunction	13413 Oct 02 17:02	23° <u>0</u> 31'43	-0°31'15	retrograde	13420 Jan 31 04:53	9° <u>0</u> 13'36'57	
minimum elong	13413 Oct 02 17:02	23° <u>0</u> 31'43	0°30'56	min. Earth dist.	13420 Apr 19 09:55	8° <u>0</u> 13'13'03	28.77674 AU
max. Earth dist.	13413 Oct 03 06:32	23° <u>0</u> 32'59	30.78362 AU	opposition	13420 Apr 20 01:40	8° <u>0</u> 13'11'57	-0°26'35
morning rise	13413 Oct 18 12:05	24° <u>0</u> 07'24		direct	13420 Jul 07 05:50	6° <u>0</u> 13'48'09	
retrograde	13414 Jan 17 00:49	26° <u>0</u> 05'49		evening set	13420 Oct 02 13:38	8° <u>0</u> 13'42'25	
opposition	13414 Apr 06 21:42	24° <u>0</u> 40'55	-0°32'56				
min. Earth dist.	13414 Apr 06 08:41	24° <u>0</u> 41'50	28.78168 AU	conjunction	13420 Oct 18 08:39	9° <u>0</u> 13'18'01	-0°24'22
direct	13414 Jun 24 05:51	23° <u>0</u> 17'10		minimum elong	13420 Oct 18 08:39	9° <u>0</u> 13'18'01	0°23'48
evening set	13414 Sep 19 12:20	25° <u>0</u> 11'31		max. Earth dist.	13420 Oct 19 00:51	9° <u>0</u> 13'19'32	30.77830 AU
				morning rise	13420 Nov 03 05:57	9° <u>0</u> 13'53'51	
conjunction	13414 Oct 05 05:31	25° <u>0</u> 47'01	-0°30'24	retrograde	13421 Feb 01 17:06	11° <u>0</u> 13'52'13	
minimum elong	13414 Oct 05 05:31	25° <u>0</u> 47'01	0°30'03	opposition	13421 Apr 22 14:14	10° <u>0</u> 13'27'15	-0°25'22
max. Earth dist.	13414 Oct 05 20:03	25° <u>0</u> 48'23	30.77943 AU	min. Earth dist.	13421 Apr 21 23:25	10° <u>0</u> 13'28'17	28.78046 AU
morning rise	13414 Oct 21 00:44	26° <u>0</u> 22'44		direct	13421 Jul 09 16:05	9° <u>0</u> 13'03'29	
retrograde	13415 Jan 19 13:12	28° <u>0</u> 21'08		evening set	13421 Oct 05 02:05	10° <u>0</u> 13'57'45	
opposition	13415 Apr 09 10:25	26° <u>0</u> 56'11	-0°31'59				
min. Earth dist.	13415 Apr 08 20:25	26° <u>0</u> 57'10	28.77766 AU	conjunction	13421 Oct 20 21:30	11° <u>0</u> 13'33'22	-0°23'13
direct	13415 Jun 26 19:44	25° <u>0</u> 32'24		minimum elong	13421 Oct 20 21:30	11° <u>0</u> 13'33'22	0°22'36
evening set	13415 Sep 22 00:36	27° <u>0</u> 26'43		max. Earth dist.	13421 Oct 21 13:53	11° <u>0</u> 13'34'55	30.78242 AU
				morning rise	13421 Nov 05 19:06	12° <u>0</u> 13'09'13	
conjunction	13415 Oct 07 17:54	28° <u>0</u> 02'13	-0°29'30	retrograde	13422 Feb 04 07:25	14° <u>0</u> 13'07'35	
minimum elong	13415 Oct 07 17:54	28° <u>0</u> 02'13	0°29'06	min. Earth dist.	13422 Apr 24 10:59	12° <u>0</u> 13'43'45	28.78467 AU
max. Earth dist.	13415 Oct 08 07:47	28° <u>0</u> 03'32	30.77586 AU	opposition	13422 Apr 25 02:43	12° <u>0</u> 13'42'39	-0°24'07

direct	13422 Jul 12 05:43	11° 11 18'54		conjunction	13428 Nov 05 16:39	27° 11 20'49	-0°14'17
evening set	13422 Oct 07 14:42	13° 11 13'12		minimum elong	13428 Nov 05 16:39	27° 11 20'49	0°13'29
				behind sun begin	13428 Nov 05 13:03	27° 11 20'30	
conjunction	13422 Oct 23 10:18	13° 11 48'50	-0°22'01	behind sun end	13428 Nov 05 20:16	27° 11 21'09	
minimum elong	13422 Oct 23 10:18	13° 11 48'50	0°21'23	max. Earth dist.	13428 Nov 06 07:14	27° 11 22'11	30.80054 AU
max. Earth dist.	13422 Oct 24 02:05	13° 11 50'19	30.78654 AU	morning rise	13428 Nov 21 16:27	27° 11 56'46	
morning rise	13422 Nov 08 08:15	14° 11 24'42		retrograde	13429 Feb 20 03:55	29° 11 54'45	
	13422 Nov 24 22:31	15° 11		opposition	13429 May 10 17:32	28° 11 29'47	-0°14'26
retrograde	13423 Feb 06 21:15	16° 11 23'04		min. Earth dist.	13429 May 10 03:10	28° 11 30'47	28.80212 AU
	13423 Apr 26 12:58	15° 11 11		direct	13429 Jul 27 20:27	27° 11 05'51	
opposition	13423 Apr 27 15:24	14° 11 58'09	-0°22'49	evening set	13429 Oct 23 07:46	29° 11 00'00	
min. Earth dist.	13423 Apr 27 00:46	14° 11 59'11	28.78871 AU				
direct	13423 Jul 14 17:18	13° 11 34'25		conjunction	13429 Nov 08 05:43	29° 11 35'44	-0°12'54
	13423 Sep 26 17:34	15° 11		minimum elong	13429 Nov 08 05:43	29° 11 35'44	0°12'04
evening set	13423 Oct 10 03:21	15° 11 28'43		behind sun begin	13429 Nov 08 01:18	29° 11 35'20	
				behind sun end	13429 Nov 08 10:08	29° 11 36'08	
conjunction	13423 Oct 25 23:25	16° 11 04'22	-0°20'48	max. Earth dist.	13429 Nov 08 20:40	29° 11 37'08	30.80369 AU
minimum elong	13423 Oct 25 23:25	16° 11 04'22	0°20'07		13429 Nov 18 23:44	0° 11 11	
max. Earth dist.	13423 Oct 26 15:41	16° 11 05'54	30.79031 AU	morning rise	13429 Nov 24 05:44	0° 11 11 41	
morning rise	13423 Nov 10 21:34	16° 11 40'15		retrograde	13430 Feb 22 15:00	2° 11 11 09'36	
retrograde	13424 Feb 09 10:45	18° 11 38'35		opposition	13430 May 13 05:42	0° 11 11 44'38	-0°12'57
opposition	13424 Apr 29 03:55	17° 11 13'42	-0°21'30	min. Earth dist.	13430 May 12 16:16	0° 11 11 45'35	28.80590 AU
min. Earth dist.	13424 Apr 28 12:46	17° 11 14'45	28.79200 AU		13430 Jun 10 04:39	30° 11 11	
direct	13424 Jul 16 06:53	15° 11 49'57		direct	13430 Jul 30 07:05	29° 11 20'42	
evening set	13424 Oct 11 16:11	17° 11 44'14			13430 Sep 17 00:29	0° 11 11	
				evening set	13430 Oct 25 20:21	1° 11 11 14'50	
conjunction	13424 Oct 27 12:26	18° 11 19'54	-0°19'33				
minimum elong	13424 Oct 27 12:26	18° 11 19'54	0°18'51	conjunction	13430 Nov 10 18:37	1° 11 11 50'35	-0°11'31
max. Earth dist.	13424 Oct 28 03:21	18° 11 21'18	30.79315 AU	minimum elong	13430 Nov 10 18:37	1° 11 11 50'35	0°10'40
morning rise	13424 Nov 12 11:04	18° 11 55'48		behind sun begin	13430 Nov 10 13:36	1° 11 11 50'07	
retrograde	13425 Feb 11 01:15	20° 11 54'05		behind sun end	13430 Nov 10 23:38	1° 11 11 51'02	
opposition	13425 May 01 16:32	19° 11 29'11	-0°20'08	max. Earth dist.	13430 Nov 11 09:44	1° 11 11 51'59	30.80818 AU
min. Earth dist.	13425 May 01 02:15	19° 11 30'11	28.79442 AU	morning rise	13430 Nov 26 18:53	2° 11 11 26'32	
direct	13425 Jul 18 19:00	18° 11 05'25		retrograde	13431 Feb 25 04:05	4° 11 11 24'24	
evening set	13425 Oct 14 04:55	19° 11 59'40		opposition	13431 May 15 17:39	2° 11 11 59'28	-0°11'27
				min. Earth dist.	13431 May 15 03:08	3° 11 11 00'29	28.81102 AU
conjunction	13425 Oct 30 01:40	20° 11 35'21	-0°18'16	direct	13431 Aug 01 20:04	1° 11 11 35'32	
minimum elong	13425 Oct 30 01:40	20° 11 35'21	0°17'31	evening set	13431 Oct 28 09:07	3° 11 11 29'40	
max. Earth dist.	13425 Oct 30 17:21	20° 11 36'50	30.79513 AU				
morning rise	13425 Nov 15 00:26	21° 11 11'16		conjunction	13431 Nov 13 07:37	4° 11 11 05'25	-0°10'07
retrograde	13426 Feb 13 13:57	23° 11 09'28		minimum elong	13431 Nov 13 07:36	4° 11 11 05'25	0°09'14
opposition	13426 May 04 04:51	21° 11 44'33	-0°18'45	behind sun begin	13431 Nov 13 02:06	4° 11 11 04'56	
min. Earth dist.	13426 May 03 14:43	21° 11 45'32	28.79601 AU	behind sun end	13431 Nov 13 13:07	4° 11 11 05'55	
direct	13426 Jul 21 09:00	20° 11 20'45		max. Earth dist.	13431 Nov 13 22:21	4° 11 11 06'48	30.81397 AU
evening set	13426 Oct 16 17:44	22° 11 14'58		morning rise	13431 Nov 29 08:13	4° 11 11 41'23	
				retrograde	13432 Feb 27 16:48	6° 11 11 39'13	
conjunction	13426 Nov 01 14:40	22° 11 50'39	-0°16'57	opposition	13432 May 17 05:41	5° 11 11 14'19	-0°09'56
minimum elong	13426 Nov 01 14:40	22° 11 50'39	0°16'12	min. Earth dist.	13432 May 16 16:05	5° 11 11 15'16	28.81757 AU
max. Earth dist.	13426 Nov 02 05:05	22° 11 52'01	30.79667 AU	direct	13432 Aug 03 06:37	3° 11 11 50'23	
morning rise	13426 Nov 17 13:54	23° 11 26'35		evening set	13432 Oct 29 21:49	5° 11 11 44'33	
retrograde	13427 Feb 16 03:18	25° 11 24'43					
opposition	13427 May 06 17:14	23° 11 59'46	-0°17'20	conjunction	13432 Nov 14 20:46	6° 11 11 20'19	-0°08'42
min. Earth dist.	13427 May 06 03:04	24° 11 00'46	28.79757 AU	minimum elong	13432 Nov 14 20:47	6° 11 11 20'19	0°07'48
direct	13427 Jul 23 20:45	22° 11 35'55		behind sun begin	13432 Nov 14 14:54	6° 11 11 19'48	
evening set	13427 Oct 19 06:16	24° 11 30'06		behind sun end	13432 Nov 15 02:39	6° 11 11 20'51	
				max. Earth dist.	13432 Nov 15 12:10	6° 11 11 21'46	30.82118 AU
conjunction	13427 Nov 04 03:39	25° 11 05'48	-0°15'38	morning rise	13432 Nov 30 21:33	6° 11 11 56'18	
minimum elong	13427 Nov 04 03:38	25° 11 05'48	0°14'50	retrograde	13433 Mar 01 06:11	8° 11 11 54'04	
behind sun begin	13427 Nov 04 01:10	25° 11 05'35		opposition	13433 May 19 17:34	7° 11 11 29'14	-0°08'24
behind sun end	13427 Nov 04 06:07	25° 11 06'02		min. Earth dist.	13433 May 19 03:14	7° 11 11 30'15	28.82520 AU
max. Earth dist.	13427 Nov 04 18:56	25° 11 07'15	30.79827 AU	direct	13433 Aug 05 19:25	6° 11 11 05'20	
morning rise	13427 Nov 20 03:03	25° 11 41'45		evening set	13433 Nov 01 10:47	7° 11 11 59'32	
retrograde	13428 Feb 18 14:12	27° 11 39'48					
opposition	13428 May 08 05:33	26° 11 14'50	-0°15'54	conjunction	13433 Nov 17 09:51	8° 11 11 35'19	-0°07'16
min. Earth dist.	13428 May 07 15:55	26° 11 15'48	28.79939 AU	minimum elong	13433 Nov 17 09:51	8° 11 11 35'19	0°06'20
direct	13428 Jul 25 09:13	24° 11 50'57		behind sun begin	13433 Nov 17 03:40	8° 11 11 34'45	
evening set	13428 Oct 20 19:02	26° 11 45'06		behind sun end	13433 Nov 17 16:01	8° 11 11 35'52	

max. Earth dist.	13433 Nov 18 00:08	8° \mathring{A} 36'39	30.82925 AU	evening set	13439 Nov 15 17:02	21° \mathring{A} 30'03	
morning rise	13433 Dec 03 11:00	9° \mathring{A} 11'18					
retrograde	13434 Mar 03 20:48	11° \mathring{A} 09'02		conjunction	13439 Dec 01 17:50	22° \mathring{A} 05'53	0°01'38
opposition	13434 May 22 05:28	9° \mathring{A} 44'16	-0°06'51	minimum elong	13439 Dec 01 17:50	22° \mathring{A} 05'53	0°02'39
min. Earth dist.	13434 May 21 15:56	9° \mathring{A} 45'13	28.83362 AU	behind sun begin	13439 Dec 01 11:18	22° \mathring{A} 05'18	
direct	13434 Aug 08 07:06	8° \mathring{A} 20'23		behind sun end	13439 Dec 02 00:22	22° \mathring{A} 06'28	
evening set	13434 Nov 03 23:40	10° \mathring{A} 14'38		max. Earth dist.	13439 Dec 02 05:44	22° \mathring{A} 06'59	30.87076 AU
				morning rise	13439 Dec 17 20:11	22° \mathring{A} 41'53	
conjunction	13434 Nov 19 23:10	10° \mathring{A} 50'26	-0°05'49	retrograde	13440 Mar 17 00:01	24° \mathring{A} 39'04	
minimum elong	13434 Nov 19 23:11	10° \mathring{A} 50'26	0°04'53	opposition	13440 Jun 04 04:07	23° \mathring{A} 14'28	0°02'32
behind sun begin	13434 Nov 19 16:48	10° \mathring{A} 49'51		min. Earth dist.	13440 Jun 03 16:52	23° \mathring{A} 15'15	28.87343 AU
behind sun end	13434 Nov 20 05:33	10° \mathring{A} 51'00		direct	13440 Aug 21 09:13	21° \mathring{A} 50'27	
max. Earth dist.	13434 Nov 20 14:19	10° \mathring{A} 51'51	30.83780 AU	evening set	13440 Nov 17 06:05	23° \mathring{A} 44'38	
morning rise	13434 Dec 06 00:23	11° \mathring{A} 26'25					
retrograde	13435 Mar 06 10:07	13° \mathring{A} 24'07		conjunction	13440 Dec 03 07:04	24° \mathring{A} 20'27	0°03'06
opposition	13435 May 24 17:23	11° \mathring{A} 59'25	-0°05'17	minimum elong	13440 Dec 03 07:04	24° \mathring{A} 20'27	0°04'07
min. Earth dist.	13435 May 24 04:03	12° \mathring{A} 00'21	28.84207 AU	behind sun begin	13440 Dec 03 00:36	24° \mathring{A} 19'52	
direct	13435 Aug 10 20:54	10° \mathring{A} 35'34		behind sun end	13440 Dec 03 13:31	24° \mathring{A} 21'02	
evening set	13435 Nov 06 12:43	12° \mathring{A} 29'50		max. Earth dist.	13440 Dec 03 18:17	24° \mathring{A} 21'30	30.87609 AU
				morning rise	13440 Dec 19 09:39	24° \mathring{A} 56'27	
conjunction	13435 Nov 22 12:21	13° \mathring{A} 05'38	-0°04'22	retrograde	13441 Mar 19 11:29	26° \mathring{A} 53'31	
minimum elong	13435 Nov 22 12:21	13° \mathring{A} 05'38	0°03'24	opposition	13441 Jun 06 15:41	25° \mathring{A} 28'54	0°04'05
behind sun begin	13435 Nov 22 05:51	13° \mathring{A} 05'03		min. Earth dist.	13441 Jun 06 05:41	25° \mathring{A} 29'36	28.87907 AU
behind sun end	13435 Nov 22 18:51	13° \mathring{A} 06'13		direct	13441 Aug 23 19:14	24° \mathring{A} 04'48	
max. Earth dist.	13435 Nov 23 01:57	13° \mathring{A} 06'54	30.84609 AU	evening set	13441 Nov 19 18:57	25° \mathring{A} 58'58	
morning rise	13435 Dec 08 13:58	13° \mathring{A} 41'38					
retrograde	13436 Mar 07 23:51	15° \mathring{A} 39'17		conjunction	13441 Dec 05 20:15	26° \mathring{A} 34'47	0°04'33
opposition	13436 May 26 05:20	14° \mathring{A} 14'38	-0°03'44	minimum elong	13441 Dec 05 20:16	26° \mathring{A} 34'47	0°05'35
min. Earth dist.	13436 May 25 16:24	14° \mathring{A} 15'32	28.85005 AU	behind sun begin	13441 Dec 05 13:58	26° \mathring{A} 34'14	
direct	13436 Aug 12 08:23	12° \mathring{A} 50'47		behind sun end	13441 Dec 06 02:34	26° \mathring{A} 35'21	
evening set	13436 Nov 08 01:51	14° \mathring{A} 45'04		max. Earth dist.	13441 Dec 06 07:50	26° \mathring{A} 35'52	30.88208 AU
				morning rise	13441 Dec 21 22:53	27° \mathring{A} 10'46	
conjunction	13436 Nov 24 01:55	15° \mathring{A} 20'53	-0°02'53	retrograde	13442 Mar 21 23:18	29° \mathring{A} 07'43	
minimum elong	13436 Nov 24 01:54	15° \mathring{A} 20'53	0°01'55	opposition	13442 Jun 09 02:57	27° \mathring{A} 43'06	0°05'38
behind sun begin	13436 Nov 23 19:21	15° \mathring{A} 20'18		min. Earth dist.	13442 Jun 08 16:19	27° \mathring{A} 43'51	28.88544 AU
behind sun end	13436 Nov 24 08:26	15° \mathring{A} 21'28		direct	13442 Aug 26 08:19	26° \mathring{A} 18'57	
max. Earth dist.	13436 Nov 24 15:46	15° \mathring{A} 22'10	30.85349 AU	evening set	13442 Nov 22 07:57	28° \mathring{A} 13'06	
morning rise	13436 Dec 10 03:34	15° \mathring{A} 56'53					
retrograde	13437 Mar 10 11:50	17° \mathring{A} 54'26		conjunction	13442 Dec 08 09:19	28° \mathring{A} 48'55	0°05'59
opposition	13437 May 28 17:08	16° \mathring{A} 29'49	-0°02'09	minimum elong	13442 Dec 08 09:18	28° \mathring{A} 48'55	0°07'00
min. Earth dist.	13437 May 28 05:15	16° \mathring{A} 30'39	28.85690 AU	behind sun begin	13442 Dec 08 03:15	28° \mathring{A} 48'23	
direct	13437 Aug 14 21:20	15° \mathring{A} 05'58		behind sun end	13442 Dec 08 15:22	28° \mathring{A} 49'28	
evening set	13437 Nov 10 15:03	17° \mathring{A} 00'14		max. Earth dist.	13442 Dec 08 19:46	28° \mathring{A} 49'53	30.88901 AU
				morning rise	13442 Dec 24 12:13	29° \mathring{A} 24'53	
conjunction	13437 Nov 26 15:17	17° \mathring{A} 36'03	-0°01'22		13443 Jan 10 04:29	0° \mathring{A}	
minimum elong	13437 Nov 26 15:17	17° \mathring{A} 36'03	0°00'23	retrograde	13443 Mar 24 12:07	1° \mathring{A} 21'43	
behind sun begin	13437 Nov 26 08:46	17° \mathring{A} 35'28			13443 Jun 09 21:13	30° \mathring{A}	
behind sun end	13437 Nov 26 21:48	17° \mathring{A} 36'38		opposition	13443 Jun 11 14:21	29° \mathring{A} 57'07	0°07'10
max. Earth dist.	13437 Nov 27 03:41	17° \mathring{A} 37'13	30.85993 AU	min. Earth dist.	13443 Jun 11 04:23	29° \mathring{A} 57'49	28.89311 AU
morning rise	13437 Dec 12 17:17	18° \mathring{A} 12'04		direct	13443 Aug 28 19:39	28° \mathring{A} 32'56	
retrograde	13438 Mar 13 02:04	20° \mathring{A} 09'30			13443 Nov 12 02:49	0° \mathring{A}	
opposition	13438 May 31 04:53	18° \mathring{A} 44'54	-0°00'35	evening set	13443 Nov 24 20:39	0° \mathring{A} 27'04	
min. Earth dist.	13438 May 30 16:47	18° \mathring{A} 45'45	28.86287 AU				
direct	13438 Aug 17 09:16	17° \mathring{A} 21'00		conjunction	13443 Dec 10 22:25	1° \mathring{A} 02'53	0°07'24
asc. node	13438 Oct 30 14:42	18° \mathring{A} 46'26		minimum elong	13443 Dec 10 22:26	1° \mathring{A} 02'53	0°08'26
evening set	13438 Nov 13 04:01	19° \mathring{A} 15'14		behind sun begin	13443 Dec 10 16:42	1° \mathring{A} 02'23	
				behind sun end	13443 Dec 11 04:09	1° \mathring{A} 03'24	
conjunction	13438 Nov 29 04:32	19° \mathring{A} 51'04	0°00'09	max. Earth dist.	13443 Dec 11 09:51	1° \mathring{A} 03'57	30.89733 AU
minimum elong	13438 Nov 29 04:31	19° \mathring{A} 51'04	0°01'08	morning rise	13443 Dec 27 01:20	1° \mathring{A} 38'51	
behind sun begin	13438 Nov 28 21:59	19° \mathring{A} 50'29		retrograde	13444 Mar 26 00:02	3° \mathring{A} 35'34	
behind sun end	13438 Nov 29 11:04	19° \mathring{A} 51'40		opposition	13444 Jun 13 01:37	2° \mathring{A} 10'59	0°08'42
max. Earth dist.	13438 Nov 29 16:53	19° \mathring{A} 52'13	30.86546 AU	min. Earth dist.	13444 Jun 12 15:35	2° \mathring{A} 11'42	28.90203 AU
morning rise	13438 Dec 15 06:39	20° \mathring{A} 27'05		direct	13444 Aug 30 08:57	0° \mathring{A} 46'47	
retrograde	13439 Mar 15 12:06	22° \mathring{A} 24'24		evening set	13444 Nov 26 09:41	2° \mathring{A} 40'56	
opposition	13439 Jun 02 16:42	20° \mathring{A} 59'48	0°00'59				
min. Earth dist.	13439 Jun 02 05:59	21° \mathring{A} 00'33	28.86817 AU	conjunction	13444 Dec 12 11:30	3° \mathring{A} 16'45	0°08'49
direct	13439 Aug 19 20:40	19° \mathring{A} 35'51		minimum elong	13444 Dec 12 11:30	3° \mathring{A} 16'45	0°09'51

behind sun begin	13444 Dec 12 06:11	3°316'17		conjunction	13450 Dec 26 18:48	16°340'30	0°16'58
behind sun end	13444 Dec 12 16:49	3°317'14		minimum elong	13450 Dec 26 18:48	16°340'30	0°17'59
max. Earth dist.	13444 Dec 12 21:38	3°317'41	30.90701 AU	max. Earth dist.	13450 Dec 27 02:19	16°341'11	30.97338 AU
morning rise	13444 Dec 28 14:42	3°352'43		morning rise	13451 Jan 11 22:20	17°316'24	
retrograde	13445 Mar 28 13:31	5°349'19		retrograde	13451 Apr 11 13:26	19°312'28	
opposition	13445 Jun 15 12:45	4°324'48	0°10'13	opposition	13451 Jun 29 07:30	17°348'23	0°18'52
min. Earth dist.	13445 Jun 15 02:47	4°325'30	28.91243 AU	min. Earth dist.	13451 Jun 29 00:43	17°348'51	28.97790 AU
direct	13445 Sep 01 19:56	3°300'36		direct	13451 Sep 15 17:43	16°324'13	
evening set	13445 Nov 28 22:34	4°354'47		evening set	13451 Dec 13 05:00	18°318'31	
conjunction	13445 Dec 15 00:42	5°330'36	0°10'13	conjunction	13451 Dec 29 07:54	18°354'20	0°18'15
minimum elong	13445 Dec 15 00:42	5°330'36	0°11'16	minimum elong	13451 Dec 29 07:54	18°354'20	0°19'16
behind sun begin	13445 Dec 14 19:55	5°330'11		max. Earth dist.	13451 Dec 29 13:49	18°354'52	30.98223 AU
behind sun end	13445 Dec 15 05:29	5°331'02		morning rise	13452 Jan 14 11:37	19°330'13	
max. Earth dist.	13445 Dec 15 11:37	5°331'37	30.91796 AU	retrograde	13452 Apr 13 01:23	21°326'10	
morning rise	13445 Dec 31 03:51	6°306'33		opposition	13452 Jun 30 18:30	20°302'06	0°20'13
retrograde	13446 Mar 31 01:40	8°303'04		min. Earth dist.	13452 Jun 30 12:52	20°302'30	28.98659 AU
opposition	13446 Jun 17 23:59	6°338'38	0°11'42	direct	13452 Sep 17 04:41	18°337'53	
min. Earth dist.	13446 Jun 17 14:44	6°339'17	28.92384 AU	evening set	13452 Dec 14 17:58	20°332'12	
direct	13446 Sep 04 08:43	5°314'28		conjunction	13452 Dec 30 21:08	21°308'00	0°19'29
evening set	13446 Dec 01 11:26	7°308'40		minimum elong	13452 Dec 30 21:08	21°308'00	0°20'29
conjunction	13446 Dec 17 13:38	7°344'30	0°11'36	max. Earth dist.	13452 Dec 31 03:29	21°308'35	30.99077 AU
minimum elong	13446 Dec 17 13:38	7°344'30	0°12'39	morning rise	13453 Jan 16 00:42	21°343'52	
behind sun begin	13446 Dec 17 09:32	7°344'08		retrograde	13453 Apr 15 12:24	23°339'40	
behind sun end	13446 Dec 17 17:44	7°344'52		opposition	13453 Jul 03 05:13	22°315'38	0°21'32
max. Earth dist.	13446 Dec 17 23:22	7°345'24	30.92984 AU	min. Earth dist.	13453 Jul 02 23:58	22°316'00	28.99506 AU
morning rise	13447 Jan 02 17:01	8°320'26		direct	13453 Sep 19 17:29	20°351'23	
retrograde	13447 Apr 02 15:41	10°316'53		evening set	13453 Dec 17 06:58	22°345'42	
opposition	13447 Jun 20 11:08	8°352'32	0°13'11	conjunction	13454 Jan 02 10:04	23°321'29	0°20'43
min. Earth dist.	13447 Jun 20 01:33	8°353'13	28.93590 AU	minimum elong	13454 Jan 02 10:04	23°321'29	0°21'42
direct	13447 Sep 06 20:29	7°328'24		max. Earth dist.	13454 Jan 02 14:52	23°321'55	30.99942 AU
evening set	13447 Dec 04 00:32	9°322'38		morning rise	13454 Jan 18 13:49	23°357'20	
conjunction	13447 Dec 20 02:56	9°358'28	0°12'59	retrograde	13454 Apr 18 01:19	25°353'00	
minimum elong	13447 Dec 20 02:56	9°358'28	0°14'01	opposition	13454 Jul 05 16:01	24°328'59	0°22'49
behind sun begin	13447 Dec 19 23:46	9°358'11		min. Earth dist.	13454 Jul 05 11:00	24°329'20	29.00401 AU
behind sun end	13447 Dec 20 06:06	9°358'45		direct	13454 Sep 22 04:23	23°304'41	
max. Earth dist.	13447 Dec 20 12:39	9°359'22	30.94179 AU	evening set	13454 Dec 19 19:36	24°358'59	
morning rise	13448 Jan 05 06:19	10°334'24		conjunction	13455 Jan 04 22:56	25°334'46	0°21'54
retrograde	13448 Apr 04 02:22	12°330'46		minimum elong	13455 Jan 04 22:56	25°334'46	0°22'52
opposition	13448 Jun 21 22:16	11°306'31	0°14'39	max. Earth dist.	13455 Jan 05 04:27	25°335'16	31.00861 AU
min. Earth dist.	13448 Jun 21 14:18	11°307'05	28.94772 AU	morning rise	13455 Jan 21 02:32	26°310'36	
direct	13448 Sep 08 07:26	9°342'24		retrograde	13455 Apr 20 13:06	28°306'09	
evening set	13448 Dec 05 13:42	11°336'41		opposition	13455 Jul 08 02:47	26°342'09	0°24'04
conjunction	13448 Dec 21 16:17	12°312'30	0°14'20	min. Earth dist.	13455 Jul 07 22:33	26°342'27	29.01361 AU
minimum elong	13448 Dec 21 16:17	12°312'30	0°15'22	direct	13455 Sep 24 18:02	25°317'49	
behind sun begin	13448 Dec 21 14:37	12°312'21		evening set	13455 Dec 22 08:29	27°312'07	
behind sun end	13448 Dec 21 17:56	12°312'39		conjunction	13456 Jan 07 11:47	27°347'53	0°23'03
max. Earth dist.	13448 Dec 22 01:02	12°313'19	30.95333 AU	minimum elong	13456 Jan 07 11:47	27°347'53	0°24'01
morning rise	13449 Jan 06 19:46	12°348'26		max. Earth dist.	13456 Jan 07 16:03	27°348'17	31.01880 AU
retrograde	13449 Apr 06 14:50	14°344'42		morning rise	13456 Jan 23 15:32	28°323'42	
opposition	13449 Jun 24 09:21	13°320'32	0°16'05		13456 Mar 19 00:36	0°≈	
min. Earth dist.	13449 Jun 24 01:08	13°321'06	28.95875 AU	retrograde	13456 Apr 22 02:00	0°≈19'07	
direct	13449 Sep 10 19:26	11°356'24			13456 May 26 11:27	30°R3	
evening set	13449 Dec 08 02:53	13°350'43		opposition	13456 Jul 09 13:17	28°355'09	0°25'17
conjunction	13449 Dec 24 05:31	14°326'32	0°15'40	min. Earth dist.	13456 Jul 09 08:33	28°355'29	29.02438 AU
minimum elong	13449 Dec 24 05:31	14°326'32	0°16'42	direct	13456 Sep 26 06:18	27°330'48	
max. Earth dist.	13449 Dec 24 13:15	14°327'15	30.96376 AU	evening set	13456 Dec 23 21:19	29°325'07	
morning rise	13450 Jan 09 09:03	15°302'27			13457 Jan 08 15:14	0°≈	
retrograde	13450 Apr 09 02:11	16°358'38		conjunction	13457 Jan 09 00:44	0°≈00'53	0°24'10
opposition	13450 Jun 26 20:33	15°334'30	0°17'29	minimum elong	13457 Jan 09 00:44	0°≈00'53	0°25'07
min. Earth dist.	13450 Jun 26 13:57	15°334'58	28.96876 AU	max. Earth dist.	13457 Jan 09 05:14	0°≈01'17	31.03010 AU
direct	13450 Sep 13 04:54	14°310'22		morning rise	13457 Jan 25 04:20	0°≈36'40	
evening set	13450 Dec 10 15:55	16°304'41					

retrograde	13457 Apr 24 12:27	2° \approx 31'58	direct	13463 Oct 12 11:46	13° \approx 00'56	
opposition	13457 Jul 12 00:02	1° \approx 08'04 0°26'28	evening set	13464 Jan 09 15:05	14° \approx 55'22	
min. Earth dist.	13457 Jul 11 20:29	1° \approx 08'19 29.03634 AU		13464 Jan 11 18:11	15° \approx	
	13457 Aug 28 01:00	30° \approx 3				
direct	13457 Sep 28 17:30	29° \approx 343'43	conjunction	13464 Jan 25 18:39	15° \approx 31'02 0°30'54	
	13457 Oct 29 22:38	0° \approx	minimum elong	13464 Jan 25 18:39	15° \approx 31'02 0°31'42	
evening set	13457 Dec 26 10:00	1° \approx 38'03	max. Earth dist.	13464 Jan 25 18:47	15° \approx 31'03 31.11773 AU	
			morning rise	13464 Feb 10 21:40	16° \approx 06'40	
conjunction	13458 Jan 11 13:27	2° \approx 13'47 0°25'15	retrograde	13464 May 09 19:29	18° \approx 01'15	
minimum elong	13458 Jan 11 13:27	2° \approx 13'47 0°26'11	opposition	13464 Jul 27 02:05	16° \approx 37'49 0°33'29	
max. Earth dist.	13458 Jan 11 17:27	2° \approx 14'09 31.04275 AU	min. Earth dist.	13464 Jul 27 02:52	16° \approx 37'46 29.12247 AU	
morning rise	13458 Jan 27 17:03	2° \approx 49'33	direct	13464 Oct 14 00:54	15° \approx 13'29	
retrograde	13458 Apr 27 00:57	4° \approx 44'45	evening set	13465 Jan 11 03:58	17° \approx 07'55	
opposition	13458 Jul 14 10:35	3° \approx 20'56 0°27'36				
min. Earth dist.	13458 Jul 14 06:21	3° \approx 21'14 29.04948 AU	conjunction	13465 Jan 27 07:22	17° \approx 43'34 0°31'41	
direct	13458 Oct 01 05:30	1° \approx 56'36	minimum elong	13465 Jan 27 07:22	17° \approx 43'34 0°32'28	
evening set	13458 Dec 28 22:49	3° \approx 50'57	max. Earth dist.	13465 Jan 27 05:45	17° \approx 43'25 31.12690 AU	
			morning rise	13465 Feb 12 10:25	18° \approx 19'10	
conjunction	13459 Jan 14 02:16	4° \approx 26'41 0°26'18	retrograde	13465 May 12 07:55	20° \approx 13'37	
minimum elong	13459 Jan 14 02:16	4° \approx 26'41 0°27'13	opposition	13465 Jul 29 12:29	18° \approx 50'13 0°34'18	
max. Earth dist.	13459 Jan 14 05:45	4° \approx 27'00 31.05631 AU	min. Earth dist.	13465 Jul 29 13:07	18° \approx 50'10 29.13130 AU	
morning rise	13459 Jan 30 05:50	5° \approx 02'26	direct	13465 Oct 16 13:14	17° \approx 25'50	
retrograde	13459 Apr 29 12:07	6° \approx 57'32	evening set	13466 Jan 13 16:30	19° \approx 20'16	
opposition	13459 Jul 16 21:13	5° \approx 33'49 0°28'42				
min. Earth dist.	13459 Jul 16 18:24	5° \approx 34'01 29.06340 AU	conjunction	13466 Jan 29 19:55	19° \approx 55'54 0°32'25	
direct	13459 Oct 03 14:47	4° \approx 09'31	minimum elong	13466 Jan 29 19:55	19° \approx 55'54 0°33'10	
evening set	13459 Dec 31 11:35	6° \approx 03'53	max. Earth dist.	13466 Jan 29 18:18	19° \approx 55'45 31.13539 AU	
			morning rise	13466 Feb 14 22:43	20° \approx 31'29	
conjunction	13460 Jan 16 15:11	6° \approx 39'37 0°27'18	retrograde	13466 May 14 18:13	22° \approx 25'48	
minimum elong	13460 Jan 16 15:11	6° \approx 39'37 0°28'12	opposition	13466 Jul 31 22:59	21° \approx 02'25 0°35'03	
max. Earth dist.	13460 Jan 16 18:34	6° \approx 39'55 31.07034 AU	min. Earth dist.	13466 Aug 01 01:06	21° \approx 02'16 29.13970 AU	
morning rise	13460 Feb 01 18:38	7° \approx 15'21	direct	13466 Oct 19 00:50	19° \approx 38'01	
retrograde	13460 Apr 30 22:32	9° \approx 10'21	evening set	13467 Jan 16 05:05	21° \approx 32'26	
opposition	13460 Jul 18 07:46	7° \approx 46'44 0°29'45				
min. Earth dist.	13460 Jul 18 04:49	7° \approx 46'56 29.07721 AU	conjunction	13467 Feb 01 08:26	22° \approx 08'02 0°33'06	
direct	13460 Oct 05 03:15	6° \approx 22'27	minimum elong	13467 Feb 01 08:26	22° \approx 08'02 0°33'50	
evening set	13461 Jan 02 00:37	8° \approx 16'51	max. Earth dist.	13467 Feb 01 06:02	22° \approx 07'49 31.14386 AU	
			morning rise	13467 Feb 17 11:10	22° \approx 43'36	
conjunction	13461 Jan 18 04:03	8° \approx 52'34 0°28'16	retrograde	13467 May 17 06:21	24° \approx 37'47	
minimum elong	13461 Jan 18 04:03	8° \approx 52'34 0°29'09	opposition	13467 Aug 03 09:09	23° \approx 14'26 0°35'46	
max. Earth dist.	13461 Jan 18 05:46	8° \approx 52'43 31.08380 AU	min. Earth dist.	13467 Aug 03 10:48	23° \approx 14'19 29.14823 AU	
morning rise	13461 Feb 03 07:31	9° \approx 28'17	direct	13467 Oct 21 13:23	21° \approx 49'59	
retrograde	13461 May 03 09:40	11° \approx 23'12	evening set	13468 Jan 18 17:37	23° \approx 44'25	
opposition	13461 Jul 20 18:22	9° \approx 59'38 0°30'45				
min. Earth dist.	13461 Jul 20 16:40	9° \approx 59'46 29.09034 AU	conjunction	13468 Feb 03 20:53	24° \approx 20'00 0°33'45	
direct	13461 Oct 07 12:57	8° \approx 35'22	minimum elong	13468 Feb 03 20:53	24° \approx 20'00 0°34'26	
evening set	13462 Jan 04 13:28	10° \approx 29'48	max. Earth dist.	13468 Feb 03 17:57	24° \approx 19'44 31.15251 AU	
			morning rise	13468 Feb 19 23:28	24° \approx 55'33	
conjunction	13462 Jan 20 17:03	11° \approx 05'30 0°29'12	retrograde	13468 May 18 16:47	26° \approx 49'38	
minimum elong	13462 Jan 20 17:03	11° \approx 05'30 0°30'02	opposition	13468 Aug 04 19:32	25° \approx 26'18 0°36'25	
max. Earth dist.	13462 Jan 20 18:55	11° \approx 05'40 31.09635 AU	min. Earth dist.	13468 Aug 04 22:28	25° \approx 26'06 29.15728 AU	
morning rise	13462 Feb 05 20:15	11° \approx 41'11	direct	13468 Oct 22 23:18	24° \approx 01'50	
retrograde	13462 May 05 20:20	13° \approx 35'59	evening set	13469 Jan 20 06:02	25° \approx 56'16	
opposition	13462 Jul 23 05:02	12° \approx 12'30 0°31'43				
min. Earth dist.	13462 Jul 23 03:57	12° \approx 12'35 29.10222 AU	conjunction	13469 Feb 05 09:17	26° \approx 31'50 0°34'20	
direct	13462 Oct 10 00:50	10° \approx 48'13	minimum elong	13469 Feb 05 09:17	26° \approx 31'50 0°35'00	
evening set	13463 Jan 07 02:17	12° \approx 42'39	max. Earth dist.	13469 Feb 05 06:27	26° \approx 31'35 31.16195 AU	
			morning rise	13469 Feb 21 11:37	27° \approx 07'21	
conjunction	13463 Jan 23 05:42	13° \approx 18'20 0°30'04	retrograde	13469 May 21 02:15	29° \approx 01'20	
minimum elong	13463 Jan 23 05:42	13° \approx 18'20 0°30'54	opposition	13469 Aug 07 05:43	27° \approx 38'04 0°37'01	
max. Earth dist.	13463 Jan 23 05:39	13° \approx 18'19 31.10765 AU	min. Earth dist.	13469 Aug 07 08:08	27° \approx 37'54 29.16711 AU	
morning rise	13463 Feb 08 09:00	13° \approx 54'00	direct	13469 Oct 25 11:42	26° \approx 13'36	
	13463 Mar 14 03:27	15° \approx	evening set	13470 Jan 22 18:29	28° \approx 08'03	
retrograde	13463 May 08 08:38	15° \approx 48'42				
	13463 Jul 04 06:46	15° \approx	conjunction	13470 Feb 07 21:30	28° \approx 43'36 0°34'52	
opposition	13463 Jul 25 15:37	14° \approx 25'15 0°32'37	minimum elong	13470 Feb 07 21:30	28° \approx 43'36 0°35'30	
min. Earth dist.	13463 Jul 25 15:07	14° \approx 25'17 29.11296 AU	max. Earth dist.	13470 Feb 07 17:31	28° \approx 43'14 31.17233 AU	






















































































































morning rise	13470 Feb 23 23:47	29° \approx 19'06	direct	13476 Nov 09 18:33	11° \times 36'24	
	13470 Mar 15 20:51	0° \times	evening set	13477 Feb 07 08:56	13° \times 31'01	
retrograde	13470 May 23 12:43	1° \times 13'00				
	13470 Aug 03 13:22	30° \times	conjunction	13477 Feb 23 11:04	14° \times 06'27	0°37'10
opposition	13470 Aug 09 16:03	29° \approx 49'47	minimum elong	13477 Feb 23 11:04	14° \times 06'27	0°37'34
min. Earth dist.	13470 Aug 09 19:05	29° \approx 49'35	max. Earth dist.	13477 Feb 23 02:49	14° \times 05'42	31.24240 AU
direct	13470 Oct 27 20:38	28° \approx 25'21	morning rise	13477 Mar 11 11:50	14° \times 41'46	
	13471 Jan 15 22:11	0° \times	retrograde	13477 Jun 07 18:20	16° \times 35'08	
evening set	13471 Jan 25 06:38	0° \times 19'49	opposition	13477 Aug 24 16:03	15° \times 12'19	0°39'48
			min. Earth dist.	13477 Aug 24 23:50	15° \times 11'47	29.24565 AU
conjunction	13471 Feb 10 09:45	0° \times 55'22	direct	13477 Nov 12 05:30	13° \times 47'55	
minimum elong	13471 Feb 10 09:45	0° \times 55'22	evening set	13478 Feb 09 21:00	15° \times 42'30	
max. Earth dist.	13471 Feb 10 06:28	0° \times 55'04				
morning rise	13471 Feb 26 11:44	1° \times 30'50	conjunction	13478 Feb 25 23:03	16° \times 17'55	0°37'17
retrograde	13471 May 25 22:42	3° \times 24'40	minimum elong	13478 Feb 25 23:04	16° \times 17'55	0°37'38
opposition	13471 Aug 12 02:19	2° \times 01'33	max. Earth dist.	13478 Feb 25 14:41	16° \times 17'09	31.24833 AU
min. Earth dist.	13471 Aug 12 05:41	2° \times 01'19	morning rise	13478 Mar 13 23:34	16° \times 53'12	
direct	13471 Oct 30 07:23	0° \times 37'09	retrograde	13478 Jun 10 03:36	18° \times 46'27	
evening set	13472 Jan 27 19:09	2° \times 31'40	opposition	13478 Aug 27 02:10	17° \times 23'38	0°39'53
			min. Earth dist.	13478 Aug 27 09:47	17° \times 23'07	29.25115 AU
conjunction	13472 Feb 12 21:59	3° \times 07'11	direct	13478 Nov 14 18:07	15° \times 59'11	
minimum elong	13472 Feb 12 21:59	3° \times 07'11	evening set	13479 Feb 12 09:01	17° \times 53'45	
max. Earth dist.	13472 Feb 12 17:08	3° \times 06'44				
morning rise	13472 Feb 28 23:57	3° \times 42'39	conjunction	13479 Feb 28 10:48	18° \times 29'08	0°37'21
retrograde	13472 May 27 10:24	5° \times 36'25	minimum elong	13479 Feb 28 10:48	18° \times 29'08	0°37'40
opposition	13472 Aug 13 12:27	4° \times 13'24	max. Earth dist.	13479 Feb 28 01:03	18° \times 28'14	31.25360 AU
min. Earth dist.	13472 Aug 13 16:10	4° \times 13'08	morning rise	13479 Mar 16 11:11	19° \times 04'24	
direct	13472 Oct 31 17:33	2° \times 49'01	retrograde	13479 Jun 12 13:44	20° \times 57'33	
evening set	13473 Jan 29 07:32	4° \times 43'35	opposition	13479 Aug 29 12:23	19° \times 34'43	0°39'55
			min. Earth dist.	13479 Aug 29 20:47	19° \times 34'08	29.25636 AU
conjunction	13473 Feb 14 10:23	5° \times 19'06	direct	13479 Nov 17 03:59	18° \times 10'13	
minimum elong	13473 Feb 14 10:23	5° \times 19'06	evening set	13480 Feb 14 20:55	20° \times 04'45	
max. Earth dist.	13473 Feb 14 05:58	5° \times 18'41				
morning rise	13473 Mar 02 11:57	5° \times 54'31	conjunction	13480 Mar 01 22:40	20° \times 40'07	0°37'22
retrograde	13473 May 29 20:55	7° \times 48'14	minimum elong	13480 Mar 01 22:40	20° \times 40'07	0°37'37
opposition	13473 Aug 15 22:50	6° \times 25'17	max. Earth dist.	13480 Mar 01 13:33	20° \times 39'17	31.25877 AU
min. Earth dist.	13473 Aug 16 03:47	6° \times 24'57	morning rise	13480 Mar 17 22:39	21° \times 15'21	
direct	13473 Nov 03 05:55	5° \times 00'57	retrograde	13480 Jun 13 22:25	23° \times 08'23	
evening set	13474 Jan 31 19:53	6° \times 55'33	opposition	13480 Aug 30 22:27	21° \times 45'34	0°39'54
			min. Earth dist.	13480 Aug 31 07:12	21° \times 44'57	29.26160 AU
conjunction	13474 Feb 16 22:27	7° \times 31'02	direct	13480 Nov 18 15:22	20° \times 21'01	
minimum elong	13474 Feb 16 22:27	7° \times 31'02	evening set	13481 Feb 16 08:52	22° \times 15'32	
max. Earth dist.	13474 Feb 16 16:23	7° \times 30'29				
morning rise	13474 Mar 04 23:57	8° \times 06'26	conjunction	13481 Mar 04 10:14	22° \times 50'52	0°37'19
retrograde	13474 Jun 01 09:03	10° \times 00'06	minimum elong	13481 Mar 04 10:14	22° \times 50'52	0°37'34
opposition	13474 Aug 18 09:09	8° \times 37'12	max. Earth dist.	13481 Mar 03 23:50	22° \times 49'55	31.26433 AU
min. Earth dist.	13474 Aug 18 13:54	8° \times 36'52	morning rise	13481 Mar 20 10:07	23° \times 26'05	
direct	13474 Nov 05 17:31	7° \times 12'52	retrograde	13481 Jun 16 08:41	25° \times 19'02	
evening set	13475 Feb 03 08:16	9° \times 07'29	opposition	13481 Sep 02 08:36	23° \times 56'13	0°39'50
			min. Earth dist.	13481 Sep 02 17:08	23° \times 55'37	29.26764 AU
conjunction	13475 Feb 19 10:46	9° \times 42'57	direct	13481 Nov 21 01:38	22° \times 31'39	
minimum elong	13475 Feb 19 10:47	9° \times 42'57	evening set	13482 Feb 18 20:26	24° \times 26'09	
max. Earth dist.	13475 Feb 19 04:28	9° \times 42'23				
morning rise	13475 Mar 07 11:57	10° \times 18'20	conjunction	13482 Mar 06 21:45	25° \times 01'28	0°37'13
retrograde	13475 Jun 03 19:43	12° \times 11'54	minimum elong	13482 Mar 06 21:45	25° \times 01'28	0°37'25
opposition	13475 Aug 20 19:28	10° \times 49'03	max. Earth dist.	13482 Mar 06 12:20	25° \times 00'36	31.27077 AU
min. Earth dist.	13475 Aug 21 01:59	10° \times 48'36	morning rise	13482 Mar 22 21:13	25° \times 36'39	
direct	13475 Nov 08 05:04	9° \times 24'42	retrograde	13482 Jun 18 17:43	27° \times 29'33	
evening set	13476 Feb 05 20:39	11° \times 19'20	opposition	13482 Sep 04 18:52	26° \times 06'45	0°39'42
			min. Earth dist.	13482 Sep 05 04:06	26° \times 06'06	29.27459 AU
conjunction	13476 Feb 21 23:00	11° \times 54'47	direct	13482 Nov 23 12:55	24° \times 42'11	
minimum elong	13476 Feb 21 23:00	11° \times 54'47	evening set	13483 Feb 21 08:14	26° \times 36'43	
max. Earth dist.	13476 Feb 21 15:35	11° \times 54'06				
morning rise	13476 Mar 09 00:02	12° \times 30'08	conjunction	13483 Mar 09 09:14	27° \times 12'00	0°37'05
retrograde	13476 Jun 05 08:11	14° \times 23'36	minimum elong	13483 Mar 09 09:14	27° \times 12'00	0°37'15
opposition	13476 Aug 22 05:43	13° \times 00'46	max. Earth dist.	13483 Mar 08 22:45	27° \times 11'02	31.27835 AU
min. Earth dist.	13476 Aug 22 11:59	13° \times 00'20	morning rise	13483 Mar 25 08:36	27° \times 47'10	

retrograde	13483 Jun 21 05:15	29° H 40'00	evening set	13490 Mar 08 18:02	11° Y 52'18	
opposition	13483 Sep 07 04:49	28° H 17'16 0°39'30				
min. Earth dist.	13483 Sep 07 13:20	28° H 16'41 29.28260 AU	conjunction	13490 Mar 24 17:19	12° Y 27'29 0°34'33	
direct	13483 Nov 25 23:36	26° H 52'44	minimum elong	13490 Mar 24 17:19	12° Y 27'29 0°34'26	
evening set	13484 Feb 23 19:59	28° H 47'18	max. Earth dist.	13490 Mar 24 03:21	12° Y 26'12 31.32352 AU	
			morning rise	13490 Apr 09 14:43	13° Y 02'31	
conjunction	13484 Mar 10 20:51	29° H 22'34 0°36'52	retrograde	13490 Jul 06 05:37	14° Y 55'08	
minimum elong	13484 Mar 10 20:51	29° H 22'34 0°37'00	opposition	13490 Sep 22 04:57	13° Y 32'44 0°36'36	
max. Earth dist.	13484 Mar 10 10:41	29° H 21'38 31.28663 AU	min. Earth dist.	13490 Sep 22 16:57	13° Y 31'54 29.32489 AU	
morning rise	13484 Mar 26 19:49	29° H 57'43	direct	13490 Dec 11 05:54	12° Y 08'21	
	13484 Mar 27 21:14	0° Y	evening set	13491 Mar 11 05:28	14° Y 03'03	
retrograde	13484 Jun 22 15:37	1° Y 50'31				
opposition	13484 Sep 08 15:06	0° Y 27'51 0°39'15	conjunction	13491 Mar 27 04:40	14° Y 38'13 0°34'00	
min. Earth dist.	13484 Sep 09 00:56	0° Y 27'10 29.29108 AU	minimum elong	13491 Mar 27 04:40	14° Y 38'13 0°33'51	
	13484 Sep 25 16:13	30° R H	max. Earth dist.	13491 Mar 26 15:19	14° Y 36'59 31.32563 AU	
direct	13484 Nov 27 10:36	29° H 03'22	morning rise	13491 Apr 12 01:38	15° Y 13'13	
	13485 Jan 27 01:09	0° Y	retrograde	13491 Jul 08 14:02	17° Y 05'47	
evening set	13485 Feb 25 07:40	0° Y 57'58	opposition	13491 Sep 24 15:14	15° Y 43'23 0°35'58	
			min. Earth dist.	13491 Sep 25 04:22	15° Y 42'28 29.32661 AU	
conjunction	13485 Mar 13 08:14	1° Y 33'14 0°36'37	direct	13491 Dec 13 16:48	14° Y 18'58	
minimum elong	13485 Mar 13 08:15	1° Y 33'14 0°36'42	evening set	13492 Mar 12 16:58	16° Y 13'39	
max. Earth dist.	13485 Mar 12 21:33	1° Y 32'15 31.29518 AU				
morning rise	13485 Mar 29 07:00	2° Y 08'21	conjunction	13492 Mar 28 15:47	16° Y 48'47 0°33'23	
retrograde	13485 Jun 25 03:48	4° Y 01'08	minimum elong	13492 Mar 28 15:47	16° Y 48'47 0°33'11	
opposition	13485 Sep 11 01:15	2° Y 38'33 0°38'57	max. Earth dist.	13492 Mar 28 01:18	16° Y 47'27 31.32720 AU	
min. Earth dist.	13485 Sep 11 10:33	2° Y 37'54 29.29942 AU	morning rise	13492 Apr 13 12:36	17° Y 23'47	
direct	13485 Nov 29 23:24	1° Y 14'07	retrograde	13492 Jul 10 00:58	19° Y 16'17	
evening set	13486 Feb 27 19:26	3° Y 08'45	opposition	13492 Sep 26 01:31	17° Y 53'52 0°35'18	
			min. Earth dist.	13492 Sep 26 13:53	17° Y 53'01 29.32808 AU	
conjunction	13486 Mar 15 19:44	3° Y 44'00 0°36'19	direct	13492 Dec 15 03:13	16° Y 29'26	
minimum elong	13486 Mar 15 19:44	3° Y 44'00 0°36'21	evening set	13493 Mar 15 04:07	18° Y 24'06	
max. Earth dist.	13486 Mar 15 08:26	3° Y 42'58 31.30316 AU				
morning rise	13486 Mar 31 18:11	4° Y 19'06	conjunction	13493 Mar 31 02:43	18° Y 59'13 0°32'44	
retrograde	13486 Jun 27 14:23	6° Y 11'53	minimum elong	13493 Mar 31 02:43	18° Y 59'13 0°32'30	
opposition	13486 Sep 13 11:33	4° Y 49'21 0°38'35	max. Earth dist.	13493 Mar 30 12:41	18° Y 57'55 31.32862 AU	
min. Earth dist.	13486 Sep 13 22:12	4° Y 48'37 29.30709 AU	morning rise	13493 Apr 15 23:07	19° Y 34'10	
direct	13486 Dec 02 09:51	3° Y 24'57	retrograde	13493 Jul 12 10:39	21° Y 26'39	
evening set	13487 Mar 02 07:04	5° Y 19'38	opposition	13493 Sep 28 11:59	20° Y 04'13 0°34'34	
			min. Earth dist.	13493 Sep 29 01:22	20° Y 03'18 29.32978 AU	
conjunction	13487 Mar 18 07:15	5° Y 54'52 0°35'57	direct	13493 Dec 17 14:45	18° Y 39'46	
minimum elong	13487 Mar 18 07:15	5° Y 54'52 0°35'57	evening set	13494 Mar 17 15:18	20° Y 34'25	
max. Earth dist.	13487 Mar 17 19:53	5° Y 53'49 31.31028 AU				
morning rise	13487 Apr 03 05:23	6° Y 29'57	conjunction	13494 Apr 02 13:35	21° Y 09'30 0°32'02	
retrograde	13487 Jun 30 00:08	8° Y 22'41	minimum elong	13494 Apr 02 13:36	21° Y 09'30 0°31'45	
opposition	13487 Sep 15 21:51	7° Y 00'13 0°38'10	max. Earth dist.	13494 Apr 01 23:29	21° Y 08'12 31.33073 AU	
min. Earth dist.	13487 Sep 16 08:26	6° Y 59'29 29.31348 AU	morning rise	13494 Apr 18 09:46	21° Y 44'26	
direct	13487 Dec 04 22:19	5° Y 35'51	retrograde	13494 Jul 14 22:13	23° Y 36'53	
evening set	13488 Mar 03 18:54	7° Y 30'33	opposition	13494 Sep 30 22:14	22° Y 14'27 0°33'48	
			min. Earth dist.	13494 Oct 01 10:37	22° Y 13'36 29.33227 AU	
conjunction	13488 Mar 19 18:41	8° Y 05'46 0°35'32	direct	13494 Dec 20 03:45	20° Y 49'59	
minimum elong	13488 Mar 19 18:41	8° Y 05'46 0°35'29	evening set	13495 Mar 20 02:27	22° Y 44'39	
max. Earth dist.	13488 Mar 19 05:47	8° Y 04'35 31.31597 AU	max. Earth dist.	13495 Apr 04 10:10	23° Y 18'25 31.33365 AU	
morning rise	13488 Apr 04 16:38	8° Y 40'50				
retrograde	13488 Jul 01 10:44	10° Y 33'32	conjunction	13495 Apr 05 00:28	23° Y 19'44 0°31'17	
opposition	13488 Sep 17 08:11	9° Y 11'06 0°37'42	minimum elong	13495 Apr 05 00:28	23° Y 19'44 0°30'59	
min. Earth dist.	13488 Sep 17 19:34	9° Y 10'19 29.31858 AU	morning rise	13495 Apr 20 20:21	23° Y 54'39	
direct	13488 Dec 06 08:08	7° Y 46'44	retrograde	13495 Jul 17 08:32	25° Y 47'04	
evening set	13489 Mar 06 06:30	9° Y 41'27	opposition	13495 Oct 03 08:41	24° Y 24'39 0°32'58	
			min. Earth dist.	13495 Oct 03 21:48	24° Y 23'45 29.33571 AU	
conjunction	13489 Mar 22 06:12	10° Y 16'39 0°35'04	direct	13495 Dec 22 14:17	23° Y 00'13	
minimum elong	13489 Mar 22 06:12	10° Y 16'39 0°35'00	evening set	13496 Mar 21 13:31	24° Y 54'54	
max. Earth dist.	13489 Mar 21 17:45	10° Y 15'31 31.32037 AU				
morning rise	13489 Apr 07 03:42	10° Y 51'42	conjunction	13496 Apr 06 11:20	25° Y 29'57 0°30'30	
retrograde	13489 Jul 03 19:40	12° Y 44'22	minimum elong	13496 Apr 06 11:20	25° Y 29'57 0°30'08	
opposition	13489 Sep 19 18:37	11° Y 21'58 0°37'11	max. Earth dist.	13496 Apr 05 21:42	25° Y 28'42 31.33750 AU	
min. Earth dist.	13489 Sep 20 06:36	11° Y 21'08 29.32225 AU	morning rise	13496 Apr 22 06:51	26° Y 04'51	
direct	13489 Dec 08 19:29	9° Y 57'36	retrograde	13496 Jul 18 18:24	27° Y 57'16	

opposition	13496 Oct 04 19:05	26° Υ 34'54	0°32'06	direct	13503 Jan 07 19:36	8° \mathcal{S} 13'32	
min. Earth dist.	13496 Oct 05 07:39	26° Υ 34'02	29.33971 AU	evening set	13503 Apr 07 19:17	10° \mathcal{S} 08'16	
direct	13496 Dec 24 02:48	25° Υ 10'31					
evening set	13497 Mar 24 00:43	27° Υ 05'12		conjunction	13503 Apr 23 15:02	10° \mathcal{S} 43'14	0°23'47
				minimum elong	13503 Apr 23 15:02	10° \mathcal{S} 43'14	0°23'12
conjunction	13497 Apr 08 22:06	27° Υ 40'15	0°29'40	max. Earth dist.	13503 Apr 22 23:13	10° \mathcal{S} 41'46	31.34765 AU
minimum elong	13497 Apr 08 22:06	27° Υ 40'15	0°29'17	morning rise	13503 May 09 08:35	11° \mathcal{S} 18'02	
max. Earth dist.	13497 Apr 08 07:31	27° Υ 38'55	31.34169 AU	retrograde	13503 Aug 04 17:42	13° \mathcal{S} 10'30	
morning rise	13497 Apr 24 17:27	28° Υ 15'08		opposition	13503 Oct 21 21:56	11° \mathcal{S} 48'15	0°24'46
	13497 Jun 30 00:57	0° \mathcal{S}		min. Earth dist.	13503 Oct 22 12:16	11° \mathcal{S} 47'16	29.34604 AU
retrograde	13497 Jul 21 05:49	0° \mathcal{R} 07'34		direct	13504 Jan 10 08:31	10° \mathcal{S} 23'58	
	13497 Aug 11 12:49	30° \mathcal{R} Υ		evening set	13504 Apr 09 06:15	12° \mathcal{S} 18'42	
opposition	13497 Oct 07 05:37	28° Υ 45'15	0°31'11	max. Earth dist.	13504 Apr 24 09:23	12° \mathcal{S} 52'08	31.34392 AU
min. Earth dist.	13497 Oct 07 18:28	28° Υ 44'22	29.34397 AU				
direct	13497 Dec 26 13:17	27° Υ 20'54		conjunction	13504 Apr 25 01:39	12° \mathcal{S} 53'39	0°22'41
evening set	13498 Mar 26 11:38	29° Υ 15'36		minimum elong	13504 Apr 25 01:39	12° \mathcal{S} 53'39	0°22'03
				morning rise	13504 May 10 18:55	13° \mathcal{S} 28'26	
conjunction	13498 Apr 11 08:55	29° Υ 50'39	0°28'47		13504 Jul 01 19:23	15° \mathcal{S}	
minimum elong	13498 Apr 11 08:55	29° Υ 50'39	0°28'21	retrograde	13504 Aug 06 04:06	15° \mathcal{S} 20'54	
max. Earth dist.	13498 Apr 10 19:14	29° Υ 49'23	31.34573 AU		13504 Sep 11 07:03	15° \mathcal{R} \mathcal{S}	
	13498 Apr 15 13:48	0° \mathcal{S}		opposition	13504 Oct 23 08:49	13° \mathcal{S} 58'37	0°23'34
morning rise	13498 Apr 27 03:50	0° \mathcal{S} 25'31		min. Earth dist.	13504 Oct 23 24:00	13° \mathcal{S} 57'35	29.34203 AU
retrograde	13498 Jul 23 14:42	2° \mathcal{S} 17'57		direct	13505 Jan 11 19:16	12° \mathcal{S} 34'18	
opposition	13498 Oct 09 16:15	0° \mathcal{S} 55'41	0°30'13	evening set	13505 Apr 11 17:01	14° \mathcal{S} 29'01	
min. Earth dist.	13498 Oct 10 05:36	0° \mathcal{S} 54'46	29.34758 AU		13505 Apr 25 17:44	15° \mathcal{S}	
	13498 Nov 15 13:02	30° \mathcal{R} Υ					
direct	13498 Dec 29 01:04	29° Υ 31'22		conjunction	13505 Apr 27 12:14	15° \mathcal{S} 03'57	0°21'33
	13499 Feb 09 10:18	0° \mathcal{S}		minimum elong	13505 Apr 27 12:14	15° \mathcal{S} 03'57	0°20'54
evening set	13499 Mar 28 22:56	1° \mathcal{S} 26'06		max. Earth dist.	13505 Apr 26 20:43	15° \mathcal{S} 02'31	31.33973 AU
				morning rise	13505 May 13 05:09	15° \mathcal{S} 38'43	
conjunction	13499 Apr 13 19:44	2° \mathcal{S} 01'07	0°27'51	retrograde	13505 Aug 08 13:55	17° \mathcal{S} 31'11	
minimum elong	13499 Apr 13 19:45	2° \mathcal{S} 01'07	0°27'24	opposition	13505 Oct 25 19:38	16° \mathcal{S} 08'52	0°22'21
max. Earth dist.	13499 Apr 13 04:41	1° \mathcal{S} 59'44	31.34890 AU	min. Earth dist.	13505 Oct 26 10:12	16° \mathcal{S} 07'53	29.33773 AU
morning rise	13499 Apr 29 14:32	2° \mathcal{S} 35'59			13505 Dec 13 19:41	15° \mathcal{R} \mathcal{S}	
retrograde	13499 Jul 26 00:55	4° \mathcal{S} 28'25		direct	13506 Jan 14 08:21	14° \mathcal{S} 44'32	
opposition	13499 Oct 12 02:47	3° \mathcal{S} 06'11	0°29'12		13506 Feb 14 06:44	15° \mathcal{S}	
min. Earth dist.	13499 Oct 12 15:59	3° \mathcal{S} 05'17	29.35022 AU	evening set	13506 Apr 14 03:43	16° \mathcal{S} 39'14	
direct	13499 Dec 31 11:15	1° \mathcal{S} 41'54					
evening set	13500 Mar 31 10:05	3° \mathcal{S} 36'38		conjunction	13506 Apr 29 22:31	17° \mathcal{S} 14'10	0°20'23
				minimum elong	13506 Apr 29 22:31	17° \mathcal{S} 14'10	0°19'41
conjunction	13500 Apr 16 06:45	4° \mathcal{S} 11'39	0°26'54	max. Earth dist.	13506 Apr 29 06:16	17° \mathcal{S} 12'40	31.33558 AU
minimum elong	13500 Apr 16 06:45	4° \mathcal{S} 11'39	0°26'23	morning rise	13506 May 15 15:18	17° \mathcal{S} 48'55	
max. Earth dist.	13500 Apr 15 16:20	4° \mathcal{S} 10'20	31.35078 AU	retrograde	13506 Aug 11 01:19	19° \mathcal{S} 41'24	
morning rise	13500 May 02 01:03	4° \mathcal{S} 46'30		opposition	13506 Oct 28 06:31	18° \mathcal{S} 19'04	0°21'05
retrograde	13500 Jul 28 09:36	6° \mathcal{S} 38'57		min. Earth dist.	13506 Oct 28 20:55	18° \mathcal{S} 18'05	29.33393 AU
opposition	13500 Oct 14 13:39	5° \mathcal{S} 16'44	0°28'09	direct	13507 Jan 16 19:34	16° \mathcal{S} 54'43	
min. Earth dist.	13500 Oct 15 03:58	5° \mathcal{S} 15'45	29.35138 AU	evening set	13507 Apr 16 14:22	18° \mathcal{S} 49'26	
direct	13501 Jan 02 21:51	3° \mathcal{S} 52'28					
evening set	13501 Apr 02 21:10	5° \mathcal{S} 47'13		conjunction	13507 May 02 09:02	19° \mathcal{S} 24'21	0°19'12
				minimum elong	13507 May 02 09:02	19° \mathcal{S} 24'21	0°18'30
conjunction	13501 Apr 18 17:25	6° \mathcal{S} 22'12	0°25'53	max. Earth dist.	13507 May 01 18:06	19° \mathcal{S} 22'58	31.33208 AU
minimum elong	13501 Apr 18 17:25	6° \mathcal{S} 22'12	0°25'22	morning rise	13507 May 18 01:23	19° \mathcal{S} 59'05	
max. Earth dist.	13501 Apr 18 01:53	6° \mathcal{S} 20'46	31.35125 AU	retrograde	13507 Aug 13 10:04	21° \mathcal{S} 51'35	
morning rise	13501 May 04 11:34	6° \mathcal{S} 57'02		opposition	13507 Oct 30 17:22	20° \mathcal{S} 29'16	0°19'48
retrograde	13501 Jul 30 20:41	8° \mathcal{S} 49'30		min. Earth dist.	13507 Oct 31 07:46	20° \mathcal{S} 28'17	29.33079 AU
opposition	13501 Oct 17 00:24	7° \mathcal{S} 27'17	0°27'03	direct	13508 Jan 19 07:41	19° \mathcal{S} 04'57	
min. Earth dist.	13501 Oct 17 14:01	7° \mathcal{S} 26'21	29.35106 AU	evening set	13508 Apr 18 01:08	20° \mathcal{S} 59'40	
direct	13502 Jan 05 08:25	6° \mathcal{S} 03'01					
evening set	13502 Apr 05 08:14	7° \mathcal{S} 57'46		conjunction	13508 May 03 19:20	21° \mathcal{S} 34'34	0°17'59
				minimum elong	13508 May 03 19:20	21° \mathcal{S} 34'34	0°17'14
conjunction	13502 Apr 21 04:16	8° \mathcal{S} 32'45	0°24'51	max. Earth dist.	13508 May 03 03:42	21° \mathcal{S} 33'07	31.32947 AU
minimum elong	13502 Apr 21 04:16	8° \mathcal{S} 32'45	0°24'17	morning rise	13508 May 19 11:35	22° \mathcal{S} 09'19	
max. Earth dist.	13502 Apr 20 12:48	8° \mathcal{S} 31'19	31.35010 AU	retrograde	13508 Aug 14 20:13	24° \mathcal{S} 01'51	
morning rise	13502 May 06 22:02	9° \mathcal{S} 07'34		opposition	13508 Nov 01 04:19	22° \mathcal{S} 39'33	0°18'29
retrograde	13502 Aug 02 06:25	11° \mathcal{S} 00'02		min. Earth dist.	13508 Nov 01 17:49	22° \mathcal{S} 38'38	29.32857 AU
opposition	13502 Oct 19 11:11	9° \mathcal{S} 37'49	0°25'56	direct	13509 Jan 20 17:56	21° \mathcal{S} 15'16	
min. Earth dist.	13502 Oct 20 02:10	9° \mathcal{S} 36'47	29.34923 AU	evening set	13509 Apr 20 11:34	23° \mathcal{S} 10'00	

conjunction	13509 May 06 05:38	23° 8 44'55	0°16'45	behind sun begin	13514 May 17 04:01	4° II 38'08	
minimum elong	13509 May 06 05:38	23° 8 44'55	0°15'59	behind sun end	13514 May 17 14:55	4° II 39'06	
behind sun begin	13509 May 06 05:01	23° 8 44'51		max. Earth dist.	13514 May 16 19:15	4° II 37'18	31.31073 AU
behind sun end	13509 May 06 06:14	23° 8 44'58		morning rise	13514 Jun 02 00:04	5° II 13'20	
max. Earth dist.	13509 May 05 15:17	23° 8 43'35	31.32748 AU	retrograde	13514 Aug 28 11:09	7° II 06'15	
morning rise	13509 May 21 21:27	24° 8 19'39		opposition	13514 Nov 14 23:34	5° II 43'58	0°10'04
retrograde	13509 Aug 17 04:56	26° 8 12'16		min. Earth dist.	13514 Nov 15 13:14	5° II 43'02	29.30748 AU
opposition	13509 Nov 03 15:25	24° 8 49'59	0°17'08	direct	13515 Feb 03 12:17	4° II 19'50	
min. Earth dist.	13509 Nov 04 05:33	24° 8 49'01	29.32673 AU	evening set	13515 May 04 03:35	6° II 14'39	
direct	13510 Jan 23 04:03	23° 8 25'45					
evening set	13510 Apr 22 22:13	25° 8 20'30		conjunction	13515 May 19 19:48	6° II 49'30	0°08'51
				minimum elong	13515 May 19 19:49	6° II 49'30	0°07'57
conjunction	13510 May 08 15:54	25° 8 55'24	0°15'29	behind sun begin	13515 May 19 14:01	6° II 48'59	
minimum elong	13510 May 08 15:54	25° 8 55'24	0°14'40	behind sun end	13515 May 20 01:36	6° II 50'01	
behind sun begin	13510 May 08 13:10	25° 8 55'10		max. Earth dist.	13515 May 19 04:29	6° II 48'05	31.30370 AU
behind sun end	13510 May 08 18:37	25° 8 55'39		morning rise	13515 Jun 04 10:18	7° II 24'12	
max. Earth dist.	13510 May 08 01:02	25° 8 54'02	31.32574 AU	retrograde	13515 Aug 30 23:27	9° II 17'09	
morning rise	13510 May 24 07:37	26° 8 30'09		opposition	13515 Nov 17 10:55	7° II 54'50	0°08'37
retrograde	13510 Aug 19 16:04	28° 8 22'49		min. Earth dist.	13515 Nov 18 00:39	7° II 53'54	29.29986 AU
opposition	13510 Nov 06 02:16	27° 8 00'34	0°15'46	direct	13516 Feb 06 00:14	6° II 30'40	
min. Earth dist.	13510 Nov 06 15:21	26° 8 59'41	29.32483 AU	evening set	13516 May 05 14:08	8° II 25'28	
direct	13511 Jan 25 13:56	25° 8 36'22					
evening set	13511 Apr 25 08:53	27° 8 31'10		conjunction	13516 May 21 06:16	9° II 00'18	0°07'29
max. Earth dist.	13511 May 10 11:48	28° 8 04'42	31.32351 AU	minimum elong	13516 May 21 06:15	9° II 00'18	0°06'33
				behind sun begin	13516 May 21 00:11	8° II 59'46	
conjunction	13511 May 11 02:20	28° 8 06'03	0°14'11	behind sun end	13516 May 21 12:19	9° II 00'51	
minimum elong	13511 May 11 02:20	28° 8 06'03	0°13'22	max. Earth dist.	13516 May 20 16:03	8° II 58'59	31.29548 AU
behind sun begin	13511 May 10 22:37	28° 8 05'43		morning rise	13516 Jun 05 20:22	9° II 35'00	
behind sun end	13511 May 11 06:03	28° 8 06'23		retrograde	13516 Sep 01 08:21	11° II 27'59	
morning rise	13511 May 26 17:42	28° 8 40'48		opposition	13516 Nov 18 22:28	10° II 05'36	0°07'08
	13511 Jul 08 00:51	0° II		min. Earth dist.	13516 Nov 19 12:25	10° II 04'39	29.29111 AU
retrograde	13511 Aug 22 01:58	0° II 33'32		direct	13517 Feb 07 13:01	8° II 41'24	
	13511 Oct 07 19:13	30° 8		evening set	13517 May 08 00:34	10° II 36'09	
opposition	13511 Nov 08 13:34	29° 8 11'18	0°14'22				
min. Earth dist.	13511 Nov 09 03:42	29° 8 10'21	29.32227 AU	conjunction	13517 May 23 16:16	11° II 10'59	0°06'07
direct	13512 Jan 28 00:42	27° 8 47'09		minimum elong	13517 May 23 16:16	11° II 10'59	0°05'11
evening set	13512 Apr 26 19:31	29° 8 41'58		behind sun begin	13517 May 23 10:01	11° II 10'25	
	13512 May 04 23:54	0° II		behind sun end	13517 May 23 22:32	11° II 11'32	
conjunction	13512 May 12 12:39	0° II 16'50	0°12'53	max. Earth dist.	13517 May 23 01:22	11° II 09'36	31.28652 AU
minimum elong	13512 May 12 12:39	0° II 16'50	0°12'01	morning rise	13517 Jun 08 06:22	11° II 45'41	
behind sun begin	13512 May 12 08:13	0° II 16'26		retrograde	13517 Sep 03 18:55	13° II 38'40	
behind sun end	13512 May 12 17:06	0° II 17'14		opposition	13517 Nov 21 09:52	12° II 16'13	0°05'40
max. Earth dist.	13512 May 11 22:13	0° II 15'30	31.32051 AU	min. Earth dist.	13517 Nov 21 22:57	12° II 15'20	29.28202 AU
morning rise	13512 May 28 03:47	0° II 51'34		direct	13518 Feb 10 00:32	10° II 51'58	
retrograde	13512 Aug 23 13:18	2° II 44'23		evening set	13518 May 10 10:55	12° II 46'42	
opposition	13512 Nov 10 00:48	1° II 22'09	0°12'57	conjunction	13518 May 26 02:32	13° II 21'31	0°04'44
min. Earth dist.	13512 Nov 10 14:04	1° II 21'15	29.31864 AU	minimum elong	13518 May 26 02:30	13° II 21'31	0°03'46
	13513 Jan 18 11:00	30° 8		behind sun begin	13518 May 25 20:07	13° II 20'57	
direct	13513 Jan 29 12:37	29° 8 58'00		behind sun end	13518 May 26 08:54	13° II 22'06	
	13513 Feb 09 14:54	0° II		max. Earth dist.	13518 May 25 12:54	13° II 20'16	31.27737 AU
evening set	13513 Apr 29 06:15	1° II 52'50		morning rise	13518 Jun 10 16:14	13° II 56'13	
				retrograde	13518 Sep 06 03:43	15° II 49'15	
conjunction	13513 May 14 23:02	2° II 27'42	0°11'33	opposition	13518 Nov 23 21:18	14° II 26'44	0°04'11
minimum elong	13513 May 14 23:02	2° II 27'42	0°10'41	min. Earth dist.	13518 Nov 24 10:50	14° II 25'48	29.27311 AU
behind sun begin	13513 May 14 18:03	2° II 27'16		direct	13519 Feb 12 11:58	13° II 02'27	
behind sun end	13513 May 15 04:02	2° II 28'09		evening set	13519 May 12 21:22	14° II 57'09	
max. Earth dist.	13513 May 14 08:08	2° II 26'20	31.31624 AU				
morning rise	13513 May 30 13:57	3° II 02'26		conjunction	13519 May 28 12:36	15° II 31'58	0°03'20
retrograde	13513 Aug 26 00:25	4° II 55'18		minimum elong	13519 May 28 12:36	15° II 31'58	0°02'22
opposition	13513 Nov 12 12:11	3° II 33'04	0°11'31	behind sun begin	13519 May 28 06:09	15° II 31'23	
min. Earth dist.	13513 Nov 13 02:13	3° II 32'06	29.31384 AU	behind sun end	13519 May 28 19:02	15° II 32'32	
direct	13514 Jan 31 22:37	2° II 08'55		max. Earth dist.	13519 May 27 22:54	15° II 30'42	31.26889 AU
evening set	13514 May 01 16:49	4° II 03'45		morning rise	13519 Jun 13 02:13	16° II 06'39	
				retrograde	13519 Sep 08 14:30	17° II 59'44	
conjunction	13514 May 17 09:28	4° II 38'37	0°10'12	opposition	13519 Nov 26 08:45	16° II 37'11	0°02'41
minimum elong	13514 May 17 09:28	4° II 38'37	0°09'18	min. Earth dist.	13519 Nov 26 20:39	16° II 36'22	29.26507 AU

direct	13520 Feb 14 23:03	15°II12'54		behind sun end	13525 Jun 10 07:23	28°II37'33	
evening set	13520 May 14 07:37	17°II07'35		max. Earth dist.	13525 Jun 09 15:00	28°II36'04	31.23104 AU
				morning rise	13525 Jun 25 13:43	29°II11'43	
conjunction	13520 May 29 22:35	17°II42'24	0°01'54		13525 Jul 19 00:42	0°00	
minimum elong	13520 May 29 22:37	17°II42'24	0°00'54	retrograde	13525 Sep 21 09:31	1°005'26	
behind sun begin	13520 May 29 16:10	17°II41'49			13525 Nov 28 18:26	30°R11	
behind sun end	13520 May 30 05:03	17°II42'58		opposition	13525 Dec 09 07:20	29°II42'54	-0°06'20
max. Earth dist.	13520 May 29 09:43	17°II41'12	31.26130 AU	min. Earth dist.	13525 Dec 09 17:42	29°II42'11	29.22743 AU
morning rise	13520 Jun 14 11:58	18°II17'05		direct	13526 Feb 27 18:25	28°II18'52	
retrograde	13520 Sep 10 00:05	20°II10'15			13526 May 21 13:46	0°00	
opposition	13520 Nov 27 20:27	18°II47'41	0°01'11	evening set	13526 May 27 21:57	0°0013'44	
min. Earth dist.	13520 Nov 28 08:43	18°II46'50	29.25808 AU				
direct	13521 Feb 16 09:20	17°II23'25		conjunction	13526 Jun 12 11:31	0°0048'33	-0°06'37
evening set	13521 May 16 17:54	19°II18'07		minimum elong	13526 Jun 12 11:31	0°0048'32	0°07'39
				behind sun begin	13526 Jun 12 05:41	0°0048'01	
conjunction	13521 Jun 01 08:42	19°II52'55	0°00'26	behind sun end	13526 Jun 12 17:22	0°0049'04	
minimum elong	13521 Jun 01 08:42	19°II52'55	0°00'33	max. Earth dist.	13526 Jun 12 00:26	0°0047'31	31.22343 AU
behind sun begin	13521 Jun 01 02:16	19°II52'21		morning rise	13526 Jun 27 23:58	1°0023'16	
behind sun end	13521 Jun 01 15:07	19°II53'30		retrograde	13526 Sep 23 21:23	3°0017'05	
max. Earth dist.	13521 May 31 20:36	19°II51'48	31.25489 AU	opposition	13526 Dec 11 19:13	1°0054'31	-0°07'49
morning rise	13521 Jun 16 21:52	20°II27'37		min. Earth dist.	13526 Dec 12 04:50	1°0053'52	29.21922 AU
retrograde	13521 Sep 12 11:09	22°II20'52		direct	13527 Mar 02 06:12	0°0030'30	
desc. node	13521 Sep 20 15:42	22°II19'46		evening set	13527 May 30 08:28	2°0025'24	
opposition	13521 Nov 30 07:55	20°II58'18	-0°00'19				
min. Earth dist.	13521 Nov 30 18:49	20°II57'33	29.25198 AU	conjunction	13527 Jun 14 21:57	3°0000'13	-0°08'00
direct	13522 Feb 18 20:28	19°II34'04		minimum elong	13527 Jun 14 21:57	3°0000'13	0°09'01
evening set	13522 May 19 04:15	21°II28'49		behind sun begin	13527 Jun 14 16:26	2°0059'43	
				behind sun end	13527 Jun 15 03:28	3°0000'42	
conjunction	13522 Jun 03 18:44	22°II03'37	-0°01'00	max. Earth dist.	13527 Jun 14 11:47	2°0059'16	31.21448 AU
minimum elong	13522 Jun 03 18:45	22°II03'37	0°02'02	morning rise	13527 Jun 30 10:07	3°0034'56	
behind sun begin	13522 Jun 03 12:18	22°II03'02		retrograde	13527 Sep 26 07:38	5°0028'51	
behind sun end	13522 Jun 04 01:12	22°II04'12		opposition	13527 Dec 14 07:28	4°0006'15	-0°09'17
max. Earth dist.	13522 Jun 03 06:38	22°II02'30	31.24908 AU	min. Earth dist.	13527 Dec 14 17:47	4°0005'33	29.20961 AU
morning rise	13522 Jun 19 07:49	22°II38'19		direct	13528 Mar 03 18:15	2°0042'15	
retrograde	13522 Sep 14 22:48	24°II31'41		evening set	13528 May 31 18:54	4°0037'07	
opposition	13522 Dec 02 19:39	23°II09'07	-0°01'50				
min. Earth dist.	13522 Dec 03 06:50	23°II08'21	29.24639 AU	conjunction	13528 Jun 16 08:07	5°0011'56	-0°09'22
direct	13523 Feb 21 05:53	21°II44'56		minimum elong	13528 Jun 16 08:07	5°0011'56	0°10'25
evening set	13523 May 21 14:33	23°II39'43		behind sun begin	13528 Jun 16 03:02	5°0011'29	
				behind sun end	13528 Jun 16 13:12	5°0012'24	
conjunction	13523 Jun 06 04:57	24°II14'31	-0°02'26	max. Earth dist.	13528 Jun 15 21:41	5°0010'58	31.20432 AU
minimum elong	13523 Jun 06 04:56	24°II14'31	0°03'27	morning rise	13528 Jul 01 20:15	5°0046'40	
behind sun begin	13523 Jun 05 22:32	24°II13'57		retrograde	13528 Sep 27 18:53	7°0040'40	
behind sun end	13523 Jun 06 11:20	24°II15'06		opposition	13528 Dec 15 19:36	6°0018'02	-0°10'45
max. Earth dist.	13523 Jun 05 18:03	24°II13'31	31.24350 AU	min. Earth dist.	13528 Dec 16 04:35	6°0017'25	29.19883 AU
morning rise	13523 Jun 21 17:42	24°II49'13		direct	13529 Mar 06 06:13	4°0054'00	
retrograde	13523 Sep 17 10:03	26°II42'42		evening set	13529 Jun 03 05:21	6°0048'51	
opposition	13523 Dec 05 07:23	25°II20'09	-0°03'20				
min. Earth dist.	13523 Dec 05 17:52	25°II19'27	29.24062 AU	conjunction	13529 Jun 18 18:25	7°0023'40	-0°10'43
direct	13524 Feb 23 18:53	23°II56'02		minimum elong	13529 Jun 18 18:25	7°0023'40	0°11'45
evening set	13524 May 23 01:06	25°II50'51		behind sun begin	13529 Jun 18 13:51	7°0023'15	
				behind sun end	13529 Jun 18 22:59	7°0024'04	
conjunction	13524 Jun 07 15:04	26°II25'40	-0°03'50	max. Earth dist.	13529 Jun 18 08:22	7°0022'44	31.19306 AU
minimum elong	13524 Jun 07 15:04	26°II25'40	0°04'52	morning rise	13529 Jul 04 06:25	7°0058'24	
behind sun begin	13524 Jun 07 08:47	26°II25'06		retrograde	13529 Sep 30 04:13	9°0052'29	
behind sun end	13524 Jun 07 21:21	26°II26'13		opposition	13529 Dec 18 07:45	8°0029'46	-0°12'12
max. Earth dist.	13524 Jun 07 03:28	26°II24'35	31.23760 AU	min. Earth dist.	13529 Dec 18 17:27	8°0029'06	29.18733 AU
morning rise	13524 Jun 23 03:49	27°II00'22		direct	13530 Mar 08 16:54	7°0005'43	
retrograde	13524 Sep 18 23:30	28°II53'58		evening set	13530 Jun 05 15:42	9°0000'31	
opposition	13524 Dec 06 19:19	27°II31'25	-0°04'50				
min. Earth dist.	13524 Dec 07 05:29	27°II30'44	29.23453 AU	conjunction	13530 Jun 21 04:39	9°0035'20	-0°12'03
direct	13525 Feb 25 06:08	26°II07'21		minimum elong	13530 Jun 21 04:39	9°0035'20	0°13'07
evening set	13525 May 25 11:20	28°II02'12		behind sun begin	13530 Jun 21 00:45	9°0034'59	
				behind sun end	13530 Jun 21 08:32	9°0035'41	
conjunction	13525 Jun 10 01:17	28°II37'01	-0°05'14	max. Earth dist.	13530 Jun 20 19:23	9°0034'28	31.18147 AU
minimum elong	13525 Jun 10 01:16	28°II37'00	0°06'15	morning rise	13530 Jul 06 16:33	10°0010'04	
behind sun begin	13525 Jun 09 19:10	28°II36'28		retrograde	13530 Oct 02 14:48	12°0004'13	

opposition	13530 Dec 20 19:53	10°  41'26	-0°13'37	evening set	13537 Jun 20 16:21	24°  23'20	
min. Earth dist.	13530 Dec 21 04:11	10°  40'51	29.17568 AU				
direct	13531 Mar 11 04:16	9°  17'20		conjunction	13537 Jul 06 04:13	24°  58'10	-0°20'52
evening set	13531 Jun 08 02:06	11°  12'08		minimum elong	13537 Jul 06 04:13	24°  58'10	0°21'51
				max. Earth dist.	13537 Jul 05 23:09	24°  57'41	31.11733 AU
conjunction	13531 Jun 23 14:44	11°  46'56	-0°13'23	morning rise	13537 Jul 21 15:41	25°  32'58	
minimum elong	13531 Jun 23 14:44	11°  46'56	0°14'25	retrograde	13537 Oct 18 02:20	27°  27'53	
behind sun begin	13531 Jun 23 11:44	11°  46'40		opposition	13538 Jan 05 10:33	26°  04'51	-0°22'58
behind sun end	13531 Jun 23 17:45	11°  47'12		min. Earth dist.	13538 Jan 05 14:30	26°  04'35	29.11298 AU
max. Earth dist.	13531 Jun 23 05:33	11°  46'05	31.16999 AU	direct	13538 Mar 26 14:20	24°  40'56	
morning rise	13531 Jul 09 02:35	12°  21'41		evening set	13538 Jun 23 03:01	26°  35'46	
retrograde	13531 Oct 05 02:22	14°  15'55					
opposition	13531 Dec 23 08:10	12°  53'03	-0°15'02	conjunction	13538 Jul 08 14:46	27°  10'36	-0°22'01
min. Earth dist.	13531 Dec 23 16:27	12°  52'29	29.16469 AU	minimum elong	13538 Jul 08 14:46	27°  10'36	0°23'01
direct	13532 Mar 12 14:04	11°  28'57		max. Earth dist.	13538 Jul 08 09:57	27°  10'10	31.10826 AU
evening set	13532 Jun 09 12:22	13°  23'43		morning rise	13538 Jul 24 02:12	27°  45'26	
				retrograde	13538 Oct 20 12:57	29°  40'29	
conjunction	13532 Jun 25 00:59	13°  58'31	-0°14'41	opposition	13539 Jan 07 23:22	28°  17'25	-0°24'11
minimum elong	13532 Jun 25 00:59	13°  58'31	0°15'44	min. Earth dist.	13539 Jan 08 04:04	28°  17'06	29.10345 AU
behind sun begin	13532 Jun 24 23:28	13°  58'23		direct	13539 Mar 29 01:16	26°  53'31	
behind sun end	13532 Jun 25 02:30	13°  58'39		evening set	13539 Jun 25 13:39	28°  48'21	
max. Earth dist.	13532 Jun 24 17:27	13°  57'50	31.15947 AU				
morning rise	13532 Jul 10 12:37	14°  33'17		conjunction	13539 Jul 11 01:21	29°  23'12	-0°23'09
retrograde	13532 Oct 06 13:36	16°  27'36		minimum elong	13539 Jul 11 01:21	29°  23'12	0°24'06
opposition	13532 Dec 24 20:26	15°  04'41	-0°16'25	max. Earth dist.	13539 Jul 10 21:11	29°  22'49	31.09814 AU
min. Earth dist.	13532 Dec 25 03:31	15°  04'12	29.15466 AU	morning rise	13539 Jul 26 12:41	29°  58'03	
direct	13533 Mar 15 03:07	13°  40'35			13539 Jul 27 09:58	0°  00	
evening set	13533 Jun 11 22:41	15°  35'21		retrograde	13539 Oct 23 00:21	1°  53'13	
				opposition	13540 Jan 10 12:07	0°  30'07	-0°25'22
conjunction	13533 Jun 27 11:00	16°  10'09	-0°15'58	min. Earth dist.	13540 Jan 10 15:38	0°  29'53	29.09260 AU
minimum elong	13533 Jun 27 11:00	16°  10'09	0°16'59		13540 Jan 29 07:15	30°  00	
max. Earth dist.	13533 Jun 27 03:09	16°  09'26	31.15002 AU	direct	13540 Mar 30 13:15	29°  06'13	
morning rise	13533 Jul 12 22:44	16°  44'55			13540 May 27 15:38	0°  00	
retrograde	13533 Oct 09 03:05	18°  39'21		evening set	13540 Jun 27 00:26	1°  01'03	
opposition	13533 Dec 27 08:44	17°  16'24	-0°17'47				
min. Earth dist.	13533 Dec 27 15:03	17°  15'58	29.14574 AU	conjunction	13540 Jul 12 11:57	1°  35'55	-0°24'14
direct	13534 Mar 17 13:46	15°  52'19		minimum elong	13540 Jul 12 11:57	1°  35'55	0°25'11
evening set	13534 Jun 14 08:58	17°  47'06		max. Earth dist.	13540 Jul 12 07:21	1°  35'29	31.08662 AU
				morning rise	13540 Jul 27 23:23	2°  10'46	
conjunction	13534 Jun 29 21:19	18°  21'54	-0°17'14	retrograde	13540 Oct 24 12:34	4°  06'03	
minimum elong	13534 Jun 29 21:19	18°  21'54	0°18'15	opposition	13541 Jan 12 01:00	2°  42'53	-0°26'31
max. Earth dist.	13534 Jun 29 15:11	18°  21'20	31.14145 AU	min. Earth dist.	13541 Jan 12 04:56	2°  42'37	29.08054 AU
morning rise	13534 Jul 15 08:49	18°  56'41		direct	13541 Apr 01 23:27	1°  18'59	
retrograde	13534 Oct 11 13:28	20°  51'13		evening set	13541 Jun 29 10:59	3°  13'48	
opposition	13534 Dec 29 21:01	19°  28'15	-0°19'07				
min. Earth dist.	13534 Dec 30 03:07	19°  27'50	29.13742 AU	conjunction	13541 Jul 14 22:37	3°  48'40	-0°25'17
direct	13535 Mar 20 01:43	18°  04'12		minimum elong	13541 Jul 14 22:37	3°  48'40	0°26'12
evening set	13535 Jun 16 19:28	19°  59'00		max. Earth dist.	13541 Jul 14 19:16	3°  48'21	31.07398 AU
				morning rise	13541 Jul 30 09:58	4°  23'32	
conjunction	13535 Jul 02 07:32	20°  33'49	-0°18'28	retrograde	13541 Oct 26 23:54	6°  18'55	
minimum elong	13535 Jul 02 07:32	20°  33'49	0°19'28	opposition	13542 Jan 14 13:45	4°  55'40	-0°27'37
max. Earth dist.	13535 Jul 02 01:07	20°  33'13	31.13346 AU	min. Earth dist.	13542 Jan 14 16:56	4°  55'27	29.06731 AU
morning rise	13535 Jul 17 19:07	21°  08'35		direct	13542 Apr 04 12:29	3°  31'45	
retrograde	13535 Oct 14 02:48	23°  03'15		evening set	13542 Jul 01 21:42	5°  26'32	
opposition	13536 Jan 01 09:28	21°  40'16	-0°20'26				
min. Earth dist.	13536 Jan 01 14:21	21°  39'56	29.12956 AU	conjunction	13542 Jul 17 09:07	6°  01'24	-0°26'18
direct	13536 Mar 21 13:54	20°  16'16		minimum elong	13542 Jul 17 09:07	6°  01'24	0°27'13
evening set	13536 Jun 18 05:47	22°  11'04		max. Earth dist.	13542 Jul 17 05:07	6°  01'02	31.06047 AU
				morning rise	13542 Aug 01 20:39	6°  36'17	
conjunction	13536 Jul 03 17:49	22°  45'54	-0°19'41	retrograde	13542 Oct 29 13:19	8°  31'46	
minimum elong	13536 Jul 03 17:49	22°  45'54	0°20'42	opposition	13543 Jan 17 02:27	7°  08'26	-0°28'41
max. Earth dist.	13536 Jul 03 12:44	22°  45'25	31.12551 AU	min. Earth dist.	13543 Jan 17 05:08	7°  08'15	29.05374 AU
morning rise	13536 Jul 19 05:14	23°  20'41		direct	13543 Apr 06 23:07	5°  44'28	
retrograde	13536 Oct 15 14:16	25°  15'29		evening set	13543 Jul 04 08:13	7°  39'15	
opposition	13537 Jan 02 22:08	23°  52'28	-0°21'43				
min. Earth dist.	13537 Jan 03 03:27	23° 52'06	29.12152 AU	conjunction	13543 Jul 19 19:44	8° 14'07	-0°27'17
direct	13537 Mar 24 02:15	22° 28'31		minimum elong	13543 Jul 19 19:44	8° 14'07	0°28'09

max. Earth dist.	13543 Jul 19 17:28	8°♏13'55	31.04692 AU	retrograde	13549 Nov 14 02:28	24°♏03'35	
morning rise	13543 Aug 04 07:08	8°♏49'01		opposition	13550 Feb 01 20:45	22°♏39'56	-0°34'53
retrograde	13543 Nov 01 00:13	10°♏44'36		min. Earth dist.	13550 Feb 01 18:53	22°♏40'04	28.98030 AU
opposition	13544 Jan 19 15:21	9°♏21'11	-0°29'42	direct	13550 Apr 22 10:46	21°♏16'07	
min. Earth dist.	13544 Jan 19 17:38	9°♏21'01	29.04042 AU	evening set	13550 Jul 19 10:48	23°♏10'55	
direct	13544 Apr 08 11:19	7°♏57'12					
evening set	13544 Jul 05 18:45	9°♏51'58		conjunction	13550 Aug 03 22:18	23°♏45'52	-0°32'55
				minimum elong	13550 Aug 03 22:18	23°♏45'52	0°33'38
conjunction	13544 Jul 21 06:05	10°♏26'50	-0°28'13	max. Earth dist.	13550 Aug 04 01:03	23°♏46'08	30.97574 AU
minimum elong	13544 Jul 21 06:05	10°♏26'50	0°29'05	morning rise	13550 Aug 19 10:16	24°♏20'55	
max. Earth dist.	13544 Jul 21 03:46	10°♏26'37	31.03408 AU	retrograde	13550 Nov 16 13:31	26°♏17'22	
morning rise	13544 Aug 05 17:41	11°♏01'45		opposition	13551 Feb 04 09:45	24°♏53'42	-0°35'34
retrograde	13544 Nov 02 14:12	12°♏57'26		min. Earth dist.	13551 Feb 04 07:05	24°♏53'53	28.97123 AU
opposition	13545 Jan 21 04:09	11°♏33'57	-0°30'41	direct	13551 Apr 24 23:10	23°♏29'54	
min. Earth dist.	13545 Jan 21 05:00	11°♏33'53	29.02813 AU	evening set	13551 Jul 21 21:54	25°♏24'41	
direct	13545 Apr 10 23:57	10°♏09'58					
evening set	13545 Jul 08 05:18	12°♏04'43		conjunction	13551 Aug 06 09:15	25°♏59'40	-0°33'32
				minimum elong	13551 Aug 06 09:16	25°♏59'40	0°34'12
conjunction	13545 Jul 23 16:43	12°♏39'37	-0°29'06	max. Earth dist.	13551 Aug 06 11:16	25°♏59'51	30.96639 AU
minimum elong	13545 Jul 23 16:43	12°♏39'37	0°29'56	morning rise	13551 Aug 21 21:30	26°♏34'44	
max. Earth dist.	13545 Jul 23 15:53	12°♏39'32	31.02225 AU	retrograde	13551 Nov 19 03:16	28°♏31'18	
morning rise	13545 Aug 08 04:16	13°♏14'32		opposition	13552 Feb 06 22:59	27°♏07'35	-0°36'12
	13545 Oct 11 02:31	15°♏		min. Earth dist.	13552 Feb 06 19:59	27°♏07'47	28.96155 AU
retrograde	13545 Nov 05 02:21	15°♏10'20		direct	13552 Apr 26 09:00	25°♏43'47	
	13545 Nov 30 09:44	15°♏♏		evening set	13552 Jul 23 08:47	27°♏38'34	
opposition	13546 Jan 23 16:55	13°♏46'48	-0°31'37				
min. Earth dist.	13546 Jan 23 17:53	13°♏46'44	29.01692 AU	conjunction	13552 Aug 07 20:22	28°♏13'34	-0°34'06
direct	13546 Apr 13 12:29	12°♏22'50		minimum elong	13552 Aug 07 20:23	28°♏13'34	0°34'45
evening set	13546 Jul 10 15:56	14°♏17'36		max. Earth dist.	13552 Aug 07 23:43	28°♏13'53	30.95612 AU
				morning rise	13552 Aug 23 08:36	28°♏48'38	
conjunction	13546 Jul 26 03:19	14°♏52'30	-0°29'57		13552 Sep 28 13:21	0°♏	
minimum elong	13546 Jul 26 03:19	14°♏52'30	0°30'47	retrograde	13552 Nov 20 14:56	0°♏45'20	
max. Earth dist.	13546 Jul 26 02:54	14°♏52'28	31.01169 AU		13553 Jan 15 05:12	30°♏♏	
	13546 Jul 29 10:25	15°♏		opposition	13553 Feb 08 12:14	29°♏21'32	-0°36'47
morning rise	13546 Aug 10 15:00	15°♏27'27		min. Earth dist.	13553 Feb 08 09:13	29°♏21'44	28.95070 AU
retrograde	13546 Nov 07 14:51	17°♏23'22		direct	13553 Apr 28 21:36	27°♏57'44	
opposition	13547 Jan 26 05:43	15°♏59'48	-0°32'30	evening set	13553 Jul 25 19:58	29°♏52'29	
min. Earth dist.	13547 Jan 26 04:50	15°♏59'52	29.00683 AU		13553 Jul 29 04:51	0°♏	
	13547 Mar 07 16:06	15°♏♏					
direct	13547 Apr 16 00:48	14°♏35'52		conjunction	13553 Aug 10 07:31	0°♏27'29	-0°34'38
	13547 May 24 03:17	15°♏		minimum elong	13553 Aug 10 07:31	0°♏27'29	0°35'14
evening set	13547 Jul 13 02:31	16°♏30'38		max. Earth dist.	13553 Aug 10 10:14	0°♏27'44	30.94485 AU
				morning rise	13553 Aug 25 20:03	1°♏02'35	
conjunction	13547 Jul 28 13:51	17°♏05'33	-0°30'46	retrograde	13553 Nov 23 05:23	2°♏59'20	
minimum elong	13547 Jul 28 13:51	17°♏05'33	0°31'33	opposition	13554 Feb 11 01:15	1°♏35'28	-0°37'18
max. Earth dist.	13547 Jul 28 14:10	17°♏05'35	31.00199 AU	min. Earth dist.	13554 Feb 10 21:23	1°♏35'44	28.93896 AU
morning rise	13547 Aug 13 01:36	17°♏40'32		direct	13554 May 01 10:00	0°♏11'37	
retrograde	13547 Nov 10 01:58	19°♏36'35		evening set	13554 Jul 28 07:01	2°♏06'21	
opposition	13548 Jan 28 18:47	18°♏12'59	-0°33'21				
min. Earth dist.	13548 Jan 28 18:10	18°♏13'02	28.99759 AU	conjunction	13554 Aug 12 18:45	2°♏41'21	-0°35'06
direct	13548 Apr 17 12:14	16°♏49'06		minimum elong	13554 Aug 12 18:45	2°♏41'21	0°35'41
evening set	13548 Jul 14 13:11	18°♏43'52		max. Earth dist.	13554 Aug 12 22:31	2°♏41'43	30.93269 AU
				morning rise	13554 Aug 28 07:20	3°♏16'28	
conjunction	13548 Jul 30 00:36	19°♏18'48	-0°31'32	retrograde	13554 Nov 25 17:28	5°♏13'18	
minimum elong	13548 Jul 30 00:37	19°♏18'48	0°32'18	opposition	13555 Feb 13 14:30	3°♏49'19	-0°37'47
max. Earth dist.	13548 Jul 30 02:04	19°♏18'56	30.99313 AU	min. Earth dist.	13555 Feb 13 11:04	3°♏49'33	28.92664 AU
morning rise	13548 Aug 14 12:24	19°♏53'48		direct	13555 May 03 22:34	2°♏25'27	
retrograde	13548 Nov 11 14:18	21°♏49'59		evening set	13555 Jul 30 17:55	4°♏20'07	
opposition	13549 Jan 30 07:39	20°♏26'22	-0°34'08				
min. Earth dist.	13549 Jan 30 05:32	20°♏26'30	28.98888 AU	conjunction	13555 Aug 15 05:43	4°♏55'08	-0°35'31
direct	13549 Apr 20 00:27	19°♏02'30		minimum elong	13555 Aug 15 05:43	4°♏55'08	0°36'03
evening set	13549 Jul 16 23:59	20°♏57'17		max. Earth dist.	13555 Aug 15 09:49	4°♏55'31	30.92047 AU
				morning rise	13555 Aug 30 18:32	5°♏30'16	
conjunction	13549 Aug 01 11:20	21°♏32'14	-0°32'15	retrograde	13555 Nov 28 06:45	7°♏27'10	
minimum elong	13549 Aug 01 11:20	21°♏32'14	0°32'59	opposition	13556 Feb 16 03:36	6°♏03'04	-0°38'12
max. Earth dist.	13549 Aug 01 12:40	21°♏32'22	30.98450 AU	min. Earth dist.	13556 Feb 15 22:29	6°♏03'26	28.91460 AU
morning rise	13549 Aug 16 23:22	22°♏07'16		direct	13556 May 05 11:33	4°♏39'09	

evening set	13556 Aug 01 04:58	6° \mathring{M} 33'47	opposition	13563 Mar 03 23:18	21° \mathring{M} 41'16	-0°39'29
			min. Earth dist.	13563 Mar 03 13:50	21° \mathring{M} 41'55	28.86152 AU
conjunction	13556 Aug 16 16:50	7° \mathring{M} 08'49 -0°35'53	direct	13563 May 21 21:01	20° \mathring{M} 17'31	
minimum elong	13556 Aug 16 16:50	7° \mathring{M} 08'49 0°36'24	evening set	13563 Aug 17 11:01	22° \mathring{M} 12'10	
max. Earth dist.	13556 Aug 16 21:32	7° \mathring{M} 09'16 30.90872 AU				
morning rise	13556 Sep 01 05:50	7° \mathring{M} 43'59	conjunction	13563 Sep 01 23:59	22° \mathring{M} 47'20	-0°36'54
retrograde	13556 Nov 29 18:58	9° \mathring{M} 40'57	minimum elong	13563 Sep 01 23:59	22° \mathring{M} 47'20	0°37'08
opposition	13557 Feb 17 16:41	8° \mathring{M} 16'46 -0°38'33	max. Earth dist.	13563 Sep 02 09:41	22° \mathring{M} 48'16	30.85866 AU
min. Earth dist.	13557 Feb 17 11:52	8° \mathring{M} 17'06 28.90347 AU	morning rise	13563 Sep 17 14:28	23° \mathring{M} 22'41	
direct	13557 May 07 23:50	6° \mathring{M} 52'50	retrograde	13563 Dec 16 12:24	25° \mathring{M} 20'25	
evening set	13557 Aug 03 15:53	8° \mathring{M} 47'26	opposition	13564 Mar 05 12:42	23° \mathring{M} 56'05	-0°39'26
			min. Earth dist.	13564 Mar 05 03:47	23° \mathring{M} 56'42	28.85606 AU
conjunction	13557 Aug 19 03:58	9° \mathring{M} 22'29 -0°36'11	direct	13564 May 23 08:36	22° \mathring{M} 32'24	
minimum elong	13557 Aug 19 03:58	9° \mathring{M} 22'29 0°36'39	evening set	13564 Aug 18 22:38	24° \mathring{M} 27'03	
max. Earth dist.	13557 Aug 19 09:53	9° \mathring{M} 23'02 30.89823 AU				
morning rise	13557 Sep 03 17:07	9° \mathring{M} 57'39	conjunction	13564 Sep 03 11:47	25° \mathring{M} 02'15	-0°36'49
retrograde	13557 Dec 02 07:50	11° \mathring{M} 54'42	minimum elong	13564 Sep 03 11:47	25° \mathring{M} 02'15	0°37'02
opposition	13558 Feb 20 05:39	10° \mathring{M} 30'28 -0°38'51	max. Earth dist.	13564 Sep 03 21:22	25° \mathring{M} 03'09	30.85295 AU
min. Earth dist.	13558 Feb 19 23:06	10° \mathring{M} 30'55 28.89358 AU	morning rise	13564 Sep 19 02:34	25° \mathring{M} 37'36	
direct	13558 May 10 13:05	9° \mathring{M} 06'31	retrograde	13564 Dec 18 03:08	27° \mathring{M} 35'26	
evening set	13558 Aug 06 02:59	11° \mathring{M} 01'06	opposition	13565 Mar 08 01:51	26° \mathring{M} 11'05	-0°39'19
			min. Earth dist.	13565 Mar 07 15:47	26° \mathring{M} 11'47	28.84990 AU
conjunction	13558 Aug 21 15:02	11° \mathring{M} 36'11 -0°36'27	direct	13565 May 25 21:17	24° \mathring{M} 47'24	
minimum elong	13558 Aug 21 15:02	11° \mathring{M} 36'11 0°36'53	evening set	13565 Aug 21 10:20	26° \mathring{M} 42'04	
max. Earth dist.	13558 Aug 21 21:01	11° \mathring{M} 36'45 30.88899 AU				
morning rise	13558 Sep 06 04:28	12° \mathring{M} 11'23	conjunction	13565 Sep 05 23:40	27° \mathring{M} 17'17	-0°36'41
retrograde	13558 Dec 04 19:46	14° \mathring{M} 08'32	minimum elong	13565 Sep 05 23:40	27° \mathring{M} 17'17	0°36'51
opposition	13559 Feb 22 18:47	12° \mathring{M} 44'15 -0°39'06	max. Earth dist.	13565 Sep 06 09:13	27° \mathring{M} 18'11	30.84620 AU
min. Earth dist.	13559 Feb 22 12:14	12° \mathring{M} 44'42 28.88514 AU	morning rise	13565 Sep 21 14:44	27° \mathring{M} 52'40	
direct	13559 May 12 23:43	11° \mathring{M} 20'20	retrograde	13565 Dec 20 16:57	29° \mathring{M} 50'34	
evening set	13559 Aug 08 13:57	13° \mathring{M} 14'54	opposition	13566 Mar 10 15:14	28° \mathring{M} 26'10	-0°39'08
			min. Earth dist.	13566 Mar 10 06:01	28° \mathring{M} 26'48	28.84269 AU
conjunction	13559 Aug 24 02:19	13° \mathring{M} 49'59 -0°36'39	direct	13566 May 28 10:21	27° \mathring{M} 02'29	
minimum elong	13559 Aug 24 02:19	13° \mathring{M} 49'59 0°37'02	evening set	13566 Aug 23 21:53	28° \mathring{M} 57'06	
max. Earth dist.	13559 Aug 24 10:04	13° \mathring{M} 50'43 30.88125 AU				
morning rise	13559 Sep 08 15:49	14° \mathring{M} 25'13	conjunction	13566 Sep 08 11:31	29° \mathring{M} 32'21	-0°36'30
retrograde	13559 Dec 07 07:04	16° \mathring{M} 22'28	minimum elong	13566 Sep 08 11:32	29° \mathring{M} 32'21	0°36'37
opposition	13560 Feb 25 07:52	14° \mathring{M} 58'10 -0°39'17	max. Earth dist.	13566 Sep 08 21:42	29° \mathring{M} 33'18	30.83861 AU
min. Earth dist.	13560 Feb 25 00:05	14° \mathring{M} 58'42 28.87799 AU		13566 Sep 20 15:32	0° \mathring{A}	
direct	13560 May 14 12:03	13° \mathring{M} 34'18	morning rise	13566 Sep 24 02:47	0° \mathring{A} 07'45	
evening set	13560 Aug 10 01:04	15° \mathring{M} 28'52	retrograde	13566 Dec 23 06:55	2° \mathring{A} 05'42	
			opposition	13567 Mar 13 04:25	0° \mathring{A} 41'14	-0°38'54
conjunction	13560 Aug 25 13:27	16° \mathring{M} 03'59 -0°36'48	min. Earth dist.	13567 Mar 12 17:59	0° \mathring{A} 41'57	28.83468 AU
minimum elong	13560 Aug 25 13:27	16° \mathring{M} 03'59 0°37'10		13567 Apr 08 03:29	30° \mathring{R} \mathring{M}	
max. Earth dist.	13560 Aug 25 20:50	16° \mathring{M} 04'41 30.87474 AU	direct	13567 May 31 00:35	29° \mathring{M} 17'31	
morning rise	13560 Sep 10 03:22	16° \mathring{M} 39'14		13567 Jul 20 15:09	0° \mathring{A}	
retrograde	13560 Dec 08 20:54	18° \mathring{M} 36'37	evening set	13567 Aug 26 09:35	1° \mathring{A} 12'06	
opposition	13561 Feb 26 21:02	17° \mathring{M} 12'18 -0°39'25				
min. Earth dist.	13561 Feb 26 12:43	17° \mathring{M} 12'52 28.87201 AU	conjunction	13567 Sep 10 23:19	1° \mathring{A} 47'21	-0°36'15
direct	13561 May 16 21:36	15° \mathring{M} 48'28	minimum elong	13567 Sep 10 23:19	1° \mathring{A} 47'21	0°36'19
evening set	13561 Aug 12 12:15	17° \mathring{M} 43'03	max. Earth dist.	13567 Sep 11 09:09	1° \mathring{A} 48'17	30.83046 AU
			morning rise	13567 Sep 26 14:59	2° \mathring{A} 22'48	
conjunction	13561 Aug 28 00:57	18° \mathring{M} 18'11 -0°36'53	retrograde	13567 Dec 25 18:59	4° \mathring{A} 20'46	
minimum elong	13561 Aug 28 00:57	18° \mathring{M} 18'11 0°37'12	opposition	13568 Mar 14 17:42	2° \mathring{A} 56'13	-0°38'36
max. Earth dist.	13561 Aug 28 09:56	18° \mathring{M} 19'02 30.86908 AU	min. Earth dist.	13568 Mar 14 07:46	2° \mathring{A} 56'55	28.82665 AU
morning rise	13561 Sep 12 14:55	18° \mathring{M} 53'28	direct	13568 Jun 01 11:57	1° \mathring{A} 32'29	
retrograde	13561 Dec 11 08:45	20° \mathring{M} 50'58	evening set	13568 Aug 27 21:03	3° \mathring{A} 27'00	
opposition	13562 Mar 01 10:04	19° \mathring{M} 26'39 -0°39'29				
min. Earth dist.	13562 Mar 01 01:31	19° \mathring{M} 27'15 28.86659 AU	conjunction	13568 Sep 12 11:12	4° \mathring{A} 02'17	-0°35'57
direct	13562 May 19 09:40	18° \mathring{M} 02'53	minimum elong	13568 Sep 12 11:13	4° \mathring{A} 02'17	0°35'59
evening set	13562 Aug 14 23:41	19° \mathring{M} 57'30	max. Earth dist.	13568 Sep 12 22:31	4° \mathring{A} 03'21	30.82258 AU
			morning rise	13568 Sep 28 03:02	4° \mathring{A} 37'44	
conjunction	13562 Aug 30 12:25	20° \mathring{M} 32'39 -0°36'55	retrograde	13568 Dec 27 06:49	6° \mathring{A} 35'44	
minimum elong	13562 Aug 30 12:25	20° \mathring{M} 32'39 0°37'13	opposition	13569 Mar 17 06:47	5° \mathring{A} 11'07	-0°38'15
max. Earth dist.	13562 Aug 30 21:02	20° \mathring{M} 33'28 30.86393 AU	min. Earth dist.	13569 Mar 16 19:51	5° \mathring{A} 11'53	28.81902 AU
morning rise	13562 Sep 15 02:45	21° \mathring{M} 07'57	direct	13569 Jun 04 01:40	3° \mathring{A} 47'21	
retrograde	13562 Dec 13 23:45	23° \mathring{M} 05'34	evening set	13569 Aug 30 08:48	5° \mathring{A} 41'50	

conjunction	13569 Sep 14 23:00	6° <u>♂</u> 17'07	-0°35'36	direct	13576 Jun 19 12:39	19° <u>♂</u> 32'06	
minimum elong	13569 Sep 14 23:01	6° <u>♂</u> 17'07	0°35'35	evening set	13576 Sep 14 19:39	21° <u>♂</u> 26'31	
max. Earth dist.	13569 Sep 15 09:44	6° <u>♂</u> 18'08	30.81541 AU				
morning rise	13569 Sep 30 15:16	6° <u>♂</u> 52'36		conjunction	13576 Sep 30 11:47	22° <u>♂</u> 01'57	-0°31'37
retrograde	13569 Dec 29 20:22	8° <u>♂</u> 50'38		minimum elong	13576 Sep 30 11:47	22° <u>♂</u> 01'57	0°31'20
opposition	13570 Mar 19 19:46	7° <u>♂</u> 25'57	-0°37'50	max. Earth dist.	13576 Oct 01 01:32	22° <u>♂</u> 03'15	30.79619 AU
min. Earth dist.	13570 Mar 19 08:31	7° <u>♂</u> 26'44	28.81249 AU	morning rise	13576 Oct 16 06:12	22° <u>♂</u> 37'36	
direct	13570 Jun 06 12:22	6° <u>♂</u> 02'09		retrograde	13577 Jan 14 17:10	24° <u>♂</u> 35'59	
evening set	13570 Sep 01 20:24	7° <u>♂</u> 56'36		opposition	13577 Apr 04 15:04	23° <u>♂</u> 11'12	-0°33'22
				min. Earth dist.	13577 Apr 04 01:52	23° <u>♂</u> 12'07	28.79556 AU
conjunction	13570 Sep 17 11:00	8° <u>♂</u> 31'54	-0°35'11	direct	13577 Jun 22 00:06	21° <u>♂</u> 47'32	
minimum elong	13570 Sep 17 11:00	8° <u>♂</u> 31'54	0°35'09	evening set	13577 Sep 17 07:52	23° <u>♂</u> 41'57	
max. Earth dist.	13570 Sep 17 23:21	8° <u>♂</u> 33'04	30.80944 AU				
morning rise	13570 Oct 03 03:23	9° <u>♂</u> 07'24		conjunction	13577 Oct 03 00:27	24° <u>♂</u> 17'24	-0°30'51
retrograde	13571 Jan 01 07:11	11° <u>♂</u> 05'29		minimum elong	13577 Oct 03 00:27	24° <u>♂</u> 17'24	0°30'30
opposition	13571 Mar 22 08:53	9° <u>♂</u> 40'45	-0°37'22	max. Earth dist.	13577 Oct 03 15:01	24° <u>♂</u> 18'47	30.79421 AU
min. Earth dist.	13571 Mar 21 21:07	9° <u>♂</u> 41'34	28.80716 AU	morning rise	13577 Oct 18 19:00	24° <u>♂</u> 53'05	
direct	13571 Jun 09 01:09	8° <u>♂</u> 16'57		retrograde	13578 Jan 17 06:38	26° <u>♂</u> 51'28	
evening set	13571 Sep 04 08:02	10° <u>♂</u> 11'21		opposition	13578 Apr 07 04:01	25° <u>♂</u> 26'41	-0°32'31
				min. Earth dist.	13578 Apr 06 14:20	25° <u>♂</u> 27'38	28.79299 AU
conjunction	13571 Sep 19 22:46	10° <u>♂</u> 46'40	-0°34'44	direct	13578 Jun 24 14:14	24° <u>♂</u> 03'01	
minimum elong	13571 Sep 19 22:46	10° <u>♂</u> 46'40	0°34'38	evening set	13578 Sep 19 20:16	25° <u>♂</u> 57'25	
max. Earth dist.	13571 Sep 20 10:51	10° <u>♂</u> 47'49	30.80491 AU				
morning rise	13571 Oct 05 15:36	11° <u>♂</u> 22'12		conjunction	13578 Oct 05 12:59	26° <u>♂</u> 32'54	-0°30'02
retrograde	13572 Jan 03 20:45	13° <u>♂</u> 20'19		minimum elong	13578 Oct 05 13:00	26° <u>♂</u> 32'54	0°29'40
opposition	13572 Mar 23 21:55	11° <u>♂</u> 55'33	-0°36'51	max. Earth dist.	13578 Oct 06 02:22	26° <u>♂</u> 34'10	30.79121 AU
min. Earth dist.	13572 Mar 23 09:07	11° <u>♂</u> 56'26	28.80334 AU	morning rise	13578 Oct 21 08:03	27° <u>♂</u> 08'36	
direct	13572 Jun 10 11:51	10° <u>♂</u> 31'45		retrograde	13579 Jan 19 20:40	29° <u>♂</u> 07'00	
evening set	13572 Sep 05 19:45	12° <u>♂</u> 26'09		opposition	13579 Apr 09 17:07	27° <u>♂</u> 42'11	-0°31'36
				min. Earth dist.	13579 Apr 09 03:45	27° <u>♂</u> 43'06	28.78961 AU
conjunction	13572 Sep 21 10:51	13° <u>♂</u> 01'30	-0°34'13	direct	13579 Jun 27 01:42	26° <u>♂</u> 18'29	
minimum elong	13572 Sep 21 10:52	13° <u>♂</u> 01'30	0°34'05	evening set	13579 Sep 22 08:22	28° <u>♂</u> 12'51	
max. Earth dist.	13572 Sep 22 00:12	13° <u>♂</u> 02'45	30.80164 AU				
morning rise	13572 Oct 07 03:54	13° <u>♂</u> 37'02		conjunction	13579 Oct 08 01:35	28° <u>♂</u> 48'21	-0°29'10
retrograde	13573 Jan 05 08:47	15° <u>♂</u> 35'13		minimum elong	13579 Oct 08 01:35	28° <u>♂</u> 48'21	0°28'45
opposition	13573 Mar 26 10:52	14° <u>♂</u> 10'25	-0°36'16	max. Earth dist.	13579 Oct 08 16:02	28° <u>♂</u> 49'43	30.78747 AU
min. Earth dist.	13573 Mar 25 22:26	14° <u>♂</u> 11'17	28.80069 AU	morning rise	13579 Oct 23 20:50	29° <u>♂</u> 24'05	
direct	13573 Jun 12 22:43	12° <u>♂</u> 46'38			13579 Nov 09 17:38	0° <u>♂</u>	
evening set	13573 Sep 08 07:36	14° <u>♂</u> 41'02		retrograde	13580 Jan 22 07:45	1° <u>♂</u> 22'28	
					13580 Apr 09 19:42	30° <u>♂</u>	
conjunction	13573 Sep 23 22:58	15° <u>♂</u> 16'24	-0°33'39	opposition	13580 Apr 11 06:04	29° <u>♂</u> 57'36	-0°30'40
minimum elong	13573 Sep 23 22:59	15° <u>♂</u> 16'24	0°33'28	min. Earth dist.	13580 Apr 10 16:43	29° <u>♂</u> 58'32	28.78561 AU
max. Earth dist.	13573 Sep 24 12:23	15° <u>♂</u> 17'40	30.79963 AU	direct	13580 Jun 28 15:01	28° <u>♂</u> 33'53	
morning rise	13573 Oct 09 16:23	15° <u>♂</u> 51'58			13580 Sep 10 17:27	0° <u>♂</u>	
retrograde	13574 Jan 07 23:24	17° <u>♂</u> 50'11		evening set	13580 Sep 23 20:43	0° <u>♂</u> 28'13	
opposition	13574 Mar 28 23:49	16° <u>♂</u> 25'24	-0°35'37				
min. Earth dist.	13574 Mar 28 10:03	16° <u>♂</u> 26'21	28.79908 AU	conjunction	13580 Oct 09 14:08	1° <u>♂</u> 03'43	-0°28'15
direct	13574 Jun 15 11:07	15° <u>♂</u> 01'39		minimum elong	13580 Oct 09 14:08	1° <u>♂</u> 03'43	0°27'49
evening set	13574 Sep 10 19:26	16° <u>♂</u> 56'03		max. Earth dist.	13580 Oct 10 03:44	1° <u>♂</u> 05'01	30.78355 AU
				morning rise	13580 Oct 25 09:53	1° <u>♂</u> 39'28	
conjunction	13574 Sep 26 11:01	17° <u>♂</u> 31'26	-0°33'01	retrograde	13581 Jan 23 21:01	3° <u>♂</u> 37'51	
minimum elong	13574 Sep 26 11:02	17° <u>♂</u> 31'26	0°32'49	opposition	13581 Apr 13 18:45	2° <u>♂</u> 12'56	-0°29'40
max. Earth dist.	13574 Sep 27 00:48	17° <u>♂</u> 32'44	30.79828 AU	min. Earth dist.	13581 Apr 13 04:55	2° <u>♂</u> 13'54	28.78185 AU
morning rise	13574 Oct 12 04:45	18° <u>♂</u> 07'01		direct	13581 Jul 01 01:58	0° <u>♂</u> 49'10	
retrograde	13575 Jan 10 13:04	20° <u>♂</u> 05'18		evening set	13581 Sep 26 08:57	2° <u>♂</u> 43'28	
opposition	13575 Mar 31 12:58	18° <u>♂</u> 40'31	-0°34'55				
min. Earth dist.	13575 Mar 30 23:54	18° <u>♂</u> 41'25	28.79802 AU	conjunction	13581 Oct 12 02:46	3° <u>♂</u> 19'00	-0°27'19
direct	13575 Jun 17 23:14	17° <u>♂</u> 16'48		minimum elong	13581 Oct 12 02:46	3° <u>♂</u> 19'00	0°26'50
evening set	13575 Sep 13 07:26	19° <u>♂</u> 11'12		max. Earth dist.	13581 Oct 12 17:22	3° <u>♂</u> 20'23	30.77996 AU
				morning rise	13581 Oct 27 22:43	3° <u>♂</u> 54'46	
conjunction	13575 Sep 28 23:23	19° <u>♂</u> 46'37	-0°32'21	retrograde	13582 Jan 26 08:41	5° <u>♂</u> 53'08	
minimum elong	13575 Sep 28 23:24	19° <u>♂</u> 46'37	0°32'06	opposition	13582 Apr 16 07:33	4° <u>♂</u> 28'10	-0°28'38
max. Earth dist.	13575 Sep 29 13:47	19° <u>♂</u> 47'58	30.79742 AU	min. Earth dist.	13582 Apr 15 18:13	4° <u>♂</u> 29'06	28.77868 AU
morning rise	13575 Oct 14 17:22	20° <u>♂</u> 22'14		direct	13582 Jul 03 12:59	3° <u>♂</u> 04'23	
retrograde	13576 Jan 13 03:29	22° <u>♂</u> 20'34		evening set	13582 Sep 28 21:05	4° <u>♂</u> 58'39	
min. Earth dist.	13576 Apr 01 11:47	20° <u>♂</u> 56'46	28.79706 AU				
opposition	13576 Apr 02 01:55	20° <u>♂</u> 55'47	-0°34'10	conjunction	13582 Oct 14 15:09	5° <u>♂</u> 34'12	-0°26'19

minimum elong	13582 Oct 14 15:10	5° ℳ 34'12	0°25'49	opposition	13589 May 01 23:19	20° ℳ 14'57	-0°20'14
max. Earth dist.	13582 Oct 15 05:43	5° ℳ 35'34	30.77740 AU	min. Earth dist.	13589 May 01 08:38	20° ℳ 15'59	28.79050 AU
morning rise	13582 Oct 30 11:29	6° ℳ 09'59		direct	13589 Jul 19 04:03	18° ℳ 51'13	
retrograde	13583 Jan 28 22:13	8° ℳ 08'20		evening set	13589 Oct 14 12:10	20° ℳ 45'30	
opposition	13583 Apr 18 20:12	6° ℳ 43'21	-0°27'33				
min. Earth dist.	13583 Apr 18 05:37	6° ℳ 44'22	28.77673 AU	conjunction	13589 Oct 30 08:26	21° ℳ 21'10	-0°18'23
direct	13583 Jul 06 01:30	5° ℳ 19'32		minimum elong	13589 Oct 30 08:26	21° ℳ 21'10	0°17'38
evening set	13583 Oct 01 09:21	7° ℳ 13'48		max. Earth dist.	13589 Oct 30 23:28	21° ℳ 22'35	30.79214 AU
				morning rise	13589 Nov 15 07:01	21° ℳ 57'04	
conjunction	13583 Oct 17 03:44	7° ℳ 49'21	-0°25'18	retrograde	13590 Feb 13 21:18	23° ℳ 55'20	
minimum elong	13583 Oct 17 03:44	7° ℳ 49'21	0°24'45	opposition	13590 May 04 11:49	22° ℳ 30'27	-0°18'54
max. Earth dist.	13583 Oct 17 18:40	7° ℳ 50'46	30.77604 AU	min. Earth dist.	13590 May 03 21:03	22° ℳ 31'29	28.79387 AU
morning rise	13583 Nov 02 00:23	8° ℳ 25'09		direct	13590 Jul 21 15:41	21° ℳ 06'41	
retrograde	13584 Jan 31 10:53	10° ℳ 23'30		evening set	13590 Oct 17 00:49	23° ℳ 00'57	
opposition	13584 Apr 20 08:51	8° ℳ 58'30	-0°26'26				
min. Earth dist.	13584 Apr 19 18:56	8° ℳ 59'28	28.77616 AU	conjunction	13590 Nov 01 21:29	23° ℳ 36'39	-0°17'07
direct	13584 Jul 07 13:04	7° ℳ 34'40		minimum elong	13590 Nov 01 21:29	23° ℳ 36'39	0°16'21
evening set	13584 Oct 02 21:34	9° ℳ 28'55		max. Earth dist.	13590 Nov 02 13:03	23° ℳ 38'07	30.79500 AU
				morning rise	13590 Nov 17 20:15	24° ℳ 12'34	
conjunction	13584 Oct 18 16:22	10° ℳ 04'30	-0°24'14	retrograde	13591 Feb 16 08:50	26° ℳ 10'47	
minimum elong	13584 Oct 18 16:23	10° ℳ 04'30	0°23'39	min. Earth dist.	13591 May 06 10:35	24° ℳ 46'51	28.79629 AU
max. Earth dist.	13584 Oct 19 07:54	10° ℳ 05'58	30.77627 AU	opposition	13591 May 07 00:22	24° ℳ 45'53	-0°17'32
morning rise	13584 Nov 03 13:19	10° ℳ 40'19		direct	13591 Jul 24 03:40	23° ℳ 22'06	
retrograde	13585 Feb 02 00:43	12° ℳ 38'39		evening set	13591 Oct 19 13:37	25° ℳ 16'20	
opposition	13585 Apr 22 21:20	11° ℳ 13'39	-0°25'16				
min. Earth dist.	13585 Apr 22 06:06	11° ℳ 14'43	28.77702 AU	conjunction	13591 Nov 04 10:36	25° ℳ 52'02	-0°15'50
direct	13585 Jul 10 01:45	9° ℳ 49'49		minimum elong	13591 Nov 04 10:36	25° ℳ 52'02	0°15'02
evening set	13585 Oct 05 09:57	11° ℳ 44'05		behind sun begin	13591 Nov 04 08:21	25° ℳ 51'49	
				behind sun end	13591 Nov 04 12:51	25° ℳ 52'14	
conjunction	13585 Oct 21 04:56	12° ℳ 19'40	-0°23'08	max. Earth dist.	13591 Nov 05 01:20	25° ℳ 53'25	30.79718 AU
minimum elong	13585 Oct 21 04:56	12° ℳ 19'40	0°22'30	morning rise	13591 Nov 20 09:45	26° ℳ 27'57	
max. Earth dist.	13585 Oct 21 20:07	12° ℳ 21'06	30.77778 AU	retrograde	13592 Feb 18 21:29	28° ℳ 26'05	
morning rise	13585 Nov 06 02:16	12° ℳ 55'30		opposition	13592 May 08 12:35	27° ℳ 01'10	-0°16'08
retrograde	13586 Feb 04 14:29	14° ℳ 53'51		min. Earth dist.	13592 May 07 22:14	27° ℳ 02'11	28.79816 AU
opposition	13586 Apr 25 09:56	13° ℳ 28'51	-0°24'04	direct	13592 Jul 25 15:56	25° ℳ 37'20	
min. Earth dist.	13586 Apr 24 19:21	13° ℳ 29'52	28.77927 AU	evening set	13592 Oct 21 02:23	27° ℳ 31'32	
direct	13586 Jul 12 13:15	12° ℳ 05'02					
evening set	13586 Oct 07 22:15	13° ℳ 59'18		conjunction	13592 Nov 05 23:42	28° ℳ 07'15	-0°14'32
				minimum elong	13592 Nov 05 23:42	28° ℳ 07'15	0°13'42
conjunction	13586 Oct 23 17:42	14° ℳ 34'55	-0°22'00	behind sun begin	13592 Nov 05 20:14	28° ℳ 06'56	
minimum elong	13586 Oct 23 17:43	14° ℳ 34'55	0°21'20	behind sun end	13592 Nov 06 03:09	28° ℳ 07'34	
max. Earth dist.	13586 Oct 24 10:06	14° ℳ 36'28	30.78068 AU	max. Earth dist.	13592 Nov 06 14:19	28° ℳ 08'37	30.79883 AU
	13586 Nov 03 19:21	15° ℳ		morning rise	13592 Nov 21 23:09	28° ℳ 43'11	
morning rise	13586 Nov 08 15:14	15° ℳ 10'46			13592 Dec 31 16:14	0° ♂	
retrograde	13587 Feb 07 05:00	17° ℳ 09'05		retrograde	13593 Feb 20 09:01	0° ♂ 41'14	
opposition	13587 Apr 27 22:25	15° ℳ 44'07	-0°22'49		13593 Apr 13 16:38	30° ♂ ℳ	
min. Earth dist.	13587 Apr 27 07:05	15° ℳ 45'11	28.78259 AU	min. Earth dist.	13593 May 10 11:44	29° ℳ 17'13	28.79981 AU
	13587 May 25 15:00	15° ♂ ℳ		opposition	13593 May 11 00:54	29° ℳ 16'18	-0°14'43
direct	13587 Jul 15 03:30	14° ℳ 20'20		direct	13593 Jul 28 03:05	27° ℳ 52'24	
	13587 Sep 01 21:51	15° ℳ		evening set	13593 Oct 23 15:00	29° ℳ 46'34	
evening set	13587 Oct 10 10:44	16° ℳ 14'36			13593 Oct 29 15:57	0° ♂	
conjunction	13587 Oct 26 06:22	16° ℳ 50'15	-0°20'49	conjunction	13593 Nov 08 12:41	0° ♂ 22'17	-0°13'12
minimum elong	13587 Oct 26 06:22	16° ℳ 50'15	0°20'08	minimum elong	13593 Nov 08 12:41	0° ♂ 22'17	0°12'21
max. Earth dist.	13587 Oct 26 21:49	16° ℳ 51'42	30.78444 AU	behind sun begin	13593 Nov 08 08:24	0° ♂ 21'54	
morning rise	13587 Nov 11 04:23	17° ℳ 26'07		behind sun end	13593 Nov 08 16:57	0° ♂ 22'40	
retrograde	13588 Feb 09 18:50	19° ℳ 24'26		max. Earth dist.	13593 Nov 09 03:24	0° ♂ 23'40	30.80066 AU
opposition	13588 Apr 29 10:59	17° ℳ 59'30	-0°21'33	morning rise	13593 Nov 24 12:21	0° ♂ 58'13	
min. Earth dist.	13588 Apr 28 20:03	18° ℳ 00'32	28.78663 AU	retrograde	13594 Feb 22 22:05	2° ♂ 56'11	
direct	13588 Jul 16 14:58	16° ℳ 35'44		opposition	13594 May 13 12:57	1° ♂ 31'14	-0°13'17
evening set	13588 Oct 11 23:21	18° ℳ 30'01		min. Earth dist.	13594 May 12 22:49	1° ♂ 32'13	28.80184 AU
				direct	13594 Jul 30 15:37	0° ♂ 07'17	
conjunction	13588 Oct 27 19:26	19° ℳ 05'41	-0°19'37	evening set	13594 Oct 26 03:46	2° ♂ 01'25	
minimum elong	13588 Oct 27 19:27	19° ℳ 05'41	0°18'54				
max. Earth dist.	13588 Oct 28 11:48	19° ℳ 07'13	30.78845 AU	conjunction	13594 Nov 11 01:37	2° ♂ 37'09	-0°11'51
morning rise	13588 Nov 12 17:35	19° ℳ 41'34		minimum elong	13594 Nov 11 01:37	2° ♂ 37'09	0°10'59
retrograde	13589 Feb 11 06:58	21° ℳ 39'51		behind sun begin	13594 Nov 10 20:43	2° ♂ 36'42	

behind sun end	13594 Nov 11 06:31	2°♂37'35		evening set	13600 Nov 08 08:13	15°♂29'38	
max. Earth dist.	13594 Nov 11 15:47	2°♂38'28	30.80306 AU				
morning rise	13594 Nov 27 01:39	3°♂13'06		conjunction	13600 Nov 24 07:55	16°♂05'26	-0°03'29
retrograde	13595 Feb 25 10:56	5°♂10'59		minimum elong	13600 Nov 24 07:55	16°♂05'26	0°02'30
min. Earth dist.	13595 May 15 11:52	3°♂46'56	28.80484 AU	behind sun begin	13600 Nov 24 01:23	16°♂04'51	
opposition	13595 May 16 01:06	3°♂46'00	-0°11'50	behind sun end	13600 Nov 24 14:26	16°♂06'01	
direct	13595 Aug 02 03:13	2°♂22'01		max. Earth dist.	13600 Nov 24 22:05	16°♂06'46	30.84443 AU
evening set	13595 Oct 28 16:19	4°♂16'08		morning rise	13600 Dec 10 09:27	16°♂41'26	
				retrograde	13601 Mar 10 17:23	18°♂38'58	
conjunction	13595 Nov 13 14:39	4°♂51'53	-0°10'30	min. Earth dist.	13601 May 28 10:40	17°♂15'15	28.84933 AU
minimum elong	13595 Nov 13 14:39	4°♂51'53	0°09'36	opposition	13601 May 29 00:13	17°♂14'18	-0°02'49
behind sun begin	13595 Nov 13 09:16	4°♂51'24		direct	13601 Aug 15 04:10	15°♂50'24	
behind sun end	13595 Nov 13 20:02	4°♂52'22		evening set	13601 Nov 10 21:12	17°♂44'38	
max. Earth dist.	13595 Nov 14 05:46	4°♂53'18	30.80665 AU				
morning rise	13595 Nov 29 14:51	5°♂27'50		conjunction	13601 Nov 26 21:05	18°♂20'27	-0°02'02
retrograde	13596 Feb 28 00:20	7°♂25'38		minimum elong	13601 Nov 26 21:06	18°♂20'27	0°01'02
opposition	13596 May 17 13:02	6°♂00'40	-0°10'22	behind sun begin	13601 Nov 26 14:34	18°♂19'52	
min. Earth dist.	13596 May 16 23:07	6°♂01'38	28.80898 AU	behind sun end	13601 Nov 27 03:39	18°♂21'02	
direct	13596 Aug 03 17:08	4°♂36'39		max. Earth dist.	13601 Nov 27 11:06	18°♂21'45	30.85390 AU
evening set	13596 Oct 30 05:08	6°♂30'46		morning rise	13601 Dec 12 22:47	18°♂56'27	
conjunction	13596 Nov 15 03:36	7°♂06'32	-0°09'07				
minimum elong	13596 Nov 15 03:36	7°♂06'31	0°08'12				
behind sun begin	13596 Nov 14 21:49	7°♂06'00					
behind sun end	13596 Nov 15 09:23	7°♂07'03					
max. Earth dist.	13596 Nov 15 17:42	7°♂07'50	30.81148 AU				
morning rise	13596 Dec 01 04:12	7°♂42'29					
retrograde	13597 Mar 01 13:40	9°♂40'14					
min. Earth dist.	13597 May 19 11:20	8°♂16'13	28.81463 AU				
opposition	13597 May 20 00:54	8°♂15'16	-0°08'53				
direct	13597 Aug 06 04:17	6°♂51'15					
evening set	13597 Nov 01 17:47	8°♂45'23					
conjunction	13597 Nov 17 16:41	9°♂21'09	-0°07'44				
minimum elong	13597 Nov 17 16:41	9°♂21'09	0°06'48				
behind sun begin	13597 Nov 17 10:36	9°♂20'36					
behind sun end	13597 Nov 17 22:46	9°♂21'42					
max. Earth dist.	13597 Nov 18 07:55	9°♂22'34	30.81785 AU				
morning rise	13597 Dec 03 17:22	9°♂57'06					
retrograde	13598 Mar 04 02:13	11°♂54'47					
opposition	13598 May 22 12:49	10°♂29'53	-0°07'23				
min. Earth dist.	13598 May 21 23:05	10°♂30'50	28.82169 AU				
direct	13598 Aug 08 17:23	9°♂05'53					
evening set	13598 Nov 04 06:27	11°♂00'01					
conjunction	13598 Nov 20 05:32	11°♂35'48	-0°06'20				
minimum elong	13598 Nov 20 05:31	11°♂35'48	0°05'23				
behind sun begin	13598 Nov 19 23:12	11°♂35'14					
behind sun end	13598 Nov 20 11:49	11°♂36'22					
max. Earth dist.	13598 Nov 20 19:44	11°♂37'08	30.82572 AU				
morning rise	13598 Dec 06 06:37	12°♂11'46					
retrograde	13599 Mar 06 16:54	14°♂09'24					
min. Earth dist.	13599 May 24 10:40	12°♂45'32	28.83022 AU				
opposition	13599 May 25 00:42	12°♂44'33	-0°05'52				
direct	13599 Aug 11 04:58	11°♂20'36					
evening set	13599 Nov 06 19:15	13°♂14'45					
conjunction	13599 Nov 22 18:42	13°♂50'33	-0°04'55				
minimum elong	13599 Nov 22 18:43	13°♂50'33	0°03'58				
behind sun begin	13599 Nov 22 12:15	13°♂49'58					
behind sun end	13599 Nov 23 01:10	13°♂51'08					
max. Earth dist.	13599 Nov 23 09:45	13°♂51'58	30.83473 AU				
morning rise	13599 Dec 08 19:56	14°♂26'32					
retrograde	13600 Mar 08 04:24	16°♂24'07					
opposition	13600 May 26 12:28	14°♂59'21	-0°04'21				
min. Earth dist.	13600 May 25 23:21	15°♂00'17	28.83960 AU				
direct	13600 Aug 12 16:36	13°♂35'26					