

direct	15100 Jan 05 02:36	10°8'16"52		conjunction	15106 May 08 17:20	28°8'29"04	12°41'43
evening set	15100 Apr 18 13:39	12°8'50"55		minimum elong	15106 May 08 17:44	28°8'29"06	12°40'57
				max. Earth dist.	15106 May 08 11:51	28°8'28"31	30.64973 AU
conjunction	15100 Apr 22 11:42	13°8'00"19	14°33'28	morning rise	15106 May 17 06:33	28°8'49"22	
minimum elong	15100 Apr 22 12:00	13°8'00"20	14°32'53		15106 Jun 18 08:08	0°II	
max. Earth dist.	15100 Apr 21 15:04	12°8'58"15	30.65034 AU	retrograde	15106 Aug 21 10:27	1°II08'17	
morning rise	15100 Apr 26 10:18	13°8'09"45			15106 Oct 28 14:17	30°R8	
	15100 Jun 17 13:34	15°8		opposition	15106 Nov 06 10:39	29°8'45"07	13°21'53
retrograde	15100 Aug 05 15:49	15°8'41"37		min. Earth dist.	15106 Nov 06 15:16	29°8'44"48	28.71789 AU
	15100 Sep 25 14:28	15°R8		direct	15107 Jan 24 11:00	28°8'20"10	
opposition	15100 Oct 21 09:14	14°8'18"01	15°26'07		15107 Apr 14 23:08	0°II	
min. Earth dist.	15100 Oct 22 02:51	14°8'16"46	28.70349 AU	evening set	15107 May 02 08:55	0°II39'42	
direct	15101 Jan 08 00:17	12°8'52"37					
	15101 Apr 10 04:48	15°8		conjunction	15107 May 11 12:57	1°II01'22	12°17'54
evening set	15101 Apr 20 12:58	15°8'24"28		minimum elong	15107 May 11 13:22	1°II01'25	12°17'05
				max. Earth dist.	15107 May 11 09:27	1°II01'01	30.68806 AU
conjunction	15101 Apr 25 09:16	15°8'36"04	14°18'49	morning rise	15107 May 20 17:15	1°II23'04	
minimum elong	15101 Apr 25 09:37	15°8'36"06	14°18'11	retrograde	15107 Aug 24 04:43	3°II39'56	
max. Earth dist.	15101 Apr 24 15:36	15°8'34"18	30.62405 AU	opposition	15107 Nov 09 05:55	2°II16'55	12°55'40
morning rise	15101 Apr 30 06:05	15°8'47"43		min. Earth dist.	15107 Nov 09 08:05	2°II16'46	28.75906 AU
retrograde	15101 Aug 08 10:51	18°8'17"16		direct	15108 Jan 27 07:34	0°II52'07	
opposition	15101 Oct 24 05:51	16°8'53"43	15°09'39	evening set	15108 May 03 13:53	3°II09'40	
min. Earth dist.	15101 Oct 24 22:23	16°8'52"32	28.67998 AU				
direct	15102 Jan 10 20:35	15°8'28"21		conjunction	15108 May 13 08:17	3°II32'39	11°52'45
evening set	15102 Apr 22 14:19	17°8'58"06		minimum elong	15108 May 13 08:42	3°II32'41	11°51'56
				max. Earth dist.	15108 May 13 08:30	3°II32'40	30.73857 AU
conjunction	15102 Apr 28 06:38	18°8'11"41	14°02'30	morning rise	15108 May 23 02:37	3°II55'39	
minimum elong	15102 Apr 28 06:59	18°8'11"43	14°01'51	retrograde	15108 Aug 25 21:40	6°II10'30	
max. Earth dist.	15102 Apr 27 14:45	18°8'10"06	30.60816 AU	opposition	15108 Nov 11 00:55	4°II47'40	12°28'02
morning rise	15102 May 03 23:27	18°8'25"19		min. Earth dist.	15108 Nov 11 00:31	4°II47'42	28.81219 AU
retrograde	15102 Aug 11 07:06	20°8'52"41		direct	15109 Jan 29 04:58	3°II23'06	
opposition	15102 Oct 27 02:23	19°8'29"11	14°51'24	evening set	15109 May 05 19:09	5°II38'40	
min. Earth dist.	15102 Oct 27 15:44	19°8'28"14	28.66662 AU				
direct	15103 Jan 13 18:45	18°8'03"51		conjunction	15109 May 16 02:58	6°II02'52	11°26'21
evening set	15103 Apr 24 16:37	20°8'31"32		minimum elong	15109 May 16 03:22	6°II02'55	11°25'29
				max. Earth dist.	15109 May 16 04:52	6°II03'04	30.80119 AU
conjunction	15103 May 01 03:42	20°8'46"58	13°44'36	morning rise	15109 May 26 10:53	6°II27'05	
minimum elong	15103 May 01 04:05	20°8'47"00	13°43'54	retrograde	15109 Aug 28 16:27	8°II39'57	
max. Earth dist.	15103 Apr 30 14:22	20°8'45"38	30.60251 AU	opposition	15109 Nov 13 19:25	7°II17'22	11°59'07
morning rise	15103 May 07 15:14	21°8'02"27		min. Earth dist.	15109 Nov 13 15:58	7°II17'37	28.87746 AU
retrograde	15103 Aug 14 01:27	23°8'27"40		direct	15110 Feb 01 00:47	5°II53'02	
opposition	15103 Oct 29 22:54	22°8'04"13	14°31'27	evening set	15110 May 08 00:32	8°II06'41	
min. Earth dist.	15103 Oct 30 11:05	22°8'03"21	28.66344 AU				
direct	15104 Jan 16 16:09	20°8'38"58		conjunction	15110 May 18 21:18	8°II32'02	10°58'48
evening set	15104 Apr 25 20:04	23°8'04"36		minimum elong	15110 May 18 21:43	8°II32'04	10°57'56
				max. Earth dist.	15110 May 19 03:03	8°II32'35	30.87571 AU
conjunction	15104 May 03 00:39	23°8'21"44	13°25'07	morning rise	15110 May 29 17:48	8°II57'21	
minimum elong	15104 May 03 01:02	23°8'21"46	13°24'25	retrograde	15110 Aug 31 07:44	11°II08'18	
max. Earth dist.	15104 May 02 13:43	23°8'20"39	30.60744 AU	opposition	15110 Nov 16 13:38	9°II45'58	11°29'00
morning rise	15104 May 10 05:37	23°8'38"55		min. Earth dist.	15110 Nov 16 08:25	9°II46'20	28.95423 AU
retrograde	15104 Aug 15 21:00	26°8'02"01		direct	15111 Feb 03 20:26	8°II21'56	
opposition	15104 Oct 31 18:57	24°8'38"39	14°09'51	evening set	15111 May 10 06:09	10°II33'40	
min. Earth dist.	15104 Nov 01 04:06	24°8'38"00	28.67064 AU				
direct	15105 Jan 18 15:20	23°8'13"28		conjunction	15111 May 21 14:50	11°II00'03	10°30'11
evening set	15105 Apr 27 23:57	25°8'37"04		minimum elong	15111 May 21 15:13	11°II00'05	10°29'18
				max. Earth dist.	15111 May 21 22:09	11°II00'45	30.96147 AU
conjunction	15105 May 05 21:15	25°8'55"49	13°04'09	morning rise	15111 Jun 01 23:25	11°II26'25	
minimum elong	15105 May 05 21:39	25°8'55"51	13°03'24	retrograde	15111 Sep 03 00:02	13°II35'27	
max. Earth dist.	15105 May 05 12:27	25°8'54"57	30.62298 AU	opposition	15111 Nov 19 07:14	12°II13'25	10°57'49
morning rise	15105 May 13 18:53	26°8'14"37		min. Earth dist.	15111 Nov 18 22:47	12°II14'00	29.04191 AU
retrograde	15105 Aug 18 15:34	28°8'35"37		direct	15112 Feb 06 15:38	10°II49'40	
opposition	15105 Nov 03 14:59	27°8'12"20	13°46'38	evening set	15112 May 11 11:57	12°II59'31	
min. Earth dist.	15105 Nov 03 22:35	27°8'11"48	28.68867 AU				
direct	15106 Jan 21 11:38	25°8'47"15		conjunction	15112 May 23 08:08	13°II26'52	10°00'38
evening set	15106 Apr 30 04:16	28°8'08"49		minimum elong	15112 May 23 08:31	13°II26'54	9°59'45

max. Earth dist.	15112 May 23 18:45	13° $\Pi$ 27'53	31.05755 AU	direct	15119 Feb 23 16:39	27° $\Pi$ 22'41	
morning rise	15112 Jun 04 03:51	13° $\Pi$ 54'10		evening set	15119 May 26 06:48	29° $\Pi$ 20'22	
retrograde	15112 Sep 04 13:59	16° $\Pi$ 01'20					
opposition	15112 Nov 21 00:23	14° $\Pi$ 39'36	10°25'40	conjunction	15119 Jun 09 14:16	29° $\Pi$ 51'56	6°15'33
min. Earth dist.	15112 Nov 20 14:49	14° $\Pi$ 40'15	29.13960 AU	minimum elong	15119 Jun 09 14:31	29° $\Pi$ 51'57	6°14'35
direct	15113 Feb 08 09:23	13° $\Pi$ 16'09		max. Earth dist.	15119 Jun 10 15:11	29° $\Pi$ 54'14	31.97557 AU
evening set	15113 May 13 18:07	15° $\Pi$ 24'10			15119 Jun 13 05:29	0° $\mathfrak{E}$	
				morning rise	15119 Jun 23 20:32	0° $\mathfrak{E}$ 23'24	
conjunction	15113 May 26 00:45	15° $\Pi$ 52'22	9°30'15	retrograde	15119 Sep 21 04:15	2° $\mathfrak{E}$ 18'41	
minimum elong	15113 May 26 01:07	15° $\Pi$ 52'24	9°29'20	min. Earth dist.	15119 Dec 07 08:43	1° $\mathfrak{E}$ 00'30	30.06706 AU
max. Earth dist.	15113 May 26 12:47	15° $\Pi$ 53'31	31.16335 AU	opposition	15119 Dec 08 08:21	0° $\mathfrak{E}$ 58'56	6°22'40
morning rise	15113 Jun 07 07:00	16° $\Pi$ 20'31			15120 Jan 18 16:13	30° $\mathfrak{R}\Pi$	
retrograde	15113 Sep 07 05:24	18° $\Pi$ 25'52		direct	15120 Feb 26 08:39	29° $\Pi$ 37'36	
opposition	15113 Nov 23 17:02	17° $\Pi$ 04'25	9°52'40		15120 Apr 04 01:04	0° $\mathfrak{E}$	
min. Earth dist.	15113 Nov 23 04:20	17° $\Pi$ 05'17	29.24671 AU	evening set	15120 May 27 12:50	1° $\mathfrak{E}$ 33'44	
direct	15114 Feb 11 03:17	15° $\Pi$ 41'17					
evening set	15114 May 16 00:05	17° $\Pi$ 47'29		conjunction	15120 Jun 11 01:49	2° $\mathfrak{E}$ 05'35	5°41'50
				minimum elong	15120 Jun 11 02:03	2° $\mathfrak{E}$ 05'36	5°40'52
conjunction	15114 May 28 16:40	18° $\Pi$ 16'26	8°59'07	max. Earth dist.	15120 Jun 12 03:48	2° $\mathfrak{E}$ 07'58	32.13975 AU
minimum elong	15114 May 28 17:02	18° $\Pi$ 16'28	8°58'12	morning rise	15120 Jun 25 13:54	2° $\mathfrak{E}$ 37'21	
max. Earth dist.	15114 May 29 07:18	18° $\Pi$ 17'50	31.27808 AU	retrograde	15120 Sep 22 15:03	4° $\mathfrak{E}$ 31'08	
morning rise	15114 Jun 10 08:41	18° $\Pi$ 45'22		opposition	15120 Dec 09 20:23	3° $\mathfrak{E}$ 11'42	5°46'30
retrograde	15114 Sep 09 17:21	20° $\Pi$ 48'56		min. Earth dist.	15120 Dec 08 17:47	3° $\mathfrak{E}$ 13'27	30.23347 AU
opposition	15114 Nov 26 09:18	19° $\Pi$ 27'46	9°18'56	direct	15121 Feb 27 23:02	1° $\mathfrak{E}$ 50'42	
min. Earth dist.	15114 Nov 25 19:31	19° $\Pi$ 28'42	29.36274 AU	evening set	15121 May 29 18:36	3° $\mathfrak{E}$ 45'22	
direct	15115 Feb 13 20:46	18° $\Pi$ 04'56					
evening set	15115 May 18 06:21	20° $\Pi$ 09'21		conjunction	15121 Jun 13 12:48	4° $\mathfrak{E}$ 17'27	5°07'58
				minimum elong	15121 Jun 13 13:00	4° $\mathfrak{E}$ 17'28	5°06'59
conjunction	15115 May 31 08:03	20° $\Pi$ 38'59	8°27'21	max. Earth dist.	15121 Jun 14 18:01	4° $\mathfrak{E}$ 20'07	32.31262 AU
minimum elong	15115 May 31 08:23	20° $\Pi$ 39'01	8°26'24	morning rise	15121 Jun 28 05:44	4° $\mathfrak{E}$ 49'26	
max. Earth dist.	15115 Jun 01 00:29	20° $\Pi$ 40'33	31.40148 AU	retrograde	15121 Sep 24 23:08	6° $\mathfrak{E}$ 41'50	
morning rise	15115 Jun 13 09:05	21° $\Pi$ 08'35		min. Earth dist.	15121 Dec 11 04:15	5° $\mathfrak{E}$ 24'34	30.40863 AU
retrograde	15115 Sep 12 06:24	23° $\Pi$ 10'23		opposition	15121 Dec 12 08:05	5° $\mathfrak{E}$ 22'44	5°10'14
min. Earth dist.	15115 Nov 28 08:17	21° $\Pi$ 50'38	29.48716 AU	direct	15122 Mar 02 12:51	4° $\mathfrak{E}$ 02'08	
opposition	15115 Nov 29 00:40	21° $\Pi$ 49'31	8°44'35	evening set	15122 Jun 01 00:15	5° $\mathfrak{E}$ 55'23	
direct	15116 Feb 16 15:00	20° $\Pi$ 26'59					
evening set	15116 May 19 12:37	22° $\Pi$ 29'39		conjunction	15122 Jun 15 22:47	6° $\mathfrak{E}$ 27'38	4°34'01
				minimum elong	15122 Jun 15 22:58	6° $\mathfrak{E}$ 27'39	4°33'03
conjunction	15116 Jun 01 22:46	22° $\Pi$ 59'54	7°55'01	max. Earth dist.	15122 Jun 17 05:10	6° $\mathfrak{E}$ 30'23	32.49394 AU
minimum elong	15116 Jun 01 23:05	22° $\Pi$ 59'56	7°54'04	morning rise	15122 Jun 30 20:14	6° $\mathfrak{E}$ 59'46	
max. Earth dist.	15116 Jun 02 16:58	23° $\Pi$ 01'37	31.53294 AU	retrograde	15122 Sep 27 07:59	8° $\mathfrak{E}$ 50'51	
morning rise	15116 Jun 15 08:14	23° $\Pi$ 30'05		opposition	15122 Dec 14 18:53	7° $\mathfrak{E}$ 32'07	4°33'56
retrograde	15116 Sep 13 18:57	25° $\Pi$ 30'11		min. Earth dist.	15122 Dec 13 12:01	7° $\mathfrak{E}$ 34'08	30.59211 AU
opposition	15116 Nov 30 15:39	24° $\Pi$ 09'36	8°09'41	direct	15123 Mar 05 01:33	6° $\mathfrak{E}$ 11'54	
min. Earth dist.	15116 Nov 29 21:48	24° $\Pi$ 10'48	29.61983 AU	evening set	15123 Jun 03 05:52	8° $\mathfrak{E}$ 03'50	
direct	15117 Feb 18 06:29	22° $\Pi$ 47'21					
evening set	15117 May 21 18:48	24° $\Pi$ 48'19		conjunction	15123 Jun 18 08:18	8° $\mathfrak{E}$ 36'11	4°00'03
				minimum elong	15123 Jun 18 08:27	8° $\mathfrak{E}$ 36'12	3°59'05
conjunction	15117 Jun 04 12:46	25° $\Pi$ 19'04	7°22'13	max. Earth dist.	15123 Jun 19 17:14	8° $\mathfrak{E}$ 39'09	32.68291 AU
minimum elong	15117 Jun 04 13:03	25° $\Pi$ 19'06	7°21'15	morning rise	15123 Jul 03 09:28	9° $\mathfrak{E}$ 08'26	
max. Earth dist.	15117 Jun 05 09:23	25° $\Pi$ 21'00	31.67242 AU	retrograde	15123 Sep 29 13:56	10° $\mathfrak{E}$ 58'16	
morning rise	15117 Jun 18 05:45	25° $\Pi$ 49'45		min. Earth dist.	15123 Dec 15 21:20	9° $\mathfrak{E}$ 41'58	30.78315 AU
retrograde	15117 Sep 16 06:34	27° $\Pi$ 48'12		opposition	15123 Dec 17 05:02	9° $\mathfrak{E}$ 39'55	3°57'42
min. Earth dist.	15117 Dec 02 09:58	26° $\Pi$ 29'13	29.76046 AU	direct	15124 Mar 06 12:18	8° $\mathfrak{E}$ 20'07	
opposition	15117 Dec 03 05:52	26° $\Pi$ 27'53	7°34'20	evening set	15124 Jun 04 11:28	10° $\mathfrak{E}$ 10'46	
direct	15118 Feb 21 00:49	25° $\Pi$ 05'56					
evening set	15118 May 24 00:58	27° $\Pi$ 05'14		conjunction	15124 Jun 19 17:08	10° $\mathfrak{E}$ 43'10	3°26'10
				minimum elong	15124 Jun 19 17:17	10° $\mathfrak{E}$ 43'11	3°25'13
conjunction	15118 Jun 07 01:52	27° $\Pi$ 36'25	6°49'03	max. Earth dist.	15124 Jun 21 03:20	10° $\mathfrak{E}$ 46'14	32.87883 AU
minimum elong	15118 Jun 07 02:09	27° $\Pi$ 36'27	6°48'05	morning rise	15124 Jul 04 21:31	11° $\mathfrak{E}$ 15'28	
max. Earth dist.	15118 Jun 07 23:44	27° $\Pi$ 38'28	31.81983 AU	retrograde	15124 Sep 30 20:46	13° $\mathfrak{E}$ 04'06	
morning rise	15118 Jun 21 01:59	28° $\Pi$ 07'33		min. Earth dist.	15124 Dec 17 04:40	11° $\mathfrak{E}$ 48'20	30.98071 AU
	15118 Sep 02 13:58	0° $\mathfrak{E}$		opposition	15124 Dec 18 14:33	11° $\mathfrak{E}$ 46'09	3°21'36
retrograde	15118 Sep 18 19:15	0° $\mathfrak{E}$ 04'23		direct	15125 Mar 08 23:12	10° $\mathfrak{E}$ 26'45	
	15118 Oct 05 02:59	30° $\mathfrak{R}\Pi$		evening set	15125 Jun 06 16:58	12° $\mathfrak{E}$ 16'12	
opposition	15118 Dec 05 19:25	28° $\Pi$ 44'20	6°58'38				
min. Earth dist.	15118 Dec 04 21:15	28° $\Pi$ 45'49	29.90953 AU	conjunction	15125 Jun 22 01:11	12° $\mathfrak{E}$ 48'36	2°52'26

minimum elong	15125 Jun 22 01:18	12°☾48'37	2°51'27	min. Earth dist.	15131 Dec 31 20:45	25°☾47'30	32.49312 AU
max. Earth dist.	15125 Jun 23 12:56	12°☾51'46	33.08055 AU	opposition	15132 Jan 02 15:22	25°☾44'51	-0°42'19
morning rise	15125 Jul 07 08:13	13°☾20'53		direct	15132 Mar 23 14:52	24°☾28'03	
retrograde	15125 Oct 03 03:40	15°☾08'24		evening set	15132 Jun 20 02:52	26°☾10'18	
opposition	15125 Dec 20 23:35	13°☾50'50	2°45'43				
min. Earth dist.	15125 Dec 19 12:28	13°☾53'05	31.18414 AU	conjunction	15132 Jul 05 15:12	26°☾41'22	-0°55'35
direct	15126 Mar 11 07:35	12°☾31'51		minimum elong	15132 Jul 05 15:10	26°☾41'22	0°56'29
evening set	15126 Jun 08 22:19	14°☾20'09		max. Earth dist.	15132 Jul 07 11:13	26°☾45'04	34.61000 AU
				morning rise	15132 Jul 21 02:17	27°☾12'20	
conjunction	15126 Jun 24 08:45	14°☾52'29	2°18'53	retrograde	15132 Oct 16 05:16	28°☾53'12	
minimum elong	15126 Jun 24 08:50	14°☾52'29	2°17'56	min. Earth dist.	15133 Jan 02 00:26	27°☾40'37	32.72511 AU
max. Earth dist.	15126 Jun 25 22:15	14°☾55'47	33.28757 AU	opposition	15133 Jan 03 19:49	27°☾37'57	-1°15'22
morning rise	15126 Jul 09 17:44	15°☾24'42		direct	15133 Mar 25 19:48	26°☾21'29	
retrograde	15126 Oct 05 09:40	17°☾11'09		evening set	15133 Jun 22 06:40	28°☾02'53	
min. Earth dist.	15126 Dec 21 19:32	15°☾56'15	31.39250 AU				
opposition	15126 Dec 23 07:51	15°☾53'57	2°10'05	conjunction	15133 Jul 07 17:49	28°☾33'36	-1°26'30
direct	15127 Mar 13 19:04	14°☾35'22		minimum elong	15133 Jul 07 17:46	28°☾33'36	1°27'24
evening set	15127 Jun 11 03:36	16°☾22'33		max. Earth dist.	15133 Jul 09 15:11	28°☾37'24	34.84387 AU
				morning rise	15133 Jul 23 03:34	29°☾04'14	
conjunction	15127 Jun 26 15:27	16°☾54'47	1°45'36		15133 Aug 23 18:24	0°♈	
minimum elong	15127 Jun 26 15:31	16°☾54'47	1°44'38	retrograde	15133 Oct 18 05:30	0°♈44'21	
max. Earth dist.	15127 Jun 28 05:22	16°☾58'06	33.49894 AU		15133 Dec 15 13:05	30°♐☾	
morning rise	15127 Jul 12 02:09	17°☾26'54		min. Earth dist.	15134 Jan 04 02:37	29°☾32'10	32.96149 AU
retrograde	15127 Oct 07 17:23	19°☾12'19		opposition	15134 Jan 05 23:33	29°☾29'25	-1°47'53
min. Earth dist.	15127 Dec 24 01:29	17°☾57'52	31.60527 AU	direct	15134 Mar 28 00:44	28°☾13'18	
opposition	15127 Dec 25 15:31	17°☾55'28	1°34'47	evening set	15134 Jun 24 10:26	29°☾53'55	
direct	15128 Mar 15 04:04	16°☾37'16			15134 Jun 27 13:29	0°♈	
evening set	15128 Jun 12 08:41	18°☾23'24					
				conjunction	15134 Jul 09 19:47	0°♈24'17	-1°56'54
conjunction	15128 Jun 27 21:44	18°☾55'29	1°12'36	minimum elong	15134 Jul 09 19:43	0°♈24'16	1°57'47
minimum elong	15128 Jun 27 21:47	18°☾55'29	1°11'40	max. Earth dist.	15134 Jul 11 18:00	0°♈28'07	35.08196 AU
max. Earth dist.	15128 Jun 29 13:37	18°☾58'56	33.71417 AU	morning rise	15134 Jul 25 04:04	0°♈54'33	
morning rise	15128 Jul 13 09:16	19°☾27'26		retrograde	15134 Oct 20 07:25	2°♈33'58	
retrograde	15128 Oct 08 20:49	21°☾11'52		min. Earth dist.	15135 Jan 06 04:00	1°♈22'11	33.20233 AU
min. Earth dist.	15128 Dec 25 08:16	19°☾57'46	31.82173 AU	opposition	15135 Jan 08 02:35	1°♈19'21	-2°19'48
opposition	15128 Dec 26 22:31	19°☾55'22	0°59'51	direct	15135 Mar 30 02:46	0°♈03'37	
direct	15129 Mar 17 13:31	18°☾37'32		evening set	15135 Jun 26 13:45	1°♈43'29	
evening set	15129 Jun 14 13:44	20°☾22'39					
				conjunction	15135 Jul 11 21:15	2°♈13'28	-2°26'47
conjunction	15129 Jun 30 03:10	20°☾54'31	0°39'58	minimum elong	15135 Jul 11 21:11	2°♈13'28	2°27'40
minimum elong	15129 Jun 30 03:11	20°☾54'31	0°39'01	max. Earth dist.	15135 Jul 13 21:25	2°♈17'26	35.32406 AU
max. Earth dist.	15129 Jul 01 19:01	20°☾57'57	33.93286 AU	morning rise	15135 Jul 27 03:24	2°♈43'21	
morning rise	15129 Jul 15 15:24	21°☾26'17		retrograde	15135 Oct 22 07:33	4°♈22'07	
retrograde	15129 Oct 11 01:32	23°☾09'45		min. Earth dist.	15136 Jan 08 06:08	3°♈10'42	33.44676 AU
min. Earth dist.	15129 Dec 27 12:26	21°☾56'06	32.04183 AU	opposition	15136 Jan 10 05:06	3°♈07'52	-2°51'07
opposition	15129 Dec 29 04:51	21°☾53'35	0°25'20	direct	15136 Mar 31 07:51	1°♈52'30	
direct	15130 Mar 19 22:41	20°☾36'06		evening set	15136 Jun 27 17:05	3°♈31'41	
evening set	15130 Jun 16 18:14	22°☾20'13					
				conjunction	15136 Jul 12 22:01	4°♈01'15	-2°56'06
conjunction	15130 Jul 02 07:52	22°☾51'52	0°07'45	minimum elong	15136 Jul 12 21:55	4°♈01'15	2°56'57
minimum elong	15130 Jul 02 07:51	22°☾51'52	0°06'49	max. Earth dist.	15136 Jul 14 22:05	4°♈05'11	35.56929 AU
behind sun begin	15130 Jul 02 01:52	22°☾51'23		morning rise	15136 Jul 28 01:56	4°♈30'44	
behind sun end	15130 Jul 02 13:51	22°☾52'21		retrograde	15136 Oct 23 09:29	6°♈08'53	
max. Earth dist.	15130 Jul 04 01:52	22°☾55'27	34.15489 AU	min. Earth dist.	15137 Jan 09 06:08	4°♈57'55	33.69425 AU
morning rise	15130 Jul 17 20:03	23°☾23'24		opposition	15137 Jan 11 06:59	4°♈54'59	-3°21'48
desc. node	15130 Sep 28 01:20	25°☾02'27		direct	15137 Apr 02 11:02	3°♈40'00	
retrograde	15130 Oct 13 03:34	25°☾05'57		evening set	15137 Jun 29 20:04	5°♈18'33	
min. Earth dist.	15130 Dec 29 18:02	23°☾52'36	32.26554 AU				
opposition	15130 Dec 31 10:36	23°☾50'05	-0°08'44	conjunction	15137 Jul 14 22:23	5°♈47'42	-3°24'51
direct	15131 Mar 22 07:21	22°☾32'57		minimum elong	15137 Jul 14 22:17	5°♈47'41	3°25'42
evening set	15131 Jun 18 22:39	24°☾16'06		max. Earth dist.	15137 Jul 17 00:22	5°♈51'45	35.81701 AU
				morning rise	15137 Jul 29 23:27	6°♈16'45	
conjunction	15131 Jul 04 11:51	24°☾47'28	-0°24'11	retrograde	15137 Oct 25 08:26	7°♈54'20	
minimum elong	15131 Jul 04 11:50	24°☾47'28	0°25'06	min. Earth dist.	15138 Jan 11 07:53	6°♈43'41	33.94400 AU
max. Earth dist.	15131 Jul 06 06:14	24°☾51'04	34.38053 AU	opposition	15138 Jan 13 08:32	6°♈40'46	-3°51'51
morning rise	15131 Jul 19 23:46	25°☾18'44		direct	15138 Apr 04 14:11	5°♈26'11	
retrograde	15131 Oct 15 05:15	27°☾00'25		evening set	15138 Jul 01 22:50	7°♈04'07	

conjunction	15138 Jul 16 22:00	7° $\Omega$ 32'48 -3°53'00	retrograde	15144 Nov 05 11:32	19° $\Omega$ 36'15
minimum elong	15138 Jul 16 21:53	7° $\Omega$ 32'48 3°53'49	min. Earth dist.	15145 Jan 22 23:35	18° $\Omega$ 27'49 35.71018 AU
max. Earth dist.	15138 Jul 18 23:53	7° $\Omega$ 36'49 36.06652 AU	opposition	15145 Jan 25 03:45	18° $\Omega$ 24'48 -7°03'41
morning rise	15138 Jul 31 20:08	8° $\Omega$ 01'25	direct	15145 Apr 16 17:53	17° $\Omega$ 12'32
retrograde	15138 Oct 27 06:08	9° $\Omega$ 38'28	evening set	15145 Jul 14 12:09	18° $\Omega$ 47'04
min. Earth dist.	15139 Jan 13 07:09	8° $\Omega$ 28'14 34.19521 AU			
opposition	15139 Jan 15 09:22	8° $\Omega$ 25'15 -4°21'15	conjunction	15145 Jul 28 05:48	19° $\Omega$ 12'11 -6°53'08
direct	15139 Apr 06 17:31	7° $\Omega$ 11'01	minimum elong	15145 Jul 28 05:39	19° $\Omega$ 12'10 6°53'50
evening set	15139 Jul 04 01:32	8° $\Omega$ 48'23	max. Earth dist.	15145 Jul 30 10:56	19° $\Omega$ 16'15 37.82396 AU
			morning rise	15145 Aug 10 22:43	19° $\Omega$ 37'14
conjunction	15139 Jul 18 21:18	9° $\Omega$ 16'37 -4°20'34	retrograde	15145 Nov 07 05:02	21° $\Omega$ 11'25
minimum elong	15139 Jul 18 21:11	9° $\Omega$ 16'36 4°21'23	min. Earth dist.	15146 Jan 24 19:11	20° $\Omega$ 03'21 35.96490 AU
max. Earth dist.	15139 Jul 21 00:11	9° $\Omega$ 20'41 36.31695 AU	opposition	15146 Jan 27 00:58	20° $\Omega$ 00'15 -7°28'23
morning rise	15139 Aug 02 16:05	9° $\Omega$ 44'46	direct	15146 Apr 18 18:15	18° $\Omega$ 48'18
retrograde	15139 Oct 29 03:15	11° $\Omega$ 21'20	evening set	15146 Jul 16 12:49	20° $\Omega$ 22'28
min. Earth dist.	15140 Jan 15 07:36	10° $\Omega$ 11'24 34.44729 AU			
opposition	15140 Jan 17 09:43	10° $\Omega$ 08'26 -4°50'00	conjunction	15146 Jul 30 01:17	20° $\Omega$ 47'02 -7°16'21
direct	15140 Apr 07 18:52	8° $\Omega$ 54'34	minimum elong	15146 Jul 30 01:08	20° $\Omega$ 47'02 7°17'02
evening set	15140 Jul 05 04:01	10° $\Omega$ 31'24	max. Earth dist.	15146 Aug 01 07:30	20° $\Omega$ 51'10 38.07757 AU
			morning rise	15146 Aug 12 13:09	21° $\Omega$ 11'33
conjunction	15140 Jul 19 20:10	10° $\Omega$ 59'08 -4°47'32	retrograde	15146 Nov 08 23:04	22° $\Omega$ 45'27
minimum elong	15140 Jul 19 20:02	10° $\Omega$ 59'08 4°48'19	min. Earth dist.	15147 Jan 26 15:43	21° $\Omega$ 37'41 36.22099 AU
max. Earth dist.	15140 Jul 21 23:18	11° $\Omega$ 03'12 36.56790 AU	opposition	15147 Jan 28 21:48	21° $\Omega$ 34'35 -7°52'22
morning rise	15140 Aug 03 11:12	11° $\Omega$ 26'48	direct	15147 Apr 20 15:49	20° $\Omega$ 22'59
retrograde	15140 Oct 29 23:54	13° $\Omega$ 02'54	evening set	15147 Jul 18 13:20	21° $\Omega$ 56'49
min. Earth dist.	15141 Jan 16 06:56	11° $\Omega$ 53'19 34.69955 AU			
opposition	15141 Jan 18 09:35	11° $\Omega$ 50'20 -5°18'05	conjunction	15147 Jul 31 20:31	22° $\Omega$ 20'49 -7°38'56
direct	15141 Apr 09 20:11	10° $\Omega$ 36'49	minimum elong	15147 Jul 31 20:21	22° $\Omega$ 20'48 7°39'36
evening set	15141 Jul 07 06:14	12° $\Omega$ 13'07	max. Earth dist.	15147 Aug 03 03:23	22° $\Omega$ 24'59 38.33241 AU
			morning rise	15147 Aug 14 02:54	22° $\Omega$ 44'47
conjunction	15141 Jul 21 18:16	12° $\Omega$ 40'21 -5°13'53	retrograde	15147 Nov 10 16:21	24° $\Omega$ 18'25
minimum elong	15141 Jul 21 18:08	12° $\Omega$ 40'21 5°14'41	min. Earth dist.	15148 Jan 28 11:25	23° $\Omega$ 10'59 36.47792 AU
max. Earth dist.	15141 Jul 23 21:20	12° $\Omega$ 44'23 36.81874 AU	opposition	15148 Jan 30 17:57	23° $\Omega$ 07'53 -8°15'41
morning rise	15141 Aug 05 05:31	13° $\Omega$ 07'32	direct	15148 Apr 21 13:37	21° $\Omega$ 56'36
retrograde	15141 Oct 31 22:17	14° $\Omega$ 43'12	evening set	15148 Jul 19 13:43	23° $\Omega$ 30'09
min. Earth dist.	15142 Jan 18 05:35	13° $\Omega$ 33'56 34.95189 AU			
opposition	15142 Jan 20 09:01	13° $\Omega$ 30'56 -5°45'30	conjunction	15148 Aug 01 15:10	23° $\Omega$ 53'35 -8°00'53
direct	15142 Apr 11 19:15	12° $\Omega$ 17'44	minimum elong	15148 Aug 01 15:01	23° $\Omega$ 53'34 8°01'31
evening set	15142 Jul 09 08:07	13° $\Omega$ 53'33	max. Earth dist.	15148 Aug 03 21:51	23° $\Omega$ 57'42 38.58783 AU
			morning rise	15148 Aug 14 16:12	24° $\Omega$ 16'59
conjunction	15142 Jul 23 16:05	14° $\Omega$ 20'16 -5°39'38	retrograde	15148 Nov 11 12:41	25° $\Omega$ 50'25
minimum elong	15142 Jul 23 15:56	14° $\Omega$ 20'15 5°40'23	min. Earth dist.	15149 Jan 29 06:24	24° $\Omega$ 43'19 36.73540 AU
max. Earth dist.	15142 Jul 25 20:21	14° $\Omega$ 24'22 37.06953 AU	opposition	15149 Jan 31 13:54	24° $\Omega$ 40'11 -8°38'18
morning rise	15142 Aug 06 22:59	14° $\Omega$ 46'56	direct	15149 Apr 23 07:42	23° $\Omega$ 29'15
	15142 Aug 14 04:23	15° $\Omega$	evening set	15149 Jul 21 13:36	25° $\Omega$ 02'31
retrograde	15142 Nov 02 19:10	16° $\Omega$ 22'11			
min. Earth dist.	15143 Jan 20 04:39	15° $\Omega$ 13'10 35.20413 AU	conjunction	15149 Aug 03 09:28	25° $\Omega$ 25'23 -8°22'11
opposition	15143 Jan 22 07:44	15° $\Omega$ 10'12 -6°12'14	minimum elong	15149 Aug 03 09:18	25° $\Omega$ 25'23 8°22'50
	15143 Jan 29 15:04	15° $\Omega$	max. Earth dist.	15149 Aug 05 17:32	25° $\Omega$ 29'35 38.84338 AU
direct	15143 Apr 13 19:30	13° $\Omega$ 57'19	morning rise	15149 Aug 16 04:37	25° $\Omega$ 48'14
	15143 Jun 22 15:09	15° $\Omega$	retrograde	15149 Nov 13 07:32	27° $\Omega$ 21'28
evening set	15143 Jul 11 09:48	15° $\Omega$ 32'40	min. Earth dist.	15150 Jan 31 02:33	26° $\Omega$ 14'37 36.99259 AU
			opposition	15150 Feb 02 09:28	26° $\Omega$ 11'32 -9°00'14
conjunction	15143 Jul 25 13:09	15° $\Omega$ 58'52 -6°04'46	direct	15150 Apr 25 02:56	25° $\Omega$ 00'56
minimum elong	15143 Jul 25 13:00	15° $\Omega$ 58'51 6°05'31	evening set	15150 Jul 23 13:34	26° $\Omega$ 33'58
max. Earth dist.	15143 Jul 27 16:48	16° $\Omega$ 02'53 37.32032 AU			
morning rise	15143 Aug 08 15:47	16° $\Omega$ 25'00	conjunction	15150 Aug 05 03:20	26° $\Omega$ 56'16 -8°42'53
retrograde	15143 Nov 04 17:27	17° $\Omega$ 59'51	minimum elong	15150 Aug 05 03:11	26° $\Omega$ 56'15 8°43'29
min. Earth dist.	15144 Jan 22 01:22	16° $\Omega$ 51'11 35.45674 AU	max. Earth dist.	15150 Aug 07 10:36	27° $\Omega$ 00'22 39.09834 AU
opposition	15144 Jan 24 05:56	16° $\Omega$ 48'08 -6°38'18	morning rise	15150 Aug 17 16:43	27° $\Omega$ 18'32
direct	15144 Apr 14 17:58	15° $\Omega$ 35'33	retrograde	15150 Nov 15 02:38	28° $\Omega$ 51'35
evening set	15144 Jul 12 11:03	17° $\Omega$ 10'29	min. Earth dist.	15151 Feb 01 20:19	27° $\Omega$ 45'05 37.24894 AU
			opposition	15151 Feb 04 04:23	27° $\Omega$ 41'57 -9°21'31
conjunction	15144 Jul 26 09:45	17° $\Omega$ 36'09 -6°29'16	direct	15151 Apr 26 21:08	26° $\Omega$ 31'41
minimum elong	15144 Jul 26 09:36	17° $\Omega$ 36'08 6°29'59	evening set	15151 Jul 25 13:13	28° $\Omega$ 04'29
max. Earth dist.	15144 Jul 28 14:59	17° $\Omega$ 40'15 37.57157 AU			
morning rise	15144 Aug 09 07:34	18° $\Omega$ 01'45	conjunction	15151 Aug 06 21:00	28° $\Omega$ 26'12 -9°02'58

minimum elong	15151 Aug 06 20:51	28°02'12	9°03'34	morning rise	15157 Aug 25 14:08	7°02'23'16	
max. Earth dist.	15151 Aug 09 05:05	28°02'30'20	39.35201 AU	retrograde	15157 Nov 24 14:45	8°02'55'22	
morning rise	15151 Aug 19 04:18	28°02'47'54		min. Earth dist.	15158 Feb 11 23:37	7°02'50'26	38.98558 AU
	15151 Oct 07 20:57	0°02'00		opposition	15158 Feb 14 07:17	7°02'47'25	-11°32'53
retrograde	15151 Nov 16 18:06	0°02'20'47		direct	15158 May 07 08:03	6°02'39'02	
	15151 Dec 27 16:23	30°02'00		evening set	15158 Aug 06 04:25	8°02'10'33	
min. Earth dist.	15152 Feb 03 16:08	29°02'14'30	37.50373 AU				
opposition	15152 Feb 05 23:11	29°02'11'26	-9°42'09	conjunction	15158 Aug 16 13:19	8°02'28'07	-11°07'11
direct	15152 Apr 27 18:39	28°02'01'29		minimum elong	15158 Aug 16 13:12	8°02'28'06	11°07'38
evening set	15152 Jul 26 12:44	29°02'34'04		max. Earth dist.	15158 Aug 18 20:50	8°02'32'03	41.06850 AU
				morning rise	15158 Aug 26 22:05	8°02'45'40	
conjunction	15152 Aug 07 14:12	29°02'55'12	-9°22'27	retrograde	15158 Nov 26 03:49	10°02'17'43	
minimum elong	15152 Aug 07 14:03	29°02'55'12	9°23'01	min. Earth dist.	15159 Feb 13 16:06	9°02'12'58	39.22740 AU
max. Earth dist.	15152 Aug 09 21:38	29°02'59'17	39.60384 AU	opposition	15159 Feb 15 23:15	9°02'10'00	-11°49'12
	15152 Aug 10 07:30	0°02'00		direct	15159 May 09 01:55	8°02'01'52	
morning rise	15152 Aug 19 15:12	0°02'16'19		evening set	15159 Aug 08 02:14	9°02'33'19	
retrograde	15152 Nov 17 08:40	1°02'49'02					
min. Earth dist.	15153 Feb 04 09:57	0°02'43'03	37.75629 AU	conjunction	15159 Aug 18 03:58	9°02'50'16	-11°22'38
opposition	15153 Feb 06 17:27	0°02'39'58	-10°02'08	minimum elong	15159 Aug 18 03:51	9°02'50'16	11°23'03
	15153 Mar 10 17:00	30°02'00		max. Earth dist.	15159 Aug 20 11:34	9°02'54'11	41.30803 AU
direct	15153 Apr 29 16:01	29°02'30'18		morning rise	15159 Aug 28 05:25	10°02'07'13	
	15153 Jun 16 19:48	0°02'00		retrograde	15159 Nov 27 16:07	11°02'39'14	
evening set	15153 Jul 28 12:03	1°02'02'42		min. Earth dist.	15160 Feb 15 07:29	10°02'34'45	39.46813 AU
				opposition	15160 Feb 17 14:52	10°02'31'46	-12°04'54
conjunction	15153 Aug 09 07:03	1°02'23'14	-9°41'20	direct	15160 May 09 19:52	9°02'23'56	
minimum elong	15153 Aug 09 06:54	1°02'23'14	9°41'54	evening set	15160 Aug 08 23:44	10°02'55'18	
max. Earth dist.	15153 Aug 11 14:16	1°02'27'16	39.85324 AU				
morning rise	15153 Aug 21 01:47	1°02'43'45		conjunction	15160 Aug 18 18:04	11°02'11'40	-11°37'31
retrograde	15153 Nov 19 00:57	3°02'16'21		minimum elong	15160 Aug 18 17:57	11°02'11'39	11°37'56
min. Earth dist.	15154 Feb 06 04:12	2°02'10'34	38.00649 AU	max. Earth dist.	15160 Aug 21 01:12	11°02'15'31	41.54632 AU
opposition	15154 Feb 08 11:31	2°02'07'31	-10°21'31	morning rise	15160 Aug 28 12:23	11°02'28'01	
direct	15154 May 01 10:32	0°02'58'08		retrograde	15160 Nov 28 07:23	13°02'00'02	
evening set	15154 Jul 30 10:59	2°02'30'19		min. Earth dist.	15161 Feb 15 22:25	11°02'55'49	39.70762 AU
				opposition	15161 Feb 18 06:16	11°02'52'50	-12°20'01
conjunction	15154 Aug 10 23:34	2°02'50'16	-9°59'40	direct	15161 May 11 10:19	10°02'45'16	
minimum elong	15154 Aug 10 23:26	2°02'50'15	10°00'11	evening set	15161 Aug 10 21:04	12°02'16'36	
max. Earth dist.	15154 Aug 13 07:09	2°02'54'18	40.10018 AU				
morning rise	15154 Aug 22 11:40	3°02'10'12		conjunction	15161 Aug 20 08:06	12°02'32'21	-11°51'51
retrograde	15154 Nov 20 15:27	4°02'42'38		minimum elong	15161 Aug 20 08:00	12°02'32'21	11°52'13
min. Earth dist.	15155 Feb 07 22:21	3°02'37'03	38.25397 AU	max. Earth dist.	15161 Aug 22 16:10	12°02'36'16	41.78318 AU
opposition	15155 Feb 10 05:03	3°02'34'03	-10°40'17	morning rise	15161 Aug 29 18:55	12°02'48'07	
direct	15155 May 03 06:00	2°02'24'55		retrograde	15161 Nov 29 21:46	14°02'20'10	
evening set	15155 Aug 01 09:51	3°02'56'54		min. Earth dist.	15162 Feb 17 14:23	13°02'16'08	39.94526 AU
				opposition	15162 Feb 19 21:20	13°02'13'13	-12°34'34
conjunction	15155 Aug 12 15:35	4°02'16'15	-10°17'24	direct	15162 May 13 01:11	12°02'05'57	
minimum elong	15155 Aug 12 15:25	4°02'16'14	10°17'54	evening set	15162 Aug 12 18:16	13°02'37'14	
max. Earth dist.	15155 Aug 14 21:59	4°02'20'10	40.34457 AU				
morning rise	15155 Aug 23 21:08	4°02'35'35		conjunction	15162 Aug 21 21:40	13°02'52'25	-12°05'38
retrograde	15155 Nov 22 09:06	6°02'07'54		minimum elong	15162 Aug 21 21:34	13°02'52'24	12°06'01
min. Earth dist.	15156 Feb 09 14:41	5°02'02'32	38.49929 AU	max. Earth dist.	15162 Aug 24 04:29	13°02'56'13	42.01796 AU
opposition	15156 Feb 11 22:03	4°02'59'31	-10°58'26	morning rise	15162 Aug 31 01:01	14°02'07'35	
direct	15156 May 03 21:33	3°02'50'38		retrograde	15162 Dec 01 13:44	15°02'39'39	
evening set	15156 Aug 02 08:16	5°02'22'26		min. Earth dist.	15163 Feb 19 04:23	14°02'35'54	40.18053 AU
				opposition	15163 Feb 21 11:59	14°02'32'57	-12°48'33
conjunction	15156 Aug 13 07:19	5°02'41'11	-10°34'35	direct	15163 May 14 13:46	13°02'25'58	
minimum elong	15156 Aug 13 07:11	5°02'41'11	10°35'04	evening set	15163 Aug 14 15:17	14°02'57'16	
max. Earth dist.	15156 Aug 15 14:50	5°02'45'10	40.58704 AU				
morning rise	15156 Aug 24 05:59	5°02'59'56		conjunction	15163 Aug 23 11:08	15°02'11'50	-12°18'55
retrograde	15156 Nov 23 00:44	7°02'32'08		minimum elong	15163 Aug 23 11:02	15°02'11'50	12°19'14
min. Earth dist.	15157 Feb 10 08:31	6°02'26'55	38.74297 AU	max. Earth dist.	15163 Aug 25 18:24	15°02'15'39	42.24999 AU
opposition	15157 Feb 12 14:56	6°02'23'57	-11°15'58	morning rise	15163 Sep 01 06:54	15°02'26'24	
direct	15157 May 05 14:31	5°02'15'19		retrograde	15163 Dec 03 02:48	16°02'58'31	
evening set	15157 Aug 04 06:28	6°02'46'58		min. Earth dist.	15164 Feb 20 20:14	15°02'54'56	40.41280 AU
				opposition	15164 Feb 23 02:27	15°02'52'05	-13°01'59
conjunction	15157 Aug 14 22:25	7°02'05'07	-10°51'10	direct	15164 May 15 04:08	14°02'45'22	
minimum elong	15157 Aug 14 22:16	7°02'05'06	10°51'38	evening set	15164 Aug 15 12:21	16°02'16'40	
max. Earth dist.	15157 Aug 17 05:17	7°02'09'01	40.82825 AU				

conjunction	15164 Aug 24 00:23	16° <u>17</u> 30'38	-12°31'41	direct	15171 May 25 06:25	23° <u>17</u> 41'00	
minimum elong	15164 Aug 24 00:17	16° <u>17</u> 30'38	12°32'01	evening set	15171 Aug 27 10:49	25° <u>17</u> 12'32	
max. Earth dist.	15164 Aug 26 06:51	16° <u>17</u> 34'23	42.47888 AU				
morning rise	15164 Sep 01 12:18	16° <u>17</u> 44'36		conjunction	15171 Sep 02 12:31	25° <u>17</u> 22'11	-13°47'52
retrograde	15164 Dec 03 12:52	18° <u>17</u> 16'46		minimum elong	15171 Sep 02 12:30	25° <u>17</u> 22'11	13°48'02
min. Earth dist.	15165 Feb 21 10:15	17° <u>17</u> 13'26	40.64149 AU	max. Earth dist.	15171 Sep 04 16:54	25° <u>17</u> 25'39	43.98480 AU
opposition	15165 Feb 23 16:37	17° <u>17</u> 10'34	-13°14'55	morning rise	15171 Sep 08 14:14	25° <u>17</u> 31'50	
direct	15165 May 16 21:30	16° <u>17</u> 04'07		retrograde	15171 Dec 12 19:50	27° <u>17</u> 04'34	
evening set	15165 Aug 17 09:03	17° <u>17</u> 35'26		min. Earth dist.	15172 Mar 02 07:46	26° <u>17</u> 02'17	42.14806 AU
				opposition	15172 Mar 04 11:25	25° <u>17</u> 59'38	-14°31'34
conjunction	15165 Aug 25 13:10	17° <u>17</u> 48'48	-12°43'59	direct	15172 May 25 21:59	24° <u>17</u> 54'37	
minimum elong	15165 Aug 25 13:06	17° <u>17</u> 48'47	12°44'16	evening set	15172 Aug 28 06:43	26° <u>17</u> 26'16	
max. Earth dist.	15165 Aug 27 18:51	17° <u>17</u> 52'28	42.70395 AU				
morning rise	15165 Sep 02 17:21	18° <u>17</u> 02'09		conjunction	15172 Sep 02 23:22	26° <u>17</u> 35'17	-13°56'52
retrograde	15165 Dec 05 00:58	19° <u>17</u> 34'23		minimum elong	15172 Sep 02 23:19	26° <u>17</u> 35'16	13°57'01
min. Earth dist.	15166 Feb 23 00:53	18° <u>17</u> 31'13	40.86637 AU	max. Earth dist.	15172 Sep 05 02:39	26° <u>17</u> 38'40	44.19047 AU
opposition	15166 Feb 25 06:37	18° <u>17</u> 28'24	-13°27'21	morning rise	15172 Sep 08 16:06	26° <u>17</u> 44'18	
direct	15166 May 18 12:52	17° <u>17</u> 22'10		retrograde	15172 Dec 13 08:22	28° <u>17</u> 17'11	
evening set	15166 Aug 19 05:48	18° <u>17</u> 53'30		min. Earth dist.	15173 Mar 03 19:14	27° <u>17</u> 15'07	42.35409 AU
				opposition	15173 Mar 05 23:21	27° <u>17</u> 12'27	-14°40'33
conjunction	15166 Aug 27 01:59	19° <u>17</u> 06'15	-12°55'48	direct	15173 May 27 09:15	26° <u>17</u> 07'39	
minimum elong	15166 Aug 27 01:54	19° <u>17</u> 06'15	12°56'05	evening set	15173 Aug 30 02:35	27° <u>17</u> 39'27	
max. Earth dist.	15166 Aug 29 07:43	19° <u>17</u> 09'54	42.92514 AU				
morning rise	15166 Sep 03 22:02	19° <u>17</u> 19'00		conjunction	15173 Sep 04 10:03	27° <u>17</u> 47'48	-14°05'25
retrograde	15166 Dec 06 12:19	20° <u>17</u> 51'18		minimum elong	15173 Sep 04 10:02	27° <u>17</u> 47'48	14°05'33
min. Earth dist.	15167 Feb 24 15:29	19° <u>17</u> 48'15	41.08710 AU	max. Earth dist.	15173 Sep 06 14:10	27° <u>17</u> 51'14	44.39404 AU
opposition	15167 Feb 26 20:04	19° <u>17</u> 45'30	-13°39'17	morning rise	15173 Sep 09 17:33	27° <u>17</u> 56'11	
direct	15167 May 20 04:11	18° <u>17</u> 39'29		retrograde	15173 Dec 14 19:44	29° <u>17</u> 29'16	
evening set	15167 Aug 21 02:23	20° <u>17</u> 10'50		min. Earth dist.	15174 Mar 05 08:19	28° <u>17</u> 27'19	42.55763 AU
				opposition	15174 Mar 07 11:04	28° <u>17</u> 24'43	-14°49'04
conjunction	15167 Aug 28 14:17	20° <u>17</u> 22'58	-13°07'09	direct	15174 May 28 21:13	27° <u>17</u> 20'09	
minimum elong	15167 Aug 28 14:13	20° <u>17</u> 22'57	13°07'25	evening set	15174 Aug 31 22:41	28° <u>17</u> 52'06	
max. Earth dist.	15167 Aug 30 18:29	20° <u>17</u> 26'29	43.14244 AU				
morning rise	15167 Sep 05 02:15	20° <u>17</u> 35'07		conjunction	15174 Sep 05 20:33	28° <u>17</u> 59'48	-14°13'31
retrograde	15167 Dec 08 02:27	22° <u>17</u> 07'27		minimum elong	15174 Sep 05 20:31	28° <u>17</u> 59'48	14°13'38
min. Earth dist.	15168 Feb 26 04:18	21° <u>17</u> 04'35	41.30424 AU	max. Earth dist.	15174 Sep 07 23:27	29° <u>17</u> 03'08	44.59503 AU
opposition	15168 Feb 28 09:18	21° <u>17</u> 01'50	-13°50'44	morning rise	15174 Sep 10 18:27	29° <u>17</u> 07'30	
direct	15168 May 20 16:05	19° <u>17</u> 56'01			15174 Oct 16 22:11	0° <u>17</u> 00'00	
evening set	15168 Aug 21 22:33	21° <u>17</u> 27'22		retrograde	15174 Dec 16 06:55	0° <u>17</u> 40'48	
					15175 Feb 17 04:09	30° <u>17</u> 00'00	
conjunction	15168 Aug 29 02:15	21° <u>17</u> 38'53	-13°18'03	min. Earth dist.	15175 Mar 06 18:59	29° <u>17</u> 39'04	42.75829 AU
minimum elong	15168 Aug 29 02:11	21° <u>17</u> 38'53	13°18'17	opposition	15175 Mar 08 22:17	29° <u>17</u> 36'28	-14°57'07
max. Earth dist.	15168 Aug 31 07:10	21° <u>17</u> 42'27	43.35639 AU	direct	15175 May 30 06:49	28° <u>17</u> 32'06	
morning rise	15168 Sep 05 05:54	21° <u>17</u> 50'26			15175 Aug 31 01:12	0° <u>17</u> 00'00	
retrograde	15168 Dec 08 15:00	23° <u>17</u> 22'50		evening set	15175 Sep 02 18:57	0° <u>17</u> 04'16	
min. Earth dist.	15169 Feb 26 18:39	22° <u>17</u> 20'03	41.51836 AU				
opposition	15169 Feb 28 22:23	22° <u>17</u> 17'22	-14°01'41	conjunction	15175 Sep 07 06:54	0° <u>17</u> 11'18	-14°21'12
direct	15169 May 22 04:25	21° <u>17</u> 11'45		minimum elong	15175 Sep 07 06:55	0° <u>17</u> 11'18	14°21'18
evening set	15169 Aug 23 18:50	22° <u>17</u> 43'08		max. Earth dist.	15175 Sep 09 09:43	0° <u>17</u> 14'36	44.79280 AU
				morning rise	15175 Sep 11 18:58	0° <u>17</u> 18'20	
conjunction	15169 Aug 30 13:56	22° <u>17</u> 54'03	-13°28'27	retrograde	15175 Dec 17 17:04	1° <u>17</u> 51'52	
minimum elong	15169 Aug 30 13:54	22° <u>17</u> 54'03	13°28'41	min. Earth dist.	15176 Mar 07 07:41	0° <u>17</u> 50'15	42.95553 AU
max. Earth dist.	15169 Sep 01 17:59	22° <u>17</u> 57'32	43.56784 AU	opposition	15176 Mar 09 09:37	0° <u>17</u> 47'44	-15°04'45
morning rise	15169 Sep 06 09:04	23° <u>17</u> 04'57			15176 Apr 22 14:01	30° <u>17</u> 00'00	
retrograde	15169 Dec 10 02:25	24° <u>17</u> 37'26		direct	15176 May 30 17:46	29° <u>17</u> 43'35	
min. Earth dist.	15170 Feb 28 06:31	23° <u>17</u> 34'52	41.73019 AU		15176 Jul 07 03:51	0° <u>17</u> 00'00	
opposition	15170 Mar 02 10:56	23° <u>17</u> 32'09	-14°12'08	evening set	15176 Sep 03 15:32	1° <u>17</u> 15'59	
direct	15170 May 23 16:19	22° <u>17</u> 26'43					
evening set	15170 Aug 25 14:45	23° <u>17</u> 58'10		conjunction	15176 Sep 07 17:03	1° <u>17</u> 22'19	-14°28'29
				minimum elong	15176 Sep 07 17:02	1° <u>17</u> 22'19	14°28'33
conjunction	15170 Sep 01 01:17	24° <u>17</u> 08'27	-13°38'24	max. Earth dist.	15176 Sep 09 19:22	1° <u>17</u> 25'35	44.98696 AU
minimum elong	15170 Sep 01 01:14	24° <u>17</u> 08'27	13°38'36	morning rise	15176 Sep 11 18:36	1° <u>17</u> 28'38	
max. Earth dist.	15170 Sep 03 05:19	24° <u>17</u> 11'55	43.77719 AU	retrograde	15176 Dec 18 00:48	3° <u>17</u> 02'28	
morning rise	15170 Sep 07 11:53	24° <u>17</u> 18'44		min. Earth dist.	15177 Mar 08 19:07	2° <u>17</u> 01'01	43.14866 AU
retrograde	15170 Dec 11 12:02	25° <u>17</u> 51'20		opposition	15177 Mar 10 20:39	1° <u>17</u> 58'30	-15°11'59
min. Earth dist.	15171 Mar 01 19:35	24° <u>17</u> 48'53	41.94013 AU	direct	15177 Jun 01 06:56	0° <u>17</u> 54'34	
opposition	15171 Mar 03 23:24	24° <u>17</u> 46'13	-14°22'06	evening set	15177 Sep 05 12:40	2° <u>17</u> 27'16	

conjunction	15177 Sep 09 03:01	2° <u>♁</u> 32'51	-14°35'22	max. Earth dist.	15184 Sep 18 16:09	10° <u>♁</u> 34'47	46.39898 AU
minimum elong	15177 Sep 09 03:01	2° <u>♁</u> 32'51	14°35'26	retrograde	15184 Dec 27 02:51	12° <u>♁</u> 08'57	
max. Earth dist.	15177 Sep 11 03:52	2° <u>♁</u> 36'00	45.17683 AU	min. Earth dist.	15185 Mar 18 07:04	11° <u>♁</u> 08'29	44.55419 AU
morning rise	15177 Sep 12 17:28	2° <u>♁</u> 38'26		opposition	15185 Mar 20 04:50	11° <u>♁</u> 06'14	-15°55'38
retrograde	15177 Dec 19 11:11	4° <u>♁</u> 12'35		direct	15185 Jun 10 17:37	10° <u>♁</u> 03'41	
min. Earth dist.	15178 Mar 10 06:30	3° <u>♁</u> 11'16	43.33747 AU				
opposition	15178 Mar 12 07:28	3° <u>♁</u> 08'48	-15°18'48	conjunction	15185 Sep 18 03:17	11° <u>♁</u> 38'35	-15°16'56
direct	15178 Jun 02 18:15	2° <u>♁</u> 05'03		minimum elong	15185 Sep 18 03:20	11° <u>♁</u> 38'36	15°16'51
evening set	15178 Sep 07 10:40	3° <u>♁</u> 38'06		max. Earth dist.	15185 Sep 20 00:53	11° <u>♁</u> 41'27	46.56243 AU
				retrograde	15185 Dec 28 13:12	13° <u>♁</u> 15'16	
conjunction	15178 Sep 10 12:56	3° <u>♁</u> 42'52	-14°41'53	min. Earth dist.	15186 Mar 19 17:43	12° <u>♁</u> 14'53	44.71686 AU
minimum elong	15178 Sep 10 12:57	3° <u>♁</u> 42'52	14°41'55	opposition	15186 Mar 21 14:00	12° <u>♁</u> 12'43	-15°59'20
morning rise	15178 Sep 13 15:17	3° <u>♁</u> 47'39		direct	15186 Jun 12 00:20	11° <u>♁</u> 10'21	
max. Earth dist.	15178 Sep 12 13:58	3° <u>♁</u> 46'02	45.36223 AU				
retrograde	15178 Dec 20 21:15	5° <u>♁</u> 22'12		conjunction	15186 Sep 19 11:32	12° <u>♁</u> 44'55	-15°20'26
min. Earth dist.	15179 Mar 11 18:38	4° <u>♁</u> 20'57	43.52150 AU	minimum elong	15186 Sep 19 11:37	12° <u>♁</u> 44'55	15°20'20
opposition	15179 Mar 13 18:06	4° <u>♁</u> 18'34	-15°25'14	max. Earth dist.	15186 Sep 21 08:22	12° <u>♁</u> 47'43	46.72299 AU
direct	15179 Jun 04 05:55	3° <u>♁</u> 15'00		retrograde	15186 Dec 29 20:30	14° <u>♁</u> 21'15	
evening set	15179 Sep 09 10:01	4° <u>♁</u> 48'29		min. Earth dist.	15187 Mar 21 02:31	13° <u>♁</u> 21'03	44.87616 AU
				opposition	15187 Mar 22 22:54	13° <u>♁</u> 18'53	-16°02'41
conjunction	15179 Sep 11 22:28	4° <u>♁</u> 52'21	-14°48'01	direct	15187 Jun 13 07:54	12° <u>♁</u> 16'42	
minimum elong	15179 Sep 11 22:29	4° <u>♁</u> 52'21	14°48'03				
morning rise	15179 Sep 14 11:00	4° <u>♁</u> 56'14		conjunction	15187 Sep 20 19:33	13° <u>♁</u> 50'55	-15°23'37
max. Earth dist.	15179 Sep 13 21:43	4° <u>♁</u> 55'23	45.54310 AU	minimum elong	15187 Sep 20 19:37	13° <u>♁</u> 50'55	15°23'28
retrograde	15179 Dec 22 08:59	6° <u>♁</u> 31'15		max. Earth dist.	15187 Sep 22 15:17	13° <u>♁</u> 53'38	46.87988 AU
min. Earth dist.	15180 Mar 12 04:37	5° <u>♁</u> 30'10	43.70120 AU	retrograde	15187 Dec 31 03:31	15° <u>♁</u> 26'57	
opposition	15180 Mar 14 04:21	5° <u>♁</u> 27'47	-15°31'18	min. Earth dist.	15188 Mar 21 12:27	14° <u>♁</u> 26'51	45.03169 AU
direct	15180 Jun 04 13:59	4° <u>♁</u> 24'22		opposition	15188 Mar 23 07:47	14° <u>♁</u> 24'44	-16°05'40
evening set	15180 Sep 10 12:09	5° <u>♁</u> 58'30		direct	15188 Jun 13 18:18	13° <u>♁</u> 22'44	
conjunction	15180 Sep 12 07:49	6° <u>♁</u> 01'17	-14°53'48	conjunction	15188 Sep 21 03:40	14° <u>♁</u> 56'36	-15°26'27
minimum elong	15180 Sep 12 07:51	6° <u>♁</u> 01'17	14°53'47	minimum elong	15188 Sep 21 03:46	14° <u>♁</u> 56'37	15°26'18
morning rise	15180 Sep 14 03:35	6° <u>♁</u> 04'05		max. Earth dist.	15188 Sep 22 23:34	14° <u>♁</u> 59'20	47.03276 AU
max. Earth dist.	15180 Sep 14 07:05	6° <u>♁</u> 04'18	45.71993 AU	retrograde	15188 Dec 31 09:15	16° <u>♁</u> 32'20	
retrograde	15180 Dec 22 17:41	7° <u>♁</u> 39'46		min. Earth dist.	15189 Mar 22 22:23	15° <u>♁</u> 32'20	45.18270 AU
min. Earth dist.	15181 Mar 13 16:22	6° <u>♁</u> 38'44	43.87727 AU	opposition	15189 Mar 24 16:33	15° <u>♁</u> 30'16	-16°08'20
opposition	15181 Mar 15 14:36	6° <u>♁</u> 36'26	-15°36'58	direct	15189 Jun 15 06:30	14° <u>♁</u> 28'26	
direct	15181 Jun 05 23:51	5° <u>♁</u> 33'11					
				conjunction	15189 Sep 22 11:28	16° <u>♁</u> 01'58	-15°28'59
conjunction	15181 Sep 13 16:51	7° <u>♁</u> 09'40	-14°59'11	minimum elong	15189 Sep 22 11:33	16° <u>♁</u> 01'58	15°28'48
minimum elong	15181 Sep 13 16:53	7° <u>♁</u> 09'40	14°59'10	max. Earth dist.	15189 Sep 24 05:19	16° <u>♁</u> 04'33	47.18095 AU
evening set	15181 Sep 13 00:54	7° <u>♁</u> 08'39		retrograde	15190 Jan 01 19:34	17° <u>♁</u> 37'22	
morning rise	15181 Sep 14 08:53	7° <u>♁</u> 10'41		min. Earth dist.	15190 Mar 24 07:07	16° <u>♁</u> 37'29	45.32882 AU
max. Earth dist.	15181 Sep 15 15:47	7° <u>♁</u> 12'39	45.89357 AU	opposition	15190 Mar 26 01:07	16° <u>♁</u> 35'27	-16°10'41
retrograde	15181 Dec 23 23:23	8° <u>♁</u> 47'45		direct	15190 Jun 16 14:29	15° <u>♁</u> 33'45	
min. Earth dist.	15182 Mar 15 02:01	7° <u>♁</u> 46'52	44.05025 AU				
opposition	15182 Mar 17 00:26	7° <u>♁</u> 44'33	-15°42'14	conjunction	15190 Sep 23 19:24	17° <u>♁</u> 06'56	-15°31'13
direct	15182 Jun 07 11:59	6° <u>♁</u> 41'28		minimum elong	15190 Sep 23 19:29	17° <u>♁</u> 06'56	15°31'02
				max. Earth dist.	15190 Sep 25 12:59	17° <u>♁</u> 09'29	47.32400 AU
conjunction	15182 Sep 15 01:42	8° <u>♁</u> 17'32	-15°04'12	retrograde	15191 Jan 03 04:41	18° <u>♁</u> 42'01	
minimum elong	15182 Sep 15 01:45	8° <u>♁</u> 17'32	15°04'09	min. Earth dist.	15191 Mar 25 17:39	17° <u>♁</u> 42'09	45.46965 AU
max. Earth dist.	15182 Sep 16 23:41	8° <u>♁</u> 20'27	46.06439 AU	opposition	15191 Mar 27 09:30	17° <u>♁</u> 40'13	-16°12'44
retrograde	15182 Dec 25 07:41	9° <u>♁</u> 55'14		direct	15191 Jun 17 22:41	16° <u>♁</u> 38'38	
min. Earth dist.	15183 Mar 16 11:56	8° <u>♁</u> 54'29	44.22074 AU				
opposition	15183 Mar 18 10:00	8° <u>♁</u> 52'11	-15°47'06	conjunction	15191 Sep 25 03:06	18° <u>♁</u> 11'28	-15°33'10
direct	15183 Jun 08 22:54	7° <u>♁</u> 49'16		minimum elong	15191 Sep 25 03:12	18° <u>♁</u> 11'28	15°32'57
				max. Earth dist.	15191 Sep 26 19:24	18° <u>♁</u> 13'56	47.46201 AU
conjunction	15183 Sep 16 10:32	9° <u>♁</u> 24'56	-15°08'49	retrograde	15192 Jan 04 11:22	19° <u>♁</u> 46'13	
minimum elong	15183 Sep 16 10:35	9° <u>♁</u> 24'56	15°08'46	min. Earth dist.	15192 Mar 26 01:50	18° <u>♁</u> 46'26	45.60545 AU
max. Earth dist.	15183 Sep 18 09:04	9° <u>♁</u> 27'53	46.23289 AU	opposition	15192 Mar 27 17:42	18° <u>♁</u> 44'30	-16°14'29
retrograde	15183 Dec 26 15:45	11° <u>♁</u> 02'17		direct	15192 Jun 18 05:48	17° <u>♁</u> 43'03	
min. Earth dist.	15184 Mar 16 22:22	10° <u>♁</u> 01'38	44.38869 AU				
opposition	15184 Mar 18 19:31	9° <u>♁</u> 59'24	-15°51'34	conjunction	15192 Sep 25 10:22	19° <u>♁</u> 15'31	-15°34'49
direct	15184 Jun 09 10:12	8° <u>♁</u> 56'40		minimum elong	15192 Sep 25 10:28	19° <u>♁</u> 15'32	15°34'36
				max. Earth dist.	15192 Sep 27 01:36	19° <u>♁</u> 17'55	47.59524 AU
conjunction	15184 Sep 16 18:53	10° <u>♁</u> 31'56	-15°13'04	retrograde	15193 Jan 04 17:34	20° <u>♁</u> 49'56	
minimum elong	15184 Sep 16 18:57	10° <u>♁</u> 31'57	15°12'59	min. Earth dist.	15193 Mar 27 11:14	19° <u>♁</u> 50'11	45.73696 AU

opposition	15193 Mar 29 01:54	19° <u>♁</u> 48'19	-16°15'55	conjunction	15201 Oct 04 23:13	28° <u>♁</u> 36'03	-15°35'57
direct	15193 Jun 19 13:37	18° <u>♁</u> 46'57		minimum elong	15201 Oct 04 23:22	28° <u>♁</u> 36'03	15°35'36
				max. Earth dist.	15201 Oct 06 08:45	28° <u>♁</u> 38'03	48.64338 AU
conjunction	15193 Sep 26 17:43	20° <u>♁</u> 19'05	-15°36'10		15201 Dec 17 15:54	0° <u>♂</u>	
minimum elong	15193 Sep 26 17:50	20° <u>♁</u> 19'06	15°35'55	retrograde	15202 Jan 14 08:07	0° <u>♂</u> 08'15	
max. Earth dist.	15193 Sep 28 09:07	20° <u>♁</u> 21'30	47.72457 AU		15202 Feb 11 07:04	30° <u>♂</u> <u>♁</u>	
retrograde	15194 Jan 05 22:12	21° <u>♁</u> 53'12		min. Earth dist.	15202 Apr 06 10:55	29° <u>♁</u> 09'13	46.76884 AU
min. Earth dist.	15194 Mar 28 19:46	20° <u>♁</u> 53'29	45.86470 AU	opposition	15202 Apr 07 19:47	29° <u>♁</u> 07'40	-16°14'50
opposition	15194 Mar 30 09:41	20° <u>♁</u> 51'39	-16°17'03	direct	15202 Jun 29 08:40	28° <u>♁</u> 07'28	
direct	15194 Jun 21 00:14	19° <u>♁</u> 50'24					
				conjunction	15202 Oct 06 05:35	29° <u>♁</u> 37'15	-15°34'42
conjunction	15194 Sep 28 00:45	21° <u>♁</u> 22'12	-15°37'12	minimum elong	15202 Oct 06 05:44	29° <u>♁</u> 37'16	15°34'18
minimum elong	15194 Sep 28 00:51	21° <u>♁</u> 22'12	15°36'57	max. Earth dist.	15202 Oct 07 13:43	29° <u>♁</u> 39'10	48.73965 AU
max. Earth dist.	15194 Sep 29 14:36	21° <u>♁</u> 24'30	47.85053 AU		15202 Oct 22 07:27	0° <u>♂</u>	
retrograde	15195 Jan 07 06:09	22° <u>♁</u> 56'01		retrograde	15203 Jan 15 14:25	1° <u>♂</u> 09'13	
min. Earth dist.	15195 Mar 30 03:22	21° <u>♁</u> 56'24	45.98935 AU	min. Earth dist.	15203 Apr 07 19:36	0° <u>♂</u> 10'12	46.86230 AU
opposition	15195 Mar 31 17:22	21° <u>♁</u> 54'34	-16°17'51	opposition	15203 Apr 09 02:42	0° <u>♂</u> 08'44	-16°13'19
direct	15195 Jun 22 08:28	20° <u>♁</u> 53'26			15203 Apr 16 19:44	30° <u>♂</u> <u>♁</u>	
				direct	15203 Jun 30 13:31	29° <u>♁</u> 08'38	
conjunction	15195 Sep 29 07:41	22° <u>♁</u> 24'55	-15°37'55		15203 Sep 09 19:41	0° <u>♂</u>	
minimum elong	15195 Sep 29 07:49	22° <u>♁</u> 24'56	15°37'38	conjunction	15203 Oct 07 11:51	0° <u>♂</u> 38'12	-15°33'12
max. Earth dist.	15195 Sep 30 21:57	22° <u>♁</u> 27'15	47.97348 AU	minimum elong	15203 Oct 07 12:01	0° <u>♂</u> 38'12	15°32'48
retrograde	15196 Jan 08 14:33	23° <u>♁</u> 58'28		max. Earth dist.	15203 Oct 08 19:39	0° <u>♂</u> 40'05	48.83072 AU
min. Earth dist.	15196 Mar 30 12:22	22° <u>♁</u> 58'53	46.11101 AU	retrograde	15204 Jan 16 17:25	2° <u>♂</u> 09'57	
opposition	15196 Apr 01 01:01	22° <u>♁</u> 57'07	-16°18'20	min. Earth dist.	15204 Apr 08 03:04	1° <u>♂</u> 10'57	46.95049 AU
direct	15196 Jun 22 15:54	21° <u>♁</u> 56'07		opposition	15204 Apr 09 09:21	1° <u>♂</u> 09'31	-16°11'33
				direct	15204 Jun 30 22:12	0° <u>♂</u> 09'30	
conjunction	15196 Sep 29 14:31	23° <u>♁</u> 27'19	-15°38'19				
minimum elong	15196 Sep 29 14:37	23° <u>♁</u> 27'19	15°38'02	conjunction	15204 Oct 07 17:51	1° <u>♂</u> 38'49	-15°31'27
max. Earth dist.	15196 Oct 01 03:48	23° <u>♁</u> 29'34	48.09373 AU	minimum elong	15204 Oct 07 18:01	1° <u>♂</u> 38'49	15°31'01
retrograde	15197 Jan 08 22:22	25° <u>♁</u> 00'35		max. Earth dist.	15204 Oct 08 23:48	1° <u>♂</u> 40'35	48.91691 AU
min. Earth dist.	15197 Mar 31 19:17	24° <u>♁</u> 01'09	46.22983 AU	retrograde	15205 Jan 16 23:15	3° <u>♂</u> 10'21	
opposition	15197 Apr 02 08:23	23° <u>♁</u> 59'23	-16°18'29	min. Earth dist.	15205 Apr 09 10:06	2° <u>♂</u> 11'24	47.03428 AU
direct	15197 Jun 23 20:41	22° <u>♁</u> 58'30		opposition	15205 Apr 10 15:55	2° <u>♂</u> 09'59	-16°09'32
				direct	15205 Jul 02 06:13	1° <u>♂</u> 10'02	
conjunction	15197 Sep 30 21:06	24° <u>♁</u> 29'26	-15°38'25				
minimum elong	15197 Sep 30 21:15	24° <u>♁</u> 29'27	15°38'07	conjunction	15205 Oct 08 23:48	2° <u>♂</u> 39'06	-15°29'27
max. Earth dist.	15197 Oct 02 09:43	24° <u>♁</u> 31'39	48.21100 AU	minimum elong	15205 Oct 08 23:58	2° <u>♂</u> 39'06	15°29'01
retrograde	15198 Jan 10 04:43	26° <u>♁</u> 02'29		max. Earth dist.	15205 Oct 10 05:57	2° <u>♂</u> 40'53	48.99893 AU
min. Earth dist.	15198 Apr 02 03:57	25° <u>♁</u> 03'06	46.34561 AU	retrograde	15206 Jan 18 06:08	4° <u>♂</u> 10'25	
opposition	15198 Apr 03 15:47	25° <u>♁</u> 01'23	-16°18'20	opposition	15206 Apr 11 22:22	3° <u>♂</u> 10'07	-16°07'15
direct	15198 Jun 25 03:45	24° <u>♁</u> 00'39		min. Earth dist.	15206 Apr 10 18:05	3° <u>♂</u> 11'27	47.11413 AU
				direct	15206 Jul 03 14:58	2° <u>♂</u> 10'13	
conjunction	15198 Oct 02 03:51	25° <u>♁</u> 31'21	-15°38'13				
minimum elong	15198 Oct 02 03:58	25° <u>♁</u> 31'21	15°37'54	conjunction	15206 Oct 10 05:38	3° <u>♂</u> 39'03	-15°27'11
max. Earth dist.	15198 Oct 03 16:33	25° <u>♁</u> 33'33	48.32511 AU	minimum elong	15206 Oct 10 05:48	3° <u>♂</u> 39'04	15°26'43
retrograde	15199 Jan 11 08:14	27° <u>♁</u> 04'09		max. Earth dist.	15206 Oct 11 10:36	3° <u>♂</u> 40'46	49.07751 AU
min. Earth dist.	15199 Apr 03 11:36	26° <u>♁</u> 04'53	46.45782 AU	retrograde	15207 Jan 19 14:45	5° <u>♂</u> 10'09	
opposition	15199 Apr 04 22:48	26° <u>♁</u> 03'12	-16°17'53	min. Earth dist.	15207 Apr 11 23:46	4° <u>♂</u> 11'16	47.19073 AU
direct	15199 Jun 26 13:34	25° <u>♁</u> 02'36		opposition	15207 Apr 13 04:28	4° <u>♂</u> 09'55	-16°04'41
				direct	15207 Jul 04 18:51	3° <u>♂</u> 10'05	
conjunction	15199 Oct 03 10:18	26° <u>♁</u> 33'04	-15°37'44				
minimum elong	15199 Oct 03 10:27	26° <u>♁</u> 33'05	15°37'24	conjunction	15207 Oct 11 11:20	4° <u>♂</u> 38'43	-15°24'38
max. Earth dist.	15199 Oct 04 21:14	26° <u>♁</u> 35'10	48.43556 AU	minimum elong	15207 Oct 11 11:30	4° <u>♂</u> 38'43	15°24'11
retrograde	15200 Jan 12 16:30	28° <u>♁</u> 05'41		max. Earth dist.	15207 Oct 12 15:39	4° <u>♂</u> 40'23	49.15298 AU
min. Earth dist.	15200 Apr 03 19:01	27° <u>♁</u> 06'31	46.56621 AU	retrograde	15208 Jan 20 20:58	6° <u>♂</u> 09'37	
opposition	15200 Apr 05 05:55	27° <u>♁</u> 04'51	-16°17'08	min. Earth dist.	15208 Apr 12 07:28	5° <u>♂</u> 10'43	47.26447 AU
direct	15200 Jun 26 20:53	26° <u>♁</u> 04'24		opposition	15208 Apr 13 10:47	5° <u>♂</u> 09'26	-16°01'50
				direct	15208 Jul 04 22:58	4° <u>♂</u> 09'42	
conjunction	15200 Oct 03 16:45	27° <u>♁</u> 34'38	-15°36'59				
minimum elong	15200 Oct 03 16:53	27° <u>♁</u> 34'39	15°36'37	conjunction	15208 Oct 11 16:55	5° <u>♂</u> 38'07	-15°21'50
max. Earth dist.	15200 Oct 05 03:43	27° <u>♁</u> 36'44	48.54181 AU	minimum elong	15208 Oct 11 17:07	5° <u>♂</u> 38'07	15°21'21
retrograde	15201 Jan 13 00:55	29° <u>♁</u> 07'03		max. Earth dist.	15208 Oct 12 21:29	5° <u>♂</u> 39'47	49.22576 AU
min. Earth dist.	15201 Apr 05 04:03	28° <u>♁</u> 07'55	46.67003 AU	retrograde	15209 Jan 20 22:51	7° <u>♂</u> 08'50	
opposition	15201 Apr 06 13:03	28° <u>♁</u> 06'21	-16°16'07	opposition	15209 Apr 14 16:53	6° <u>♂</u> 08'43	-15°58'42
direct	15201 Jun 28 04:24	27° <u>♁</u> 06'02		min. Earth dist.	15209 Apr 13 13:38	6° <u>♂</u> 10'00	47.33529 AU



direct	15209 Jul 06 06:31	5°M09'03		retrograde	15217 Jan 28 21:31	14°M57'18	
				opposition	15217 Apr 22 15:11	13°M57'44	-15°24'42
conjunction	15209 Oct 12 22:25	6°M37'18 -15°18'45		min. Earth dist.	15217 Apr 21 18:55	13°M58'40	47.75988 AU
minimum elong	15209 Oct 12 22:35	6°M37'18 15°18'16		direct	15217 Jul 14 05:32	12°M58'38	
max. Earth dist.	15209 Oct 14 01:20	6°M38'52 49.29569 AU		evening set	15217 Oct 17 21:17	14°M21'45	
retrograde	15210 Jan 22 03:43	8°M07'51					
opposition	15210 Apr 15 22:47	7°M07'48 -15°55'18		conjunction	15217 Oct 20 17:30	14°M25'41 -14°45'30	
min. Earth dist.	15210 Apr 14 19:56	7°M09'04 47.40328 AU		minimum elong	15217 Oct 20 17:42	14°M25'42 14°44'53	
direct	15210 Jul 07 13:22	6°M08'14		max. Earth dist.	15217 Oct 21 13:15	14°M26'50 49.70760 AU	
				morning rise	15217 Oct 23 14:13	14°M29'40	
conjunction	15210 Oct 14 04:01	7°M36'18 -15°15'24			15217 Nov 15 01:16	15°M	
minimum elong	15210 Oct 14 04:13	7°M36'19 15°14'54		retrograde	15218 Jan 30 04:21	15°M55'10	
max. Earth dist.	15210 Oct 15 07:15	7°M37'54 49.36254 AU			15218 Apr 19 22:30	15°R M	
retrograde	15211 Jan 23 09:51	9°M06'42		opposition	15218 Apr 23 20:37	14°M55'38 -15°19'26	
min. Earth dist.	15211 Apr 16 03:26	8°M07'56 47.46787 AU		min. Earth dist.	15218 Apr 23 02:09	14°M56'29 47.79189 AU	
opposition	15211 Apr 17 04:46	8°M06'45 -15°51'38		direct	15218 Jul 15 08:31	13°M56'35	
direct	15211 Jul 08 20:59	7°M07'16			15218 Oct 04 18:45	15°M	
				evening set	15218 Oct 18 15:46	15°M18'57	
conjunction	15211 Oct 15 09:22	8°M35'10 -15°11'48		conjunction	15218 Oct 21 22:41	15°M23'31 -14°40'20	
minimum elong	15211 Oct 15 09:32	8°M35'10 15°11'17		minimum elong	15218 Oct 21 22:53	15°M23'31 14°39'44	
max. Earth dist.	15211 Oct 16 11:22	8°M36'41 49.42597 AU		max. Earth dist.	15218 Oct 22 18:21	15°M24'39 49.73859 AU	
retrograde	15212 Jan 24 17:01	10°M05'26		morning rise	15218 Oct 25 06:05	15°M28'06	
min. Earth dist.	15212 Apr 16 09:03	9°M06'46 47.52874 AU		retrograde	15219 Jan 31 06:23	16°M52'52	
opposition	15212 Apr 17 10:36	9°M05'34 -15°47'43		min. Earth dist.	15219 Apr 24 07:35	15°M54'14 47.82030 AU	
direct	15212 Jul 09 01:36	8°M06'10		opposition	15219 Apr 25 01:57	15°M53'22 -15°13'55	
					15219 Jun 23 15:33	15°R M	
conjunction	15212 Oct 15 14:47	9°M33'55 -15°07'58		direct	15219 Jul 16 14:48	14°M54'22	
minimum elong	15212 Oct 15 14:59	9°M33'56 15°07'27			15219 Aug 08 10:13	15°M	
max. Earth dist.	15212 Oct 16 15:47	9°M35'23 49.48530 AU		evening set	15219 Oct 19 10:49	16°M16'04	
retrograde	15213 Jan 25 00:18	11°M04'03					
opposition	15213 Apr 18 16:31	10°M04'16 -15°43'33		conjunction	15219 Oct 23 03:32	16°M21'12 -14°34'56	
min. Earth dist.	15213 Apr 17 16:50	10°M05'23 47.58531 AU		minimum elong	15219 Oct 23 03:44	16°M21'12 14°34'18	
direct	15213 Jul 10 04:58	9°M04'58		max. Earth dist.	15219 Oct 23 21:33	16°M22'14 49.76621 AU	
				morning rise	15219 Oct 26 20:48	16°M26'21	
conjunction	15213 Oct 16 20:18	10°M32'35 -15°03'54		retrograde	15220 Feb 01 10:05	17°M50'28	
minimum elong	15213 Oct 16 20:29	10°M32'36 15°03'21		opposition	15220 Apr 25 07:21	16°M51'00 -15°08'09	
max. Earth dist.	15213 Oct 17 20:54	10°M34'01 49.54009 AU		min. Earth dist.	15220 Apr 24 13:29	16°M51'50 47.84562 AU	
retrograde	15214 Jan 26 03:36	12°M02'35		direct	15220 Jul 16 20:57	15°M52'03	
opposition	15214 Apr 19 22:16	11°M02'52 -15°39'10		evening set	15220 Oct 19 06:40	17°M13'08	
min. Earth dist.	15214 Apr 18 23:14	11°M03'57 47.63680 AU					
direct	15214 Jul 11 10:42	10°M03'38		conjunction	15220 Oct 23 08:35	17°M18'46 -14°29'17	
evening set	15214 Oct 17 08:49	11°M30'08		minimum elong	15220 Oct 23 08:47	17°M18'47 14°28'40	
				max. Earth dist.	15220 Oct 24 02:57	17°M19'50 49.79082 AU	
conjunction	15214 Oct 18 01:42	11°M31'07 -14°59'37		morning rise	15220 Oct 27 11:01	17°M24'27	
minimum elong	15214 Oct 18 01:53	11°M31'08 14°59'04		retrograde	15221 Feb 01 15:18	18°M47'58	
evening rise	15214 Oct 18 19:00	11°M32'07		opposition	15221 Apr 26 12:40	17°M48'33 -15°02'08	
max. Earth dist.	15214 Oct 19 00:07	11°M32'25 49.58959 AU		min. Earth dist.	15221 Apr 25 20:04	17°M49'20 47.86785 AU	
retrograde	15215 Jan 27 08:52	13°M00'59		direct	15221 Jul 18 04:22	16°M49'40	
min. Earth dist.	15215 Apr 20 05:57	12°M02'22 47.68297 AU		evening set	15221 Oct 20 02:58	18°M10'10	
opposition	15215 Apr 21 03:55	12°M01'20 -15°34'33					
direct	15215 Jul 12 16:57	11°M02'10		conjunction	15221 Oct 24 13:29	18°M16'18 -14°23'24	
evening set	15215 Oct 17 14:11	12°M27'07		minimum elong	15221 Oct 24 13:42	18°M16'18 14°22'46	
				max. Earth dist.	15221 Oct 25 06:42	18°M17'17 49.81250 AU	
conjunction	15215 Oct 19 07:11	12°M29'30 -14°55'07		morning rise	15221 Oct 29 00:35	18°M22'28	
minimum elong	15215 Oct 19 07:23	12°M29'30 14°54'33		retrograde	15222 Feb 02 22:33	19°M45'26	
max. Earth dist.	15215 Oct 20 05:20	12°M30'47 49.63374 AU		opposition	15222 Apr 27 17:52	18°M46'04 -14°55'52	
morning rise	15215 Oct 21 00:37	12°M31'54		min. Earth dist.	15222 Apr 27 00:55	18°M46'52 47.88699 AU	
retrograde	15216 Jan 28 13:53	13°M59'14		direct	15222 Jul 19 08:43	17°M47'14	
opposition	15216 Apr 21 09:40	12°M59'38 -15°29'45		evening set	15222 Oct 20 23:32	19°M07'12	
min. Earth dist.	15216 Apr 20 13:21	13°M00'35 47.72378 AU					
direct	15216 Jul 13 01:27	12°M00'30		conjunction	15222 Oct 25 18:23	19°M13'48 -14°17'17	
evening set	15216 Oct 17 04:23	13°M24'27		minimum elong	15222 Oct 25 18:35	19°M13'49 14°16'38	
				max. Earth dist.	15222 Oct 26 10:40	19°M14'44 49.83083 AU	
conjunction	15216 Oct 19 12:19	13°M27'41 -14°50'25		morning rise	15222 Oct 30 13:50	19°M20'27	
minimum elong	15216 Oct 19 12:31	13°M27'42 14°49'51		retrograde	15223 Feb 04 05:53	20°M42'52	
max. Earth dist.	15216 Oct 20 08:59	13°M28'53 49.67293 AU		opposition	15223 Apr 28 23:05	19°M43'35 -14°49'22	
morning rise	15216 Oct 21 20:42	13°M30'58					

min. Earth dist.	15223 Apr 28 07:51	19° <del>18</del> 44'17	47.90271 AU	morning rise	15229 Nov 08 03:05	26° <del>18</del> 05'08	
direct	15223 Jul 20 11:05	18° <del>18</del> 44'48		retrograde	15230 Feb 10 15:11	27° <del>18</del> 24'20	
evening set	15223 Oct 21 20:39	20° <del>18</del> 04'15		opposition	15230 May 05 11:05	26° <del>18</del> 25'08	-13°57'54
				min. Earth dist.	15230 May 05 02:44	26° <del>18</del> 25'32	47.88057 AU
conjunction	15223 Oct 26 23:23	20° <del>18</del> 11'19	-14°10'56	direct	15230 Jul 26 21:59	25° <del>18</del> 26'28	
minimum elong	15223 Oct 26 23:36	20° <del>18</del> 11'20	14°10'16	evening set	15230 Oct 26 06:11	26° <del>18</del> 42'46	
max. Earth dist.	15223 Oct 27 15:39	20° <del>18</del> 12'15	49.84571 AU				
morning rise	15223 Nov 01 02:44	20° <del>18</del> 18'24		conjunction	15230 Nov 02 09:56	26° <del>18</del> 52'34	-13°20'46
retrograde	15224 Feb 05 09:24	21° <del>18</del> 40'19		minimum elong	15230 Nov 02 10:09	26° <del>18</del> 52'35	13°20'01
opposition	15224 Apr 29 04:17	20° <del>18</del> 41'05	-14°42'38	max. Earth dist.	15230 Nov 02 18:41	26° <del>18</del> 53'05	49.81390 AU
min. Earth dist.	15224 Apr 28 13:19	20° <del>18</del> 41'47	47.91456 AU	morning rise	15230 Nov 09 14:28	27° <del>18</del> 02'26	
direct	15224 Jul 20 14:08	19° <del>18</del> 42'22		retrograde	15231 Feb 11 18:12	28° <del>18</del> 21'14	
evening set	15224 Oct 21 17:49	21° <del>18</del> 01'21		opposition	15231 May 06 16:01	27° <del>18</del> 22'00	-13°49'43
				min. Earth dist.	15231 May 06 08:52	27° <del>18</del> 22'20	47.85871 AU
conjunction	15224 Oct 27 04:10	21° <del>18</del> 08'50	-14°04'22	direct	15231 Jul 28 05:39	26° <del>18</del> 23'19	
minimum elong	15224 Oct 27 04:22	21° <del>18</del> 08'51	14°03'41	evening set	15231 Oct 27 04:42	27° <del>18</del> 39'13	
max. Earth dist.	15224 Oct 27 18:31	21° <del>18</del> 09'40	49.85643 AU				
morning rise	15224 Nov 01 15:13	21° <del>18</del> 16'22		conjunction	15231 Nov 03 14:41	27° <del>18</del> 49'23	-13°12'46
retrograde	15225 Feb 05 14:27	22° <del>18</del> 37'49		minimum elong	15231 Nov 03 14:53	27° <del>18</del> 49'23	13°12'01
opposition	15225 Apr 30 09:33	21° <del>18</del> 38'37	-14°35'41	max. Earth dist.	15231 Nov 03 22:12	27° <del>18</del> 49'49	49.79161 AU
min. Earth dist.	15225 Apr 29 19:41	21° <del>18</del> 39'16	47.92206 AU	morning rise	15231 Nov 11 01:31	27° <del>18</del> 59'36	
direct	15225 Jul 21 19:07	20° <del>18</del> 39'57		retrograde	15232 Feb 13 00:15	29° <del>18</del> 18'00	
evening set	15225 Oct 22 15:30	21° <del>18</del> 58'28		opposition	15232 May 06 20:56	28° <del>18</del> 18'47	-13°41'17
				min. Earth dist.	15232 May 06 13:29	28° <del>18</del> 19'07	47.83372 AU
conjunction	15225 Oct 28 09:18	22° <del>18</del> 06'22	-13°57'35	direct	15232 Jul 28 10:33	27° <del>18</del> 20'04	
minimum elong	15225 Oct 28 09:31	22° <del>18</del> 06'23	13°56'55	evening set	15232 Oct 27 03:05	28° <del>18</del> 35'36	
max. Earth dist.	15225 Oct 28 23:24	22° <del>18</del> 07'11	49.86235 AU				
morning rise	15225 Nov 03 03:46	22° <del>18</del> 14'19		conjunction	15232 Nov 03 19:21	28° <del>18</del> 46'07	-13°04'32
retrograde	15226 Feb 06 17:31	23° <del>18</del> 35'18		minimum elong	15232 Nov 03 19:34	28° <del>18</del> 46'08	13°03'47
opposition	15226 May 01 14:40	22° <del>18</del> 36'09	-14°28'31	max. Earth dist.	15232 Nov 04 02:05	28° <del>18</del> 46'30	49.76615 AU
min. Earth dist.	15226 May 01 02:30	22° <del>18</del> 36'42	47.92434 AU	morning rise	15232 Nov 11 12:36	28° <del>18</del> 56'42	
direct	15226 Jul 23 03:58	21° <del>18</del> 37'30			15233 Jan 06 08:57	0° <del>18</del> 14'44	
evening set	15226 Oct 23 13:29	22° <del>18</del> 55'34		retrograde	15233 Feb 13 07:09	0° <del>18</del> 14'44	
					15233 Mar 23 17:20	30° <del>18</del> 14'44	
conjunction	15226 Oct 29 14:21	23° <del>18</del> 03'52	-13°50'37	opposition	15233 May 08 02:00	29° <del>18</del> 15'30	-13°32'37
minimum elong	15226 Oct 29 14:33	23° <del>18</del> 03'52	13°49'55	min. Earth dist.	15233 May 07 20:07	29° <del>18</del> 15'46	47.80567 AU
max. Earth dist.	15226 Oct 30 02:39	23° <del>18</del> 04'34	49.86300 AU	direct	15233 Jul 29 14:13	28° <del>18</del> 16'48	
morning rise	15226 Nov 04 15:57	23° <del>18</del> 12'13		evening set	15233 Oct 28 01:48	29° <del>18</del> 31'58	
retrograde	15227 Feb 08 00:48	24° <del>18</del> 32'45					
opposition	15227 May 02 19:48	23° <del>18</del> 33'36	-14°21'10	conjunction	15233 Nov 05 00:15	29° <del>18</del> 42'50	-12°56'05
min. Earth dist.	15227 May 02 07:57	23° <del>18</del> 34'09	47.92112 AU	minimum elong	15233 Nov 05 00:27	29° <del>18</del> 42'51	12°55'19
direct	15227 Jul 24 09:16	22° <del>18</del> 34'59		max. Earth dist.	15233 Nov 05 07:03	29° <del>18</del> 43'14	49.73780 AU
evening set	15227 Oct 24 11:23	23° <del>18</del> 52'35		morning rise	15233 Nov 12 23:30	29° <del>18</del> 53'46	
					15233 Nov 17 13:44	0° <del>18</del> 11'28	
conjunction	15227 Oct 30 19:15	24° <del>18</del> 01'16	-13°43'27	retrograde	15234 Feb 14 11:18	1° <del>18</del> 11'28	
minimum elong	15227 Oct 30 19:28	24° <del>18</del> 01'17	13°42'45	opposition	15234 May 09 06:44	0° <del>18</del> 12'14	-13°23'43
max. Earth dist.	15227 Oct 31 06:13	24° <del>18</del> 01'54	49.85796 AU	min. Earth dist.	15234 May 09 00:52	0° <del>18</del> 12'30	47.77457 AU
morning rise	15227 Nov 06 03:54	24° <del>18</del> 10'01			15234 May 20 08:34	30° <del>18</del> 12'30	
retrograde	15228 Feb 09 09:05	25° <del>18</del> 30'06		direct	15234 Jul 30 17:12	29° <del>18</del> 13'32	
opposition	15228 May 03 01:05	24° <del>18</del> 30'57	-14°13'37		15234 Oct 07 05:46	0° <del>18</del> 13'32	
min. Earth dist.	15228 May 02 15:22	24° <del>18</del> 31'24	47.91237 AU	evening set	15234 Oct 29 00:36	0° <del>18</del> 28'23	
direct	15228 Jul 24 12:24	23° <del>18</del> 32'19					
evening set	15228 Oct 24 09:38	24° <del>18</del> 49'28		conjunction	15234 Nov 06 04:59	0° <del>18</del> 39'37	-12°47'24
				minimum elong	15234 Nov 06 05:12	0° <del>18</del> 39'37	12°46'38
conjunction	15228 Oct 31 00:16	24° <del>18</del> 58'32	-13°36'06	max. Earth dist.	15234 Nov 06 10:02	0° <del>18</del> 39'54	49.70636 AU
minimum elong	15228 Oct 31 00:28	24° <del>18</del> 58'33	13°35'22	morning rise	15234 Nov 14 10:26	0° <del>18</del> 50'52	
max. Earth dist.	15228 Oct 31 10:49	24° <del>18</del> 59'09	49.84775 AU	retrograde	15235 Feb 15 16:33	2° <del>18</del> 08'15	
morning rise	15228 Nov 06 15:36	25° <del>18</del> 07'40		opposition	15235 May 10 11:43	1° <del>18</del> 09'02	-13°14'35
retrograde	15229 Feb 09 12:01	26° <del>18</del> 27'18		min. Earth dist.	15235 May 10 06:44	1° <del>18</del> 09'16	47.74036 AU
opposition	15229 May 04 06:03	25° <del>18</del> 28'08	-14°05'52	direct	15235 Jul 31 20:51	0° <del>18</del> 10'21	
min. Earth dist.	15229 May 03 20:37	25° <del>18</del> 28'34	47.89860 AU	evening set	15235 Oct 29 23:19	1° <del>18</del> 24'55	
direct	15229 Jul 25 17:14	24° <del>18</del> 29'29					
evening set	15229 Oct 25 07:51	25° <del>18</del> 46'11		conjunction	15235 Nov 07 09:46	1° <del>18</del> 36'28	-12°38'30
				minimum elong	15235 Nov 07 09:57	1° <del>18</del> 36'29	12°37'42
conjunction	15229 Nov 01 05:02	25° <del>18</del> 55'38	-13°28'32	max. Earth dist.	15235 Nov 07 14:57	1° <del>18</del> 36'46	49.67156 AU
minimum elong	15229 Nov 01 05:14	25° <del>18</del> 55'39	13°27'49	morning rise	15235 Nov 15 21:07	1° <del>18</del> 48'05	
max. Earth dist.	15229 Nov 01 13:37	25° <del>18</del> 56'08	49.83286 AU	retrograde	15236 Feb 16 19:43	3° <del>18</del> 05'10	

opposition	15236 May 10 16:45	2°♂05'58	-13°05'14	max. Earth dist.	15242 Nov 13 17:57	8°♂17'17	49.29910 AU
min. Earth dist.	15236 May 10 12:56	2°♂06'09	47.70247 AU	morning rise	15242 Nov 23 23:15	8°♂31'19	
direct	15236 Aug 01 04:22	1°♂07'18		retrograde	15243 Feb 23 11:54	9°♂46'33	
evening set	15236 Oct 29 22:28	2°♂21'35		opposition	15243 May 18 03:55	8°♂47'11	-11°53'55
				min. Earth dist.	15243 May 18 07:24	8°♂47'01	47.30518 AU
conjunction	15236 Nov 07 14:38	2°♂33'28	-12°29'22	direct	15243 Aug 08 14:06	7°♂48'19	
minimum elong	15236 Nov 07 14:51	2°♂33'29	12°28'35	evening set	15243 Nov 04 19:24	9°♂00'45	
max. Earth dist.	15236 Nov 07 18:31	2°♂33'41	49.63302 AU				
morning rise	15236 Nov 16 07:50	2°♂45'25		conjunction	15243 Nov 15 01:46	9°♂14'51	-11°19'56
retrograde	15237 Feb 17 02:42	4°♂02'14		minimum elong	15243 Nov 15 01:59	9°♂14'51	11°19'05
opposition	15237 May 11 21:38	3°♂03'03	-12°55'39	max. Earth dist.	15243 Nov 14 23:04	9°♂14'41	49.22865 AU
min. Earth dist.	15237 May 11 18:03	3°♂03'13	47.66055 AU	morning rise	15243 Nov 25 09:16	9°♂29'01	
direct	15237 Aug 02 09:16	2°♂04'24		retrograde	15244 Feb 24 17:44	10°♂44'00	
evening set	15237 Oct 30 21:38	3°♂18'24		opposition	15244 May 18 08:57	9°♂44'35	-11°42'52
				min. Earth dist.	15244 May 18 12:12	9°♂44'26	47.23187 AU
conjunction	15237 Nov 08 19:36	3°♂30'37	-12°20'03	direct	15244 Aug 08 16:40	8°♂45'39	
minimum elong	15237 Nov 08 19:48	3°♂30'38	12°19'14	evening set	15244 Nov 04 19:24	9°♂57'53	
max. Earth dist.	15237 Nov 08 22:10	3°♂30'46	49.58989 AU				
morning rise	15237 Nov 17 18:40	3°♂42'55		conjunction	15244 Nov 15 06:46	10°♂12'17	-11°09'10
retrograde	15238 Feb 18 11:56	4°♂59'27		minimum elong	15244 Nov 15 06:57	10°♂12'17	11°08'19
opposition	15238 May 13 02:44	4°♂00'17	-12°45'52	max. Earth dist.	15244 Nov 15 02:18	10°♂12'01	49.15520 AU
min. Earth dist.	15238 May 13 01:17	4°♂00'21	47.61375 AU	morning rise	15244 Nov 25 19:32	10°♂26'45	
direct	15238 Aug 03 11:38	3°♂01'38		retrograde	15245 Feb 24 23:25	11°♂41'30	
evening set	15238 Oct 31 21:06	4°♂15'22		opposition	15245 May 19 14:00	10°♂42'02	-11°31'34
				min. Earth dist.	15245 May 19 18:13	10°♂41'50	47.15581 AU
conjunction	15238 Nov 10 00:42	4°♂27'54	-12°10'32	direct	15245 Aug 09 19:08	9°♂43'03	
minimum elong	15238 Nov 10 00:55	4°♂27'55	12°09'43	evening set	15245 Nov 05 19:25	10°♂55'05	
max. Earth dist.	15238 Nov 10 02:43	4°♂28'01	49.54171 AU				
morning rise	15238 Nov 19 05:18	4°♂40'31		conjunction	15245 Nov 16 11:58	11°♂09'47	-10°58'10
retrograde	15239 Feb 19 16:17	5°♂56'47		minimum elong	15245 Nov 16 12:10	11°♂09'47	10°57'19
opposition	15239 May 14 07:42	4°♂57'37	-12°35'53	max. Earth dist.	15245 Nov 16 07:43	11°♂09'32	49.07894 AU
min. Earth dist.	15239 May 14 06:35	4°♂57'40	47.56157 AU	morning rise	15245 Nov 27 05:43	11°♂24'33	
direct	15239 Aug 04 15:28	3°♂58'57		retrograde	15246 Feb 26 01:53	12°♂39'06	
evening set	15239 Nov 01 20:40	5°♂12'25		opposition	15246 May 20 19:08	11°♂39'35	-11°20'02
				min. Earth dist.	15246 May 21 00:10	11°♂39'21	47.07679 AU
conjunction	15239 Nov 11 05:43	5°♂25'17	-12°00'49	direct	15246 Aug 11 02:26	10°♂40'34	
minimum elong	15239 Nov 11 05:55	5°♂25'17	11°59'59	evening set	15246 Nov 06 19:39	11°♂52'25	
max. Earth dist.	15239 Nov 11 05:30	5°♂25'16	49.48816 AU				
morning rise	15239 Nov 20 15:59	5°♂38'13		conjunction	15246 Nov 17 17:02	12°♂07'23	-10°46'57
retrograde	15240 Feb 20 20:07	6°♂54'12		minimum elong	15246 Nov 17 17:13	12°♂07'24	10°46'04
opposition	15240 May 14 12:51	5°♂55'00	-12°25'43	max. Earth dist.	15246 Nov 17 11:41	12°♂07'05	48.99987 AU
min. Earth dist.	15240 May 14 13:08	5°♂54'59	47.50419 AU	morning rise	15246 Nov 28 15:46	12°♂22'27	
direct	15240 Aug 04 19:55	4°♂56'18		retrograde	15247 Feb 27 06:56	13°♂36'50	
evening set	15240 Nov 01 20:07	6°♂09'30		opposition	15247 May 22 00:12	12°♂37'17	-11°08'16
				min. Earth dist.	15247 May 22 05:13	12°♂37'02	46.99487 AU
conjunction	15240 Nov 11 10:46	6°♂22'41	-11°50'55	direct	15247 Aug 12 09:03	11°♂38'13	
minimum elong	15240 Nov 11 10:57	6°♂22'41	11°50'06	evening set	15247 Nov 07 20:00	12°♂49'53	
max. Earth dist.	15240 Nov 11 10:23	6°♂22'39	49.42948 AU				
morning rise	15240 Nov 21 02:27	6°♂35'55		conjunction	15247 Nov 18 22:17	13°♂05'10	-10°35'30
retrograde	15241 Feb 20 22:30	7°♂51'39		minimum elong	15247 Nov 18 22:29	13°♂05'10	10°34'37
opposition	15241 May 15 17:57	6°♂52'24	-12°15'20	max. Earth dist.	15247 Nov 18 15:58	13°♂04'48	48.91760 AU
min. Earth dist.	15241 May 15 19:37	6°♂52'19	47.44183 AU	morning rise	15247 Nov 30 02:00	13°♂20'32	
direct	15241 Aug 06 04:12	5°♂53'39		retrograde	15248 Feb 28 15:45	14°♂34'45	
evening set	15241 Nov 02 19:56	7°♂06'36		opposition	15248 May 22 05:34	13°♂35'09	-10°56'16
				min. Earth dist.	15248 May 22 12:20	13°♂34'50	46.90961 AU
conjunction	15241 Nov 12 15:48	7°♂20'04	-11°40'48	direct	15248 Aug 12 13:18	12°♂36'03	
minimum elong	15241 Nov 12 16:00	7°♂20'05	11°39'58	evening set	15248 Nov 07 20:29	13°♂47'34	
max. Earth dist.	15241 Nov 12 13:57	7°♂19'58	49.36630 AU				
morning rise	15241 Nov 22 12:51	7°♂33'37		conjunction	15248 Nov 19 03:38	14°♂03'08	-10°23'50
retrograde	15242 Feb 22 04:34	8°♂49'06		minimum elong	15248 Nov 19 03:49	14°♂03'09	10°22'56
opposition	15242 May 16 22:47	7°♂49'47	-12°04'44	max. Earth dist.	15248 Nov 18 21:10	14°♂02'45	48.83183 AU
min. Earth dist.	15242 May 17 00:30	7°♂49'43	47.37532 AU	morning rise	15248 Nov 30 12:03	14°♂18'48	
direct	15242 Aug 07 09:37	6°♂50'58		retrograde	15249 Feb 28 22:11	15°♂32'51	
evening set	15242 Nov 03 19:39	8°♂03'40		opposition	15249 May 23 10:49	14°♂33'14	-10°44'03
				min. Earth dist.	15249 May 23 17:41	14°♂32'55	46.82037 AU
conjunction	15242 Nov 13 20:49	8°♂17'27	-11°30'29	direct	15249 Aug 13 16:41	13°♂34'05	
minimum elong	15242 Nov 13 21:00	8°♂17'28	11°29'39	evening set	15249 Nov 08 21:24	14°♂45'28	

conjunction	15249 Nov 20 09:08	15°♂01'19	-10°11'57	direct	15256 Aug 20 04:51	20°♂24'57	
minimum elong	15249 Nov 20 09:19	15°♂01'20	10°11'04	evening set	15256 Nov 14 07:20	21°♂35'37	
max. Earth dist.	15249 Nov 20 00:33	15°♂00'50	48.74163 AU	max. Earth dist.	15256 Nov 26 10:18	21°♂52'30	47.97551 AU
morning rise	15249 Dec 01 22:25	15°♂17'17					
retrograde	15250 Mar 02 04:31	16°♂31'12		conjunction	15256 Nov 27 01:36	21°♂53'24	-8°43'04
opposition	15250 May 24 16:09	15°♂31'31	-10°31'37	minimum elong	15256 Nov 27 01:46	21°♂53'24	8°42'08
min. Earth dist.	15250 May 25 00:42	15°♂31'07	46.72649 AU	morning rise	15256 Dec 09 21:31	22°♂11'18	
direct	15250 Aug 14 20:11	14°♂32'19		retrograde	15257 Mar 08 20:18	23°♂24'28	
evening set	15250 Nov 09 22:24	15°♂43'35		opposition	15257 May 31 07:45	22°♂24'11	-8°58'35
				min. Earth dist.	15257 May 31 22:14	22°♂23'30	45.93650 AU
conjunction	15250 Nov 21 14:53	15°♂59'44	-9°59'52	direct	15257 Aug 21 12:05	21°♂24'20	
minimum elong	15250 Nov 21 15:03	15°♂59'44	9°58'58	evening set	15257 Nov 15 09:24	22°♂34'57	
max. Earth dist.	15250 Nov 21 05:54	15°♂59'12	48.64640 AU				
morning rise	15250 Dec 03 08:41	16°♂15'58		conjunction	15257 Nov 28 07:43	22°♂53'01	-8°29'29
retrograde	15251 Mar 03 07:39	17°♂29'45		minimum elong	15257 Nov 28 07:52	22°♂53'01	8°28'34
opposition	15251 May 25 21:42	16°♂30'01	-10°18'59	max. Earth dist.	15257 Nov 27 15:24	22°♂52'03	47.85128 AU
min. Earth dist.	15251 May 26 07:33	16°♂29'33	46.62725 AU	morning rise	15257 Dec 11 07:42	23°♂11'11	
direct	15251 Aug 16 03:36	15°♂30'45		retrograde	15258 Mar 10 04:57	24°♂24'19	
evening set	15251 Nov 10 23:32	16°♂41'53		opposition	15258 Jun 01 13:39	23°♂23'57	-8°44'21
				min. Earth dist.	15258 Jun 02 05:43	23°♂23'11	45.80966 AU
conjunction	15251 Nov 22 20:26	16°♂58'18	-9°47'35	direct	15258 Aug 22 17:45	22°♂24'01	
minimum elong	15251 Nov 22 20:37	16°♂58'19	9°46'42	evening set	15258 Nov 16 11:38	23°♂34'35	
max. Earth dist.	15251 Nov 22 09:44	16°♂57'41	48.54589 AU				
morning rise	15251 Dec 04 18:50	17°♂14'49		conjunction	15258 Nov 29 13:57	23°♂52'55	-8°15'41
retrograde	15252 Mar 03 13:36	18°♂28'29		minimum elong	15258 Nov 29 14:07	23°♂52'56	8°14'45
opposition	15252 May 26 03:17	17°♂28'40	-10°06'08	max. Earth dist.	15258 Nov 28 21:41	23°♂51'58	47.72434 AU
min. Earth dist.	15252 May 26 13:32	17°♂28'11	46.52274 AU	morning rise	15258 Dec 12 17:45	24°♂11'22	
direct	15252 Aug 16 09:24	16°♂29'19		retrograde	15259 Mar 11 13:38	25°♂24'28	
evening set	15252 Nov 11 00:50	17°♂40'19		opposition	15259 Jun 02 19:39	24°♂24'02	-8°29'53
				min. Earth dist.	15259 Jun 03 11:22	24°♂23'17	45.67995 AU
conjunction	15252 Nov 23 02:13	17°♂57'01	-9°35'07	direct	15259 Aug 23 20:53	23°♂24'00	
minimum elong	15252 Nov 23 02:24	17°♂57'02	9°34'12	evening set	15259 Nov 17 14:01	24°♂34'35	
max. Earth dist.	15252 Nov 22 14:09	17°♂56'19	48.44005 AU				
morning rise	15252 Dec 05 05:09	18°♂13'50		conjunction	15259 Nov 30 20:02	24°♂53'11	-8°01'38
retrograde	15253 Mar 04 21:09	19°♂27'22		minimum elong	15259 Nov 30 20:11	24°♂53'11	8°00'42
opposition	15253 May 27 08:53	18°♂27'28	-9°53'05	max. Earth dist.	15259 Nov 30 02:04	24°♂52'07	47.59436 AU
min. Earth dist.	15253 May 27 21:14	18°♂26'53	46.41320 AU	morning rise	15259 Dec 14 03:52	25°♂11'53	
direct	15253 Aug 17 14:56	17°♂28'01		retrograde	15260 Mar 11 21:54	26°♂24'59	
evening set	15253 Nov 12 02:15	18°♂38'54		opposition	15260 Jun 03 01:54	25°♂24'28	-8°15'10
				min. Earth dist.	15260 Jun 03 19:04	25°♂23'39	45.54712 AU
conjunction	15253 Nov 24 08:05	18°♂55'53	-9°22'26	direct	15260 Aug 24 00:28	24°♂24'21	
minimum elong	15253 Nov 24 08:15	18°♂55'53	9°21'32	evening set	15260 Nov 17 16:40	25°♂34'57	
max. Earth dist.	15253 Nov 23 19:43	18°♂55'10	48.32958 AU	max. Earth dist.	15260 Nov 30 08:39	25°♂52'45	47.46090 AU
morning rise	15253 Dec 06 15:17	19°♂12'58					
retrograde	15254 Mar 06 04:00	20°♂26'22		conjunction	15260 Dec 01 02:36	25°♂53'48	-7°47'22
opposition	15254 May 28 14:26	19°♂26'23	-9°39'48	minimum elong	15260 Dec 01 02:45	25°♂53'49	7°46'26
min. Earth dist.	15254 May 29 02:52	19°♂25'48	46.29922 AU	morning rise	15260 Dec 14 14:04	26°♂12'47	
direct	15254 Aug 18 18:55	18°♂26'50		retrograde	15261 Mar 13 01:55	27°♂25'52	
evening set	15254 Nov 13 03:50	19°♂37'37		opposition	15261 Jun 04 08:05	26°♂25'17	-8°00'13
				min. Earth dist.	15261 Jun 05 02:10	26°♂24'25	45.41047 AU
conjunction	15254 Nov 25 13:46	19°♂54'52	-9°09'32	direct	15261 Aug 25 07:42	25°♂25'04	
minimum elong	15254 Nov 25 13:56	19°♂54'53	9°08'37	evening set	15261 Nov 18 19:46	26°♂35'41	
max. Earth dist.	15254 Nov 24 23:26	19°♂54'02	48.21491 AU				
morning rise	15254 Dec 08 01:24	20°♂12'14		conjunction	15261 Dec 02 09:14	26°♂54'49	-7°32'53
retrograde	15255 Mar 07 11:02	21°♂25'32		minimum elong	15261 Dec 02 09:23	26°♂54'49	7°31'56
opposition	15255 May 29 20:09	20°♂25'27	-9°26'18	max. Earth dist.	15261 Dec 01 13:38	26°♂53'39	47.32340 AU
min. Earth dist.	15255 May 30 09:51	20°♂24'48	46.18150 AU	morning rise	15261 Dec 16 00:27	27°♂14'03	
direct	15255 Aug 19 21:48	19°♂25'48		retrograde	15262 Mar 14 08:06	28°♂27'10	
evening set	15255 Nov 14 05:27	20°♂36'31		opposition	15262 Jun 05 14:26	27°♂26'28	-7°45'03
				min. Earth dist.	15262 Jun 06 09:06	27°♂25'34	45.26944 AU
conjunction	15255 Nov 26 19:44	20°♂54'02	-8°56'25	direct	15262 Aug 26 14:28	26°♂26'09	
minimum elong	15255 Nov 26 19:53	20°♂54'03	8°55'30	evening set	15262 Nov 19 23:01	27°♂36'48	
max. Earth dist.	15255 Nov 26 05:33	20°♂53'12	48.09671 AU				
morning rise	15255 Dec 09 11:27	21°♂11'40		conjunction	15262 Dec 03 16:03	27°♂56'11	-7°18'10
retrograde	15256 Mar 07 15:03	22°♂24'53		minimum elong	15262 Dec 03 16:11	27°♂56'11	7°17'14
opposition	15256 May 30 01:56	21°♂24'42	-9°12'34	max. Earth dist.	15262 Dec 02 19:06	27°♂54'56	47.18095 AU
min. Earth dist.	15256 May 30 16:21	21°♂24'01	46.06044 AU	morning rise	15262 Dec 17 10:49	28°♂15'41	

retrograde	15263 Mar 15 15:42	29° <del>28</del> '49		min. Earth dist.	15269 Jun 13 15:27	4° <del>34</del> '19	44.15517 AU
opposition	15263 Jun 06 21:05	28° <del>28</del> '01	-7°29'39	direct	15269 Sep 02 12:33	3° <del>34</del> '03	
min. Earth dist.	15263 Jun 07 17:49	28° <del>28</del> '27	01 45.12328 AU	evening set	15269 Nov 26 04:09	4° <del>35</del> '20	7
direct	15263 Aug 27 21:59	27° <del>28</del> '27	34				
evening set	15263 Nov 21 02:32	28° <del>28</del> '38	14	conjunction	15269 Dec 10 19:14	5° <del>33</del> '12	-5°29'03
				minimum elong	15269 Dec 10 19:21	5° <del>33</del> '13	5°28'07
conjunction	15263 Dec 04 23:06	28° <del>28</del> '57	52 -7°03'15	max. Earth dist.	15269 Dec 09 15:21	5° <del>33</del> '11	31 46.06113 AU
minimum elong	15263 Dec 04 23:14	28° <del>28</del> '57	52 7°02'18	morning rise	15269 Dec 25 12:14	5° <del>33</del> '34	25
max. Earth dist.	15263 Dec 04 01:34	28° <del>28</del> '56	35 47.03347 AU	retrograde	15270 Mar 23 00:57	6° <del>33</del> '47	57
morning rise	15263 Dec 18 21:14	29° <del>29</del> '17	37	opposition	15270 Jun 13 22:00	5° <del>34</del> '46	00 -5°35'15
	15264 Jan 21 13:04	0° <del>33</del> '		min. Earth dist.	15270 Jun 15 00:20	5° <del>34</del> '44	43 43.98331 AU
retrograde	15264 Mar 16 00:17	0° <del>33</del> '30	47	direct	15270 Sep 03 17:04	4° <del>34</del> '44	21
	15264 May 10 19:42	30° <del>33</del> ' <del>R</del>		evening set	15270 Nov 27 09:08	5° <del>35</del> '55	34
opposition	15264 Jun 07 03:41	29° <del>29</del> '29	50 -7°14'02	max. Earth dist.	15270 Dec 10 23:32	6° <del>35</del> '15	13 45.88901 AU
min. Earth dist.	15264 Jun 08 00:36	29° <del>29</del> '28	50 44.97202 AU				
direct	15264 Aug 28 03:44	28° <del>28</del> '29	14	conjunction	15270 Dec 12 03:06	6° <del>35</del> '16	53 -5°12'32
evening set	15264 Nov 21 06:17	29° <del>29</del> '39	56	minimum elong	15270 Dec 12 03:13	6° <del>35</del> '16	54 5°11'35
max. Earth dist.	15264 Dec 04 06:17	29° <del>29</del> '58	24 46.88090 AU	morning rise	15270 Dec 26 22:39	6° <del>35</del> '38	20
				retrograde	15271 Mar 24 08:43	7° <del>35</del> '52	00
conjunction	15264 Dec 05 06:06	29° <del>29</del> '59	49 -6°48'08	opposition	15271 Jun 15 05:36	6° <del>35</del> '49	55 -5°17'54
minimum elong	15264 Dec 05 06:14	29° <del>29</del> '59	49 6°47'11	min. Earth dist.	15271 Jun 16 08:04	6° <del>35</del> '48	37 43.80903 AU
	15264 Dec 05 09:13	0° <del>33</del> '		direct	15271 Sep 05 00:14	5° <del>35</del> '48	06
morning rise	15264 Dec 19 07:49	0° <del>33</del> '19	49	evening set	15271 Nov 28 14:40	6° <del>35</del> '59	30
retrograde	15265 Mar 17 10:57	1° <del>33</del> '33	00	max. Earth dist.	15271 Dec 12 06:14	7° <del>35</del> '19	18 45.71459 AU
opposition	15265 Jun 08 10:32	0° <del>33</del> '31	54 -6°58'11				
min. Earth dist.	15265 Jun 09 09:13	0° <del>33</del> '30	48 44.81595 AU	conjunction	15271 Dec 13 11:07	7° <del>35</del> '21	04 -4°55'45
	15265 Jul 07 08:26	30° <del>33</del> ' <del>R</del>		minimum elong	15271 Dec 13 11:14	7° <del>35</del> '21	04 4°54'49
direct	15265 Aug 29 06:36	29° <del>29</del> '31	08	morning rise	15271 Dec 28 09:26	7° <del>35</del> '42	45
	15265 Oct 20 02:24	0° <del>33</del> '		retrograde	15272 Mar 24 17:24	8° <del>35</del> '56	35
evening set	15265 Nov 22 10:11	0° <del>33</del> '41	52	opposition	15272 Jun 15 13:20	7° <del>35</del> '54	21 -5°00'18
				min. Earth dist.	15272 Jun 16 16:13	7° <del>35</del> '53	02 43.63239 AU
conjunction	15265 Dec 06 13:26	1° <del>33</del> '02	00 -6°32'47	direct	15272 Sep 05 07:13	6° <del>35</del> '52	24
minimum elong	15265 Dec 06 13:34	1° <del>33</del> '02	00 6°31'49	evening set	15272 Nov 28 20:26	8° <del>35</del> '03	59
max. Earth dist.	15265 Dec 05 13:31	1° <del>33</del> '00	34 46.72368 AU				
morning rise	15265 Dec 20 18:14	1° <del>33</del> '22	15	conjunction	15272 Dec 13 19:27	8° <del>35</del> '25	48 -4°38'45
retrograde	15266 Mar 18 17:24	2° <del>33</del> '35	26	minimum elong	15272 Dec 13 19:33	8° <del>35</del> '25	48 4°37'48
opposition	15266 Jun 09 17:17	1° <del>33</del> '34	10 -6°42'06	max. Earth dist.	15272 Dec 12 13:52	8° <del>35</del> '23	59 45.53730 AU
min. Earth dist.	15266 Jun 10 16:42	1° <del>33</del> '33	02 44.65553 AU	morning rise	15272 Dec 28 20:13	8° <del>35</del> '47	44
direct	15266 Aug 30 13:48	0° <del>33</del> '33	13	retrograde	15273 Mar 26 01:27	10° <del>35</del> '01	46
evening set	15266 Nov 23 14:23	1° <del>33</del> '44	01	opposition	15273 Jun 16 21:23	8° <del>35</del> '59	24 -4°42'26
				min. Earth dist.	15273 Jun 18 01:52	8° <del>35</del> '57	59 43.45259 AU
conjunction	15266 Dec 07 20:40	2° <del>33</del> '04	23 -6°17'12	direct	15273 Sep 06 15:44	7° <del>35</del> '57	17
minimum elong	15266 Dec 07 20:47	2° <del>33</del> '04	23 6°16'16	evening set	15273 Nov 30 02:40	9° <del>35</del> '09	06
max. Earth dist.	15266 Dec 06 19:18	2° <del>33</del> '02	52 46.56260 AU	max. Earth dist.	15273 Dec 13 22:01	9° <del>35</del> '29	17 45.35663 AU
morning rise	15266 Dec 22 04:45	2° <del>33</del> '24	53				
retrograde	15267 Mar 19 23:03	3° <del>33</del> '38	07	conjunction	15273 Dec 15 04:06	9° <del>35</del> '31	08 -4°21'30
opposition	15267 Jun 11 00:15	2° <del>33</del> '36	41 -6°25'46	minimum elong	15273 Dec 15 04:12	9° <del>35</del> '31	08 4°20'34
min. Earth dist.	15267 Jun 12 00:07	2° <del>33</del> '35	31 44.49166 AU	morning rise	15273 Dec 30 07:10	9° <del>35</del> '53	18
direct	15267 Aug 31 21:27	1° <del>33</del> '35	33	retrograde	15274 Mar 27 11:07	11° <del>35</del> '07	33
evening set	15267 Nov 24 18:35	2° <del>33</del> '46	24	opposition	15274 Jun 18 05:22	10° <del>35</del> '05	03 -4°24'20
max. Earth dist.	15267 Dec 08 01:45	3° <del>33</del> '05	26 46.39810 AU	min. Earth dist.	15274 Jun 19 09:58	10° <del>35</del> '03	38 43.26907 AU
				direct	15274 Sep 07 23:17	9° <del>35</del> '02	47
conjunction	15267 Dec 09 03:57	3° <del>33</del> '07	01 -6°01'24	evening set	15274 Dec 01 09:23	10° <del>35</del> '14	50
minimum elong	15267 Dec 09 04:05	3° <del>33</del> '07	01 6°00'27	max. Earth dist.	15274 Dec 15 04:40	10° <del>35</del> '35	06 45.17175 AU
morning rise	15267 Dec 23 15:05	3° <del>33</del> '27	45				
retrograde	15268 Mar 20 05:40	4° <del>33</del> '41	04	conjunction	15274 Dec 16 12:55	10° <del>35</del> '37	06 -4°04'02
opposition	15268 Jun 11 07:29	3° <del>33</del> '39	27 -6°09'11	minimum elong	15274 Dec 16 13:00	10° <del>35</del> '37	06 4°03'05
min. Earth dist.	15268 Jun 12 08:46	3° <del>33</del> '38	13 44.32469 AU	morning rise	15274 Dec 31 18:19	10° <del>35</del> '59	29
direct	15268 Sep 01 06:16	2° <del>33</del> '38	08	retrograde	15275 Mar 29 00:23	12° <del>35</del> '13	59
evening set	15268 Nov 24 23:11	3° <del>33</del> '49	05	opposition	15275 Jun 19 13:54	11° <del>35</del> '11	19 -4°05'59
max. Earth dist.	15268 Dec 08 09:20	4° <del>33</del> '08	21 46.23089 AU	min. Earth dist.	15275 Jun 20 20:24	11° <del>35</del> '09	48 43.08120 AU
				direct	15275 Sep 09 03:36	10° <del>35</del> '08	52
conjunction	15268 Dec 09 11:34	4° <del>33</del> '09	56 -5°45'21	evening set	15275 Dec 02 16:09	11° <del>35</del> '21	10
minimum elong	15268 Dec 09 11:41	4° <del>33</del> '09	57 5°44'24				
morning rise	15268 Dec 24 01:35	4° <del>33</del> '30	55	conjunction	15275 Dec 17 21:59	11° <del>35</del> '43	39 -3°46'20
retrograde	15269 Mar 21 14:36	5° <del>33</del> '44	19	minimum elong	15275 Dec 17 22:04	11° <del>35</del> '43	40 3°45'24
opposition	15269 Jun 12 14:32	4° <del>33</del> '42	32 -5°52'21	max. Earth dist.	15275 Dec 16 13:38	11° <del>35</del> '41	39 44.98233 AU

morning rise	15276 Jan 02 05:21	12°30'16"		conjunction	15282 Dec 25 19:30	19°34'28"	-1°35'55"
retrograde	15276 Mar 29 10:43	13°32'59"		minimum elong	15282 Dec 25 19:32	19°34'28"	1°34'59"
opposition	15276 Jun 19 22:33	12°31'09"	-3°47'23"	morning rise	15283 Jan 10 13:40	20°30'30"	
min. Earth dist.	15276 Jun 21 05:32	12°31'36"	42.88864 AU	retrograde	15283 Apr 07 13:20	21°32'19"	
direct	15276 Sep 09 10:49	11°31'30"		opposition	15283 Jun 28 16:27	20°32'05"	-1°30'10"
evening set	15276 Dec 02 23:34	12°32'04"		min. Earth dist.	15283 Jun 30 04:47	20°31'02"	41.44871 AU
max. Earth dist.	15276 Dec 16 20:57	12°34'37"	44.78838 AU	direct	15283 Sep 18 00:09	19°31'35"	
				evening set	15283 Dec 11 12:40	20°33'12"	
conjunction	15276 Dec 18 07:15	12°35'04"	-3°28'24"	max. Earth dist.	15283 Dec 25 15:14	20°35'02"	43.34296 AU
minimum elong	15276 Dec 18 07:20	12°35'04"	3°27'28"				
morning rise	15277 Jan 02 16:46	13°31'35"		conjunction	15283 Dec 27 06:20	20°35'34"	-1°16'20"
retrograde	15277 Mar 30 20:38	14°32'33"		minimum elong	15283 Dec 27 06:21	20°35'34"	1°15'26"
opposition	15277 Jun 21 07:14	13°32'30"	-3°28'33"	morning rise	15284 Jan 12 01:30	21°31'47"	
min. Earth dist.	15277 Jun 22 15:21	13°32'53"	42.69183 AU	retrograde	15284 Apr 07 22:59	22°33'00"	
direct	15277 Sep 10 18:47	12°32'38"		opposition	15284 Jun 29 02:52	21°33'22"	-1°09'33"
evening set	15277 Dec 04 07:11	13°33'28"		min. Earth dist.	15284 Jun 30 15:04	21°33'03"	41.23443 AU
max. Earth dist.	15277 Dec 18 05:36	13°35'10"	44.59013 AU	direct	15284 Sep 18 11:39	20°32'49"	
				evening set	15284 Dec 11 23:17	21°34'08"	
conjunction	15277 Dec 19 16:49	13°35'23"	-3°10'15"	max. Earth dist.	15284 Dec 26 01:03	22°34'47"	43.12776 AU
minimum elong	15277 Dec 19 16:53	13°35'23"	3°09'19"				
morning rise	15278 Jan 04 04:04	14°32'12"		conjunction	15284 Dec 27 17:39	22°34'25"	-0°56'32"
retrograde	15278 Apr 01 03:31	15°33'38"		minimum elong	15284 Dec 27 17:41	22°34'25"	0°55'38"
opposition	15278 Jun 22 16:16	14°33'22"	-3°09'27"	morning rise	15285 Jan 12 13:37	22°33'49"	
min. Earth dist.	15278 Jun 24 01:47	14°33'40"	42.49105 AU	retrograde	15285 Apr 09 11:09	23°34'29"	
direct	15278 Sep 12 06:25	13°33'01"		opposition	15285 Jun 30 13:35	22°34'43"	-0°48'40"
evening set	15278 Dec 05 15:01	14°34'22"		min. Earth dist.	15285 Jul 02 03:33	22°34'42"	41.01773 AU
max. Earth dist.	15278 Dec 19 14:43	15°34'15"	44.38839 AU	direct	15285 Sep 19 21:14	21°33'50"	
				evening set	15285 Dec 13 10:20	22°35'38"	
conjunction	15278 Dec 21 02:22	15°36'03"	-2°51'51"	max. Earth dist.	15285 Dec 27 12:58	23°35'17"	42.90983 AU
minimum elong	15278 Dec 21 02:25	15°36'03"	2°50'54"				
morning rise	15279 Jan 05 15:18	15°32'45"		conjunction	15285 Dec 29 05:26	23°32'06"	-0°36'31"
retrograde	15279 Apr 02 12:49	16°34'51"		minimum elong	15285 Dec 29 05:27	23°32'06"	0°35'36"
opposition	15279 Jun 24 01:22	15°34'44"	-2°50'07"	morning rise	15286 Jan 14 01:50	23°34'40"	
min. Earth dist.	15279 Jun 25 10:41	15°34'03"	42.28713 AU	retrograde	15286 Apr 11 00:16	25°30'24"	
direct	15279 Sep 13 16:03	14°33'24"		opposition	15286 Jul 02 00:36	23°35'44"	-0°27'33"
evening set	15279 Dec 06 23:25	15°35'14"		min. Earth dist.	15286 Jul 03 14:34	23°35'45"	40.79794 AU
max. Earth dist.	15279 Dec 20 22:58	16°35'24"	44.18360 AU	direct	15286 Sep 21 06:23	22°35'24"	
				evening set	15286 Dec 14 21:59	24°30'59"	
conjunction	15279 Dec 22 12:14	16°35'08"	-2°33'13"	max. Earth dist.	15286 Dec 28 22:48	24°30'50"	42.68839 AU
minimum elong	15279 Dec 22 12:17	16°35'08"	2°32'18"				
morning rise	15280 Jan 07 02:48	16°33'35"		conjunction	15286 Dec 30 17:19	24°33'36"	-0°16'16"
retrograde	15280 Apr 03 00:57	17°35'42"		minimum elong	15286 Dec 30 17:19	24°33'36"	0°15'23"
opposition	15280 Jun 24 10:48	16°35'09"	-2°30'31"	behind sun begin	15286 Dec 30 15:38	24°33'30"	
min. Earth dist.	15280 Jun 25 21:48	16°34'52"	42.08060 AU	behind sun end	15286 Dec 30 19:01	24°33'43"	
direct	15280 Sep 13 23:06	15°34'07"		morning rise	15287 Jan 15 14:13	24°35'21"	
evening set	15280 Dec 07 08:02	17°30'47"		retrograde	15287 Apr 12 15:38	26°31'59"	
max. Earth dist.	15280 Dec 21 09:29	17°32'18"	43.97640 AU	opposition	15287 Jul 03 12:06	25°31'40"	-0°06'12"
				min. Earth dist.	15287 Jul 05 03:39	25°30'35"	40.57452 AU
conjunction	15280 Dec 22 22:26	17°32'48"	-2°14'21"	direct	15287 Sep 22 14:54	24°30'21"	
minimum elong	15280 Dec 22 22:29	17°32'48"	2°13'25"	asc. node	15287 Oct 17 16:02	24°31'40"	
morning rise	15281 Jan 07 14:17	17°34'57"		evening set	15287 Dec 16 10:09	25°32'31"	
retrograde	15281 Apr 04 12:57	19°30'04"		max. Earth dist.	15287 Dec 30 10:48	25°34'50"	42.46295 AU
opposition	15281 Jun 25 20:24	18°30'06"	-2°10'39"				
min. Earth dist.	15281 Jun 27 07:12	17°35'20"	41.87180 AU	conjunction	15288 Jan 01 05:53	25°34'57"	0°04'18"
direct	15281 Sep 15 07:10	16°35'16"		minimum elong	15288 Jan 01 05:52	25°34'57"	0°05'12"
evening set	15281 Dec 08 17:16	18°31'02"		behind sun begin	15287 Dec 31 23:36	25°34'34"	
max. Earth dist.	15281 Dec 22 18:14	18°31'37"	43.76710 AU	behind sun end	15288 Jan 01 12:08	25°34'20"	
				morning rise	15288 Jan 17 02:49	26°31'25"	
conjunction	15281 Dec 24 08:46	18°33'40"	-1°55'15"	retrograde	15288 Apr 13 04:50	27°33'15"	
minimum elong	15281 Dec 24 08:48	18°33'40"	1°54'20"	opposition	15288 Jul 03 23:52	26°32'24"	0°15'24"
morning rise	15282 Jan 09 01:59	18°35'55"		min. Earth dist.	15288 Jul 05 16:23	26°32'41"	40.34703 AU
retrograde	15282 Apr 06 02:40	20°31'42"		direct	15288 Sep 23 02:48	25°32'04"	
opposition	15282 Jun 27 06:12	19°31'10"	-1°50'32"	evening set	15288 Dec 16 22:54	26°33'10"	
min. Earth dist.	15282 Jun 28 17:46	19°30'82"	41.66117 AU	max. Earth dist.	15288 Dec 30 22:13	27°30'09"	42.23363 AU
direct	15282 Sep 16 14:05	18°30'05"					
evening set	15282 Dec 10 02:47	19°32'03"		conjunction	15289 Jan 01 18:37	27°30'06"	0°24'56"
max. Earth dist.	15282 Dec 24 04:51	19°34'20"	43.55588 AU	minimum elong	15289 Jan 01 18:37	27°30'06"	0°25'49"

morning rise	15289 Jan 17 15:42	27°32'09"		opposition	15295 Jul 13 19:08	5°33'03"	2°53'05"
retrograde	15289 Apr 14 18:59	28°34'47"		min. Earth dist.	15295 Jul 15 16:18	5°30'35"	38.67959 AU
opposition	15289 Jul 05 11:52	27°34'56"	0°37'15"	direct	15295 Oct 02 15:52	4°25'12"	
min. Earth dist.	15289 Jul 07 04:50	27°39'46"	40.11581 AU	evening set	15295 Dec 27 07:23	5°47'16"	
direct	15289 Sep 24 14:42	26°36'01"		max. Earth dist.	15296 Jan 09 20:37	6°09'36"	40.55724 AU
evening set	15289 Dec 18 12:11	27°53'57"					
max. Earth dist.	15290 Jan 01 09:51	28°15'59"	42.00046 AU	conjunction	15296 Jan 11 21:28	6°13'00"	2°55'31"
				minimum elong	15296 Jan 11 21:23	6°13'00"	2°56'21"
conjunction	15290 Jan 03 07:44	28°19'02"	0°45'50"	morning rise	15296 Jan 27 12:24	6°38'49"	
minimum elong	15290 Jan 03 07:42	28°19'02"	0°46'43"	retrograde	15296 Apr 24 04:07	8°03'05"	
morning rise	15290 Jan 19 04:33	28°34'13"		opposition	15296 Jul 14 09:33	6°55'06"	3°16'27"
	15290 Mar 28 06:57	0°		min. Earth dist.	15296 Jul 16 06:12	6°52'38"	38.43643 AU
retrograde	15290 Apr 16 07:13	0°04'25"		direct	15296 Oct 03 06:11	5°46'54"	
	15290 May 05 11:24	30°8'3"		evening set	15296 Dec 28 01:03	7°09'50"	
opposition	15290 Jul 07 00:15	28°35'8"16	0°59'19"	max. Earth dist.	15297 Jan 10 10:55	7°32'06"	40.31287 AU
min. Earth dist.	15290 Jul 08 18:59	28°35'59"	39.88119 AU				
direct	15290 Sep 26 02:56	27°32'02"		conjunction	15297 Jan 12 13:16	7°35'37"	3°17'46"
evening set	15290 Dec 20 01:53	29°31'03"		minimum elong	15297 Jan 12 13:11	7°35'37"	3°18'34"
max. Earth dist.	15291 Jan 02 23:17	29°32'41"	41.76433 AU	morning rise	15297 Jan 28 02:28	8°01'31"	
				retrograde	15297 Apr 25 21:02	9°26'36"	
conjunction	15291 Jan 04 21:09	29°35'46"	1°06'57"	opposition	15297 Jul 16 00:38	8°18'20"	3°40'00"
minimum elong	15291 Jan 04 21:08	29°35'46"	1°07'49"	min. Earth dist.	15297 Jul 17 22:50	8°15'46"	38.19224 AU
morning rise	15291 Jan 20 17:31	0°01'05"		direct	15297 Oct 04 18:20	7°09'50"	
	15291 Jan 20 00:56	0°		evening set	15297 Dec 29 19:20	8°33'38"	
retrograde	15291 Apr 17 20:36	1°21'52"		max. Earth dist.	15298 Jan 12 03:40	8°55'57"	40.06712 AU
opposition	15291 Jul 08 12:52	0°15'24"	1°21'38"				
min. Earth dist.	15291 Jul 10 07:19	0°13'07"	39.64396 AU	conjunction	15298 Jan 14 05:39	8°59'28"	3°40'11"
	15291 Jul 20 14:53	30°8'3"		minimum elong	15298 Jan 14 05:33	8°59'28"	3°40'59"
direct	15291 Sep 27 14:59	29°30'8"51		morning rise	15298 Jan 29 16:34	9°25'24"	
	15291 Dec 02 22:48	0°		retrograde	15298 Apr 27 14:59	10°51'23"	
evening set	15291 Dec 21 16:09	0°28'00"		opposition	15298 Jul 17 16:01	9°42'48"	4°03'45"
max. Earth dist.	15292 Jan 04 11:02	0°50'07"	41.52573 AU	min. Earth dist.	15298 Jul 19 14:11	9°40'14"	37.94645 AU
				direct	15298 Oct 06 07:27	8°33'58"	
conjunction	15292 Jan 06 10:43	0°53'20"	1°28'17"	evening set	15298 Dec 31 14:37	9°58'42"	
minimum elong	15292 Jan 06 10:41	0°53'20"	1°29'09"	max. Earth dist.	15299 Jan 13 18:40	10°20'55"	39.81948 AU
morning rise	15292 Jan 22 06:36	1°18'46"					
retrograde	15292 Apr 18 13:55	2°40'10"		conjunction	15299 Jan 15 22:26	10°24'35"	4°02'45"
opposition	15292 Jul 09 01:56	1°33'24"	1°44'10"	minimum elong	15299 Jan 15 22:20	10°24'35"	4°03'31"
min. Earth dist.	15292 Jul 10 21:49	1°31'02"	39.40473 AU	morning rise	15299 Jan 31 07:08	10°50'33"	
direct	15292 Sep 27 23:50	0°26'31"		retrograde	15299 Apr 29 12:00	12°17'25"	
evening set	15292 Dec 22 07:00	1°46'20"		opposition	15299 Jul 19 08:00	11°08'31"	4°27'39"
max. Earth dist.	15293 Jan 05 01:34	2°08'33"	41.28524 AU	min. Earth dist.	15299 Jul 21 07:17	11°05'53"	37.69866 AU
				direct	15299 Oct 07 19:19	9°59'20"	
conjunction	15293 Jan 07 00:56	2°11'46"	1°49'48"	evening set	15300 Jan 02 10:28	11°25'02"	
minimum elong	15293 Jan 07 00:53	2°11'46"	1°50'38"	max. Earth dist.	15300 Jan 15 11:39	11°47'12"	39.56937 AU
morning rise	15293 Jan 22 19:48	2°37'19"					
retrograde	15293 Apr 20 04:50	3°59'23"		conjunction	15300 Jan 17 15:51	11°50'56"	4°25'27"
opposition	15293 Jul 10 15:10	2°52'18"	2°06'55"	minimum elong	15300 Jan 17 15:45	11°50'55"	4°26'13"
min. Earth dist.	15293 Jul 12 11:05	2°49'55"	39.16390 AU	morning rise	15300 Feb 01 21:46	12°16'54"	
direct	15293 Sep 29 11:58	1°45'04"		retrograde	15300 May 01 06:28	13°44'43"	
evening set	15293 Dec 23 22:35	3°05'37"		opposition	15300 Jul 21 00:32	12°35'28"	4°51'43"
max. Earth dist.	15294 Jan 06 14:54	3°27'50"	41.04347 AU	min. Earth dist.	15300 Jul 23 00:42	12°32'45"	37.44833 AU
				direct	15300 Oct 09 11:13	11°25'54"	
conjunction	15294 Jan 08 15:20	3°31'09"	2°11'32"	evening set	15301 Jan 04 07:22	12°52'35"	
minimum elong	15294 Jan 08 15:17	3°31'09"	2°12'22"	max. Earth dist.	15301 Jan 17 04:42	13°14'39"	39.31685 AU
morning rise	15294 Jan 24 09:16	3°56'48"					
retrograde	15294 Apr 21 21:46	5°19'32"		conjunction	15301 Jan 19 09:48	13°18'29"	4°48'17"
opposition	15294 Jul 12 04:52	4°12'09"	2°29'54"	minimum elong	15301 Jan 19 09:41	13°18'28"	4°49'01"
min. Earth dist.	15294 Jul 14 01:09	4°09'45"	38.92216 AU	morning rise	15301 Feb 03 12:50	13°44'27"	
direct	15294 Oct 01 00:47	3°04'36"			15301 Apr 01 03:45	15°	
evening set	15294 Dec 25 14:35	4°25'54"		retrograde	15301 May 03 02:10	15°13'12"	
max. Earth dist.	15295 Jan 08 05:10	4°48'10"	40.80066 AU		15301 Jun 04 06:14	15°8'	
				opposition	15301 Jul 22 17:17	14°03'35"	5°15'56"
conjunction	15295 Jan 10 06:08	4°51'32"	2°33'26"	min. Earth dist.	15301 Jul 24 17:41	14°00'51"	37.19581 AU
minimum elong	15295 Jan 10 06:04	4°51'32"	2°34'15"	direct	15301 Oct 11 05:11	12°53'37"	
morning rise	15295 Jan 25 22:37	5°17'16"		evening set	15302 Jan 06 04:59	14°21'20"	
retrograde	15295 Apr 23 12:30	6°40'45"		max. Earth dist.	15302 Jan 18 21:38	14°43'14"	39.06207 AU

conjunction	15302 Jan 21 04:13	14° $\approx$ 47'13	5°11'14	opposition	15308 Aug 02 05:59	24° $\approx$ 55'17	8°07'58
minimum elong	15302 Jan 21 04:05	14° $\approx$ 47'12	5°11'58	min. Earth dist.	15308 Aug 04 08:09	24° $\approx$ 52'18	35.41378 AU
	15302 Jan 28 12:40	15° $\approx$		direct	15308 Oct 21 09:33	23° $\approx$ 42'19	
morning rise	15302 Feb 05 03:59	15° $\approx$ 13'09		evening set	15309 Jan 18 12:28	25° $\approx$ 18'41	
retrograde	15302 May 04 21:09	16° $\approx$ 42'53		max. Earth dist.	15309 Jan 29 19:00	25° $\approx$ 39'21	37.26998 AU
opposition	15302 Jul 24 10:47	15° $\approx$ 32'53	5°40'18				
min. Earth dist.	15302 Jul 26 12:44	15° $\approx$ 30'02	36.94145 AU	conjunction	15309 Feb 01 03:48	25° $\approx$ 43'44	7°53'28
	15302 Aug 18 09:14	15° $\approx$		minimum elong	15309 Feb 01 03:37	25° $\approx$ 43'43	7°54'04
direct	15302 Oct 12 22:15	14° $\approx$ 22'30		morning rise	15309 Feb 14 19:14	26° $\approx$ 08'48	
	15302 Dec 05 21:31	15° $\approx$		retrograde	15309 May 16 06:17	27° $\approx$ 46'59	
evening set	15303 Jan 08 03:10	15° $\approx$ 51'16		opposition	15309 Aug 04 03:15	26° $\approx$ 34'14	8°32'35
max. Earth dist.	15303 Jan 20 16:46	16° $\approx$ 13'07	38.80580 AU	min. Earth dist.	15309 Aug 06 06:38	26° $\approx$ 31'09	35.16302 AU
				direct	15309 Oct 23 04:19	25° $\approx$ 20'53	
conjunction	15303 Jan 22 22:59	16° $\approx$ 17'06	5°34'17	evening set	15310 Jan 20 17:34	26° $\approx$ 58'45	
minimum elong	15303 Jan 22 22:51	16° $\approx$ 17'05	5°35'00	max. Earth dist.	15310 Jan 31 18:56	27° $\approx$ 19'12	37.01777 AU
morning rise	15303 Feb 06 19:06	16° $\approx$ 43'00					
retrograde	15303 May 06 15:14	18° $\approx$ 13'46		conjunction	15310 Feb 03 02:55	27° $\approx$ 23'33	8°16'33
opposition	15303 Jul 26 04:38	17° $\approx$ 03'22	6°04'46	minimum elong	15310 Feb 03 02:44	27° $\approx$ 23'33	8°17'08
min. Earth dist.	15303 Jul 28 06:01	17° $\approx$ 00'32	36.68598 AU	morning rise	15310 Feb 16 12:05	27° $\approx$ 48'23	
direct	15303 Oct 14 15:56	15° $\approx$ 52'33		retrograde	15310 May 18 05:23	29° $\approx$ 28'03	
evening set	15304 Jan 10 02:29	17° $\approx$ 22'25		opposition	15310 Aug 06 01:09	28° $\approx$ 14'57	8°57'07
max. Earth dist.	15304 Jan 22 10:32	17° $\approx$ 44'04	38.54859 AU	min. Earth dist.	15310 Aug 08 03:51	28° $\approx$ 11'53	34.91322 AU
				direct	15310 Oct 25 01:05	27° $\approx$ 01'12	
conjunction	15304 Jan 24 18:19	17° $\approx$ 48'11	5°57'26	evening set	15311 Jan 22 23:47	28° $\approx$ 40'39	
minimum elong	15304 Jan 24 18:10	17° $\approx$ 48'10	5°58'08	max. Earth dist.	15311 Feb 02 17:07	29° $\approx$ 00'41	36.76614 AU
morning rise	15304 Feb 08 10:41	18° $\approx$ 14'00					
retrograde	15304 May 07 11:45	19° $\approx$ 45'52		conjunction	15311 Feb 05 02:30	29° $\approx$ 05'11	8°39'32
opposition	15304 Jul 26 22:58	18° $\approx$ 35'03	6°29'20	minimum elong	15311 Feb 05 02:19	29° $\approx$ 05'10	8°40'07
min. Earth dist.	15304 Jul 29 01:35	18° $\approx$ 32'07	36.43012 AU	morning rise	15311 Feb 18 05:17	29° $\approx$ 29'44	
direct	15304 Oct 15 07:06	17° $\approx$ 23'47			15311 Mar 07 04:10	0° $\approx$	
evening set	15305 Jan 11 02:32	18° $\approx$ 54'50		retrograde	15311 May 20 07:35	1° $\approx$ 10'56	
max. Earth dist.	15305 Jan 23 07:09	19° $\approx$ 16'24	38.29113 AU		15311 Aug 06 05:54	30° $\approx$	
				opposition	15311 Aug 07 23:51	29° $\approx$ 57'27	9°21'34
conjunction	15305 Jan 25 14:22	19° $\approx$ 20'30	6°20'37	min. Earth dist.	15311 Aug 10 03:34	29° $\approx$ 54'19	34.66390 AU
minimum elong	15305 Jan 25 14:14	19° $\approx$ 20'29	6°21'19	direct	15311 Oct 26 19:22	28° $\approx$ 43'18	
morning rise	15305 Feb 09 02:19	19° $\approx$ 46'13			15312 Jan 11 20:44	0° $\approx$	
retrograde	15305 May 09 08:41	21° $\approx$ 19'13		evening set	15312 Jan 25 07:15	0° $\approx$ 24'23	
opposition	15305 Jul 28 17:52	20° $\approx$ 08'00	6°53'58	max. Earth dist.	15312 Feb 04 18:14	0° $\approx$ 44'06	36.51461 AU
min. Earth dist.	15305 Jul 30 20:17	20° $\approx$ 05'04	36.17436 AU				
direct	15305 Oct 17 00:17	18° $\approx$ 56'18		conjunction	15312 Feb 07 03:13	0° $\approx$ 48'37	9°02'25
evening set	15306 Jan 13 03:36	20° $\approx$ 28'34		minimum elong	15312 Feb 07 03:01	0° $\approx$ 48'36	9°02'56
max. Earth dist.	15306 Jan 25 02:37	20° $\approx$ 49'54	38.03411 AU	morning rise	15312 Feb 19 22:51	1° $\approx$ 12'51	
				retrograde	15312 May 21 08:59	2° $\approx$ 55'38	
conjunction	15306 Jan 27 10:42	20° $\approx$ 54'07	6°43'51	opposition	15312 Aug 08 23:09	1° $\approx$ 41'47	9°45'53
minimum elong	15306 Jan 27 10:32	20° $\approx$ 54'06	6°44'31	min. Earth dist.	15312 Aug 11 03:00	1° $\approx$ 38'37	34.41460 AU
morning rise	15306 Feb 10 18:10	21° $\approx$ 19'43		direct	15312 Oct 27 16:25	0° $\approx$ 27'12	
retrograde	15306 May 11 08:09	22° $\approx$ 53'55		evening set	15313 Jan 26 16:04	2° $\approx$ 09'58	
opposition	15306 Jul 30 13:16	21° $\approx$ 42'17	7°18'38	max. Earth dist.	15313 Feb 05 18:30	2° $\approx$ 29'13	36.26319 AU
min. Earth dist.	15306 Aug 01 15:48	21° $\approx$ 39'20	35.91950 AU				
direct	15306 Oct 18 16:58	20° $\approx$ 30'09		conjunction	15313 Feb 08 04:31	2° $\approx$ 33'51	9°25'08
evening set	15307 Jan 15 05:29	22° $\approx$ 03'43		minimum elong	15313 Feb 08 04:19	2° $\approx$ 33'50	9°25'39
max. Earth dist.	15307 Jan 26 23:40	22° $\approx$ 24'53	37.77798 AU	morning rise	15313 Feb 20 16:52	2° $\approx$ 57'43	
				retrograde	15313 May 23 13:59	4° $\approx$ 42'09	
conjunction	15307 Jan 29 07:48	22° $\approx$ 29'07	7°07'05	opposition	15313 Aug 10 23:09	3° $\approx$ 27'53	10°10'03
minimum elong	15307 Jan 29 07:39	22° $\approx$ 29'07	7°07'44	min. Earth dist.	15313 Aug 13 03:16	3° $\approx$ 24'41	34.16557 AU
morning rise	15307 Feb 12 10:12	22° $\approx$ 54'34		direct	15313 Oct 29 14:42	2° $\approx$ 12'51	
retrograde	15307 May 13 06:36	24° $\approx$ 30'02		evening set	15314 Jan 29 01:47	3° $\approx$ 57'22	
opposition	15307 Aug 01 09:24	23° $\approx$ 18'01	7°43'18	max. Earth dist.	15314 Feb 07 20:04	4° $\approx$ 16'08	36.01191 AU
min. Earth dist.	15307 Aug 03 12:21	23° $\approx$ 15'00	35.66586 AU				
direct	15307 Oct 20 12:55	22° $\approx$ 05'27		conjunction	15314 Feb 10 06:31	4° $\approx$ 20'51	9°47'40
evening set	15308 Jan 17 08:24	23° $\approx$ 40'23		minimum elong	15314 Feb 10 06:18	4° $\approx$ 20'50	9°48'09
max. Earth dist.	15308 Jan 28 21:39	24° $\approx$ 01'22	37.52335 AU	morning rise	15314 Feb 22 10:54	4° $\approx$ 44'19	
				retrograde	15314 May 25 18:05	6° $\approx$ 30'26	
conjunction	15308 Jan 31 05:25	24° $\approx$ 05'37	7°30'18	opposition	15314 Aug 12 23:58	5° $\approx$ 15'44	10°34'01
minimum elong	15308 Jan 31 05:14	24° $\approx$ 05'36	7°30'55	min. Earth dist.	15314 Aug 15 04:51	5° $\approx$ 12'28	33.91701 AU
morning rise	15308 Feb 14 02:31	24° $\approx$ 30'53		direct	15314 Oct 31 15:40	4° $\approx$ 00'15	
retrograde	15308 May 14 06:50	26° $\approx$ 07'40		evening set	15315 Jan 31 12:52	5° $\approx$ 46'35	



max. Earth dist.	15315 Feb 09 23:01	6° <del>✕</del> 04'52	35.76158 AU	min. Earth dist.	15321 Aug 28 04:05	18° <del>✕</del> 37'46	32.24984 AU
				direct	15321 Nov 13 04:56	17° <del>✕</del> 22'20	
conjunction	15315 Feb 12 09:13	6° <del>✕</del> 09'37	10°09'58	evening set	15322 Feb 17 05:37	19° <del>✕</del> 23'21	
minimum elong	15315 Feb 12 09:01	6° <del>✕</del> 09'36	10°10'27	max. Earth dist.	15322 Feb 23 17:00	19° <del>✕</del> 36'48	34.08860 AU
morning rise	15315 Feb 24 05:14	6° <del>✕</del> 32'38					
retrograde	15315 May 27 23:50	8° <del>✕</del> 20'28		conjunction	15322 Feb 26 01:02	19° <del>✕</del> 41'40	12°35'13
opposition	15315 Aug 15 01:15	7° <del>✕</del> 05'21	10°57'44	minimum elong	15322 Feb 26 00:49	19° <del>✕</del> 41'39	12°35'28
min. Earth dist.	15315 Aug 17 05:22	7° <del>✕</del> 02'06	33.66979 AU	morning rise	15322 Mar 06 19:58	19° <del>✕</del> 59'57	
direct	15315 Nov 02 17:23	5° <del>✕</del> 49'23		retrograde	15322 Jun 10 23:16	22° <del>✕</del> 01'59	
evening set	15316 Feb 03 01:01	7° <del>✕</del> 37'35		opposition	15322 Aug 28 07:48	20° <del>✕</del> 43'55	13°31'54
max. Earth dist.	15316 Feb 12 01:30	7° <del>✕</del> 55'16	35.51266 AU	min. Earth dist.	15322 Aug 30 09:33	20° <del>✕</del> 40'40	32.02808 AU
				direct	15322 Nov 15 10:57	19° <del>✕</del> 24'45	
conjunction	15316 Feb 14 12:36	8° <del>✕</del> 00'07	10°32'00	evening set	15323 Feb 20 03:16	21° <del>✕</del> 28'12	
minimum elong	15316 Feb 14 12:23	8° <del>✕</del> 00'06	10°32'26	max. Earth dist.	15323 Feb 26 01:54	21° <del>✕</del> 40'40	33.86623 AU
morning rise	15316 Feb 25 23:52	8° <del>✕</del> 22'38					
retrograde	15316 May 29 03:09	10° <del>✕</del> 12'17		conjunction	15323 Feb 28 10:02	21° <del>✕</del> 45'35	12°53'43
opposition	15316 Aug 16 03:25	8° <del>✕</del> 56'43	11°21'10	minimum elong	15323 Feb 28 09:50	21° <del>✕</del> 45'34	12°53'58
min. Earth dist.	15316 Aug 18 08:33	8° <del>✕</del> 53'23	33.42440 AU	morning rise	15323 Mar 08 16:19	22° <del>✕</del> 02'56	
direct	15316 Nov 03 17:26	7° <del>✕</del> 40'16		retrograde	15323 Jun 13 10:25	24° <del>✕</del> 07'18	
evening set	15317 Feb 04 14:32	9° <del>✕</del> 30'25		opposition	15323 Aug 30 15:25	22° <del>✕</del> 48'51	13°51'28
max. Earth dist.	15317 Feb 13 06:52	9° <del>✕</del> 47'34	35.26595 AU	min. Earth dist.	15323 Sep 01 17:48	22° <del>✕</del> 45'33	31.81035 AU
				direct	15323 Nov 17 17:12	21° <del>✕</del> 29'17	
conjunction	15317 Feb 15 16:51	9° <del>✕</del> 52'23	10°53'42	evening set	15324 Feb 23 02:42	23° <del>✕</del> 35'15	
minimum elong	15317 Feb 15 16:38	9° <del>✕</del> 52'22	10°54'07	max. Earth dist.	15324 Feb 28 13:04	23° <del>✕</del> 46'45	33.64787 AU
morning rise	15317 Feb 26 18:37	10° <del>✕</del> 14'21					
retrograde	15317 May 31 07:17	12° <del>✕</del> 05'51		conjunction	15324 Mar 01 19:59	23° <del>✕</del> 51'37	13°11'30
opposition	15317 Aug 18 06:05	10° <del>✕</del> 49'51	11°44'14	minimum elong	15324 Mar 01 19:47	23° <del>✕</del> 51'36	13°11'41
min. Earth dist.	15317 Aug 20 10:12	10° <del>✕</del> 46'33	33.18162 AU	morning rise	15324 Mar 09 12:44	24° <del>✕</del> 07'56	
direct	15317 Nov 05 19:42	9° <del>✕</del> 32'55		retrograde	15324 Jun 14 22:50	26° <del>✕</del> 14'42	
evening set	15318 Feb 07 05:18	11° <del>✕</del> 25'04		opposition	15324 Aug 31 23:50	24° <del>✕</del> 55'53	14°10'17
max. Earth dist.	15318 Feb 15 10:48	11° <del>✕</del> 41'31	35.02218 AU	min. Earth dist.	15324 Sep 03 00:52	24° <del>✕</del> 52'38	31.59636 AU
				direct	15324 Nov 19 01:50	23° <del>✕</del> 35'53	
conjunction	15318 Feb 17 21:39	11° <del>✕</del> 46'26	11°15'01	evening set	15325 Feb 25 03:36	25° <del>✕</del> 44'27	
minimum elong	15318 Feb 17 21:25	11° <del>✕</del> 46'25	11°15'23	max. Earth dist.	15325 Mar 01 23:05	25° <del>✕</del> 54'44	33.43319 AU
morning rise	15318 Feb 28 13:41	12° <del>✕</del> 07'47					
retrograde	15318 Jun 02 13:42	14° <del>✕</del> 01'15		conjunction	15325 Mar 04 06:42	25° <del>✕</del> 59'42	13°28'30
opposition	15318 Aug 20 09:42	12° <del>✕</del> 44'48	12°06'52	minimum elong	15325 Mar 04 06:31	25° <del>✕</del> 59'41	13°28'40
min. Earth dist.	15318 Aug 22 14:08	12° <del>✕</del> 41'27	32.94229 AU	morning rise	15325 Mar 11 09:24	26° <del>✕</del> 14'54	
direct	15318 Nov 07 19:12	11° <del>✕</del> 27'23		retrograde	15325 Jun 17 10:08	28° <del>✕</del> 24'09	
evening set	15319 Feb 09 21:08	13° <del>✕</del> 21'38		opposition	15325 Sep 03 09:05	27° <del>✕</del> 04'57	14°28'14
max. Earth dist.	15319 Feb 17 17:50	13° <del>✕</del> 37'28	34.78209 AU	min. Earth dist.	15325 Sep 05 10:45	27° <del>✕</del> 01'39	31.38616 AU
				direct	15325 Nov 21 08:29	25° <del>✕</del> 44'32	
conjunction	15319 Feb 20 03:14	13° <del>✕</del> 42'19	11°35'53	evening set	15326 Feb 28 06:16	27° <del>✕</del> 55'45	
minimum elong	15319 Feb 20 03:01	13° <del>✕</del> 42'18	11°36'15	max. Earth dist.	15326 Mar 04 12:17	28° <del>✕</del> 04'55	33.22257 AU
morning rise	15319 Mar 02 08:45	14° <del>✕</del> 03'00					
retrograde	15319 Jun 04 18:55	15° <del>✕</del> 58'29		conjunction	15326 Mar 06 18:21	28° <del>✕</del> 09'47	13°44'41
opposition	15319 Aug 22 14:05	14° <del>✕</del> 41'36	12°29'01	minimum elong	15326 Mar 06 18:10	28° <del>✕</del> 09'46	13°44'48
min. Earth dist.	15319 Aug 24 17:37	14° <del>✕</del> 38'17	32.70690 AU	morning rise	15326 Mar 13 05:55	28° <del>✕</del> 23'47	
direct	15319 Nov 09 22:08	13° <del>✕</del> 23'43			15326 May 03 07:47	0° <del>✕</del>	
evening set	15320 Feb 12 14:38	15° <del>✕</del> 20'08		retrograde	15326 Jun 19 21:52	0° <del>✕</del> 35'35	
max. Earth dist.	15320 Feb 20 00:06	15° <del>✕</del> 35'11	34.54636 AU		15326 Aug 07 18:31	30° <del>✕</del>	
				opposition	15326 Sep 05 19:10	29° <del>✕</del> 16'00	14°45'17
conjunction	15320 Feb 22 09:39	15° <del>✕</del> 40'06	11°56'15	min. Earth dist.	15326 Sep 07 19:38	29° <del>✕</del> 12'45	31.18006 AU
minimum elong	15320 Feb 22 09:26	15° <del>✕</del> 40'04	11°56'34	direct	15326 Nov 23 17:50	27° <del>✕</del> 55'09	
morning rise	15320 Mar 03 04:18	16° <del>✕</del> 00'03			15327 Feb 27 05:15	0° <del>✕</del>	
retrograde	15320 Jun 06 03:51	17° <del>✕</del> 57'37		evening set	15327 Mar 03 10:31	0° <del>✕</del> 09'08	
opposition	15320 Aug 23 19:05	16° <del>✕</del> 40'20	12°50'37	max. Earth dist.	15327 Mar 06 23:59	0° <del>✕</del> 16'52	33.01647 AU
min. Earth dist.	15320 Aug 25 22:03	16° <del>✕</del> 37'02	32.47611 AU				
direct	15320 Nov 11 00:58	15° <del>✕</del> 22'00		conjunction	15327 Mar 09 06:32	0° <del>✕</del> 21'50	13°59'57
evening set	15321 Feb 14 09:23	17° <del>✕</del> 20'41		minimum elong	15327 Mar 09 06:22	0° <del>✕</del> 21'49	14°00'03
max. Earth dist.	15321 Feb 21 08:20	17° <del>✕</del> 34'59	34.31514 AU	morning rise	15327 Mar 15 02:12	0° <del>✕</del> 34'30	
				retrograde	15327 Jun 22 11:45	2° <del>✕</del> 48'57	
conjunction	15321 Feb 23 17:03	17° <del>✕</del> 39'51	12°16'02	opposition	15327 Sep 08 06:01	1° <del>✕</del> 28'58	15°01'20
minimum elong	15321 Feb 23 16:50	17° <del>✕</del> 39'50	12°16'21	min. Earth dist.	15327 Sep 10 06:17	1° <del>✕</del> 25'43	30.97876 AU
morning rise	15321 Mar 05 00:08	17° <del>✕</del> 59'00		direct	15327 Nov 26 01:43	0° <del>✕</del> 07'40	
retrograde	15321 Jun 08 11:55	19° <del>✕</del> 58'46		evening set	15328 Mar 05 16:56	2° <del>✕</del> 24'32	
opposition	15321 Aug 26 01:07	18° <del>✕</del> 41'05	13°11'36	max. Earth dist.	15328 Mar 08 14:54	2° <del>✕</del> 30'55	32.81544 AU

conjunction	15328 Mar 10 19:48	2°♊35'46	14°14'15	min. Earth dist.	15335 Sep 28 12:46	20°♊14'46	29.62256 AU
minimum elong	15328 Mar 10 19:38	2°♊35'45	14°14'17	direct	15335 Dec 14 13:40	18°♊53'25	
morning rise	15328 Mar 15 22:15	2°♊46'59		max. Earth dist.	15336 Mar 28 12:14	21°♊27'26	31.47943 AU
retrograde	15328 Jun 23 23:48	5°♊04'10					
opposition	15328 Sep 09 17:32	3°♊43'48	15°16'19	conjunction	15336 Mar 30 05:55	21°♊31'28	15°23'51
min. Earth dist.	15328 Sep 11 17:02	3°♊40'35	30.78272 AU	minimum elong	15336 Mar 30 05:56	21°♊31'28	15°23'35
direct	15328 Nov 27 11:53	2°♊22'05		retrograde	15336 Jul 13 18:08	24°♊08'45	
evening set	15329 Mar 09 01:40	4°♊41'58		opposition	15336 Sep 28 16:11	22°♊46'06	16°27'04
max. Earth dist.	15329 Mar 11 05:07	4°♊46'42	32.62036 AU	min. Earth dist.	15336 Sep 30 05:00	22°♊43'31	29.49105 AU
				direct	15336 Dec 16 04:54	21°♊21'52	
				max. Earth dist.	15337 Mar 31 10:19	23°♊57'07	31.35154 AU
conjunction	15329 Mar 13 09:38	4°♊51'33	14°27'28				
minimum elong	15329 Mar 13 09:30	4°♊51'33	14°27'30				
morning rise	15329 Mar 17 17:20	5°♊01'08		conjunction	15337 Apr 02 01:17	24°♊00'55	15°25'59
retrograde	15329 Jun 26 15:01	7°♊21'12		minimum elong	15337 Apr 02 01:21	24°♊00'55	15°25'42
opposition	15329 Sep 12 05:51	6°♊00'28	15°30'08	retrograde	15337 Jul 16 12:10	26°♊39'01	
min. Earth dist.	15329 Sep 14 04:07	5°♊57'19	30.59295 AU	opposition	15337 Oct 01 10:06	25°♊16'12	16°28'46
direct	15329 Nov 29 23:38	4°♊38'20		min. Earth dist.	15337 Oct 02 21:18	25°♊13'43	29.36768 AU
evening set	15330 Mar 12 13:18	7°♊01'27		direct	15337 Dec 18 22:50	23°♊51'45	
max. Earth dist.	15330 Mar 13 21:13	7°♊04'25	32.43188 AU	max. Earth dist.	15338 Apr 03 06:31	26°♊27'54	31.23224 AU
conjunction	15330 Mar 16 00:08	7°♊09'09	14°39'34	conjunction	15338 Apr 04 20:48	26°♊31'39	15°26'31
minimum elong	15330 Mar 16 00:00	7°♊09'09	14°39'33	minimum elong	15338 Apr 04 20:52	26°♊31'40	15°26'11
morning rise	15330 Mar 19 10:42	7°♊16'50		retrograde	15338 Jul 19 08:38	29°♊10'30	
retrograde	15330 Jun 29 04:58	9°♊40'02		opposition	15338 Oct 04 04:29	27°♊47'29	16°28'42
opposition	15330 Sep 14 19:02	8°♊18'55	15°42'42	min. Earth dist.	15338 Oct 05 13:56	27°♊45'08	29.25277 AU
min. Earth dist.	15330 Sep 16 16:47	8°♊15'47	30.41009 AU	direct	15338 Dec 21 16:03	26°♊22'49	
direct	15330 Dec 02 11:24	6°♊56'24		max. Earth dist.	15339 Apr 06 05:30	29°♊00'01	31.12164 AU
evening set	15331 Mar 16 06:26	9°♊23'11					
max. Earth dist.	15331 Mar 16 13:54	9°♊23'53	32.25111 AU	conjunction	15339 Apr 07 17:05	29°♊03'31	15°25'24
				minimum elong	15339 Apr 07 17:13	29°♊03'32	15°25'03
conjunction	15331 Mar 18 15:21	9°♊28'31	14°50'26		15339 May 02 03:34	0°♊	
minimum elong	15331 Mar 18 15:16	9°♊28'31	14°50'23	retrograde	15339 Jul 22 03:02	1°♊43'00	
morning rise	15331 Mar 21 00:06	9°♊33'50		opposition	15339 Oct 06 23:16	0°♊19'49	16°26'52
retrograde	15331 Jul 01 22:12	12°♊00'35		min. Earth dist.	15339 Oct 08 07:41	0°♊17'31	29.14639 AU
opposition	15331 Sep 17 08:41	10°♊39'08	15°53'54		15339 Oct 18 17:40	30°♊	
min. Earth dist.	15331 Sep 19 04:14	10°♊36'08	30.23514 AU	direct	15339 Dec 24 09:33	28°♊54'57	
direct	15331 Dec 05 01:08	9°♊16'14			15340 Feb 25 23:02	0°♊	
max. Earth dist.	15332 Mar 18 07:03	11°♊45'06	32.07862 AU	max. Earth dist.	15340 Apr 08 03:10	1°♊32'54	31.02025 AU
conjunction	15332 Mar 20 07:22	11°♊49'39	15°00'00	conjunction	15340 Apr 09 13:35	1°♊36'18	15°22'37
minimum elong	15332 Mar 20 07:17	11°♊49'38	14°59'54	minimum elong	15340 Apr 09 13:43	1°♊36'19	15°22'13
retrograde	15332 Jul 03 15:02	14°♊22'51		retrograde	15340 Jul 23 22:55	4°♊16'19	
opposition	15332 Sep 18 23:20	13°♊01'06	16°03'41	opposition	15340 Oct 08 18:24	2°♊52'58	16°23'12
min. Earth dist.	15332 Sep 20 18:19	12°♊58'08	30.06865 AU	min. Earth dist.	15340 Oct 10 00:24	2°♊50'50	29.04915 AU
direct	15332 Dec 06 14:51	11°♊37'52		direct	15340 Dec 26 05:37	1°♊27'54	
max. Earth dist.	15333 Mar 21 02:07	14°♊08'10	31.91519 AU	max. Earth dist.	15341 Apr 11 02:29	4°♊06'41	30.92832 AU
conjunction	15333 Mar 23 00:01	14°♊12'32	15°08'10	conjunction	15341 Apr 12 10:23	4°♊09'50	15°18'07
minimum elong	15333 Mar 22 23:59	14°♊12'31	15°08'03	minimum elong	15341 Apr 12 10:35	4°♊09'51	15°17'40
retrograde	15333 Jul 06 09:10	16°♊46'50		retrograde	15341 Jul 26 17:26	6°♊50'17	
opposition	15333 Sep 21 14:29	15°♊24'49	16°11'57	opposition	15341 Oct 11 14:02	5°♊26'47	16°17'40
min. Earth dist.	15333 Sep 23 06:55	15°♊22'01	29.91105 AU	min. Earth dist.	15341 Oct 12 19:02	5°♊24'43	28.96144 AU
direct	15333 Dec 09 07:01	14°♊01'18		direct	15341 Dec 29 01:11	4°♊01'33	
max. Earth dist.	15334 Mar 23 20:19	16°♊32'51	31.76093 AU	max. Earth dist.	15342 Apr 14 01:27	6°♊40'58	30.84674 AU
conjunction	15334 Mar 25 17:18	16°♊37'09	15°14'54	conjunction	15342 Apr 15 07:18	6°♊43'56	15°11'52
minimum elong	15334 Mar 25 17:16	16°♊37'09	15°14'44	minimum elong	15342 Apr 15 07:30	6°♊43'57	15°11'24
retrograde	15334 Jul 09 03:13	19°♊12'32		retrograde	15342 Jul 29 14:18	9°♊24'42	
opposition	15334 Sep 24 06:28	17°♊50'17	16°18'37	opposition	15342 Oct 14 09:41	8°♊01'05	16°10'15
min. Earth dist.	15334 Sep 25 22:17	17°♊47'30	29.76251 AU	min. Earth dist.	15342 Oct 15 11:37	7°♊59'14	28.88407 AU
direct	15334 Dec 11 20:44	16°♊26'30		direct	15342 Dec 31 22:07	6°♊35'42	
max. Earth dist.	15335 Mar 26 17:09	18°♊59'26	31.61584 AU	max. Earth dist.	15343 Apr 17 00:53	9°♊15'43	30.77596 AU
conjunction	15335 Mar 28 11:17	19°♊03'30	15°20'09	conjunction	15343 Apr 18 04:23	9°♊18'27	15°03'52
minimum elong	15335 Mar 28 11:18	19°♊03'30	15°19'56	minimum elong	15343 Apr 18 04:38	9°♊18'29	15°03'21
retrograde	15335 Jul 11 22:52	21°♊39'51		retrograde	15343 Aug 01 09:28	11°♊59'28	
opposition	15335 Sep 26 23:02	20°♊17'25	16°23'41	opposition	15343 Oct 17 05:48	10°♊35'44	16°00'55

min. Earth dist.	15343 Oct 18 06:31	10°8'33"59	28.81762 AU	conjunction	15350 May 06 08:34	27°8'23"57	13°19'09
direct	15344 Jan 03 18:13	9°8'10"15		minimum elong	15350 May 06 08:57	27°8'23"59	13°18'26
evening set	15344 Apr 18 03:29	11°8'48"40		max. Earth dist.	15350 May 05 23:54	27°8'23"06	30.61397 AU
max. Earth dist.	15344 Apr 19 01:06	11°8'50"50	30.71682 AU	morning rise	15350 May 13 18:30	27°8'41"37	
					15350 Aug 03 21:35	0°II	
conjunction	15344 Apr 20 01:39	11°8'53"16	14°54'05	retrograde	15350 Aug 19 07:40	0°II04'13	
minimum elong	15344 Apr 20 01:54	11°8'53"18	14°53'32		15350 Sep 03 20:00	30°R8	
morning rise	15344 Apr 22 00:19	11°8'57"55		opposition	15350 Nov 04 04:01	28°8'40"58	14°03'15
retrograde	15344 Aug 03 06:13	14°8'34"25		min. Earth dist.	15350 Nov 04 12:25	28°8'40"22	28.67943 AU
opposition	15344 Oct 19 01:52	13°8'10"38	15°49'39	direct	15351 Jan 21 23:20	27°8'15"57	
min. Earth dist.	15344 Oct 19 23:18	13°8'09"07	28.76276 AU	evening set	15351 May 01 03:11	29°8'39"01	
direct	15345 Jan 05 17:01	11°8'45"06					
evening set	15345 Apr 19 17:55	14°8'20"38		conjunction	15351 May 09 05:07	29°8'58"14	12°57'47
				minimum elong	15351 May 09 05:30	29°8'58"17	12°57'01
conjunction	15345 Apr 22 22:55	14°8'28"18	14°42'31	max. Earth dist.	15351 May 08 21:45	29°8'57"30	30.63559 AU
minimum elong	15345 Apr 22 23:14	14°8'28"20	14°41'56		15351 May 09 22:52	0°II	
max. Earth dist.	15345 Apr 22 00:32	14°8'26"04	30.66976 AU	morning rise	15351 May 17 07:25	0°II17'28	
morning rise	15345 Apr 26 04:30	14°8'36"02		retrograde	15351 Aug 22 03:00	2°II38'02	
	15345 May 06 06:50	15°8		opposition	15351 Nov 06 23:58	1°II14'55	13°39'37
retrograde	15345 Aug 06 02:25	17°8'09"32		min. Earth dist.	15351 Nov 07 05:23	1°II14'32	28.70301 AU
opposition	15345 Oct 21 22:19	15°8'45"44	15°36'27		15351 Dec 31 07:55	30°R8	
min. Earth dist.	15345 Oct 22 17:59	15°8'44"20	28.72006 AU	direct	15352 Jan 24 20:30	29°8'50"03	
	15345 Nov 19 03:54	15°R8			15352 Feb 18 00:39	0°II	
direct	15346 Jan 08 13:03	14°8'20"11		evening set	15352 May 02 07:53	2°II11'08	
	15346 Feb 26 07:38	15°8					
evening set	15346 Apr 21 14:59	16°8'53"24		conjunction	15352 May 11 01:29	2°II31'49	12°35'00
				minimum elong	15352 May 11 01:53	2°II31'52	12°34'14
conjunction	15346 Apr 25 20:08	17°8'03"29	14°29'11	max. Earth dist.	15352 May 10 21:13	2°II31'24	30.66728 AU
minimum elong	15346 Apr 25 20:26	17°8'03"30	14°28'35	morning rise	15352 May 19 19:12	2°II52'32	
max. Earth dist.	15346 Apr 25 01:21	17°8'01"36	30.63526 AU	retrograde	15352 Aug 23 19:27	5°II11'02	
morning rise	15346 Apr 30 01:46	17°8'13"37		opposition	15352 Nov 08 19:45	3°II48'05	13°14'31
retrograde	15346 Aug 08 23:21	19°8'44"42		min. Earth dist.	15352 Nov 08 23:59	3°II47'47	28.73654 AU
opposition	15346 Oct 24 18:42	18°8'20"57	15°21'23	direct	15353 Jan 26 17:19	2°II23'22	
min. Earth dist.	15346 Oct 25 11:21	18°8'19"46	28.68939 AU	evening set	15353 May 04 13:06	4°II42'27	
direct	15347 Jan 11 11:24	16°8'55"28					
evening set	15347 Apr 23 14:53	19°8'26"33		conjunction	15353 May 13 21:18	5°II04'31	12°10'53
				minimum elong	15353 May 13 21:42	5°II04'33	12°10'05
conjunction	15347 Apr 28 17:22	19°8'38"45	14°14'08	max. Earth dist.	15353 May 13 18:40	5°II04'15	30.70921 AU
minimum elong	15347 Apr 28 17:43	19°8'38"47	14°13'29	morning rise	15353 May 23 05:41	5°II26'36	
max. Earth dist.	15347 Apr 28 00:16	19°8'37"03	30.61291 AU	retrograde	15353 Aug 26 14:32	7°II43'03	
morning rise	15347 May 03 20:24	19°8'51"01		opposition	15353 Nov 11 15:05	6°II20'16	12°48'01
retrograde	15347 Aug 11 20:46	22°8'19"53		min. Earth dist.	15353 Nov 11 16:04	6°II20'12	28.78022 AU
opposition	15347 Oct 27 15:00	20°8'56"13	15°04'26	direct	15354 Jan 29 13:58	4°II55'42	
min. Earth dist.	15347 Oct 28 05:35	20°8'55"11	28.67059 AU	evening set	15354 May 06 18:15	7°II12'48	
direct	15348 Jan 14 07:56	19°8'30"49					
evening set	15348 Apr 24 16:37	21°8'59"53		conjunction	15354 May 16 16:35	7°II36'08	11°45'31
				minimum elong	15354 May 16 16:59	7°II36'11	11°44'42
conjunction	15348 Apr 30 14:42	22°8'14"02	13°57'24	max. Earth dist.	15354 May 16 16:45	7°II36'09	30.76128 AU
minimum elong	15348 Apr 30 15:03	22°8'14"04	13°56'44	morning rise	15354 May 26 14:56	7°II59'30	
max. Earth dist.	15348 Apr 30 01:10	22°8'12"41	30.60230 AU	retrograde	15354 Aug 29 05:42	10°II13'56	
morning rise	15348 May 06 13:11	22°8'28"13		opposition	15354 Nov 14 10:08	8°II51'18	12°20'11
retrograde	15348 Aug 13 15:55	24°8'54"58		min. Earth dist.	15354 Nov 14 09:56	8°II51'19	28.83418 AU
opposition	15348 Oct 29 11:28	23°8'31"26	14°45'44	direct	15355 Feb 01 09:37	7°II26'55	
min. Earth dist.	15348 Oct 29 23:52	23°8'30"33	28.66289 AU	evening set	15355 May 08 23:53	9°II42'01	
direct	15349 Jan 16 05:57	22°8'06"09					
evening set	15349 Apr 26 19:17	24°8'33"12		conjunction	15355 May 19 11:25	10°II06'32	11°18'57
				minimum elong	15355 May 19 11:49	10°II06'35	11°18'06
conjunction	15349 May 03 11:36	24°8'49"09	13°39'03	max. Earth dist.	15355 May 19 13:57	10°II06'47	30.82391 AU
minimum elong	15349 May 03 11:58	24°8'49"11	13°38'20	morning rise	15355 May 29 22:51	10°II31'05	
max. Earth dist.	15349 May 02 23:28	24°8'47"56	30.60278 AU	retrograde	15355 Aug 31 22:13	12°II43'30	
morning rise	15349 May 10 04:25	25°8'05"08		opposition	15355 Nov 17 04:26	11°II21'03	11°51'06
retrograde	15349 Aug 16 12:59	27°8'29"48		min. Earth dist.	15355 Nov 17 01:05	11°II21'17	28.89869 AU
opposition	15349 Nov 01 07:48	26°8'06"24	14°25'18	direct	15356 Feb 04 07:48	9°II56'50	
min. Earth dist.	15349 Nov 01 17:41	26°8'05"42	28.66601 AU	evening set	15356 May 10 05:33	12°II09'58	
direct	15350 Jan 19 02:39	24°8'41"15					
evening set	15350 Apr 28 22:53	27°8'06"19		conjunction	15356 May 21 05:38	12°II35'36	10°51'16
				minimum elong	15356 May 21 06:02	12°II35'38	10°50'25

max. Earth dist.	15356 May 21 10:37	12° $\Pi$ 36'05	30.89723 AU	conjunction	15363 Jun 07 19:43	29° $\Pi$ 18'38	7°13'55
morning rise	15356 Jun 01 05:37	13° $\Pi$ 01'14		minimum elong	15363 Jun 07 20:00	29° $\Pi$ 18'39	7°12'59
retrograde	15356 Sep 02 13:58	15° $\Pi$ 11'41		max. Earth dist.	15363 Jun 08 17:36	29° $\Pi$ 20'41	31.70959 AU
opposition	15356 Nov 18 22:35	13° $\Pi$ 49'25	11°20'52	morning rise	15363 Jun 21 14:42	29° $\Pi$ 49'27	
min. Earth dist.	15356 Nov 18 17:22	13° $\Pi$ 49'46	28.97435 AU		15363 Jun 26 10:40	0° $\mathfrak{G}$	
direct	15357 Feb 06 02:35	12° $\Pi$ 25'24		retrograde	15363 Sep 19 14:51	1° $\mathfrak{G}$ 47'32	
evening set	15357 May 12 11:14	14° $\Pi$ 36'36		opposition	15363 Dec 06 13:40	0° $\mathfrak{G}$ 27'21	7°25'25
				min. Earth dist.	15363 Dec 05 17:12	0° $\mathfrak{G}$ 28'43	29.79916 AU
conjunction	15357 May 23 23:08	15° $\Pi$ 03'14	10°22'33		15363 Dec 23 21:29	30° $\mathfrak{R}$ $\Pi$	
minimum elong	15357 May 23 23:31	15° $\Pi$ 03'16	10°21'41	direct	15364 Feb 24 08:52	29° $\Pi$ 05'33	
max. Earth dist.	15357 May 24 07:17	15° $\Pi$ 04'01	30.98190 AU		15364 Apr 23 20:26	0° $\mathfrak{G}$	
morning rise	15357 Jun 04 10:41	15° $\Pi$ 29'52		evening set	15364 May 26 06:10	1° $\mathfrak{G}$ 04'30	
retrograde	15357 Sep 05 05:28	17° $\Pi$ 38'23					
opposition	15357 Nov 21 16:07	16° $\Pi$ 16'21	10°49'34	conjunction	15364 Jun 09 08:53	1° $\mathfrak{G}$ 35'49	6°40'41
min. Earth dist.	15357 Nov 21 07:51	16° $\Pi$ 16'55	29.06128 AU	minimum elong	15364 Jun 09 09:09	1° $\mathfrak{G}$ 35'50	6°39'46
direct	15358 Feb 08 23:12	14° $\Pi$ 52'35		max. Earth dist.	15364 Jun 10 07:51	1° $\mathfrak{G}$ 37'57	31.86103 AU
evening set	15358 May 14 17:06	17° $\Pi$ 01'52		morning rise	15364 Jun 23 10:43	2° $\mathfrak{G}$ 07'03	
				retrograde	15364 Sep 21 02:02	4° $\mathfrak{G}$ 03'34	
conjunction	15358 May 26 16:03	17° $\Pi$ 29'26	9°52'54	min. Earth dist.	15364 Dec 07 04:03	2° $\mathfrak{G}$ 45'15	29.95160 AU
minimum elong	15358 May 26 16:26	17° $\Pi$ 29'28	9°52'02	opposition	15364 Dec 08 03:10	2° $\mathfrak{G}$ 43'43	6°49'41
max. Earth dist.	15358 May 27 02:06	17° $\Pi$ 30'24	31.07789 AU	direct	15365 Feb 26 00:26	1° $\mathfrak{G}$ 22'15	
morning rise	15358 Jun 07 14:46	17° $\Pi$ 56'59		evening set	15365 May 28 12:17	3° $\mathfrak{G}$ 19'39	
retrograde	15358 Sep 07 21:54	20° $\Pi$ 03'38					
opposition	15358 Nov 24 09:03	18° $\Pi$ 41'50	10°17'18	conjunction	15365 Jun 11 21:14	3° $\mathfrak{G}$ 51'19	6°07'11
min. Earth dist.	15358 Nov 23 22:20	18° $\Pi$ 42'35	29.15969 AU	minimum elong	15365 Jun 11 21:28	3° $\mathfrak{G}$ 51'20	6°06'15
direct	15359 Feb 11 18:06	17° $\Pi$ 18'22		max. Earth dist.	15365 Jun 12 22:19	3° $\mathfrak{G}$ 53'38	32.01936 AU
evening set	15359 May 16 23:02	19° $\Pi$ 25'49		morning rise	15365 Jun 26 05:11	4° $\mathfrak{G}$ 22'53	
				retrograde	15365 Sep 23 11:32	6° $\mathfrak{G}$ 17'55	
conjunction	15359 May 29 08:32	19° $\Pi$ 54'13	9°22'23	opposition	15365 Dec 10 16:07	4° $\mathfrak{G}$ 58'22	6°13'43
minimum elong	15359 May 29 08:54	19° $\Pi$ 54'15	9°21'29	min. Earth dist.	15365 Dec 09 15:59	4° $\mathfrak{G}$ 59'58	30.11112 AU
max. Earth dist.	15359 May 29 22:00	19° $\Pi$ 55'30	31.18508 AU	direct	15366 Feb 28 13:08	3° $\mathfrak{G}$ 37'15	
morning rise	15359 Jun 10 17:24	20° $\Pi$ 22'35		evening set	15366 May 30 18:25	5° $\mathfrak{G}$ 33'07	
retrograde	15359 Sep 10 11:34	22° $\Pi$ 27'24					
opposition	15359 Nov 27 01:32	21° $\Pi$ 05'55	9°44'11	conjunction	15366 Jun 14 08:59	6° $\mathfrak{G}$ 05'03	5°33'29
min. Earth dist.	15359 Nov 26 12:47	21° $\Pi$ 06'47	29.26884 AU	minimum elong	15366 Jun 14 09:12	6° $\mathfrak{G}$ 05'05	5°32'34
direct	15360 Feb 14 13:38	19° $\Pi$ 42'45		max. Earth dist.	15366 Jun 15 11:45	6° $\mathfrak{G}$ 07'31	32.18454 AU
evening set	15360 May 18 05:10	21° $\Pi$ 48'25		morning rise	15366 Jun 28 22:23	6° $\mathfrak{G}$ 36'55	
				retrograde	15366 Sep 25 20:40	8° $\mathfrak{G}$ 30'29	
conjunction	15360 May 31 00:11	22° $\Pi$ 17'33	8°51'08	min. Earth dist.	15366 Dec 12 01:52	7° $\mathfrak{G}$ 12'58	30.27739 AU
minimum elong	15360 May 31 00:32	22° $\Pi$ 17'35	8°50'14	opposition	15366 Dec 13 04:04	7° $\mathfrak{G}$ 11'15	5°37'36
max. Earth dist.	15360 May 31 15:02	22° $\Pi$ 18'58	31.30259 AU	direct	15367 Mar 03 04:53	5° $\mathfrak{G}$ 50'27	
morning rise	15360 Jun 12 18:47	22° $\Pi$ 46'40		evening set	15367 Jun 02 00:31	7° $\mathfrak{G}$ 44'52	
retrograde	15360 Sep 12 02:46	24° $\Pi$ 49'44					
opposition	15360 Nov 28 17:24	23° $\Pi$ 28'33	9°10'19	conjunction	15367 Jun 16 19:54	8° $\mathfrak{G}$ 17'01	4°59'40
min. Earth dist.	15360 Nov 28 01:50	23° $\Pi$ 29'36	29.38821 AU	minimum elong	15367 Jun 16 20:06	8° $\mathfrak{G}$ 17'02	4°58'44
direct	15361 Feb 16 06:55	22° $\Pi$ 05'43		max. Earth dist.	15367 Jun 17 23:56	8° $\mathfrak{G}$ 19'34	32.35625 AU
evening set	15361 May 20 11:17	24° $\Pi$ 09'38		morning rise	15367 Jul 01 14:16	8° $\mathfrak{G}$ 49'04	
				retrograde	15367 Sep 28 06:38	10° $\mathfrak{G}$ 41'15	
conjunction	15361 Jun 02 15:25	24° $\Pi$ 39'27	8°19'14	min. Earth dist.	15367 Dec 14 11:40	9° $\mathfrak{G}$ 24'08	30.45067 AU
minimum elong	15361 Jun 02 15:44	24° $\Pi$ 39'28	8°18'19	opposition	15367 Dec 15 15:32	9° $\mathfrak{G}$ 22'18	5°01'25
max. Earth dist.	15361 Jun 03 09:37	24° $\Pi$ 41'10	31.42973 AU	direct	15368 Mar 04 17:28	8° $\mathfrak{G}$ 01'50	
morning rise	15361 Jun 15 18:43	25° $\Pi$ 09'12		evening set	15368 Jun 03 06:14	9° $\mathfrak{G}$ 54'50	
retrograde	15361 Sep 14 15:27	27° $\Pi$ 10'33					
opposition	15361 Dec 01 08:49	25° $\Pi$ 49'42	8°35'50	conjunction	15368 Jun 18 06:02	10° $\mathfrak{G}$ 27'08	4°25'48
min. Earth dist.	15361 Nov 30 15:59	25° $\Pi$ 50'50	29.51685 AU	minimum elong	15368 Jun 18 06:12	10° $\mathfrak{G}$ 27'09	4°24'53
direct	15362 Feb 19 00:46	24° $\Pi$ 27'13		max. Earth dist.	15368 Jun 19 12:34	10° $\mathfrak{G}$ 29'54	32.53487 AU
evening set	15362 May 22 17:30	26° $\Pi$ 29'26		morning rise	15368 Jul 03 04:28	10° $\mathfrak{G}$ 59'19	
				retrograde	15368 Sep 29 13:51	12° $\mathfrak{G}$ 50'10	
conjunction	15362 Jun 05 05:45	26° $\Pi$ 59'49	7°46'48	min. Earth dist.	15368 Dec 15 20:56	11° $\mathfrak{G}$ 33'26	30.63106 AU
minimum elong	15362 Jun 05 06:04	26° $\Pi$ 59'51	7°45'53	opposition	15368 Dec 17 02:17	11° $\mathfrak{G}$ 31'31	4°25'13
max. Earth dist.	15362 Jun 06 00:58	27° $\Pi$ 01'38	31.56568 AU	direct	15369 Mar 07 07:11	10° $\mathfrak{G}$ 11'23	
morning rise	15362 Jun 18 17:23	27° $\Pi$ 30'09		evening set	15369 Jun 05 11:59	12° $\mathfrak{G}$ 03'02	
retrograde	15362 Sep 17 05:07	29° $\Pi$ 29'50					
opposition	15362 Dec 03 23:31	28° $\Pi$ 09'19	8°00'50	conjunction	15369 Jun 20 15:17	12° $\mathfrak{G}$ 35'25	3°51'57
min. Earth dist.	15362 Dec 03 03:47	28° $\Pi$ 10'39	29.65408 AU	minimum elong	15369 Jun 20 15:26	12° $\mathfrak{G}$ 35'26	3°51'01
direct	15363 Feb 21 17:27	26° $\Pi$ 47'11		max. Earth dist.	15369 Jun 21 22:49	12° $\mathfrak{G}$ 38'15	32.72063 AU
evening set	15363 May 24 23:46	28° $\Pi$ 47'44		morning rise	15369 Jul 05 17:31	13° $\mathfrak{G}$ 07'42	

retrograde	15369 Oct 01 22:58	14°☾57'15		minimum elong	15376 Jul 04 13:00	26°☾47'05	0°00'34
min. Earth dist.	15369 Dec 18 04:17	13°☾41'01	30.81918 AU	behind sun begin	15376 Jul 04 06:35	26°☾46'34	
opposition	15369 Dec 19 12:16	13°☾38'56	3°49'06	behind sun end	15376 Jul 04 19:24	26°☾47'36	
direct	15370 Mar 09 18:56	12°☾19'09		max. Earth dist.	15376 Jul 06 07:12	26°☾50'41	34.20268 AU
evening set	15370 Jun 07 17:20	14°☾09'31		desc. node	15376 Jul 08 05:15	26°☾54'37	
				morning rise	15376 Jul 20 01:26	27°☾18'34	
conjunction	15370 Jun 22 23:54	14°☾41'56	3°18'10	retrograde	15376 Oct 15 08:14	29°☾00'57	
minimum elong	15370 Jun 23 00:02	14°☾41'57	3°17'15	min. Earth dist.	15376 Dec 31 21:48	27°☾47'48	32.31535 AU
max. Earth dist.	15370 Jun 24 10:27	14°☾45'01	32.91392 AU	opposition	15377 Jan 02 16:00	27°☾45'10	-0°16'29
morning rise	15370 Jul 08 05:03	15°☾14'14		direct	15377 Mar 24 09:35	26°☾28'08	
retrograde	15370 Oct 04 05:33	17°☾02'35		evening set	15377 Jun 21 03:49	28°☾11'07	
opposition	15370 Dec 21 21:40	15°☾44'37	3°13'07				
min. Earth dist.	15370 Dec 20 12:38	15°☾46'45	31.01483 AU	conjunction	15377 Jul 06 17:05	28°☾42'26	-0°31'24
direct	15371 Mar 12 08:04	14°☾25'13		minimum elong	15377 Jul 06 17:04	28°☾42'26	0°32'16
evening set	15371 Jun 09 22:48	16°☾14'22		max. Earth dist.	15377 Jul 08 13:01	28°☾46'10	34.43204 AU
				morning rise	15377 Jul 22 04:52	29°☾13'39	
conjunction	15371 Jun 25 07:45	16°☾46'45	2°44'31		15377 Aug 16 10:18	0°♈	
minimum elong	15371 Jun 25 07:51	16°☾46'46	2°43'36	retrograde	15377 Oct 17 09:55	0°♈55'12	
max. Earth dist.	15371 Jun 26 19:01	16°☾49'52	33.11448 AU		15377 Dec 22 01:28	30°♈☾	
morning rise	15371 Jul 10 15:31	17°☾19'02		min. Earth dist.	15378 Jan 03 02:32	29°☾42'22	32.54613 AU
retrograde	15371 Oct 06 12:51	19°☾06'14		opposition	15378 Jan 04 20:54	29°☾39'45	-0°49'54
min. Earth dist.	15371 Dec 22 18:17	17°☾50'56	31.21777 AU	direct	15378 Mar 26 16:33	28°☾23'04	
opposition	15371 Dec 24 06:09	17°☾48'38	2°37'20		15378 Jun 20 16:18	0°♈	
direct	15372 Mar 13 18:47	16°☾29'37		evening set	15378 Jun 23 08:08	0°♈05'11	
evening set	15372 Jun 11 03:58	18°☾17'38					
				conjunction	15378 Jul 08 20:21	0°♈36'11	-1°02'39
conjunction	15372 Jun 26 14:59	18°☾49'57	2°11'04	minimum elong	15378 Jul 08 20:19	0°♈36'11	1°03'29
minimum elong	15372 Jun 26 15:04	18°☾49'57	2°10'11	max. Earth dist.	15378 Jul 10 16:04	0°♈39'52	34.66393 AU
max. Earth dist.	15372 Jun 28 04:51	18°☾53'16	33.32178 AU	morning rise	15378 Jul 24 07:25	1°♈07'06	
morning rise	15372 Jul 12 00:35	19°☾22'09		retrograde	15378 Oct 19 13:19	2°♈47'50	
retrograde	15372 Oct 07 16:03	21°☾08'18		min. Earth dist.	15379 Jan 05 04:52	1°♈35'25	32.77952 AU
min. Earth dist.	15372 Dec 24 01:45	19°☾53'24	31.42737 AU	opposition	15379 Jan 07 01:08	1°♈32'42	-1°22'47
opposition	15372 Dec 25 14:17	19°☾51'04	2°01'49	direct	15379 Mar 28 22:51	0°♈16'22	
direct	15373 Mar 16 04:15	18°☾32'28		evening set	15379 Jun 25 12:08	1°♈57'38	
evening set	15373 Jun 13 08:55	20°☾19'21					
				conjunction	15379 Jul 10 23:07	2°♈28'18	-1°33'25
conjunction	15373 Jun 28 21:20	20°☾51'34	1°37'53	minimum elong	15379 Jul 10 23:04	2°♈28'18	1°34'15
minimum elong	15373 Jun 28 21:23	20°☾51'34	1°36'59	max. Earth dist.	15379 Jul 12 20:45	2°♈32'06	34.89811 AU
max. Earth dist.	15373 Jun 30 12:06	20°☾54'57	33.53517 AU	morning rise	15379 Jul 26 08:43	2°♈58'52	
morning rise	15373 Jul 14 08:25	21°☾23'39		retrograde	15379 Oct 21 13:39	4°♈38'50	
retrograde	15373 Oct 09 20:23	23°☾08'47		min. Earth dist.	15380 Jan 07 08:38	3°♈26'42	33.01539 AU
min. Earth dist.	15373 Dec 26 06:50	21°☾54'23	31.64270 AU	opposition	15380 Jan 09 04:48	3°♈24'00	-1°55'07
opposition	15373 Dec 27 21:36	21°☾51'56	1°26'38	direct	15380 Mar 30 05:58	2°♈08'00	
direct	15374 Mar 18 13:22	20°☾33'44		evening set	15380 Jun 26 15:54	3°♈48'28	
evening set	15374 Jun 15 13:54	22°☾19'35					
				conjunction	15380 Jul 12 01:05	4°♈18'45	-2°03'40
conjunction	15374 Jul 01 03:12	22°☾51'38	1°05'00	minimum elong	15380 Jul 12 01:01	4°♈18'45	2°04'29
minimum elong	15374 Jul 01 03:14	22°☾51'38	1°04'07	max. Earth dist.	15380 Jul 13 22:47	4°♈22'32	35.13485 AU
max. Earth dist.	15374 Jul 02 19:38	22°☾55'08	33.75358 AU	morning rise	15380 Jul 27 09:04	4°♈48'57	
morning rise	15374 Jul 16 15:13	23°☾23'34		retrograde	15380 Oct 22 14:16	6°♈28'11	
retrograde	15374 Oct 12 00:16	25°☾07'43		min. Earth dist.	15381 Jan 08 09:38	5°♈16'28	33.25412 AU
min. Earth dist.	15374 Dec 28 12:42	23°☾53'44	31.86305 AU	opposition	15381 Jan 10 07:46	5°♈13'40	-2°26'52
opposition	15374 Dec 30 04:16	23°☾51'14	0°51'49	direct	15381 Apr 01 11:41	3°♈57'59	
direct	15375 Mar 20 19:18	22°☾33'27		evening set	15381 Jun 28 19:14	5°♈37'41	
evening set	15375 Jun 17 18:42	24°☾18'18					
				conjunction	15381 Jul 14 02:18	6°♈07'35	-2°33'24
conjunction	15375 Jul 03 08:31	24°☾50'08	0°32'28	minimum elong	15381 Jul 14 02:13	6°♈07'35	2°34'12
minimum elong	15375 Jul 03 08:32	24°☾50'08	0°31'35	max. Earth dist.	15381 Jul 16 01:37	6°♈11'28	35.37441 AU
max. Earth dist.	15375 Jul 05 02:15	24°☾53'43	33.97640 AU	morning rise	15381 Jul 29 08:12	6°♈37'23	
morning rise	15375 Jul 18 20:53	25°☾21'52		retrograde	15381 Oct 24 12:24	8°♈15'58	
retrograde	15375 Oct 14 03:15	27°☾05'07		min. Earth dist.	15382 Jan 10 11:38	7°♈04'33	33.49620 AU
min. Earth dist.	15375 Dec 30 17:37	25°☾51'33	32.08741 AU	opposition	15382 Jan 12 10:14	7°♈01'44	-2°58'01
opposition	15376 Jan 01 10:25	25°☾49'00	0°17'27	direct	15382 Apr 03 15:04	5°♈46'23	
direct	15376 Mar 22 04:16	24°☾31'35		evening set	15382 Jun 30 22:25	7°♈25'23	
evening set	15376 Jun 18 23:24	26°☾15'29					
				conjunction	15382 Jul 16 03:04	7°♈54'52	-3°02'33
conjunction	15376 Jul 04 13:00	26°☾47'05	0°00'18	minimum elong	15382 Jul 16 02:58	7°♈54'51	3°03'20

max. Earth dist.	15382 Jul 18 03:23	7°Ω58'48	35.61738 AU	retrograde	15388 Nov 04 22:46	20°Ω13'07	
morning rise	15382 Jul 31 06:27	8°Ω24'15		min. Earth dist.	15389 Jan 22 07:19	19°Ω04'19	35.26577 AU
retrograde	15382 Oct 26 10:29	10°Ω02'12		opposition	15389 Jan 24 11:32	19°Ω01'17	-6°17'44
min. Earth dist.	15383 Jan 12 11:53	8°Ω51'11	33.74169 AU	direct	15389 Apr 16 00:16	17°Ω48'34	
opposition	15383 Jan 14 11:51	8°Ω48'18	-3°28'32	evening set	15389 Jul 13 14:23	19°Ω23'55	
direct	15383 Apr 05 18:30	7°Ω33'18					
evening set	15383 Jul 03 01:29	9°Ω11'39		conjunction	15389 Jul 27 17:01	19°Ω50'02	-6°09'54
				minimum elong	15389 Jul 27 16:52	19°Ω50'01	6°10'34
conjunction	15383 Jul 18 03:11	9°Ω40'42	-3°31'09	max. Earth dist.	15389 Jul 29 22:06	19°Ω54'09	37.38352 AU
minimum elong	15383 Jul 18 03:05	9°Ω40'41	3°31'55	morning rise	15389 Aug 10 18:42	20°Ω16'04	
max. Earth dist.	15383 Jul 20 04:13	9°Ω44'40	35.86365 AU	retrograde	15389 Nov 06 17:37	21°Ω50'56	
morning rise	15383 Aug 02 03:54	10°Ω09'39		min. Earth dist.	15390 Jan 24 05:12	20°Ω42'28	35.52175 AU
retrograde	15383 Oct 28 10:46	11°Ω47'03		opposition	15390 Jan 26 09:43	20°Ω39'25	-6°43'34
min. Earth dist.	15384 Jan 14 11:43	10°Ω36'25	33.99072 AU	direct	15390 Apr 17 23:54	19°Ω27'03	
opposition	15384 Jan 16 13:08	10°Ω33'28	-3°58'25	evening set	15390 Jul 15 15:57	21°Ω01'59	
direct	15384 Apr 06 18:17	9°Ω18'51					
evening set	15384 Jul 04 04:02	10°Ω56'36		conjunction	15390 Jul 29 13:40	21°Ω27'33	-6°34'11
				minimum elong	15390 Jul 29 13:31	21°Ω27'33	6°34'49
conjunction	15384 Jul 19 02:44	11°Ω25'12	-3°59'08	max. Earth dist.	15390 Jul 31 18:23	21°Ω31'38	37.63738 AU
minimum elong	15384 Jul 19 02:37	11°Ω25'11	3°59'53	morning rise	15390 Aug 12 10:45	21°Ω53'04	
max. Earth dist.	15384 Jul 21 05:33	11°Ω29'17	36.11313 AU	retrograde	15390 Nov 08 14:31	23°Ω27'36	
morning rise	15384 Aug 03 00:11	11°Ω53'42		min. Earth dist.	15391 Jan 26 02:19	22°Ω19'26	35.77688 AU
retrograde	15384 Oct 29 08:54	13°Ω30'36		opposition	15391 Jan 28 07:23	22°Ω16'23	-7°08'45
min. Earth dist.	15385 Jan 15 12:09	12°Ω20'20	34.24263 AU	direct	15391 Apr 19 20:59	21°Ω04'19	
opposition	15385 Jan 17 13:52	12°Ω17'22	-4°27'38	evening set	15391 Jul 17 17:07	22°Ω38'52	
direct	15385 Apr 08 20:52	11°Ω03'08					
evening set	15385 Jul 06 06:36	12°Ω40'21		conjunction	15391 Jul 31 10:00	23°Ω03'53	-6°57'52
				minimum elong	15391 Jul 31 09:51	23°Ω03'52	6°58'30
conjunction	15385 Jul 21 01:42	13°Ω08'28	-4°26'31	max. Earth dist.	15391 Aug 02 15:42	23°Ω08'00	37.89024 AU
minimum elong	15385 Jul 21 01:34	13°Ω08'27	4°27'16	morning rise	15391 Aug 14 01:58	23°Ω28'51	
max. Earth dist.	15385 Jul 23 04:20	13°Ω12'30	36.36510 AU	retrograde	15391 Nov 10 10:06	25°Ω03'04	
morning rise	15385 Aug 04 19:55	13°Ω36'30		min. Earth dist.	15392 Jan 28 00:13	23°Ω55'07	36.03089 AU
	15385 Oct 01 05:37	15°Ω		opposition	15392 Jan 30 04:43	23°Ω52'06	-7°33'15
retrograde	15385 Oct 31 09:21	15°Ω12'56		direct	15392 Apr 20 19:25	22°Ω40'21	
	15385 Dec 01 01:37	15°Ω		evening set	15392 Jul 18 17:59	24°Ω14'31	
min. Earth dist.	15386 Jan 17 10:28	14°Ω03'06	34.49692 AU				
opposition	15386 Jan 19 13:54	14°Ω00'03	-4°56'10	conjunction	15392 Aug 01 05:30	24°Ω38'59	-7°20'56
direct	15386 Apr 10 21:33	12°Ω46'13		minimum elong	15392 Aug 01 05:20	24°Ω38'58	7°21'32
evening set	15386 Jul 08 08:48	14°Ω22'55		max. Earth dist.	15392 Aug 03 10:22	24°Ω43'00	38.14211 AU
				morning rise	15392 Aug 14 16:26	25°Ω03'23	
conjunction	15386 Jul 23 00:19	14°Ω50'34	-4°53'18	retrograde	15392 Nov 11 07:22	26°Ω37'17	
minimum elong	15386 Jul 23 00:11	14°Ω50'33	4°54'01	min. Earth dist.	15393 Jan 28 19:42	25°Ω29'38	36.28426 AU
max. Earth dist.	15386 Jul 25 04:41	14°Ω54'42	36.61888 AU	opposition	15393 Jan 31 01:29	25°Ω26'35	-7°57'05
	15386 Jul 27 23:32	15°Ω		direct	15393 Apr 22 15:58	24°Ω15'06	
morning rise	15386 Aug 06 14:43	15°Ω18'07		evening set	15393 Jul 20 18:30	25°Ω48'54	
retrograde	15386 Nov 02 07:22	16°Ω54'07					
min. Earth dist.	15387 Jan 19 10:36	15°Ω44'35	34.75267 AU	conjunction	15393 Aug 03 00:43	26°Ω12'49	-7°43'22
opposition	15387 Jan 21 13:37	15°Ω41'35	-5°24'02	minimum elong	15393 Aug 03 00:33	26°Ω12'48	7°43'58
	15387 Feb 21 20:47	15°Ω		max. Earth dist.	15393 Aug 05 06:56	26°Ω16'54	38.39347 AU
direct	15387 Apr 12 22:56	14°Ω28'08		morning rise	15393 Aug 16 06:13	26°Ω36'40	
	15387 May 31 08:15	15°Ω		retrograde	15393 Nov 13 01:01	28°Ω10'15	
evening set	15387 Jul 10 10:56	16°Ω04'22		min. Earth dist.	15394 Jan 30 16:38	27°Ω02'49	36.53749 AU
				opposition	15394 Feb 01 21:45	26°Ω59'48	-8°20'14
conjunction	15387 Jul 24 22:18	16°Ω31'31	-5°19'27	direct	15394 Apr 24 13:27	25°Ω48'36	
minimum elong	15387 Jul 24 22:10	16°Ω31'30	5°20'10	evening set	15394 Jul 22 18:51	27°Ω22'05	
max. Earth dist.	15387 Jul 27 02:21	16°Ω35'36	36.87366 AU				
morning rise	15387 Aug 08 08:47	16°Ω58'35		conjunction	15394 Aug 04 19:24	27°Ω45'25	-8°05'11
retrograde	15387 Nov 04 03:32	18°Ω34'10		minimum elong	15394 Aug 04 19:15	27°Ω45'24	8°05'45
min. Earth dist.	15388 Jan 21 08:16	17°Ω25'04	35.00912 AU	max. Earth dist.	15394 Aug 07 01:21	27°Ω49'28	38.64497 AU
opposition	15388 Jan 23 12:42	17°Ω22'00	-5°51'13	morning rise	15394 Aug 17 19:20	28°Ω08'42	
direct	15388 Apr 14 00:11	16°Ω08'55		retrograde	15394 Nov 14 16:46	29°Ω42'01	
evening set	15388 Jul 11 12:51	17°Ω44'43		min. Earth dist.	15395 Feb 01 11:04	28°Ω34'54	36.79095 AU
				opposition	15395 Feb 03 17:30	28°Ω31'49	-8°42'43
conjunction	15388 Jul 25 19:56	18°Ω11'20	-5°44'59	direct	15395 Apr 26 12:49	27°Ω20'55	
minimum elong	15388 Jul 25 19:47	18°Ω11'20	5°45'40	evening set	15395 Jul 24 18:51	28°Ω54'06	
max. Earth dist.	15388 Jul 28 00:50	18°Ω15'29	37.12869 AU				
morning rise	15388 Aug 09 02:10	18°Ω37'54		conjunction	15395 Aug 06 13:33	29°Ω16'51	-8°26'21

minimum elong	15395 Aug 06 13:24	29°016'50	8°26'55	min. Earth dist.	15402 Feb 12 17:39	8°051'11	38.55522 AU
max. Earth dist.	15395 Aug 08 20:15	29°020'56	38.89673 AU	opposition	15402 Feb 15 00:49	8°048'10	-11°01'33
morning rise	15395 Aug 19 07:48	29°039'34		direct	15402 May 08 02:06	7°039'24	
	15395 Aug 31 05:42	0°00		evening set	15402 Aug 06 12:44	9°011'14	
retrograde	15395 Nov 16 09:04	1°012'40					
min. Earth dist.	15396 Feb 03 06:19	0°005'48	37.04493 AU	conjunction	15402 Aug 17 10:33	9°029'53	-10°37'30
opposition	15396 Feb 05 12:58	0°002'44	-9°04'30	minimum elong	15402 Aug 17 10:25	9°029'53	10°37'55
	15396 Feb 07 13:28	30°000		max. Earth dist.	15402 Aug 19 17:20	9°033'48	40.64316 AU
direct	15396 Apr 27 09:43	28°052'07		morning rise	15402 Aug 28 08:13	9°048'31	
	15396 Jul 10 23:46	0°00		retrograde	15402 Nov 27 02:04	11°020'44	
evening set	15396 Jul 25 18:35	0°025'02		min. Earth dist.	15403 Feb 14 10:40	10°015'42	38.79953 AU
				opposition	15403 Feb 16 17:37	10°012'42	-11°18'54
conjunction	15396 Aug 07 07:26	0°047'12	-8°46'54	direct	15403 May 09 18:58	9°004'12	
minimum elong	15396 Aug 07 07:17	0°047'12	8°47'26	evening set	15403 Aug 08 11:00	10°035'54	
max. Earth dist.	15396 Aug 09 14:47	0°051'19	39.14903 AU				
morning rise	15396 Aug 19 19:37	1°009'20		conjunction	15403 Aug 19 01:58	10°053'57	-10°53'56
retrograde	15396 Nov 17 00:48	2°042'15		minimum elong	15403 Aug 19 01:49	10°053'57	10°54'19
min. Earth dist.	15397 Feb 04 01:02	1°035'40	37.29910 AU	max. Earth dist.	15403 Aug 21 09:03	10°057'53	40.88398 AU
opposition	15397 Feb 06 07:54	1°032'36	-9°25'38	morning rise	15403 Aug 29 16:32	11°012'00	
direct	15397 Apr 29 06:25	0°022'18		retrograde	15403 Nov 28 15:57	12°044'09	
evening set	15397 Jul 27 18:04	1°054'57		min. Earth dist.	15404 Feb 16 03:56	11°039'17	39.04064 AU
				opposition	15404 Feb 18 10:00	11°036'21	-11°35'40
conjunction	15397 Aug 09 00:41	2°016'33	-9°06'50	direct	15404 May 10 13:00	10°028'06	
minimum elong	15397 Aug 09 00:31	2°016'32	9°07'21	evening set	15404 Aug 09 09:07	11°059'40	
max. Earth dist.	15397 Aug 11 07:38	2°020'36	39.40129 AU				
morning rise	15397 Aug 21 06:58	2°038'07		conjunction	15404 Aug 19 16:51	12°017'08	-11°09'50
retrograde	15397 Nov 18 19:18	4°010'52		minimum elong	15404 Aug 19 16:43	12°017'07	11°10'13
min. Earth dist.	15398 Feb 05 18:37	3°004'35	37.55317 AU	max. Earth dist.	15404 Aug 21 22:40	12°020'56	41.12185 AU
opposition	15398 Feb 08 02:27	3°001'29	-9°46'05	morning rise	15404 Aug 30 00:28	12°034'35	
direct	15398 Apr 30 23:45	1°051'30		retrograde	15404 Nov 29 08:45	14°006'40	
evening set	15398 Jul 29 17:20	3°023'57		min. Earth dist.	15405 Feb 16 19:11	13°002'01	39.27915 AU
				opposition	15405 Feb 19 01:56	12°059'04	-11°51'52
conjunction	15398 Aug 10 17:49	3°044'58	-9°26'09	direct	15405 May 12 03:10	11°051'03	
minimum elong	15398 Aug 10 17:40	3°044'57	9°26'38	evening set	15405 Aug 11 06:43	13°022'31	
max. Earth dist.	15398 Aug 13 02:00	3°049'05	39.65308 AU				
morning rise	15398 Aug 22 17:44	4°005'57		conjunction	15405 Aug 21 07:24	13°039'23	-11°25'11
retrograde	15398 Nov 20 12:28	5°038'33		minimum elong	15405 Aug 21 07:16	13°039'22	11°25'31
min. Earth dist.	15399 Feb 07 13:34	4°032'30	37.80634 AU	max. Earth dist.	15405 Aug 23 14:11	13°043'14	41.35732 AU
opposition	15399 Feb 09 20:33	4°029'27	-10°05'53	morning rise	15405 Aug 31 07:49	13°056'15	
direct	15399 May 02 17:55	3°019'47		retrograde	15405 Nov 30 23:44	15°028'16	
evening set	15399 Jul 31 16:33	4°052'03		min. Earth dist.	15406 Feb 18 11:54	14°023'46	39.51551 AU
				opposition	15406 Feb 20 17:36	14°020'53	-12°07'29
conjunction	15399 Aug 12 10:28	5°012'29	-9°44'51	direct	15406 May 13 18:44	13°013'06	
minimum elong	15399 Aug 12 10:18	5°012'28	9°45'19	evening set	15406 Aug 13 04:20	14°044'28	
max. Earth dist.	15399 Aug 14 17:40	5°016'30	39.90375 AU				
morning rise	15399 Aug 24 04:03	5°032'53		conjunction	15406 Aug 22 21:34	15°000'44	-11°39'58
retrograde	15399 Nov 22 06:32	7°005'21		minimum elong	15406 Aug 22 21:27	15°000'44	11°40'18
min. Earth dist.	15400 Feb 09 06:18	5°059'38	38.05816 AU	max. Earth dist.	15406 Aug 25 03:39	15°004'31	41.59103 AU
opposition	15400 Feb 11 14:20	5°056'33	-10°25'04	morning rise	15406 Sep 01 14:38	15°017'00	
direct	15400 May 04 10:57	4°047'11		retrograde	15406 Dec 02 12:16	16°048'59	
evening set	15400 Aug 02 15:19	6°019'17		min. Earth dist.	15407 Feb 20 02:03	15°044'44	39.75031 AU
				opposition	15407 Feb 22 08:40	15°041'49	-12°22'31
conjunction	15400 Aug 14 02:44	6°039'08	-10°02'58	direct	15407 May 15 10:56	14°034'16	
minimum elong	15400 Aug 14 02:36	6°039'07	10°03'26	evening set	15407 Aug 15 01:35	16°005'35	
max. Earth dist.	15400 Aug 16 10:39	6°043'11	40.15266 AU				
morning rise	15400 Aug 25 13:49	6°058'57		conjunction	15407 Aug 24 11:23	16°021'15	-11°54'13
retrograde	15400 Nov 23 21:05	8°031'20		minimum elong	15407 Aug 24 11:17	16°021'14	11°54'31
min. Earth dist.	15401 Feb 11 00:56	7°025'48	38.30801 AU	max. Earth dist.	15407 Aug 26 17:44	16°025'02	41.82344 AU
opposition	15401 Feb 13 07:55	7°022'47	-10°43'36	morning rise	15407 Sep 02 21:08	16°036'54	
direct	15401 May 06 06:13	6°013'43		retrograde	15407 Dec 03 23:48	18°008'53	
evening set	15401 Aug 04 14:08	7°045'41		min. Earth dist.	15408 Feb 21 17:24	17°004'50	39.98410 AU
				opposition	15408 Feb 23 23:43	17°001'56	-12°36'58
conjunction	15401 Aug 15 18:50	8°004'56	-10°20'31	direct	15408 May 16 04:16	15°054'39	
minimum elong	15401 Aug 15 18:41	8°004'55	10°20'57	evening set	15408 Aug 15 22:33	17°025'55	
max. Earth dist.	15401 Aug 18 02:12	8°008'55	40.39936 AU				
morning rise	15401 Aug 26 23:09	8°024'10		conjunction	15408 Aug 25 00:53	17°040'59	-12°07'55
retrograde	15401 Nov 25 10:25	9°056'27		minimum elong	15408 Aug 25 00:46	17°040'58	12°08'13

max. Earth dist.	15408 Aug 27 07:43	17° <u>17</u> 44'47	42.05494 AU	conjunction	15415 Sep 03 16:23	26° <u>17</u> 40'37	-13°29'35
morning rise	15408 Sep 03 02:58	17° <u>17</u> 56'02		minimum elong	15415 Sep 03 16:20	26° <u>17</u> 40'37	13°29'43
retrograde	15408 Dec 04 10:56	19° <u>17</u> 28'02		max. Earth dist.	15415 Sep 05 21:02	26° <u>17</u> 44'08	43.61537 AU
min. Earth dist.	15409 Feb 22 08:00	18° <u>17</u> 24'12	40.21667 AU	morning rise	15415 Sep 10 10:40	26° <u>17</u> 51'27	
opposition	15409 Feb 24 14:18	18° <u>17</u> 21'19	-12°50'51	retrograde	15415 Dec 14 01:34	28° <u>17</u> 23'56	
direct	15409 May 17 21:35	17° <u>17</u> 14'18		min. Earth dist.	15416 Mar 03 09:15	27° <u>17</u> 21'23	41.77790 AU
evening set	15409 Aug 17 19:29	18° <u>17</u> 45'32		opposition	15416 Mar 05 12:35	27° <u>17</u> 18'44	-14°13'11
				direct	15416 May 26 22:03	26° <u>17</u> 13'24	
conjunction	15409 Aug 26 14:03	19° <u>17</u> 00'00	-12°21'05	evening set	15416 Aug 28 18:05	27° <u>17</u> 44'50	
minimum elong	15409 Aug 26 13:58	18° <u>17</u> 59'59	12°21'21				
max. Earth dist.	15409 Aug 28 20:08	19° <u>17</u> 03'43	42.28517 AU	conjunction	15416 Sep 04 03:45	27° <u>17</u> 55'03	-13°39'23
morning rise	15409 Sep 04 08:39	19° <u>17</u> 14'27		minimum elong	15416 Sep 04 03:41	27° <u>17</u> 55'02	13°39'31
retrograde	15409 Dec 06 01:32	20° <u>17</u> 46'29		max. Earth dist.	15416 Sep 06 06:50	27° <u>17</u> 58'27	43.82438 AU
min. Earth dist.	15410 Feb 23 21:31	19° <u>17</u> 42'55	40.44794 AU	morning rise	15416 Sep 10 13:28	28° <u>17</u> 05'16	
opposition	15410 Feb 26 04:26	19° <u>17</u> 40'01	-13°04'10	retrograde	15416 Dec 14 14:30	29° <u>17</u> 37'50	
direct	15410 May 19 10:34	18° <u>17</u> 33'15		min. Earth dist.	15417 Mar 04 21:08	28° <u>17</u> 35'29	41.98644 AU
evening set	15410 Aug 19 16:10	20° <u>17</u> 04'29		opposition	15417 Mar 07 00:57	28° <u>17</u> 32'49	-14°23'02
				direct	15417 May 28 09:19	27° <u>17</u> 27'39	
conjunction	15410 Aug 28 03:07	20° <u>17</u> 18'20	-12°33'43	evening set	15417 Aug 30 14:04	28° <u>17</u> 59'09	
minimum elong	15410 Aug 28 03:02	20° <u>17</u> 18'20	12°33'59				
max. Earth dist.	15410 Aug 30 10:05	20° <u>17</u> 22'06	42.51387 AU	conjunction	15417 Sep 05 15:01	29° <u>17</u> 08'44	-13°48'46
morning rise	15410 Sep 05 13:56	20° <u>17</u> 32'13		minimum elong	15417 Sep 05 14:59	29° <u>17</u> 08'44	13°48'53
retrograde	15410 Dec 07 15:05	22° <u>17</u> 04'18		max. Earth dist.	15417 Sep 07 18:28	29° <u>17</u> 12'09	44.02975 AU
min. Earth dist.	15411 Feb 25 12:44	21° <u>17</u> 00'53	40.67728 AU	morning rise	15417 Sep 11 16:02	29° <u>17</u> 18'20	
opposition	15411 Feb 27 18:29	20° <u>17</u> 58'03	-13°16'56		15417 Oct 09 09:22	0° <u>17</u>	
direct	15411 May 21 00:31	19° <u>17</u> 51'33		retrograde	15417 Dec 16 01:20	0° <u>17</u> 51'01	
evening set	15411 Aug 21 12:45	21° <u>17</u> 22'47			15418 Feb 25 04:47	30° <u>17</u>	
conjunction	15411 Aug 29 15:42	21° <u>17</u> 36'03	-12°45'51	min. Earth dist.	15418 Mar 06 10:41	29° <u>17</u> 48'43	42.19168 AU
minimum elong	15411 Aug 29 15:37	21° <u>17</u> 36'03	12°46'04	opposition	15418 Mar 08 13:00	29° <u>17</u> 46'08	-14°32'25
max. Earth dist.	15411 Aug 31 21:31	21° <u>17</u> 39'44	42.74049 AU	direct	15418 May 29 21:20	28° <u>17</u> 41'10	
morning rise	15411 Sep 06 18:39	21° <u>17</u> 49'20			15418 Aug 24 06:04	0° <u>17</u>	
retrograde	15411 Dec 09 05:25	23° <u>17</u> 21'28		evening set	15418 Sep 01 10:06	0° <u>17</u> 12'45	
min. Earth dist.	15412 Feb 27 01:41	22° <u>17</u> 18'19	40.90428 AU	conjunction	15418 Sep 07 02:00	0° <u>17</u> 21'43	-13°57'41
opposition	15412 Feb 29 08:11	22° <u>17</u> 15'27	-13°29'10	minimum elong	15418 Sep 07 01:58	0° <u>17</u> 21'42	13°57'46
direct	15412 May 21 12:23	21° <u>17</u> 09'13		max. Earth dist.	15418 Sep 09 04:45	0° <u>17</u> 25'03	44.23230 AU
evening set	15412 Aug 22 09:06	22° <u>17</u> 40'29		morning rise	15418 Sep 12 17:54	0° <u>17</u> 30'40	
conjunction	15412 Aug 30 04:11	22° <u>17</u> 53'09	-12°57'29	retrograde	15418 Dec 17 10:16	2° <u>17</u> 03'28	
minimum elong	15412 Aug 30 04:06	22° <u>17</u> 53'09	12°57'42	min. Earth dist.	15419 Mar 07 22:01	1° <u>17</u> 01'22	42.39423 AU
max. Earth dist.	15412 Sep 01 10:19	22° <u>17</u> 56'49	42.96446 AU	opposition	15419 Mar 10 00:46	0° <u>17</u> 58'46	-14°41'20
morning rise	15412 Sep 06 23:14	23° <u>17</u> 05'49			15419 May 08 18:49	30° <u>17</u>	
retrograde	15412 Dec 09 18:13	24° <u>17</u> 38'02		direct	15419 May 31 10:02	29° <u>17</u> 53'58	
min. Earth dist.	15413 Feb 27 16:26	23° <u>17</u> 35'02	41.12842 AU		15419 Jun 22 19:38	0° <u>17</u>	
opposition	15413 Mar 01 21:43	23° <u>17</u> 32'15	-13°40'54	evening set	15419 Sep 03 05:52	1° <u>17</u> 25'42	
direct	15413 May 23 01:10	22° <u>17</u> 26'16		conjunction	15419 Sep 08 12:31	1° <u>17</u> 34'00	-14°06'10
evening set	15413 Aug 24 05:31	23° <u>17</u> 57'34		minimum elong	15419 Sep 08 12:30	1° <u>17</u> 34'00	14°06'15
conjunction	15413 Aug 31 16:28	24° <u>17</u> 09'38	-13°08'38	max. Earth dist.	15419 Sep 10 14:55	1° <u>17</u> 37'18	44.43241 AU
minimum elong	15413 Aug 31 16:24	24° <u>17</u> 09'37	13°08'49	morning rise	15419 Sep 13 19:16	1° <u>17</u> 42'18	
max. Earth dist.	15413 Sep 02 22:04	24° <u>17</u> 13'15	43.18535 AU	retrograde	15419 Dec 18 20:24	3° <u>17</u> 15'18	
morning rise	15413 Sep 08 03:21	24° <u>17</u> 21'41		min. Earth dist.	15420 Mar 08 10:01	2° <u>17</u> 13'20	42.59469 AU
retrograde	15413 Dec 11 03:15	25° <u>17</u> 53'59		opposition	15420 Mar 10 12:27	2° <u>17</u> 10'45	-14°49'47
min. Earth dist.	15414 Mar 01 05:46	24° <u>17</u> 51'11	41.34893 AU	direct	15420 May 31 22:26	1° <u>17</u> 06'10	
opposition	15414 Mar 03 10:52	24° <u>17</u> 48'25	-13°52'08	evening set	15420 Sep 04 01:54	2° <u>17</u> 38'03	
direct	15414 May 24 17:28	23° <u>17</u> 42'39		conjunction	15420 Sep 08 23:03	2° <u>17</u> 45'42	-14°14'12
evening set	15414 Aug 26 01:46	25° <u>17</u> 14'00		minimum elong	15420 Sep 08 23:02	2° <u>17</u> 45'41	14°14'15
conjunction	15414 Sep 02 04:27	25° <u>17</u> 25'27	-13°19'20	max. Earth dist.	15420 Sep 11 02:00	2° <u>17</u> 49'01	44.63063 AU
minimum elong	15414 Sep 02 04:22	25° <u>17</u> 25'27	13°19'29	morning rise	15420 Sep 13 20:13	2° <u>17</u> 53'21	
max. Earth dist.	15414 Sep 04 08:48	25° <u>17</u> 28'59	43.40234 AU	retrograde	15420 Dec 19 05:01	4° <u>17</u> 26'33	
morning rise	15414 Sep 09 07:12	25° <u>17</u> 36'54		min. Earth dist.	15421 Mar 09 21:50	3° <u>17</u> 24'44	42.79301 AU
retrograde	15414 Dec 12 14:22	27° <u>17</u> 09'18		opposition	15421 Mar 11 23:43	3° <u>17</u> 22'12	-14°57'45
min. Earth dist.	15415 Mar 02 19:10	26° <u>17</u> 06'39	41.56553 AU	direct	15421 Jun 02 12:08	2° <u>17</u> 17'49	
opposition	15415 Mar 04 23:48	26° <u>17</u> 03'55	-14°02'53	evening set	15421 Sep 05 21:57	3° <u>17</u> 49'54	
direct	15415 May 26 07:51	24° <u>17</u> 58'23		conjunction	15421 Sep 10 09:10	3° <u>17</u> 56'52	-14°21'47
evening set	15415 Aug 27 22:02	26° <u>17</u> 29'47		minimum elong	15421 Sep 10 09:10	3° <u>17</u> 56'52	14°21'50





























































































































max. Earth dist.	15421 Sep 12 10:48	4° <u>00</u> '06	44.82674 AU	conjunction	15428 Sep 18 03:55	12° <u>03</u> '31	-15°03'48
morning rise	15421 Sep 14 20:28	4° <u>03</u> '51		minimum elong	15428 Sep 18 03:59	12° <u>03</u> '31	15°03'42
retrograde	15421 Dec 20 17:40	5° <u>03</u> '17		max. Earth dist.	15428 Sep 20 01:11	12° <u>06</u> '23	46.10635 AU
min. Earth dist.	15422 Mar 11 08:24	4° <u>03</u> '51	42.98913 AU	retrograde	15428 Dec 28 13:58	13° <u>04</u> '13	
opposition	15422 Mar 13 10:46	4° <u>03</u> '08	-15°05'17	min. Earth dist.	15429 Mar 19 13:47	12° <u>04</u> '34	44.26111 AU
direct	15422 Jun 03 21:27	3° <u>02</u> '59		opposition	15429 Mar 21 11:09	12° <u>03</u> '20	-15°46'36
evening set	15422 Sep 07 18:16	5° <u>01</u> '19		direct	15429 Jun 11 20:59	11° <u>03</u> '32	
conjunction	15422 Sep 11 19:13	5° <u>07</u> '35	-14°28'57	conjunction	15429 Sep 19 12:42	13° <u>01</u> '12	-15°08'22
minimum elong	15422 Sep 11 19:12	5° <u>07</u> '35	14°28'57	minimum elong	15429 Sep 19 12:43	13° <u>01</u> '12	15°08'15
max. Earth dist.	15422 Sep 13 21:29	5° <u>10</u> '50	45.02044 AU	max. Earth dist.	15429 Sep 21 09:27	13° <u>01</u> '40	46.27149 AU
morning rise	15422 Sep 15 20:13	5° <u>13</u> '52		retrograde	15429 Dec 29 22:32	14° <u>04</u> '31	
retrograde	15422 Dec 22 05:37	6° <u>04</u> '36		min. Earth dist.	15430 Mar 21 00:48	13° <u>04</u> '54	44.42506 AU
min. Earth dist.	15423 Mar 12 20:43	5° <u>04</u> '07	43.18258 AU	opposition	15430 Mar 22 20:44	13° <u>04</u> '54	-15°51'03
opposition	15423 Mar 14 21:42	5° <u>04</u> '39	-15°12'22	direct	15430 Jun 13 05:26	12° <u>04</u> '05	
direct	15423 Jun 05 06:51	4° <u>03</u> '44		conjunction	15430 Sep 20 21:17	14° <u>01</u> '19	-15°12'35
evening set	15423 Sep 09 15:10	6° <u>01</u> '21		minimum elong	15430 Sep 20 21:21	14° <u>01</u> '20	15°12'27
conjunction	15423 Sep 13 05:03	6° <u>01</u> '54	-14°35'42	max. Earth dist.	15430 Sep 22 17:56	14° <u>02</u> '08	46.43293 AU
minimum elong	15423 Sep 13 05:03	6° <u>01</u> '54	14°35'42	retrograde	15430 Dec 31 02:51	15° <u>05</u> '14	
max. Earth dist.	15423 Sep 15 06:22	6° <u>02</u> '05	45.21146 AU	min. Earth dist.	15431 Mar 22 10:17	14° <u>05</u> '44	44.58545 AU
morning rise	15423 Sep 16 19:00	6° <u>02</u> '36		opposition	15431 Mar 24 05:58	14° <u>05</u> '35	-15°55'07
retrograde	15423 Dec 23 14:32	7° <u>05</u> '31		direct	15431 Jun 14 18:27	13° <u>05</u> '03	
min. Earth dist.	15424 Mar 13 06:58	6° <u>05</u> '16	43.37299 AU	conjunction	15431 Sep 22 05:34	15° <u>02</u> '54	-15°16'27
opposition	15424 Mar 15 08:23	6° <u>05</u> '47	-15°19'02	minimum elong	15431 Sep 22 05:36	15° <u>02</u> '54	15°16'18
direct	15424 Jun 05 16:56	5° <u>05</u> '04		max. Earth dist.	15431 Sep 24 00:51	15° <u>02</u> '36	46.59122 AU
evening set	15424 Sep 10 12:33	7° <u>02</u> '30		retrograde	15432 Jan 01 10:38	17° <u>01</u> '27	
conjunction	15424 Sep 13 14:36	7° <u>02</u> '50	-14°42'03	min. Earth dist.	15432 Mar 22 19:28	16° <u>01</u> '03	44.74309 AU
minimum elong	15424 Sep 13 14:37	7° <u>02</u> '50	14°42'01	opposition	15432 Mar 24 15:08	15° <u>05</u> '54	-15°58'48
morning rise	15424 Sep 16 16:45	7° <u>03</u> '35		direct	15432 Jun 15 05:10	14° <u>05</u> '31	
max. Earth dist.	15424 Sep 15 15:22	7° <u>03</u> '05	45.39910 AU	conjunction	15432 Sep 22 13:45	16° <u>03</u> '57	-15°19'57
retrograde	15424 Dec 23 22:55	9° <u>07</u> '04		minimum elong	15432 Sep 22 13:49	16° <u>03</u> '58	15°19'47
min. Earth dist.	15425 Mar 14 18:46	8° <u>05</u> '57	43.55983 AU	max. Earth dist.	15432 Sep 24 09:46	16° <u>03</u> '42	46.74689 AU
opposition	15425 Mar 16 19:01	8° <u>03</u> '31	-15°25'17	retrograde	15433 Jan 01 19:22	18° <u>07</u> '10	
direct	15425 Jun 07 04:33	7° <u>00</u> '02		min. Earth dist.	15433 Mar 24 05:43	17° <u>06</u> '49	44.89797 AU
evening set	15425 Sep 12 11:37	8° <u>03</u> '30		opposition	15433 Mar 26 00:07	17° <u>04</u> '44	-16°02'08
conjunction	15425 Sep 15 00:16	8° <u>03</u> '23	-14°48'01	direct	15433 Jun 16 15:35	16° <u>02</u> '30	
minimum elong	15425 Sep 15 00:16	8° <u>03</u> '23	14°47'59	conjunction	15433 Sep 23 21:46	17° <u>03</u> '34	-15°23'05
morning rise	15425 Sep 17 12:58	8° <u>04</u> '17		minimum elong	15433 Sep 23 21:50	17° <u>03</u> '34	15°22'54
max. Earth dist.	15425 Sep 17 00:51	8° <u>04</u> '30	45.58293 AU	max. Earth dist.	15433 Sep 25 16:30	17° <u>03</u> '13	46.89999 AU
retrograde	15425 Dec 25 06:05	10° <u>01</u> '15		retrograde	15434 Jan 03 04:51	19° <u>01</u> '26	
min. Earth dist.	15426 Mar 16 05:57	9° <u>01</u> '16	43.74234 AU	min. Earth dist.	15434 Mar 25 13:37	18° <u>01</u> '15	45.05018 AU
opposition	15426 Mar 18 05:12	9° <u>01</u> '25	-15°31'10	opposition	15434 Mar 27 08:39	18° <u>01</u> '09	-16°05'05
direct	15426 Jun 08 17:48	8° <u>00</u> '37		direct	15434 Jun 17 22:32	17° <u>00</u> '04	
evening set	15426 Sep 14 13:13	9° <u>04</u> '43		conjunction	15434 Sep 25 05:39	18° <u>04</u> '47	-15°25'53
conjunction	15426 Sep 16 09:39	9° <u>04</u> '33	-14°53'38	minimum elong	15434 Sep 25 05:44	18° <u>04</u> '47	15°25'41
minimum elong	15426 Sep 16 09:41	9° <u>04</u> '33	14°53'34	max. Earth dist.	15434 Sep 27 00:14	18° <u>04</u> '25	47.05027 AU
morning rise	15426 Sep 18 06:11	9° <u>04</u> '23		retrograde	15435 Jan 04 13:17	20° <u>01</u> '19	
max. Earth dist.	15426 Sep 18 08:26	9° <u>04</u> '32	45.76223 AU	min. Earth dist.	15435 Mar 26 23:44	19° <u>01</u> '12	45.19951 AU
retrograde	15426 Dec 26 16:53	11° <u>02</u> '50		opposition	15435 Mar 28 17:21	19° <u>01</u> '10	-16°07'40
min. Earth dist.	15427 Mar 17 16:21	10° <u>02</u> '12	43.92020 AU	direct	15435 Jun 19 05:38	18° <u>01</u> '15	
opposition	15427 Mar 19 15:25	10° <u>02</u> '15	-15°36'40	conjunction	15435 Sep 26 13:20	19° <u>04</u> '38	-15°28'19
direct	15427 Jun 10 03:37	9° <u>01</u> '46		minimum elong	15435 Sep 26 13:25	19° <u>04</u> '38	15°28'06
evening set	15427 Sep 16 23:44	10° <u>05</u> '40		max. Earth dist.	15435 Sep 28 07:42	19° <u>04</u> '15	47.19764 AU
conjunction	15427 Sep 17 18:52	10° <u>05</u> '16	-14°58'53	retrograde	15436 Jan 05 18:32	21° <u>02</u> '15	
minimum elong	15427 Sep 17 18:54	10° <u>05</u> '16	14°58'49	min. Earth dist.	15436 Mar 27 08:19	20° <u>02</u> '15	45.34549 AU
morning rise	15427 Sep 18 14:03	10° <u>05</u> '29		opposition	15436 Mar 29 01:47	20° <u>01</u> '52	-16°09'55
max. Earth dist.	15427 Sep 19 17:45	10° <u>05</u> '15	45.93668 AU	direct	15436 Jun 19 14:33	19° <u>01</u> '06	
retrograde	15427 Dec 28 03:16	12° <u>03</u> '23		conjunction	15436 Sep 26 20:53	20° <u>05</u> '09	-15°30'27
min. Earth dist.	15428 Mar 18 04:17	11° <u>03</u> '36	44.09301 AU	minimum elong	15436 Sep 26 20:58	20° <u>05</u> '10	15°30'14
opposition	15428 Mar 20 01:32	11° <u>03</u> '22	-15°41'49	max. Earth dist.	15436 Sep 28 13:52	20° <u>05</u> '41	47.34147 AU
direct	15428 Jun 10 13:51	10° <u>02</u> '26					

retrograde	15437 Jan 06 02:29	22° <u>♄</u> 26'05		opposition	15445 Apr 07 23:19	29° <u>♄</u> 47'28	-16°16'29
min. Earth dist.	15437 Mar 28 17:12	21° <u>♄</u> 26'13	45.48783 AU	min. Earth dist.	15445 Apr 06 13:25	29° <u>♄</u> 49'05	46.46334 AU
opposition	15437 Mar 30 10:01	21° <u>♄</u> 24'14	-16°11'50	direct	15445 Jun 29 13:52	28° <u>♄</u> 46'50	
direct	15437 Jun 20 23:07	20° <u>♄</u> 22'38			15445 Sep 24 10:37	0° <u>♄</u>	
conjunction	15437 Sep 28 04:31	21° <u>♄</u> 55'23	-15°32'15	conjunction	15445 Oct 06 11:57	0° <u>♄</u> 17'14	-15°36'23
minimum elong	15437 Sep 28 04:37	21° <u>♄</u> 55'23	15°32'00	minimum elong	15445 Oct 06 12:05	0° <u>♄</u> 17'15	15°36'01
max. Earth dist.	15437 Sep 29 21:39	21° <u>♄</u> 57'54	47.48134 AU	max. Earth dist.	15445 Oct 07 22:48	0° <u>♄</u> 19'20	48.43999 AU
retrograde	15438 Jan 07 09:26	23° <u>♄</u> 30'02		retrograde	15446 Jan 15 17:56	1° <u>♄</u> 49'44	
min. Earth dist.	15438 Mar 30 02:57	22° <u>♄</u> 30'14	45.62570 AU	min. Earth dist.	15446 Apr 07 20:08	0° <u>♄</u> 50'31	46.56944 AU
opposition	15438 Mar 31 18:13	22° <u>♄</u> 28'20	-16°13'27	opposition	15446 Apr 09 06:14	0° <u>♄</u> 48'53	-16°15'42
direct	15438 Jun 22 09:43	21° <u>♄</u> 26'53			15446 May 28 21:36	30° <u>♄</u>	
conjunction	15438 Sep 29 11:53	22° <u>♄</u> 59'19	-15°33'46	direct	15446 Jun 30 18:47	29° <u>♄</u> 48'23	
minimum elong	15438 Sep 29 11:59	22° <u>♄</u> 59'20	15°33'30		15446 Aug 02 06:35	0° <u>♄</u>	
max. Earth dist.	15438 Oct 01 03:07	23° <u>♄</u> 01'44	47.61659 AU	conjunction	15446 Oct 07 18:07	1° <u>♄</u> 18'34	-15°35'34
retrograde	15439 Jan 08 19:11	24° <u>♄</u> 33'42		minimum elong	15446 Oct 07 18:15	1° <u>♄</u> 18'34	15°35'10
min. Earth dist.	15439 Mar 31 11:00	23° <u>♄</u> 34'02	45.75874 AU	max. Earth dist.	15446 Oct 09 03:48	1° <u>♄</u> 20'35	48.54477 AU
opposition	15439 Apr 02 02:12	23° <u>♄</u> 32'08	-16°14'45	retrograde	15447 Jan 17 00:00	2° <u>♄</u> 50'51	
direct	15439 Jun 23 15:58	22° <u>♄</u> 30'50		min. Earth dist.	15447 Apr 09 03:48	1° <u>♄</u> 51'42	46.67270 AU
conjunction	15439 Sep 30 19:16	24° <u>♄</u> 02'58	-15°35'00	opposition	15447 Apr 10 13:12	1° <u>♄</u> 50'07	-16°14'37
minimum elong	15439 Sep 30 19:23	24° <u>♄</u> 02'58	15°34'43	direct	15447 Jul 02 01:25	0° <u>♄</u> 49'44	
max. Earth dist.	15439 Oct 02 09:59	24° <u>♄</u> 05'19	47.74680 AU	conjunction	15447 Oct 09 00:27	2° <u>♄</u> 19'41	-15°34'28
retrograde	15440 Jan 10 04:16	25° <u>♄</u> 37'03		minimum elong	15447 Oct 09 00:35	2° <u>♄</u> 19'41	15°34'05
min. Earth dist.	15440 Mar 31 20:59	24° <u>♄</u> 37'24	45.88666 AU	max. Earth dist.	15447 Oct 10 10:32	2° <u>♄</u> 21'43	48.64663 AU
opposition	15440 Apr 02 10:16	24° <u>♄</u> 35'36	-16°15'47	retrograde	15448 Jan 18 03:53	3° <u>♄</u> 51'46	
direct	15440 Jun 23 21:54	23° <u>♄</u> 34'26		min. Earth dist.	15448 Apr 09 11:37	2° <u>♄</u> 52'41	46.77266 AU
conjunction	15440 Oct 01 02:28	25° <u>♄</u> 06'15	-15°35'58	opposition	15448 Apr 10 20:01	2° <u>♄</u> 51'08	-16°13'14
minimum elong	15440 Oct 01 02:34	25° <u>♄</u> 06'16	15°35'40	direct	15448 Jul 02 11:39	1° <u>♄</u> 50'54	
max. Earth dist.	15440 Oct 02 16:21	25° <u>♄</u> 08'33	47.87206 AU	conjunction	15448 Oct 09 06:30	3° <u>♄</u> 20'37	-15°33'05
retrograde	15441 Jan 10 08:37	26° <u>♄</u> 40'03		minimum elong	15448 Oct 09 06:39	3° <u>♄</u> 20'37	15°32'39
min. Earth dist.	15441 Apr 02 04:58	25° <u>♄</u> 40'29	46.00951 AU	max. Earth dist.	15448 Oct 10 14:56	3° <u>♄</u> 22'33	48.74511 AU
opposition	15441 Apr 03 17:58	25° <u>♄</u> 38'42	-16°16'31	retrograde	15449 Jan 18 12:22	4° <u>♄</u> 52'30	
direct	15441 Jun 25 06:58	24° <u>♄</u> 37'38		min. Earth dist.	15449 Apr 10 18:17	3° <u>♄</u> 53'32	46.86897 AU
conjunction	15441 Oct 02 09:27	26° <u>♄</u> 09'10	-15°36'38	opposition	15449 Apr 12 02:41	3° <u>♄</u> 52'00	-16°11'34
minimum elong	15441 Oct 02 09:34	26° <u>♄</u> 09'10	15°36'19	direct	15449 Jul 03 18:33	2° <u>♄</u> 51'53	
max. Earth dist.	15441 Oct 03 21:42	26° <u>♄</u> 11'22	47.99249 AU	conjunction	15449 Oct 10 12:42	4° <u>♄</u> 21'23	-15°31'26
retrograde	15442 Jan 11 14:04	27° <u>♄</u> 42'41		minimum elong	15449 Oct 10 12:51	4° <u>♄</u> 21'24	15°31'00
min. Earth dist.	15442 Apr 03 13:24	26° <u>♄</u> 43'09	46.12801 AU	max. Earth dist.	15449 Oct 11 20:51	4° <u>♄</u> 23'18	48.83948 AU
opposition	15442 Apr 05 01:27	26° <u>♄</u> 41'25	-16°16'58	retrograde	15450 Jan 19 22:04	5° <u>♄</u> 53'05	
direct	15442 Jun 26 15:54	25° <u>♄</u> 40'28		min. Earth dist.	15450 Apr 12 02:56	4° <u>♄</u> 54'07	46.96088 AU
conjunction	15442 Oct 03 16:23	27° <u>♄</u> 11'41	-15°37'02	opposition	15450 Apr 13 09:17	4° <u>♄</u> 52'41	-16°09'38
minimum elong	15442 Oct 03 16:29	27° <u>♄</u> 11'42	15°36'42	direct	15450 Jul 04 23:48	3° <u>♄</u> 52'41	
max. Earth dist.	15442 Oct 05 05:00	27° <u>♄</u> 13'54	48.10894 AU	conjunction	15450 Oct 11 18:53	5° <u>♄</u> 21'59	-15°29'32
retrograde	15443 Jan 12 20:04	28° <u>♄</u> 44'56		minimum elong	15450 Oct 11 19:02	5° <u>♄</u> 21'59	15°29'05
min. Earth dist.	15443 Apr 04 22:02	27° <u>♄</u> 45'27	46.24273 AU	max. Earth dist.	15450 Oct 13 02:01	5° <u>♄</u> 23'49	48.92933 AU
opposition	15443 Apr 06 08:56	27° <u>♄</u> 43'46	-16°17'07	retrograde	15451 Jan 21 03:18	6° <u>♄</u> 53'29	
direct	15443 Jun 28 02:10	26° <u>♄</u> 42'55		min. Earth dist.	15451 Apr 13 09:35	5° <u>♄</u> 54'36	47.04783 AU
conjunction	15443 Oct 04 22:53	28° <u>♄</u> 13'50	-15°37'07	opposition	15451 Apr 14 15:48	5° <u>♄</u> 53'11	-16°07'27
minimum elong	15443 Oct 04 23:01	28° <u>♄</u> 13'51	15°36'46	direct	15451 Jul 06 04:50	4° <u>♄</u> 53'16	
max. Earth dist.	15443 Oct 06 10:09	28° <u>♄</u> 15'58	48.22209 AU	conjunction	15451 Oct 13 00:46	6° <u>♄</u> 22'21	-15°27'24
retrograde	15444 Jan 14 04:49	29° <u>♄</u> 46'50		minimum elong	15451 Oct 13 00:55	6° <u>♄</u> 22'22	15°26'57
min. Earth dist.	15444 Apr 05 04:49	28° <u>♄</u> 47'28	46.35444 AU	max. Earth dist.	15451 Oct 14 06:08	6° <u>♄</u> 24'05	49.01397 AU
opposition	15444 Apr 06 16:12	28° <u>♄</u> 45'46	-16°16'58	retrograde	15452 Jan 22 08:08	7° <u>♄</u> 53'39	
direct	15444 Jun 28 08:36	27° <u>♄</u> 45'01		opposition	15452 Apr 14 22:24	6° <u>♄</u> 53'25	-16°05'03
conjunction	15444 Oct 05 05:28	29° <u>♄</u> 15'41	-15°36'54	min. Earth dist.	15452 Apr 13 17:42	6° <u>♄</u> 54'47	47.12953 AU
minimum elong	15444 Oct 05 05:34	29° <u>♄</u> 15'41	15°36'33	direct	15452 Jul 06 10:54	5° <u>♄</u> 53'36	
max. Earth dist.	15444 Oct 06 16:42	29° <u>♄</u> 17'48	48.33232 AU	conjunction	15452 Oct 13 06:54	7° <u>♄</u> 22'28	-15°25'02
retrograde	15444 Nov 06 05:51	0° <u>♄</u>		minimum elong	15452 Oct 13 07:05	7° <u>♄</u> 22'28	15°24'34
min. Earth dist.	15445 Jan 14 12:43	0° <u>♄</u> 48'25		max. Earth dist.	15452 Oct 14 12:11	7° <u>♄</u> 24'12	49.09335 AU
opposition	15445 Mar 27 22:44	30° <u>♄</u>		retrograde	15453 Jan 22 11:07	8° <u>♄</u> 53'33	

min. Earth dist.	15453 Apr 15 01:17	7°M.54'40	47.20585 AU	max. Earth dist.	15460 Oct 22 01:58	15°M.15'15	49.58704 AU
opposition	15453 Apr 16 04:39	7°M.53'23	-16°02'24	retrograde	15461 Jan 30 11:58	16°M.43'44	
direct	15453 Jul 07 20:16	6°M.53'37		min. Earth dist.	15461 Apr 23 05:33	15°M.45'09	47.68072 AU
				opposition	15461 Apr 24 03:55	15°M.44'07	-15°31'59
conjunction	15453 Oct 14 12:42	8°M.22'15	-15°22'26		15461 Jun 07 13:22	15°R.M.	
minimum elong	15453 Oct 14 12:51	8°M.22'16	15°21'57	direct	15461 Jul 15 17:02	14°M.44'57	
max. Earth dist.	15453 Oct 15 15:58	8°M.23'52	49.16768 AU		15461 Aug 22 05:17	15°M.	
retrograde	15454 Jan 23 17:43	9°M.53'08		evening set	15461 Oct 20 06:24	16°M.09'25	
min. Earth dist.	15454 Apr 16 07:39	8°M.54'18	47.27744 AU				
opposition	15454 Apr 17 10:51	8°M.53'01	-15°59'30	conjunction	15461 Oct 22 08:03	16°M.12'18	-14°52'36
direct	15454 Jul 09 02:48	7°M.53'18		minimum elong	15461 Oct 22 08:14	16°M.12'19	14°52'00
				max. Earth dist.	15461 Oct 23 05:38	16°M.13'33	49.63296 AU
conjunction	15454 Oct 15 18:20	9°M.21'43	-15°19'36	morning rise	15461 Oct 24 10:09	16°M.15'13	
minimum elong	15454 Oct 15 18:31	9°M.21'43	15°19'06	retrograde	15462 Jan 31 17:00	17°M.42'02	
max. Earth dist.	15454 Oct 16 21:24	9°M.23'18	49.23749 AU	opposition	15462 Apr 25 09:37	16°M.42'30	-15°27'03
retrograde	15455 Jan 25 00:41	10°M.52'24		min. Earth dist.	15462 Apr 24 12:53	16°M.43'28	47.72370 AU
opposition	15455 Apr 18 17:05	9°M.52'19	-15°56'22	direct	15462 Jul 16 21:20	15°M.43'26	
min. Earth dist.	15455 Apr 17 15:37	9°M.53'31	47.34488 AU	evening set	15462 Oct 20 22:31	17°M.07'02	
direct	15455 Jul 10 09:34	8°M.52'40					
				conjunction	15462 Oct 23 13:21	17°M.10'41	-14°47'47
conjunction	15455 Oct 16 23:58	10°M.20'52	-15°16'30	minimum elong	15462 Oct 23 13:32	17°M.10'42	14°47'11
minimum elong	15455 Oct 17 00:07	10°M.20'53	15°15'59	max. Earth dist.	15462 Oct 24 10:54	17°M.11'56	49.67416 AU
max. Earth dist.	15455 Oct 18 02:24	10°M.22'25	49.30368 AU	morning rise	15462 Oct 26 04:36	17°M.14'21	
retrograde	15456 Jan 26 06:33	11°M.51'22		retrograde	15463 Feb 01 19:01	18°M.40'20	
opposition	15456 Apr 18 23:02	10°M.51'20	-15°52'58	opposition	15463 Apr 26 15:16	17°M.40'51	-15°21'54
min. Earth dist.	15456 Apr 17 21:20	10°M.52'33	47.40885 AU	min. Earth dist.	15463 Apr 25 19:40	17°M.41'46	47.76150 AU
direct	15456 Jul 10 13:35	9°M.51'45		direct	15463 Jul 18 05:18	16°M.41'51	
				evening set	15463 Oct 21 16:33	18°M.04'43	
conjunction	15456 Oct 17 05:22	11°M.19'46	-15°13'09				
minimum elong	15456 Oct 17 05:33	11°M.19'47	15°12'38	conjunction	15463 Oct 24 18:36	18°M.09'00	-14°42'46
max. Earth dist.	15456 Oct 18 06:37	11°M.21'15	49.36655 AU	minimum elong	15463 Oct 24 18:48	18°M.09'01	14°42'09
retrograde	15457 Jan 26 12:08	12°M.50'05		max. Earth dist.	15463 Oct 25 13:56	18°M.10'08	49.71010 AU
min. Earth dist.	15457 Apr 19 04:24	11°M.51'17	47.46972 AU	morning rise	15463 Oct 27 21:09	18°M.13'20	
opposition	15457 Apr 20 05:01	11°M.50'08	-15°49'17	retrograde	15464 Feb 03 01:09	19°M.38'33	
direct	15457 Jul 11 17:52	10°M.50'37		opposition	15464 Apr 26 20:48	18°M.39'08	-15°16'33
				min. Earth dist.	15464 Apr 26 01:43	18°M.40'01	47.79394 AU
conjunction	15457 Oct 18 10:54	12°M.18'28	-15°09'33	direct	15464 Jul 18 11:10	17°M.40'11	
minimum elong	15457 Oct 18 11:04	12°M.18'29	15°09'00	evening set	15464 Oct 21 11:42	19°M.02'21	
max. Earth dist.	15457 Oct 19 12:25	12°M.19'57	49.42641 AU				
retrograde	15458 Jan 27 14:52	13°M.48'38		conjunction	15464 Oct 24 23:53	19°M.07'13	-14°37'32
min. Earth dist.	15458 Apr 20 10:48	12°M.49'52	47.52741 AU	minimum elong	15464 Oct 25 00:04	19°M.07'14	14°36'55
opposition	15458 Apr 21 10:46	12°M.48'45	-15°45'21	max. Earth dist.	15464 Oct 25 18:33	19°M.08'18	49.74049 AU
direct	15458 Jul 13 02:23	11°M.49'19		morning rise	15464 Oct 28 12:33	19°M.12'07	
				retrograde	15465 Feb 03 08:03	20°M.36'40	
conjunction	15458 Oct 19 16:13	13°M.17'01	-15°05'41	min. Earth dist.	15465 Apr 27 09:26	19°M.38'04	47.82080 AU
minimum elong	15458 Oct 19 16:24	13°M.17'02	15°05'08	opposition	15465 Apr 28 02:23	19°M.37'17	-15°10'59
max. Earth dist.	15458 Oct 20 16:11	13°M.18'25	49.48328 AU	direct	15465 Jul 19 18:14	18°M.38'22	
retrograde	15459 Jan 28 21:26	14°M.47'04		evening set	15465 Oct 22 07:40	19°M.59'52	
opposition	15459 Apr 22 16:34	13°M.47'15	-15°41'09				
min. Earth dist.	15459 Apr 21 16:36	13°M.48'23	47.58210 AU	conjunction	15465 Oct 26 05:04	20°M.05'16	-14°32'07
direct	15459 Jul 14 08:48	12°M.47'54		minimum elong	15465 Oct 26 05:17	20°M.05'16	14°31'28
				max. Earth dist.	15465 Oct 26 22:43	20°M.06'17	49.76567 AU
conjunction	15459 Oct 20 21:27	14°M.15'29	-15°01'34	morning rise	15465 Oct 30 03:00	20°M.10'41	
minimum elong	15459 Oct 20 21:38	14°M.15'29	15°00'59	retrograde	15466 Feb 04 14:36	21°M.34'35	
max. Earth dist.	15459 Oct 21 21:25	14°M.16'53	49.53690 AU	opposition	15466 Apr 29 07:36	20°M.35'13	-15°05'13
	15459 Nov 23 04:41	15°M.		min. Earth dist.	15466 Apr 28 14:44	20°M.36'00	47.84264 AU
retrograde	15460 Jan 30 05:57	15°M.45'25		direct	15466 Jul 20 21:25	19°M.36'19	
	15460 Apr 10 01:00	15°R.M.		evening set	15466 Oct 23 03:55	20°M.57'13	
opposition	15460 Apr 22 22:26	14°M.45'42	-15°36'41				
min. Earth dist.	15460 Apr 22 00:07	14°M.46'45	47.63334 AU	conjunction	15466 Oct 27 10:04	21°M.03'06	-14°26'28
direct	15460 Jul 14 13:58	13°M.46'27		minimum elong	15466 Oct 27 10:14	21°M.03'07	14°25'50
	15460 Oct 11 02:40	15°M.		max. Earth dist.	15466 Oct 28 02:09	21°M.04'02	49.78613 AU
evening set	15460 Oct 19 18:37	15°M.12'02		morning rise	15466 Oct 31 16:45	21°M.09'01	
				retrograde	15467 Feb 05 20:26	22°M.32'18	
conjunction	15460 Oct 21 02:48	15°M.13'54	-14°57'12	opposition	15467 Apr 30 13:02	21°M.32'57	-14°59'13
minimum elong	15460 Oct 21 02:59	15°M.13'55	14°56'38	min. Earth dist.	15467 Apr 29 21:37	21°M.33'39	47.86028 AU
morning rise	15460 Oct 22 11:24	15°M.15'48		direct	15467 Jul 21 23:18	20°M.34'04	

evening set	15467 Oct 24 00:37	21° <del>ℓ</del> 54'22	opposition	15474 May 07 00:46	28° <del>ℓ</del> 13'19 -14°10'31
			min. Earth dist.	15474 May 06 13:49	28° <del>ℓ</del> 13'50 47.89097 AU
conjunction	15467 Oct 28 15:02	22° <del>ℓ</del> 00'44 -14°20'37	direct	15474 Jul 28 13:44	27° <del>ℓ</del> 14'37
minimum elong	15467 Oct 28 15:14	22° <del>ℓ</del> 00'44 14°19'57	evening set	15474 Oct 28 07:41	28° <del>ℓ</del> 31'37
max. Earth dist.	15467 Oct 29 07:23	22° <del>ℓ</del> 01'40 49.80275 AU			
morning rise	15467 Nov 02 06:00	22° <del>ℓ</del> 07'07	conjunction	15474 Nov 04 01:01	28° <del>ℓ</del> 40'51 -13°33'02
retrograde	15468 Feb 06 22:17	23° <del>ℓ</del> 29'49	minimum elong	15474 Nov 04 01:13	28° <del>ℓ</del> 40'52 13°32'18
opposition	15468 Apr 30 18:17	22° <del>ℓ</del> 30'28 -14°52'59	max. Earth dist.	15474 Nov 04 11:40	28° <del>ℓ</del> 41'28 49.82818 AU
min. Earth dist.	15468 Apr 30 03:25	22° <del>ℓ</del> 31'09 47.87419 AU	morning rise	15474 Nov 10 19:06	28° <del>ℓ</del> 50'08
direct	15468 Jul 22 07:00	21° <del>ℓ</del> 31'36		15475 Jan 14 01:02	0° <del>♊</del>
evening set	15468 Oct 23 21:36	22° <del>ℓ</del> 51'20	retrograde	15475 Feb 13 09:56	0° <del>♊</del> 09'36
				15475 Mar 16 05:36	30° <del>♋</del> <del>ℓ</del>
conjunction	15468 Oct 28 19:54	22° <del>ℓ</del> 58'09 -14°14'31	opposition	15475 May 08 05:59	29° <del>ℓ</del> 10'25 -14°02'39
minimum elong	15468 Oct 28 20:05	22° <del>ℓ</del> 58'10 14°13'51	min. Earth dist.	15475 May 07 20:58	29° <del>ℓ</del> 10'50 47.88001 AU
max. Earth dist.	15468 Oct 29 10:38	22° <del>ℓ</del> 59'00 49.81600 AU	direct	15475 Jul 29 20:20	28° <del>ℓ</del> 11'45
morning rise	15468 Nov 02 18:48	23° <del>ℓ</del> 05'00	evening set	15475 Oct 29 06:06	29° <del>ℓ</del> 28'21
retrograde	15469 Feb 07 01:50	24° <del>ℓ</del> 27'09			
opposition	15469 May 01 23:18	23° <del>ℓ</del> 27'49 -14°46'30	conjunction	15475 Nov 05 05:55	29° <del>ℓ</del> 37'57 -13°25'23
min. Earth dist.	15469 May 01 08:40	23° <del>ℓ</del> 28'30 47.88501 AU	minimum elong	15475 Nov 05 06:07	29° <del>ℓ</del> 37'58 13°24'39
direct	15469 Jul 23 13:57	22° <del>ℓ</del> 28'57	max. Earth dist.	15475 Nov 05 15:29	29° <del>ℓ</del> 38'30 49.81579 AU
evening set	15469 Oct 24 18:50	23° <del>ℓ</del> 48'11	morning rise	15475 Nov 12 06:29	29° <del>ℓ</del> 47'37
				15475 Nov 21 10:15	0° <del>♊</del>
conjunction	15469 Oct 30 00:51	23° <del>ℓ</del> 55'25 -14°08'11	retrograde	15476 Feb 14 16:22	1° <del>♊</del> 06'41
minimum elong	15469 Oct 30 01:03	23° <del>ℓ</del> 55'26 14°07'31	opposition	15476 May 08 11:03	0° <del>♊</del> 07'32 -13°54'35
max. Earth dist.	15469 Oct 30 15:31	23° <del>ℓ</del> 56'16 49.82614 AU	min. Earth dist.	15476 May 08 02:15	0° <del>♊</del> 07'56 47.86379 AU
morning rise	15469 Nov 04 07:30	24° <del>ℓ</del> 02'43		15476 May 15 05:58	30° <del>♋</del> <del>ℓ</del>
retrograde	15470 Feb 08 08:32	25° <del>ℓ</del> 24'21	direct	15476 Jul 30 00:04	29° <del>ℓ</del> 08'52
opposition	15470 May 03 04:31	24° <del>ℓ</del> 25'02 -14°39'47		15476 Oct 10 04:55	0° <del>♊</del>
min. Earth dist.	15470 May 02 15:22	24° <del>ℓ</del> 25'38 47.89273 AU	evening set	15476 Oct 29 04:40	0° <del>♊</del> 25'05
direct	15470 Jul 24 20:42	23° <del>ℓ</del> 26'11			
evening set	15470 Oct 25 16:11	24° <del>ℓ</del> 44'56	conjunction	15476 Nov 05 10:53	0° <del>♊</del> 35'03 -13°17'31
			minimum elong	15476 Nov 05 11:06	0° <del>♊</del> 35'04 13°16'47
conjunction	15470 Oct 31 05:35	24° <del>ℓ</del> 52'35 -14°01'36	max. Earth dist.	15476 Nov 05 18:30	0° <del>♊</del> 35'29 49.79795 AU
minimum elong	15470 Oct 31 05:47	24° <del>ℓ</del> 52'35 14°00'55	morning rise	15476 Nov 12 18:01	0° <del>♊</del> 45'04
max. Earth dist.	15470 Oct 31 19:38	24° <del>ℓ</del> 53'23 49.83343 AU	retrograde	15477 Feb 14 22:53	2° <del>♊</del> 03'45
morning rise	15470 Nov 05 19:36	25° <del>ℓ</del> 00'17	opposition	15477 May 09 16:04	1° <del>♊</del> 04'36 -13°46'19
retrograde	15471 Feb 09 15:16	26° <del>ℓ</del> 21'26	min. Earth dist.	15477 May 09 09:09	1° <del>♊</del> 04'55 47.84224 AU
opposition	15471 May 04 09:36	25° <del>ℓ</del> 22'09 -14°32'49	direct	15477 Jul 31 01:55	0° <del>♊</del> 05'56
min. Earth dist.	15471 May 03 19:58	25° <del>ℓ</del> 22'46 47.89748 AU	evening set	15477 Oct 30 03:20	1° <del>♊</del> 21'47
direct	15471 Jul 26 00:09	24° <del>ℓ</del> 23'20			
evening set	15471 Oct 26 13:43	25° <del>ℓ</del> 41'36	conjunction	15477 Nov 06 15:55	1° <del>♊</del> 32'06 -13°09'28
			minimum elong	15477 Nov 06 16:06	1° <del>♊</del> 32'07 13°08'44
conjunction	15471 Nov 01 10:21	25° <del>ℓ</del> 49'40 -13°54'48	max. Earth dist.	15477 Nov 06 23:22	1° <del>♊</del> 32'32 49.77498 AU
minimum elong	15471 Nov 01 10:33	25° <del>ℓ</del> 49'40 13°54'07	morning rise	15477 Nov 14 05:14	1° <del>♊</del> 42'28
max. Earth dist.	15471 Nov 01 23:09	25° <del>ℓ</del> 50'24 49.83762 AU	retrograde	15478 Feb 16 01:35	3° <del>♊</del> 00'46
morning rise	15471 Nov 07 07:44	25° <del>ℓ</del> 57'46	opposition	15478 May 10 21:05	2° <del>♊</del> 01'37 -13°37'51
retrograde	15472 Feb 10 20:56	27° <del>ℓ</del> 18'28	min. Earth dist.	15478 May 10 14:55	2° <del>♊</del> 01'54 47.81565 AU
opposition	15472 May 04 14:45	26° <del>ℓ</del> 19'12 -14°25'36	direct	15478 Aug 01 08:09	1° <del>♊</del> 02'56
min. Earth dist.	15472 May 04 02:36	26° <del>ℓ</del> 19'46 47.89913 AU	evening set	15478 Oct 31 01:58	2° <del>♊</del> 18'25
direct	15472 Jul 26 02:56	25° <del>ℓ</del> 20'26			
evening set	15472 Oct 26 11:30	26° <del>ℓ</del> 38'15	conjunction	15478 Nov 07 20:33	2° <del>♊</del> 29'05 -13°01'13
			minimum elong	15478 Nov 07 20:46	2° <del>♊</del> 29'05 13°00'28
conjunction	15472 Nov 01 15:16	26° <del>ℓ</del> 46'43 -13°47'46	max. Earth dist.	15478 Nov 08 02:15	2° <del>♊</del> 29'24 49.74740 AU
minimum elong	15472 Nov 01 15:28	26° <del>ℓ</del> 46'44 13°47'03	morning rise	15478 Nov 15 16:06	2° <del>♊</del> 39'48
max. Earth dist.	15472 Nov 02 04:19	26° <del>ℓ</del> 47'28 49.83857 AU	retrograde	15479 Feb 17 05:19	3° <del>♊</del> 57'45
morning rise	15472 Nov 07 19:40	26° <del>ℓ</del> 55'13	opposition	15479 May 12 02:05	2° <del>♊</del> 58'34 -13°29'10
retrograde	15473 Feb 10 22:56	28° <del>ℓ</del> 15'29	min. Earth dist.	15479 May 11 20:27	2° <del>♊</del> 58'49 47.78491 AU
opposition	15473 May 05 19:48	27° <del>ℓ</del> 16'15 -14°18'10	direct	15479 Aug 02 14:21	1° <del>♊</del> 59'52
min. Earth dist.	15473 May 05 08:17	27° <del>ℓ</del> 16'47 47.89709 AU	evening set	15479 Nov 01 00:40	3° <del>♊</del> 15'00
direct	15473 Jul 27 08:38	26° <del>ℓ</del> 17'31			
evening set	15473 Oct 27 09:31	27° <del>ℓ</del> 34'55	conjunction	15479 Nov 09 01:25	3° <del>♊</del> 26'00 -12°52'45
			minimum elong	15479 Nov 09 01:36	3° <del>♊</del> 26'01 12°51'59
conjunction	15473 Nov 02 20:02	27° <del>ℓ</del> 43'46 -13°40'30	max. Earth dist.	15479 Nov 09 06:50	3° <del>♊</del> 26'19 49.71584 AU
minimum elong	15473 Nov 02 20:14	27° <del>ℓ</del> 43'47 13°39'48	morning rise	15479 Nov 17 03:03	3° <del>♊</del> 37'04
max. Earth dist.	15473 Nov 03 07:10	27° <del>ℓ</del> 44'25 49.83563 AU	retrograde	15480 Feb 18 11:15	4° <del>♊</del> 54'41
morning rise	15473 Nov 09 07:21	27° <del>ℓ</del> 52'40	opposition	15480 May 12 07:04	3° <del>♊</del> 55'28 -13°20'16
retrograde	15474 Feb 12 03:53	29° <del>ℓ</del> 12'31	min. Earth dist.	15480 May 12 02:57	3° <del>♊</del> 55'40 47.75049 AU

direct	15480 Aug 02 21:19	2°♄56'46	retrograde	15487 Feb 25 04:08	11°♄34'46
evening set	15480 Oct 31 23:35	4°♄11'34	opposition	15487 May 19 17:53	10°♄35'33 -12°11'26
			min. Earth dist.	15487 May 19 19:06	10°♄35'30 47.41905 AU
conjunction	15480 Nov 09 06:13	4°♄22'54 -12°44'04	direct	15487 Aug 10 01:09	9°♄36'49
minimum elong	15480 Nov 09 06:26	4°♄22'55 12°43'17	evening set	15487 Nov 06 18:51	10°♄49'44
max. Earth dist.	15480 Nov 09 11:00	4°♄23'10 49.68102 AU			
morning rise	15480 Nov 17 13:46	4°♄34'19	conjunction	15487 Nov 16 16:40	11°♄03'20 -11°37'00
retrograde	15481 Feb 18 18:54	5°♄51'35	minimum elong	15487 Nov 16 16:52	11°♄03'21 11°36'10
opposition	15481 May 13 11:54	4°♄52'23 -13°11'08	max. Earth dist.	15487 Nov 16 15:48	11°♄03'17 49.34519 AU
min. Earth dist.	15481 May 13 07:24	4°♄52'35 47.71287 AU	morning rise	15487 Nov 26 15:32	11°♄17'00
direct	15481 Aug 04 00:24	3°♄53'39	retrograde	15488 Feb 26 08:19	12°♄32'25
evening set	15481 Nov 01 22:28	5°♄08'08	opposition	15488 May 19 22:58	11°♄33'10 -12°00'44
			min. Earth dist.	15488 May 20 00:59	11°♄33'04 47.35473 AU
conjunction	15481 Nov 10 10:56	5°♄19'49 -12°35'09	direct	15488 Aug 10 05:37	10°♄34'24
minimum elong	15481 Nov 10 11:07	5°♄19'49 12°34'21	evening set	15488 Nov 06 18:54	11°♄47'04
max. Earth dist.	15481 Nov 10 14:23	5°♄20'01 49.64303 AU			
morning rise	15481 Nov 19 00:27	5°♄31'33	conjunction	15488 Nov 16 21:50	12°♄00'59 -11°26'36
retrograde	15482 Feb 20 00:55	6°♄48'31	minimum elong	15488 Nov 16 22:01	12°♄00'59 11°25'46
opposition	15482 May 14 16:51	5°♄49'18 -13°01'45	max. Earth dist.	15488 Nov 16 18:42	12°♄00'48 49.27946 AU
min. Earth dist.	15482 May 14 13:50	5°♄49'27 47.67229 AU	morning rise	15488 Nov 27 02:03	12°♄14'57
direct	15482 Aug 05 02:40	4°♄50'35	retrograde	15489 Feb 26 12:09	13°♄30'07
evening set	15482 Nov 02 21:32	6°♄04'46	opposition	15489 May 21 04:08	12°♄30'49 -11°49'51
			min. Earth dist.	15489 May 21 07:13	12°♄30'41 47.28497 AU
conjunction	15482 Nov 11 15:50	6°♄16'47 -12°26'00	direct	15489 Aug 11 11:16	11°♄31'59
minimum elong	15482 Nov 11 16:02	6°♄16'47 12°25'13	evening set	15489 Nov 07 18:53	12°♄44'26
max. Earth dist.	15482 Nov 11 19:39	6°♄17'00 49.60221 AU			
morning rise	15482 Nov 20 11:02	6°♄28'51	conjunction	15489 Nov 18 03:04	12°♄58'38 -11°16'00
retrograde	15483 Feb 21 02:46	7°♄45'31	minimum elong	15489 Nov 18 03:16	12°♄58'39 11°15'10
opposition	15483 May 15 21:48	6°♄46'18 -12°52'08	max. Earth dist.	15489 Nov 17 23:13	12°♄58'25 49.20824 AU
min. Earth dist.	15483 May 15 19:00	6°♄46'26 47.62875 AU	morning rise	15489 Nov 28 12:26	13°♄12'55
direct	15483 Aug 06 07:41	5°♄47'35	retrograde	15490 Feb 27 15:52	14°♄27'51
evening set	15483 Nov 03 20:38	7°♄01'29	opposition	15490 May 22 09:21	13°♄28'29 -11°38'46
			min. Earth dist.	15490 May 22 14:10	13°♄28'15 47.20994 AU
conjunction	15483 Nov 12 20:30	7°♄13'49 -12°16'38	direct	15490 Aug 12 19:43	12°♄29'34
minimum elong	15483 Nov 12 20:42	7°♄13'50 12°15'50	evening set	15490 Nov 08 19:06	13°♄41'47
max. Earth dist.	15483 Nov 12 22:40	7°♄13'57 49.55849 AU			
morning rise	15483 Nov 21 21:29	7°♄26'13	conjunction	15490 Nov 19 08:16	13°♄56'17 -11°05'13
retrograde	15484 Feb 22 06:51	8°♄42'37	minimum elong	15490 Nov 19 08:27	13°♄56'17 11°04'22
opposition	15484 May 16 02:46	7°♄43'24 -12°42'18	max. Earth dist.	15490 Nov 19 03:31	13°♄56'00 49.13230 AU
min. Earth dist.	15484 May 16 00:20	7°♄43'31 47.58223 AU	morning rise	15490 Nov 29 22:38	14°♄10'52
direct	15484 Aug 06 12:58	6°♄44'41	retrograde	15491 Feb 28 22:53	15°♄25'34
evening set	15484 Nov 03 19:55	7°♄58'20	opposition	15491 May 23 14:29	14°♄26'07 -11°27'28
			min. Earth dist.	15491 May 23 19:14	14°♄25'54 47.13050 AU
conjunction	15484 Nov 13 01:30	8°♄10'59 -12°07'02	direct	15491 Aug 14 00:41	13°♄27'08
minimum elong	15484 Nov 13 01:42	8°♄11'00 12°06'15	evening set	15491 Nov 09 19:15	14°♄39'07
max. Earth dist.	15484 Nov 13 03:26	8°♄11'06 49.51144 AU			
morning rise	15484 Nov 22 08:09	8°♄23'42	conjunction	15491 Nov 20 13:21	14°♄53'54 -10°54'13
retrograde	15485 Feb 22 12:23	9°♄39'51	minimum elong	15491 Nov 20 13:33	14°♄53'55 10°53'22
opposition	15485 May 17 07:41	8°♄40'38 -12°32'13	max. Earth dist.	15491 Nov 20 07:06	14°♄53'33 49.05209 AU
min. Earth dist.	15485 May 17 06:59	8°♄40'40 47.53212 AU	morning rise	15491 Dec 01 08:53	15°♄08'47
direct	15485 Aug 07 19:33	7°♄41'56	retrograde	15492 Mar 01 06:14	16°♄23'16
evening set	15485 Nov 04 19:29	8°♄55'20	opposition	15492 May 23 19:47	15°♄23'45 -11°15'56
			min. Earth dist.	15492 May 24 02:17	15°♄23'27 47.04718 AU
conjunction	15485 Nov 14 06:30	9°♄08'17 -11°57'13	direct	15492 Aug 14 03:40	14°♄24'41
minimum elong	15485 Nov 14 06:42	9°♄08'18 11°56'25	evening set	15492 Nov 09 19:36	15°♄36'28
max. Earth dist.	15485 Nov 14 07:37	9°♄08'21 49.46073 AU			
morning rise	15485 Nov 23 18:34	9°♄21'20	conjunction	15492 Nov 20 18:43	15°♄51'33 -10°43'00
retrograde	15486 Feb 23 19:27	10°♄37'14	minimum elong	15492 Nov 20 18:54	15°♄51'34 10°42'08
opposition	15486 May 18 12:39	9°♄38'02 -12°21'56	max. Earth dist.	15492 Nov 20 12:36	15°♄51'12 48.96828 AU
min. Earth dist.	15486 May 18 11:57	9°♄38'04 47.47797 AU	morning rise	15492 Dec 01 19:00	16°♄06'44
direct	15486 Aug 08 23:56	8°♄39'19	retrograde	15493 Mar 02 09:53	17°♄21'00
evening set	15486 Nov 05 18:59	9°♄52'28	opposition	15493 May 25 00:50	16°♄21'25 -11°04'11
			min. Earth dist.	15493 May 25 07:33	16°♄21'06 46.96038 AU
conjunction	15486 Nov 15 11:23	10°♄05'45 -11°47'12	direct	15493 Aug 15 08:42	15°♄22'17
minimum elong	15486 Nov 15 11:34	10°♄05'46 11°46'24	evening set	15493 Nov 10 20:10	16°♄33'54
max. Earth dist.	15486 Nov 15 10:43	10°♄05'43 49.40548 AU			
morning rise	15486 Nov 25 05:02	10°♄19'07	conjunction	15493 Nov 21 23:55	16°♄49'16 -10°31'33

minimum elong	15493 Nov 22 00:07	16°  49'17	10°30'43	evening set	15500 Nov 17 04:00	23°  21'52	
max. Earth dist.	15493 Nov 21 16:08	16°  48'49	48.88128 AU				
morning rise	15493 Dec 03 05:09	17°  04'43		conjunction	15500 Nov 29 15:15	23°  39'13	-9°05'16
retrograde	15494 Mar 03 14:23	18°  18'49		minimum elong	15500 Nov 29 15:26	23°  39'13	9°04'23
opposition	15494 May 26 06:06	17°  19'10	-10°52'11	max. Earth dist.	15500 Nov 29 01:27	23°  38'24	48.17586 AU
min. Earth dist.	15494 May 26 13:19	17°  18'50	46.87061 AU	morning rise	15500 Dec 12 04:00	23°  56'40	
direct	15494 Aug 16 13:34	16°  19'58		retrograde	15501 Mar 11 10:31	25°  10'02	
evening set	15494 Nov 11 20:33	17°  31'26		opposition	15501 Jun 02 20:49	24°  10'00	-9°21'51
				min. Earth dist.	15501 Jun 03 10:16	24°  09'22	46.14167 AU
conjunction	15494 Nov 23 05:10	17°  47'05	-10°19'53	direct	15501 Aug 24 02:40	23°  10'23	
minimum elong	15494 Nov 23 05:20	17°  47'06	10°19'01	evening set	15501 Nov 18 05:56	24°  21'11	
max. Earth dist.	15494 Nov 22 21:17	17°  46'38	48.79123 AU				
morning rise	15494 Dec 04 15:07	18°  02'50		conjunction	15501 Nov 30 21:17	24°  38'48	-8°52'07
retrograde	15495 Mar 04 19:21	19°  16'47		minimum elong	15501 Nov 30 21:27	24°  38'49	8°51'14
opposition	15495 May 27 11:33	18°  17'05	-10°39'58	max. Earth dist.	15501 Nov 30 05:34	24°  37'53	48.05654 AU
min. Earth dist.	15495 May 27 20:02	18°  16'41	46.77781 AU	morning rise	15501 Dec 13 14:19	24°  56'32	
direct	15495 Aug 17 20:19	17°  17'50		retrograde	15502 Mar 12 19:56	26°  09'48	
evening set	15495 Nov 12 21:20	18°  29'09		opposition	15502 Jun 04 02:47	25°  09'41	-9°08'05
				min. Earth dist.	15502 Jun 04 18:18	25°  08'57	46.01867 AU
conjunction	15495 Nov 24 10:34	18°  45'05	-10°07'59	direct	15502 Aug 25 05:46	24°  09'57	
minimum elong	15495 Nov 24 10:45	18°  45'06	10°07'09	evening set	15502 Nov 19 07:46	25°  20'40	
max. Earth dist.	15495 Nov 24 02:05	18°  44'36	48.69836 AU	max. Earth dist.	15502 Dec 01 11:36	25°  37'38	47.93256 AU
morning rise	15495 Dec 06 01:09	19°  01'07					
retrograde	15496 Mar 05 02:13	20°  14'57		conjunction	15502 Dec 02 03:19	25°  38'33	-8°38'44
opposition	15496 May 27 16:46	19°  15'12	-10°27'30	minimum elong	15502 Dec 02 03:29	25°  38'33	8°37'51
min. Earth dist.	15496 May 28 01:01	19°  14'49	46.68207 AU	morning rise	15502 Dec 15 00:16	25°  56'32	
direct	15496 Aug 18 01:12	18°  15'54		retrograde	15503 Mar 14 01:28	27°  09'44	
evening set	15496 Nov 12 22:15	19°  27'06		opposition	15503 Jun 05 08:41	26°  09'29	-8°54'05
				min. Earth dist.	15503 Jun 06 00:24	26°  08'45	45.89127 AU
conjunction	15496 Nov 24 16:01	19°  43'20	-9°55'52	direct	15503 Aug 26 11:10	25°  09'38	
minimum elong	15496 Nov 24 16:12	19°  43'20	9°55'00	evening set	15503 Nov 20 10:02	26°  20'17	
max. Earth dist.	15496 Nov 24 06:00	19°  42'45	48.60226 AU				
morning rise	15496 Dec 06 11:21	19°  59'39		conjunction	15503 Dec 03 09:24	26°  38'26	-8°25'09
retrograde	15497 Mar 06 11:19	21°  13'22		minimum elong	15503 Dec 03 09:33	26°  38'27	8°24'16
opposition	15497 May 28 22:18	20°  13'35	-10°14'49	max. Earth dist.	15503 Dec 02 15:50	26°  37'24	47.80455 AU
min. Earth dist.	15497 May 29 08:14	20°  13'07	46.58296 AU	morning rise	15503 Dec 16 10:31	26°  56'42	
direct	15497 Aug 19 03:23	19°  14'14		retrograde	15504 Mar 14 06:52	28°  09'48	
evening set	15497 Nov 13 23:15	20°  25'20		opposition	15504 Jun 05 14:34	27°  09'26	-8°39'51
				min. Earth dist.	15504 Jun 06 07:12	27°  08'39	45.76028 AU
conjunction	15497 Nov 25 21:38	20°  41'51	-9°43'32	direct	15504 Aug 26 15:54	26°  09'27	
minimum elong	15497 Nov 25 21:48	20°  41'52	9°42'40	evening set	15504 Nov 20 12:18	27°  20'03	
max. Earth dist.	15497 Nov 25 11:47	20°  41'17	48.50257 AU				
morning rise	15497 Dec 07 21:18	20°  58'28		conjunction	15504 Dec 03 15:42	27°  38'28	-8°11'20
retrograde	15498 Mar 07 16:50	22°  12'04		minimum elong	15504 Dec 03 15:51	27°  38'29	8°10'27
opposition	15498 May 30 03:46	21°  12'15	-10°01'53	max. Earth dist.	15504 Dec 02 21:55	27°  37'25	47.67303 AU
min. Earth dist.	15498 May 30 14:08	21°  11'46	46.47989 AU	morning rise	15504 Dec 16 20:38	27°  56'59	
direct	15498 Aug 20 07:07	20°  12'52		retrograde	15505 Mar 15 11:06	29°  10'03	
evening set	15498 Nov 15 00:40	21°  23'54		opposition	15505 Jun 06 20:39	28°  09'33	-8°25'23
				min. Earth dist.	15505 Jun 07 14:29	28°  08'42	45.62599 AU
conjunction	15498 Nov 27 03:17	21°  40'42	-9°30'59	direct	15505 Aug 27 23:42	27°  09'26	
minimum elong	15498 Nov 27 03:28	21°  40'42	9°30'06	evening set	15505 Nov 21 14:47	28°  20'00	
max. Earth dist.	15498 Nov 26 15:27	21°  40'00	48.39870 AU				
morning rise	15498 Dec 09 07:31	21°  57'36		conjunction	15505 Dec 04 21:54	28°  38'40	-7°57'18
retrograde	15499 Mar 08 22:55	23°  11'07		minimum elong	15505 Dec 04 22:03	28°  38'41	7°56'23
opposition	15499 May 31 09:24	22°  11'15	-9°48'45	max. Earth dist.	15505 Dec 04 03:28	28°  37'35	47.53861 AU
min. Earth dist.	15499 May 31 20:51	22°  10'42	46.37242 AU	morning rise	15505 Dec 18 06:37	28°  57'27	
direct	15499 Aug 21 11:51	21°  11'48			15506 Feb 13 10:55	0° 	
evening set	15499 Nov 16 02:07	22°  22'45		retrograde	15506 Mar 16 17:20	0°  30'29	
					15506 Apr 17 12:18	30°  R 	
conjunction	15499 Nov 28 09:12	22°  39'50	-9°18'14	opposition	15506 Jun 08 02:43	29°  09'52	-8°10'40
minimum elong	15499 Nov 28 09:22	22°  39'50	9°17'21	min. Earth dist.	15506 Jun 08 20:12	29°  09'02	45.48899 AU
max. Earth dist.	15499 Nov 27 20:36	22°  39'05	48.28988 AU	direct	15506 Aug 29 06:50	28°  09'37	
morning rise	15499 Dec 10 17:44	22°  57'00		evening set	15506 Nov 22 17:29	29°  20'10	
retrograde	15500 Mar 10 02:47	24°  10'27		max. Earth dist.	15506 Dec 05 08:31	29°  37'55	47.40146 AU
opposition	15500 Jun 01 15:13	23°  10'31	-9°35'24				
min. Earth dist.	15500 Jun 02 04:23	23°  09'53	46.25968 AU	conjunction	15506 Dec 06 04:16	29°  39'05	-7°43'01
direct	15500 Aug 22 20:49	22°  11'00		minimum elong	15506 Dec 06 04:25	29°  39'06	7°42'07

morning rise	15506 Dec 19 16:49	29° <del>3</del> 58'08	direct	15513 Sep 04 22:59	5° <del>3</del> 20'02	
	15506 Dec 21 01:04	0° <del>3</del>	evening set	15513 Nov 28 19:34	6° <del>3</del> 31'00	
retrograde	15507 Mar 18 02:51	1° <del>3</del> 11'10	max. Earth dist.	15513 Dec 12 03:02	6° <del>3</del> 50'05	46.34970 AU
opposition	15507 Jun 09 09:04	0° <del>3</del> 10'25 -7°55'42				
min. Earth dist.	15507 Jun 10 04:02	0° <del>3</del> 09'31 45.34945 AU	conjunction	15513 Dec 13 05:35	6° <del>3</del> 51'41 -5°56'35	
	15507 Jun 18 11:21	30° <del>8</del> <del>3</del>	minimum elong	15513 Dec 13 05:43	6° <del>3</del> 51'42 5°55'41	
direct	15507 Aug 30 11:37	29° <del>3</del> 10'03	morning rise	15513 Dec 27 17:29	7° <del>3</del> 12'30	
	15507 Nov 08 11:06	0° <del>3</del>	retrograde	15514 Mar 25 10:41	8° <del>3</del> 25'54	
evening set	15507 Nov 23 20:17	0° <del>3</del> 20'35	opposition	15514 Jun 16 08:39	7° <del>3</del> 24'19 -6°04'09	
			min. Earth dist.	15514 Jun 17 09:44	7° <del>3</del> 23'05 44.27584 AU	
conjunction	15507 Dec 07 10:50	0° <del>3</del> 39'47 -7°28'30	direct	15514 Sep 06 03:53	6° <del>3</del> 23'01	
minimum elong	15507 Dec 07 10:58	0° <del>3</del> 39'47 7°27'35	evening set	15514 Nov 30 00:18	7° <del>3</del> 34'05	
max. Earth dist.	15507 Dec 06 15:30	0° <del>3</del> 38'38 47.26187 AU	max. Earth dist.	15514 Dec 13 10:27	7° <del>3</del> 53'23 46.18173 AU	
morning rise	15507 Dec 21 02:52	0° <del>3</del> 59'05				
retrograde	15508 Mar 18 11:14	2° <del>3</del> 12'06	conjunction	15514 Dec 14 13:23	7° <del>3</del> 55'01 -5°40'30	
opposition	15508 Jun 09 15:25	1° <del>3</del> 11'15 -7°40'29	minimum elong	15514 Dec 14 13:29	7° <del>3</del> 55'01 5°39'36	
min. Earth dist.	15508 Jun 10 10:17	1° <del>3</del> 10'21 45.20729 AU	morning rise	15514 Dec 29 04:04	8° <del>3</del> 16'04	
direct	15508 Aug 30 15:25	0° <del>3</del> 10'45	retrograde	15515 Mar 26 16:57	9° <del>3</del> 29'33	
evening set	15508 Nov 23 23:33	1° <del>3</del> 21'20	opposition	15515 Jun 17 16:02	8° <del>3</del> 27'48 -5°47'17	
			min. Earth dist.	15515 Jun 18 18:17	8° <del>3</del> 26'31 44.10483 AU	
conjunction	15508 Dec 07 17:28	1° <del>3</del> 40'47 -7°13'44	direct	15515 Sep 07 12:29	7° <del>3</del> 26'19	
minimum elong	15508 Dec 07 17:36	1° <del>3</del> 40'47 7°12'51	evening set	15515 Dec 01 05:19	8° <del>3</del> 37'31	
max. Earth dist.	15508 Dec 06 20:23	1° <del>3</del> 39'32 47.11956 AU				
morning rise	15508 Dec 21 13:13	2° <del>3</del> 00'20	conjunction	15515 Dec 15 21:09	8° <del>3</del> 58'41 -5°24'10	
retrograde	15509 Mar 19 19:47	3° <del>3</del> 13'23	minimum elong	15515 Dec 15 21:16	8° <del>3</del> 58'41 5°23'16	
opposition	15509 Jun 10 21:48	2° <del>3</del> 12'26 -7°25'01	max. Earth dist.	15515 Dec 14 17:11	8° <del>3</del> 56'59 46.00995 AU	
min. Earth dist.	15509 Jun 11 17:41	2° <del>3</del> 11'28 45.06237 AU	morning rise	15515 Dec 30 14:44	9° <del>3</del> 19'58	
direct	15509 Aug 31 19:35	1° <del>3</del> 11'49	retrograde	15516 Mar 27 00:15	10° <del>3</del> 33'35	
evening set	15509 Nov 25 02:55	2° <del>3</del> 22'27	opposition	15516 Jun 17 23:27	9° <del>3</del> 31'40 -5°30'09	
max. Earth dist.	15509 Dec 08 03:04	2° <del>3</del> 40'53 46.97412 AU	min. Earth dist.	15516 Jun 19 01:48	9° <del>3</del> 30'22 43.93029 AU	
			direct	15516 Sep 07 20:22	8° <del>3</del> 30'00	
conjunction	15509 Dec 09 00:23	2° <del>3</del> 42'09 -6°58'45	evening set	15516 Dec 01 10:41	9° <del>3</del> 41'20	
minimum elong	15509 Dec 09 00:31	2° <del>3</del> 42'09 6°57'51	max. Earth dist.	15516 Dec 14 23:48	10° <del>3</del> 00'56 45.83466 AU	
morning rise	15509 Dec 22 23:27	3° <del>3</del> 01'58				
retrograde	15510 Mar 21 00:08	4° <del>3</del> 15'03	conjunction	15516 Dec 16 05:10	10° <del>3</del> 02'44 -5°07'37	
opposition	15510 Jun 12 04:32	3° <del>3</del> 14'00 -7°09'19	minimum elong	15516 Dec 16 05:16	10° <del>3</del> 02'44 5°06'43	
min. Earth dist.	15510 Jun 13 01:32	3° <del>3</del> 12'59 44.91402 AU	morning rise	15516 Dec 31 01:27	10° <del>3</del> 24'16	
direct	15510 Sep 02 04:06	2° <del>3</del> 13'17	retrograde	15517 Mar 28 09:37	11° <del>3</del> 38'01	
evening set	15510 Nov 26 06:34	3° <del>3</del> 23'58	opposition	15517 Jun 19 07:05	10° <del>3</del> 35'55 -5°12'46	
max. Earth dist.	15510 Dec 09 09:05	3° <del>3</del> 42'36 46.82509 AU	min. Earth dist.	15517 Jun 20 11:05	10° <del>3</del> 34'32 43.75263 AU	
			direct	15517 Sep 09 03:44	9° <del>3</del> 34'05	
conjunction	15510 Dec 10 07:18	3° <del>3</del> 43'55 -6°43'32	evening set	15517 Dec 02 16:13	10° <del>3</del> 45'34	
minimum elong	15510 Dec 10 07:25	3° <del>3</del> 43'56 6°42'39	max. Earth dist.	15517 Dec 16 08:19	11° <del>3</del> 05'25 45.65659 AU	
morning rise	15510 Dec 24 09:44	4° <del>3</del> 04'00				
retrograde	15511 Mar 22 07:11	5° <del>3</del> 17'09	conjunction	15517 Dec 17 13:22	11° <del>3</del> 07'12 -4°50'49	
opposition	15511 Jun 13 11:18	4° <del>3</del> 15'59 -6°53'22	minimum elong	15517 Dec 17 13:29	11° <del>3</del> 07'12 4°49'56	
min. Earth dist.	15511 Jun 14 08:33	4° <del>3</del> 14'57 44.76171 AU	morning rise	15518 Jan 01 12:06	11° <del>3</del> 28'57	
direct	15511 Sep 03 11:27	3° <del>3</del> 15'08	retrograde	15518 Mar 29 20:23	12° <del>3</del> 42'52	
evening set	15511 Nov 27 10:41	4° <del>3</del> 25'55	opposition	15518 Jun 20 14:52	11° <del>3</del> 40'37 -4°55'09	
			min. Earth dist.	15518 Jun 21 18:32	11° <del>3</del> 39'15 43.57236 AU	
conjunction	15511 Dec 11 14:36	4° <del>3</del> 46'07 -6°28'07	direct	15518 Sep 10 08:54	10° <del>3</del> 38'35	
minimum elong	15511 Dec 11 14:44	4° <del>3</del> 46'08 6°27'12	evening set	15518 Dec 03 22:03	11° <del>3</del> 50'16	
max. Earth dist.	15511 Dec 10 14:35	4° <del>3</del> 44'41 46.67152 AU				
morning rise	15511 Dec 25 20:20	5° <del>3</del> 06'26	conjunction	15518 Dec 18 21:30	12° <del>3</del> 12'08 -4°33'47	
retrograde	15512 Mar 22 17:18	6° <del>3</del> 19'41	minimum elong	15518 Dec 18 21:36	12° <del>3</del> 12'08 4°32'54	
opposition	15512 Jun 13 18:17	5° <del>3</del> 18'23 -6°37'12	max. Earth dist.	15518 Dec 17 14:45	12° <del>3</del> 10'14 45.47603 AU	
min. Earth dist.	15512 Jun 14 17:43	5° <del>3</del> 17'15 44.60468 AU	morning rise	15519 Jan 02 22:51	12° <del>3</del> 34'07	
direct	15512 Sep 03 16:46	4° <del>3</del> 17'25	retrograde	15519 Mar 31 08:02	13° <del>3</del> 48'13	
evening set	15512 Nov 27 15:00	5° <del>3</del> 28'16	opposition	15519 Jun 21 22:56	12° <del>3</del> 45'47 -4°37'15	
			min. Earth dist.	15519 Jun 23 03:44	12° <del>3</del> 44'22 43.38981 AU	
conjunction	15512 Dec 11 22:10	5° <del>3</del> 48'43 -6°12'27	direct	15519 Sep 11 13:14	11° <del>3</del> 43'35	
minimum elong	15512 Dec 11 22:17	5° <del>3</del> 48'43 6°11'34	evening set	15519 Dec 05 04:13	12° <del>3</del> 55'29	
max. Earth dist.	15512 Dec 10 21:46	5° <del>3</del> 47'15 46.51310 AU	max. Earth dist.	15519 Dec 18 23:29	13° <del>3</del> 15'41 45.29308 AU	
morning rise	15512 Dec 26 06:54	6° <del>3</del> 09'17				
retrograde	15513 Mar 24 01:24	7° <del>3</del> 22'36	conjunction	15519 Dec 20 06:10	13° <del>3</del> 17'34 -4°16'31	
opposition	15513 Jun 15 01:22	6° <del>3</del> 21'10 -6°20'47	minimum elong	15519 Dec 20 06:15	13° <del>3</del> 17'34 4°15'38	
min. Earth dist.	15513 Jun 16 01:03	6° <del>3</del> 20'01 44.44261 AU	morning rise	15520 Jan 04 09:42	13° <del>3</del> 39'47	

retrograde	15520 Mar 31 15:04	14°♁54'05	conjunction	15526 Dec 28 01:07	21°♁12'31 -2°09'01
opposition	15520 Jun 22 07:04	13°♁51'30 -4°19'06	minimum elong	15526 Dec 28 01:10	21°♁12'31 2°08'09
min. Earth dist.	15520 Jun 23 12:25	13°♁50'02 43.20485 AU	morning rise	15527 Jan 12 17:14	21°♁36'13
direct	15520 Sep 11 22:24	12°♁49'08	retrograde	15527 Apr 09 15:04	22°♁52'28
evening set	15520 Dec 05 10:50	14°♁01'15	opposition	15527 Jun 30 23:02	21°♁48'29 -2°05'03
max. Earth dist.	15520 Dec 19 07:19	14°♁21'37 45.10784 AU	min. Earth dist.	15527 Jul 02 11:19	21°♁46'38 41.81322 AU
			direct	15527 Sep 20 10:28	20°♁44'37
conjunction	15520 Dec 20 14:56	14°♁23'34 -3°59'00	evening set	15527 Dec 13 19:57	21°♁58'51
minimum elong	15520 Dec 20 15:01	14°♁23'34 3°58'06	max. Earth dist.	15527 Dec 27 21:12	22°♁20'09 43.70688 AU
morning rise	15521 Jan 04 20:46	14°♁46'01			
retrograde	15521 Apr 01 22:49	16°♁00'32	conjunction	15527 Dec 29 11:46	22°♁22'37 -1°49'53
opposition	15521 Jun 23 15:26	14°♁57'47 -4°00'42	minimum elong	15527 Dec 29 11:48	22°♁22'37 1°49'02
min. Earth dist.	15521 Jun 24 20:55	14°♁56'19 43.01750 AU	morning rise	15528 Jan 14 05:02	22°♁46'31
direct	15521 Sep 13 07:48	13°♁55'15	retrograde	15528 Apr 10 01:21	24°♁03'05
evening set	15521 Dec 06 17:42	15°♁07'38	opposition	15528 Jul 01 08:52	22°♁58'51 -1°44'55
			min. Earth dist.	15528 Jul 02 21:02	22°♁57'00 41.59862 AU
conjunction	15521 Dec 21 23:50	15°♁30'11 -3°41'14	direct	15528 Sep 20 20:38	21°♁54'42
minimum elong	15521 Dec 21 23:55	15°♁30'11 3°40'22	evening set	15528 Dec 14 05:48	23°♁09'18
max. Earth dist.	15521 Dec 20 15:04	15°♁28'09 44.91973 AU	max. Earth dist.	15528 Dec 28 06:03	23°♁30'40 43.49120 AU
morning rise	15522 Jan 06 07:43	15°♁52'51			
retrograde	15522 Apr 03 08:30	17°♁07'38	conjunction	15528 Dec 29 22:32	23°♁33'16 -1°30'31
opposition	15522 Jun 25 00:11	16°♁04'44 -3°42'03	minimum elong	15528 Dec 29 22:34	23°♁33'16 1°29'40
min. Earth dist.	15522 Jun 26 07:26	16°♁03'10 42.82712 AU	morning rise	15529 Jan 14 16:57	23°♁57'21
direct	15522 Sep 14 16:23	15°♁02'01	retrograde	15529 Apr 11 14:56	25°♁14'17
evening set	15522 Dec 08 01:01	16°♁14'40	opposition	15529 Jul 02 19:12	24°♁09'47 -1°24'31
max. Earth dist.	15522 Dec 22 00:19	16°♁35'23 44.72841 AU	min. Earth dist.	15529 Jul 04 08:57	24°♁07'50 41.38134 AU
			direct	15529 Sep 22 03:35	23°♁05'21
conjunction	15522 Dec 23 09:12	16°♁37'26 -3°23'15	evening set	15529 Dec 15 15:46	24°♁20'21
minimum elong	15522 Dec 23 09:17	16°♁37'26 3°22'22	max. Earth dist.	15529 Dec 29 17:23	24°♁41'54 43.27302 AU
morning rise	15523 Jan 07 18:56	17°♁00'20			
retrograde	15523 Apr 04 19:06	18°♁15'23	conjunction	15529 Dec 31 09:32	24°♁44'29 -1°10'55
opposition	15523 Jun 26 08:58	17°♁12'19 -3°23'08	minimum elong	15529 Dec 31 09:33	24°♁44'29 1°10'04
min. Earth dist.	15523 Jun 27 16:12	17°♁10'44 42.63317 AU	morning rise	15530 Jan 16 04:38	25°♁08'45
direct	15523 Sep 16 00:06	16°♁09'25	retrograde	15530 Apr 13 02:41	26°♁26'04
evening set	15523 Dec 09 08:55	17°♁22'22	opposition	15530 Jul 04 05:44	25°♁21'19 -1°03'52
max. Earth dist.	15523 Dec 23 07:40	17°♁43'08 44.53302 AU	min. Earth dist.	15530 Jul 05 19:27	25°♁19'22 41.16183 AU
			direct	15530 Sep 23 13:46	24°♁16'37
conjunction	15523 Dec 24 18:46	17°♁45'20 -3°05'02	evening set	15530 Dec 17 02:26	25°♁32'02
minimum elong	15523 Dec 24 18:50	17°♁45'20 3°04'10	max. Earth dist.	15530 Dec 31 03:26	25°♁53'40 43.05292 AU
morning rise	15524 Jan 09 06:27	18°♁08'26			
retrograde	15524 Apr 05 09:02	19°♁23'47	conjunction	15531 Jan 01 20:47	25°♁56'21 -0°51'05
opposition	15524 Jun 26 18:11	18°♁20'31 -3°03'59	minimum elong	15531 Jan 01 20:49	25°♁56'21 0°50'15
min. Earth dist.	15524 Jun 28 03:13	18°♁18'51 42.43491 AU	morning rise	15531 Jan 17 16:45	26°♁20'47
direct	15524 Sep 16 05:19	17°♁17'25	retrograde	15531 Apr 14 16:05	27°♁38'31
evening set	15524 Dec 09 17:08	18°♁30'40	opposition	15531 Jul 05 16:27	26°♁33'31 -0°42'57
max. Earth dist.	15524 Dec 23 17:19	18°♁51'37 44.33297 AU	min. Earth dist.	15531 Jul 07 06:37	26°♁31'32 40.94070 AU
			direct	15531 Sep 24 23:04	25°♁28'32
conjunction	15524 Dec 25 04:47	18°♁53'51 -2°46'35	evening set	15531 Dec 18 13:30	26°♁44'26
minimum elong	15524 Dec 25 04:51	18°♁53'51 2°45'43	max. Earth dist.	15532 Jan 01 14:36	27°♁06'12 42.83105 AU
morning rise	15525 Jan 09 17:56	19°♁17'09			
retrograde	15525 Apr 06 20:03	20°♁32'47	conjunction	15532 Jan 03 08:31	27°♁08'56 -0°31'02
opposition	15525 Jun 28 03:31	19°♁29'19 -2°44'35	minimum elong	15532 Jan 03 08:31	27°♁08'56 0°30'12
min. Earth dist.	15525 Jun 29 13:28	19°♁27'36 42.23189 AU	morning rise	15532 Jan 19 04:54	27°♁33'32
direct	15525 Sep 17 13:54	18°♁25'58	retrograde	15532 Apr 15 03:43	28°♁51'44
evening set	15525 Dec 11 01:47	19°♁39'32	opposition	15532 Jul 06 03:39	27°♁46'29 -0°21'48
max. Earth dist.	15525 Dec 25 01:42	20°♁00'34 44.12838 AU	min. Earth dist.	15532 Jul 07 18:53	27°♁44'26 40.71791 AU
			direct	15532 Sep 25 10:28	26°♁41'15
conjunction	15525 Dec 26 14:52	20°♁02'55 -2°27'55	evening set	15532 Dec 19 01:06	27°♁57'39
minimum elong	15525 Dec 26 14:55	20°♁02'55 2°27'03	max. Earth dist.	15533 Jan 02 02:27	28°♁19'33 42.60767 AU
morning rise	15526 Jan 11 05:38	20°♁26'26			
retrograde	15526 Apr 08 07:01	21°♁42'21	conjunction	15533 Jan 03 20:29	28°♁22'18 -0°10'47
opposition	15526 Jun 29 13:06	20°♁38'38 -2°24'57	minimum elong	15533 Jan 03 20:30	28°♁22'18 0°09'58
min. Earth dist.	15526 Jun 30 23:44	20°♁36'53 42.02456 AU	behind sun begin	15533 Jan 03 15:17	28°♁21'59
direct	15526 Sep 18 22:35	19°♁35'02	behind sun end	15533 Jan 04 01:42	28°♁22'37
evening set	15526 Dec 12 10:37	20°♁48'56	morning rise	15533 Jan 19 17:12	28°♁47'05
max. Earth dist.	15526 Dec 26 10:43	21°♁10'04 43.91943 AU			
			retrograde	15533 Apr 16 15:24	0°♁05'47



	15533 May 08 20:07	30° $\kappa$ 3		opposition	15539 Jul 15 18:53	6° $\approx$ 43'16	2°12'56
opposition	15533 Jul 07 14:54	29°30'0"18	-0°00'24	min. Earth dist.	15539 Jul 17 15:48	6° $\approx$ 40'50	39.09087 AU
min. Earth dist.	15533 Jul 09 05:45	28°35'8"15	40.49358 AU	direct	15539 Oct 04 17:59	5° $\approx$ 36'02	
asc. node	15533 Jul 14 11:30	28°35'1"40		evening set	15539 Dec 29 02:48	6° $\approx$ 56'50	
direct	15533 Sep 26 21:43	27°35'4"48		max. Earth dist.	15540 Jan 11 18:56	7° $\approx$ 19'06	40.96938 AU
evening set	15533 Dec 20 13:19	29°31'1"45					
max. Earth dist.	15534 Jan 03 13:10	29°33'3"42	42.38246 AU	conjunction	15540 Jan 13 19:14	7° $\approx$ 22'25	2°17'15
				minimum elong	15540 Jan 13 19:11	7° $\approx$ 22'25	2°18'02
conjunction	15534 Jan 05 08:47	29°33'6"34	0°09'49	morning rise	15540 Jan 29 12:33	7° $\approx$ 48'07	
minimum elong	15534 Jan 05 08:46	29°33'6"34	0°10'39	retrograde	15540 Apr 25 22:21	9° $\approx$ 11'08	
behind sun begin	15534 Jan 05 03:48	29°33'6"16		opposition	15540 Jul 16 08:43	8° $\approx$ 03'42	2°35'56
behind sun end	15534 Jan 05 13:44	29°33'6"52		min. Earth dist.	15540 Jul 18 05:21	8° $\approx$ 01'16	38.84694 AU
	15534 Jan 20 06:20	0° $\approx$		direct	15540 Oct 05 07:15	6° $\approx$ 56'06	
morning rise	15534 Jan 21 05:43	0° $\approx$ 01'30		evening set	15540 Dec 29 19:15	8° $\approx$ 17'38	
retrograde	15534 Apr 18 05:57	1° $\approx$ 20'46		max. Earth dist.	15541 Jan 12 08:09	8° $\approx$ 39'51	40.72399 AU
opposition	15534 Jul 09 02:46	0° $\approx$ 15'02	0°21'14				
min. Earth dist.	15534 Jul 10 19:11	0° $\approx$ 12'54	40.26738 AU	conjunction	15541 Jan 14 10:10	8° $\approx$ 43'18	2°39'11
	15534 Jul 21 01:46	30° $\kappa$ 3		minimum elong	15541 Jan 14 10:07	8° $\approx$ 43'18	2°39'56
direct	15534 Sep 28 06:40	29°30'9"18		morning rise	15541 Jan 30 02:14	9° $\approx$ 09'04	
	15534 Dec 03 20:42	0° $\approx$		retrograde	15541 Apr 27 17:03	10° $\approx$ 32'49	
evening set	15534 Dec 22 01:53	0° $\approx$ 26'50		opposition	15541 Jul 17 22:58	9° $\approx$ 25'03	2°59'09
max. Earth dist.	15535 Jan 05 02:15	0° $\approx$ 48'56	42.15503 AU	min. Earth dist.	15541 Jul 19 20:46	9° $\approx$ 22'32	38.60142 AU
				direct	15541 Oct 06 17:18	8° $\approx$ 17'04	
conjunction	15535 Jan 06 21:30	0° $\approx$ 51'48	0°30'31	evening set	15541 Dec 31 12:11	9° $\approx$ 39'23	
minimum elong	15535 Jan 06 21:29	0° $\approx$ 51'48	0°31'19	max. Earth dist.	15542 Jan 13 23:57	10° $\approx$ 01'41	40.47716 AU
morning rise	15535 Jan 22 18:15	1° $\approx$ 16'53					
retrograde	15535 Apr 19 21:14	2° $\approx$ 36'43		conjunction	15542 Jan 16 01:41	10° $\approx$ 05'08	3°01'18
opposition	15535 Jul 10 14:51	1° $\approx$ 30'46	0°43'07	minimum elong	15542 Jan 16 01:37	10° $\approx$ 05'08	3°02'03
min. Earth dist.	15535 Jul 12 07:22	1° $\approx$ 28'36	40.03860 AU	morning rise	15542 Jan 31 15:57	10° $\approx$ 30'58	
direct	15535 Sep 29 16:04	0° $\approx$ 24'46		retrograde	15542 Apr 29 10:03	11° $\approx$ 55'29	
evening set	15535 Dec 23 15:25	1° $\approx$ 42'55		opposition	15542 Jul 19 13:40	10° $\approx$ 47'21	3°22'34
max. Earth dist.	15536 Jan 06 13:27	2° $\approx$ 05'00	41.92466 AU	min. Earth dist.	15542 Jul 21 11:38	10° $\approx$ 44'49	38.35483 AU
				direct	15542 Oct 08 06:20	9° $\approx$ 39'01	
conjunction	15536 Jan 08 10:39	2° $\approx$ 08'01	0°51'27	evening set	15543 Jan 02 05:49	11° $\approx$ 02'09	
minimum elong	15536 Jan 08 10:38	2° $\approx$ 08'01	0°52'15	max. Earth dist.	15543 Jan 15 14:56	11° $\approx$ 24'25	40.22959 AU
morning rise	15536 Jan 24 07:19	2° $\approx$ 33'15					
retrograde	15536 Apr 20 13:49	3° $\approx$ 53'41		conjunction	15543 Jan 17 17:24	11° $\approx$ 27'57	3°23'35
opposition	15536 Jul 11 03:13	2° $\approx$ 47'28	1°05'14	minimum elong	15543 Jan 17 17:19	11° $\approx$ 27'57	3°24'18
min. Earth dist.	15536 Jul 12 21:03	2° $\approx$ 45'15	39.80675 AU	morning rise	15543 Feb 02 05:55	11° $\approx$ 53'50	
direct	15536 Sep 30 01:13	1° $\approx$ 41'11		retrograde	15543 May 01 04:18	13° $\approx$ 19'08	
evening set	15536 Dec 24 05:25	2° $\approx$ 59'59		opposition	15543 Jul 21 04:44	12° $\approx$ 10'40	3°46'10
max. Earth dist.	15537 Jan 07 02:24	3° $\approx$ 22'09	41.69074 AU	min. Earth dist.	15543 Jul 23 02:43	12° $\approx$ 08'07	38.10781 AU
				direct	15543 Oct 09 20:20	11° $\approx$ 01'58	
conjunction	15537 Jan 09 00:21	3° $\approx$ 25'14	1°12'36	evening set	15544 Jan 04 00:17	12° $\approx$ 25'58	
minimum elong	15537 Jan 09 00:19	3° $\approx$ 25'14	1°13'22	max. Earth dist.	15544 Jan 17 06:34	12° $\approx$ 48'12	39.98145 AU
morning rise	15537 Jan 24 20:23	3° $\approx$ 50'35					
retrograde	15537 Apr 22 03:25	5° $\approx$ 11'38		conjunction	15544 Jan 19 09:48	12° $\approx$ 51'49	3°46'01
opposition	15537 Jul 12 16:09	4° $\approx$ 05'09	1°27'34	minimum elong	15544 Jan 19 09:42	12° $\approx$ 51'49	3°46'44
min. Earth dist.	15537 Jul 14 11:06	4° $\approx$ 02'51	39.57127 AU	morning rise	15544 Feb 03 20:05	13° $\approx$ 17'45	
direct	15537 Oct 01 15:13	2° $\approx$ 58'34		retrograde	15544 May 01 20:28	14° $\approx$ 43'53	
evening set	15537 Dec 25 19:54	4° $\approx$ 18'00		opposition	15544 Jul 21 20:15	13° $\approx$ 35'05	4°09'56
max. Earth dist.	15538 Jan 08 15:24	4° $\approx$ 40'13	41.45337 AU	min. Earth dist.	15544 Jul 23 19:15	13° $\approx$ 32'27	37.86051 AU
				direct	15544 Oct 10 12:47	12° $\approx$ 26'01	
conjunction	15538 Jan 10 14:09	4° $\approx$ 43'23	1°33'57	evening set	15545 Jan 04 19:27	13° $\approx$ 50'56	
minimum elong	15538 Jan 10 14:07	4° $\approx$ 43'23	1°34'44	max. Earth dist.	15545 Jan 17 23:51	14° $\approx$ 13'12	39.73324 AU
morning rise	15538 Jan 26 09:34	5° $\approx$ 08'52					
retrograde	15538 Apr 23 17:34	6° $\approx$ 30'32		conjunction	15545 Jan 20 02:38	14° $\approx$ 16'49	4°08'36
opposition	15538 Jul 14 05:19	5° $\approx$ 23'45	1°50'08	minimum elong	15545 Jan 20 02:33	14° $\approx$ 16'48	4°09'18
min. Earth dist.	15538 Jul 16 00:25	5° $\approx$ 21'26	39.33252 AU	morning rise	15545 Feb 04 10:27	14° $\approx$ 42'46	
direct	15538 Oct 03 05:22	4° $\approx$ 16'51			15545 Feb 15 00:45	15° $\approx$	
evening set	15538 Dec 27 11:06	5° $\approx$ 36'57		retrograde	15545 May 03 13:28	16° $\approx$ 09'48	
max. Earth dist.	15539 Jan 10 04:02	5° $\approx$ 59'09	41.21268 AU	opposition	15545 Jul 23 12:13	15° $\approx$ 00'40	4°33'51
					15545 Jul 24 00:11	15° $\kappa$	
conjunction	15539 Jan 12 04:28	6° $\approx$ 02'27	1°55'30	min. Earth dist.	15545 Jul 25 10:29	14° $\approx$ 58'04	37.61317 AU
minimum elong	15539 Jan 12 04:26	6° $\approx$ 02'27	1°56'16	direct	15545 Oct 12 04:47	13° $\approx$ 51'15	
morning rise	15539 Jan 27 23:01	6° $\approx$ 28'03			15545 Dec 27 03:43	15° $\approx$	
retrograde	15539 Apr 25 07:47	7° $\approx$ 50'23		evening set	15546 Jan 06 15:21	15° $\approx$ 17'08	

max. Earth dist.	15546 Jan 19 15:35	15° $\approx$ 39'17	39.48473 AU	min. Earth dist.	15552 Aug 04 21:24	25° $\approx$ 34'30	35.85121 AU
				direct	15552 Oct 22 00:40	24° $\approx$ 25'19	
conjunction	15546 Jan 21 19:45	15° $\approx$ 43'02	4°31'18	evening set	15553 Jan 18 12:39	25° $\approx$ 59'19	
minimum elong	15546 Jan 21 19:39	15° $\approx$ 43'01	4°32'00	max. Earth dist.	15553 Jan 30 04:27	26° $\approx$ 20'22	37.70846 AU
morning rise	15546 Feb 06 00:57	16° $\approx$ 09'00					
retrograde	15546 May 05 08:15	17° $\approx$ 37'00		conjunction	15553 Feb 01 13:29	26° $\approx$ 24'42	7°12'45
opposition	15546 Jul 25 04:50	16° $\approx$ 27'32	4°57'55	minimum elong	15553 Feb 01 13:20	26° $\approx$ 24'41	7°13'19
min. Earth dist.	15546 Jul 27 04:29	16° $\approx$ 24'51	37.36554 AU	morning rise	15553 Feb 15 14:38	26° $\approx$ 50'08	
direct	15546 Oct 13 18:11	15° $\approx$ 17'47		retrograde	15553 May 16 12:15	28° $\approx$ 26'03	
evening set	15547 Jan 08 12:09	16° $\approx$ 44'40		opposition	15553 Aug 04 15:17	27° $\approx$ 14'00	7°49'19
max. Earth dist.	15547 Jan 21 10:04	17° $\approx$ 06'50	39.23560 AU	min. Earth dist.	15553 Aug 06 18:52	27° $\approx$ 10'57	35.59544 AU
				direct	15553 Oct 23 17:43	26° $\approx$ 01'25	
conjunction	15547 Jan 23 13:46	17° $\approx$ 10'34	4°54'07	evening set	15554 Jan 20 15:44	27° $\approx$ 36'46	
minimum elong	15547 Jan 23 13:39	17° $\approx$ 10'33	4°54'48	max. Earth dist.	15554 Feb 01 03:00	27° $\approx$ 57'40	37.45098 AU
morning rise	15547 Feb 07 15:47	17° $\approx$ 36'32					
retrograde	15547 May 07 03:06	19° $\approx$ 05'32		conjunction	15554 Feb 03 11:23	28° $\approx$ 01'59	7°35'57
opposition	15547 Jul 26 21:44	17° $\approx$ 55'45	5°22'07	minimum elong	15554 Feb 03 11:12	28° $\approx$ 01'58	7°36'29
min. Earth dist.	15547 Jul 28 21:19	17° $\approx$ 53'02	37.11705 AU	morning rise	15554 Feb 17 06:56	28° $\approx$ 27'13	
direct	15547 Oct 15 09:31	16° $\approx$ 45'38			15554 Apr 30 15:16	0° $\approx$	
evening set	15548 Jan 10 10:04	18° $\approx$ 13'36		retrograde	15554 May 18 11:24	0° $\approx$ 04'28	
max. Earth dist.	15548 Jan 23 02:57	18° $\approx$ 35'35	38.98526 AU		15554 Jun 05 12:20	30° $\approx$	
				opposition	15554 Aug 06 12:13	28° $\approx$ 52'00	8°13'59
conjunction	15548 Jan 25 08:14	18° $\approx$ 39'28	5°17'03	min. Earth dist.	15554 Aug 08 15:33	28° $\approx$ 48'57	35.34018 AU
minimum elong	15548 Jan 25 08:06	18° $\approx$ 39'27	5°17'42	direct	15554 Oct 25 12:49	27° $\approx$ 38'59	
morning rise	15548 Feb 09 07:05	19° $\approx$ 05'24		evening set	15555 Jan 22 20:09	29° $\approx$ 15'46	
retrograde	15548 May 08 01:48	20° $\approx$ 35'27		max. Earth dist.	15555 Feb 03 00:44	29° $\approx$ 36'21	37.19437 AU
opposition	15548 Jul 27 15:17	19° $\approx$ 25'20	5°46'26				
min. Earth dist.	15548 Jul 29 15:47	19° $\approx$ 22'33	36.86718 AU	conjunction	15555 Feb 05 09:54	29° $\approx$ 40'45	7°59'06
direct	15548 Oct 15 23:41	18° $\approx$ 14'50		minimum elong	15555 Feb 05 09:43	29° $\approx$ 40'45	7°59'38
evening set	15549 Jan 11 08:43	19° $\approx$ 43'56			15555 Feb 15 19:47	0° $\approx$	
max. Earth dist.	15549 Jan 23 21:40	20° $\approx$ 05'49	38.73299 AU	morning rise	15555 Feb 18 23:47	0° $\approx$ 05'47	
				retrograde	15555 May 20 13:15	1° $\approx$ 44'25	
conjunction	15549 Jan 26 03:25	20° $\approx$ 09'45	5°40'04	opposition	15555 Aug 08 09:34	0° $\approx$ 31'33	8°38'35
minimum elong	15549 Jan 26 03:17	20° $\approx$ 09'45	5°40'43	min. Earth dist.	15555 Aug 10 12:56	0° $\approx$ 28'28	35.08625 AU
morning rise	15549 Feb 09 22:26	20° $\approx$ 35'38			15555 Aug 31 00:31	30° $\approx$	
retrograde	15549 May 09 22:06	22° $\approx$ 06'46		direct	15555 Oct 27 07:24	29° $\approx$ 18'04	
opposition	15549 Jul 29 09:28	20° $\approx$ 56'18	6°10'52		15555 Dec 22 02:07	0° $\approx$	
min. Earth dist.	15549 Jul 31 10:55	20° $\approx$ 53'27	36.61533 AU	evening set	15556 Jan 25 01:31	0° $\approx$ 56'22	
direct	15549 Oct 17 16:31	19° $\approx$ 45'25		max. Earth dist.	15556 Feb 05 00:02	1° $\approx$ 16'39	36.93905 AU
evening set	15550 Jan 13 08:21	21° $\approx$ 15'40					
max. Earth dist.	15550 Jan 25 16:40	21° $\approx$ 37'24	38.47892 AU	conjunction	15556 Feb 07 09:13	1° $\approx$ 21'06	8°22'10
				minimum elong	15556 Feb 07 09:01	1° $\approx$ 21'06	8°22'40
conjunction	15550 Jan 27 23:05	21° $\approx$ 41'25	6°03'10	morning rise	15556 Feb 20 16:47	1° $\approx$ 45'53	
minimum elong	15550 Jan 27 22:56	21° $\approx$ 41'25	6°03'47	retrograde	15556 May 21 14:01	3° $\approx$ 25'58	
morning rise	15550 Feb 11 14:11	22° $\approx$ 07'14		opposition	15556 Aug 09 07:47	2° $\approx$ 12'42	9°03'06
retrograde	15550 May 11 19:44	23° $\approx$ 39'29		min. Earth dist.	15556 Aug 11 11:34	2° $\approx$ 09'34	34.83393 AU
opposition	15550 Jul 31 04:04	22° $\approx$ 28'38	6°35'24	direct	15556 Oct 28 04:54	0° $\approx$ 58'48	
min. Earth dist.	15550 Oct 02 05:31	22° $\approx$ 25'46	36.36185 AU	evening set	15557 Jan 26 07:58	2° $\approx$ 38'39	
direct	15550 Oct 19 11:31	21° $\approx$ 17'21		max. Earth dist.	15557 Feb 06 00:19	2° $\approx$ 58'39	36.68566 AU
evening set	15551 Jan 15 08:47	22° $\approx$ 48'48					
max. Earth dist.	15551 Jan 27 11:22	23° $\approx$ 10'17	38.22307 AU	conjunction	15557 Feb 08 09:01	3° $\approx$ 03'07	8°45'07
				minimum elong	15557 Feb 08 08:50	3° $\approx$ 03'06	8°45'37
conjunction	15551 Jan 29 19:16	23° $\approx$ 14'28	6°26'20	morning rise	15557 Feb 21 09:57	3° $\approx$ 27'36	
minimum elong	15551 Jan 29 19:08	23° $\approx$ 14'27	6°26'56	retrograde	15557 May 23 16:52	5° $\approx$ 09'12	
morning rise	15551 Feb 13 06:06	23° $\approx$ 40'10		opposition	15557 Aug 11 06:31	3° $\approx$ 55'32	9°27'30
retrograde	15551 May 13 16:41	25° $\approx$ 13'35		min. Earth dist.	15557 Aug 13 09:24	3° $\approx$ 52'27	34.58374 AU
opposition	15551 Aug 01 23:22	24° $\approx$ 02'21	7°00'00	direct	15557 Oct 30 04:17	2° $\approx$ 41'13	
min. Earth dist.	15551 Aug 04 02:21	23° $\approx$ 59'23	36.10692 AU	evening set	15558 Jan 28 15:33	4° $\approx$ 22'43	
direct	15551 Oct 21 05:46	22° $\approx$ 50'39		max. Earth dist.	15558 Feb 08 00:03	4° $\approx$ 42'18	36.43429 AU
evening set	15552 Jan 17 10:13	24° $\approx$ 23'20					
max. Earth dist.	15552 Jan 29 08:39	24° $\approx$ 44'42	37.96606 AU	conjunction	15558 Feb 10 09:36	4° $\approx$ 46'52	9°07'55
				minimum elong	15558 Feb 10 09:23	4° $\approx$ 46'51	9°08'23
conjunction	15552 Jan 31 16:11	24° $\approx$ 48'53	6°49'32	morning rise	15558 Feb 23 03:32	5° $\approx$ 11'01	
minimum elong	15552 Jan 31 16:01	24° $\approx$ 48'52	6°50'06	retrograde	15558 May 25 19:30	6° $\approx$ 54'14	
morning rise	15552 Feb 14 22:14	25° $\approx$ 14'28		opposition	15558 Aug 13 06:04	5° $\approx$ 40'11	9°51'44
retrograde	15552 May 14 13:23	26° $\approx$ 49'06		min. Earth dist.	15558 Aug 15 09:57	5° $\approx$ 37'01	34.33566 AU
opposition	15552 Aug 02 18:56	25° $\approx$ 37'28	7°24'39	direct	15558 Nov 01 01:39	4° $\approx$ 25'27	

evening set	15559 Jan 31 00:17	6° <del>✕</del> 08'40		opposition	15565 Aug 25 22:59	18° <del>✕</del> 44'44	12°33'51
max. Earth dist.	15559 Feb 10 02:25	6° <del>✕</del> 27'54	36.18488 AU	min. Earth dist.	15565 Aug 28 03:35	18° <del>✕</del> 41'21	32.63816 AU
conjunction	15559 Feb 12 10:59	6° <del>✕</del> 32'27	9°30'32	direct	15565 Nov 13 06:56	17° <del>✕</del> 26'46	
minimum elong	15559 Feb 12 10:47	6° <del>✕</del> 32'26	9°30'59	evening set	15566 Feb 16 01:43	19° <del>✕</del> 23'44	
morning rise	15559 Feb 24 21:19	6° <del>✕</del> 56'14		max. Earth dist.	15566 Feb 23 09:02	19° <del>✕</del> 38'39	34.47578 AU
retrograde	15559 May 27 20:33	8° <del>✕</del> 41'07		conjunction	15566 Feb 25 18:18	19° <del>✕</del> 43'33	12°00'40
opposition	15559 Aug 15 06:13	7° <del>✕</del> 26'42	10°15'46	minimum elong	15566 Feb 25 18:05	19° <del>✕</del> 43'32	12°00'55
min. Earth dist.	15559 Aug 17 09:16	7° <del>✕</del> 23'33	34.08930 AU	morning rise	15566 Mar 07 10:19	20° <del>✕</del> 03'20	
direct	15559 Nov 03 00:58	6° <del>✕</del> 11'33		retrograde	15566 Jun 10 14:51	22° <del>✕</del> 01'30	
evening set	15560 Feb 02 10:28	7° <del>✕</del> 56'32		opposition	15566 Aug 28 04:14	20° <del>✕</del> 44'03	12°55'21
max. Earth dist.	15560 Feb 12 03:14	8° <del>✕</del> 15'14	35.93684 AU	min. Earth dist.	15566 Aug 30 07:31	20° <del>✕</del> 40'44	32.40455 AU
conjunction	15560 Feb 14 13:06	8° <del>✕</del> 19'55	9°52'56	direct	15566 Nov 15 12:28	19° <del>✕</del> 25'36	
minimum elong	15560 Feb 14 12:53	8° <del>✕</del> 19'54	9°53'20	evening set	15567 Feb 18 20:50	21° <del>✕</del> 24'49	
morning rise	15560 Feb 26 15:37	8° <del>✕</del> 43'18		max. Earth dist.	15567 Feb 25 15:47	21° <del>✕</del> 38'49	34.24156 AU
retrograde	15560 May 28 23:53	10° <del>✕</del> 29'54		conjunction	15567 Feb 28 01:45	21° <del>✕</del> 43'49	12°20'22
opposition	15560 Aug 16 07:05	9° <del>✕</del> 15'06	10°39'35	minimum elong	15567 Feb 28 01:32	21° <del>✕</del> 43'48	12°20'35
min. Earth dist.	15560 Aug 18 11:05	9° <del>✕</del> 11'53	33.84424 AU	morning rise	15567 Mar 09 06:16	22° <del>✕</del> 02'47	
direct	15560 Nov 03 21:52	7° <del>✕</del> 59'32		retrograde	15567 Jun 12 23:55	24° <del>✕</del> 03'07	
evening set	15561 Feb 03 21:45	9° <del>✕</del> 46'22		opposition	15567 Aug 30 10:25	22° <del>✕</del> 45'14	13°16'13
max. Earth dist.	15561 Feb 13 06:57	10° <del>✕</del> 04'37	35.68975 AU	min. Earth dist.	15567 Sep 01 14:02	22° <del>✕</del> 41'52	32.17525 AU
conjunction	15561 Feb 15 16:10	10° <del>✕</del> 09'17	10°15'05	direct	15567 Nov 17 15:40	21° <del>✕</del> 26'17	
minimum elong	15561 Feb 15 15:57	10° <del>✕</del> 09'16	10°15'29	evening set	15568 Feb 21 17:26	23° <del>✕</del> 27'50	
morning rise	15561 Feb 27 10:06	10° <del>✕</del> 32'12		max. Earth dist.	15568 Feb 28 01:55	23° <del>✕</del> 41'03	34.01196 AU
retrograde	15561 May 31 03:15	12° <del>✕</del> 20'36		conjunction	15568 Mar 01 10:09	23° <del>✕</del> 45'57	12°39'25
opposition	15561 Aug 18 08:51	11° <del>✕</del> 05'24	11°03'09	minimum elong	15568 Mar 01 09:56	23° <del>✕</del> 45'56	12°39'35
min. Earth dist.	15561 Aug 20 12:45	11° <del>✕</del> 02'09	33.60004 AU	morning rise	15568 Mar 10 02:15	24° <del>✕</del> 04'02	
direct	15561 Nov 05 21:01	9° <del>✕</del> 49'23		retrograde	15568 Jun 14 07:35	26° <del>✕</del> 06'37	
evening set	15562 Feb 06 10:20	11° <del>✕</del> 38'06		opposition	15568 Aug 31 17:16	24° <del>✕</del> 48'18	13°36'24
max. Earth dist.	15562 Feb 15 09:36	11° <del>✕</del> 55'44	35.44364 AU	min. Earth dist.	15568 Sep 02 19:35	24° <del>✕</del> 45'00	31.95087 AU
conjunction	15562 Feb 17 19:42	12° <del>✕</del> 00'31	10°36'57	direct	15568 Nov 18 21:29	23° <del>✕</del> 28'54	
minimum elong	15562 Feb 17 19:29	12° <del>✕</del> 00'30	10°37'18	evening set	15569 Feb 23 15:26	25° <del>✕</del> 32'52	
morning rise	15562 Mar 01 04:49	12° <del>✕</del> 22'56		max. Earth dist.	15569 Mar 01 10:51	25° <del>✕</del> 45'05	33.78781 AU
retrograde	15562 Jun 02 09:51	14° <del>✕</del> 13'10		conjunction	15569 Mar 03 19:09	25° <del>✕</del> 50'01	12°57'46
opposition	15562 Aug 20 11:17	12° <del>✕</del> 57'32	11°26'24	minimum elong	15569 Mar 03 18:57	25° <del>✕</del> 50'00	12°57'56
min. Earth dist.	15562 Aug 22 15:18	12° <del>✕</del> 54'16	33.35694 AU	morning rise	15569 Mar 11 22:28	26° <del>✕</del> 07'09	
direct	15562 Nov 07 20:50	11° <del>✕</del> 41'02		retrograde	15569 Jun 16 18:11	28° <del>✕</del> 12'04	
evening set	15563 Feb 09 00:10	13° <del>✕</del> 31'43		opposition	15569 Sep 03 01:01	26° <del>✕</del> 53'21	13°55'48
max. Earth dist.	15563 Feb 17 14:04	13° <del>✕</del> 48'45	35.19851 AU	min. Earth dist.	15569 Sep 05 02:42	26° <del>✕</del> 50'04	31.73226 AU
conjunction	15563 Feb 20 00:18	13° <del>✕</del> 53'35	10°58'30	direct	15569 Nov 21 02:20	25° <del>✕</del> 33'31	
minimum elong	15563 Feb 20 00:05	13° <del>✕</del> 53'34	10°58'51	evening set	15570 Feb 26 14:45	27° <del>✕</del> 40'00	
morning rise	15563 Mar 02 23:56	14° <del>✕</del> 15'26		max. Earth dist.	15570 Mar 03 22:19	27° <del>✕</del> 51'16	33.56951 AU
retrograde	15563 Jun 04 15:52	16° <del>✕</del> 07'33		conjunction	15570 Mar 06 05:02	27° <del>✕</del> 56'07	13°15'21
opposition	15563 Aug 22 14:26	14° <del>✕</del> 51'28	11°49'19	minimum elong	15570 Mar 06 04:50	27° <del>✕</del> 56'06	13°15'28
min. Earth dist.	15563 Aug 24 19:05	14° <del>✕</del> 48'08	33.11510 AU	morning rise	15570 Mar 13 18:46	28° <del>✕</del> 12'13	
direct	15563 Nov 09 23:49	13° <del>✕</del> 34'30			15570 May 15 01:46	0° <del>∇</del>	
evening set	15564 Feb 11 15:32	15° <del>✕</del> 27'13		retrograde	15570 Jun 19 04:18	0° <del>∇</del> 19'33	
max. Earth dist.	15564 Feb 19 19:35	15° <del>✕</del> 43'35	34.95510 AU		15570 Jul 25 00:23	30° <del>✕</del>	
conjunction	15564 Feb 22 05:37	15° <del>✕</del> 48'27	11°19'41	opposition	15570 Sep 05 09:40	29° <del>✕</del> 00'28	14°14'21
minimum elong	15564 Feb 22 05:23	15° <del>✕</del> 48'26	11°19'59	min. Earth dist.	15570 Sep 07 10:44	28° <del>✕</del> 57'12	31.51947 AU
morning rise	15564 Mar 03 19:16	16° <del>✕</del> 09'41		direct	15570 Nov 23 08:51	27° <del>✕</del> 40'14	
retrograde	15564 Jun 06 00:10	18° <del>✕</del> 03'44		evening set	15571 Mar 01 15:54	29° <del>✕</del> 49'21	
opposition	15564 Aug 23 18:16	16° <del>✕</del> 47'12	12°11'49	max. Earth dist.	15571 Mar 06 09:39	29° <del>✕</del> 59'29	33.35731 AU
min. Earth dist.	15564 Aug 25 22:02	16° <del>✕</del> 43'54	32.87530 AU		15571 Mar 06 15:21	0° <del>∇</del>	
direct	15564 Nov 11 03:56	15° <del>✕</del> 29'44		conjunction	15571 Mar 08 15:47	0° <del>∇</del> 04'20	13°32'05
evening set	15565 Feb 13 07:52	17° <del>✕</del> 24'32		minimum elong	15571 Mar 08 15:36	0° <del>∇</del> 04'19	13°32'11
max. Earth dist.	15565 Feb 21 00:56	17° <del>✕</del> 40'09	34.71385 AU	morning rise	15571 Mar 15 15:16	0° <del>∇</del> 19'18	
conjunction	15565 Feb 23 11:30	17° <del>✕</del> 45'06	11°40'25	retrograde	15571 Jun 21 17:52	2° <del>∇</del> 29'09	
minimum elong	15565 Feb 23 11:17	17° <del>✕</del> 45'05	11°40'43	opposition	15571 Sep 07 18:50	1° <del>∇</del> 09'43	14°32'00
morning rise	15565 Mar 05 14:44	18° <del>✕</del> 05'38		min. Earth dist.	15571 Sep 09 18:41	1° <del>∇</del> 06'32	31.31262 AU
retrograde	15565 Jun 08 06:52	20° <del>✕</del> 01'43			15571 Oct 30 07:36	30° <del>✕</del>	
				direct	15571 Nov 25 16:28	29° <del>✕</del> 49'06	

	15571 Dec 21 20:19	0°♊		min. Earth dist.	15578 Sep 25 05:09	17°♊08'15	30.02026 AU
evening set	15572 Mar 03 18:37	2°♊00'56		direct	15578 Dec 11 01:27	15°♊47'56	
max. Earth dist.	15572 Mar 07 22:02	2°♊09'53	33.15075 AU	max. Earth dist.	15579 Mar 25 13:24	18°♊18'34	31.86667 AU
conjunction	15572 Mar 10 03:31	2°♊14'42	13°47'56	conjunction	15579 Mar 27 11:07	18°♊22'56	15°08'46
minimum elong	15572 Mar 10 03:20	2°♊14'42	13°47'59	minimum elong	15579 Mar 27 11:05	18°♊22'55	15°08'35
morning rise	15572 Mar 16 11:59	2°♊28'28		retrograde	15579 Jul 10 20:12	20°♊57'35	
retrograde	15572 Jun 23 07:05	4°♊40'55		opposition	15579 Sep 26 02:19	19°♊35'30	16°12'29
opposition	15572 Sep 09 05:09	3°♊21'09	14°48'40	min. Earth dist.	15579 Sep 27 19:31	19°♊32'38	29.86245 AU
min. Earth dist.	15572 Sep 11 05:08	3°♊17'56	31.11122 AU	direct	15579 Dec 13 15:12	18°♊11'54	
direct	15572 Nov 27 01:37	2°♊00'09		max. Earth dist.	15580 Mar 27 08:00	20°♊43'44	31.71214 AU
evening set	15573 Mar 06 23:09	4°♊14'48					
max. Earth dist.	15573 Mar 10 11:44	4°♊22'29	32.94974 AU	conjunction	15580 Mar 29 04:34	20°♊48'01	15°15'10
				minimum elong	15580 Mar 29 04:33	20°♊48'01	15°14'56
conjunction	15573 Mar 12 15:54	4°♊27'14	14°02'50	retrograde	15580 Jul 12 14:07	23°♊23'40	
minimum elong	15573 Mar 12 15:45	4°♊27'13	14°02'52	opposition	15580 Sep 27 18:23	22°♊01'17	16°18'48
morning rise	15573 Mar 18 08:16	4°♊39'39		min. Earth dist.	15580 Sep 29 09:21	21°♊58'33	29.71359 AU
retrograde	15573 Jun 25 22:24	6°♊54'48		direct	15580 Dec 15 06:26	20°♊37'22	
opposition	15573 Sep 11 16:10	5°♊34'42	15°04'19	max. Earth dist.	15581 Mar 30 04:16	23°♊10'27	31.56698 AU
min. Earth dist.	15573 Sep 13 14:31	5°♊31'34	30.91508 AU				
direct	15573 Nov 29 13:13	4°♊13'20		conjunction	15581 Mar 31 22:34	23°♊14'32	15°20'02
evening set	15574 Mar 10 05:39	6°♊30'54		minimum elong	15581 Mar 31 22:35	23°♊14'32	15°19'47
max. Earth dist.	15574 Mar 13 01:04	6°♊37'05	32.75394 AU	retrograde	15581 Jul 15 06:45	25°♊51'07	
				opposition	15581 Sep 30 11:14	24°♊28'28	16°23'28
conjunction	15574 Mar 15 05:16	6°♊41'52	14°16'44	min. Earth dist.	15581 Oct 02 01:10	24°♊25'49	29.57424 AU
minimum elong	15574 Mar 15 05:07	6°♊41'51	14°16'43	direct	15581 Dec 17 22:53	23°♊04'17	
morning rise	15574 Mar 20 04:32	6°♊52'48		max. Earth dist.	15582 Apr 02 00:57	25°♊38'33	31.43209 AU
retrograde	15574 Jun 28 12:38	9°♊10'45					
opposition	15574 Sep 14 04:04	7°♊50'18	15°18'51	conjunction	15582 Apr 03 17:12	25°♊42'27	15°23'20
min. Earth dist.	15574 Sep 16 02:46	7°♊47'08	30.72417 AU	minimum elong	15582 Apr 03 17:14	25°♊42'27	15°23'02
direct	15574 Dec 01 22:52	6°♊28'34		retrograde	15582 Jul 18 02:35	28°♊19'54	
evening set	15575 Mar 13 14:47	8°♊49'10		opposition	15582 Oct 03 04:22	26°♊57'02	16°26'23
max. Earth dist.	15575 Mar 15 17:04	8°♊53'49	32.56365 AU	min. Earth dist.	15582 Oct 04 15:28	26°♊54'34	29.44499 AU
				direct	15582 Dec 20 16:34	25°♊32'37	
conjunction	15575 Mar 17 19:30	8°♊58'30	14°29'34	max. Earth dist.	15583 Apr 04 22:00	28°♊07'59	31.30751 AU
minimum elong	15575 Mar 17 19:23	8°♊58'29	14°29'31				
morning rise	15575 Mar 21 23:55	9°♊07'47		conjunction	15583 Apr 06 12:28	28°♊11'44	15°25'00
retrograde	15575 Jul 01 04:32	11°♊28'38		minimum elong	15583 Apr 06 12:33	28°♊11'44	15°24'41
opposition	15575 Sep 16 16:41	10°♊07'52	15°32'15		15583 May 27 06:25	0°♊	
min. Earth dist.	15575 Sep 18 13:46	10°♊04'47	30.53863 AU	retrograde	15583 Jul 20 21:23	0°♊49'59	
direct	15575 Dec 04 11:46	8°♊45'45			15583 Sep 15 20:17	30°♊	
evening set	15576 Mar 16 02:51	11°♊09'36		opposition	15583 Oct 05 22:20	29°♊26'58	16°27'31
max. Earth dist.	15576 Mar 17 07:41	11°♊12'18	32.37908 AU	min. Earth dist.	15583 Oct 07 08:40	29°♊24'32	29.32583 AU
				direct	15583 Dec 23 08:58	28°♊02'21	
conjunction	15576 Mar 19 10:21	11°♊17'01	14°41'15		15584 Mar 21 02:28	0°♊	
minimum elong	15576 Mar 19 10:14	11°♊17'01	14°41'10	max. Earth dist.	15584 Apr 06 20:24	0°♊38'50	31.19330 AU
morning rise	15576 Mar 22 17:36	11°♊24'24					
retrograde	15576 Jul 02 21:02	13°♊48'23		conjunction	15584 Apr 08 08:09	0°♊42'20	15°25'00
opposition	15576 Sep 18 06:04	12°♊27'16	15°44'23	minimum elong	15584 Apr 08 08:14	0°♊42'21	15°24'37
min. Earth dist.	15576 Sep 20 02:55	12°♊24'11	30.35906 AU	retrograde	15584 Jul 22 18:12	3°♊21'19	
direct	15576 Dec 05 22:41	11°♊04'46		opposition	15584 Oct 07 16:39	1°♊58'09	16°26'52
evening set	15577 Mar 19 20:51	13°♊32'20		min. Earth dist.	15584 Oct 09 00:17	1°♊55'55	29.21649 AU
max. Earth dist.	15577 Mar 20 01:34	13°♊32'47	32.20093 AU	direct	15584 Dec 25 05:00	0°♊33'24	
				max. Earth dist.	15585 Apr 09 17:46	3°♊10'47	31.08897 AU
conjunction	15577 Mar 22 02:01	13°♊37'20	14°51'44				
minimum elong	15577 Mar 22 01:55	13°♊37'20	14°51'38	conjunction	15585 Apr 11 04:18	3°♊14'10	15°23'18
morning rise	15577 Mar 24 06:59	13°♊42'19		minimum elong	15585 Apr 11 04:27	3°♊14'11	15°22'54
retrograde	15577 Jul 05 11:24	16°♊09'51		retrograde	15585 Jul 25 14:26	5°♊53'49	
opposition	15577 Sep 20 20:09	14°♊48'24	15°55'12	opposition	15585 Oct 10 11:35	4°♊30'32	16°24'22
min. Earth dist.	15577 Sep 22 15:32	14°♊45'25	30.18598 AU	min. Earth dist.	15585 Oct 11 18:22	4°♊28'21	29.11675 AU
direct	15577 Dec 08 12:25	13°♊25'32		direct	15585 Dec 27 23:03	3°♊05'38	
max. Earth dist.	15578 Mar 22 18:01	15°♊54'47	32.02993 AU	max. Earth dist.	15586 Apr 12 17:16	5°♊43'59	30.99435 AU
conjunction	15578 Mar 24 18:05	15°♊59'20	15°00'56	conjunction	15586 Apr 14 00:57	5°♊47'06	15°19'55
minimum elong	15578 Mar 24 18:01	15°♊59'20	15°00'46	minimum elong	15586 Apr 14 01:05	5°♊47'07	15°19'28
retrograde	15578 Jul 08 04:12	18°♊32'58		retrograde	15586 Jul 28 11:08	8°♊27'17	
opposition	15578 Sep 23 10:56	17°♊11'11	16°04'35	opposition	15586 Oct 13 06:56	7°♊03'55	16°20'03

min. Earth dist.	15586 Oct 14 11:21	7°801'54	29.02612 AU	retrograde	15593 Aug 15 08:20	26°833'57	
direct	15586 Dec 30 19:27	5°838'53		opposition	15593 Oct 31 04:26	25°810'19	14°57'48
				min. Earth dist.	15593 Oct 31 18:17	25°809'20	28.66474 AU
conjunction	15587 Apr 16 21:54	8°820'57	15°14'49	direct	15594 Jan 17 19:50	23°844'55	
minimum elong	15587 Apr 16 22:06	8°820'58	15°14'20	evening set	15594 Apr 28 22:18	26°813'12	
max. Earth dist.	15587 Apr 15 15:02	8°817'54	30.90907 AU				
retrograde	15587 Jul 31 09:00	11°801'35		conjunction	15594 May 05 03:10	26°828'01	13°51'00
opposition	15587 Oct 16 02:36	9°838'07	16°13'53	minimum elong	15594 May 05 03:31	26°828'03	13°50'19
min. Earth dist.	15587 Oct 17 05:41	9°836'12	28.94470 AU	max. Earth dist.	15594 May 04 13:29	26°826'39	30.59741 AU
direct	15588 Jan 02 14:34	8°812'59		morning rise	15594 May 11 08:27	26°842'53	
				retrograde	15594 Aug 18 02:40	29°808'52	
conjunction	15588 Apr 18 19:15	10°855'32	15°08'00	opposition	15594 Nov 03 00:52	27°845'18	14°38'43
minimum elong	15588 Apr 18 19:27	10°855'34	15°07'29	min. Earth dist.	15594 Nov 03 13:11	27°844'26	28.65755 AU
max. Earth dist.	15588 Apr 17 15:28	10°852'47	30.83332 AU	direct	15595 Jan 20 15:29	26°819'59	
retrograde	15588 Aug 02 04:33	13°836'30		evening set	15595 May 01 01:35	28°846'17	
opposition	15588 Oct 17 22:42	12°812'58	16°05'51				
min. Earth dist.	15588 Oct 18 23:54	12°811'11	28.87249 AU	conjunction	15595 May 08 00:05	29°802'49	13°32'17
direct	15589 Jan 04 11:12	10°847'46		minimum elong	15595 May 08 00:28	29°802'51	13°31'34
evening set	15589 Apr 20 21:41	13°828'47		max. Earth dist.	15595 May 07 13:18	29°801'45	30.59919 AU
				morning rise	15595 May 14 22:59	29°819'25	
conjunction	15589 Apr 21 16:26	13°830'39	14°59'27		15595 Jun 01 10:36	0°II	
minimum elong	15589 Apr 21 16:41	13°830'41	14°58'55	retrograde	15595 Aug 20 22:23	1°II43'21	
max. Earth dist.	15589 Apr 20 13:45	13°828'00	30.76728 AU	opposition	15595 Nov 05 20:59	0°II19'54	14°17'53
morning rise	15589 Apr 22 11:43	13°832'35		min. Earth dist.	15595 Nov 06 05:48	0°II19'16	28.66254 AU
	15589 May 31 05:32	15°8			15595 Nov 17 16:40	30°R8	
retrograde	15589 Aug 05 01:37	16°811'52		direct	15596 Jan 23 14:40	28°854'42	
	15589 Oct 13 21:28	15°R8			15596 Mar 27 03:42	0°II	
opposition	15589 Oct 20 18:55	14°848'16	15°55'57	evening set	15596 May 02 05:19	1°II19'01	
min. Earth dist.	15589 Oct 21 18:01	14°846'38	28.80997 AU				
direct	15590 Jan 07 07:34	13°822'59		conjunction	15596 May 09 20:45	1°II37'12	13°12'00
	15590 Mar 27 02:21	15°8		minimum elong	15596 May 09 21:07	1°II37'14	13°11'16
evening set	15590 Apr 22 00:46	16°800'02		max. Earth dist.	15596 May 09 12:21	1°II36'22	30.61317 AU
				morning rise	15596 May 17 12:32	1°II55'26	
conjunction	15590 Apr 24 14:02	16°806'08	14°49'11	retrograde	15596 Aug 22 17:27	4°II17'19	
minimum elong	15590 Apr 24 14:17	16°806'10	14°48'37	opposition	15596 Nov 07 17:07	2°II54'01	13°55'23
max. Earth dist.	15590 Apr 23 14:31	16°803'48	30.71124 AU	min. Earth dist.	15596 Nov 08 00:11	2°II53'31	28.67957 AU
morning rise	15590 Apr 27 03:46	16°812'17		direct	15597 Jan 25 11:24	1°II28'59	
retrograde	15590 Aug 07 20:53	18°847'27		evening set	15597 May 04 09:39	3°II51'20	
opposition	15590 Oct 23 15:13	17°823'50	15°44'12				
min. Earth dist.	15590 Oct 24 12:53	17°822'17	28.75730 AU	conjunction	15597 May 12 17:03	4°II11'03	12°50'13
direct	15591 Jan 10 04:04	15°858'28		minimum elong	15597 May 12 17:27	4°II11'05	12°49'27
evening set	15591 Apr 23 19:59	18°833'02		max. Earth dist.	15597 May 12 11:54	4°II10'32	30.63906 AU
				morning rise	15597 May 21 00:40	4°II30'49	
conjunction	15591 Apr 27 11:30	18°841'46	14°37'12	retrograde	15597 Aug 25 12:33	6°II50'41	
minimum elong	15591 Apr 27 11:48	18°841'48	14°36'36	opposition	15597 Nov 10 12:55	5°II27'34	13°31'18
max. Earth dist.	15591 Apr 26 13:25	18°839'34	30.66570 AU	min. Earth dist.	15597 Nov 10 17:09	5°II27'16	28.70783 AU
morning rise	15591 May 01 03:35	18°850'33		direct	15598 Jan 28 09:25	4°II02'42	
retrograde	15591 Aug 10 17:58	21°823'07		evening set	15598 May 06 14:29	6°II23'05	
opposition	15591 Oct 26 11:36	19°859'28	15°30'35				
min. Earth dist.	15591 Oct 27 06:21	19°858'08	28.71518 AU	conjunction	15598 May 15 13:08	6°II44'15	12°27'01
direct	15592 Jan 13 00:34	18°834'03		minimum elong	15598 May 15 13:31	6°II44'17	12°26'15
evening set	15592 Apr 24 19:00	21°806'26		max. Earth dist.	15598 May 15 09:34	6°II43'54	30.67596 AU
				morning rise	15598 May 24 12:03	7°II05'27	
conjunction	15592 Apr 29 08:52	21°817'23	14°23'29	retrograde	15598 Aug 28 08:16	9°II23'18	
minimum elong	15592 Apr 29 09:10	21°817'25	14°22'52	opposition	15598 Nov 13 08:25	8°II00'21	13°05'45
max. Earth dist.	15592 Apr 28 13:57	21°815'30	30.63106 AU	min. Earth dist.	15598 Nov 13 10:45	8°II00'12	28.74691 AU
morning rise	15592 May 03 23:11	21°828'24		direct	15599 Jan 31 06:07	6°II35'41	
retrograde	15592 Aug 12 11:39	23°858'40		evening set	15599 May 08 19:49	8°II54'06	
opposition	15592 Oct 28 08:08	22°835'00	15°15'06				
min. Earth dist.	15592 Oct 29 01:28	22°833'46	28.68406 AU	conjunction	15599 May 18 08:59	9°II16'37	12°02'30
direct	15593 Jan 14 21:48	21°809'36		minimum elong	15599 May 18 09:23	9°II16'40	12°01'43
evening set	15593 Apr 26 20:07	23°839'53		max. Earth dist.	15599 May 18 08:45	9°II16'36	30.72344 AU
				morning rise	15599 May 27 22:08	9°II39'09	
conjunction	15593 May 02 06:04	23°852'51	14°08'05	retrograde	15599 Aug 31 02:01	11°II55'00	
minimum elong	15593 May 02 06:24	23°852'53	14°07'25	opposition	15599 Nov 16 03:45	10°II32'15	12°38'50
max. Earth dist.	15593 May 01 13:25	23°851'11	30.60818 AU	min. Earth dist.	15599 Nov 16 04:02	10°II32'14	28.79607 AU
morning rise	15593 May 07 16:31	24°805'51		direct	15600 Feb 03 04:36	9°II07'48	

evening set	15600 May 10 01:18	11°II24'15	
conjunction	15600 May 20 04:06	11°II48'01	11°36'46
minimum elong	15600 May 20 04:29	11°II48'03	11°35'58
max. Earth dist.	15600 May 20 05:07	11°II48'07	30.78094 AU
morning rise	15600 May 30 07:01	12°II11'47	
retrograde	15600 Sep 01 20:05	14°II25'39	
opposition	15600 Nov 17 22:40	13°II03'06	12°10'37
min. Earth dist.	15600 Nov 17 20:25	13°II03'15	28.85521 AU
direct	15601 Feb 05 00:43	11°II38'50	
evening set	15601 May 12 07:04	13°II53'20	
conjunction	15601 May 22 22:59	14°II18'16	11°09'53
minimum elong	15601 May 22 23:23	14°II18'18	11°09'03
max. Earth dist.	15601 May 23 03:21	14°II18'41	30.84823 AU
morning rise	15601 Jun 02 14:41	14°II43'11	
retrograde	15601 Sep 04 12:21	16°II55'03	
opposition	15601 Nov 20 17:07	15°II32'43	11°41'14
min. Earth dist.	15601 Nov 20 13:25	15°II32'59	28.92390 AU