

	100 Jan 17 j 13:14	30°R♄		max. Earth dist.	106 Jun 24 j 10:08	1°♁02'01	19.68778 AU
direct	100 Feb 07 j 22:54	29°♁47'54					
	100 Feb 29 j 08:08	0°♁		conjunction	106 Jun 25 j 10:02	1°♁05'39	0°19'43
				minimum elong	106 Jun 25 j 10:01	1°♁05'39	0°19'42
conjunction	100 May 27 j 12:56	4°♁01'01	0°00'-21	retrograde	106 Oct 12 j 22:43	5°♁25'41	
minimum elong	100 May 27 j 12:56	4°♁01'01	0°00'21	opposition	106 Dec 25 j 20:42	3°♁23'20	0°23'38
behind sun begin	100 May 27 j 06:11	4°♁00'02		min. Earth dist.	106 Dec 26 j 16:26	3°♁21'11	17.65994 AU
behind sun end	100 May 27 j 19:41	4°♁01'59		direct	107 Mar 11 j 03:54	1°♁18'49	
max. Earth dist.	100 May 27 j 00:21	3°♁59'09	20.05240 AU	max. Earth dist.	107 Jun 29 j 11:46	5°♁38'45	19.63246 AU
asc. node	100 Jul 04 j 06:41	6°♁10'13					
retrograde	100 Sep 15 j 00:59	8°♁16'40		conjunction	107 Jun 30 j 11:50	5°♁42'26	0°22'48
opposition	100 Nov 28 j 19:06	6°♁14'35	0°01'30	minimum elong	107 Jun 30 j 11:50	5°♁42'26	0°22'48
min. Earth dist.	100 Nov 29 j 05:44	6°♁13'26	18.02063 AU	retrograde	107 Oct 17 j 19:56	10°♁03'00	
direct	101 Feb 11 j 14:18	4°♁12'12		opposition	107 Dec 30 j 15:32	8°♁00'35	0°27'01
				min. Earth dist.	107 Dec 31 j 12:32	7°♁58'18	17.60607 AU
conjunction	101 Jun 01 j 10:35	8°♁26'55	0°03'07	direct	108 Mar 15 j 01:09	5°♁55'43	
minimum elong	101 Jun 01 j 10:35	8°♁26'55	0°03'07	max. Earth dist.	108 Jul 03 j 11:40	10°♁16'34	19.58025 AU
behind sun begin	101 Jun 01 j 03:49	8°♁25'56					
behind sun end	101 Jun 01 j 17:20	8°♁27'54		conjunction	108 Jul 04 j 13:58	10°♁20'36	0°25'45
max. Earth dist.	101 May 31 j 20:23	8°♁24'48	19.98935 AU	minimum elong	108 Jul 04 j 13:58	10°♁20'36	0°25'46
retrograde	101 Sep 19 j 18:43	12°♁43'23		retrograde	108 Oct 21 j 17:58	14°♁41'40	
opposition	101 Dec 03 j 09:34	10°♁41'18	0°05'17	opposition	109 Jan 03 j 10:53	12°♁39'11	0°30'14
min. Earth dist.	101 Dec 03 j 22:37	10°♁39'53	17.95807 AU	min. Earth dist.	109 Jan 04 j 08:41	12°♁36'48	17.55580 AU
direct	102 Feb 16 j 05:05	8°♁38'36		direct	109 Mar 19 j 23:23	10°♁33'57	
conjunction	102 Jun 06 j 08:50	12°♁54'53	0°06'31	conjunction	109 Jul 09 j 16:36	15°♁00'02	0°28'33
minimum elong	102 Jun 06 j 08:49	12°♁54'53	0°06'31	minimum elong	109 Jul 09 j 16:36	15°♁00'02	0°28'32
behind sun begin	102 Jun 06 j 02:28	12°♁53'57		max. Earth dist.	109 Jul 08 j 14:44	14°♁56'03	19.53189 AU
behind sun end	102 Jun 06 j 15:11	12°♁55'48		retrograde	109 Oct 26 j 16:32	19°♁21'32	
max. Earth dist.	102 Jun 05 j 16:23	12°♁52'25	19.92722 AU	opposition	110 Jan 08 j 07:05	17°♁19'00	0°33'15
retrograde	102 Sep 24 j 14:33	17°♁12'10		min. Earth dist.	110 Jan 09 j 05:20	17°♁16'34	17.50965 AU
opposition	102 Dec 08 j 00:41	15°♁10'03	0°09'03	direct	110 Mar 24 j 21:52	15°♁13'28	
min. Earth dist.	102 Dec 08 j 14:32	15°♁08'33	17.89635 AU				
direct	103 Feb 20 j 22:16	13°♁07'01		conjunction	110 Jul 14 j 19:11	19°♁40'38	0°31'09
				minimum elong	110 Jul 14 j 19:11	19°♁40'38	0°31'10
conjunction	103 Jun 11 j 08:10	17°♁24'52	0°09'53	max. Earth dist.	110 Jul 13 j 15:45	19°♁36'23	19.48809 AU
minimum elong	103 Jun 11 j 08:10	17°♁24'52	0°09'53	retrograde	110 Oct 31 j 15:22	24°♁02'33	
behind sun begin	103 Jun 11 j 02:42	17°♁24'04		opposition	111 Jan 13 j 03:53	21°♁59'58	0°36'04
behind sun end	103 Jun 11 j 13:37	17°♁25'40		min. Earth dist.	111 Jan 14 j 02:46	21°♁57'28	17.46850 AU
max. Earth dist.	103 Jun 10 j 14:21	17°♁22'11	19.86571 AU	direct	111 Mar 29 j 20:35	19°♁54'09	
retrograde	103 Sep 29 j 09:36	21°♁42'54					
opposition	103 Dec 12 j 16:36	19°♁40'45	0°12'49	conjunction	111 Jul 19 j 22:23	24°♁22'21	0°33'35
min. Earth dist.	103 Dec 13 j 08:45	19°♁39'00	17.83528 AU	minimum elong	111 Jul 19 j 22:23	24°♁22'21	0°33'34
direct	104 Feb 25 j 15:40	17°♁37'22		max. Earth dist.	111 Jul 18 j 19:43	24°♁18'12	19.44952 AU
max. Earth dist.	104 Jun 14 j 11:40	21°♁53'38	19.80510 AU	retrograde	111 Nov 05 j 14:54	28°♁44'34	
				opposition	112 Jan 18 j 01:14	26°♁42'00	0°38'39
conjunction	104 Jun 15 j 08:11	21°♁56'44	0°13'14	min. Earth dist.	112 Jan 18 j 23:55	26°♁39'31	17.43265 AU
minimum elong	104 Jun 15 j 08:10	21°♁56'44	0°13'13	direct	112 Apr 02 j 20:41	24°♁35'59	
behind sun begin	104 Jun 15 j 04:22	21°♁56'11		max. Earth dist.	112 Jul 22 j 22:01	29°♁00'47	19.41650 AU
behind sun end	104 Jun 15 j 11:59	21°♁57'18					
retrograde	104 Oct 03 j 05:44	26°♁15'30		conjunction	112 Jul 24 j 01:44	29°♁05'06	0°35'47
opposition	104 Dec 16 j 09:15	24°♁13'17	0°16'30	minimum elong	112 Jul 24 j 01:44	29°♁05'06	0°35'46
min. Earth dist.	104 Dec 17 j 02:19	24°♁11'26	17.77521 AU		112 Aug 07 j 20:38	0°♁	
direct	105 Mar 01 j 11:00	22°♁09'32		retrograde	112 Nov 09 j 13:46	3°♁27'37	
max. Earth dist.	105 Jun 19 j 11:31	26°♁27'08	19.74552 AU	opposition	113 Jan 21 j 23:24	1°♁25'06	0°40'59
				min. Earth dist.	113 Jan 22 j 22:42	1°♁22'33	17.40265 AU
conjunction	105 Jun 20 j 08:53	26°♁30'23	0°16'31		113 Feb 26 j 14:22	30°R♁	
minimum elong	105 Jun 20 j 08:53	26°♁30'23	0°16'31	direct	113 Apr 07 j 20:00	29°♁18'55	
	105 Aug 25 j 15:36	0°♁			113 May 17 j 13:20	0°♁	
retrograde	105 Oct 08 j 01:47	0°♁49'47		max. Earth dist.	113 Jul 28 j 02:22	3°♁44'41	19.38937 AU
	105 Nov 21 j 07:36	30°R♁					
opposition	105 Dec 21 j 02:42	28°♁47'31	0°20'08	conjunction	113 Jul 29 j 05:11	3°♁48'52	0°37'45
min. Earth dist.	105 Dec 21 j 21:35	28°♁45'28	17.71645 AU	minimum elong	113 Jul 29 j 05:11	3°♁48'52	0°37'45
direct	106 Mar 06 j 06:43	26°♁43'24		retrograde	113 Nov 14 j 14:14	8°♁11'37	
	106 Jun 07 j 07:22	0°♁		opposition	114 Jan 26 j 22:06	6°♁09'11	0°43'04

min. Earth dist.	114 Jan 27 j 20:42	6°♁06'42	17.37831 AU	minimum elong	121 Sep 06 j 06:12	11°♃57'35	0°43'36
direct	114 Apr 12 j 22:10	4°♁02'56		retrograde	121 Dec 22 j 12:50	16°♃19'32	
max. Earth dist.	114 Aug 02 j 05:38	8°♁29'20	19.36784 AU	opposition	122 Mar 06 j 04:42	14°♃17'48	0°48'20
conjunction	114 Aug 03 j 08:48	8°♁33'35	0°39'29	min. Earth dist.	122 Mar 06 j 23:45	14°♃15'45	17.36257 AU
minimum elong	114 Aug 03 j 08:48	8°♁33'35	0°39'28	direct	122 May 22 j 00:32	12°♃11'43	
retrograde	114 Nov 19 j 12:58	12°♁56'30		max. Earth dist.	122 Sep 10 j 11:03	16°♃39'33	19.37142 AU
opposition	115 Jan 31 j 21:23	10°♁54'10	0°44'51	conjunction	122 Sep 11 j 07:34	16°♃42'47	0°43'00
min. Earth dist.	115 Feb 01 j 20:47	10°♁51'36	17.35962 AU	minimum elong	122 Sep 11 j 07:34	16°♃42'47	0°43'00
direct	115 Apr 17 j 22:37	8°♁47'51		retrograde	122 Dec 27 j 11:42	21°♃04'15	
max. Earth dist.	115 Aug 07 j 09:53	13°♁14'56	19.35177 AU	opposition	123 Mar 11 j 06:22	19°♃02'36	0°47'28
conjunction	115 Aug 08 j 12:32	13°♁19'06	0°40'56	min. Earth dist.	123 Mar 12 j 00:54	19°♃00'36	17.38230 AU
minimum elong	115 Aug 08 j 12:32	13°♁19'06	0°40'57	direct	123 May 27 j 03:32	16°♃56'37	
retrograde	115 Sep 04 j 23:16	15°♁		conjunction	123 Sep 16 j 08:04	21°♃27'04	0°42'05
opposition	115 Nov 24 j 14:01	17°♁42'07		minimum elong	123 Sep 16 j 08:04	21°♃27'04	0°42'06
min. Earth dist.	116 Feb 05 j 21:14	15°♁39'54	0°46'20	max. Earth dist.	123 Sep 15 j 12:03	21°♃23'55	19.39393 AU
direct	116 Feb 06 j 19:42	15°♁37'27	17.34599 AU	retrograde	124 Jan 01 j 11:02	25°♃48'03	
conjunction	116 Feb 21 j 09:29	15°♁		opposition	124 Mar 15 j 08:03	23°♃46'27	0°46'18
minimum elong	116 Apr 22 j 02:32	13°♁33'35		min. Earth dist.	124 Mar 16 j 00:32	23°♃44'40	17.40758 AU
retrograde	116 Jun 19 j 16:00	15°♁		direct	124 May 31 j 06:33	21°♃40'37	
opposition	116 Aug 12 j 16:14	18°♁05'15	0°42'08	conjunction	124 Sep 20 j 07:53	26°♃10'20	0°40'54
minimum elong	116 Aug 12 j 16:14	18°♁05'15	0°42'08	minimum elong	124 Sep 20 j 07:53	26°♃10'20	0°40'54
max. Earth dist.	116 Aug 11 j 13:50	18°♁01'07	19.34050 AU	max. Earth dist.	124 Sep 19 j 14:56	26°♃07'40	19.42202 AU
retrograde	116 Nov 28 j 12:51	22°♁28'18		retrograde	124 Dec 03 j 01:42	0°♁	
opposition	117 Feb 09 j 21:46	20°♁26'11	0°47'31	retrograde	125 Jan 05 j 09:43	3°♁30'45	
min. Earth dist.	117 Feb 10 j 21:00	20°♁23'39	17.33720 AU	opposition	125 Feb 08 j 12:46	30°♁	
direct	117 Apr 27 j 04:15	18°♁19'52		opposition	125 Mar 20 j 09:47	28°♃29'15	0°44'49
conjunction	117 Aug 17 j 19:45	22°♁51'49	0°43'02	min. Earth dist.	125 Mar 21 j 00:52	28°♃27'38	17.43843 AU
minimum elong	117 Aug 17 j 19:45	22°♁51'49	0°43'02	direct	125 Jun 05 j 10:03	26°♃23'39	
max. Earth dist.	117 Aug 16 j 17:33	22°♁47'42	19.33409 AU	direct	125 Sep 11 j 07:19	0°♁	
retrograde	117 Dec 03 j 14:09	27°♁14'48		conjunction	125 Sep 25 j 06:52	0°♁52'30	0°39'27
opposition	118 Feb 14 j 22:36	25°♁12'47	0°48'21	minimum elong	125 Sep 25 j 06:52	0°♁52'30	0°39'27
min. Earth dist.	118 Feb 15 j 20:29	25°♁10'24	17.33306 AU	max. Earth dist.	125 Sep 24 j 14:50	0°♁49'59	19.45581 AU
direct	118 May 02 j 09:22	23°♁06'29		retrograde	126 Jan 10 j 07:32	5°♁12'21	
conjunction	118 Aug 22 j 23:00	27°♁38'34	0°43'38	opposition	126 Mar 25 j 11:09	3°♁10'57	0°43'03
minimum elong	118 Aug 22 j 23:00	27°♁38'34	0°43'38	min. Earth dist.	126 Mar 26 j 00:13	3°♁09'33	17.47506 AU
max. Earth dist.	118 Aug 21 j 21:51	27°♁34'37	19.33217 AU	direct	126 Jun 10 j 12:19	1°♁05'37	
retrograde	118 Oct 01 j 06:55	0°♃		conjunction	126 Sep 30 j 05:12	5°♁33'32	0°37'44
opposition	118 Dec 08 j 12:51	2°♃01'24		minimum elong	126 Sep 30 j 05:12	5°♁33'32	0°37'44
min. Earth dist.	119 Feb 19 j 23:54	29°♁59'29	0°48'52	max. Earth dist.	126 Sep 29 j 16:12	5°♁31'30	19.49517 AU
direct	119 Feb 19 j 19:07	30°♁		retrograde	127 Jan 15 j 05:27	9°♁52'45	
conjunction	119 Feb 20 j 22:21	29°♁57'03	17.33343 AU	opposition	127 Mar 30 j 12:27	7°♁51'31	0°41'00
minimum elong	119 May 07 j 11:52	27°♁53'12		min. Earth dist.	127 Mar 30 j 23:41	7°♁50'19	17.51677 AU
retrograde	119 Jul 18 j 14:09	0°♃		direct	127 Jun 15 j 15:57	5°♁46'31	
opposition	119 Aug 27 j 00:47	2°♃21'19	19.33487 AU	conjunction	127 Oct 05 j 02:41	10°♁13'24	0°35'48
min. Earth dist.	119 Aug 28 j 01:55	2°♃25'16	0°43'56	minimum elong	127 Oct 05 j 02:41	10°♁13'24	0°35'47
direct	119 Aug 28 j 01:55	2°♃25'16	0°43'55	max. Earth dist.	127 Oct 04 j 14:50	10°♁11'33	19.53935 AU
retrograde	119 Dec 13 j 13:46	6°♃47'52		retrograde	128 Jan 20 j 02:01	14°♁31'58	
opposition	120 Feb 25 j 01:13	4°♃46'02	0°49'01	opposition	128 Apr 03 j 13:30	12°♁30'54	0°38'42
min. Earth dist.	120 Feb 25 j 22:05	4°♃43'46	17.33835 AU	min. Earth dist.	128 Apr 03 j 23:06	12°♁29'53	17.56318 AU
direct	120 May 11 j 17:13	2°♃39'48		direct	128 Jun 19 j 17:29	10°♁26'15	
max. Earth dist.	120 Aug 31 j 05:13	7°♃08'01	19.34211 AU	conjunction	128 Oct 08 j 23:30	14°♁52'01	0°33'37
conjunction	120 Sep 01 j 04:31	7°♃11'41	0°43'55	minimum elong	128 Oct 08 j 23:30	14°♁52'01	0°33'37
minimum elong	120 Sep 01 j 04:31	7°♃11'41	0°43'56	max. Earth dist.	128 Oct 08 j 14:26	14°♁50'36	19.58786 AU
retrograde	120 Dec 17 j 12:37	11°♃33'59		retrograde	129 Jan 23 j 23:00	19°♁09'54	
opposition	121 Mar 01 j 03:01	9°♃32'13	0°48'51	opposition	129 Apr 08 j 14:22	17°♁09'01	0°36'09
min. Earth dist.	121 Mar 01 j 23:57	9°♃29'57	17.34796 AU	min. Earth dist.	129 Apr 08 j 21:45	17°♁08'14	17.61340 AU
direct	121 May 16 j 20:15	7°♃26'03		direct	129 Jun 24 j 20:30	15°♁04'46	
max. Earth dist.	121 Sep 05 j 07:10	11°♃53'58	19.35426 AU	conjunction	129 Oct 13 j 19:21	19°♁29'18	0°31'14
conjunction	121 Sep 06 j 06:12	11°♃57'35	0°43'37	minimum elong	129 Oct 13 j 19:21	19°♁29'18	0°31'13

max. Earth dist.	129 Oct 13 j 11:42	19°♃28'06	19.63978 AU	retrograde	137 Mar 01 j 01:36	25°♍14'44	
retrograde	130 Jan 28 j 18:31	23°♃46'29		opposition	137 May 16 j 04:19	23°♍14'41	0°09'43
opposition	130 Apr 13 j 14:55	21°♃45'45	0°33'22	min. Earth dist.	137 May 15 j 21:03	23°♍15'25	18.08409 AU
min. Earth dist.	130 Apr 13 j 21:04	21°♃45'06	17.66685 AU	direct	137 Aug 01 j 09:39	21°♍13'13	
direct	130 Jun 29 j 20:33	19°♃41'52					
				conjunction	137 Nov 18 j 04:41	25°♍26'04	0°07'08
conjunction	130 Oct 18 j 14:36	24°♃05'08	0°28'40	minimum elong	137 Nov 18 j 04:40	25°♍26'03	0°07'09
minimum elong	130 Oct 18 j 14:36	24°♃05'08	0°28'40	behind sun begin	137 Nov 17 j 22:37	25°♍25'09	
max. Earth dist.	130 Oct 18 j 09:12	24°♃04'17	19.69456 AU	behind sun end	137 Nov 18 j 10:43	25°♍26'57	
retrograde	131 Feb 02 j 14:48	28°♃21'33		max. Earth dist.	137 Nov 18 j 12:47	25°♍27'17	20.11591 AU
opposition	131 Apr 18 j 14:54	26°♃20'59	0°30'24	retrograde	138 Mar 05 j 15:47	29°♍36'43	
min. Earth dist.	131 Apr 18 j 18:39	26°♃20'36	17.72263 AU	opposition	138 May 21 j 00:13	27°♍36'43	0°06'02
direct	131 Jul 04 j 22:06	24°♃17'30		min. Earth dist.	138 May 20 j 15:58	27°♍37'34	18.14774 AU
				direct	138 Aug 06 j 03:13	25°♍35'37	
conjunction	131 Oct 23 j 09:01	28°♃39'23	0°25'55				
minimum elong	131 Oct 23 j 09:01	28°♃39'23	0°25'54	conjunction	138 Nov 22 j 16:48	29°♍46'56	0°03'51
max. Earth dist.	131 Oct 23 j 05:13	28°♃38'48	19.75135 AU	minimum elong	138 Nov 22 j 16:49	29°♍46'56	0°03'50
	131 Nov 14 j 07:22	0°♍		behind sun begin	138 Nov 22 j 10:20	29°♍45'58	
retrograde	132 Feb 07 j 09:19	2°♍55'02		behind sun end	138 Nov 22 j 23:17	29°♍47'53	
opposition	132 Apr 22 j 14:45	0°♍54'37	0°27'15	max. Earth dist.	138 Nov 23 j 02:18	29°♍48'21	20.18012 AU
min. Earth dist.	132 Apr 22 j 17:32	0°♍54'19	17.78034 AU		138 Nov 26 j 06:43	0°♁	
	132 May 15 j 05:17	30°♁		retrograde	139 Mar 10 j 07:45	3°♁56'47	
direct	132 Jul 08 j 20:35	28°♃51'29		opposition	139 May 25 j 19:09	1°♁56'54	0°02'21
	132 Aug 30 j 02:18	0°♍		min. Earth dist.	139 May 25 j 07:55	1°♁58'03	18.21241 AU
					139 Jul 29 j 15:14	30°♁♍	
conjunction	132 Oct 27 j 02:29	3°♍11'57	0°23'02	direct	139 Aug 10 j 22:42	29°♍56'10	
minimum elong	132 Oct 27 j 02:29	3°♍11'57	0°23'02		139 Aug 23 j 03:50	0°♁	
max. Earth dist.	132 Oct 27 j 00:38	3°♍11'40	19.80982 AU				
retrograde	133 Feb 11 j 05:06	7°♍26'48		conjunction	139 Nov 27 j 04:20	4°♁06'01	0°00'29
opposition	133 Apr 27 j 13:57	5°♍26'30	0°23'57	minimum elong	139 Nov 27 j 04:19	4°♁06'01	0°00'28
min. Earth dist.	133 Apr 27 j 14:04	5°♍26'29	17.83931 AU	behind sun begin	139 Nov 26 j 21:48	4°♁05'03	
direct	133 Jul 13 j 21:01	3°♍23'44		behind sun end	139 Nov 27 j 10:50	4°♁06'58	
				max. Earth dist.	139 Nov 27 j 16:34	4°♁07'51	20.24514 AU
conjunction	133 Oct 31 j 19:12	7°♍42'43	0°20'00	desc. node	140 Jan 17 j 14:31	6°♁56'06	
minimum elong	133 Oct 31 j 19:12	7°♍42'43	0°20'01	retrograde	140 Mar 13 j 21:23	8°♁15'07	
max. Earth dist.	133 Oct 31 j 19:13	7°♍42'43	19.86930 AU	opposition	140 May 29 j 13:41	6°♁15'20	0°-1'-18
retrograde	134 Feb 15 j 22:03	11°♍56'45		min. Earth dist.	140 May 29 j 01:28	6°♁16'35	18.27778 AU
opposition	134 May 02 j 12:32	9°♍56'32	0°20'31	direct	140 Aug 14 j 14:49	4°♁15'00	
min. Earth dist.	134 May 02 j 11:56	9°♍56'35	17.89930 AU				
direct	134 Jul 18 j 17:51	7°♍54'05		conjunction	140 Nov 30 j 14:52	8°♁23'24	0°-2'-53
				minimum elong	140 Nov 30 j 14:52	8°♁23'24	0°02'54
conjunction	134 Nov 05 j 11:00	12°♍11'35	0°16'53	behind sun begin	140 Nov 30 j 08:21	8°♁22'26	
minimum elong	134 Nov 05 j 11:00	12°♍11'35	0°16'53	behind sun end	140 Nov 30 j 21:23	8°♁24'21	
max. Earth dist.	134 Nov 05 j 12:34	12°♍11'49	19.92974 AU	max. Earth dist.	140 Dec 01 j 04:15	8°♁25'24	20.31073 AU
	134 Dec 25 j 03:07	15°♍		retrograde	141 Mar 18 j 12:17	12°♁31'47	
retrograde	135 Feb 20 j 16:53	16°♍24'45		opposition	141 Jun 03 j 07:21	10°♁32'08	0°-4'-56
	135 Apr 22 j 22:41	15°♁♍		min. Earth dist.	141 Jun 02 j 16:26	10°♁33'39	18.34336 AU
opposition	135 May 07 j 10:25	14°♍24'36	0°16'59	direct	141 Aug 19 j 08:10	8°♁32'12	
min. Earth dist.	135 May 07 j 07:01	14°♍24'57	17.95999 AU				
direct	135 Jul 23 j 16:54	12°♍22'29		conjunction	141 Dec 05 j 01:02	12°♁39'13	0°-6'-8
	135 Oct 13 j 16:15	15°♍		minimum elong	141 Dec 05 j 01:02	12°♁39'13	0°06'09
				behind sun begin	141 Dec 04 j 18:49	12°♁38'18	
conjunction	135 Nov 10 j 01:48	16°♍38'26	0°13'41	behind sun end	141 Dec 05 j 07:15	12°♁40'08	
minimum elong	135 Nov 10 j 01:48	16°♍38'26	0°13'41	max. Earth dist.	141 Dec 05 j 17:00	12°♁41'37	20.37605 AU
behind sun begin	135 Nov 09 j 22:08	16°♍37'53		retrograde	142 Mar 23 j 00:58	16°♁46'54	
behind sun end	135 Nov 10 j 05:27	16°♍38'59		min. Earth dist.	142 Jun 07 j 08:42	14°♁48'58	18.40835 AU
max. Earth dist.	135 Nov 10 j 05:40	16°♍39'01	19.99079 AU	opposition	142 Jun 08 j 00:18	14°♁47'23	0°-8'-31
retrograde	136 Feb 25 j 08:07	20°♍50'46		direct	142 Aug 23 j 23:13	12°♁47'53	
opposition	136 May 11 j 07:50	18°♍50'40	0°13'22				
min. Earth dist.	136 May 11 j 03:36	18°♍51'06	18.02152 AU	conjunction	142 Dec 09 j 10:26	16°♁53'31	0°-9'-19
direct	136 Jul 27 j 12:22	16°♍48'52		minimum elong	142 Dec 09 j 10:26	16°♁53'31	0°09'20
				behind sun begin	142 Dec 09 j 04:55	16°♁52'43	
conjunction	136 Nov 13 j 15:40	21°♍03'15	0°10'26	behind sun end	142 Dec 09 j 15:58	16°♁54'20	
minimum elong	136 Nov 13 j 15:40	21°♍03'15	0°10'25	max. Earth dist.	142 Dec 10 j 03:02	16°♁56'00	20.44056 AU
behind sun begin	136 Nov 13 j 10:28	21°♍02'29		retrograde	143 Mar 27 j 14:27	21°♁00'33	
behind sun end	136 Nov 13 j 20:52	21°♍04'02		opposition	143 Jun 12 j 16:39	19°♁01'10	0°-12'-2
max. Earth dist.	136 Nov 13 j 21:06	21°♍04'04	20.05287 AU	min. Earth dist.	143 Jun 11 j 22:51	19°♁02'58	18.47221 AU

direct	143 Aug 28 j 14:20	17°♂02'03		max. Earth dist.	151 Jan 11 j 20:40	20°♁00'50	20.85659 AU
				retrograde	151 Apr 30 j 03:05	24°♁00'04	
conjunction	143 Dec 13 j 19:18	21°♂06'23	0°-12'-27	min. Earth dist.	151 Jul 16 j 03:43	22°♁03'18	18.87588 AU
minimum elong	143 Dec 13 j 19:18	21°♂06'23	0°12'29	opposition	151 Jul 17 j 03:48	22°♁00'54	0°-35'-48
behind sun begin	143 Dec 13 j 14:58	21°♂05'45		direct	151 Oct 01 j 08:30	20°♁03'43	
behind sun end	143 Dec 13 j 23:39	21°♂07'01					
max. Earth dist.	143 Dec 14 j 14:18	21°♂09'13	20.50343 AU	conjunction	152 Jan 15 j 02:06	23°♁59'22	0°-33'-24
retrograde	144 Mar 31 j 02:21	25°♂12'47		minimum elong	152 Jan 15 j 02:06	23°♁59'22	0°33'25
opposition	144 Jun 16 j 08:30	23°♂13'32	0°-15'-28	max. Earth dist.	152 Jan 16 j 04:00	24°♁03'07	20.89376 AU
min. Earth dist.	144 Jun 15 j 14:07	23°♂15'23	18.53408 AU	retrograde	152 May 03 j 11:24	28°♁01'44	
direct	144 Sep 01 j 04:16	21°♂14'47		opposition	152 Jul 20 j 14:18	26°♁02'33	0°-38'-2
				min. Earth dist.	152 Jul 19 j 13:39	26°♁05'01	18.91167 AU
conjunction	144 Dec 17 j 03:41	25°♂17'51	0°-15'-30	direct	152 Oct 04 j 17:24	24°♁05'32	
minimum elong	144 Dec 17 j 03:41	25°♂17'51	0°15'31				
behind sun begin	144 Dec 17 j 01:38	25°♂17'33		conjunction	153 Jan 18 j 07:20	28°♁00'25	0°-35'-20
behind sun end	144 Dec 17 j 05:43	25°♂18'08		minimum elong	153 Jan 18 j 07:20	28°♁00'25	0°35'21
max. Earth dist.	144 Dec 17 j 22:52	25°♂20'41	20.56412 AU	max. Earth dist.	153 Jan 19 j 08:46	28°♁04'06	20.92816 AU
retrograde	145 Apr 04 j 14:31	29°♂23'39			153 Feb 23 j 05:59	0°≈	
opposition	145 Jun 20 j 23:29	27°♂24'29	0°-18'-48	retrograde	153 May 07 j 20:46	2°≈02'31	
min. Earth dist.	145 Jun 20 j 03:27	27°♂26'29	18.59350 AU	min. Earth dist.	153 Jul 23 j 23:04	0°≈05'50	18.94472 AU
direct	145 Sep 05 j 17:24	25°♂26'04		opposition	153 Jul 25 j 00:08	0°≈03'19	0°-40'-3
					153 Jul 26 j 09:20	30°R♁	
conjunction	145 Dec 21 j 11:43	29°♂27'55	0°-18'-27	direct	153 Oct 08 j 23:44	28°♁06'27	
minimum elong	145 Dec 21 j 11:43	29°♂27'55	0°18'29		153 Dec 17 j 01:37	0°≈	
max. Earth dist.	145 Dec 22 j 08:51	29°♂31'02	20.62185 AU				
	145 Dec 30 j 12:43	0°♁		conjunction	154 Jan 22 j 12:34	2°≈00'43	0°-37'-5
retrograde	146 Apr 09 j 01:15	3°♁33'07		minimum elong	154 Jan 22 j 12:34	2°≈00'43	0°37'06
opposition	146 Jun 25 j 13:55	1°♁34'02	0°-22'-1	max. Earth dist.	154 Jan 23 j 15:33	2°≈04'37	20.95960 AU
min. Earth dist.	146 Jun 24 j 17:32	1°♁36'05	18.64955 AU	retrograde	154 May 12 j 04:57	6°≈02'35	
	146 Aug 09 j 16:01	30°R♁		min. Earth dist.	154 Jul 28 j 08:06	4°≈05'57	18.97454 AU
direct	146 Sep 10 j 05:49	29°♂35'55		opposition	154 Jul 29 j 09:33	4°≈03'24	0°-41'-53
	146 Oct 10 j 22:41	0°♁		direct	154 Oct 13 j 07:41	2°≈06'43	
conjunction	146 Dec 25 j 19:06	3°♁36'35	0°-21'-18	conjunction	155 Jan 26 j 17:26	6°≈00'25	0°-38'-39
minimum elong	146 Dec 25 j 19:06	3°♁36'35	0°21'20	minimum elong	155 Jan 26 j 17:26	6°≈00'25	0°38'40
max. Earth dist.	146 Dec 26 j 16:02	3°♁39'40	20.67610 AU	max. Earth dist.	155 Jan 27 j 19:40	6°≈04'12	20.98781 AU
retrograde	147 Apr 13 j 12:39	7°♁41'15		retrograde	155 May 16 j 14:14	10°≈02'08	
min. Earth dist.	147 Jun 29 j 06:03	5°♁44'21	18.70201 AU	opposition	155 Aug 02 j 18:39	8°≈02'59	0°-43'-30
opposition	147 Jun 30 j 03:40	5°♁42'11	0°-25'-6	min. Earth dist.	155 Aug 01 j 17:09	8°≈05'32	19.00109 AU
direct	147 Sep 14 j 17:30	3°♁44'19		direct	155 Oct 17 j 13:13	6°≈06'27	
conjunction	147 Dec 30 j 02:14	7°♁43'51	0°-24'-1	conjunction	156 Jan 30 j 22:35	9°≈59'42	0°-40'-2
minimum elong	147 Dec 30 j 02:14	7°♁43'51	0°24'02	minimum elong	156 Jan 30 j 22:35	9°≈59'42	0°40'03
max. Earth dist.	147 Dec 31 j 00:58	7°♁47'11	20.72657 AU	max. Earth dist.	156 Feb 01 j 02:06	10°≈03'39	21.01247 AU
retrograde	148 Apr 16 j 22:04	11°♁47'58		retrograde	156 May 19 j 22:25	14°≈01'19	
opposition	148 Jul 03 j 16:47	9°♁48'55	0°-28'-2	min. Earth dist.	156 Aug 05 j 01:40	12°≈04'46	19.02378 AU
min. Earth dist.	148 Jul 02 j 18:49	9°♁51'07	18.75058 AU	opposition	156 Aug 06 j 03:17	12°≈02'12	0°-44'-55
direct	148 Sep 18 j 04:24	7°♁51'16		direct	156 Oct 20 j 19:57	10°≈05'50	
conjunction	149 Jan 02 j 08:42	11°♁49'42	0°-26'-36	conjunction	157 Feb 03 j 03:41	13°≈58'43	0°-41'-13
minimum elong	149 Jan 02 j 08:42	11°♁49'42	0°26'38	minimum elong	157 Feb 03 j 03:41	13°≈58'43	0°41'14
max. Earth dist.	149 Jan 03 j 07:09	11°♁52'59	20.77334 AU	max. Earth dist.	157 Feb 04 j 06:00	14°≈02'29	21.03314 AU
retrograde	149 Apr 21 j 08:49	15°♁53'19			157 Feb 21 j 02:45	15°≈	
min. Earth dist.	149 Jul 07 j 06:18	13°♁56'31	18.79561 AU	retrograde	157 May 24 j 07:52	18°≈00'19	
opposition	149 Jul 08 j 05:10	13°♁54'14	0°-30'-48	min. Earth dist.	157 Aug 09 j 10:36	16°≈03'44	19.04229 AU
direct	149 Sep 22 j 14:35	11°♁56'44		opposition	157 Aug 10 j 11:40	16°≈01'14	0°-46'-7
					157 Sep 06 j 07:21	15°R≈	
conjunction	150 Jan 06 j 14:57	15°♁54'10	0°-29'-2	direct	157 Oct 25 j 01:13	14°≈04'59	
minimum elong	150 Jan 06 j 14:57	15°♁54'10	0°29'03		157 Dec 10 j 23:58	15°≈	
max. Earth dist.	150 Jan 07 j 15:14	15°♁57'43	20.81652 AU				
retrograde	150 Apr 25 j 17:13	19°♁57'18		conjunction	158 Feb 07 j 09:05	17°≈57'35	0°-42'-13
opposition	150 Jul 12 j 16:42	17°♁58'11	0°-33'-24	minimum elong	158 Feb 07 j 09:05	17°≈57'35	0°42'14
min. Earth dist.	150 Jul 11 j 17:25	18°♁00'30	18.83717 AU	max. Earth dist.	158 Feb 08 j 12:10	18°≈01'28	21.04920 AU
direct	150 Sep 27 j 00:17	16°♁00'51		retrograde	158 May 28 j 16:06	21°≈59'12	
				opposition	158 Aug 14 j 19:35	20°≈00'08	0°-47'-6
conjunction	151 Jan 10 j 20:39	19°♁57'20	0°-31'-18	min. Earth dist.	158 Aug 13 j 18:46	20°≈02'37	19.05585 AU
minimum elong	151 Jan 10 j 20:39	19°♁57'20	0°31'20	direct	158 Oct 29 j 06:57	18°≈04'00	

conjunction	159 Feb 11 j 14:32	21° \approx 56'25	0°-43'00	max. Earth dist.	167 Mar 16 j 13:42	23° \approx 52'21	20.96739 AU
minimum elong	159 Feb 11 j 14:32	21° \approx 56'25	0°43'00	retrograde	167 Jul 04 j 22:49	27° \approx 53'22	
max. Earth dist.	159 Feb 12 j 15:57	22° \approx 00'03	21.06025 AU	opposition	167 Sep 20 j 11:11	25° \approx 53'20	0°-45'-28
retrograde	159 Jun 02 j 01:25	25° \approx 58'07		min. Earth dist.	167 Sep 19 j 18:56	25° \approx 54'59	18.95364 AU
min. Earth dist.	159 Aug 18 j 03:41	24° \approx 01'24	19.06427 AU	direct	167 Dec 04 j 06:29	23° \approx 56'23	
opposition	159 Aug 19 j 03:31	23° \approx 59'01	0°-47'-51				
direct	159 Nov 02 j 12:11	22° \approx 02'55		conjunction	168 Mar 19 j 03:46	27° \approx 50'38	0°-40'-35
				minimum elong	168 Mar 19 j 03:46	27° \approx 50'38	0°40'35
conjunction	160 Feb 15 j 20:18	25° \approx 55'14	0°-43'-35	max. Earth dist.	168 Mar 19 j 22:05	27° \approx 53'15	20.93848 AU
minimum elong	160 Feb 15 j 20:18	25° \approx 55'14	0°43'36		168 Apr 27 j 20:31	0° \approx	
max. Earth dist.	160 Feb 16 j 22:08	25° \approx 58'55	21.06582 AU	retrograde	168 Jul 08 j 08:29	1° \approx 54'44	
retrograde	160 Jun 05 j 10:05	29° \approx 57'01			168 Sep 21 j 13:18	30° \approx	
min. Earth dist.	160 Aug 21 j 11:43	28° \approx 00'13	19.06693 AU	opposition	168 Sep 23 j 17:55	29° \approx 54'37	0°-44'-9
opposition	160 Aug 22 j 11:07	27° \approx 57'52	0°-48'-23	min. Earth dist.	168 Sep 23 j 02:08	29° \approx 56'14	18.92301 AU
direct	160 Nov 05 j 17:52	26° \approx 01'47		direct	168 Dec 07 j 13:06	27° \approx 57'31	
					169 Feb 17 j 11:48	0° \approx	
conjunction	161 Feb 19 j 02:13	29° \approx 54'02	0°-43'-57	conjunction	169 Mar 23 j 12:42	1° \approx 52'26	0°-39'-16
minimum elong	161 Feb 19 j 02:13	29° \approx 54'02	0°43'57	minimum elong	169 Mar 23 j 12:42	1° \approx 52'26	0°39'17
max. Earth dist.	161 Feb 20 j 02:02	29° \approx 57'26	21.06572 AU	max. Earth dist.	169 Mar 24 j 04:32	1° \approx 54'42	20.90629 AU
	161 Feb 20 j 19:57	0° \approx		retrograde	169 Jul 12 j 18:16	5° \approx 57'04	
retrograde	161 Jun 09 j 18:42	3° \approx 55'57		min. Earth dist.	169 Sep 27 j 11:03	3° \approx 58'17	18.88916 AU
opposition	161 Aug 26 j 18:25	1° \approx 56'43	0°-48'-40	opposition	169 Sep 28 j 00:50	3° \approx 56'52	0°-42'-35
min. Earth dist.	161 Aug 25 j 20:24	1° \approx 58'56	19.06405 AU	direct	169 Dec 11 j 17:47	1° \approx 59'36	
direct	161 Nov 09 j 22:54	0° \approx 00'34					
conjunction	162 Feb 23 j 08:27	3° \approx 52'51	0°-44'-6	conjunction	170 Mar 27 j 22:25	5° \approx 55'17	0°-37'-46
minimum elong	162 Feb 23 j 08:27	3° \approx 52'51	0°44'07	minimum elong	170 Mar 27 j 22:25	5° \approx 55'17	0°37'47
max. Earth dist.	162 Feb 24 j 08:30	3° \approx 56'17	21.06013 AU	max. Earth dist.	170 Mar 28 j 13:55	5° \approx 57'30	20.87077 AU
retrograde	162 Jun 14 j 03:42	7° \approx 54'55		retrograde	170 Jul 17 j 04:44	10° \approx 00'28	
min. Earth dist.	162 Aug 30 j 03:56	5° \approx 57'44	19.05580 AU	opposition	170 Oct 02 j 07:56	8° \approx 00'13	0°-40'-49
opposition	162 Aug 31 j 01:30	5° \approx 55'34	0°-48'-43	min. Earth dist.	170 Oct 01 j 18:51	8° \approx 01'34	18.85176 AU
direct	162 Nov 14 j 04:54	3° \approx 59'20		direct	170 Dec 16 j 00:29	6° \approx 02'48	
conjunction	163 Feb 27 j 14:34	7° \approx 51'42	0°-44'-2	conjunction	171 Apr 01 j 08:34	9° \approx 59'18	0°-36'-3
minimum elong	163 Feb 27 j 14:34	7° \approx 51'42	0°44'04	minimum elong	171 Apr 01 j 08:34	9° \approx 59'18	0°36'04
max. Earth dist.	163 Feb 28 j 12:42	7° \approx 54'52	21.04954 AU	max. Earth dist.	171 Apr 01 j 21:20	10° \approx 01'07	20.83159 AU
retrograde	163 Jun 18 j 11:34	11° \approx 54'00		retrograde	171 Jul 21 j 15:26	14° \approx 05'08	
opposition	163 Sep 04 j 08:32	9° \approx 54'29	0°-48'-32	opposition	171 Oct 06 j 15:29	12° \approx 04'48	0°-38'-50
min. Earth dist.	163 Sep 03 j 12:22	9° \approx 56'31	19.04297 AU	min. Earth dist.	171 Oct 06 j 04:50	12° \approx 05'53	18.81062 AU
direct	163 Nov 18 j 09:26	7° \approx 58'08		direct	171 Dec 20 j 06:15	10° \approx 07'09	
conjunction	164 Mar 02 j 21:18	11° \approx 50'41	0°-43'-46	conjunction	172 Apr 04 j 19:53	14° \approx 04'36	0°-34'-10
minimum elong	164 Mar 02 j 21:18	11° \approx 50'41	0°43'47	minimum elong	172 Apr 04 j 19:53	14° \approx 04'36	0°34'11
max. Earth dist.	164 Mar 03 j 19:45	11° \approx 53'53	21.03456 AU	max. Earth dist.	172 Apr 05 j 07:49	14° \approx 06'19	20.78840 AU
retrograde	164 Jun 21 j 20:57	15° \approx 53'13		retrograde	172 Jul 25 j 03:06	18° \approx 11'04	
opposition	164 Sep 07 j 15:09	13° \approx 53'34	0°-48'-7	opposition	172 Oct 09 j 23:03	16° \approx 10'39	0°-36'-38
min. Earth dist.	164 Sep 06 j 19:24	13° \approx 55'34	19.02592 AU	min. Earth dist.	172 Oct 09 j 13:27	16° \approx 11'38	18.76521 AU
direct	164 Nov 21 j 15:41	11° \approx 57'05		direct	172 Dec 23 j 13:51	14° \approx 12'46	
conjunction	165 Mar 07 j 04:13	15° \approx 49'55	0°-43'-17	conjunction	173 Apr 09 j 07:47	18° \approx 11'12	0°-32'-5
minimum elong	165 Mar 07 j 04:13	15° \approx 49'55	0°43'18	minimum elong	173 Apr 09 j 07:47	18° \approx 11'12	0°32'05
max. Earth dist.	165 Mar 08 j 00:35	15° \approx 52'49	21.01566 AU	max. Earth dist.	173 Apr 09 j 16:29	18° \approx 12'27	20.74086 AU
retrograde	165 Jun 26 j 04:45	19° \approx 52'46		retrograde	173 Jul 29 j 14:19	22° \approx 18'21	
opposition	165 Sep 11 j 21:53	17° \approx 52'58	0°-47'-28	opposition	173 Oct 14 j 07:14	20° \approx 17'48	0°-34'-14
min. Earth dist.	165 Sep 11 j 03:39	17° \approx 54'49	19.00522 AU	min. Earth dist.	173 Oct 14 j 00:22	20° \approx 18'31	18.71549 AU
direct	165 Nov 25 j 19:48	15° \approx 56'19		direct	173 Dec 27 j 20:42	18° \approx 19'38	
conjunction	166 Mar 11 j 11:37	19° \approx 49'32	0°-42'-35	conjunction	174 Apr 13 j 20:27	22° \approx 19'07	0°-29'-49
minimum elong	166 Mar 11 j 11:37	19° \approx 49'32	0°42'35	minimum elong	174 Apr 13 j 20:27	22° \approx 19'07	0°29'50
max. Earth dist.	166 Mar 12 j 08:09	19° \approx 52'28	20.99316 AU	max. Earth dist.	174 Apr 14 j 04:04	22° \approx 20'13	20.68904 AU
retrograde	166 Jun 30 j 14:04	23° \approx 52'44		retrograde	174 Aug 03 j 03:01	26° \approx 26'57	
min. Earth dist.	166 Sep 15 j 10:31	21° \approx 54'39	18.98098 AU	opposition	174 Oct 18 j 15:35	24° \approx 26'15	0°-31'-39
opposition	166 Sep 16 j 04:26	21° \approx 52'50	0°-46'-35	min. Earth dist.	174 Oct 18 j 09:43	24° \approx 26'52	18.66154 AU
direct	166 Nov 30 j 02:21	19° \approx 56'03		direct	175 Jan 01 j 05:48	22° \approx 27'46	
conjunction	167 Mar 15 j 19:21	23° \approx 49'44	0°-41'-41	conjunction	175 Apr 18 j 09:46	26° \approx 28'21	0°-27'-23
minimum elong	167 Mar 15 j 19:21	23° \approx 49'44	0°41'42	minimum elong	175 Apr 18 j 09:46	26° \approx 28'21	0°27'24

max. Earth dist.	175 Apr 18 j 14:12	26°♃28'59	20.63330 AU	behind sun end	182 May 19 j 11:03	26°♃15'09	
	175 Jun 29 j 22:10	0°♃		max. Earth dist.	182 May 18 j 20:27	26°♃13'02	20.19115 AU
retrograde	175 Aug 07 j 14:35	0°♃36'53			182 Aug 04 j 19:10	0°♂	
	175 Sep 15 j 20:20	30°♃		retrograde	182 Sep 06 j 22:56	0°♂28'14	
opposition	175 Oct 23 j 00:20	28°♃36'01	0°-28'-52		182 Oct 10 j 07:31	30°♃	
min. Earth dist.	175 Oct 22 j 21:15	28°♃36'21	18.60410 AU	opposition	182 Nov 21 j 01:46	28°♃26'23	0°-5'-30
direct	176 Jan 05 j 13:33	26°♃37'10		min. Earth dist.	182 Nov 21 j 08:50	28°♃25'38	18.15895 AU
	176 Apr 10 j 18:41	0°♃		direct	183 Feb 03 j 18:54	26°♃24'51	
					183 May 13 j 18:57	0°♂	
conjunction	176 Apr 22 j 00:00	0°♃38'55	0°-24'-47				
minimum elong	176 Apr 22 j 00:00	0°♃38'55	0°24'48	conjunction	183 May 24 j 00:32	0°♂36'20	0°-3'-22
max. Earth dist.	176 Apr 22 j 03:18	0°♃39'23	20.57437 AU	minimum elong	183 May 24 j 00:31	0°♂36'20	0°03'23
retrograde	176 Aug 11 j 04:23	4°♃48'10		behind sun begin	183 May 23 j 17:47	0°♂35'21	
opposition	176 Oct 26 j 09:20	2°♃47'08	0°-25'-55	behind sun end	183 May 24 j 07:15	0°♂37'18	
min. Earth dist.	176 Oct 26 j 07:09	2°♃47'21	18.54371 AU	max. Earth dist.	183 May 23 j 14:05	0°♂34'48	20.12725 AU
direct	177 Jan 08 j 23:53	0°♃47'53		retrograde	183 Sep 11 j 15:05	4°♂51'09	
				opposition	183 Nov 25 j 14:39	2°♂49'16	0°-1'-48
conjunction	177 Apr 26 j 14:48	4°♃50'52	0°-22'-3	min. Earth dist.	183 Nov 26 j 00:19	2°♂48'14	18.09538 AU
minimum elong	177 Apr 26 j 14:48	4°♃50'52	0°22'04	direct	184 Feb 08 j 06:54	0°♂47'23	
max. Earth dist.	177 Apr 26 j 15:06	4°♃50'55	20.51281 AU	asc. node	184 May 21 j 22:21	4°♂39'09	
retrograde	177 Aug 15 j 16:40	9°♃00'52					
opposition	177 Oct 30 j 18:48	6°♃59'39	0°-22'-49	conjunction	184 May 27 j 21:16	5°♂00'27	0°00'04
min. Earth dist.	177 Oct 30 j 19:17	6°♃59'36	18.48121 AU	minimum elong	184 May 27 j 21:17	5°♂00'27	0°00'03
direct	178 Jan 13 j 08:40	5°♃00'00		behind sun begin	184 May 27 j 15:16	4°♂59'34	
				behind sun end	184 May 28 j 03:19	5°♂01'18	
conjunction	178 May 01 j 06:27	9°♃04'16	0°-19'-11	max. Earth dist.	184 May 27 j 09:05	4°♂58'38	20.06397 AU
minimum elong	178 May 01 j 06:27	9°♃04'16	0°19'11	retrograde	184 Sep 15 j 10:33	9°♂16'06	
max. Earth dist.	178 May 01 j 05:41	9°♃04'10	20.44958 AU	opposition	184 Nov 29 j 04:12	7°♂14'09	0°01'57
retrograde	178 Aug 20 j 07:34	13°♃15'01		min. Earth dist.	184 Nov 29 j 14:36	7°♂13'02	18.03226 AU
opposition	178 Nov 04 j 04:38	11°♃13'38	0°-19'-35	direct	185 Feb 11 j 23:02	5°♂11'56	
min. Earth dist.	178 Nov 04 j 05:43	11°♃13'31	18.41731 AU				
direct	179 Jan 17 j 19:46	9°♃13'36		conjunction	185 Jun 01 j 18:50	9°♂26'33	0°03'31
				minimum elong	185 Jun 01 j 18:50	9°♂26'33	0°03'32
conjunction	179 May 05 j 22:40	13°♃19'12	0°-16'-11	behind sun begin	185 Jun 01 j 12:06	9°♂25'34	
minimum elong	179 May 05 j 22:40	13°♃19'12	0°16'12	behind sun end	185 Jun 02 j 01:34	9°♂27'32	
max. Earth dist.	179 May 05 j 19:15	13°♃18'43	20.38520 AU	max. Earth dist.	185 Jun 01 j 04:38	9°♂24'26	20.00085 AU
	179 Jun 04 j 09:57	15°♃		retrograde	185 Sep 20 j 03:41	13°♂43'00	
retrograde	179 Aug 24 j 21:27	17°♃30'45		opposition	185 Dec 03 j 18:40	11°♂41'01	0°05'43
opposition	179 Nov 08 j 15:08	15°♃29'12	0°-16'-12	min. Earth dist.	185 Dec 04 j 07:40	11°♂39'37	17.96934 AU
min. Earth dist.	179 Nov 08 j 18:46	15°♃28'49	18.35266 AU	direct	186 Feb 16 j 13:09	9°♂38'27	
	179 Nov 20 j 05:32	15°♃					
direct	180 Jan 22 j 05:42	13°♃28'46		conjunction	186 Jun 06 j 17:14	13°♂54'37	0°06'54
	180 Mar 23 j 01:00	15°♃		minimum elong	186 Jun 06 j 17:14	13°♂54'37	0°06'55
				behind sun begin	186 Jun 06 j 10:58	13°♂53'41	
conjunction	180 May 09 j 15:58	17°♃35'47	0°-13'-6	behind sun end	186 Jun 06 j 23:31	13°♂55'32	
minimum elong	180 May 09 j 15:58	17°♃35'47	0°13'06	max. Earth dist.	186 Jun 06 j 00:50	13°♂52'09	19.93810 AU
behind sun begin	180 May 09 j 12:05	17°♃35'13		retrograde	186 Sep 24 j 23:52	18°♂11'50	
behind sun end	180 May 09 j 19:51	17°♃36'20		opposition	186 Dec 08 j 09:42	16°♂09'46	0°09'30
max. Earth dist.	180 May 09 j 11:22	17°♃35'07	20.32040 AU	min. Earth dist.	186 Dec 08 j 23:30	16°♂08'17	17.90678 AU
retrograde	180 Aug 28 j 13:40	21°♃48'07		direct	187 Feb 21 j 07:35	14°♂06'50	
opposition	180 Nov 12 j 01:55	19°♃46'27	0°-12'-44				
min. Earth dist.	180 Nov 12 j 06:05	19°♃46'00	18.28775 AU	conjunction	187 Jun 11 j 16:28	18°♂24'30	0°10'16
direct	181 Jan 25 j 18:01	17°♃45'37		minimum elong	187 Jun 11 j 16:28	18°♂24'30	0°10'17
				behind sun begin	187 Jun 11 j 11:09	18°♂23'43	
conjunction	181 May 14 j 09:59	21°♃54'05	0°-9'-56	behind sun end	187 Jun 11 j 21:47	18°♂25'17	
minimum elong	181 May 14 j 09:59	21°♃54'05	0°09'56	max. Earth dist.	187 Jun 10 j 22:25	18°♂21'47	19.87561 AU
behind sun begin	181 May 14 j 04:33	21°♃53'18		retrograde	187 Sep 29 j 17:47	22°♂42'26	
behind sun end	181 May 14 j 15:25	21°♃54'52		opposition	187 Dec 13 j 01:39	20°♂40'18	0°13'14
max. Earth dist.	181 May 14 j 02:56	21°♃53'04	20.25551 AU	min. Earth dist.	187 Dec 13 j 17:53	20°♂38'32	17.84461 AU
retrograde	181 Sep 02 j 04:53	26°♃07'15		direct	188 Feb 26 j 00:01	18°♂36'57	
opposition	181 Nov 16 j 13:37	24°♃05'28	0°-9'-9				
min. Earth dist.	181 Nov 16 j 20:12	24°♃04'46	18.22309 AU	conjunction	188 Jun 15 j 16:22	22°♂56'06	0°13'36
direct	182 Jan 30 j 04:47	22°♃04'17		minimum elong	188 Jun 15 j 16:22	22°♂56'06	0°13'37
				behind sun begin	188 Jun 15 j 12:50	22°♂55'35	
conjunction	182 May 19 j 04:45	26°♃14'14	0°-6'-41	behind sun end	188 Jun 15 j 19:53	22°♂56'38	
minimum elong	182 May 19 j 04:44	26°♃14'14	0°06'42	max. Earth dist.	188 Jun 14 j 19:53	22°♂53'01	19.81390 AU
behind sun begin	182 May 18 j 22:26	26°♃13'20		retrograde	188 Oct 03 j 14:40	27°♂14'43	

opposition	188 Dec 16 j 18:07	25°II12'29	0°16'55	retrograde	196 Nov 09 j 21:17	4°Ω22'54	
min. Earth dist.	188 Dec 17 j 11:07	25°II10'38	17.78349 AU	opposition	197 Jan 22 j 07:05	2°Ω20'26	0°41'10
direct	189 Mar 01 j 20:31	23°II08'44		min. Earth dist.	197 Jan 23 j 06:10	2°Ω17'55	17.41208 AU
				direct	197 Apr 08 j 04:19	0°Ω14'21	
conjunction	189 Jun 20 j 16:58	27°II29'20	0°16'52	max. Earth dist.	197 Jul 28 j 09:44	4°Ω40'02	19.39878 AU
minimum elong	189 Jun 20 j 16:58	27°II29'20	0°16'52				
max. Earth dist.	189 Jun 19 j 19:34	27°II26'05	19.75342 AU	conjunction	197 Jul 29 j 12:18	4°Ω44'10	0°37'54
	189 Aug 03 j 14:12	0°☾		minimum elong	197 Jul 29 j 12:18	4°Ω44'10	0°37'54
retrograde	189 Oct 08 j 09:41	1°☾48'33		retrograde	197 Nov 14 j 21:45	9°Ω06'51	
	189 Dec 16 j 04:32	30°RII		opposition	198 Jan 27 j 05:41	7°Ω04'30	0°43'13
opposition	189 Dec 21 j 11:28	29°II46'14	0°20'31	min. Earth dist.	198 Jan 28 j 04:23	7°Ω02'01	17.38754 AU
min. Earth dist.	189 Dec 22 j 06:24	29°II44'10	17.72400 AU	direct	198 Apr 13 j 04:46	4°Ω58'21	
direct	190 Mar 06 j 15:07	27°II42'05					
	190 May 21 j 11:34	0°☾		conjunction	198 Aug 03 j 15:50	9°Ω28'54	0°39'36
				minimum elong	198 Aug 03 j 15:49	9°Ω28'54	0°39'37
conjunction	190 Jun 25 j 17:48	2°☾04'03	0°20'03	max. Earth dist.	198 Aug 02 j 12:31	9°Ω24'38	19.37670 AU
minimum elong	190 Jun 25 j 17:48	2°☾04'03	0°20'04	retrograde	198 Nov 19 j 21:22	13°Ω51'48	
max. Earth dist.	190 Jun 24 j 18:11	2°☾00'27	19.69509 AU	opposition	199 Feb 01 j 05:00	11°Ω49'32	0°44'58
retrograde	190 Oct 13 j 07:04	6°☾23'53		min. Earth dist.	199 Feb 02 j 04:28	11°Ω46'59	17.36795 AU
opposition	190 Dec 26 j 05:21	4°☾21'27	0°24'00	direct	199 Apr 18 j 06:00	9°Ω43'19	
min. Earth dist.	190 Dec 27 j 00:55	4°☾19'19	17.66701 AU				
direct	191 Mar 11 j 12:41	2°☾16'54		conjunction	199 Aug 08 j 19:36	14°Ω14'29	0°41'02
				minimum elong	199 Aug 08 j 19:36	14°Ω14'29	0°41'01
conjunction	191 Jun 30 j 19:31	6°☾40'13	0°23'07	max. Earth dist.	199 Aug 07 j 16:50	14°Ω10'17	19.35938 AU
minimum elong	191 Jun 30 j 19:31	6°☾40'13	0°23'07		199 Aug 20 j 23:11	15°Ω	
max. Earth dist.	191 Jun 29 j 19:40	6°☾36'34	19.63943 AU	retrograde	199 Nov 24 j 21:51	18°Ω37'28	
retrograde	191 Oct 18 j 03:36	11°☾00'34		opposition	200 Feb 06 j 04:44	16°Ω35'19	0°46'25
opposition	191 Dec 30 j 23:54	8°☾58'04	0°27'21	min. Earth dist.	200 Feb 07 j 03:26	16°Ω32'50	17.35283 AU
min. Earth dist.	191 Dec 31 j 20:53	8°☾55'47	17.61302 AU		200 Mar 18 j 13:39	15°RΩ	
direct	192 Mar 15 j 09:20	6°☾53'09		direct	200 Apr 22 j 08:47	14°Ω29'04	
					200 May 26 j 17:43	15°Ω	
conjunction	192 Jul 04 j 21:28	11°☾17'44	0°26'02				
minimum elong	192 Jul 04 j 21:28	11°☾17'44	0°26'02	conjunction	200 Aug 12 j 23:17	19°Ω00'40	0°42'11
max. Earth dist.	192 Jul 03 j 19:34	11°☾13'45	19.58728 AU	minimum elong	200 Aug 12 j 23:17	19°Ω00'40	0°42'11
retrograde	192 Oct 22 j 01:31	15°☾38'35		max. Earth dist.	200 Aug 11 j 20:25	18°Ω56'27	19.34647 AU
opposition	193 Jan 03 j 19:11	13°☾36'01	0°30'32	retrograde	200 Nov 28 j 20:52	23°Ω23'41	
min. Earth dist.	193 Jan 04 j 16:38	13°☾33'41	17.56298 AU	opposition	201 Feb 10 j 05:13	21°Ω21'36	0°47'33
direct	193 Mar 20 j 07:48	11°☾30'45		min. Earth dist.	201 Feb 11 j 04:38	21°Ω19'03	17.34226 AU
				direct	201 Apr 27 j 11:24	19°Ω15'20	
conjunction	193 Jul 09 j 23:48	15°☾56'32	0°28'48	max. Earth dist.	201 Aug 17 j 00:12	23°Ω43'03	19.33815 AU
minimum elong	193 Jul 09 j 23:48	15°☾56'32	0°28'49				
max. Earth dist.	193 Jul 08 j 22:25	15°☾52'38	19.53928 AU	conjunction	201 Aug 18 j 02:37	23°Ω47'12	0°43'03
retrograde	193 Oct 26 j 23:33	20°☾17'51		minimum elong	201 Aug 18 j 02:36	23°Ω47'12	0°43'03
opposition	194 Jan 08 j 15:13	18°☾15'15	0°33'31	retrograde	201 Dec 03 j 21:16	28°Ω10'10	
min. Earth dist.	194 Jan 09 j 13:16	18°☾12'50	17.51735 AU	opposition	202 Feb 15 j 05:54	26°Ω08'09	0°48'21
direct	194 Mar 25 j 06:01	16°☾09'42		min. Earth dist.	202 Feb 16 j 04:02	26°Ω05'44	17.33611 AU
max. Earth dist.	194 Jul 13 j 23:23	20°☾32'26	19.49614 AU	direct	202 May 02 j 15:54	24°Ω01'51	
				max. Earth dist.	202 Aug 22 j 04:12	28°Ω29'50	19.33424 AU
conjunction	194 Jul 15 j 02:25	20°☾36'36	0°31'23				
minimum elong	194 Jul 15 j 02:25	20°☾36'36	0°31'23	conjunction	202 Aug 23 j 05:52	28°Ω33'52	0°43'37
retrograde	194 Oct 31 j 22:11	24°☾58'21		minimum elong	202 Aug 23 j 05:52	28°Ω33'52	0°43'36
opposition	195 Jan 13 j 11:45	22°☾55'45	0°36'18		202 Sep 15 j 09:56	0°♄	
min. Earth dist.	195 Jan 14 j 10:14	22°☾53'17	17.47693 AU	retrograde	202 Dec 08 j 19:54	2°♄56'39	
direct	195 Mar 30 j 05:04	20°☾49'57		opposition	203 Feb 20 j 06:54	0°♄54'42	0°48'49
max. Earth dist.	195 Jul 19 j 03:19	25°☾13'52	19.45831 AU	min. Earth dist.	203 Feb 21 j 05:39	0°♄52'14	17.33456 AU
					203 Mar 14 j 00:15	30°RΩ	
conjunction	195 Jul 20 j 05:34	25°☾17'56	0°33'47	direct	203 May 07 j 19:11	28°Ω48'24	
minimum elong	195 Jul 20 j 05:33	25°☾17'56	0°33'47		203 Jun 29 j 20:31	0°♄	
retrograde	195 Nov 05 j 21:51	29°☾40'01		max. Earth dist.	203 Aug 27 j 07:19	3°♄16'24	19.33514 AU
opposition	196 Jan 18 j 09:05	27°☾37'29	0°38'52				
min. Earth dist.	196 Jan 19 j 07:37	27°☾35'01	17.44175 AU	conjunction	203 Aug 28 j 08:43	3°♄20'24	0°43'53
direct	196 Apr 03 j 04:24	25°☾31'32		minimum elong	203 Aug 28 j 08:43	3°♄20'24	0°43'53
max. Earth dist.	196 Jul 23 j 05:19	29°☾56'12	19.42584 AU	retrograde	203 Dec 13 j 20:28	7°♄42'57	
				opposition	204 Feb 25 j 08:10	5°♄41'03	0°48'57
conjunction	196 Jul 24 j 08:46	0°Ω00'28	0°35'57	min. Earth dist.	204 Feb 26 j 05:13	5°♄38'46	17.33780 AU
minimum elong	196 Jul 24 j 08:45	0°Ω00'28	0°35'57	direct	204 May 12 j 00:17	3°♄34'45	
	196 Jul 24 j 05:43	0°Ω		max. Earth dist.	204 Aug 31 j 11:24	8°♄02'50	19.34085 AU

conjunction	204 Sep 01 j 11:03	8°♄06'33	0°43'50	minimum elong	212 Oct 09 j 06:13	15°♃45'43	0°33'21
minimum elong	204 Sep 01 j 11:02	8°♄06'33	0°43'50	max. Earth dist.	212 Oct 08 j 21:06	15°♃44'18	19.58664 AU
retrograde	204 Dec 17 j 18:50	12°♄28'48		retrograde	213 Jan 24 j 06:28	20°♃03'40	
opposition	205 Mar 01 j 09:45	10°♄26'56	0°48'44	opposition	213 Apr 08 j 20:55	18°♃02'48	0°35'50
min. Earth dist.	205 Mar 02 j 06:52	10°♄24'39	17.34612 AU	min. Earth dist.	213 Apr 09 j 04:38	18°♃01'59	17.61198 AU
direct	205 May 17 j 02:59	8°♄20'41		direct	213 Jun 25 j 01:57	15°♃58'33	
conjunction	205 Sep 06 j 12:43	12°♄52'08	0°43'30	conjunction	213 Oct 14 j 02:20	20°♃23'11	0°30'57
minimum elong	205 Sep 06 j 12:43	12°♄52'08	0°43'30	minimum elong	213 Oct 14 j 02:20	20°♃23'11	0°30'57
max. Earth dist.	205 Sep 05 j 13:33	12°♄48'29	19.35195 AU	max. Earth dist.	213 Oct 13 j 18:20	20°♃21'56	19.63810 AU
retrograde	205 Dec 22 j 19:27	17°♄14'00		retrograde	214 Jan 29 j 02:08	24°♃40'25	
opposition	206 Mar 06 j 11:10	15°♄12'10	0°48'11	opposition	214 Apr 13 j 21:23	22°♃39'43	0°33'03
min. Earth dist.	206 Mar 07 j 06:13	15°♄10'07	17.35995 AU	min. Earth dist.	214 Apr 14 j 03:47	22°♃39'02	17.66487 AU
direct	206 May 22 j 07:33	13°♄05'58		direct	214 Jun 30 j 02:39	20°♃35'50	
conjunction	206 Sep 11 j 13:57	17°♄36'58	0°42'51	conjunction	214 Oct 18 j 21:46	24°♃59'12	0°28'21
minimum elong	206 Sep 11 j 13:57	17°♄36'58	0°42'51	minimum elong	214 Oct 18 j 21:47	24°♃59'12	0°28'21
max. Earth dist.	206 Sep 10 j 17:18	17°♄33'43	19.36859 AU	max. Earth dist.	214 Oct 18 j 16:11	24°♃58'20	19.69219 AU
retrograde	206 Dec 27 j 17:36	21°♄58'23		retrograde	215 Feb 02 j 22:29	29°♃15'41	
opposition	207 Mar 11 j 12:53	19°♄56'37	0°47'18	opposition	215 Apr 18 j 21:34	27°♃15'08	0°30'03
min. Earth dist.	207 Mar 12 j 07:24	19°♄54'37	17.37945 AU	min. Earth dist.	215 Apr 19 j 01:47	27°♃14'41	17.71984 AU
direct	207 May 27 j 09:49	17°♄50'32		direct	215 Jul 05 j 04:35	25°♃11'38	
conjunction	207 Sep 16 j 14:20	22°♄20'55	0°41'56	conjunction	215 Oct 23 j 16:12	29°♃33'38	0°25'36
minimum elong	207 Sep 16 j 14:20	22°♄20'55	0°41'55	minimum elong	215 Oct 23 j 16:12	29°♃33'38	0°25'36
max. Earth dist.	207 Sep 15 j 18:23	22°♄17'47	19.39113 AU	max. Earth dist.	215 Oct 23 j 11:57	29°♃32'59	19.74808 AU
retrograde	208 Jan 01 j 17:26	26°♄41'51			215 Oct 30 j 17:51	0°♃	
opposition	208 Mar 15 j 14:26	24°♄40'09	0°46'06	retrograde	216 Feb 07 j 16:37	3°♃49'21	
min. Earth dist.	208 Mar 16 j 06:38	24°♄38'25	17.40498 AU	opposition	216 Apr 22 j 21:25	1°♃48'56	0°26'52
direct	208 May 31 j 13:49	22°♄34'15		min. Earth dist.	216 Apr 23 j 00:32	1°♃48'36	17.77662 AU
conjunction	208 Sep 20 j 14:16	27°♄03'56	0°40'43	direct	216 Jun 15 j 07:49	30°♃	
minimum elong	208 Sep 20 j 14:16	27°♄03'56	0°40'44		216 Jul 09 j 03:42	29°♃45'47	
max. Earth dist.	208 Sep 19 j 21:21	27°♄01'17	19.41970 AU		216 Aug 01 j 13:52	0°♃	
retrograde	208 Nov 10 j 10:54	0°♃		conjunction	216 Oct 27 j 09:52	4°♃06'22	0°22'41
retrograde	209 Jan 05 j 15:21	1°♃24'20		minimum elong	216 Oct 27 j 09:52	4°♃06'22	0°22'41
	209 Mar 05 j 22:32	30°♃		max. Earth dist.	216 Oct 27 j 07:45	4°♃06'03	19.80563 AU
opposition	209 Mar 20 j 16:07	29°♄22'46	0°44'36	retrograde	217 Feb 11 j 11:56	8°♃21'16	
min. Earth dist.	209 Mar 21 j 07:08	29°♄21'09	17.43644 AU	opposition	217 Apr 27 j 20:31	6°♃20'57	0°23'33
direct	209 Jun 05 j 16:00	27°♄17'07		min. Earth dist.	217 Apr 27 j 21:06	6°♃20'54	17.83469 AU
	209 Aug 27 j 17:04	0°♃		direct	217 Jul 14 j 03:48	4°♃18'09	
conjunction	209 Sep 25 j 13:11	1°♃45'58	0°39'15	conjunction	217 Nov 01 j 02:30	8°♃37'16	0°19'39
minimum elong	209 Sep 25 j 13:11	1°♃45'58	0°39'14	minimum elong	217 Nov 01 j 02:30	8°♃37'16	0°19'39
max. Earth dist.	209 Sep 24 j 21:09	1°♃43'27	19.45416 AU	max. Earth dist.	217 Nov 01 j 02:04	8°♃37'12	19.86430 AU
retrograde	210 Jan 10 j 14:12	6°♃05'49		retrograde	218 Feb 16 j 04:53	12°♃51'20	
opposition	210 Mar 25 j 17:31	4°♃04'24	0°42'49	opposition	218 May 02 j 19:08	10°♃51'06	0°20'07
min. Earth dist.	210 Mar 26 j 06:22	4°♃03'02	17.47361 AU	min. Earth dist.	218 May 02 j 18:50	10°♃51'08	17.89397 AU
direct	210 Jun 10 j 19:01	1°♃59'03		direct	218 Jul 19 j 01:16	8°♃48'36	
conjunction	210 Sep 30 j 11:42	6°♃27'00	0°37'31	conjunction	218 Nov 05 j 18:15	13°♃06'13	0°16'31
minimum elong	210 Sep 30 j 11:42	6°♃27'00	0°37'31	minimum elong	218 Nov 05 j 18:15	13°♃06'13	0°16'31
max. Earth dist.	210 Sep 29 j 22:42	6°♃24'58	19.49394 AU	max. Earth dist.	218 Nov 05 j 19:44	13°♃06'26	19.92418 AU
retrograde	211 Jan 15 j 11:43	10°♃46'14			218 Dec 07 j 14:13	15°♃	
opposition	211 Mar 30 j 18:45	8°♃45'01	0°40'45	retrograde	219 Feb 20 j 22:57	17°♃19'25	
min. Earth dist.	211 Mar 31 j 06:09	8°♃43'48	17.51564 AU	opposition	219 May 07 j 16:55	15°♃19'15	0°16'34
direct	211 Jun 15 j 21:28	6°♃40'01		min. Earth dist.	219 May 07 j 13:46	15°♃19'34	17.95433 AU
					219 May 15 j 11:54	15°♃	
conjunction	211 Oct 05 j 09:20	11°♃06'57	0°35'33	direct	219 Jul 23 j 23:22	13°♃17'05	
minimum elong	211 Oct 05 j 09:20	11°♃06'57	0°35'33		219 Sep 26 j 20:37	15°♃	
max. Earth dist.	211 Oct 04 j 21:19	11°♃05'04	19.53830 AU				
retrograde	212 Jan 20 j 09:14	15°♃25'34		conjunction	219 Nov 10 j 09:02	17°♃33'09	0°13'19
opposition	212 Apr 03 j 19:57	13°♃24'31	0°38'25	minimum elong	219 Nov 10 j 09:02	17°♃33'09	0°13'18
min. Earth dist.	212 Apr 04 j 05:33	13°♃23'30	17.56209 AU	behind sun begin	219 Nov 10 j 05:08	17°♃32'34	
direct	212 Jun 19 j 23:25	11°♃19'53		behind sun end	219 Nov 10 j 12:56	17°♃33'44	
				max. Earth dist.	219 Nov 10 j 12:43	17°♃33'42	19.98518 AU
conjunction	212 Oct 09 j 06:13	15°♃45'43	0°33'21	retrograde	220 Feb 25 j 14:56	21°♃45'31	

opposition	220 May 11 j 14:18	19°M45'23	0°12'58	conjunction	226 Dec 09 j 18:14	17°Z50'06	0°-9'-41
min. Earth dist.	220 May 11 j 10:07	19°M45'49	18.01611 AU	minimum elong	226 Dec 09 j 18:15	17°Z50'06	0°09'43
direct	220 Jul 27 j 19:12	17°M43'33		behind sun begin	226 Dec 09 j 12:50	17°Z49'18	
				behind sun end	226 Dec 09 j 23:39	17°Z50'53	
conjunction	220 Nov 13 j 22:48	21°M58'04	0°10'04	max. Earth dist.	226 Dec 10 j 10:32	17°Z52'32	20.43793 AU
minimum elong	220 Nov 13 j 22:48	21°M58'04	0°10'04	retrograde	227 Mar 27 j 22:37	21°Z57'12	
behind sun begin	220 Nov 13 j 17:29	21°M57'16		opposition	227 Jun 12 j 23:49	19°Z57'52	0°-12'-26
behind sun end	220 Nov 14 j 04:07	21°M58'51		min. Earth dist.	227 Jun 12 j 06:18	19°Z59'38	18.46921 AU
max. Earth dist.	220 Nov 14 j 04:24	21°M58'54	20.04772 AU	direct	227 Aug 28 j 21:26	17°Z58'45	
retrograde	221 Mar 01 j 08:09	26°M09'36					
opposition	221 May 16 j 10:47	24°M09'33	0°09'19	conjunction	227 Dec 14 j 03:25	22°Z03'14	0°-12'-49
min. Earth dist.	221 May 16 j 03:29	24°M10'18	18.07931 AU	minimum elong	227 Dec 14 j 03:25	22°Z03'14	0°12'49
direct	221 Aug 01 j 15:33	22°M08'03		behind sun begin	227 Dec 13 j 23:15	22°Z02'37	
				behind sun end	227 Dec 14 j 07:35	22°Z03'50	
conjunction	221 Nov 18 j 11:55	26°M21'03	0°06'47	max. Earth dist.	227 Dec 14 j 21:51	22°Z05'58	20.49996 AU
minimum elong	221 Nov 18 j 11:55	26°M21'03	0°06'46	retrograde	228 Mar 31 j 09:40	26°Z09'41	
behind sun begin	221 Nov 18 j 05:47	26°M20'08		opposition	228 Jun 16 j 15:49	24°Z10'28	0°-15'-52
behind sun end	221 Nov 18 j 18:02	26°M21'57		min. Earth dist.	228 Jun 15 j 21:59	24°Z12'15	18.53007 AU
max. Earth dist.	221 Nov 18 j 19:56	26°M22'15	20.11155 AU	direct	228 Sep 01 j 11:07	22°Z11'42	
	222 Jan 30 j 00:25	0°Z					
retrograde	222 Mar 05 j 22:37	0°Z31'46		conjunction	228 Dec 17 j 11:55	26°Z14'53	0°-15'-51
	222 Apr 10 j 23:51	30°RM		minimum elong	228 Dec 17 j 11:55	26°Z14'53	0°15'53
opposition	222 May 21 j 06:34	28°M31'48	0°05'38	behind sun begin	228 Dec 17 j 10:27	26°Z14'40	
min. Earth dist.	222 May 20 j 22:19	28°M32'39	18.14385 AU	behind sun end	228 Dec 17 j 13:23	26°Z15'06	
direct	222 Aug 06 j 09:58	26°M30'42		max. Earth dist.	228 Dec 18 j 06:36	26°Z17'39	20.55943 AU
	222 Nov 11 j 09:37	0°Z			229 Mar 07 j 04:26	0°Z	
				retrograde	229 Apr 04 j 23:04	0°Z20'44	
conjunction	222 Nov 23 j 00:11	0°Z42'11	0°03'29		229 May 04 j 07:32	30°RMZ	
minimum elong	222 Nov 23 j 00:10	0°Z42'11	0°03'29	min. Earth dist.	229 Jun 20 j 11:26	28°Z23'33	18.58804 AU
behind sun begin	222 Nov 22 j 17:41	0°Z41'13		opposition	229 Jun 21 j 07:00	28°Z21'35	0°-19'-12
behind sun end	222 Nov 23 j 06:40	0°Z43'09		direct	229 Sep 06 j 01:00	26°Z23'07	
max. Earth dist.	222 Nov 23 j 09:43	0°Z43'37	20.17671 AU		229 Dec 14 j 18:43	0°Z	
retrograde	223 Mar 10 j 15:17	4°Z52'07					
opposition	223 May 26 j 01:42	2°Z52'16	0°01'57	conjunction	229 Dec 21 j 20:06	0°Z25'05	0°-18'-48
min. Earth dist.	223 May 25 j 14:24	2°Z53'26	18.20940 AU	minimum elong	229 Dec 21 j 20:06	0°Z25'05	0°18'49
direct	223 Aug 11 j 04:34	0°Z51'34		max. Earth dist.	229 Dec 22 j 16:36	0°Z28'07	20.61558 AU
				retrograde	230 Apr 09 j 09:10	4°Z30'20	
conjunction	223 Nov 27 j 11:39	5°Z01'35	0°00'06	opposition	230 Jun 25 j 21:29	2°Z31'14	0°-22'-24
minimum elong	223 Nov 27 j 11:39	5°Z01'35	0°00'07	min. Earth dist.	230 Jun 25 j 01:47	2°Z33'12	18.64247 AU
behind sun begin	223 Nov 27 j 05:20	5°Z00'39		direct	230 Sep 10 j 13:31	0°Z33'03	
behind sun end	223 Nov 27 j 17:57	5°Z02'30					
max. Earth dist.	223 Nov 27 j 23:44	5°Z03'24	20.24250 AU	conjunction	230 Dec 26 j 03:40	4°Z33'49	0°-21'-38
desc. node	223 Dec 08 j 13:42	5°Z41'45		minimum elong	230 Dec 26 j 03:39	4°Z33'49	0°21'39
retrograde	224 Mar 14 j 04:26	9°Z10'46		max. Earth dist.	230 Dec 27 j 00:07	4°Z36'50	20.66831 AU
opposition	224 May 29 j 20:22	7°Z11'03	0°-1'-42	retrograde	231 Apr 13 j 21:04	8°Z38'31	
min. Earth dist.	224 May 29 j 08:14	7°Z12'17	18.27538 AU	opposition	231 Jun 30 j 11:22	6°Z39'24	0°-25'-28
direct	224 Aug 14 j 21:41	5°Z10'46		min. Earth dist.	231 Jun 29 j 14:11	6°Z41'32	18.69349 AU
				direct	231 Sep 15 j 01:39	4°Z41'27	
conjunction	224 Nov 30 j 22:26	9°Z19'19	0°-3'-15				
minimum elong	224 Nov 30 j 22:28	9°Z19'19	0°03'16	conjunction	231 Dec 30 j 10:41	8°Z41'05	0°-24'-21
behind sun begin	224 Nov 30 j 15:58	9°Z18'22		minimum elong	231 Dec 30 j 10:41	8°Z41'05	0°24'22
behind sun end	224 Dec 01 j 04:58	9°Z20'17		max. Earth dist.	231 Dec 31 j 09:03	8°Z44'23	20.71751 AU
max. Earth dist.	224 Dec 01 j 11:43	9°Z21'19	20.30851 AU	retrograde	232 Apr 17 j 06:36	12°Z45'15	
retrograde	225 Mar 18 j 20:07	13°Z27'47		min. Earth dist.	232 Jul 03 j 03:07	10°Z48'16	18.74105 AU
opposition	225 Jun 03 j 14:03	11°Z28'12	0°-5'-20	opposition	232 Jul 04 j 00:33	10°Z46'07	0°-28'-23
min. Earth dist.	225 Jun 02 j 23:16	11°Z29'42	18.34120 AU	direct	232 Sep 18 j 12:58	8°Z48'22	
direct	225 Aug 19 j 14:40	9°Z28'18					
				conjunction	233 Jan 02 j 17:13	12°Z46'56	0°-26'-54
conjunction	225 Dec 05 j 08:44	13°Z35'29	0°-6'-30	minimum elong	233 Jan 02 j 17:13	12°Z46'56	0°26'55
minimum elong	225 Dec 05 j 08:43	13°Z35'29	0°06'30	max. Earth dist.	233 Jan 03 j 15:30	12°Z50'12	20.76354 AU
behind sun begin	225 Dec 05 j 02:34	13°Z34'34		retrograde	233 Apr 21 j 16:50	16°Z50'36	
behind sun end	225 Dec 05 j 14:53	13°Z36'23		opposition	233 Jul 08 j 12:48	14°Z51'27	0°-31'-7
max. Earth dist.	225 Dec 06 j 00:18	13°Z37'49	20.37385 AU	min. Earth dist.	233 Jul 07 j 14:07	14°Z53'43	18.78569 AU
retrograde	226 Mar 23 j 08:07	17°Z43'14		direct	233 Sep 22 j 23:07	12°Z53'51	
opposition	226 Jun 08 j 07:18	15°Z43'48	0°-8'-55				
min. Earth dist.	226 Jun 07 j 16:01	15°Z45'20	18.40601 AU	conjunction	234 Jan 06 j 23:28	16°Z51'27	0°-29'-19
direct	226 Aug 24 j 05:53	13°Z44'18		minimum elong	234 Jan 06 j 23:28	16°Z51'27	0°29'20

max. Earth dist.	234 Jan 07 j 23:36	16°☾54'58	20.80662 AU	conjunction	242 Feb 07 j 18:26	18°☾58'08	0°-42'-17
retrograde	234 Apr 26 j 01:42	20°☾54'39		minimum elong	242 Feb 07 j 18:26	18°☾58'08	0°42'17
min. Earth dist.	234 Jul 12 j 01:26	18°☾57'48	18.82746 AU	max. Earth dist.	242 Feb 08 j 21:11	19°☾01'58	21.04145 AU
opposition	234 Jul 13 j 00:32	18°☾55'29	0°-33'-41	retrograde	242 May 29 j 01:18	22°☾59'53	
direct	234 Sep 27 j 08:43	16°☾58'06		min. Earth dist.	242 Aug 14 j 04:07	21°☾03'15	19.04758 AU
				opposition	242 Aug 15 j 04:28	21°☾00'49	0°-47'-10
conjunction	235 Jan 11 j 05:05	20°☾54'46	0°-31'-33	direct	242 Oct 29 j 16:18	19°☾04'39	
minimum elong	235 Jan 11 j 05:05	20°☾54'46	0°31'34				
max. Earth dist.	235 Jan 12 j 05:06	20°☾58'15	20.84712 AU	conjunction	243 Feb 11 j 23:51	22°☾57'12	0°-43'-3
retrograde	235 Apr 30 j 11:18	24°☾57'37		minimum elong	243 Feb 11 j 23:51	22°☾57'12	0°43'04
min. Earth dist.	235 Jul 16 j 11:27	23°☾00'51	18.86677 AU	max. Earth dist.	243 Feb 13 j 00:56	23°☾00'47	21.05138 AU
opposition	235 Jul 17 j 11:41	22°☾58'26	0°-36'-5	retrograde	243 Jun 02 j 10:24	26°☾59'00	
direct	235 Oct 01 j 17:22	21°☾01'13		opposition	243 Aug 19 j 12:31	24°☾59'51	0°-47'-53
				min. Earth dist.	243 Aug 18 j 12:58	25°☾02'12	19.05475 AU
conjunction	236 Jan 15 j 10:44	24°☾57'04	0°-33'-38	direct	243 Nov 02 j 21:07	23°☾03'41	
minimum elong	236 Jan 15 j 10:44	24°☾57'04	0°33'39				
max. Earth dist.	236 Jan 16 j 12:31	25°☾00'49	20.88502 AU	conjunction	244 Feb 16 j 05:43	26°☾56'05	0°-43'-35
retrograde	236 May 03 j 19:39	28°☾59'35		minimum elong	244 Feb 16 j 05:43	26°☾56'05	0°43'35
opposition	236 Jul 20 j 22:11	27°☾00'25	0°-38'-16	max. Earth dist.	244 Feb 17 j 07:10	26°☾59'43	21.05570 AU
min. Earth dist.	236 Jul 19 j 21:37	27°☾02'53	18.90335 AU		244 Apr 17 j 00:45	0°☿	
direct	236 Oct 05 j 01:04	25°☾03'24		retrograde	244 Jun 05 j 18:29	0°☿57'55	
					244 Jul 27 j 01:56	30°☿	
conjunction	237 Jan 18 j 16:00	28°☾58'31	0°-35'-32	opposition	244 Aug 22 j 20:04	28°☾58'40	0°-48'-22
minimum elong	237 Jan 18 j 16:00	28°☾58'31	0°35'33	min. Earth dist.	244 Aug 21 j 21:07	29°☾00'59	19.05626 AU
max. Earth dist.	237 Jan 19 j 17:21	29°☾02'12	20.92024 AU	direct	244 Nov 06 j 03:50	27°☾02'28	
	237 Feb 05 j 12:23	0°☿			245 Feb 03 j 09:25	0°☿	
retrograde	237 May 08 j 05:19	3°☿00'47					
min. Earth dist.	237 Jul 24 j 06:59	1°☿04'09	18.93713 AU	conjunction	245 Feb 19 j 11:33	0°☿54'47	0°-43'-55
opposition	237 Jul 25 j 08:13	1°☿01'38	0°-40'-17	minimum elong	245 Feb 19 j 11:34	0°☿54'47	0°43'56
	237 Aug 21 j 08:51	30°☿		max. Earth dist.	245 Feb 20 j 11:07	0°☿58'09	21.05466 AU
direct	237 Oct 09 j 08:35	29°☾04'48		retrograde	245 Jun 10 j 03:27	4°☿56'43	
	237 Nov 25 j 08:24	0°☿		min. Earth dist.	245 Aug 26 j 05:34	2°☿59'33	19.05269 AU
				opposition	245 Aug 27 j 03:28	2°☿57'20	0°-48'-37
conjunction	238 Jan 22 j 21:16	2°☿59'18	0°-37'-16	direct	245 Nov 10 j 08:43	1°☿01'03	
minimum elong	238 Jan 22 j 21:16	2°☿59'18	0°37'17				
max. Earth dist.	238 Jan 24 j 00:09	3°☿03'11	20.95231 AU	conjunction	246 Feb 23 j 17:36	4°☿53'21	0°-44'-2
retrograde	238 May 12 j 13:28	7°☿01'21		minimum elong	246 Feb 23 j 17:36	4°☿53'21	0°44'04
opposition	238 Jul 29 j 17:45	5°☿02'14	0°-42'-5	max. Earth dist.	246 Feb 24 j 17:34	4°☿56'47	21.04862 AU
min. Earth dist.	238 Jul 28 j 16:24	5°☿04'46	18.96751 AU	retrograde	246 Jun 14 j 11:07	8°☿55'26	
direct	238 Oct 13 j 15:13	3°☿05'36		opposition	246 Aug 31 j 10:32	6°☿55'55	0°-48'-38
				min. Earth dist.	246 Aug 30 j 13:05	6°☿58'05	19.04434 AU
conjunction	239 Jan 27 j 02:22	6°☿59'31	0°-38'-49	direct	246 Nov 14 j 14:43	4°☿59'32	
minimum elong	239 Jan 27 j 02:22	6°☿59'31	0°38'50				
max. Earth dist.	239 Jan 28 j 04:31	7°☿03'18	20.98101 AU	conjunction	247 Feb 27 j 23:47	8°☿51'55	0°-43'-56
retrograde	239 May 16 j 23:00	11°☿01'26		minimum elong	247 Feb 27 j 23:47	8°☿51'55	0°43'57
min. Earth dist.	239 Aug 02 j 01:29	9°☿04'54	18.99440 AU	max. Earth dist.	247 Feb 28 j 21:57	8°☿55'05	21.03829 AU
opposition	239 Aug 03 j 03:00	9°☿02'21	0°-43'-41	retrograde	247 Jun 18 j 20:13	12°☿54'12	
direct	239 Oct 17 j 21:37	7°☿05'52		opposition	247 Sep 04 j 17:29	10°☿54'33	0°-48'-24
				min. Earth dist.	247 Sep 03 j 21:06	10°☿56'36	19.03207 AU
conjunction	240 Jan 31 j 07:36	10°☿59'21	0°-40'-10	direct	247 Nov 18 j 19:28	8°☿58'02	
minimum elong	240 Jan 31 j 07:36	10°☿59'21	0°40'11				
max. Earth dist.	240 Feb 01 j 10:57	11°☿03'17	21.00580 AU	conjunction	248 Mar 03 j 06:26	12°☿50'37	0°-43'-38
	240 May 13 j 09:50	15°☿		minimum elong	248 Mar 03 j 06:26	12°☿50'37	0°43'40
retrograde	240 May 20 j 07:35	15°☿01'10		max. Earth dist.	248 Mar 04 j 04:59	12°☿53'51	21.02406 AU
	240 May 27 j 07:22	15°☿		retrograde	248 Jun 22 j 04:16	16°☿53'10	
min. Earth dist.	240 Aug 05 j 10:33	13°☿04'38	19.01699 AU	min. Earth dist.	248 Sep 07 j 04:16	14°☿55'25	19.01595 AU
opposition	240 Aug 06 j 11:51	13°☿02'06	0°-45'-4	opposition	248 Sep 08 j 00:13	14°☿53'23	0°-47'-57
direct	240 Oct 21 j 04:16	11°☿05'46		direct	248 Nov 22 j 00:45	12°☿56'46	
conjunction	241 Feb 03 j 12:54	14°☿58'51	0°-41'-20	conjunction	249 Mar 07 j 13:18	16°☿49'38	0°-43'-7
minimum elong	241 Feb 03 j 12:54	14°☿58'51	0°41'21	minimum elong	249 Mar 07 j 13:18	16°☿49'38	0°43'07
	241 Feb 03 j 20:53	15°☿		max. Earth dist.	249 Mar 08 j 09:52	16°☿52'34	21.00626 AU
max. Earth dist.	241 Feb 04 j 14:59	15°☿02'36	21.02614 AU	retrograde	249 Jun 26 j 13:26	20°☿52'30	
retrograde	241 May 24 j 16:45	19°☿00'37		opposition	249 Sep 12 j 06:51	18°☿52'37	0°-47'-16
opposition	241 Aug 10 j 20:15	17°☿01'34	0°-46'-14	min. Earth dist.	249 Sep 11 j 12:10	18°☿54'31	18.99648 AU
min. Earth dist.	241 Aug 09 j 19:25	17°☿04'03	19.03497 AU	direct	249 Nov 26 j 05:24	16°☿55'53	
direct	241 Oct 25 j 09:25	15°☿05'20					

conjunction	250 Mar 11 j 20:43	20° ✕ 49'09	0°-42'-24	conjunction	258 Apr 14 j 05:57	23° ∇ 20'39	0°-29'-25
minimum elong	250 Mar 11 j 20:43	20° ✕ 49'09	0°42'25	minimum elong	258 Apr 14 j 05:57	23° ∇ 20'39	0°29'26
max. Earth dist.	250 Mar 12 j 17:31	20° ✕ 52'07	20.98510 AU	max. Earth dist.	258 Apr 14 j 13:36	23° ∇ 21'45	20.68434 AU
retrograde	250 Jun 30 j 22:31	24° ✕ 52'24		retrograde	258 Aug 03 j 12:17	27° ∇ 28'32	
opposition	250 Sep 16 j 13:32	22° ✕ 52'26	0°-46'-21	opposition	258 Oct 19 j 01:14	25° ∇ 27'49	0°-31'-12
min. Earth dist.	250 Sep 15 j 19:18	22° ✕ 54'17	18.97361 AU	min. Earth dist.	258 Oct 18 j 19:16	25° ∇ 28'26	18.65695 AU
direct	250 Nov 30 j 10:41	20° ✕ 55'36		direct	259 Jan 01 j 15:40	23° ∇ 29'19	
conjunction	251 Mar 16 j 04:21	24° ✕ 49'20	0°-41'-28	conjunction	259 Apr 18 j 19:05	27° ∇ 29'54	0°-26'-58
minimum elong	251 Mar 16 j 04:21	24° ✕ 49'20	0°41'28	minimum elong	259 Apr 18 j 19:06	27° ∇ 29'54	0°26'59
max. Earth dist.	251 Mar 16 j 23:03	24° ✕ 52'00	20.96073 AU	max. Earth dist.	259 Apr 18 j 23:39	27° ∇ 30'33	20.62897 AU
retrograde	251 Jul 05 j 07:54	28° ✕ 53'03			259 Jun 04 j 01:40	0° ♁	
opposition	251 Sep 20 j 20:22	26° ✕ 53'00	0°-45'-13	retrograde	259 Aug 07 j 23:53	1° ♁ 38'29	
min. Earth dist.	251 Sep 20 j 03:41	26° ✕ 54'42	18.94760 AU		259 Oct 14 j 09:49	30° R ∇	
direct	251 Dec 04 j 15:22	24° ✕ 56'03		opposition	259 Oct 23 j 10:00	29° ∇ 37'34	0°-28'-24
conjunction	252 Mar 19 j 12:52	28° ✕ 50'23	0°-40'-20	min. Earth dist.	259 Oct 23 j 06:34	29° ∇ 37'55	18.60013 AU
minimum elong	252 Mar 19 j 12:52	28° ✕ 50'23	0°40'21	direct	260 Jan 05 j 23:34	27° ∇ 38'40	
max. Earth dist.	252 Mar 20 j 07:32	28° ✕ 53'03	20.93304 AU		260 Mar 23 j 17:01	0° ♁	
	252 Apr 09 j 02:06	0° ∇		conjunction	260 Apr 22 j 09:16	1° ♁ 40'25	0°-24'-22
retrograde	252 Jul 08 j 18:23	2° ∇ 54'35		minimum elong	260 Apr 22 j 09:16	1° ♁ 40'25	0°24'23
min. Earth dist.	252 Sep 23 j 11:09	0° ∇ 56'07	18.91810 AU	max. Earth dist.	260 Apr 22 j 12:55	1° ♁ 40'56	20.57089 AU
opposition	252 Sep 24 j 03:04	0° ∇ 54'30	0°-43'-52	retrograde	260 Aug 11 j 13:15	5° ♁ 49'40	
	252 Oct 17 j 05:11	30° R ✕		opposition	260 Oct 26 j 18:51	3° ♁ 48'34	0°-25'-27
direct	252 Dec 07 j 21:21	28° ✕ 57'25		min. Earth dist.	260 Oct 26 j 16:18	3° ♁ 48'51	18.54086 AU
	253 Jan 26 j 21:53	0° ∇		direct	261 Jan 09 j 09:34	1° ♁ 49'18	
conjunction	253 Mar 23 j 21:53	2° ∇ 52'27	0°-39'00	conjunction	261 Apr 26 j 23:57	5° ♁ 52'14	0°-21'-37
minimum elong	253 Mar 23 j 21:53	2° ∇ 52'27	0°39'01	minimum elong	261 Apr 26 j 23:57	5° ♁ 52'14	0°21'37
max. Earth dist.	253 Mar 24 j 14:00	2° ∇ 54'45	20.90187 AU	max. Earth dist.	261 Apr 27 j 00:40	5° ♁ 52'20	20.51071 AU
retrograde	253 Jul 13 j 03:51	6° ∇ 57'13		retrograde	261 Aug 16 j 01:48	10° ♁ 02'13	
opposition	253 Sep 28 j 10:11	4° ∇ 57'04	0°-42'-17	opposition	261 Oct 31 j 04:23	8° ♁ 00'56	0°-22'-20
min. Earth dist.	253 Sep 27 j 20:14	4° ∇ 58'29	18.88507 AU	min. Earth dist.	261 Oct 31 j 04:17	8° ♁ 00'57	18.47995 AU
direct	253 Dec 12 j 02:12	2° ∇ 59'51		direct	262 Jan 13 j 18:11	6° ♁ 01'16	
conjunction	254 Mar 28 j 07:35	6° ∇ 55'39	0°-37'-28	conjunction	262 May 01 j 15:22	10° ♁ 05'27	0°-18'-45
minimum elong	254 Mar 28 j 07:35	6° ∇ 55'39	0°37'29	minimum elong	262 May 01 j 15:22	10° ♁ 05'27	0°18'46
max. Earth dist.	254 Mar 28 j 23:19	6° ∇ 57'54	20.86689 AU	max. Earth dist.	262 May 01 j 15:19	10° ♁ 05'27	20.44918 AU
retrograde	254 Jul 17 j 15:19	11° ∇ 01'00		retrograde	262 Aug 20 j 16:49	14° ♁ 16'11	
opposition	254 Oct 02 j 17:26	9° ∇ 00'48	0°-40'-29	opposition	262 Nov 04 j 14:15	12° ♁ 14'45	0°-19'-5
min. Earth dist.	254 Oct 02 j 04:27	9° ∇ 02'08	18.84799 AU	min. Earth dist.	262 Nov 04 j 14:48	12° ♁ 14'41	18.41785 AU
direct	254 Dec 16 j 09:30	7° ∇ 03'26		direct	263 Jan 18 j 05:27	10° ♁ 14'42	
conjunction	255 Apr 01 j 18:01	11° ∇ 00'04	0°-35'-44	conjunction	263 May 06 j 07:39	14° ♁ 20'12	0°-15'-45
minimum elong	255 Apr 01 j 18:01	11° ∇ 00'04	0°35'46	minimum elong	263 May 06 j 07:39	14° ♁ 20'12	0°15'46
max. Earth dist.	255 Apr 02 j 06:47	11° ∇ 01'54	20.82779 AU	max. Earth dist.	263 May 06 j 04:49	14° ♁ 19'48	20.38670 AU
retrograde	255 Jul 22 j 01:19	15° ∇ 06'03			263 May 17 j 16:33	15° ♁	
opposition	255 Oct 07 j 01:00	13° ∇ 05'45	0°-38'-28	retrograde	263 Aug 25 j 06:22	18° ♁ 31'42	
min. Earth dist.	255 Oct 06 j 14:25	13° ∇ 06'51	18.80672 AU	opposition	263 Nov 09 j 00:40	16° ♁ 30'08	0°-15'-43
direct	255 Dec 20 j 15:08	11° ∇ 08'10		min. Earth dist.	263 Nov 09 j 03:43	16° ♁ 29'49	18.35517 AU
conjunction	256 Apr 05 j 05:25	15° ∇ 05'43	0°-33'-49	direct	263 Dec 19 j 02:56	15° R ♁	
minimum elong	256 Apr 05 j 05:25	15° ∇ 05'43	0°33'49		264 Jan 22 j 15:02	14° ♁ 29'42	
max. Earth dist.	256 Apr 05 j 17:15	15° ∇ 07'25	20.78428 AU		264 Feb 25 j 17:37	15° ♁	
retrograde	256 Jul 25 j 13:14	19° ∇ 12'19		conjunction	264 May 10 j 00:56	18° ♁ 36'37	0°-12'-40
opposition	256 Oct 10 j 08:48	17° ∇ 11'55	0°-36'-14	minimum elong	264 May 10 j 00:56	18° ♁ 36'37	0°12'41
min. Earth dist.	256 Oct 09 j 23:19	17° ∇ 12'54	18.76086 AU	behind sun begin	264 May 09 j 20:46	18° ♁ 36'01	
direct	256 Dec 23 j 23:40	15° ∇ 14'04		behind sun end	264 May 10 j 05:05	18° ♁ 37'12	
				max. Earth dist.	264 May 09 j 21:06	18° ♁ 36'04	20.32387 AU
conjunction	257 Apr 09 j 17:15	19° ∇ 12'35	0°-31'-42	retrograde	264 Aug 28 j 23:01	22° ♁ 48'54	
minimum elong	257 Apr 09 j 17:15	19° ∇ 12'35	0°31'43	opposition	264 Nov 12 j 11:35	20° ♁ 47'13	0°-12'-14
max. Earth dist.	257 Apr 10 j 01:50	19° ∇ 13'49	20.73630 AU	min. Earth dist.	264 Nov 12 j 15:14	20° ♁ 46'50	18.29216 AU
retrograde	257 Jul 29 j 23:55	23° ∇ 19'50		direct	265 Jan 26 j 03:30	18° ♁ 46'26	
opposition	257 Oct 14 j 16:55	21° ∇ 19'16	0°-33'-49				
min. Earth dist.	257 Oct 14 j 09:58	21° ∇ 20'00	18.71079 AU	conjunction	265 May 14 j 18:48	22° ♁ 54'47	0°-9'-29
direct	257 Dec 28 j 06:28	19° ∇ 21'07		minimum elong	265 May 14 j 18:48	22° ♁ 54'47	0°09'30
				behind sun begin	265 May 14 j 13:13	22° ♁ 53'59	

behind sun end	265 May 15 j 00:23	22°♄55'35		opposition	271 Dec 13 j 11:26	21°♃40'52	0°13'43
max. Earth dist.	265 May 14 j 12:22	22°♄53'52	20.26079 AU	min. Earth dist.	271 Dec 14 j 03:43	21°♃39'06	17.84960 AU
retrograde	265 Sep 02 j 13:55	27°♄07'54		direct	272 Feb 26 j 09:52	19°♃37'34	
opposition	265 Nov 16 j 23:17	25°♄06'10	0°-8'-40	max. Earth dist.	272 Jun 15 j 05:09	23°♃53'32	19.81861 AU
min. Earth dist.	265 Nov 17 j 05:25	25°♄05'31	18.22915 AU				
direct	266 Jan 30 j 14:39	23°♄05'02		conjunction	272 Jun 16 j 01:30	23°♃56'36	0°14'02
				minimum elong	272 Jun 16 j 01:29	23°♃56'36	0°14'01
conjunction	266 May 19 j 13:44	27°♄14'53	0°-6'-14	behind sun begin	272 Jun 15 j 22:18	23°♃56'08	
minimum elong	266 May 19 j 13:44	27°♄14'53	0°06'15	behind sun end	272 Jun 16 j 04:41	23°♃57'05	
behind sun begin	266 May 19 j 07:20	27°♄13'58		retrograde	272 Oct 04 j 00:07	28°♃15'10	
behind sun end	266 May 19 j 20:08	27°♄15'48		opposition	272 Dec 17 j 03:53	26°♃12'57	0°17'23
max. Earth dist.	266 May 19 j 06:06	27°♄13'47	20.19787 AU	min. Earth dist.	272 Dec 17 j 20:43	26°♃11'08	17.78795 AU
	266 Jul 08 j 23:35	0°♃		direct	273 Mar 02 j 05:21	24°♃09'15	
retrograde	266 Sep 07 j 07:48	1°♃28'50		max. Earth dist.	273 Jun 20 j 04:30	28°♃26'29	19.75775 AU
	266 Nov 08 j 10:53	30°♃					
opposition	266 Nov 21 j 11:22	29°♄27'03	0°-5'00	conjunction	273 Jun 21 j 01:50	28°♃29'43	0°17'16
min. Earth dist.	266 Nov 21 j 18:11	29°♄26'19	18.16620 AU	minimum elong	273 Jun 21 j 01:50	28°♃29'43	0°17'17
direct	267 Feb 04 j 04:16	27°♄25'36			273 Jul 16 j 07:42	0°♄	
	267 Apr 26 j 11:37	0°♃		retrograde	273 Oct 08 j 19:37	2°♄48'55	
				opposition	273 Dec 21 j 21:08	0°♄46'36	0°20'57
conjunction	267 May 24 j 09:33	1°♃36'59	0°-2'-55	min. Earth dist.	273 Dec 22 j 15:57	0°♄44'34	17.72828 AU
minimum elong	267 May 24 j 09:33	1°♃36'59	0°02'56		274 Jan 09 j 04:58	30°♃	
behind sun begin	267 May 24 j 02:47	1°♃36'01		direct	274 Mar 07 j 00:17	28°♃42'30	
behind sun end	267 May 24 j 16:18	1°♃37'58			274 May 01 j 10:01	0°♄	
max. Earth dist.	267 May 23 j 23:21	1°♃35'30	20.13483 AU	max. Earth dist.	274 Jun 25 j 03:23	3°♄00'48	19.69943 AU
retrograde	267 Sep 12 j 00:31	5°♃51'47					
opposition	267 Nov 26 j 00:26	3°♃49'57	0°-1'-17	conjunction	274 Jun 26 j 02:44	3°♄04'22	0°20'26
min. Earth dist.	267 Nov 26 j 10:00	3°♃48'56	18.10311 AU	minimum elong	274 Jun 26 j 02:44	3°♄04'22	0°20'25
direct	268 Feb 08 j 17:15	1°♃48'10		retrograde	274 Oct 13 j 16:16	7°♄24'09	
asc. node	268 Apr 03 j 01:01	3°♃02'25		opposition	274 Dec 26 j 14:48	5°♄21'44	0°24'25
				min. Earth dist.	274 Dec 27 j 10:01	5°♄19'38	17.67152 AU
conjunction	268 May 28 j 06:24	6°♃01'07	0°00'32	direct	275 Mar 11 j 21:44	3°♄17'13	
minimum elong	268 May 28 j 06:23	6°♃01'07	0°00'33	max. Earth dist.	275 Jun 30 j 04:41	7°♄36'50	19.64419 AU
behind sun begin	268 May 27 j 23:38	6°♃00'08					
behind sun end	268 May 28 j 13:09	6°♃02'06		conjunction	275 Jul 01 j 04:19	7°♄40'26	0°23'28
max. Earth dist.	268 May 27 j 18:27	5°♃59'21	20.07163 AU	minimum elong	275 Jul 01 j 04:19	7°♄40'26	0°23'28
retrograde	268 Sep 15 j 19:31	10°♃16'44		retrograde	275 Oct 18 j 12:41	12°♄00'46	
opposition	268 Nov 29 j 13:58	8°♃14'52	0°02'27	opposition	275 Dec 31 j 09:23	9°♄58'17	0°27'44
min. Earth dist.	268 Nov 30 j 00:21	8°♃13'45	18.03975 AU	min. Earth dist.	276 Jan 01 j 06:04	9°♄56'02	17.61816 AU
direct	269 Feb 12 j 08:39	6°♃12'44		direct	276 Mar 15 j 18:14	7°♄53'25	
				max. Earth dist.	276 Jul 04 j 04:37	12°♄13'59	19.59284 AU
conjunction	269 Jun 02 j 04:03	10°♃27'15	0°03'58				
minimum elong	269 Jun 02 j 04:02	10°♃27'15	0°03'58	conjunction	276 Jul 05 j 06:06	12°♄17'53	0°26'22
behind sun begin	269 Jun 01 j 21:20	10°♃26'16		minimum elong	276 Jul 05 j 06:06	12°♄17'53	0°26'22
behind sun end	269 Jun 02 j 10:44	10°♃28'13		retrograde	276 Oct 22 j 10:33	16°♄38'43	
max. Earth dist.	269 Jun 01 j 13:42	10°♃25'07	20.00803 AU	opposition	277 Jan 04 j 04:33	14°♄36'11	0°30'53
retrograde	269 Sep 20 j 13:30	14°♃43'39		min. Earth dist.	277 Jan 05 j 01:26	14°♄33'54	17.56909 AU
opposition	269 Dec 04 j 04:32	12°♃41'43	0°06'13	direct	277 Mar 20 j 17:00	12°♄30'59	
min. Earth dist.	269 Dec 04 j 17:35	12°♃40'19	17.97615 AU	max. Earth dist.	277 Jul 09 j 07:28	16°♄52'50	19.54598 AU
direct	270 Feb 16 j 23:27	10°♃39'13					
max. Earth dist.	270 Jun 06 j 10:02	14°♃52'49	19.94445 AU	conjunction	277 Jul 10 j 08:29	16°♄56'41	0°29'06
				minimum elong	277 Jul 10 j 08:29	16°♄56'41	0°29'06
conjunction	270 Jun 07 j 02:22	14°♃55'16	0°07'21	retrograde	277 Oct 27 j 08:32	21°♄17'58	
minimum elong	270 Jun 07 j 02:21	14°♃55'16	0°07'21	opposition	278 Jan 09 j 00:29	19°♄15'25	0°33'50
behind sun begin	270 Jun 06 j 20:10	14°♃54'21		min. Earth dist.	278 Jan 09 j 22:10	19°♄13'03	17.52471 AU
behind sun end	270 Jun 07 j 08:32	14°♃56'10		direct	278 Mar 25 j 14:50	17°♄09'58	
retrograde	270 Sep 25 j 09:20	19°♃12'26		max. Earth dist.	278 Jul 14 j 08:22	21°♄32'40	19.50415 AU
opposition	270 Dec 08 j 19:37	17°♃10'25	0°09'59				
min. Earth dist.	270 Dec 09 j 09:24	17°♃08'56	17.91261 AU	conjunction	278 Jul 15 j 11:01	21°♄36'46	0°31'40
direct	271 Feb 21 j 16:58	15°♃07'31		minimum elong	278 Jul 15 j 11:01	21°♄36'46	0°31'40
max. Earth dist.	271 Jun 11 j 07:25	19°♃22'21	19.88101 AU	retrograde	278 Nov 01 j 07:30	25°♄58'28	
				opposition	279 Jan 13 j 21:04	23°♄55'58	0°36'36
conjunction	271 Jun 12 j 01:38	19°♃25'05	0°10'43	min. Earth dist.	279 Jan 14 j 19:01	23°♄53'34	17.48548 AU
minimum elong	271 Jun 12 j 01:37	19°♃25'05	0°10'43	direct	279 Mar 30 j 13:51	21°♄50'17	
behind sun begin	271 Jun 11 j 20:29	19°♃24'20					
behind sun end	271 Jun 12 j 06:46	19°♃25'50		conjunction	279 Jul 20 j 14:11	26°♄18'10	0°34'01
retrograde	271 Sep 30 j 04:03	23°♃42'58		minimum elong	279 Jul 20 j 14:11	26°♄18'10	0°34'01

max. Earth dist.	279 Jul 19 j 12:18	26°☾14'10	19.46738 AU		287 May 30 j 13:21	0°♄	
	279 Sep 28 j 22:08	0°♄					
retrograde	279 Nov 06 j 07:09	0°♄40'14		conjunction	287 Aug 28 j 17:00	4°♄18'31	0°43'49
	279 Dec 15 j 08:45	30°♄		minimum elong	287 Aug 28 j 17:00	4°♄18'31	0°43'49
opposition	280 Jan 18 j 18:19	28°♄37'47	0°39'07	max. Earth dist.	287 Aug 27 j 15:41	4°♄14'32	19.33914 AU
min. Earth dist.	280 Jan 19 j 16:40	28°♄35'20	17.45118 AU	retrograde	287 Dec 14 j 04:55	8°♄40'54	
direct	280 Apr 03 j 13:17	26°♄31'57		opposition	288 Feb 25 j 16:40	6°♄38'54	0°48'52
	280 Jul 08 j 07:19	0°♄		min. Earth dist.	288 Feb 26 j 13:47	6°♄36'37	17.34153 AU
				direct	288 May 12 j 08:59	4°♄32'32	
conjunction	280 Jul 24 j 17:27	1°♄00'47	0°36'10				
minimum elong	280 Jul 24 j 17:27	1°♄00'47	0°36'11	conjunction	288 Sep 01 j 19:14	9°♄04'08	0°43'44
max. Earth dist.	280 Jul 23 j 14:11	0°♄56'33	19.43559 AU	minimum elong	288 Sep 01 j 19:14	9°♄04'08	0°43'45
retrograde	280 Nov 10 j 06:31	5°♄23'10		max. Earth dist.	288 Aug 31 j 19:35	9°♄00'24	19.34445 AU
opposition	281 Jan 22 j 16:21	3°♄20'47	0°41'24	retrograde	288 Dec 18 j 02:45	13°♄26'12	
min. Earth dist.	281 Jan 23 j 15:11	3°♄18'18	17.42192 AU	opposition	289 Mar 01 j 18:03	11°♄24'15	0°48'36
direct	281 Apr 08 j 12:42	1°♄14'49		min. Earth dist.	289 Mar 02 j 15:11	11°♄21'58	17.34971 AU
				direct	289 May 17 j 11:32	9°♄17'55	
conjunction	281 Jul 29 j 20:54	5°♄44'30	0°38'05				
minimum elong	281 Jul 29 j 20:54	5°♄44'30	0°38'05	conjunction	289 Sep 06 j 20:40	13°♄49'11	0°43'21
max. Earth dist.	281 Jul 28 j 18:31	5°♄40'23	19.40857 AU	minimum elong	289 Sep 06 j 20:40	13°♄49'11	0°43'21
retrograde	281 Nov 15 j 07:14	10°♄07'07		max. Earth dist.	289 Sep 05 j 21:47	13°♄45'35	19.35560 AU
opposition	282 Jan 27 j 14:59	8°♄04'49	0°43'24	retrograde	289 Dec 23 j 02:51	18°♄10'55	
min. Earth dist.	282 Jan 28 j 13:45	8°♄02'20	17.39712 AU	opposition	290 Mar 06 j 19:21	16°♄09'01	0°48'01
direct	282 Apr 13 j 14:18	5°♄58'45		min. Earth dist.	290 Mar 07 j 14:14	16°♄06'59	17.36377 AU
max. Earth dist.	282 Aug 02 j 21:05	10°♄24'51	19.38594 AU	direct	290 May 22 j 16:15	14°♄02'46	
conjunction	282 Aug 04 j 00:32	10°♄29'08	0°39'45	conjunction	290 Sep 11 j 21:47	18°♄33'37	0°42'41
minimum elong	282 Aug 04 j 00:32	10°♄29'08	0°39'44	minimum elong	290 Sep 11 j 21:47	18°♄33'37	0°42'40
retrograde	282 Nov 20 j 06:01	14°♄51'55		max. Earth dist.	290 Sep 11 j 01:20	18°♄30'24	19.37267 AU
opposition	283 Feb 01 j 14:09	12°♄49'42	0°45'07	retrograde	290 Dec 28 j 00:49	22°♄54'55	
min. Earth dist.	283 Feb 02 j 13:40	12°♄47'08	17.37677 AU	opposition	291 Mar 11 j 20:47	20°♄53'07	0°47'06
direct	283 Apr 18 j 14:50	10°♄43'31		min. Earth dist.	291 Mar 12 j 15:11	20°♄51'08	17.38390 AU
	283 Aug 05 j 07:48	15°♄		direct	291 May 27 j 18:20	18°♄47'02	
max. Earth dist.	283 Aug 08 j 01:32	15°♄10'18	19.36767 AU				
				conjunction	291 Sep 16 j 22:08	23°♄17'19	0°41'43
conjunction	283 Aug 09 j 04:19	15°♄14'30	0°41'09	minimum elong	291 Sep 16 j 22:08	23°♄17'19	0°41'43
minimum elong	283 Aug 09 j 04:19	15°♄14'30	0°41'09	max. Earth dist.	291 Sep 16 j 02:26	23°♄14'13	19.39601 AU
retrograde	283 Nov 25 j 07:03	19°♄37'20		retrograde	292 Jan 02 j 00:49	27°♄38'10	
opposition	284 Feb 06 j 13:55	17°♄35'11	0°46'31	opposition	292 Mar 15 j 22:14	25°♄36'30	0°45'52
min. Earth dist.	284 Feb 07 j 12:51	17°♄32'41	17.36056 AU	min. Earth dist.	292 Mar 16 j 14:08	25°♄34'47	17.41024 AU
direct	284 Apr 22 j 18:25	15°♄28'57		direct	292 May 31 j 21:40	23°♄30'38	
max. Earth dist.	284 Aug 12 j 04:41	19°♄56'04	19.35357 AU				
				conjunction	292 Sep 20 j 21:51	28°♄00'15	0°40'29
conjunction	284 Aug 13 j 07:49	20°♄00'19	0°42'16	minimum elong	292 Sep 20 j 21:51	28°♄00'15	0°40'28
minimum elong	284 Aug 13 j 07:48	20°♄00'19	0°42'15	max. Earth dist.	292 Sep 20 j 05:09	27°♄57'37	19.42534 AU
retrograde	284 Nov 29 j 05:27	24°♄23'11			292 Oct 23 j 17:30	0°♄	
opposition	285 Feb 10 j 14:15	22°♄21'04	0°47'36	retrograde	293 Jan 05 j 22:53	2°♄20'36	
min. Earth dist.	285 Feb 11 j 13:49	22°♄18'30	17.34875 AU	opposition	293 Mar 20 j 23:45	0°♄19'05	0°44'20
direct	285 Apr 27 j 20:11	20°♄14'45		min. Earth dist.	293 Mar 21 j 14:45	0°♄17'29	17.44233 AU
max. Earth dist.	285 Aug 17 j 08:44	24°♄42'16	19.34404 AU		293 Mar 28 j 10:38	30°♄	
				direct	293 Jun 05 j 23:28	28°♄13'31	
conjunction	285 Aug 18 j 11:12	24°♄46'25	0°43'05		293 Aug 10 j 16:57	0°♄	
minimum elong	285 Aug 18 j 11:12	24°♄46'25	0°43'05				
retrograde	285 Dec 04 j 06:20	29°♄09'11		conjunction	293 Sep 25 j 20:53	2°♄42'21	0°38'59
opposition	286 Feb 15 j 14:40	27°♄07'07	0°48'22	minimum elong	293 Sep 25 j 20:53	2°♄42'21	0°39'00
min. Earth dist.	286 Feb 16 j 13:04	27°♄04'41	17.34144 AU	max. Earth dist.	293 Sep 25 j 04:55	2°♄39'50	19.46025 AU
direct	286 May 03 j 01:03	25°♄00'46		retrograde	294 Jan 10 j 22:08	7°♄02'09	
				opposition	294 Mar 26 j 00:54	5°♄00'49	0°42'31
conjunction	286 Aug 23 j 14:21	29°♄32'33	0°43'36	min. Earth dist.	294 Mar 26 j 13:43	4°♄59'27	17.47973 AU
minimum elong	286 Aug 23 j 14:21	29°♄32'33	0°43'37	direct	294 Jun 11 j 01:56	2°♄55'33	
max. Earth dist.	286 Aug 22 j 12:24	29°♄28'29	19.33907 AU				
	286 Aug 30 j 20:59	0°♄		conjunction	294 Sep 30 j 19:26	7°♄23'30	0°37'14
retrograde	286 Dec 09 j 04:21	3°♄55'10		minimum elong	294 Sep 30 j 19:26	7°♄23'30	0°37'14
opposition	287 Feb 20 j 15:38	1°♄53'08	0°48'47	max. Earth dist.	294 Sep 30 j 06:24	7°♄21'28	19.50000 AU
min. Earth dist.	287 Feb 21 j 14:31	1°♄50'39	17.33894 AU	retrograde	295 Jan 15 j 19:45	11°♄42'43	
	287 Apr 15 j 14:11	30°♄		opposition	295 Mar 31 j 02:14	9°♄41'35	0°40'25
direct	287 May 08 j 03:23	29°♄46'45		min. Earth dist.	295 Mar 31 j 13:53	9°♄40'20	17.52152 AU

direct	295 Jun 16 j 04:13	7°♄36'40		retrograde	303 Feb 21 j 05:44	18°♁14'34	
				opposition	303 May 07 j 23:39	16°♁14'17	0°16'07
conjunction	295 Oct 05 j 17:00	12°♄03'36	0°35'14	min. Earth dist.	303 May 07 j 20:36	16°♁14'36	17.95293 AU
minimum elong	295 Oct 05 j 17:00	12°♄03'36	0°35'15		303 Jun 09 j 03:46	15°♁♁	
max. Earth dist.	295 Oct 05 j 04:45	12°♄01'41	19.54385 AU	direct	303 Jul 24 j 07:25	14°♁12'00	
retrograde	296 Jan 20 j 17:37	16°♄22'11			303 Sep 05 j 18:56	15°♁	
opposition	296 Apr 04 j 03:21	14°♄21'12	0°38'03				
min. Earth dist.	296 Apr 04 j 13:05	14°♄20'10	17.56723 AU	conjunction	303 Nov 10 j 16:16	18°♁27'59	0°12'55
direct	296 Jun 20 j 06:37	12°♄16'37		minimum elong	303 Nov 10 j 16:16	18°♁27'59	0°12'55
				behind sun begin	303 Nov 10 j 12:09	18°♁27'22	
conjunction	296 Oct 09 j 14:02	16°♄42'28	0°33'01	behind sun end	303 Nov 10 j 20:23	18°♁28'36	
minimum elong	296 Oct 09 j 14:02	16°♄42'28	0°33'02	max. Earth dist.	303 Nov 10 j 19:53	18°♁28'31	19.98416 AU
max. Earth dist.	296 Oct 09 j 04:37	16°♄41'00	19.59125 AU	retrograde	304 Feb 25 j 21:21	22°♁40'14	
retrograde	297 Jan 24 j 13:55	21°♄00'21		opposition	304 May 11 j 20:58	20°♁40'02	0°12'31
opposition	297 Apr 09 j 04:10	18°♄59'32	0°35'27	min. Earth dist.	304 May 11 j 16:41	20°♁40'28	18.01561 AU
min. Earth dist.	297 Apr 09 j 12:21	18°♄58'40	17.61606 AU	direct	304 Jul 28 j 02:25	18°♁38'06	
direct	297 Jun 25 j 09:07	16°♄55'19					
				conjunction	304 Nov 14 j 06:10	22°♁52'34	0°09'40
conjunction	297 Oct 14 j 10:06	21°♄19'56	0°30'36	minimum elong	304 Nov 14 j 06:10	22°♁52'34	0°09'39
minimum elong	297 Oct 14 j 10:06	21°♄19'56	0°30'35	behind sun begin	304 Nov 14 j 00:43	22°♁51'45	
max. Earth dist.	297 Oct 14 j 01:31	21°♄18'36	19.64149 AU	behind sun end	304 Nov 14 j 11:36	22°♁53'23	
retrograde	298 Jan 29 j 10:15	25°♄37'07		max. Earth dist.	304 Nov 14 j 11:56	22°♁53'26	20.04783 AU
opposition	298 Apr 14 j 04:40	23°♄36'25	0°32'38	retrograde	305 Mar 01 j 14:25	27°♁03'59	
min. Earth dist.	298 Apr 14 j 11:19	23°♄35'43	17.66756 AU	opposition	305 May 16 j 17:16	25°♁03'54	0°08'52
direct	298 Jun 30 j 10:10	21°♄32'32		min. Earth dist.	305 May 16 j 09:55	25°♁04'39	18.08009 AU
				direct	305 Aug 01 j 23:16	23°♁02'22	
conjunction	298 Oct 19 j 05:29	25°♄55'52	0°27'59				
minimum elong	298 Oct 19 j 05:29	25°♄55'52	0°27'59	conjunction	305 Nov 18 j 19:14	27°♁15'21	0°06'23
max. Earth dist.	298 Oct 18 j 23:26	25°♄54'56	19.69409 AU	minimum elong	305 Nov 18 j 19:14	27°♁15'21	0°06'24
				behind sun begin	305 Nov 18 j 13:03	27°♁14'26	
retrograde	299 Jan 13 j 01:05	0°♁		behind sun end	305 Nov 19 j 01:25	27°♁16'16	
				max. Earth dist.	305 Nov 19 j 03:12	27°♁16'32	20.11303 AU
retrograde	299 Feb 03 j 05:28	0°♁12'16					
opposition	299 Feb 24 j 18:56	30°♁					
opposition	299 Apr 19 j 04:43	28°♄11'42	0°29'37				
min. Earth dist.	299 Apr 19 j 09:23	28°♄11'13	17.72102 AU	retrograde	306 Jan 06 j 18:16	0°♁	
direct	299 Jul 05 j 11:55	26°♄08'09					
	299 Oct 15 j 21:58	0°♁					
conjunction	299 Oct 23 j 23:54	0°♁30'07	0°25'13				
minimum elong	299 Oct 23 j 23:55	0°♁30'07	0°25'12				
max. Earth dist.	299 Oct 23 j 19:00	0°♁29'21	19.74858 AU				
retrograde	300 Feb 08 j 00:12	4°♁45'43		conjunction	306 Nov 23 j 07:27	1°♁36'25	0°03'05
opposition	300 Apr 23 j 04:27	2°♁45'14	0°26'26	minimum elong	306 Nov 23 j 07:26	1°♁36'25	0°03'04
min. Earth dist.	300 Apr 23 j 07:48	2°♁44'53	17.77646 AU	behind sun begin	306 Nov 23 j 00:55	1°♁35'27	
direct	300 Jul 09 j 11:02	0°♁42'00		behind sun end	306 Nov 23 j 13:57	1°♁37'23	
				max. Earth dist.	306 Nov 23 j 17:11	1°♁37'53	20.17941 AU
conjunction	300 Oct 27 j 17:23	5°♁02'32	0°22'17	retrograde	307 Mar 10 j 21:20	5°♁46'18	
minimum elong	300 Oct 27 j 17:23	5°♁02'32	0°22'17	opposition	307 May 26 j 08:16	3°♁46'31	0°01'31
max. Earth dist.	300 Oct 27 j 14:57	5°♁02'09	19.80491 AU	min. Earth dist.	307 May 25 j 21:00	3°♁47'40	18.21257 AU
retrograde	301 Feb 11 j 18:50	9°♁17'18		direct	307 Aug 11 j 11:35	1°♁45'50	
opposition	301 Apr 28 j 03:28	7°♁16'54	0°23'07	desc. node	307 Oct 25 j 07:30	3°♁58'52	
min. Earth dist.	301 Apr 28 j 04:24	7°♁16'48	17.83348 AU				
direct	301 Jul 14 j 11:28	5°♁13'59		conjunction	307 Nov 27 j 19:01	5°♁55'53	0°00'-18
				minimum elong	307 Nov 27 j 19:02	5°♁55'53	0°00'19
conjunction	301 Nov 01 j 09:58	9°♁33'01	0°19'15	behind sun begin	307 Nov 27 j 12:31	5°♁54'56	
minimum elong	301 Nov 01 j 09:58	9°♁33'00	0°19'15	behind sun end	307 Nov 28 j 01:32	5°♁56'51	
max. Earth dist.	301 Nov 01 j 09:05	9°♁32'53	19.86279 AU	max. Earth dist.	307 Nov 28 j 07:01	5°♁57'41	20.24610 AU
retrograde	302 Feb 16 j 11:49	13°♁46'56		retrograde	308 Mar 14 j 11:40	10°♁05'03	
opposition	302 May 03 j 01:51	11°♁46'35	0°19'40	opposition	308 May 30 j 02:55	8°♁05'25	0°-2'-8
min. Earth dist.	302 May 03 j 01:41	11°♁46'36	17.89230 AU	min. Earth dist.	308 May 29 j 14:58	8°♁06'38	18.27929 AU
direct	302 Jul 19 j 08:25	9°♁43'58		direct	308 Aug 15 j 03:25	6°♁05'10	
conjunction	302 Nov 06 j 01:39	14°♁01'30	0°16'07	conjunction	308 Dec 01 j 05:52	10°♁13'47	0°-3'-39
minimum elong	302 Nov 06 j 01:39	14°♁01'30	0°16'06	minimum elong	308 Dec 01 j 05:51	10°♁13'47	0°03'40
behind sun begin	302 Nov 06 j 00:47	14°♁01'22		behind sun begin	308 Nov 30 j 23:22	10°♁12'50	
behind sun end	302 Nov 06 j 02:31	14°♁01'38		behind sun end	308 Dec 01 j 12:20	10°♁14'44	
max. Earth dist.	302 Nov 06 j 03:08	14°♁01'43	19.92257 AU	max. Earth dist.	308 Dec 01 j 19:07	10°♁15'47	20.31258 AU
				retrograde	309 Mar 19 j 02:47	14°♁22'14	

opposition	309 Jun 03 j 20:43	12° $\overline{\text{A}}$ 22'46	0°-5'-46	min. Earth dist.	316 Jul 03 j 10:00	11° $\overline{\text{C}}$ 43'56	18.73801 AU
min. Earth dist.	309 Jun 03 j 06:11	12° $\overline{\text{A}}$ 24'14	18.34527 AU	opposition	316 Jul 04 j 07:05	11° $\overline{\text{C}}$ 41'49	0°-28'-43
direct	309 Aug 19 j 20:51	10° $\overline{\text{A}}$ 22'56		direct	316 Sep 18 j 19:56	9° $\overline{\text{C}}$ 44'01	
conjunction	309 Dec 05 j 16:11	14° $\overline{\text{A}}$ 30'11	0°-6'-53	conjunction	317 Jan 03 j 00:43	13° $\overline{\text{C}}$ 42'38	0°-27'-12
minimum elong	309 Dec 05 j 16:11	14° $\overline{\text{A}}$ 30'11	0°06'55	minimum elong	317 Jan 03 j 00:42	13° $\overline{\text{C}}$ 42'38	0°27'13
behind sun begin	309 Dec 05 j 10:06	14° $\overline{\text{A}}$ 29'18		max. Earth dist.	317 Jan 03 j 22:47	13° $\overline{\text{C}}$ 45'52	20.76043 AU
behind sun end	309 Dec 05 j 22:16	14° $\overline{\text{A}}$ 31'05		retrograde	317 Apr 22 j 00:19	17° $\overline{\text{C}}$ 46'17	
max. Earth dist.	309 Dec 06 j 07:28	14° $\overline{\text{A}}$ 32'28	20.37779 AU	opposition	317 Jul 08 j 19:27	15° $\overline{\text{C}}$ 47'07	0°-31'-26
retrograde	310 Mar 23 j 15:53	18° $\overline{\text{A}}$ 37'57		min. Earth dist.	317 Jul 07 j 20:48	15° $\overline{\text{C}}$ 49'23	18.78265 AU
opposition	310 Jun 08 j 13:58	16° $\overline{\text{A}}$ 38'37	0°-9'-21	direct	317 Sep 23 j 06:17	13° $\overline{\text{C}}$ 49'29	
min. Earth dist.	310 Jun 07 j 23:07	16° $\overline{\text{A}}$ 40'07	18.40973 AU	conjunction	318 Jan 07 j 06:52	17° $\overline{\text{C}}$ 47'08	0°-29'-35
direct	310 Aug 24 j 12:03	14° $\overline{\text{A}}$ 39'12		minimum elong	318 Jan 07 j 06:52	17° $\overline{\text{C}}$ 47'08	0°29'36
conjunction	310 Dec 10 j 01:54	18° $\overline{\text{A}}$ 45'05	0°-10'-4	max. Earth dist.	318 Jan 08 j 06:49	17° $\overline{\text{C}}$ 50'38	20.80369 AU
minimum elong	310 Dec 10 j 01:54	18° $\overline{\text{A}}$ 45'05	0°10'05	retrograde	318 Apr 26 j 08:13	21° $\overline{\text{C}}$ 50'21	
behind sun begin	310 Dec 09 j 20:36	18° $\overline{\text{A}}$ 44'18		min. Earth dist.	318 Jul 12 j 08:19	19° $\overline{\text{C}}$ 53'28	18.82474 AU
behind sun end	310 Dec 10 j 07:11	18° $\overline{\text{A}}$ 45'51		opposition	318 Jul 13 j 07:13	19° $\overline{\text{C}}$ 51'11	0°-33'-59
max. Earth dist.	310 Dec 10 j 17:54	18° $\overline{\text{A}}$ 47'28	20.44129 AU	direct	318 Sep 27 j 15:43	17° $\overline{\text{C}}$ 53'46	
retrograde	311 Mar 28 j 06:00	22° $\overline{\text{A}}$ 52'12		conjunction	319 Jan 11 j 12:40	21° $\overline{\text{C}}$ 50'30	0°-31'-48
opposition	311 Jun 13 j 06:33	20° $\overline{\text{A}}$ 52'58	0°-12'-52	minimum elong	319 Jan 11 j 12:40	21° $\overline{\text{C}}$ 50'30	0°31'50
min. Earth dist.	311 Jun 12 j 13:26	20° $\overline{\text{A}}$ 54'42	18.47209 AU	max. Earth dist.	319 Jan 12 j 12:38	21° $\overline{\text{C}}$ 53'59	20.84463 AU
direct	311 Aug 29 j 03:39	18° $\overline{\text{A}}$ 53'55		retrograde	319 Apr 30 j 18:51	25° $\overline{\text{C}}$ 53'21	
conjunction	311 Dec 14 j 11:02	22° $\overline{\text{A}}$ 58'29	0°-13'-11	opposition	319 Jul 17 j 18:27	23° $\overline{\text{C}}$ 54'11	0°-36'-21
minimum elong	311 Dec 14 j 11:02	22° $\overline{\text{A}}$ 58'29	0°13'13	min. Earth dist.	319 Jul 16 j 18:14	23° $\overline{\text{C}}$ 56'36	18.86448 AU
behind sun begin	311 Dec 14 j 07:05	22° $\overline{\text{A}}$ 57'55		direct	319 Oct 02 j 00:13	21° $\overline{\text{C}}$ 56'57	
behind sun end	311 Dec 14 j 14:59	22° $\overline{\text{A}}$ 59'03		conjunction	320 Jan 15 j 18:17	25° $\overline{\text{C}}$ 52'53	0°-33'-52
max. Earth dist.	311 Dec 15 j 04:53	23° $\overline{\text{A}}$ 01'08	20.50221 AU	minimum elong	320 Jan 15 j 18:17	25° $\overline{\text{C}}$ 52'53	0°33'53
retrograde	312 Mar 31 j 17:43	27° $\overline{\text{A}}$ 04'58		max. Earth dist.	320 Jan 16 j 19:57	25° $\overline{\text{C}}$ 56'37	20.88291 AU
opposition	312 Jun 16 j 22:37	25° $\overline{\text{A}}$ 05'49	0°-16'-17	retrograde	320 May 04 j 03:00	29° $\overline{\text{C}}$ 55'26	
min. Earth dist.	312 Jun 16 j 05:22	25° $\overline{\text{A}}$ 07'33	18.53163 AU	min. Earth dist.	320 Jul 20 j 04:52	27° $\overline{\text{C}}$ 58'43	18.90133 AU
direct	312 Sep 01 j 18:03	23° $\overline{\text{A}}$ 07'06		opposition	320 Jul 21 j 05:11	27° $\overline{\text{C}}$ 56'17	0°-38'-31
conjunction	312 Dec 17 j 19:41	27° $\overline{\text{A}}$ 10'23	0°-16'-14	direct	320 Oct 05 j 08:38	25° $\overline{\text{C}}$ 59'17	
minimum elong	312 Dec 17 j 19:41	27° $\overline{\text{A}}$ 10'23	0°16'14	conjunction	321 Jan 18 j 23:42	29° $\overline{\text{C}}$ 54'29	0°-35'-45
behind sun begin	312 Dec 17 j 19:12	27° $\overline{\text{A}}$ 10'19		minimum elong	321 Jan 18 j 23:42	29° $\overline{\text{C}}$ 54'29	0°35'46
behind sun end	312 Dec 17 j 20:11	27° $\overline{\text{A}}$ 10'27		max. Earth dist.	321 Jan 20 j 00:59	29° $\overline{\text{C}}$ 58'09	20.91827 AU
max. Earth dist.	312 Dec 18 j 13:48	27° $\overline{\text{A}}$ 13'04	20.56021 AU	321 Jan 20 j 13:45	0° \approx		
retrograde	313 Feb 08 j 05:00	0° $\overline{\text{C}}$		retrograde	321 May 08 j 13:01	3° \approx 56'46	
313 Apr 05 j 06:30	1° $\overline{\text{C}}$ 16'14			opposition	321 Jul 25 j 15:13	1° \approx 57'40	0°-40'-30
313 Jun 03 j 09:38	30° $\overline{\text{R}}$ $\overline{\text{A}}$			min. Earth dist.	321 Jul 24 j 14:09	2° \approx 00'10	18.93510 AU
opposition	313 Jun 21 j 13:38	29° $\overline{\text{A}}$ 17'08	0°-19'-36	direct	321 Oct 09 j 15:44	0° \approx 00'50	
min. Earth dist.	313 Jun 20 j 18:32	29° $\overline{\text{A}}$ 19'03	18.58802 AU	conjunction	322 Jan 23 j 05:07	3° \approx 55'26	0°-37'-28
direct	313 Sep 06 j 07:57	27° $\overline{\text{A}}$ 18'41		minimum elong	322 Jan 23 j 05:07	3° \approx 55'26	0°37'29
313 Nov 29 j 01:11	0° $\overline{\text{C}}$			max. Earth dist.	322 Jan 24 j 07:45	3° \approx 59'17	20.95020 AU
conjunction	313 Dec 22 j 03:50	1° $\overline{\text{C}}$ 20'45	0°-19'-10	retrograde	322 May 12 j 21:16	7° \approx 57'31	
minimum elong	313 Dec 22 j 03:50	1° $\overline{\text{C}}$ 20'45	0°19'11	min. Earth dist.	322 Jul 29 j 00:06	6° \approx 00'57	18.96517 AU
max. Earth dist.	313 Dec 22 j 23:36	1° $\overline{\text{C}}$ 23'40	20.61482 AU	opposition	322 Jul 30 j 01:02	5° \approx 58'28	0°-42'-17
retrograde	314 Apr 09 j 16:39	5° $\overline{\text{C}}$ 25'59		direct	322 Oct 13 j 23:15	4° \approx 01'50	
min. Earth dist.	314 Jun 25 j 09:04	3° $\overline{\text{C}}$ 28'50	18.64100 AU	conjunction	323 Jan 27 j 10:15	7° \approx 55'52	0°-38'-59
opposition	314 Jun 26 j 04:13	3° $\overline{\text{C}}$ 26'54	0°-22'-47	minimum elong	323 Jan 27 j 10:15	7° \approx 55'52	0°39'00
direct	314 Sep 10 j 20:44	1° $\overline{\text{C}}$ 28'43		max. Earth dist.	323 Jan 28 j 12:10	7° \approx 59'37	20.97835 AU
conjunction	314 Dec 26 j 11:12	5° $\overline{\text{C}}$ 29'33	0°-21'-58	retrograde	323 May 17 j 07:05	11° \approx 57'51	
minimum elong	314 Dec 26 j 11:12	5° $\overline{\text{C}}$ 29'33	0°21'59	min. Earth dist.	323 Aug 02 j 09:14	10° \approx 01'20	18.99125 AU
max. Earth dist.	314 Dec 27 j 07:12	5° $\overline{\text{C}}$ 32'30	20.66624 AU	opposition	323 Aug 03 j 10:28	9° \approx 58'48	0°-43'-51
retrograde	315 Apr 14 j 04:28	9° $\overline{\text{C}}$ 34'14		direct	323 Oct 18 j 05:46	8° \approx 02'20	
opposition	315 Jun 30 j 18:01	7° $\overline{\text{C}}$ 35'07	0°-25'-49	conjunction	324 Jan 31 j 15:44	11° \approx 55'56	0°-40'-19
min. Earth dist.	315 Jun 29 j 21:07	7° $\overline{\text{C}}$ 37'12	18.69092 AU	minimum elong	324 Jan 31 j 15:44	11° \approx 55'56	0°40'20
direct	315 Sep 15 j 09:03	5° $\overline{\text{C}}$ 37'07		max. Earth dist.	324 Feb 01 j 18:33	11° \approx 59'48	21.00205 AU
conjunction	315 Dec 30 j 18:14	9° $\overline{\text{C}}$ 36'49	0°-24'-39	324 Apr 01 j 03:21	15° \approx		
minimum elong	315 Dec 30 j 18:14	9° $\overline{\text{C}}$ 36'49	0°24'40	retrograde	324 May 20 j 15:11	15° \approx 57'49	
max. Earth dist.	315 Dec 31 j 16:08	9° $\overline{\text{C}}$ 40'02	20.71461 AU	324 Jul 10 j 23:51	15° $\overline{\text{R}}$ \approx		
retrograde	316 Apr 17 j 13:06	13° $\overline{\text{C}}$ 40'57					

opposition	324 Aug 06 j 19:22	13° \approx 58'48	0°-45'-13	retrograde	332 Jun 22 j 12:40	17° \times 51'26	
min. Earth dist.	324 Aug 05 j 18:40	14° \approx 01'16	19.01257 AU	opposition	332 Sep 08 j 08:17	15° \times 51'38	0°-47'-48
direct	324 Oct 21 j 12:10	12° \approx 02'28		min. Earth dist.	332 Sep 07 j 12:24	15° \times 53'39	19.00442 AU
	325 Jan 18 j 14:51	15° \approx		direct	332 Nov 22 j 08:50	13° \times 55'00	
conjunction	325 Feb 03 j 21:10	15° \approx 55'41	0°-41'-27	conjunction	333 Mar 07 j 21:40	17° \times 48'04	0°-42'-58
minimum elong	325 Feb 03 j 21:10	15° \approx 55'41	0°41'27	minimum elong	333 Mar 07 j 21:40	17° \times 48'04	0°42'59
max. Earth dist.	325 Feb 04 j 22:40	15° \approx 59'21	21.02088 AU	max. Earth dist.	333 Mar 08 j 18:23	17° \times 51'01	20.99507 AU
retrograde	325 May 25 j 00:50	19° \approx 57'33		retrograde	333 Jun 26 j 21:53	21° \times 51'08	
min. Earth dist.	325 Aug 10 j 03:36	18° \approx 00'57	19.02879 AU	opposition	333 Sep 12 j 15:08	19° \times 51'14	0°-47'-5
opposition	325 Aug 11 j 04:03	17° \approx 58'30	0°-46'-21	min. Earth dist.	333 Sep 11 j 20:16	19° \times 53'09	18.98564 AU
direct	325 Oct 25 j 18:27	16° \approx 02'14		direct	333 Nov 26 j 13:01	17° \times 54'29	
conjunction	326 Feb 08 j 02:42	19° \approx 55'10	0°-42'-23	conjunction	334 Mar 12 j 05:01	21° \times 47'57	0°-42'-13
minimum elong	326 Feb 08 j 02:42	19° \approx 55'10	0°42'24	minimum elong	334 Mar 12 j 05:01	21° \times 47'57	0°42'13
max. Earth dist.	326 Feb 09 j 04:46	19° \approx 58'55	21.03426 AU	max. Earth dist.	334 Mar 13 j 01:56	21° \times 50'56	20.97460 AU
retrograde	326 May 29 j 08:46	23° \approx 57'02		retrograde	334 Jul 01 j 06:58	25° \times 51'24	
opposition	326 Aug 15 j 12:26	21° \approx 57'56	0°-47'-15	opposition	334 Sep 16 j 22:00	23° \times 51'26	0°-46'-9
min. Earth dist.	326 Aug 14 j 12:38	22° \approx 00'19	19.03938 AU	min. Earth dist.	334 Sep 16 j 03:47	23° \times 53'17	18.96341 AU
direct	326 Oct 30 j 00:08	20° \approx 01'43		direct	334 Nov 30 j 19:03	21° \times 54'36	
conjunction	327 Feb 12 j 08:19	23° \approx 54'25	0°-43'-6	conjunction	335 Mar 16 j 12:54	25° \times 48'32	0°-41'-15
minimum elong	327 Feb 12 j 08:19	23° \approx 54'25	0°43'07	minimum elong	335 Mar 16 j 12:54	25° \times 48'32	0°41'17
max. Earth dist.	327 Feb 13 j 08:48	23° \approx 57'55	21.04224 AU	max. Earth dist.	335 Mar 17 j 07:40	25° \times 51'13	20.95080 AU
retrograde	327 Jun 02 j 17:59	27° \approx 56'18		retrograde	335 Jul 05 j 17:09	29° \times 52'27	
opposition	327 Aug 19 j 20:29	25° \approx 57'07	0°-47'-56	opposition	335 Sep 21 j 04:54	27° \times 52'24	0°-44'-58
min. Earth dist.	327 Aug 18 j 21:14	25° \approx 59'27	19.04470 AU	min. Earth dist.	335 Sep 20 j 12:06	27° \times 54'07	18.93785 AU
direct	327 Nov 03 j 06:10	24° \approx 00'53		direct	335 Dec 04 j 23:52	25° \times 55'27	
conjunction	328 Feb 16 j 14:06	27° \approx 53'25	0°-43'-37	conjunction	336 Mar 19 j 21:34	29° \times 49'59	0°-40'-6
minimum elong	328 Feb 16 j 14:06	27° \approx 53'25	0°43'38	minimum elong	336 Mar 19 j 21:34	29° \times 49'59	0°40'07
max. Earth dist.	328 Feb 17 j 15:04	27° \approx 57'00	21.04489 AU	max. Earth dist.	336 Mar 20 j 16:11	29° \times 52'39	20.92337 AU
	328 Mar 26 j 07:36	0° \times			336 Mar 22 j 19:32	0° \vee	
retrograde	328 Jun 06 j 02:07	1° \times 55'22		retrograde	336 Jul 09 j 02:35	3° \vee 54'23	
	328 Aug 21 j 13:04	30° \approx		opposition	336 Sep 24 j 11:54	1° \vee 54'17	0°-43'-35
min. Earth dist.	328 Aug 22 j 05:36	29° \approx 58'20	19.04479 AU	min. Earth dist.	336 Sep 23 j 20:06	1° \vee 55'54	18.90840 AU
opposition	328 Aug 23 j 04:09	29° \approx 56'04	0°-48'-22		336 Nov 27 j 20:37	30° \approx	
direct	328 Nov 06 j 11:45	27° \approx 59'47		direct	336 Dec 08 j 05:53	29° \times 57'12	
	329 Jan 16 j 19:46	0° \times			336 Dec 18 j 14:33	0° \vee	
conjunction	329 Feb 19 j 19:53	1° \times 52'14	0°-43'-54	conjunction	337 Mar 24 j 06:39	3° \vee 52'24	0°-38'-44
minimum elong	329 Feb 19 j 19:53	1° \times 52'14	0°43'55	minimum elong	337 Mar 24 j 06:39	3° \vee 52'24	0°38'45
max. Earth dist.	329 Feb 20 j 19:16	1° \times 55'35	21.04272 AU	max. Earth dist.	337 Mar 24 j 22:40	3° \vee 54'41	20.89199 AU
retrograde	329 Jun 10 j 10:44	5° \times 54'18		retrograde	337 Jul 13 j 13:29	7° \vee 57'21	
opposition	329 Aug 27 j 11:27	3° \times 54'52	0°-48'-35	opposition	337 Sep 28 j 19:07	5° \vee 57'10	0°-41'-58
min. Earth dist.	329 Aug 26 j 13:36	3° \times 57'04	19.04044 AU	min. Earth dist.	337 Sep 28 j 05:11	5° \vee 58'36	18.87492 AU
direct	329 Nov 10 j 16:50	1° \times 58'30		direct	337 Dec 12 j 11:35	3° \vee 59'55	
conjunction	330 Feb 24 j 01:58	5° \times 50'58	0°-43'-59	conjunction	338 Mar 28 j 16:38	7° \vee 55'53	0°-37'-10
minimum elong	330 Feb 24 j 01:58	5° \times 50'58	0°44'00	minimum elong	338 Mar 28 j 16:38	7° \vee 55'53	0°37'11
max. Earth dist.	330 Feb 25 j 01:51	5° \times 54'23	21.03624 AU	max. Earth dist.	338 Mar 29 j 08:06	7° \vee 58'06	20.85631 AU
retrograde	330 Jun 14 j 19:12	9° \times 53'11		retrograde	338 Jul 17 j 23:37	12° \vee 01'23	
opposition	330 Aug 31 j 18:35	7° \times 53'37	0°-48'-33	opposition	338 Oct 03 j 02:32	10° \vee 01'07	0°-40'-8
min. Earth dist.	330 Aug 30 j 21:16	7° \times 55'46	19.03197 AU	min. Earth dist.	338 Oct 02 j 13:47	10° \vee 02'26	18.83692 AU
direct	330 Nov 14 j 22:39	5° \times 57'11		direct	338 Dec 16 j 18:10	8° \vee 03'41	
conjunction	331 Feb 28 j 08:02	9° \times 49'44	0°-43'-51	conjunction	339 Apr 02 j 03:07	12° \vee 00'26	0°-35'-24
minimum elong	331 Feb 28 j 08:02	9° \times 49'44	0°43'52	minimum elong	339 Apr 02 j 03:07	12° \vee 00'26	0°35'24
max. Earth dist.	331 Mar 01 j 06:19	9° \times 52'55	21.02601 AU	max. Earth dist.	339 Apr 02 j 15:34	12° \vee 02'13	20.81612 AU
retrograde	331 Jun 19 j 03:54	13° \times 52'12		retrograde	339 Jul 22 j 10:50	16° \vee 06'33	
min. Earth dist.	331 Sep 04 j 05:04	11° \times 54'34	19.01998 AU	opposition	339 Oct 07 j 10:19	14° \vee 06'09	0°-38'-5
opposition	331 Sep 05 j 01:36	11° \times 52'30	0°-48'-18	min. Earth dist.	339 Oct 06 j 23:46	14° \vee 07'14	18.79439 AU
direct	331 Nov 19 j 02:49	9° \times 55'57		direct	339 Dec 21 j 00:52	12° \vee 08'28	
conjunction	332 Mar 03 j 14:46	13° \times 48'43	0°-43'-31	conjunction	340 Apr 05 j 14:33	16° \vee 06'06	0°-33'-27
minimum elong	332 Mar 03 j 14:46	13° \times 48'43	0°43'31	minimum elong	340 Apr 05 j 14:33	16° \vee 06'06	0°33'28
max. Earth dist.	332 Mar 04 j 13:23	13° \times 51'57	21.01220 AU	max. Earth dist.	340 Apr 06 j 02:08	16° \vee 07'46	20.77132 AU

retrograde	340 Jul 25 j 22:02	20°♈12'48		direct	348 Jan 23 j 00:48	15°♄30'15	
opposition	340 Oct 10 j 18:04	18°♈12'16	0°-35'-49				
min. Earth dist.	340 Oct 10 j 08:48	18°♈13'14	18.74733 AU	conjunction	348 May 10 j 10:02	19°♄37'20	0°-12'-11
direct	340 Dec 24 j 08:34	16°♈14'18		minimum elong	348 May 10 j 10:02	19°♄37'20	0°12'11
				behind sun begin	348 May 10 j 05:36	19°♄36'42	
conjunction	341 Apr 10 j 02:23	20°♈12'52	0°-31'-19	behind sun end	348 May 10 j 14:28	19°♄37'58	
minimum elong	341 Apr 10 j 02:23	20°♈12'52	0°31'19	max. Earth dist.	348 May 10 j 06:51	19°♄36'53	20.31696 AU
max. Earth dist.	341 Apr 10 j 10:52	20°♈14'05	20.72238 AU	retrograde	348 Aug 29 j 08:15	23°♄49'51	
retrograde	341 Jul 30 j 09:14	24°♈20'13		opposition	348 Nov 12 j 21:23	21°♄48'13	0°-11'-42
opposition	341 Oct 15 j 02:18	22°♈19'30	0°-33'-22	min. Earth dist.	348 Nov 13 j 00:29	21°♄47'54	18.28622 AU
min. Earth dist.	341 Oct 14 j 19:18	22°♈20'13	18.69654 AU	direct	349 Jan 26 j 13:07	19°♄47'31	
direct	341 Dec 28 j 15:53	20°♈21'11					
				conjunction	349 May 15 j 04:07	23°♄56'02	0°-9'00
conjunction	342 Apr 14 j 14:54	24°♈20'46	0°-29'00	minimum elong	349 May 15 j 04:07	23°♄56'02	0°09'01
minimum elong	342 Apr 14 j 14:55	24°♈20'46	0°29'02	behind sun begin	349 May 14 j 22:22	23°♄55'13	
max. Earth dist.	342 Apr 14 j 22:44	24°♈21'54	20.66994 AU	behind sun end	349 May 15 j 09:51	23°♄56'52	
retrograde	342 Aug 03 j 21:39	28°♈28'46		max. Earth dist.	349 May 14 j 22:06	23°♄55'11	20.25579 AU
opposition	342 Oct 19 j 10:42	26°♈27'52	0°-30'-44	retrograde	349 Sep 02 j 23:44	28°♄09'23	
min. Earth dist.	342 Oct 19 j 04:44	26°♈28'30	18.64251 AU	opposition	349 Nov 17 j 09:12	26°♄07'43	0°-8'-7
direct	343 Jan 02 j 00:53	24°♈29'14		min. Earth dist.	349 Nov 17 j 14:50	26°♄07'07	18.22496 AU
				direct	350 Jan 30 j 23:59	24°♄06'41	
conjunction	343 Apr 19 j 04:08	28°♈29'53	0°-26'-32				
minimum elong	343 Apr 19 j 04:08	28°♈29'53	0°26'33	conjunction	350 May 19 j 23:08	28°♄16'43	0°-5'-44
max. Earth dist.	343 Apr 19 j 08:57	28°♈30'35	20.61468 AU	minimum elong	350 May 19 j 23:09	28°♄16'43	0°05'45
	343 May 15 j 16:09	0°♄		behind sun begin	350 May 19 j 16:40	28°♄15'47	
retrograde	343 Aug 08 j 09:09	2°♄38'34		behind sun end	350 May 20 j 05:37	28°♄17'39	
opposition	343 Oct 23 j 19:23	0°♄37'30	0°-27'-55	max. Earth dist.	350 May 19 j 16:01	28°♄15'41	20.19435 AU
min. Earth dist.	343 Oct 23 j 15:44	0°♄37'53	18.58612 AU		350 Jun 18 j 20:30	0°♄	
direct	343 Nov 08 j 00:09	30°♄		retrograde	350 Sep 07 j 18:19	2°♄30'53	
	344 Jan 06 j 08:47	28°♈38'29		opposition	350 Nov 21 j 21:32	0°♄29'11	0°-4'-27
	344 Mar 03 j 17:13	0°♄		min. Earth dist.	350 Nov 22 j 04:01	0°♄28'29	18.16317 AU
					350 Dec 03 j 09:35	30°♄	
conjunction	344 Apr 22 j 18:17	2°♄40'18	0°-23'-55	direct	351 Feb 04 j 14:15	28°♄27'49	
minimum elong	344 Apr 22 j 18:17	2°♄40'18	0°23'56		351 Apr 06 j 13:36	0°♄	
max. Earth dist.	344 Apr 22 j 22:24	2°♄40'54	20.55728 AU				
retrograde	344 Aug 11 j 22:41	6°♄49'42		conjunction	351 May 24 j 19:12	2°♄39'21	0°-2'-24
opposition	344 Oct 27 j 04:25	4°♄48'28	0°-24'-57	minimum elong	351 May 24 j 19:12	2°♄39'22	0°02'25
min. Earth dist.	344 Oct 27 j 01:37	4°♄48'46	18.52781 AU	behind sun begin	351 May 24 j 12:26	2°♄38'23	
direct	345 Jan 09 j 19:00	2°♄49'07		behind sun end	351 May 25 j 01:59	2°♄40'20	
				max. Earth dist.	351 May 24 j 09:10	2°♄37'53	20.13217 AU
conjunction	345 Apr 27 j 08:49	6°♄52'08	0°-21'-10	retrograde	351 Sep 12 j 10:37	6°♄54'21	
minimum elong	345 Apr 27 j 08:49	6°♄52'08	0°21'11	opposition	351 Nov 26 j 10:38	4°♄52'35	0°00'-44
max. Earth dist.	345 Apr 27 j 10:03	6°♄52'19	20.49829 AU	min. Earth dist.	351 Nov 26 j 19:59	4°♄51'35	18.10071 AU
retrograde	345 Aug 16 j 11:01	11°♄02'17		asc. node	352 Feb 07 j 18:33	2°♄50'55	
opposition	345 Oct 31 j 13:58	9°♄00'54	0°-21'-50	direct	352 Feb 09 j 02:31	2°♄50'52	
min. Earth dist.	345 Oct 31 j 13:23	9°♄00'58	18.46832 AU				
direct	346 Jan 14 j 03:47	7°♄01'11		conjunction	352 May 28 j 16:12	7°♄03'56	0°01'03
				minimum elong	352 May 28 j 16:12	7°♄03'56	0°01'03
conjunction	346 May 02 j 00:24	11°♄05'30	0°-18'-17	behind sun begin	352 May 28 j 09:26	7°♄02'57	
minimum elong	346 May 02 j 00:24	11°♄05'30	0°18'17	behind sun end	352 May 28 j 22:59	7°♄04'55	
max. Earth dist.	346 May 02 j 00:57	11°♄05'35	20.43837 AU	max. Earth dist.	352 May 28 j 04:32	7°♄02'12	20.06934 AU
	346 Jul 26 j 16:28	15°♄		retrograde	352 Sep 16 j 06:39	11°♄19'42	
retrograde	346 Aug 21 j 01:50	15°♄16'24		opposition	352 Nov 30 j 00:25	9°♄17'51	0°03'01
	346 Sep 15 j 15:39	15°♄		min. Earth dist.	352 Nov 30 j 10:35	9°♄16'46	18.03750 AU
opposition	346 Nov 04 j 23:50	13°♄14'55	0°-18'-34	direct	353 Feb 12 j 18:56	7°♄15'46	
min. Earth dist.	346 Nov 04 j 23:55	13°♄14'55	18.40800 AU				
direct	347 Jan 18 j 14:54	11°♄14'52		conjunction	353 Jun 02 j 13:45	11°♄30'19	0°04'29
	347 Apr 30 j 20:30	15°♄		minimum elong	353 Jun 02 j 13:45	11°♄30'19	0°04'29
				behind sun begin	353 Jun 02 j 07:06	11°♄29'21	
conjunction	347 May 06 j 16:42	15°♄20'31	0°-15'-17	behind sun end	353 Jun 02 j 20:24	11°♄31'17	
minimum elong	347 May 06 j 16:43	15°♄20'31	0°15'18	max. Earth dist.	353 Jun 01 j 23:30	11°♄28'12	20.00578 AU
behind sun begin	347 May 06 j 15:02	15°♄20'17		retrograde	353 Sep 20 j 23:31	15°♄46'50	
behind sun end	347 May 06 j 18:23	15°♄20'46		opposition	353 Dec 04 j 15:02	13°♄44'54	0°06'47
max. Earth dist.	347 May 06 j 14:22	15°♄20'11	20.37783 AU	min. Earth dist.	353 Dec 05 j 03:54	13°♄43'31	17.97386 AU
retrograde	347 Aug 25 j 15:47	19°♄32'14		direct	354 Feb 17 j 09:19	11°♄42'24	
opposition	347 Nov 09 j 10:26	17°♄30'39	0°-15'-11				
min. Earth dist.	347 Nov 09 j 12:51	17°♄30'24	18.34729 AU	conjunction	354 Jun 07 j 12:14	15°♄58'27	0°07'51

minimum elong	354 Jun 07 j 12:14	15°II58'27	0°07'50	retrograde	361 Oct 27 j 18:33	22°☾19'38	
behind sun begin	354 Jun 07 j 06:10	15°II57'33		opposition	362 Jan 09 j 10:52	20°☾17'07	0°34'13
behind sun end	354 Jun 07 j 18:18	15°II59'20		min. Earth dist.	362 Jan 10 j 08:09	20°☾14'48	17.53029 AU
max. Earth dist.	354 Jun 06 j 20:12	15°II56'03	19.94217 AU	direct	362 Mar 26 j 00:28	18°☾11'45	
retrograde	354 Sep 25 j 19:55	20°II15'40					
opposition	354 Dec 09 j 05:59	18°II13'36	0°10'32	conjunction	362 Jul 15 j 20:37	22°☾38'29	0°31'59
min. Earth dist.	354 Dec 09 j 19:35	18°II12'08	17.91036 AU	minimum elong	362 Jul 15 j 20:37	22°☾38'29	0°31'58
direct	355 Feb 22 j 03:37	16°II10'42		max. Earth dist.	362 Jul 14 j 18:32	22°☾34'27	19.51045 AU
				retrograde	362 Nov 01 j 17:42	27°☾00'11	
conjunction	355 Jun 12 j 11:28	20°II28'13	0°11'12	opposition	363 Jan 14 j 07:19	24°☾57'44	0°36'56
minimum elong	355 Jun 12 j 11:27	20°II28'13	0°11'11	min. Earth dist.	363 Jan 15 j 04:51	24°☾55'24	17.49232 AU
behind sun begin	355 Jun 12 j 06:31	20°II27'29		direct	363 Mar 30 j 23:53	22°☾52'10	
behind sun end	355 Jun 12 j 16:24	20°II28'56					
max. Earth dist.	355 Jun 11 j 17:23	20°II25'30	19.87889 AU	conjunction	363 Jul 20 j 23:53	27°☾20'00	0°34'19
retrograde	355 Sep 30 j 13:31	24°II46'06		minimum elong	363 Jul 20 j 23:52	27°☾20'00	0°34'20
opposition	355 Dec 13 j 21:52	22°II43'56	0°14'15	max. Earth dist.	363 Jul 19 j 22:25	27°☾16'04	19.47467 AU
min. Earth dist.	355 Dec 14 j 13:59	22°II42'11	17.84765 AU		363 Sep 04 j 23:48	0°♁	
direct	356 Feb 26 j 20:06	20°II40'35		retrograde	363 Nov 06 j 16:55	1°♁42'05	
					364 Jan 11 j 10:22	30°R☾	
conjunction	356 Jun 16 j 11:10	24°II59'33	0°14'29	opposition	364 Jan 19 j 04:43	29°☾39'44	0°39'26
minimum elong	356 Jun 16 j 11:10	24°II59'33	0°14'30	min. Earth dist.	364 Jan 20 j 02:57	29°☾37'18	17.45874 AU
behind sun begin	356 Jun 16 j 08:27	24°II59'09		direct	364 Apr 03 j 23:06	27°☾34'02	
behind sun end	356 Jun 16 j 13:54	24°II59'57			364 Jun 20 j 23:12	0°♁	
max. Earth dist.	356 Jun 15 j 15:20	24°II56'33	19.81689 AU	max. Earth dist.	364 Jul 24 j 00:04	1°♁58'37	19.44323 AU
retrograde	356 Oct 04 j 10:26	29°II18'05					
opposition	356 Dec 17 j 14:13	27°II15'48	0°17'53	conjunction	364 Jul 25 j 03:06	2°♁02'49	0°36'26
min. Earth dist.	356 Dec 18 j 06:45	27°II14'00	17.78655 AU	minimum elong	364 Jul 25 j 03:06	2°♁02'49	0°36'26
direct	357 Mar 02 j 16:14	25°II12'02		retrograde	364 Nov 10 j 17:01	6°♁25'14	
				opposition	365 Jan 23 j 02:45	4°♁22'57	0°41'40
conjunction	357 Jun 21 j 11:33	29°II32'24	0°17'43	min. Earth dist.	365 Jan 24 j 01:24	4°♁20'29	17.42954 AU
minimum elong	357 Jun 21 j 11:33	29°II32'24	0°17'43	direct	365 Apr 08 j 23:33	2°♁17'06	
max. Earth dist.	357 Jun 20 j 14:35	29°II29'14	19.75678 AU	max. Earth dist.	365 Jul 29 j 04:30	6°♁42'39	19.41599 AU
	357 Jun 29 j 01:35	0°☾					
retrograde	357 Oct 09 j 04:59	3°☾51'33		conjunction	365 Jul 30 j 06:48	6°♁46'45	0°38'19
opposition	357 Dec 22 j 07:23	1°☾49'09	0°21'26	minimum elong	365 Jul 30 j 06:48	6°♁46'45	0°38'19
min. Earth dist.	357 Dec 23 j 01:57	1°☾47'08	17.72784 AU	retrograde	365 Nov 15 j 17:03	11°♁09'23	
	358 Feb 11 j 14:02	30°RII		opposition	366 Jan 28 j 01:20	9°♁07'11	0°43'38
direct	358 Mar 07 j 10:29	29°II44'59		min. Earth dist.	366 Jan 29 j 00:12	9°♁04'41	17.40430 AU
	358 Mar 31 j 05:50	0°☾		direct	366 Apr 13 j 23:51	7°♁01'13	
				max. Earth dist.	366 Aug 03 j 06:52	11°♁27'15	19.39276 AU
conjunction	358 Jun 26 j 12:21	4°☾06'43	0°20'51				
minimum elong	358 Jun 26 j 12:21	4°☾06'43	0°20'52	conjunction	366 Aug 04 j 10:30	11°♁31'34	0°39'57
max. Earth dist.	358 Jun 25 j 13:38	4°☾03'16	19.69956 AU	minimum elong	366 Aug 04 j 10:30	11°♁31'34	0°39'58
retrograde	358 Oct 14 j 02:37	8°☾26'27			366 Oct 07 j 01:11	15°♁	
opposition	358 Dec 27 j 01:07	6°☾23'58	0°24'52	retrograde	366 Nov 20 j 17:20	15°♁54'21	
min. Earth dist.	358 Dec 27 j 19:53	6°☾21'56	17.67229 AU		367 Jan 05 j 13:21	15°R♁	
direct	359 Mar 12 j 07:54	4°☾19'25		opposition	367 Feb 02 j 00:36	13°♁52'13	0°45'19
				min. Earth dist.	367 Feb 03 j 00:02	13°♁49'39	17.38318 AU
conjunction	359 Jul 01 j 13:53	8°☾42'30	0°23'52	direct	367 Apr 19 j 01:27	11°♁46'07	
minimum elong	359 Jul 01 j 13:53	8°☾42'30	0°23'52		367 Jul 19 j 19:26	15°♁	
max. Earth dist.	359 Jun 30 j 14:48	8°☾38'59	19.64566 AU	max. Earth dist.	367 Aug 08 j 11:25	16°♁12'50	19.37363 AU
retrograde	359 Oct 18 j 22:39	13°☾02'46					
opposition	359 Dec 31 j 19:39	11°☾00'14	0°28'09	conjunction	367 Aug 09 j 14:16	16°♁17'03	0°41'18
min. Earth dist.	360 Jan 01 j 15:57	10°☾58'01	17.62044 AU	minimum elong	367 Aug 09 j 14:16	16°♁17'03	0°41'18
direct	360 Mar 16 j 04:10	8°☾55'21		retrograde	367 Nov 25 j 17:15	20°♁39'53	
				opposition	368 Feb 07 j 00:18	18°♁37'47	0°46'40
conjunction	360 Jul 05 j 15:42	13°☾19'43	0°26'44	min. Earth dist.	368 Feb 07 j 23:17	18°♁35'17	17.36608 AU
minimum elong	360 Jul 05 j 15:42	13°☾19'43	0°26'44	direct	368 Apr 23 j 03:43	16°♁31'36	
max. Earth dist.	360 Jul 04 j 14:55	13°☾15'55	19.59597 AU				
retrograde	360 Oct 22 j 20:54	17°☾40'30		conjunction	368 Aug 13 j 17:49	21°♁02'56	0°42'22
opposition	361 Jan 04 j 14:52	15°☾37'57	0°31'17	minimum elong	368 Aug 13 j 17:49	21°♁02'56	0°42'23
min. Earth dist.	361 Jan 05 j 11:07	15°☾35'44	17.57307 AU	max. Earth dist.	368 Aug 12 j 14:26	20°♁58'38	19.35871 AU
direct	361 Mar 21 j 02:31	13°☾32'47		retrograde	368 Nov 29 j 16:33	25°♁25'45	
				opposition	369 Feb 11 j 00:29	23°♁23'41	0°47'43
conjunction	361 Jul 10 j 17:57	17°☾58'22	0°29'27	min. Earth dist.	369 Feb 11 j 23:58	23°♁21'07	17.35354 AU
minimum elong	361 Jul 10 j 17:57	17°☾58'22	0°29'27	direct	369 Apr 28 j 06:13	21°♁17'24	
max. Earth dist.	361 Jul 09 j 17:33	17°☾54'37	19.55081 AU				

conjunction	369 Aug 18 j 21:04	25° Ω 48'59	0°43'09	direct	377 Jun 06 j 08:47	29° Υ 14'20	
minimum elong	369 Aug 18 j 21:04	25° Ω 48'59	0°43'09		377 Jul 18 j 13:05	0° Ω	
max. Earth dist.	369 Aug 17 j 18:36	25° Ω 44'50	19.34852 AU				
	369 Nov 14 j 07:12	0° Υ		conjunction	377 Sep 26 j 06:14	3° Ω 43'02	0°38'44
retrograde	369 Dec 04 j 16:17	0° Υ 11'43		minimum elong	377 Sep 26 j 06:14	3° Ω 43'02	0°38'43
	369 Dec 25 j 05:22	30° Υ 09'39		max. Earth dist.	377 Sep 25 j 14:10	3° Ω 40'30	19.46799 AU
opposition	370 Feb 16 j 00:52	28° Ω 09'39	0°48'25	retrograde	378 Jan 11 j 07:10	8° Ω 02'43	
min. Earth dist.	370 Feb 16 j 23:15	28° Ω 07'13	17.34564 AU	opposition	378 Mar 26 j 10:10	6° Ω 01'24	0°42'12
direct	370 May 03 j 10:24	26° Ω 03'19		min. Earth dist.	378 Mar 26 j 23:06	6° Ω 00'01	17.48726 AU
	370 Aug 14 j 17:02	0° Υ		direct	378 Jun 11 j 11:37	3° Ω 56'09	
max. Earth dist.	370 Aug 22 j 22:02	0° Υ 30'54	19.34312 AU				
				conjunction	378 Oct 01 j 04:44	8° Ω 23'59	0°36'56
conjunction	370 Aug 24 j 00:06	0° Υ 35'00	0°43'38	minimum elong	378 Oct 01 j 04:44	8° Ω 23'59	0°36'57
minimum elong	370 Aug 24 j 00:06	0° Υ 35'00	0°43'38	max. Earth dist.	378 Sep 30 j 15:30	8° Ω 21'54	19.50716 AU
retrograde	370 Dec 09 j 14:35	4° Υ 57'32		retrograde	379 Jan 16 j 04:42	12° Ω 43'04	
opposition	371 Feb 21 j 01:35	2° Υ 55'29	0°48'47	opposition	379 Mar 31 j 11:26	10° Ω 41'56	0°40'04
min. Earth dist.	371 Feb 22 j 00:21	2° Υ 53'01	17.34291 AU	min. Earth dist.	379 Mar 31 j 23:29	10° Ω 40'39	17.52826 AU
direct	371 May 08 j 13:42	0° Υ 49'07		direct	379 Jun 16 j 13:39	8° Ω 37'01	
max. Earth dist.	371 Aug 28 j 01:33	5° Υ 16'48	19.34316 AU				
				conjunction	379 Oct 06 j 02:22	13° Ω 03'50	0°34'55
conjunction	371 Aug 29 j 02:40	5° Υ 20'45	0°43'48	minimum elong	379 Oct 06 j 02:22	13° Ω 03'50	0°34'54
minimum elong	371 Aug 29 j 02:40	5° Υ 20'45	0°43'49	max. Earth dist.	379 Oct 05 j 13:45	13° Ω 01'51	19.55004 AU
retrograde	371 Dec 14 j 14:19	9° Υ 43'02		retrograde	380 Jan 21 j 02:29	17° Ω 22'17	
opposition	372 Feb 26 j 02:32	7° Υ 41'00	0°48'49	opposition	380 Apr 04 j 12:28	15° Ω 21'18	0°37'40
min. Earth dist.	372 Feb 26 j 23:29	7° Υ 38'44	17.34569 AU	min. Earth dist.	380 Apr 04 j 22:28	15° Ω 20'14	17.57282 AU
direct	372 May 12 j 18:36	5° Υ 34'37		direct	380 Jun 20 j 15:29	13° Ω 16'42	
max. Earth dist.	372 Sep 01 j 05:04	10° Υ 02'21	19.34885 AU				
				conjunction	380 Oct 09 j 23:16	17° Ω 42'25	0°32'40
conjunction	372 Sep 02 j 04:37	10° Υ 06'03	0°43'41	minimum elong	380 Oct 09 j 23:16	17° Ω 42'25	0°32'39
minimum elong	372 Sep 02 j 04:37	10° Υ 06'03	0°43'40	max. Earth dist.	380 Oct 09 j 13:30	17° Ω 40'54	19.59609 AU
retrograde	372 Dec 18 j 12:17	14° Υ 28'02		retrograde	381 Jan 24 j 23:28	22° Ω 00'11	
opposition	373 Mar 02 j 03:46	12° Υ 26'02	0°48'30	opposition	381 Apr 09 j 13:15	19° Ω 59'21	0°35'02
min. Earth dist.	373 Mar 03 j 00:37	12° Υ 23'47	17.35446 AU	min. Earth dist.	381 Apr 09 j 21:57	19° Ω 58'26	17.62013 AU
direct	373 May 17 j 21:16	10° Υ 19'42		direct	381 Jun 25 j 17:50	17° Ω 55'06	
max. Earth dist.	373 Sep 06 j 07:28	14° Υ 47'15	19.36078 AU				
				conjunction	381 Oct 14 j 19:21	22° Ω 19'37	0°30'12
conjunction	373 Sep 07 j 06:05	14° Υ 50'49	0°43'15	minimum elong	381 Oct 14 j 19:21	22° Ω 19'37	0°30'12
minimum elong	373 Sep 07 j 06:05	14° Υ 50'49	0°43'15	max. Earth dist.	381 Oct 14 j 10:15	22° Ω 18'12	19.64474 AU
retrograde	373 Dec 23 j 12:19	19° Υ 12'24		retrograde	382 Jan 29 j 19:08	26° Ω 36'40	
opposition	374 Mar 07 j 04:48	17° Υ 10'29	0°47'52	opposition	382 Apr 14 j 13:30	24° Ω 35'57	0°32'11
min. Earth dist.	374 Mar 07 j 23:23	17° Υ 08'29	17.36944 AU	min. Earth dist.	382 Apr 14 j 20:31	24° Ω 35'12	17.66999 AU
direct	374 May 23 j 01:41	15° Υ 04'15		direct	382 Jun 30 j 18:44	22° Ω 32'00	
max. Earth dist.	374 Sep 11 j 10:49	19° Υ 31'45	19.37889 AU				
				conjunction	382 Oct 19 j 14:44	26° Ω 55'16	0°27'34
conjunction	374 Sep 12 j 07:11	19° Υ 34'57	0°42'32	minimum elong	382 Oct 19 j 14:44	26° Ω 55'16	0°27'34
minimum elong	374 Sep 12 j 07:11	19° Υ 34'57	0°42'32	max. Earth dist.	382 Oct 19 j 08:21	26° Ω 54'16	19.69575 AU
retrograde	374 Dec 28 j 10:15	23° Υ 56'07			382 Dec 13 j 12:39	0° Υ	
opposition	375 Mar 12 j 06:14	21° Υ 54'20	0°46'55	retrograde	383 Feb 03 j 15:05	1° Υ 11'32	
min. Earth dist.	375 Mar 13 j 00:25	21° Υ 52'22	17.39061 AU		383 Mar 30 j 11:14	30° Υ 09'32	
direct	375 May 28 j 03:33	19° Υ 48'16		opposition	383 Apr 19 j 13:31	29° Ω 10'56	0°29'09
max. Earth dist.	375 Sep 16 j 11:55	24° Υ 15'20	19.40317 AU	min. Earth dist.	383 Apr 19 j 18:44	29° Ω 10'23	17.72193 AU
				direct	383 Jul 05 j 20:44	27° Ω 07'19	
conjunction	375 Sep 17 j 07:25	24° Υ 18'24	0°41'32		383 Sep 29 j 23:37	0° Υ	
minimum elong	375 Sep 17 j 07:25	24° Υ 18'24	0°41'32				
retrograde	376 Jan 02 j 10:10	28° Υ 39'08		conjunction	383 Oct 24 j 08:56	1° Υ 29'12	0°24'46
opposition	376 Mar 16 j 07:34	26° Υ 37'29	0°45'38	minimum elong	383 Oct 24 j 08:56	1° Υ 29'12	0°24'47
min. Earth dist.	376 Mar 16 j 23:18	26° Υ 35'47	17.41771 AU	max. Earth dist.	383 Oct 24 j 03:39	1° Υ 28'23	19.74884 AU
direct	376 Jun 01 j 07:09	24° Υ 31'39		retrograde	384 Feb 08 j 08:58	5° Υ 44'42	
				opposition	384 Apr 23 j 13:03	3° Υ 44'10	0°25'57
conjunction	376 Sep 21 j 07:16	29° Υ 01'08	0°40'16	min. Earth dist.	384 Apr 23 j 16:42	3° Υ 43'47	17.77614 AU
minimum elong	376 Sep 21 j 07:16	29° Υ 01'08	0°40'17	direct	384 Jul 09 j 20:07	1° Υ 40'51	
max. Earth dist.	376 Sep 20 j 14:32	28° Υ 58'30	19.43305 AU				
	376 Oct 06 j 23:55	0° Ω		conjunction	384 Oct 28 j 02:24	6° Υ 01'19	0°21'50
retrograde	377 Jan 06 j 08:07	3° Ω 21'21		minimum elong	384 Oct 28 j 02:24	6° Υ 01'19	0°21'50
opposition	377 Mar 21 j 08:56	1° Ω 19'53	0°44'04	max. Earth dist.	384 Oct 27 j 23:51	6° Υ 00'56	19.80416 AU
min. Earth dist.	377 Mar 22 j 00:06	1° Ω 18'15	17.45014 AU	retrograde	385 Feb 12 j 03:25	10° Υ 16'00	
	377 Apr 24 j 02:45	30° Υ 09'39		opposition	385 Apr 28 j 11:46	8° Υ 15'32	0°22'36

min. Earth dist.	385 Apr 28 j 13:07	8° \mathbb{M} 15'24	17.83245 AU	minimum elong	391 Nov 28 j 03:40	6° \mathbb{Z} 54'46	0°00'48
direct	385 Jul 14 j 20:22	6° \mathbb{M} 12'32		behind sun begin	391 Nov 27 j 21:08	6° \mathbb{Z} 53'49	
				behind sun end	391 Nov 28 j 10:12	6° \mathbb{Z} 55'44	
conjunction	385 Nov 01 j 18:48	10° \mathbb{M} 31'32	0°18'47	max. Earth dist.	391 Nov 28 j 15:20	6° \mathbb{Z} 56'32	20.24762 AU
minimum elong	385 Nov 01 j 18:48	10° \mathbb{M} 31'32	0°18'48	retrograde	392 Mar 14 j 19:42	11° \mathbb{Z} 03'56	
max. Earth dist.	385 Nov 01 j 17:45	10° \mathbb{M} 31'23	19.86164 AU	opposition	392 May 30 j 10:57	9° \mathbb{Z} 04'22	0°-2'-39
retrograde	386 Feb 16 j 20:01	14° \mathbb{M} 45'24		min. Earth dist.	392 May 29 j 23:13	9° \mathbb{Z} 05'33	18.28069 AU
opposition	386 May 03 j 10:07	12° \mathbb{M} 45'00	0°19'09	direct	392 Aug 15 j 11:40	7° \mathbb{Z} 04'08	
min. Earth dist.	386 May 03 j 09:58	12° \mathbb{M} 45'01	17.89119 AU				
direct	386 Jul 19 j 17:41	10° \mathbb{M} 42'19		conjunction	392 Dec 01 j 14:41	11° \mathbb{Z} 12'49	0°-4'-6
				minimum elong	392 Dec 01 j 14:41	11° \mathbb{Z} 12'49	0°04'08
conjunction	386 Nov 06 j 10:18	14° \mathbb{M} 59'51	0°15'39	behind sun begin	392 Dec 01 j 08:15	11° \mathbb{Z} 11'53	
minimum elong	386 Nov 06 j 10:18	14° \mathbb{M} 59'51	0°15'39	behind sun end	392 Dec 01 j 21:08	11° \mathbb{Z} 13'46	
behind sun begin	386 Nov 06 j 08:29	14° \mathbb{M} 59'34		max. Earth dist.	392 Dec 02 j 03:41	11° \mathbb{Z} 14'47	20.31379 AU
behind sun end	386 Nov 06 j 12:06	15° \mathbb{M} 00'07		retrograde	393 Mar 19 j 11:38	15° \mathbb{Z} 21'15	
max. Earth dist.	386 Nov 06 j 11:55	15° \mathbb{M} 00'05	19.92158 AU	opposition	393 Jun 04 j 04:38	13° \mathbb{Z} 21'49	0°-6'-17
	386 Nov 06 j 11:17	15° \mathbb{M}		min. Earth dist.	393 Jun 03 j 14:26	13° \mathbb{Z} 23'15	18.34621 AU
retrograde	387 Feb 21 j 13:35	19° \mathbb{M} 12'52		direct	393 Aug 20 j 05:18	11° \mathbb{Z} 21'59	
opposition	387 May 08 j 07:47	17° \mathbb{M} 12'34	0°15'37				
min. Earth dist.	387 May 08 j 04:44	17° \mathbb{M} 12'53	17.95224 AU	conjunction	393 Dec 06 j 01:09	15° \mathbb{Z} 29'17	0°-7'-21
direct	387 Jul 24 j 15:38	15° \mathbb{M} 10'16		minimum elong	393 Dec 06 j 01:08	15° \mathbb{Z} 29'17	0°07'21
				behind sun begin	393 Dec 05 j 19:08	15° \mathbb{Z} 28'24	
conjunction	387 Nov 11 j 00:56	19° \mathbb{M} 26'17	0°12'27	behind sun end	393 Dec 06 j 07:08	15° \mathbb{Z} 30'10	
minimum elong	387 Nov 11 j 00:56	19° \mathbb{M} 26'17	0°12'27	max. Earth dist.	393 Dec 06 j 15:51	15° \mathbb{Z} 31'29	20.37841 AU
behind sun begin	387 Nov 10 j 20:34	19° \mathbb{M} 25'38		retrograde	394 Mar 23 j 23:47	19° \mathbb{Z} 37'00	
behind sun end	387 Nov 11 j 05:18	19° \mathbb{M} 26'56		opposition	394 Jun 08 j 22:02	17° \mathbb{Z} 37'41	0°-9'-52
max. Earth dist.	387 Nov 11 j 04:27	19° \mathbb{M} 26'48	19.98382 AU	min. Earth dist.	394 Jun 08 j 07:36	17° \mathbb{Z} 39'09	18.40997 AU
retrograde	388 Feb 26 j 05:25	23° \mathbb{M} 38'30		direct	394 Aug 24 j 20:01	15° \mathbb{Z} 38'14	
opposition	388 May 12 j 04:55	21° \mathbb{M} 38'19	0°12'00				
min. Earth dist.	388 May 12 j 00:29	21° \mathbb{M} 38'47	18.01569 AU	conjunction	394 Dec 10 j 10:49	19° \mathbb{Z} 44'08	0°-10'-31
direct	388 Jul 28 j 10:49	19° \mathbb{M} 36'24		minimum elong	394 Dec 10 j 10:49	19° \mathbb{Z} 44'08	0°10'33
				behind sun begin	394 Dec 10 j 05:40	19° \mathbb{Z} 43'23	
conjunction	388 Nov 14 j 14:44	23° \mathbb{M} 50'55	0°09'12	behind sun end	394 Dec 10 j 15:57	19° \mathbb{Z} 44'53	
minimum elong	388 Nov 14 j 14:44	23° \mathbb{M} 50'55	0°09'12	max. Earth dist.	394 Dec 11 j 02:27	19° \mathbb{Z} 46'28	20.44107 AU
behind sun begin	388 Nov 14 j 09:10	23° \mathbb{M} 50'06		retrograde	395 Mar 28 j 14:16	23° \mathbb{Z} 51'11	
behind sun end	388 Nov 14 j 20:18	23° \mathbb{M} 51'45		opposition	395 Jun 13 j 14:39	21° \mathbb{Z} 51'57	0°-13'-22
max. Earth dist.	388 Nov 14 j 20:35	23° \mathbb{M} 51'48	20.04830 AU	min. Earth dist.	395 Jun 12 j 21:56	21° \mathbb{Z} 53'38	18.47138 AU
retrograde	389 Mar 01 j 22:36	28° \mathbb{M} 02'21		direct	395 Aug 29 j 12:35	19° \mathbb{Z} 52'50	
opposition	389 May 17 j 01:15	26° \mathbb{M} 02'19	0°08'21				
min. Earth dist.	389 May 16 j 17:52	26° \mathbb{M} 03'04	18.08087 AU	conjunction	395 Dec 14 j 20:04	23° \mathbb{Z} 57'24	0°-13'-38
direct	389 Aug 02 j 06:58	24° \mathbb{M} 00'48		minimum elong	395 Dec 14 j 20:04	23° \mathbb{Z} 57'24	0°13'38
				behind sun begin	395 Dec 14 j 16:22	23° \mathbb{Z} 56'52	
conjunction	389 Nov 19 j 03:47	28° \mathbb{M} 13'51	0°05'55	behind sun end	395 Dec 14 j 23:45	23° \mathbb{Z} 57'56	
minimum elong	389 Nov 19 j 03:46	28° \mathbb{M} 13'51	0°05'54	max. Earth dist.	395 Dec 15 j 13:20	23° \mathbb{Z} 59'58	20.50102 AU
behind sun begin	389 Nov 18 j 21:31	28° \mathbb{M} 12'55		retrograde	396 Apr 01 j 01:27	28° \mathbb{Z} 03'47	
behind sun end	389 Nov 19 j 10:02	28° \mathbb{M} 14'47		opposition	396 Jun 17 j 06:36	26° \mathbb{Z} 04'36	0°-16'-46
max. Earth dist.	389 Nov 19 j 11:34	28° \mathbb{M} 15'01	20.11411 AU	min. Earth dist.	396 Jun 16 j 13:51	26° \mathbb{Z} 06'17	18.53000 AU
	389 Dec 19 j 01:07	0° \mathbb{Z}		direct	396 Sep 02 j 01:47	24° \mathbb{Z} 05'47	
retrograde	390 Mar 06 j 13:21	2° \mathbb{Z} 24'30					
opposition	390 May 21 j 21:04	0° \mathbb{Z} 24'38	0°04'40	conjunction	396 Dec 18 j 04:38	28° \mathbb{Z} 09'02	0°-16'-39
min. Earth dist.	390 May 21 j 12:44	0° \mathbb{Z} 25'29	18.14726 AU	minimum elong	396 Dec 18 j 04:38	28° \mathbb{Z} 09'02	0°16'41
	390 May 31 j 23:06	30° \mathbb{R} \mathbb{M}		max. Earth dist.	396 Dec 18 j 22:27	28° \mathbb{Z} 11'41	20.55820 AU
direct	390 Aug 07 j 00:30	28° \mathbb{M} 23'33			397 Jan 19 j 09:52	0° \mathbb{Z}	
	390 Oct 08 j 20:50	0° \mathbb{Z}		retrograde	397 Apr 05 j 14:26	2° \mathbb{Z} 14'46	
conjunction	390 Nov 23 j 16:07	2° \mathbb{Z} 35'08	0°02'37	opposition	397 Jun 21 j 21:43	0° \mathbb{Z} 15'37	0°-20'-4
minimum elong	390 Nov 23 j 16:07	2° \mathbb{Z} 35'08	0°02'37	min. Earth dist.	397 Jun 21 j 02:56	0° \mathbb{Z} 17'30	18.58567 AU
behind sun begin	390 Nov 23 j 09:35	2° \mathbb{Z} 34'10			397 Jun 28 j 09:26	30° \mathbb{R} \mathbb{Z}	
behind sun end	390 Nov 23 j 22:38	2° \mathbb{Z} 36'06		direct	397 Sep 06 j 16:38	28° \mathbb{Z} 17'03	
max. Earth dist.	390 Nov 24 j 01:49	2° \mathbb{Z} 36'35	20.18088 AU		397 Nov 10 j 22:39	0° \mathbb{Z}	
retrograde	391 Mar 11 j 06:19	6° \mathbb{Z} 45'01		conjunction	397 Dec 22 j 12:35	2° \mathbb{Z} 19'04	0°-19'-34
opposition	391 May 26 j 16:15	4° \mathbb{Z} 45'18	0°01'00	minimum elong	397 Dec 22 j 12:35	2° \mathbb{Z} 19'04	0°19'35
min. Earth dist.	391 May 26 j 05:06	4° \mathbb{Z} 46'26	18.21410 AU	max. Earth dist.	397 Dec 23 j 08:07	2° \mathbb{Z} 21'57	20.61230 AU
direct	391 Aug 11 j 19:23	2° \mathbb{Z} 44'39		retrograde	398 Apr 10 j 00:36	6° \mathbb{Z} 24'11	
desc. node	391 Sep 03 j 18:46	2° \mathbb{Z} 58'12		opposition	398 Jun 26 j 12:15	4° \mathbb{Z} 25'01	0°-23'-14
				min. Earth dist.	398 Jun 25 j 17:23	4° \mathbb{Z} 26'55	18.63845 AU
conjunction	391 Nov 28 j 03:41	6° \mathbb{Z} 54'47	0°00'-47	direct	398 Sep 11 j 04:46	2° \mathbb{Z} 26'42	

conjunction	398 Dec 26 j 19:57	6°☾27'30	0°-22'-22	conjunction	407 Jan 27 j 19:12	8°♁55'04	0°-39'-12
minimum elong	398 Dec 26 j 19:57	6°☾27'30	0°22'23	minimum elong	407 Jan 27 j 19:12	8°♁55'04	0°39'13
max. Earth dist.	398 Dec 27 j 16:03	6°☾30'28	20.66384 AU	max. Earth dist.	407 Jan 28 j 20:50	8°♁58'46	20.98073 AU
retrograde	399 Apr 14 j 12:17	10°☾32'03		retrograde	407 May 17 j 16:09	12°♁57'08	
min. Earth dist.	399 Jun 30 j 05:05	8°☾34'58	18.68882 AU	opposition	407 Aug 03 j 18:46	10°♁58'13	0°-44'-5
opposition	399 Jul 01 j 01:58	8°☾32'53	0°-26'-15	min. Earth dist.	407 Aug 02 j 17:51	11°♁00'42	18.99316 AU
direct	399 Sep 15 j 17:29	6°☾34'47		direct	407 Oct 18 j 14:06	9°♁01'50	
conjunction	399 Dec 31 j 02:51	10°☾34'28	0°-25'-1	conjunction	408 Feb 01 j 00:45	12°♁55'34	0°-40'-30
minimum elong	399 Dec 31 j 02:50	10°☾34'28	0°25'03	minimum elong	408 Feb 01 j 00:45	12°♁55'34	0°40'31
max. Earth dist.	400 Jan 01 j 00:46	10°☾37'41	20.71291 AU	max. Earth dist.	408 Feb 02 j 03:04	12°♁59'21	21.00331 AU
retrograde	400 Apr 17 j 21:49	14°☾38'30			408 Mar 09 j 19:07	15°♁	
opposition	400 Jul 04 j 15:04	12°☾39'19	0°-29'-6	retrograde	408 May 21 j 00:00	16°♁57'31	
min. Earth dist.	400 Jul 03 j 18:00	12°☾41'26	18.73682 AU	min. Earth dist.	408 Aug 06 j 03:48	15°♁01'00	19.01308 AU
direct	400 Sep 19 j 04:10	10°☾41'28			408 Aug 06 j 13:46	15°♁	
conjunction	401 Jan 03 j 09:20	14°☾40'06	0°-27'-32	opposition	408 Aug 07 j 03:55	14°♁58'35	0°-45'-24
minimum elong	401 Jan 03 j 09:19	14°☾40'06	0°27'33	direct	408 Oct 21 j 20:55	13°♁02'18	
max. Earth dist.	401 Jan 04 j 07:34	14°☾43'21	20.75979 AU		408 Dec 31 j 07:57	15°♁	
retrograde	401 Apr 22 j 08:18	18°☾43'41		conjunction	409 Feb 04 j 06:16	16°♁55'37	0°-41'-37
min. Earth dist.	401 Jul 08 j 04:26	16°☾46'48	18.78262 AU	minimum elong	409 Feb 04 j 06:16	16°♁55'37	0°41'38
opposition	401 Jul 09 j 03:16	16°☾44'31	0°-31'-48	max. Earth dist.	409 Feb 05 j 07:19	16°♁59'14	21.02055 AU
direct	401 Sep 23 j 14:46	14°☾46'53		retrograde	409 May 25 j 09:35	20°♁57'31	
conjunction	402 Jan 07 j 15:30	18°☾44'35	0°-29'-54	opposition	409 Aug 11 j 12:36	18°♁58'31	0°-46'-31
minimum elong	402 Jan 07 j 15:30	18°☾44'35	0°29'56	min. Earth dist.	409 Aug 10 j 12:33	19°♁00'56	19.02758 AU
max. Earth dist.	402 Jan 08 j 15:26	18°☾48'04	20.80429 AU	direct	409 Oct 26 j 02:47	17°♁02'17	
retrograde	402 Apr 26 j 17:18	22°☾47'46		conjunction	410 Feb 08 j 11:52	20°♁55'16	0°-42'-31
opposition	402 Jul 13 j 15:09	20°☾48'39	0°-34'-19	minimum elong	410 Feb 08 j 11:52	20°♁55'16	0°42'31
min. Earth dist.	402 Jul 12 j 16:11	20°☾50'57	18.82594 AU	max. Earth dist.	410 Feb 09 j 13:22	20°♁58'56	21.03225 AU
direct	402 Sep 27 j 23:51	18°☾51'16		retrograde	410 May 29 j 17:13	24°♁57'08	
conjunction	403 Jan 11 j 21:12	22°☾48'05	0°-32'-7	opposition	410 Aug 15 j 21:02	22°♁58'02	0°-47'-23
minimum elong	403 Jan 11 j 21:12	22°☾48'05	0°32'07	min. Earth dist.	410 Aug 14 j 21:47	23°♁00'22	19.03658 AU
max. Earth dist.	403 Jan 12 j 21:15	22°☾51'35	20.84637 AU	direct	410 Oct 30 j 09:35	21°♁01'48	
retrograde	403 May 01 j 03:32	26°☾50'57		conjunction	411 Feb 12 j 17:21	24°♁54'31	0°-43'-12
min. Earth dist.	403 Jul 17 j 02:01	24°☾54'18	18.86666 AU	minimum elong	411 Feb 12 j 17:21	24°♁54'31	0°43'13
opposition	403 Jul 18 j 02:25	24°☾51'52	0°-36'-40	max. Earth dist.	411 Feb 13 j 17:32	24°♁57'59	21.03880 AU
direct	403 Oct 02 j 08:54	22°☾54'43		retrograde	411 Jun 03 j 02:41	28°♁56'23	
conjunction	404 Jan 16 j 02:56	26°☾50'46	0°-34'-9	min. Earth dist.	411 Aug 19 j 06:06	26°♁59'27	19.04066 AU
minimum elong	404 Jan 16 j 02:55	26°☾50'45	0°34'10	opposition	411 Aug 20 j 05:05	26°♁57'09	0°-48'-1
max. Earth dist.	404 Jan 17 j 04:26	26°☾54'28	20.88547 AU	direct	411 Nov 03 j 15:05	25°♁00'51	
retrograde	404 Mar 18 j 07:25	0°♁		conjunction	412 Feb 16 j 23:07	28°♁53'24	0°-43'-40
	404 May 04 j 11:48	0°♁53'20		minimum elong	412 Feb 16 j 23:07	28°♁53'24	0°43'41
	404 Jun 22 j 12:22	30°♁☾		max. Earth dist.	412 Feb 17 j 23:45	28°♁56'55	21.04047 AU
opposition	404 Jul 21 j 13:06	28°☾54'19	0°-38'-49		412 Mar 07 j 13:47	0°♁	
min. Earth dist.	404 Jul 20 j 12:55	28°☾56'44	18.90417 AU	retrograde	412 Jun 06 j 09:54	2°♁55'18	
direct	404 Oct 05 j 16:31	26°☾57'25		opposition	412 Aug 23 j 12:37	0°♁55'56	0°-48'-26
	405 Jan 04 j 02:17	0°♁		min. Earth dist.	412 Aug 22 j 14:24	0°♁58'10	19.04011 AU
conjunction	405 Jan 19 j 08:24	0°♁52'45	0°-36'-1		412 Sep 16 j 16:33	30°♁	
minimum elong	405 Jan 19 j 08:24	0°♁52'45	0°36'01	direct	412 Nov 06 j 21:09	28°♁59'34	
max. Earth dist.	405 Jan 20 j 09:35	0°♁56'24	20.92130 AU		412 Dec 26 j 03:08	0°♁	
retrograde	405 May 08 j 22:11	4°♁55'06		conjunction	413 Feb 20 j 04:52	2°♁52'02	0°-43'-56
opposition	405 Jul 25 j 23:21	2°♁56'08	0°-40'-47	minimum elong	413 Feb 20 j 04:52	2°♁52'02	0°43'57
min. Earth dist.	405 Jul 24 j 22:18	2°♁58'38	18.93816 AU	max. Earth dist.	413 Feb 21 j 04:08	2°♁55'21	21.03795 AU
direct	405 Oct 10 j 00:22	0°♁59'26		retrograde	413 Jun 10 j 19:21	6°♁54'03	
conjunction	406 Jan 23 j 13:47	4°♁54'09	0°-37'-42	opposition	413 Aug 27 j 20:02	4°♁54'32	0°-48'-36
minimum elong	406 Jan 23 j 13:47	4°♁54'09	0°37'43	min. Earth dist.	413 Aug 26 j 22:08	4°♁56'45	19.03567 AU
max. Earth dist.	406 Jan 24 j 16:09	4°♁57'58	20.95316 AU	direct	413 Nov 11 j 02:31	2°♁58'06	
retrograde	406 May 13 j 05:57	8°♁56'21		conjunction	414 Feb 24 j 10:47	6°♁50'34	0°-43'-59
min. Earth dist.	406 Jul 29 j 08:43	6°♁59'52	18.96792 AU	minimum elong	414 Feb 24 j 10:47	6°♁50'34	0°44'00
opposition	406 Jul 30 j 09:19	6°♁57'25	0°-42'-32	max. Earth dist.	414 Feb 25 j 10:34	6°♁53'57	21.03155 AU
direct	406 Oct 14 j 07:18	5°♁00'54		retrograde	414 Jun 15 j 02:49	10°♁52'45	
				min. Earth dist.	414 Aug 31 j 06:00	8°♁55'17	19.02746 AU

opposition	414 Sep 01 j 03:16	8° Υ 53'08	0°-48'-32	min. Earth dist.	422 Oct 02 j 23:51	11° Υ 03'13	18.82988 AU
direct	414 Nov 15 j 07:35	6° Υ 56'37		direct	422 Dec 17 j 03:30	9° Υ 04'31	
conjunction	415 Feb 28 j 17:00	10° Υ 49'11	0°-43'-49	conjunction	423 Apr 02 j 12:35	13° Υ 01'23	0°-35'-5
minimum elong	415 Feb 28 j 17:00	10° Υ 49'11	0°43'50	minimum elong	423 Apr 02 j 12:35	13° Υ 01'23	0°35'06
max. Earth dist.	415 Mar 01 j 15:18	10° Υ 52'22	21.02171 AU	max. Earth dist.	423 Apr 03 j 00:40	13° Υ 03'07	20.80827 AU
retrograde	415 Jun 19 j 12:22	14° Υ 51'38		retrograde	423 Jul 22 j 20:36	17° Υ 07'38	
opposition	415 Sep 05 j 10:14	12° Υ 51'53	0°-48'-14	opposition	423 Oct 07 j 19:51	15° Υ 07'12	0°-37'-42
min. Earth dist.	415 Sep 04 j 13:31	12° Υ 53'59	19.01594 AU	min. Earth dist.	423 Oct 07 j 09:32	15° Υ 08'16	18.78575 AU
direct	415 Nov 19 j 12:51	10° Υ 55'17		direct	423 Dec 21 j 09:57	13° Υ 09'29	
conjunction	416 Mar 03 j 23:42	14° Υ 48'05	0°-43'-27	conjunction	424 Apr 05 j 23:56	17° Υ 07'14	0°-33'-6
minimum elong	416 Mar 03 j 23:42	14° Υ 48'05	0°43'28	minimum elong	424 Apr 05 j 23:56	17° Υ 07'14	0°33'06
max. Earth dist.	416 Mar 04 j 22:17	14° Υ 51'19	21.00842 AU	max. Earth dist.	424 Apr 06 j 11:14	17° Υ 08'51	20.76204 AU
retrograde	416 Jun 22 j 20:38	18° Υ 50'49		retrograde	424 Jul 26 j 07:40	21° Υ 14'04	
opposition	416 Sep 08 j 17:11	16° Υ 51'00	0°-47'-43	opposition	424 Oct 11 j 03:43	19° Υ 13'28	0°-35'-25
min. Earth dist.	416 Sep 07 j 21:15	16° Υ 53'01	19.00088 AU	min. Earth dist.	424 Oct 10 j 18:41	19° Υ 14'24	18.73749 AU
direct	416 Nov 22 j 17:27	14° Υ 54'20		direct	424 Dec 24 j 18:06	17° Υ 15'26	
conjunction	417 Mar 08 j 06:34	18° Υ 47'27	0°-42'-52	conjunction	425 Apr 10 j 11:33	21° Υ 14'06	0°-30'-56
minimum elong	417 Mar 08 j 06:34	18° Υ 47'27	0°42'52	minimum elong	425 Apr 10 j 11:33	21° Υ 14'06	0°30'58
max. Earth dist.	417 Mar 09 j 03:26	18° Υ 50'25	20.99176 AU	max. Earth dist.	425 Apr 10 j 19:58	21° Υ 15'18	20.71214 AU
retrograde	417 Jun 27 j 06:19	22° Υ 50'33		retrograde	425 Jul 30 j 19:04	25° Υ 21'34	
min. Earth dist.	417 Sep 12 j 05:01	20° Υ 52'36	18.98249 AU	opposition	425 Oct 15 j 11:54	23° Υ 20'46	0°-32'-56
opposition	417 Sep 13 j 00:06	20° Υ 50'40	0°-46'-57	min. Earth dist.	425 Oct 15 j 04:49	23° Υ 21'30	18.68602 AU
direct	417 Nov 26 j 22:32	18° Υ 53'55		direct	425 Dec 29 j 01:39	21° Υ 22'24	
conjunction	418 Mar 12 j 14:06	22° Υ 47'27	0°-42'-5	conjunction	426 Apr 15 j 00:10	25° Υ 22'04	0°-28'-36
minimum elong	418 Mar 12 j 14:06	22° Υ 47'27	0°42'06	minimum elong	426 Apr 15 j 00:10	25° Υ 22'04	0°28'37
max. Earth dist.	418 Mar 13 j 11:04	22° Υ 50'27	20.97158 AU	max. Earth dist.	426 Apr 15 j 08:00	25° Υ 23'12	20.65928 AU
retrograde	418 Jul 01 j 15:48	26° Υ 50'59		retrograde	426 Aug 04 j 06:29	29° Υ 30'11	
opposition	418 Sep 17 j 07:03	24° Υ 51'02	0°-45'-58	opposition	426 Oct 19 j 20:11	27° Υ 29'13	0°-30'-16
min. Earth dist.	418 Sep 16 j 12:57	24° Υ 52'53	18.96043 AU	min. Earth dist.	426 Oct 19 j 14:11	27° Υ 29'50	18.63186 AU
direct	418 Dec 01 j 03:39	22° Υ 54'14		direct	427 Jan 02 j 10:18	25° Υ 30'30	
conjunction	419 Mar 16 j 22:03	26° Υ 48'16	0°-41'-5	conjunction	427 Apr 19 j 13:18	29° Υ 31'14	0°-26'-7
minimum elong	419 Mar 16 j 22:03	26° Υ 48'16	0°41'06	minimum elong	427 Apr 19 j 13:18	29° Υ 31'14	0°26'08
max. Earth dist.	419 Mar 17 j 16:53	26° Υ 50'57	20.94777 AU	max. Earth dist.	427 Apr 19 j 18:15	29° Υ 31'56	20.60412 AU
retrograde	419 May 20 j 00:36	0° Υ		retrograde	427 Apr 27 j 20:19	0° Υ	
opposition	419 Jul 06 j 01:58	0° Υ 52'17		retrograde	427 Aug 08 j 18:47	3° Υ 40'02	
min. Earth dist.	419 Aug 23 j 03:19	30° Υ		opposition	427 Oct 24 j 04:57	1° Υ 38'52	0°-27'-26
opposition	419 Sep 21 j 14:08	28° Υ 52'17	0°-44'-46	min. Earth dist.	427 Oct 24 j 00:58	1° Υ 39'17	18.57576 AU
min. Earth dist.	419 Sep 20 j 21:22	28° Υ 54'00	18.93460 AU	direct	427 Dec 09 j 16:34	30° Υ	
direct	419 Dec 05 j 08:28	26° Υ 55'22		direct	428 Jan 06 j 18:46	29° Υ 39'47	
	420 Mar 05 j 15:08	0° Υ			428 Feb 03 j 13:26	0° Υ	
conjunction	420 Mar 20 j 06:50	0° Υ 50'01	0°-39'-53	conjunction	428 Apr 23 j 03:22	3° Υ 41'41	0°-23'-28
minimum elong	420 Mar 20 j 06:50	0° Υ 50'01	0°39'54	minimum elong	428 Apr 23 j 03:22	3° Υ 41'41	0°23'29
max. Earth dist.	420 Mar 21 j 01:17	0° Υ 52'39	20.91977 AU	max. Earth dist.	428 Apr 23 j 07:43	3° Υ 42'19	20.54714 AU
retrograde	420 Jul 09 j 12:30	4° Υ 54'33		retrograde	428 Aug 12 j 07:25	7° Υ 51'11	
opposition	420 Sep 24 j 21:10	2° Υ 54'29	0°-43'-20	opposition	428 Oct 27 j 13:56	5° Υ 49'53	0°-24'-27
min. Earth dist.	420 Sep 24 j 05:45	2° Υ 56'04	18.90433 AU	min. Earth dist.	428 Oct 27 j 10:52	5° Υ 50'12	18.51804 AU
direct	420 Dec 08 j 14:44	0° Υ 57'27		direct	429 Jan 10 j 04:16	3° Υ 50'27	
conjunction	421 Mar 24 j 16:05	4° Υ 52'47	0°-38'-29	conjunction	429 Apr 27 j 17:58	7° Υ 53'33	0°-20'-42
minimum elong	421 Mar 24 j 16:05	4° Υ 52'47	0°38'30	minimum elong	429 Apr 27 j 17:59	7° Υ 53'33	0°20'43
max. Earth dist.	421 Mar 25 j 07:51	4° Υ 55'02	20.88734 AU	max. Earth dist.	429 Apr 27 j 19:29	7° Υ 53'46	20.48894 AU
retrograde	421 Jul 13 j 22:49	8° Υ 57'52		retrograde	429 Aug 16 j 20:36	12° Υ 03'48	
opposition	421 Sep 29 j 04:36	6° Υ 57'43	0°-41'-40	opposition	429 Oct 31 j 23:33	10° Υ 02'21	0°-21'-19
min. Earth dist.	421 Sep 28 j 14:53	6° Υ 59'07	18.86956 AU	min. Earth dist.	429 Oct 31 j 22:32	10° Υ 02'28	18.45942 AU
direct	421 Dec 12 j 19:59	5° Υ 00'30		direct	430 Jan 14 j 13:24	8° Υ 02'35	
conjunction	422 Mar 29 j 02:01	8° Υ 56'34	0°-36'-53	conjunction	430 May 02 j 09:32	12° Υ 06'58	0°-17'-48
minimum elong	422 Mar 29 j 02:01	8° Υ 56'34	0°36'53	minimum elong	430 May 02 j 09:32	12° Υ 06'58	0°17'50
max. Earth dist.	422 Mar 29 j 17:05	8° Υ 58'44	20.85014 AU	max. Earth dist.	430 May 02 j 10:29	12° Υ 07'06	20.42993 AU
retrograde	422 Jul 18 j 09:58	13° Υ 02'13		retrograde	430 Jun 25 j 14:59	15° Υ	
opposition	422 Oct 03 j 12:10	11° Υ 01'57	0°-39'-48	retrograde	430 Aug 21 j 11:14	16° Υ 18'00	

	430 Oct 18 j 19:28	15°R♄		min. Earth dist.	436 Nov 30 j 20:59	10°♁18'55	18.02838 AU
opposition	430 Nov 05 j 09:36	14°♄16'27	0°-18'-2	direct	437 Feb 13 j 05:28	8°♁17'51	
min. Earth dist.	430 Nov 05 j 09:24	14°♄16'28	18.39998 AU				
direct	431 Jan 19 j 00:12	12°♄16'21		conjunction	437 Jun 02 j 23:34	12°♁32'28	0°05'00
	431 Apr 13 j 07:34	15°♄		minimum elong	437 Jun 02 j 23:35	12°♁32'28	0°04'59
				behind sun begin	437 Jun 02 j 16:59	12°♁31'30	
conjunction	431 May 07 j 01:57	16°♄22'05	0°-14'-48	behind sun end	437 Jun 03 j 06:10	12°♁33'25	
minimum elong	431 May 07 j 01:57	16°♄22'05	0°14'48	max. Earth dist.	437 Jun 02 j 09:13	12°♁30'19	19.99640 AU
behind sun begin	431 May 06 j 23:32	16°♄21'44		retrograde	437 Sep 21 j 09:36	16°♁49'05	
behind sun end	431 May 07 j 04:21	16°♄22'25		opposition	437 Dec 05 j 01:22	14°♁47'03	0°07'22
max. Earth dist.	431 May 06 j 23:56	16°♄21'47	20.37025 AU	min. Earth dist.	437 Dec 05 j 14:10	14°♁45'40	17.96433 AU
retrograde	431 Aug 26 j 01:35	20°♄33'55		direct	438 Feb 17 j 20:22	12°♁44'29	
opposition	431 Nov 09 j 20:10	18°♄32'17	0°-14'-39				
min. Earth dist.	431 Nov 09 j 22:19	18°♄32'04	18.34005 AU	conjunction	438 Jun 07 j 22:02	17°♁00'35	0°08'22
direct	432 Jan 23 j 10:18	16°♄31'52		minimum elong	438 Jun 07 j 22:02	17°♁00'35	0°08'22
				behind sun begin	438 Jun 07 j 16:06	16°♁59'43	
conjunction	432 May 10 j 19:24	20°♄39'01	0°-11'-41	behind sun end	438 Jun 08 j 03:58	17°♁01'27	
minimum elong	432 May 10 j 19:25	20°♄39'01	0°11'42	max. Earth dist.	438 Jun 07 j 06:14	16°♁58'13	19.93260 AU
behind sun begin	432 May 10 j 14:43	20°♄38'21		retrograde	438 Sep 26 j 05:31	21°♁17'55	
behind sun end	432 May 11 j 00:06	20°♄39'41		opposition	438 Dec 09 j 16:26	19°♁15'47	0°11'06
max. Earth dist.	432 May 10 j 16:37	20°♄38'38	20.31003 AU	min. Earth dist.	438 Dec 10 j 05:48	19°♁14'20	17.90087 AU
retrograde	432 Aug 29 j 18:06	24°♄51'40		direct	439 Feb 22 j 14:05	17°♁12'47	
opposition	432 Nov 13 j 07:21	22°♄50'00	0°-11'-8				
min. Earth dist.	432 Nov 13 j 10:23	22°♄49'40	18.27944 AU	conjunction	439 Jun 12 j 21:11	21°♁30'22	0°11'42
direct	433 Jan 26 j 22:35	20°♄49'17		minimum elong	439 Jun 12 j 21:11	21°♁30'22	0°11'42
				behind sun begin	439 Jun 12 j 16:29	21°♁29'41	
conjunction	433 May 15 j 13:28	24°♄57'53	0°-8'-29	behind sun end	439 Jun 13 j 01:53	21°♁31'04	
minimum elong	433 May 15 j 13:28	24°♄57'53	0°08'30	max. Earth dist.	439 Jun 12 j 03:17	21°♁27'41	19.86962 AU
behind sun begin	433 May 15 j 07:35	24°♄57'02		retrograde	439 Oct 01 j 00:03	25°♁48'23	
behind sun end	433 May 15 j 19:21	24°♄58'43		opposition	439 Dec 14 j 08:14	23°♁46'08	0°14'48
max. Earth dist.	433 May 15 j 07:40	24°♄57'03	20.24906 AU	min. Earth dist.	439 Dec 15 j 00:01	23°♁44'26	17.83875 AU
retrograde	433 Sep 03 j 09:45	29°♄11'22		direct	440 Feb 27 j 06:24	21°♁42'44	
opposition	433 Nov 17 j 19:19	27°♄09'39	0°-7'-32				
min. Earth dist.	433 Nov 18 j 00:57	27°♄09'03	18.21812 AU	conjunction	440 Jun 16 j 20:55	26°♁01'46	0°14'59
direct	434 Jan 31 j 10:14	25°♄08'36		minimum elong	440 Jun 16 j 20:55	26°♁01'46	0°14'58
				behind sun begin	440 Jun 16 j 18:46	26°♁01'27	
conjunction	434 May 20 j 08:49	29°♄18'42	0°-5'-13	behind sun end	440 Jun 16 j 23:04	26°♁02'05	
minimum elong	434 May 20 j 08:48	29°♄18'42	0°05'14	max. Earth dist.	440 Jun 16 j 01:37	25°♁58'51	19.80849 AU
behind sun begin	434 May 20 j 02:15	29°♄17'45			440 Sep 07 j 05:15	0°♁	
behind sun end	434 May 20 j 15:21	29°♄19'39		retrograde	440 Oct 04 j 20:38	0°♁20'27	
max. Earth dist.	434 May 20 j 01:49	29°♄17'41	20.18725 AU		440 Nov 01 j 15:00	30°R♁	
	434 Jun 01 j 00:46	0°♁		opposition	440 Dec 18 j 00:39	28°♁18'05	0°18'25
retrograde	434 Sep 08 j 03:40	3°♁33'00		min. Earth dist.	440 Dec 18 j 16:38	28°♁16'21	17.77878 AU
opposition	434 Nov 22 j 07:42	1°♁31'14	0°-3'-52	direct	441 Mar 03 j 01:58	26°♁14'16	
min. Earth dist.	434 Nov 22 j 14:20	1°♁30'31	18.15575 AU		441 Jun 12 j 07:52	0°♁	
	435 Jan 01 j 15:39	30°R♄					
direct	435 Feb 05 j 00:11	29°♄29'50		conjunction	441 Jun 21 j 21:07	0°♁34'43	0°18'11
	435 Mar 10 j 22:21	0°♁		minimum elong	441 Jun 21 j 21:07	0°♁34'43	0°18'12
				max. Earth dist.	441 Jun 21 j 00:37	0°♁31'37	19.74973 AU
conjunction	435 May 25 j 04:58	3°♁41'27	0°-1'-52	retrograde	441 Oct 09 j 15:54	4°♁54'01	
minimum elong	435 May 25 j 04:57	3°♁41'27	0°01'54	opposition	441 Dec 22 j 17:53	2°♁51'35	0°21'57
behind sun begin	435 May 24 j 22:10	3°♁40'28		min. Earth dist.	441 Dec 23 j 11:53	2°♁49'37	17.72160 AU
behind sun end	435 May 25 j 11:44	3°♁42'26		direct	442 Mar 07 j 20:02	0°♁47'24	
max. Earth dist.	435 May 24 j 18:46	3°♁39'57	20.12433 AU				
retrograde	435 Sep 12 j 20:42	7°♁56'33		conjunction	442 Jun 26 j 22:01	5°♁09'13	0°21'18
opposition	435 Nov 26 j 21:02	5°♁54'43	0°00'-8	minimum elong	442 Jun 26 j 22:01	5°♁09'13	0°21'17
min. Earth dist.	435 Nov 27 j 06:25	5°♁53'43	18.09243 AU	max. Earth dist.	442 Jun 25 j 23:59	5°♁05'52	19.69420 AU
asc. node	435 Dec 12 j 11:31	5°♁15'19		retrograde	442 Oct 14 j 13:04	9°♁29'06	
direct	436 Feb 09 j 13:43	3°♁52'56		opposition	442 Dec 27 j 11:32	7°♁26'36	0°25'21
				min. Earth dist.	442 Dec 28 j 05:36	7°♁24'38	17.66789 AU
conjunction	436 May 29 j 01:56	8°♁06'04	0°01'36	direct	443 Mar 12 j 17:38	5°♁22'04	
minimum elong	436 May 29 j 01:55	8°♁06'04	0°01'36				
behind sun begin	436 May 28 j 19:08	8°♁05'05		conjunction	443 Jul 01 j 23:35	9°♁45'15	0°24'17
behind sun end	436 May 29 j 08:42	8°♁07'03		minimum elong	443 Jul 01 j 23:35	9°♁45'15	0°24'17
max. Earth dist.	436 May 28 j 14:18	8°♁04'21	20.06060 AU	max. Earth dist.	443 Jul 01 j 01:02	9°♁41'48	19.64227 AU
retrograde	436 Sep 16 j 15:33	12°♁21'56		retrograde	443 Oct 19 j 09:15	14°♁05'40	
opposition	436 Nov 30 j 10:49	10°♁20'01	0°03'36	opposition	444 Jan 01 j 06:13	12°♁03'09	0°28'37

min. Earth dist.	444 Jan 02 j 01:53	12°♄01'01	17.61806 AU	minimum elong	451 Aug 10 j 00:57	17°♃21'38	0°41'30
direct	444 Mar 16 j 13:18	9°♄58'21		retrograde	451 Nov 26 j 04:20	21°♃44'27	
max. Earth dist.	444 Jul 05 j 01:16	14°♄19'06	19.59457 AU	opposition	452 Feb 07 j 11:20	19°♃42'18	0°46'52
conjunction	444 Jul 06 j 01:21	14°♄22'47	0°27'08	min. Earth dist.	452 Feb 08 j 10:27	19°♃39'47	17.36550 AU
minimum elong	444 Jul 06 j 01:20	14°♄22'47	0°27'08	direct	452 Apr 23 j 15:18	17°♃36'05	
retrograde	444 Oct 23 j 07:40	18°♄43'44		max. Earth dist.	452 Aug 13 j 01:00	22°♃03'02	19.35799 AU
opposition	445 Jan 05 j 01:26	16°♄41'14	0°31'43	conjunction	452 Aug 14 j 04:20	22°♃07'19	0°42'31
min. Earth dist.	445 Jan 05 j 21:04	16°♄39'06	17.57254 AU	minimum elong	452 Aug 14 j 04:20	22°♃07'19	0°42'31
direct	445 Mar 21 j 12:39	14°♄36'11		retrograde	452 Nov 30 j 02:49	26°♃30'06	
max. Earth dist.	445 Jul 10 j 03:55	18°♄58'11	19.55110 AU	opposition	453 Feb 11 j 11:27	24°♃27'57	0°47'51
conjunction	445 Jul 11 j 03:52	19°♄01'51	0°29'50	min. Earth dist.	453 Feb 12 j 10:53	24°♃25'24	17.35271 AU
minimum elong	445 Jul 11 j 03:52	19°♄01'51	0°29'49	direct	453 Apr 28 j 17:19	22°♃21'37	
retrograde	445 Oct 28 j 05:15	23°♄23'16		max. Earth dist.	453 Aug 18 j 05:31	26°♃49'00	19.34773 AU
opposition	446 Jan 09 j 21:24	21°♄20'51	0°34'37	conjunction	453 Aug 19 j 07:42	26°♃53'07	0°43'15
min. Earth dist.	446 Jan 10 j 18:25	21°♄18'33	17.53122 AU	minimum elong	453 Aug 19 j 07:42	26°♃53'07	0°43'15
direct	446 Mar 26 j 10:00	19°♄15'34		retrograde	453 Oct 13 j 02:11	0°♃	
max. Earth dist.	446 Jul 15 j 05:00	23°♄38'26	19.51187 AU	retrograde	453 Dec 05 j 03:19	1°♃15'46	
conjunction	446 Jul 16 j 06:43	23°♄42'24	0°32'20	opposition	454 Jan 29 j 06:35	30°♃	
minimum elong	446 Jul 16 j 06:43	23°♄42'24	0°32'21	min. Earth dist.	454 Feb 16 j 11:41	29°♃13'38	0°48'30
retrograde	446 Nov 02 j 04:44	28°♄04'15		direct	454 Feb 17 j 10:04	29°♃11'12	17.34498 AU
opposition	447 Jan 14 j 18:04	26°♄01'53	0°37'19	direct	454 May 03 j 21:28	27°♃07'15	
min. Earth dist.	447 Jan 15 j 15:20	25°♄59'34	17.49403 AU	max. Earth dist.	454 Jul 28 j 15:28	0°♃	
direct	447 Mar 31 j 10:03	23°♄56'25		max. Earth dist.	454 Aug 23 j 08:49	1°♃34'47	19.34274 AU
max. Earth dist.	447 Jul 20 j 08:48	28°♄20'24	19.47647 AU	conjunction	454 Aug 24 j 10:41	1°♃38'50	0°43'41
conjunction	447 Jul 21 j 10:05	28°♄24'19	0°34'39	minimum elong	454 Aug 24 j 10:41	1°♃38'50	0°43'41
minimum elong	447 Jul 21 j 10:05	28°♄24'19	0°34'39	retrograde	454 Dec 10 j 01:18	6°♃01'19	
retrograde	447 Aug 16 j 16:22	0°♃		opposition	455 Feb 21 j 12:27	3°♃59'13	0°48'50
opposition	447 Nov 07 j 04:08	2°♃46'30		min. Earth dist.	455 Feb 22 j 10:57	3°♃56'46	17.34293 AU
opposition	448 Jan 19 j 15:35	0°♃44'13	0°39'47	direct	455 May 08 j 23:53	1°♃52'47	
min. Earth dist.	448 Jan 20 j 13:50	0°♃41'47	17.46054 AU	conjunction	455 Aug 29 j 13:07	6°♃24'21	0°43'49
direct	448 Feb 05 j 21:19	30°♃		minimum elong	455 Aug 29 j 13:07	6°♃24'21	0°43'49
direct	448 Apr 04 j 09:24	28°♄38'35		max. Earth dist.	455 Aug 28 j 12:33	6°♃20'29	19.34369 AU
max. Earth dist.	448 May 31 j 02:54	0°♃		retrograde	455 Dec 15 j 01:35	10°♃46'35	
conjunction	448 Jul 24 j 10:32	3°♃03'12	19.44488 AU	opposition	456 Feb 26 j 13:21	8°♃44'32	0°48'48
conjunction	448 Jul 25 j 13:34	3°♃07'24	0°36'44	min. Earth dist.	456 Feb 27 j 09:58	8°♃42'17	17.34687 AU
minimum elong	448 Jul 25 j 13:34	3°♃07'24	0°36'45	direct	456 May 13 j 05:02	6°♃38'08	
retrograde	448 Nov 11 j 03:54	7°♃29'53		conjunction	456 Sep 02 j 15:10	11°♃09'31	0°43'39
opposition	449 Jan 23 j 13:40	5°♃27'38	0°41'59	minimum elong	456 Sep 02 j 15:10	11°♃09'31	0°43'39
min. Earth dist.	449 Jan 24 j 12:14	5°♃25'10	17.43097 AU	max. Earth dist.	456 Sep 01 j 15:59	11°♃05'53	19.35077 AU
direct	449 Apr 09 j 09:49	3°♃21'50		retrograde	456 Dec 18 j 23:07	15°♃31'28	
conjunction	449 Jul 30 j 17:19	7°♃51'28	0°38'35	opposition	457 Mar 02 j 14:26	13°♃29'29	0°48'27
minimum elong	449 Jul 30 j 17:18	7°♃51'28	0°38'36	min. Earth dist.	457 Mar 03 j 10:53	13°♃27'16	17.35724 AU
max. Earth dist.	449 Jul 29 j 14:59	7°♃47'22	19.41708 AU	direct	457 May 18 j 07:19	11°♃23'11	
retrograde	449 Nov 16 j 04:23	12°♃14'08		conjunction	457 Sep 07 j 16:40	15°♃54'17	0°43'11
opposition	450 Jan 28 j 12:25	10°♃11'56	0°43'55	minimum elong	457 Sep 07 j 16:40	15°♃54'17	0°43'11
min. Earth dist.	450 Jan 29 j 11:25	10°♃09'25	17.40502 AU	max. Earth dist.	457 Sep 06 j 18:35	15°♃50'49	19.36440 AU
direct	450 Apr 14 j 11:06	8°♃05'59		retrograde	457 Dec 23 j 23:18	20°♃15'54	
conjunction	450 Aug 04 j 21:06	12°♃36'17	0°40'11	opposition	458 Mar 07 j 15:37	18°♃14'02	0°47'46
minimum elong	450 Aug 04 j 21:06	12°♃36'17	0°40'10	min. Earth dist.	458 Mar 08 j 09:46	18°♃12'05	17.37386 AU
max. Earth dist.	450 Aug 03 j 17:20	12°♃31'57	19.39309 AU	direct	458 May 23 j 12:08	16°♃07'53	
retrograde	450 Sep 14 j 05:57	15°♃		conjunction	458 Sep 12 j 17:44	20°♃38'36	0°42'26
retrograde	450 Nov 21 j 03:30	16°♃59'04		minimum elong	458 Sep 12 j 17:44	20°♃38'36	0°42'26
opposition	451 Feb 01 j 07:04	15°♃		max. Earth dist.	458 Sep 11 j 21:45	20°♃35'27	19.38408 AU
opposition	451 Feb 02 j 11:36	14°♃56'53	0°45'33	retrograde	458 Dec 28 j 21:02	24°♃59'48	
min. Earth dist.	451 Feb 03 j 11:02	14°♃54'20	17.38314 AU	opposition	459 Mar 12 j 17:01	22°♃58'07	0°46'46
direct	451 Apr 19 j 12:19	12°♃50'47		min. Earth dist.	459 Mar 13 j 10:53	22°♃56'11	17.39647 AU
max. Earth dist.	451 Jul 01 j 09:31	15°♃		direct	459 May 28 j 14:02	20°♃52'11	
conjunction	451 Aug 08 j 22:10	17°♃17'27	19.37330 AU	conjunction	459 Sep 17 j 18:07	25°♃22'21	0°41'23
conjunction	451 Aug 10 j 00:57	17°♃21'38	0°41'30	minimum elong	459 Sep 17 j 18:07	25°♃22'21	0°41'24

max. Earth dist.	459 Sep 16 j 23:01	25°♄19'21	19.40963 AU	minimum elong	467 Oct 24 j 19:37	2°♌33'18	0°24'19
retrograde	460 Jan 02 j 21:18	29°♄43'07		max. Earth dist.	467 Oct 24 j 14:06	2°♌32'27	19.75273 AU
opposition	460 Mar 16 j 18:22	27°♄41'36	0°45'27	retrograde	468 Feb 08 j 19:23	6°♌48'35	
min. Earth dist.	460 Mar 17 j 09:52	27°♄39'56	17.42460 AU	opposition	468 Apr 23 j 23:10	4°♌47'58	0°25'26
direct	460 Jun 01 j 17:54	25°♄35'55		min. Earth dist.	468 Apr 24 j 02:46	4°♌47'35	17.78008 AU
	460 Sep 20 j 07:26	0°♌		direct	468 Jul 10 j 06:56	2°♌44'33	
conjunction	460 Sep 21 j 17:56	0°♌05'26	0°40'05	conjunction	468 Oct 28 j 12:50	7°♌04'49	0°21'22
minimum elong	460 Sep 21 j 17:56	0°♌05'26	0°40'04	minimum elong	468 Oct 28 j 12:50	7°♌04'49	0°21'23
max. Earth dist.	460 Sep 21 j 01:21	0°♌02'49	19.44025 AU	max. Earth dist.	468 Oct 28 j 10:19	7°♌04'26	19.80826 AU
retrograde	461 Jan 06 j 18:55	4°♌25'42		retrograde	469 Feb 12 j 12:57	11°♌19'16	
opposition	461 Mar 21 j 19:51	2°♌24'21	0°43'50	opposition	469 Apr 28 j 21:49	9°♌18'43	0°22'05
min. Earth dist.	461 Mar 22 j 10:57	2°♌22'44	17.45748 AU	min. Earth dist.	469 Apr 28 j 23:09	9°♌18'34	17.83685 AU
direct	461 Jun 06 j 19:06	0°♌18'57		direct	469 Jul 15 j 06:45	7°♌15'37	
conjunction	461 Sep 26 j 17:05	4°♌47'40	0°38'30	conjunction	469 Nov 02 j 05:02	11°♌34'25	0°18'19
minimum elong	461 Sep 26 j 17:05	4°♌47'40	0°38'30	minimum elong	469 Nov 02 j 05:02	11°♌34'25	0°18'18
max. Earth dist.	461 Sep 26 j 01:02	4°♌45'09	19.47535 AU	max. Earth dist.	469 Nov 02 j 03:58	11°♌34'15	19.86644 AU
retrograde	462 Jan 11 j 18:44	9°♌07'22			470 Jan 05 j 14:44	15°♌	
opposition	462 Mar 26 j 21:00	7°♌06'11	0°41'55	retrograde	470 Feb 17 j 05:59	15°♌48'02	
min. Earth dist.	462 Mar 27 j 09:53	7°♌04'49	17.49454 AU		470 Apr 02 j 15:45	15°♌	
direct	462 Jun 11 j 22:16	5°♌01'03		opposition	470 May 03 j 19:54	13°♌47'34	0°18'37
conjunction	462 Oct 01 j 15:42	9°♌28'53	0°36'40	min. Earth dist.	470 May 03 j 19:30	13°♌47'37	17.89652 AU
minimum elong	462 Oct 01 j 15:42	9°♌28'53	0°36'39	direct	470 Jul 20 j 03:49	11°♌44'49	
max. Earth dist.	462 Oct 01 j 02:20	9°♌26'48	19.51427 AU		470 Oct 20 j 21:02	15°♌	
retrograde	463 Jan 16 j 15:44	13°♌47'57		conjunction	470 Nov 06 j 20:31	16°♌02'09	0°15'10
opposition	463 Mar 31 j 22:20	11°♌46'56	0°39'44	minimum elong	470 Nov 06 j 20:31	16°♌02'09	0°15'10
min. Earth dist.	463 Apr 01 j 10:31	11°♌45'38	17.53513 AU	behind sun begin	470 Nov 06 j 18:05	16°♌01'47	
direct	463 Jun 16 j 23:34	9°♌42'06		behind sun end	470 Nov 06 j 22:57	16°♌02'31	
conjunction	463 Oct 06 j 13:16	14°♌08'53	0°34'36	max. Earth dist.	470 Nov 06 j 22:19	16°♌02'25	19.92750 AU
minimum elong	463 Oct 06 j 13:16	14°♌08'53	0°34'35	retrograde	471 Feb 21 j 23:13	20°♌14'56	
max. Earth dist.	463 Oct 06 j 00:27	14°♌06'53	19.55657 AU	opposition	471 May 08 j 17:25	18°♌14'36	0°15'04
retrograde	464 Jan 21 j 14:14	18°♌27'18		min. Earth dist.	471 May 08 j 14:18	18°♌14'56	17.95875 AU
opposition	464 Apr 04 j 23:18	16°♌26'23	0°37'17	direct	471 Jul 25 j 02:03	16°♌12'15	
min. Earth dist.	464 Apr 05 j 09:22	16°♌25'19	17.57894 AU	conjunction	471 Nov 11 j 10:56	20°♌28'06	0°11'57
direct	464 Jun 21 j 02:35	14°♌21'50		minimum elong	471 Nov 11 j 10:56	20°♌28'06	0°11'58
conjunction	464 Oct 10 j 10:18	18°♌47'30	0°32'18	behind sun begin	471 Nov 11 j 06:20	20°♌27'25	
minimum elong	464 Oct 10 j 10:18	18°♌47'30	0°32'18	behind sun end	471 Nov 11 j 15:31	20°♌28'47	
max. Earth dist.	464 Oct 10 j 00:15	18°♌45'56	19.60179 AU	max. Earth dist.	471 Nov 11 j 14:27	20°♌28'37	19.99093 AU
retrograde	465 Jan 25 j 09:47	23°♌05'10		retrograde	472 Feb 26 j 15:09	24°♌40'07	
opposition	465 Apr 09 j 23:51	21°♌04'22	0°34'37	opposition	472 May 12 j 14:24	22°♌39'55	0°11'27
min. Earth dist.	465 Apr 10 j 08:52	21°♌03'25	17.62540 AU	min. Earth dist.	472 May 12 j 09:53	22°♌40'23	18.02327 AU
direct	465 Jun 26 j 04:06	19°♌00'07		direct	472 Jul 28 j 20:52	20°♌37'59	
conjunction	465 Oct 15 j 06:20	23°♌24'32	0°29'49	conjunction	472 Nov 15 j 00:46	24°♌52'22	0°08'42
minimum elong	465 Oct 15 j 06:20	23°♌24'32	0°29'49	minimum elong	472 Nov 15 j 00:45	24°♌52'22	0°08'41
max. Earth dist.	465 Oct 14 j 20:52	23°♌23'04	19.64962 AU	behind sun begin	472 Nov 14 j 19:03	24°♌51'31	
retrograde	466 Jan 30 j 06:28	27°♌41'27		behind sun end	472 Nov 15 j 06:28	24°♌53'13	
opposition	466 Apr 15 j 00:05	25°♌40'43	0°31'44	max. Earth dist.	472 Nov 15 j 06:44	24°♌53'16	20.05631 AU
min. Earth dist.	466 Apr 15 j 07:12	25°♌39'58	17.67448 AU	retrograde	473 Mar 02 j 07:47	29°♌03'35	
direct	466 Jul 01 j 06:03	23°♌36'44		opposition	473 May 17 j 10:30	27°♌03'35	0°07'47
conjunction	466 Oct 20 j 01:30	27°♌59'51	0°27'09	min. Earth dist.	473 May 17 j 03:19	27°♌04'19	18.08919 AU
minimum elong	466 Oct 20 j 01:30	27°♌59'51	0°27'10	direct	473 Aug 02 j 17:12	25°♌02'05	
max. Earth dist.	466 Oct 19 j 18:56	27°♌58'50	19.69993 AU	conjunction	473 Nov 19 j 13:45	29°♌15'01	0°05'25
retrograde	466 Nov 22 j 10:19	0°♌		minimum elong	473 Nov 19 j 13:45	29°♌15'01	0°05'26
opposition	467 Feb 04 j 00:39	2°♌15'57		behind sun begin	473 Nov 19 j 07:26	29°♌14'05	
min. Earth dist.	467 Apr 19 j 23:56	0°♌15'17	0°28'40	behind sun end	473 Nov 19 j 20:05	29°♌15'58	
direct	467 Apr 20 j 05:22	0°♌14'43	17.72590 AU	max. Earth dist.	473 Nov 19 j 21:24	29°♌16'10	20.12270 AU
conjunction	467 Jul 06 j 07:20	28°♌11'36		retrograde	473 Dec 01 j 22:05	0°♌	
	467 Sep 10 j 21:14	0°♌		opposition	474 Mar 06 j 22:47	3°♌25'30	
conjunction	467 Oct 24 j 19:37	2°♌33'18	0°24'19	min. Earth dist.	474 May 22 j 06:20	1°♌25'40	0°04'07
				direct	474 May 21 j 22:11	1°♌26'30	18.15595 AU
					474 Jun 29 j 23:49	30°♌	
					474 Aug 07 j 10:27	29°♌24'37	

	474 Sep 13 j 18:29	0°♁		retrograde	481 Apr 05 j 23:31	3°♁14'50	
				min. Earth dist.	481 Jun 21 j 11:39	1°♁17'31	18.58823 AU
conjunction	474 Nov 24 j 01:59	3°♁36'06	0°02'06	opposition	481 Jun 22 j 06:14	1°♁15'39	0°-20'-33
minimum elong	474 Nov 24 j 01:58	3°♁36'06	0°02'05		481 Jul 26 j 05:10	30°R♁	
behind sun begin	474 Nov 23 j 19:25	3°♁35'08		direct	481 Sep 07 j 01:24	29°♁17'03	
behind sun end	474 Nov 24 j 08:30	3°♁37'03			481 Oct 18 j 07:48	0°♁	
max. Earth dist.	474 Nov 24 j 11:39	3°♁37'33	20.18957 AU				
retrograde	475 Mar 11 j 14:47	7°♁45'50		conjunction	481 Dec 22 j 21:49	3°♁19'00	0°-20'00
opposition	475 May 27 j 01:28	5°♁46'10	0°00'26	minimum elong	481 Dec 22 j 21:49	3°♁19'00	0°20'02
min. Earth dist.	475 May 26 j 14:40	5°♁47'16	18.22266 AU	max. Earth dist.	481 Dec 23 j 17:03	3°♁21'50	20.61483 AU
desc. node	475 Jul 08 j 23:57	4°♁13'51		retrograde	482 Apr 10 j 09:02	7°♁23'59	
direct	475 Aug 12 j 05:06	3°♁45'34		opposition	482 Jun 26 j 20:41	5°♁24'48	0°-23'-41
				min. Earth dist.	482 Jun 26 j 01:54	5°♁26'41	18.64110 AU
conjunction	475 Nov 28 j 13:35	7°♁55'36	0°-1'-18	direct	482 Sep 11 j 13:50	3°♁26'27	
minimum elong	475 Nov 28 j 13:35	7°♁55'36	0°01'19				
behind sun begin	475 Nov 28 j 07:03	7°♁54'39		conjunction	482 Dec 27 j 04:58	7°♁27'11	0°-22'-46
behind sun end	475 Nov 28 j 20:08	7°♁56'34		minimum elong	482 Dec 27 j 04:58	7°♁27'11	0°22'47
max. Earth dist.	475 Nov 29 j 00:53	7°♁57'18	20.25595 AU	max. Earth dist.	482 Dec 28 j 01:06	7°♁30'09	20.66675 AU
retrograde	476 Mar 15 j 05:05	12°♁04'38		retrograde	483 Apr 14 j 21:12	11°♁31'37	
opposition	476 May 30 j 19:59	10°♁05'07	0°-3'-13	opposition	483 Jul 01 j 10:16	9°♁32'25	0°-26'-40
min. Earth dist.	476 May 30 j 08:39	10°♁06'16	18.28872 AU	min. Earth dist.	483 Jun 30 j 13:16	9°♁34'32	18.69212 AU
direct	476 Aug 15 j 20:59	8°♁04'55		direct	483 Sep 16 j 02:22	7°♁34'18	
conjunction	476 Dec 02 j 00:34	12°♁13'33	0°-4'-37	conjunction	483 Dec 31 j 11:50	11°♁33'56	0°-25'-24
minimum elong	476 Dec 02 j 00:34	12°♁13'33	0°04'38	minimum elong	483 Dec 31 j 11:50	11°♁33'56	0°25'25
behind sun begin	476 Dec 01 j 18:10	12°♁12'37		max. Earth dist.	484 Jan 01 j 09:39	11°♁37'08	20.71669 AU
behind sun end	476 Dec 02 j 06:58	12°♁14'30		retrograde	484 Apr 18 j 05:36	15°♁37'50	
max. Earth dist.	476 Dec 02 j 13:17	12°♁15'28	20.32135 AU	opposition	484 Jul 04 j 23:08	13°♁38'40	0°-29'-31
retrograde	477 Mar 19 j 20:06	16°♁21'52		min. Earth dist.	484 Jul 04 j 02:03	13°♁40'47	18.74119 AU
opposition	477 Jun 04 j 13:46	14°♁22'29	0°-6'-51	direct	484 Sep 19 j 12:33	11°♁40'48	
min. Earth dist.	477 Jun 04 j 00:00	14°♁23'53	18.35325 AU				
direct	477 Aug 20 j 14:09	12°♁22'41		conjunction	485 Jan 03 j 18:13	15°♁39'23	0°-27'-54
				minimum elong	485 Jan 03 j 18:13	15°♁39'23	0°27'55
conjunction	477 Dec 06 j 10:51	16°♁29'56	0°-7'-50	max. Earth dist.	485 Jan 04 j 16:36	15°♁42'40	20.76476 AU
minimum elong	477 Dec 06 j 10:51	16°♁29'56	0°07'52	retrograde	485 Apr 22 j 17:03	19°♁42'50	
behind sun begin	477 Dec 06 j 04:57	16°♁29'04		opposition	485 Jul 09 j 11:24	17°♁43'43	0°-32'-11
behind sun end	477 Dec 06 j 16:45	16°♁30'47		min. Earth dist.	485 Jul 08 j 12:25	17°♁46'01	18.78818 AU
max. Earth dist.	477 Dec 07 j 01:02	16°♁32'03	20.38481 AU	direct	485 Sep 23 j 23:14	15°♁46'06	
retrograde	478 Mar 24 j 09:07	20°♁37'32					
opposition	478 Jun 09 j 07:05	18°♁38'16	0°-10'-25	conjunction	486 Jan 08 j 00:12	19°♁43'44	0°-30'-14
min. Earth dist.	478 Jun 08 j 17:04	18°♁39'41	18.41573 AU	minimum elong	486 Jan 08 j 00:12	19°♁43'44	0°30'15
direct	478 Aug 25 j 05:21	16°♁38'50		max. Earth dist.	486 Jan 09 j 00:10	19°♁47'14	20.81044 AU
				retrograde	486 Apr 27 j 01:05	23°♁46'48	
conjunction	478 Dec 10 j 20:34	20°♁44'41	0°-11'-1	opposition	486 Jul 13 j 23:16	21°♁47'43	0°-34'-41
minimum elong	478 Dec 10 j 20:34	20°♁44'41	0°11'01	min. Earth dist.	486 Jul 13 j 00:21	21°♁50'01	18.83262 AU
behind sun begin	478 Dec 10 j 15:36	20°♁43'58		direct	486 Sep 28 j 08:04	19°♁50'22	
behind sun end	478 Dec 11 j 01:32	20°♁45'25					
max. Earth dist.	478 Dec 11 j 11:47	20°♁46'58	20.44613 AU	conjunction	487 Jan 12 j 06:00	23°♁47'06	0°-32'-25
retrograde	479 Mar 28 j 23:20	24°♁51'37		minimum elong	487 Jan 12 j 05:59	23°♁47'06	0°32'27
opposition	479 Jun 13 j 23:33	22°♁52'24	0°-13'-54	max. Earth dist.	487 Jan 13 j 06:13	23°♁50'38	20.85356 AU
min. Earth dist.	479 Jun 13 j 07:14	22°♁54'03	18.47578 AU	retrograde	487 May 01 j 11:59	27°♁49'50	
direct	479 Aug 29 j 20:58	20°♁53'17		min. Earth dist.	487 Jul 17 j 10:03	25°♁53'15	18.87425 AU
				opposition	487 Jul 18 j 10:26	25°♁50'49	0°-37'00
conjunction	479 Dec 15 j 05:36	24°♁57'48	0°-14'-6	direct	487 Oct 02 j 17:08	23°♁53'42	
minimum elong	479 Dec 15 j 05:35	24°♁57'48	0°14'08				
behind sun begin	479 Dec 15 j 02:14	24°♁57'19		conjunction	488 Jan 16 j 11:40	27°♁49'40	0°-34'-26
behind sun end	479 Dec 15 j 08:57	24°♁58'17		minimum elong	488 Jan 16 j 11:40	27°♁49'40	0°34'27
max. Earth dist.	479 Dec 15 j 22:17	25°♁00'17	20.50482 AU	max. Earth dist.	488 Jan 17 j 13:07	27°♁53'22	20.89339 AU
retrograde	480 Apr 01 j 10:27	29°♁04'03			488 Feb 24 j 21:32	0°≈	
opposition	480 Jun 17 j 15:25	27°♁04'52	0°-17'-17	retrograde	488 May 04 j 20:14	1°≈52'07	
min. Earth dist.	480 Jun 16 j 23:01	27°♁06'32	18.53323 AU		488 Jul 19 j 00:37	30°R♁	
direct	480 Sep 02 j 11:17	25°♁06'02		opposition	488 Jul 21 j 21:13	29°♁53'09	0°-39'-8
				min. Earth dist.	488 Jul 20 j 21:17	29°♁55'33	18.91230 AU
conjunction	480 Dec 18 j 14:00	29°♁09'14	0°-17'-6	direct	488 Oct 06 j 00:57	27°♁56'16	
minimum elong	480 Dec 18 j 14:00	29°♁09'14	0°17'07		488 Dec 17 j 09:57	0°≈	
max. Earth dist.	480 Dec 19 j 07:33	29°♁11'50	20.56103 AU				
	481 Jan 01 j 21:36	0°♁		conjunction	489 Jan 19 j 17:07	1°≈51'32	0°-36'-17

minimum elong	489 Jan 19 j 17:07	1°51'32	0°36'19		496 Nov 18 j 02:56	0°✕	
max. Earth dist.	489 Jan 20 j 18:18	1°55'11	20.92950 AU				
retrograde	489 May 09 j 06:24	5°53'45		conjunction	497 Feb 20 j 13:01	3°✕49'23	0°-43'-59
min. Earth dist.	489 Jul 25 j 06:32	3°57'19	18.94633 AU	minimum elong	497 Feb 20 j 13:01	3°✕49'23	0°43'59
opposition	489 Jul 26 j 07:25	3°54'50	0°-41'-4	max. Earth dist.	497 Feb 21 j 12:26	3°✕52'44	21.04097 AU
direct	489 Oct 10 j 09:00	1°58'09		retrograde	497 Jun 11 j 02:40	7°✕51'23	
				min. Earth dist.	497 Aug 27 j 05:56	5°✕54'09	19.03889 AU
conjunction	490 Jan 23 j 22:38	5°52'48	0°-37'-57	opposition	497 Aug 28 j 03:58	5°✕51'56	0°-48'-38
minimum elong	490 Jan 23 j 22:38	5°52'48	0°37'58	direct	497 Nov 11 j 10:23	3°✕55'32	
max. Earth dist.	490 Jan 25 j 00:38	5°56'34	20.96118 AU				
retrograde	490 May 13 j 14:45	9°54'50		conjunction	498 Feb 24 j 19:00	7°✕48'02	0°-44'00
opposition	490 Jul 30 j 17:26	7°55'57	0°-42'-48	minimum elong	498 Feb 24 j 19:00	7°✕48'02	0°44'01
min. Earth dist.	490 Jul 29 j 17:15	7°58'22	18.97567 AU	max. Earth dist.	498 Feb 25 j 18:47	7°✕51'26	21.03497 AU
direct	490 Oct 14 j 16:02	5°59'28		retrograde	498 Jun 15 j 10:36	11°✕50'14	
				opposition	498 Sep 01 j 11:13	9°✕50'41	0°-48'-32
conjunction	491 Jan 28 j 04:01	9°53'33	0°-39'-25	min. Earth dist.	498 Aug 31 j 14:02	9°✕52'50	19.03114 AU
minimum elong	491 Jan 28 j 04:01	9°53'33	0°39'26	direct	498 Nov 15 j 15:43	7°✕54'15	
max. Earth dist.	491 Jan 29 j 05:17	9°57'12	20.98805 AU				
retrograde	491 May 18 j 00:32	13°55'28		conjunction	499 Mar 01 j 01:10	11°✕46'52	0°-43'-49
min. Earth dist.	491 Aug 03 j 02:18	11°59'02	18.99991 AU	minimum elong	499 Mar 01 j 01:10	11°✕46'52	0°43'50
opposition	491 Aug 04 j 02:57	11°56'35	0°-44'-18	max. Earth dist.	499 Mar 01 j 23:36	11°✕50'05	21.02560 AU
direct	491 Oct 18 j 23:29	10°00'12		retrograde	499 Jun 19 j 20:21	15°✕49'21	
				opposition	499 Sep 05 j 18:19	13°✕49'43	0°-48'-13
conjunction	492 Feb 01 j 09:36	13°53'50	0°-40'-42	min. Earth dist.	499 Sep 04 j 21:29	13°✕51'50	19.01997 AU
minimum elong	492 Feb 01 j 09:36	13°53'50	0°40'43	direct	499 Nov 19 j 20:02	11°✕53'13	
max. Earth dist.	492 Feb 02 j 11:14	13°57'32	21.00942 AU				
	492 Feb 20 j 18:20	15°		conjunction	500 Mar 04 j 07:52	15°✕46'05	0°-43'-25
retrograde	492 May 21 j 08:18	17°55'38		minimum elong	500 Mar 04 j 07:52	15°✕46'05	0°43'25
opposition	492 Aug 07 j 11:58	15°56'43	0°-45'-36	max. Earth dist.	500 Mar 05 j 06:23	15°✕49'18	21.01256 AU
min. Earth dist.	492 Aug 06 j 12:20	15°59'05	19.01851 AU	retrograde	500 Jun 23 j 04:33	19°✕48'52	
	492 Sep 01 j 04:20	15°		min. Earth dist.	500 Sep 08 j 05:28	17°✕51'11	19.00507 AU
direct	492 Oct 22 j 05:43	14°00'25		opposition	500 Sep 09 j 01:15	17°✕49'11	0°-47'-39
	492 Dec 10 j 03:41	15°		direct	500 Nov 23 j 01:30	15°✕52'38	
conjunction	493 Feb 04 j 15:02	17°53'39	0°-41'-47	conjunction	501 Mar 08 j 14:51	19°✕45'49	0°-42'-48
minimum elong	493 Feb 04 j 15:02	17°53'39	0°41'47	minimum elong	501 Mar 08 j 14:51	19°✕45'49	0°42'50
max. Earth dist.	493 Feb 05 j 15:36	17°57'11	21.02536 AU	max. Earth dist.	501 Mar 09 j 11:40	19°✕48'47	20.99597 AU
retrograde	493 May 25 j 17:44	21°55'24		retrograde	501 Jun 27 j 15:09	23°✕49'00	
opposition	493 Aug 11 j 20:40	19°56'24	0°-46'-40	opposition	501 Sep 13 j 08:18	21°✕49'13	0°-46'-52
min. Earth dist.	493 Aug 10 j 20:51	19°58'47	19.03174 AU	min. Earth dist.	501 Sep 12 j 13:12	21°✕51'10	18.98656 AU
direct	493 Oct 26 j 12:36	18°00'08		direct	501 Nov 27 j 06:15	19°✕52'36	
conjunction	494 Feb 08 j 20:22	21°53'02	0°-42'-39	conjunction	502 Mar 12 j 22:21	23°✕46'12	0°-41'-59
minimum elong	494 Feb 08 j 20:22	21°53'02	0°42'40	minimum elong	502 Mar 12 j 22:21	23°✕46'12	0°42'00
max. Earth dist.	494 Feb 09 j 21:25	21°56'38	21.03593 AU	max. Earth dist.	502 Mar 13 j 19:03	23°✕49'09	20.97541 AU
retrograde	494 May 30 j 00:59	25°54'46		retrograde	502 Jul 01 j 23:57	27°✕49'48	
min. Earth dist.	494 Aug 15 j 06:10	23°57'57	19.03983 AU	opposition	502 Sep 17 j 15:25	25°✕49'59	0°-45'-51
opposition	494 Aug 16 j 05:05	23°55'40	0°-47'-31	min. Earth dist.	502 Sep 16 j 21:38	25°✕51'47	18.96385 AU
direct	494 Oct 30 j 18:10	21°59'23		direct	502 Dec 01 j 11:33	23°✕53'16	
conjunction	495 Feb 13 j 01:49	25°52'02	0°-43'-18	conjunction	503 Mar 17 j 06:30	27°✕47'22	0°-40'-58
minimum elong	495 Feb 13 j 01:49	25°52'02	0°43'18	minimum elong	503 Mar 17 j 06:30	27°✕47'22	0°40'59
max. Earth dist.	495 Feb 14 j 01:52	25°55'29	21.04180 AU	max. Earth dist.	503 Mar 18 j 01:01	27°✕50'01	20.95065 AU
retrograde	495 Jun 03 j 10:12	29°53'48			503 Apr 27 j 01:26	0°	
opposition	495 Aug 20 j 12:56	27°54'35	0°-48'-7	retrograde	503 Jul 06 j 11:09	1°	
min. Earth dist.	495 Aug 19 j 14:00	27°56'52	19.04353 AU		503 Sep 18 j 11:16	30°	
direct	495 Nov 04 j 00:13	25°58'16		opposition	503 Sep 21 j 22:28	29°✕51'32	0°-44'-36
				min. Earth dist.	503 Sep 21 j 05:57	29°✕53'13	18.93680 AU
conjunction	496 Feb 17 j 07:26	29°50'47	0°-43'-45	direct	503 Dec 05 j 17:21	27°✕54'41	
minimum elong	496 Feb 17 j 07:26	29°50'47	0°43'46		504 Feb 16 j 15:03	0°	
max. Earth dist.	496 Feb 18 j 07:56	29°54'17	21.04329 AU				
	496 Feb 19 j 23:50	0°		conjunction	504 Mar 20 j 15:22	1°	
retrograde	496 Jun 06 j 17:34	3°✕52'37		minimum elong	504 Mar 20 j 15:22	1°	
opposition	496 Aug 23 j 20:35	1°✕53'17	0°-48'-29	max. Earth dist.	504 Mar 21 j 09:15	1°	
min. Earth dist.	496 Aug 22 j 22:30	1°✕55'30	19.04303 AU	retrograde	504 Jul 09 j 20:22	5°	
	496 Oct 27 j 06:49	30°		opposition	504 Sep 25 j 05:46	3°	
direct	496 Nov 07 j 05:25	29°56'56		min. Earth dist.	504 Sep 24 j 14:48	3°	

direct	504 Dec 08 j 22:50	1°♃56'55		direct	513 Jan 10 j 12:40	4°♃48'46	
conjunction	505 Mar 25 j 00:35	5°♃52'15	0°-38'-17	conjunction	513 Apr 28 j 02:13	8°♃51'56	0°-20'-18
minimum elong	505 Mar 25 j 00:35	5°♃52'15	0°38'18	minimum elong	513 Apr 28 j 02:13	8°♃51'56	0°20'20
max. Earth dist.	505 Mar 25 j 15:54	5°♃54'26	20.88675 AU	max. Earth dist.	513 Apr 28 j 03:59	8°♃52'11	20.48324 AU
retrograde	505 Jul 14 j 07:43	9°♃57'21		retrograde	513 Aug 17 j 05:41	13°♃02'20	
opposition	505 Sep 29 j 13:17	7°♃57'11	0°-41'-26	opposition	513 Nov 01 j 08:32	11°♃00'52	0°-20'-51
min. Earth dist.	505 Sep 28 j 23:49	7°♃58'34	18.86790 AU	min. Earth dist.	513 Nov 01 j 07:13	11°♃01'01	18.45395 AU
direct	505 Dec 13 j 05:43	5°♃59'57		direct	514 Jan 14 j 21:45	9°♃01'08	
conjunction	506 Mar 29 j 10:38	9°♃56'00	0°-36'-39	conjunction	514 May 02 j 17:58	13°♃05'38	0°-17'-23
minimum elong	506 Mar 29 j 10:38	9°♃56'00	0°36'41	minimum elong	514 May 02 j 17:58	13°♃05'38	0°17'24
max. Earth dist.	506 Mar 30 j 01:11	9°♃58'05	20.84747 AU	max. Earth dist.	514 May 02 j 19:08	13°♃05'48	20.42468 AU
retrograde	506 Jul 18 j 17:30	14°♃01'38			514 Jun 05 j 12:52	15°♃	
opposition	506 Oct 03 j 20:49	12°♃01'19	0°-39'-32	retrograde	514 Aug 21 j 20:22	17°♃16'50	
min. Earth dist.	506 Oct 03 j 08:55	12°♃02'32	18.82624 AU	opposition	514 Nov 05 j 18:34	15°♃15'19	0°-17'-34
direct	506 Dec 17 j 12:09	10°♃03'48		min. Earth dist.	514 Nov 05 j 18:19	15°♃15'20	18.39486 AU
conjunction	507 Apr 02 j 21:10	14°♃00'38	0°-34'-49	direct	514 Nov 11 j 19:59	15°♃	
minimum elong	507 Apr 02 j 21:10	14°♃00'38	0°34'50		515 Jan 19 j 08:42	13°♃15'17	
max. Earth dist.	507 Apr 03 j 08:58	14°♃02'20	20.80383 AU		515 Mar 25 j 20:44	15°♃	
retrograde	507 Jul 23 j 04:48	18°♃06'51		conjunction	515 May 07 j 10:29	17°♃21'09	0°-14'-21
opposition	507 Oct 08 j 04:34	16°♃06'19	0°-37'-24	minimum elong	515 May 07 j 10:29	17°♃21'09	0°14'23
min. Earth dist.	507 Oct 07 j 18:22	16°♃07'23	18.78055 AU	behind sun begin	515 May 07 j 07:37	17°♃20'45	
direct	507 Dec 21 j 19:20	14°♃08'31		behind sun end	515 May 07 j 13:20	17°♃21'34	
conjunction	508 Apr 06 j 08:22	18°♃06'12	0°-32'-48	max. Earth dist.	515 May 07 j 08:33	17°♃20'53	20.36519 AU
minimum elong	508 Apr 06 j 08:22	18°♃06'12	0°32'50	retrograde	515 Aug 26 j 10:54	21°♃33'12	
max. Earth dist.	508 Apr 06 j 19:32	18°♃07'48	20.75625 AU	opposition	515 Nov 10 j 05:22	19°♃31'37	0°-14'-9
retrograde	508 Jul 26 j 15:40	22°♃13'00		min. Earth dist.	515 Nov 10 j 07:22	19°♃31'25	18.33489 AU
opposition	508 Oct 11 j 12:22	20°♃12'18	0°-35'-5	direct	516 Jan 23 j 19:08	17°♃31'17	
min. Earth dist.	508 Oct 11 j 03:33	20°♃13'13	18.73126 AU	conjunction	516 May 11 j 03:58	21°♃38'36	0°-11'-14
direct	508 Dec 25 j 02:53	18°♃14'10		minimum elong	516 May 11 j 03:58	21°♃38'36	0°11'14
conjunction	509 Apr 10 j 20:03	22°♃12'47	0°-30'-37	behind sun begin	516 May 10 j 23:03	21°♃37'54	
minimum elong	509 Apr 10 j 20:03	22°♃12'47	0°30'38	behind sun end	516 May 11 j 08:52	21°♃39'18	
max. Earth dist.	509 Apr 11 j 04:30	22°♃14'00	20.70564 AU	max. Earth dist.	516 May 11 j 01:13	21°♃38'13	20.30460 AU
retrograde	509 Jul 31 j 03:02	26°♃20'15		retrograde	516 Aug 30 j 03:11	25°♃51'28	
opposition	509 Oct 15 j 20:32	24°♃19'21	0°-32'-35	opposition	516 Nov 13 j 16:39	23°♃49'51	0°-10'-38
min. Earth dist.	509 Oct 15 j 13:22	24°♃20'05	18.67935 AU	min. Earth dist.	516 Nov 13 j 19:46	23°♃49'32	18.27364 AU
direct	509 Dec 29 j 10:09	22°♃20'52		direct	517 Jan 27 j 07:32	21°♃49'12	
conjunction	510 Apr 15 j 08:31	26°♃20'31	0°-28'-16	conjunction	517 May 15 j 22:17	25°♃57'58	0°-8'-1
minimum elong	510 Apr 15 j 08:31	26°♃20'31	0°28'17	minimum elong	517 May 15 j 22:17	25°♃57'58	0°08'02
max. Earth dist.	510 Apr 15 j 16:27	26°♃21'40	20.65252 AU	behind sun begin	517 May 15 j 16:17	25°♃57'06	
retrograde	510 Jul 01 j 12:38	0°♃		behind sun end	517 May 16 j 04:18	25°♃58'50	
	510 Jul 01 j 12:38	0°♃		max. Earth dist.	517 May 15 j 16:15	25°♃57'06	20.24273 AU
retrograde	510 Aug 04 j 15:23	0°♃28'39			517 Aug 13 j 14:52	0°♃	
	510 Sep 08 j 00:46	30°♃		retrograde	517 Sep 03 j 18:59	0°♃11'41	
opposition	510 Oct 20 j 04:56	28°♃27'35	0°-29'-53		517 Sep 25 j 04:05	30°♃	
min. Earth dist.	510 Oct 19 j 22:57	28°♃28'12	18.62512 AU	opposition	517 Nov 18 j 04:41	28°♃09'59	0°-7'-1
direct	511 Jan 02 j 18:53	26°♃28'47		min. Earth dist.	517 Nov 18 j 10:21	28°♃09'23	18.21118 AU
	511 Apr 11 j 09:36	0°♃		direct	518 Jan 31 j 19:20	26°♃08'59	
conjunction	511 Apr 19 j 21:40	0°♃29'32	0°-25'-45		518 May 15 j 07:41	0°♃	
minimum elong	511 Apr 19 j 21:40	0°♃29'32	0°25'45	conjunction	518 May 20 j 17:41	0°♃19'14	0°-4'-44
max. Earth dist.	511 Apr 20 j 02:47	0°♃30'16	20.59747 AU	minimum elong	518 May 20 j 17:42	0°♃19'14	0°04'45
retrograde	511 Aug 09 j 03:12	4°♃38'23		behind sun begin	518 May 20 j 11:05	0°♃18'17	
opposition	511 Oct 24 j 13:37	2°♃37'09	0°-27'-2	behind sun end	518 May 21 j 00:18	0°♃20'11	
min. Earth dist.	511 Oct 24 j 09:26	2°♃37'35	18.56929 AU	max. Earth dist.	518 May 20 j 10:29	0°♃18'12	20.17956 AU
direct	512 Jan 07 j 02:49	0°♃38'01		retrograde	518 Sep 08 j 13:12	4°♃33'45	
conjunction	512 Apr 23 j 11:43	4°♃39'57	0°-23'-6	opposition	518 Nov 22 j 17:17	2°♃31'58	0°-3'-20
minimum elong	512 Apr 23 j 11:43	4°♃39'57	0°23'06	min. Earth dist.	518 Nov 23 j 00:03	2°♃31'15	18.14727 AU
max. Earth dist.	512 Apr 23 j 16:17	4°♃40'36	20.54090 AU	direct	519 Feb 05 j 09:44	0°♃30'35	
retrograde	512 Aug 12 j 16:40	8°♃49'33		conjunction	519 May 25 j 13:50	4°♃42'19	0°-1'-22
opposition	512 Oct 27 j 22:47	6°♃48'12	0°-24'-1	minimum elong	519 May 25 j 13:50	4°♃42'19	0°01'23
min. Earth dist.	512 Oct 27 j 19:36	6°♃48'32	18.51206 AU	behind sun begin	519 May 25 j 07:03	4°♃41'20	

behind sun end	519 May 25 j 20:37	4°II43'18		direct	526 Mar 08 j 05:55	1°♄48'01	
max. Earth dist.	519 May 25 j 03:21	4°II40'46	20.11507 AU	max. Earth dist.	526 Jun 26 j 09:39	6°♄06'39	19.68519 AU
retrograde	519 Sep 13 j 05:38	8°II57'37					
asc. node	519 Oct 19 j 21:50	8°II23'43		conjunction	526 Jun 27 j 06:58	6°♄09'54	0°21'42
opposition	519 Nov 27 j 06:35	6°II55'43	0°00'23	minimum elong	526 Jun 27 j 06:58	6°♄09'54	0°21'43
min. Earth dist.	519 Nov 27 j 16:00	6°II54'43	18.08243 AU	retrograde	526 Oct 14 j 22:43	10°♄29'53	
direct	520 Feb 09 j 22:50	4°II53'54		opposition	526 Dec 27 j 21:17	8°♄27'18	0°25'48
				min. Earth dist.	526 Dec 28 j 14:50	8°♄25'23	17.65970 AU
conjunction	520 May 29 j 10:51	9°II07'08	0°02'06	direct	527 Mar 13 j 02:53	6°♄22'43	
minimum elong	520 May 29 j 10:51	9°II07'08	0°02'05	max. Earth dist.	527 Jul 01 j 10:33	10°♄42'36	19.63491 AU
behind sun begin	520 May 29 j 04:04	9°II06'09					
behind sun end	520 May 29 j 17:37	9°II08'07		conjunction	527 Jul 02 j 08:32	10°♄45'57	0°24'41
max. Earth dist.	520 May 28 j 23:13	9°II05'24	20.04998 AU	minimum elong	527 Jul 02 j 08:31	10°♄45'57	0°24'41
retrograde	520 Sep 17 j 01:24	13°II23'10		retrograde	527 Oct 19 j 19:05	15°♄06'30	
opposition	520 Nov 30 j 20:24	11°II21'09	0°04'09	opposition	528 Jan 01 j 16:00	13°♄03'57	0°29'03
min. Earth dist.	520 Dec 01 j 06:36	11°II20'03	18.01720 AU	min. Earth dist.	528 Jan 02 j 11:15	13°♄01'51	17.61152 AU
direct	521 Feb 13 j 15:05	9°II18'55		direct	528 Mar 16 j 22:55	10°♄59'07	
				max. Earth dist.	528 Jul 05 j 11:10	15°♄20'04	19.58884 AU
conjunction	521 Jun 03 j 08:22	13°II33'36	0°05'29				
minimum elong	521 Jun 03 j 08:21	13°II33'36	0°05'30	conjunction	528 Jul 06 j 10:33	15°♄23'39	0°27'31
behind sun begin	521 Jun 03 j 01:50	13°II32'39		minimum elong	528 Jul 06 j 10:33	15°♄23'39	0°27'31
behind sun end	521 Jun 03 j 14:53	13°II34'33		retrograde	528 Oct 23 j 17:50	19°♄44'45	
max. Earth dist.	521 Jun 02 j 18:00	13°II31'28	19.98483 AU	opposition	529 Jan 05 j 11:16	17°♄42'15	0°32'07
retrograde	521 Sep 21 j 18:23	17°II50'23		min. Earth dist.	529 Jan 06 j 06:28	17°♄40'09	17.56750 AU
opposition	521 Dec 05 j 10:59	15°II48'13	0°07'54	direct	529 Mar 21 j 21:13	15°♄37'12	
min. Earth dist.	521 Dec 05 j 23:43	15°II46'51	17.95240 AU				
direct	522 Feb 18 j 05:52	13°II45'32		conjunction	529 Jul 11 j 13:11	20°♄02'59	0°30'11
				minimum elong	529 Jul 11 j 13:11	20°♄02'59	0°30'12
conjunction	522 Jun 08 j 06:54	18°II01'42	0°08'50	max. Earth dist.	529 Jul 10 j 13:38	19°♄59'22	19.54664 AU
minimum elong	522 Jun 08 j 06:53	18°II01'42	0°08'50	retrograde	529 Oct 28 j 15:42	24°♄24'34	
behind sun begin	522 Jun 08 j 01:05	18°II00'51		opposition	530 Jan 10 j 07:29	22°♄22'08	0°35'01
behind sun end	522 Jun 08 j 12:41	18°II02'33		min. Earth dist.	530 Jan 11 j 04:17	22°♄19'52	17.52720 AU
max. Earth dist.	522 Jun 07 j 15:24	17°II59'23	19.92050 AU	direct	530 Mar 26 j 19:21	20°♄16'54	
retrograde	522 Sep 26 j 14:48	22°II19'10					
opposition	522 Dec 10 j 01:57	20°II16'52	0°11'38	conjunction	530 Jul 16 j 16:15	24°♄43'50	0°32'41
min. Earth dist.	522 Dec 10 j 15:13	20°II15'26	17.88870 AU	minimum elong	530 Jul 16 j 16:15	24°♄43'50	0°32'40
direct	523 Feb 22 j 23:41	18°II13'46		max. Earth dist.	530 Jul 15 j 14:53	24°♄39'55	19.50816 AU
				retrograde	530 Nov 02 j 15:06	29°♄05'50	
conjunction	523 Jun 13 j 06:01	22°II31'23	0°12'09	opposition	531 Jan 15 j 04:13	27°♄03'28	0°37'41
minimum elong	523 Jun 13 j 06:01	22°II31'23	0°12'09	min. Earth dist.	531 Jan 16 j 01:11	27°♄01'11	17.49054 AU
behind sun begin	523 Jun 13 j 01:33	22°II30'44		direct	531 Mar 31 j 19:30	24°♄58'03	
behind sun end	523 Jun 13 j 10:29	22°II32'03					
max. Earth dist.	523 Jun 12 j 12:22	22°II28'44	19.85756 AU	conjunction	531 Jul 21 j 19:49	29°♄26'02	0°34'58
retrograde	523 Oct 01 j 08:43	26°II49'31		minimum elong	531 Jul 21 j 19:49	29°♄26'02	0°34'58
opposition	523 Dec 14 j 17:51	24°II47'07	0°15'18	max. Earth dist.	531 Jul 20 j 18:40	29°♄22'09	19.47311 AU
min. Earth dist.	523 Dec 15 j 09:23	24°II45'26	17.82691 AU				
direct	524 Feb 27 j 16:19	22°II43'34		retrograde	531 Nov 07 j 13:58	3°♁48'22	
max. Earth dist.	524 Jun 16 j 10:57	26°II59'49	19.79698 AU	opposition	532 Jan 20 j 01:55	1°♁46'05	0°40'07
				min. Earth dist.	532 Jan 21 j 00:02	1°♁43'40	17.45726 AU
conjunction	524 Jun 17 j 05:37	27°II02'38	0°15'25				
minimum elong	524 Jun 17 j 05:37	27°II02'38	0°15'26	conjunction	532 Mar 08 j 10:17	30°♁	
behind sun begin	524 Jun 17 j 04:15	27°II02'26		direct	532 Apr 04 j 19:11	29°♄40'29	
behind sun end	524 Jun 17 j 06:59	27°II02'50					
	524 Aug 09 j 16:12	0°♄		conjunction	532 Jul 25 j 23:16	4°♁09'23	0°37'01
retrograde	524 Oct 05 j 05:43	1°♄21'25		minimum elong	532 Jul 25 j 23:16	4°♁09'23	0°37'01
	524 Dec 02 j 08:18	30°♁II		max. Earth dist.	532 Jul 24 j 20:22	4°♁05'12	19.44159 AU
opposition	524 Dec 18 j 10:16	29°II18'55	0°18'55	retrograde	532 Nov 11 j 14:13	8°♁32'00	
min. Earth dist.	524 Dec 19 j 01:54	29°II17'13	17.76774 AU	opposition	533 Jan 24 j 00:03	6°♁29'45	0°42'17
direct	525 Mar 03 j 11:45	27°II15'00		min. Earth dist.	533 Jan 24 j 22:22	6°♁27'19	17.42761 AU
	525 May 26 j 11:19	0°♄		direct	533 Apr 09 j 20:27	4°♁23'58	
max. Earth dist.	525 Jun 21 j 09:55	1°♄32'26	19.73925 AU	max. Earth dist.	533 Jul 30 j 00:56	8°♁49'35	19.41367 AU
conjunction	525 Jun 22 j 05:59	1°♄35'28	0°18'37	conjunction	533 Jul 31 j 03:11	8°♁53'40	0°38'50
minimum elong	525 Jun 22 j 05:58	1°♄35'28	0°18'36	minimum elong	533 Jul 31 j 03:11	8°♁53'40	0°38'50
retrograde	525 Oct 10 j 00:40	5°♄54'52		retrograde	533 Nov 16 j 13:49	13°♁16'26	
opposition	525 Dec 23 j 03:27	3°♄52'18	0°22'25	opposition	534 Jan 28 j 22:42	11°♁14'14	0°44'11
min. Earth dist.	525 Dec 23 j 21:04	3°♄50'23	17.71184 AU	min. Earth dist.	534 Jan 29 j 21:40	11°♁11'44	17.40156 AU

direct	534 Apr 14 j 21:06	9°Ω08'17		retrograde	541 Dec 24 j 09:44	21°♄18'47	
max. Earth dist.	534 Aug 04 j 03:16	13°Ω34'19	19.38964 AU	opposition	542 Mar 08 j 01:42	19°♄17'00	0°47'42
conjunction	534 Aug 05 j 06:59	13°Ω38'39	0°40'23	min. Earth dist.	542 Mar 08 j 19:41	19°♄15'03	17.37687 AU
minimum elong	534 Aug 05 j 06:59	13°Ω38'39	0°40'24	direct	542 May 23 j 21:36	17°♄10'55	
	534 Aug 27 j 07:14	15°Ω		max. Earth dist.	542 Sep 12 j 07:49	21°♄38'30	19.38753 AU
retrograde	534 Nov 21 j 14:21	18°Ω01'32		conjunction	542 Sep 13 j 03:46	21°♄41'38	0°42'21
opposition	535 Feb 02 j 21:55	15°Ω59'20	0°45'46	minimum elong	542 Sep 13 j 03:46	21°♄41'38	0°42'21
min. Earth dist.	535 Feb 03 j 21:05	15°Ω56'49	17.37971 AU	retrograde	542 Dec 29 j 07:49	26°♄02'53	
	535 Feb 26 j 12:10	15°♁Ω		opposition	543 Mar 13 j 03:15	24°♄01'15	0°46'39
direct	535 Apr 19 j 22:55	13°Ω53'13		min. Earth dist.	543 Mar 13 j 21:03	23°♄59'20	17.40015 AU
	535 Jun 10 j 01:21	15°Ω		direct	543 May 28 j 23:37	21°♄55'23	
max. Earth dist.	535 Aug 09 j 08:06	18°Ω19'58	19.36993 AU	max. Earth dist.	543 Sep 17 j 09:13	26°♄22'34	19.41343 AU
conjunction	535 Aug 10 j 10:41	18°Ω24'07	0°41'40	conjunction	543 Sep 18 j 04:11	26°♄25'33	0°41'16
minimum elong	535 Aug 10 j 10:41	18°Ω24'07	0°41'40	minimum elong	543 Sep 18 j 04:11	26°♄25'33	0°41'16
retrograde	535 Nov 26 j 14:03	22°Ω47'01			543 Nov 23 j 06:41	0°♁	
opposition	536 Feb 07 j 21:35	20°Ω44'50	0°47'02	retrograde	544 Jan 03 j 07:55	0°♁46'21	
min. Earth dist.	536 Feb 08 j 20:33	20°Ω42'20	17.36225 AU		544 Feb 14 j 17:43	30°♁♄	
direct	536 Apr 24 j 00:50	18°Ω38'36		opposition	544 Mar 17 j 04:40	28°♄44'52	0°45'18
max. Earth dist.	536 Aug 13 j 10:52	23°Ω05'35	19.35494 AU	min. Earth dist.	544 Mar 17 j 20:13	28°♄43'12	17.42835 AU
conjunction	536 Aug 14 j 14:07	23°Ω09'52	0°42'39	direct	544 Jun 02 j 03:40	26°♄39'15	
minimum elong	536 Aug 14 j 14:07	23°Ω09'52	0°42'40	max. Earth dist.	544 Sep 03 j 18:24	0°♁	
retrograde	536 Nov 30 j 13:43	27°Ω32'43			544 Sep 21 j 11:31	1°♁06'08	19.44384 AU
opposition	537 Feb 11 j 21:31	25°Ω30'32	0°47'59	conjunction	544 Sep 22 j 04:16	1°♁08'46	0°39'55
min. Earth dist.	537 Feb 12 j 20:37	25°Ω28'01	17.34994 AU	minimum elong	544 Sep 22 j 04:16	1°♁08'46	0°39'56
direct	537 Apr 29 j 03:04	23°Ω24'11		retrograde	545 Jan 07 j 05:42	5°♁29'01	
conjunction	537 Aug 19 j 17:26	27°Ω55'42	0°43'21	opposition	545 Mar 22 j 06:06	3°♁27'43	0°43'38
minimum elong	537 Aug 19 j 17:26	27°Ω55'42	0°43'21	min. Earth dist.	545 Mar 22 j 21:28	3°♁26'04	17.46085 AU
max. Earth dist.	537 Aug 18 j 15:34	27°Ω51'38	19.34530 AU	direct	545 Jun 07 j 05:32	1°♁22'20	
	537 Sep 22 j 22:50	0°♄		max. Earth dist.	545 Sep 26 j 11:23	5°♁48'31	19.47838 AU
retrograde	537 Dec 05 j 13:20	2°♄18'25		conjunction	545 Sep 27 j 03:36	5°♁51'03	0°38'18
opposition	538 Feb 16 j 21:51	0°♄16'15	0°48'36	minimum elong	545 Sep 27 j 03:36	5°♁51'03	0°38'18
min. Earth dist.	538 Feb 17 j 19:57	0°♄13'50	17.34298 AU	retrograde	546 Jan 12 j 04:53	10°♁10'44	
	538 Feb 23 j 03:26	30°♁Ω		opposition	546 Mar 27 j 07:27	8°♁09'34	0°41'41
direct	538 May 04 j 06:50	28°Ω09'50		min. Earth dist.	546 Mar 27 j 20:33	8°♁08'11	17.49717 AU
	538 Jul 10 j 01:40	0°♄		direct	546 Jun 12 j 08:48	6°♁04'28	
conjunction	538 Aug 24 j 20:18	2°♄41'26	0°43'45	conjunction	546 Oct 02 j 02:15	10°♁32'16	0°36'26
minimum elong	538 Aug 24 j 20:18	2°♄41'26	0°43'45	minimum elong	546 Oct 02 j 02:15	10°♁32'16	0°36'26
max. Earth dist.	538 Aug 23 j 18:41	2°♄37'25	19.34124 AU	max. Earth dist.	546 Oct 01 j 12:36	10°♁30'08	19.51641 AU
retrograde	538 Dec 10 j 11:49	7°♄03'58		retrograde	547 Jan 17 j 02:11	14°♁51'19	
opposition	539 Feb 21 j 22:33	5°♄01'50	0°48'52	opposition	547 Apr 01 j 08:49	12°♁50'17	0°39'27
min. Earth dist.	539 Feb 22 j 20:34	4°♄59'27	17.34206 AU	min. Earth dist.	547 Apr 01 j 21:22	12°♁48'57	17.53679 AU
direct	539 May 09 j 09:45	2°♄55'25		direct	547 Jun 17 j 10:44	10°♁45'27	
conjunction	539 Aug 29 j 22:52	7°♄26'59	0°43'50	max. Earth dist.	547 Oct 06 j 10:54	15°♁10'10	19.55770 AU
minimum elong	539 Aug 29 j 22:51	7°♄26'59	0°43'51	conjunction	547 Oct 07 j 00:00	15°♁12'13	0°34'20
max. Earth dist.	539 Aug 28 j 22:45	7°♄23'11	19.34349 AU	minimum elong	547 Oct 07 j 00:00	15°♁12'13	0°34'19
retrograde	539 Dec 15 j 11:31	11°♄49'16		retrograde	548 Jan 22 j 00:06	19°♁30'35	
opposition	540 Feb 26 j 23:27	9°♄47'12	0°48'49	opposition	548 Apr 05 j 09:40	17°♁29'40	0°36'58
min. Earth dist.	540 Feb 27 j 19:40	9°♄45'00	17.34741 AU	min. Earth dist.	548 Apr 05 j 19:59	17°♁28'34	17.57959 AU
direct	540 May 13 j 14:22	7°♄40'50		direct	548 Jun 21 j 12:42	15°♁25'06	
max. Earth dist.	540 Sep 02 j 01:55	12°♄08'38	19.35205 AU	conjunction	548 Oct 10 j 21:01	19°♁50'44	0°32'00
conjunction	540 Sep 03 j 00:52	12°♄12'14	0°43'38	minimum elong	548 Oct 10 j 21:01	19°♁50'44	0°32'00
minimum elong	540 Sep 03 j 00:52	12°♄12'14	0°43'37	max. Earth dist.	548 Oct 10 j 10:42	19°♁49'08	19.60197 AU
retrograde	540 Dec 19 j 09:41	16°♄34'14		retrograde	549 Jan 25 j 20:33	24°♁08'22	
opposition	541 Mar 03 j 00:37	14°♄32'17	0°48'25	opposition	549 Apr 10 j 10:19	22°♁07'33	0°34'16
min. Earth dist.	541 Mar 03 j 20:38	14°♄30'07	17.35916 AU	min. Earth dist.	549 Apr 10 j 19:41	22°♁06'33	17.62515 AU
direct	541 May 18 j 16:59	12°♄26'02		direct	549 Jun 26 j 14:44	20°♁03'15	
max. Earth dist.	541 Sep 07 j 04:49	16°♄53'44	19.36695 AU	conjunction	549 Oct 15 j 16:59	24°♁27'40	0°29'29
conjunction	541 Sep 08 j 02:32	16°♄57'09	0°43'08	minimum elong	549 Oct 15 j 16:59	24°♁27'40	0°29'29
minimum elong	541 Sep 08 j 02:32	16°♄57'09	0°43'08	max. Earth dist.	549 Oct 15 j 07:21	24°♁26'10	19.64903 AU

retrograde	550 Jan 30 j 16:31	28°♄44'32		max. Earth dist.	556 Nov 15 j 17:26	25°♁57'06	20.06027 AU
opposition	550 Apr 15 j 10:24	26°♄43'46	0°31'21		557 Feb 13 j 23:35	0°♂	
min. Earth dist.	550 Apr 15 j 17:36	26°♄43'01	17.67365 AU	retrograde	557 Mar 02 j 18:26	0°♂07'27	
direct	550 Jul 01 j 15:40	24°♄39'45			557 Mar 19 j 19:44	30°♁♁	
				opposition	557 May 17 j 20:44	28°♁07'33	0°07'15
conjunction	550 Oct 20 j 12:09	29°♄02'51	0°26'47	min. Earth dist.	557 May 17 j 13:40	28°♁08'17	18.09324 AU
minimum elong	550 Oct 20 j 12:09	29°♄02'51	0°26'47	direct	557 Aug 03 j 03:16	26°♁06'08	
max. Earth dist.	550 Oct 20 j 05:36	29°♄01'50	19.69903 AU		557 Nov 14 j 18:55	0°♂	
	550 Nov 04 j 21:37	0°♁		conjunction	557 Nov 20 j 00:24	0°♂19'07	0°04'55
retrograde	551 Feb 04 j 11:49	3°♁18'55		minimum elong	557 Nov 20 j 00:24	0°♂19'07	0°04'55
opposition	551 Apr 20 j 10:12	1°♁18'14	0°28'15	behind sun begin	557 Nov 19 j 18:01	0°♂18'10	
min. Earth dist.	551 Apr 20 j 15:46	1°♁17'39	17.72506 AU	behind sun end	557 Nov 20 j 06:47	0°♂20'04	
	551 May 24 j 02:25	30°♁♄		max. Earth dist.	557 Nov 20 j 07:47	0°♂20'13	20.12674 AU
direct	551 Jul 06 j 17:21	29°♄14'31		retrograde	558 Mar 07 j 09:27	4°♂29'36	
	551 Aug 17 j 23:08	0°♁		opposition	558 May 22 j 16:36	2°♂29'51	0°03'33
conjunction	551 Oct 25 j 06:04	3°♁36'13	0°23'56	min. Earth dist.	558 May 22 j 08:32	2°♂30'40	18.15989 AU
minimum elong	551 Oct 25 j 06:04	3°♁36'13	0°23'56	direct	558 Aug 07 j 20:28	0°♂28'51	
max. Earth dist.	551 Oct 25 j 00:40	3°♁35'23	19.75208 AU				
retrograde	552 Feb 09 j 05:58	7°♁51'30		conjunction	558 Nov 24 j 12:48	4°♂40'22	0°01'35
opposition	552 Apr 24 j 09:23	5°♁50'51	0°25'00	minimum elong	558 Nov 24 j 12:48	4°♂40'22	0°01'35
min. Earth dist.	552 Apr 24 j 12:47	5°♁50'30	17.77976 AU	behind sun begin	558 Nov 24 j 06:15	4°♂39'24	
direct	552 Jul 10 j 16:48	3°♁47'26		behind sun end	558 Nov 24 j 19:20	4°♂41'20	
				max. Earth dist.	558 Nov 24 j 22:17	4°♂41'47	20.19329 AU
conjunction	552 Oct 28 j 23:21	8°♁07'44	0°20'58	retrograde	559 Mar 12 j 01:44	8°♂50'04	
minimum elong	552 Oct 28 j 23:21	8°♁07'44	0°20'57	desc. node	559 May 13 j 16:05	7°♂23'51	
max. Earth dist.	552 Oct 28 j 21:04	8°♁07'23	19.80836 AU	opposition	559 May 27 j 11:42	6°♂50'27	0°00'-7
retrograde	553 Feb 12 j 23:43	12°♁22'10		min. Earth dist.	559 May 27 j 01:12	6°♂51'32	18.22611 AU
opposition	553 Apr 29 j 07:52	10°♁21'39	0°21'37	direct	559 Aug 12 j 15:39	4°♂49'52	
min. Earth dist.	553 Apr 29 j 09:09	10°♁21'31	17.83751 AU				
direct	553 Jul 15 j 16:54	8°♁18'35		conjunction	559 Nov 29 j 00:23	8°♂59'55	0°-1'-49
				minimum elong	559 Nov 29 j 00:23	8°♂59'55	0°01'51
conjunction	553 Nov 02 j 15:36	12°♁37'26	0°17'53	behind sun begin	559 Nov 28 j 17:50	8°♂58'57	
minimum elong	553 Nov 02 j 15:36	12°♁37'26	0°17'53	behind sun end	559 Nov 29 j 06:55	9°♂00'52	
max. Earth dist.	553 Nov 02 j 14:39	12°♁37'18	19.86772 AU	max. Earth dist.	559 Nov 29 j 11:10	9°♂01'32	20.25899 AU
	553 Dec 13 j 09:08	15°♁		retrograde	560 Mar 15 j 15:20	13°♂08'52	
retrograde	554 Feb 17 j 16:48	16°♁51'05		opposition	560 May 31 j 06:17	11°♂09'22	0°-3'-47
	554 Apr 30 j 12:02	15°♁♁		min. Earth dist.	560 May 30 j 19:15	11°♂10'30	18.29128 AU
opposition	554 May 04 j 06:01	14°♁50'40	0°18'07	direct	560 Aug 16 j 07:24	9°♂09'10	
min. Earth dist.	554 May 04 j 05:20	14°♁50'45	17.89840 AU				
direct	554 Jul 20 j 14:07	12°♁47'59		conjunction	560 Dec 02 j 11:24	13°♂17'46	0°-5'-7
	554 Oct 02 j 20:35	15°♁		minimum elong	560 Dec 02 j 11:24	13°♂17'46	0°05'09
				behind sun begin	560 Dec 02 j 05:03	13°♂16'50	
conjunction	554 Nov 07 j 07:01	17°♁05'23	0°14'43	behind sun end	560 Dec 02 j 17:45	13°♂18'41	
minimum elong	554 Nov 07 j 07:00	17°♁05'23	0°14'43	max. Earth dist.	560 Dec 02 j 23:45	13°♂19'37	20.32333 AU
behind sun begin	554 Nov 07 j 04:08	17°♁04'57		retrograde	561 Mar 20 j 06:36	17°♂25'57	
behind sun end	554 Nov 07 j 09:52	17°♁05'49		opposition	561 Jun 04 j 23:56	15°♂26'34	0°-7'-25
max. Earth dist.	554 Nov 07 j 09:03	17°♁05'42	19.92997 AU	min. Earth dist.	561 Jun 04 j 10:37	15°♂27'55	18.35464 AU
retrograde	555 Feb 22 j 09:46	21°♁18'13		direct	561 Aug 21 j 01:26	13°♂26'42	
opposition	555 May 09 j 03:34	19°♁17'59	0°14'33				
min. Earth dist.	555 May 09 j 00:24	19°♁18'18	17.96170 AU	conjunction	561 Dec 06 j 21:43	17°♂33'52	0°-8'-21
direct	555 Jul 25 j 12:01	17°♁15'42		minimum elong	561 Dec 06 j 21:44	17°♂33'52	0°08'22
				behind sun begin	561 Dec 06 j 15:57	17°♂33'02	
conjunction	555 Nov 11 j 21:34	21°♁31'38	0°11'30	behind sun end	561 Dec 07 j 03:31	17°♂34'43	
minimum elong	555 Nov 11 j 21:34	21°♁31'38	0°11'30	max. Earth dist.	561 Dec 07 j 11:20	17°♂35'54	20.38564 AU
behind sun begin	555 Nov 11 j 16:46	21°♁30'55		retrograde	562 Mar 24 j 18:50	21°♂41'21	
behind sun end	555 Nov 12 j 02:22	21°♁32'21		opposition	562 Jun 09 j 17:13	19°♂42'00	0°-10'-58
max. Earth dist.	555 Nov 12 j 01:02	21°♁32'09	19.99433 AU	min. Earth dist.	562 Jun 09 j 03:35	19°♂43'23	18.41600 AU
retrograde	556 Feb 27 j 01:52	25°♁43'41		direct	562 Aug 25 j 15:49	17°♂42'28	
opposition	556 May 13 j 00:27	23°♁43'36	0°10'55				
min. Earth dist.	556 May 12 j 19:50	23°♁44'04	18.02700 AU	conjunction	562 Dec 11 j 07:16	21°♂48'13	0°-11'-30
direct	556 Jul 29 j 07:01	21°♁41'44		minimum elong	562 Dec 11 j 07:16	21°♂48'13	0°11'32
				behind sun begin	562 Dec 11 j 02:30	21°♂47'32	
conjunction	556 Nov 15 j 11:27	25°♁56'13	0°08'13	behind sun end	562 Dec 11 j 12:02	21°♂48'55	
minimum elong	556 Nov 15 j 11:26	25°♁56'13	0°08'14	max. Earth dist.	562 Dec 11 j 22:14	21°♂50'27	20.44594 AU
behind sun begin	556 Nov 15 j 05:37	25°♁55'21		retrograde	563 Mar 29 j 08:34	25°♂54'59	
behind sun end	556 Nov 15 j 17:16	25°♁57'05		opposition	563 Jun 14 j 09:34	23°♂55'40	0°-14'-26

min. Earth dist.	563 Jun 13 j 17:37	23° 2 57'17	18.47515 AU	retrograde	571 May 01 j 22:24	28° 3 51'03	
direct	563 Aug 30 j 08:34	21° 2 56'25		opposition	571 Jul 18 j 19:49	26° 3 52'07	0°-37'-21
				min. Earth dist.	571 Jul 17 j 19:24	26° 3 54'34	18.87942 AU
conjunction	563 Dec 15 j 16:12	26° 2 00'48	0°-14'-35	direct	571 Oct 03 j 02:50	24° 3 55'05	
minimum elong	563 Dec 15 j 16:12	26° 2 00'48	0°14'36				
behind sun begin	563 Dec 15 j 13:13	26° 2 00'22		conjunction	572 Jan 16 j 21:41	28° 3 51'06	0°-34'-45
behind sun end	563 Dec 15 j 19:12	26° 2 01'14		minimum elong	572 Jan 16 j 21:41	28° 3 51'06	0°34'47
max. Earth dist.	563 Dec 16 j 08:35	26° 2 03'14	20.50396 AU	max. Earth dist.	572 Jan 17 j 22:49	28° 3 54'45	20.89865 AU
	564 Mar 16 j 09:15	0° 3			572 Feb 05 j 21:43	0° 3	
retrograde	564 Apr 01 j 19:42	0° 3 06'52		retrograde	572 May 05 j 06:19	2° 3 53'32	
	564 Apr 18 j 11:20	30° R		min. Earth dist.	572 Jul 21 j 06:48	0° 3 57'03	18.91755 AU
min. Earth dist.	564 Jun 17 j 09:01	28° 2 09'12	18.53228 AU	opposition	572 Jul 22 j 06:31	0° 3 54'41	0°-39'-27
opposition	564 Jun 18 j 01:07	28° 2 07'34	0°-17'-48		572 Aug 15 j 00:12	30° R	
direct	564 Sep 02 j 21:14	26° 2 08'34		direct	572 Oct 06 j 10:31	28° 3 57'53	
	564 Dec 15 j 18:08	0° 3			572 Nov 25 j 10:21	0° 3	
conjunction	564 Dec 19 j 00:29	0° 3 11'39	0°-17'-34	conjunction	573 Jan 20 j 03:15	2° 3 53'12	0°-36'-34
minimum elong	564 Dec 19 j 00:29	0° 3 11'39	0°17'36	minimum elong	573 Jan 20 j 03:14	2° 3 53'12	0°36'35
max. Earth dist.	564 Dec 19 j 18:06	0° 3 14'16	20.56017 AU	max. Earth dist.	573 Jan 21 j 04:13	2° 3 56'49	20.93466 AU
retrograde	565 Apr 06 j 07:59	4° 3 17'04		retrograde	573 May 09 j 17:02	6° 3 55'24	
opposition	565 Jun 22 j 15:55	2° 3 17'47	0°-21'-3	opposition	573 Jul 26 j 16:51	4° 3 56'35	0°-41'-22
min. Earth dist.	565 Jun 21 j 21:25	2° 3 19'39	18.58762 AU	min. Earth dist.	573 Jul 25 j 16:08	4° 3 59'03	18.95128 AU
direct	565 Sep 07 j 12:01	0° 3 19'03		direct	573 Oct 10 j 18:52	2° 3 59'59	
conjunction	565 Dec 23 j 08:01	4° 3 20'53	0°-20'-26	conjunction	574 Jan 24 j 08:39	6° 3 54'40	0°-38'-12
minimum elong	565 Dec 23 j 08:01	4° 3 20'53	0°20'27	minimum elong	574 Jan 24 j 08:39	6° 3 54'40	0°38'13
max. Earth dist.	565 Dec 24 j 03:16	4° 3 23'44	20.61458 AU	max. Earth dist.	574 Jan 25 j 10:15	6° 3 58'22	20.96582 AU
retrograde	566 Apr 10 j 18:26	8° 3 25'42		retrograde	574 May 14 j 00:13	10° 3 56'41	
min. Earth dist.	566 Jun 26 j 11:26	6° 3 28'20	18.64139 AU	min. Earth dist.	574 Jul 30 j 03:06	9° 3 00'14	18.97994 AU
opposition	566 Jun 27 j 06:14	6° 3 26'26	0°-24'-10	opposition	574 Jul 31 j 02:54	8° 3 57'52	0°-43'-4
direct	566 Sep 11 j 23:22	4° 3 27'59		direct	574 Oct 15 j 01:54	7° 3 01'25	
conjunction	566 Dec 27 j 15:12	8° 3 28'39	0°-23'-11	conjunction	575 Jan 28 j 14:07	10° 3 55'31	0°-39'-39
minimum elong	566 Dec 27 j 15:12	8° 3 28'39	0°23'12	minimum elong	575 Jan 28 j 14:07	10° 3 55'31	0°39'40
max. Earth dist.	566 Dec 28 j 11:32	8° 3 31'39	20.66759 AU	max. Earth dist.	575 Jan 29 j 15:08	10° 3 59'07	20.99191 AU
retrograde	567 Apr 15 j 05:58	12° 3 32'56		retrograde	575 May 18 j 10:23	14° 3 57'21	
opposition	567 Jul 01 j 19:35	10° 3 33'43	0°-27'-7	min. Earth dist.	575 Aug 03 j 11:53	13° 3 00'56	19.00338 AU
min. Earth dist.	567 Jun 30 j 22:29	10° 3 35'50	18.69361 AU	opposition	575 Aug 04 j 12:15	12° 3 58'30	0°-44'-33
direct	567 Sep 16 j 11:46	8° 3 35'32		direct	575 Oct 19 j 09:14	11° 3 02'08	
conjunction	567 Dec 31 j 21:53	12° 3 35'07	0°-25'-48	conjunction	576 Feb 01 j 19:31	14° 3 55'45	0°-40'-54
minimum elong	567 Dec 31 j 21:53	12° 3 35'07	0°25'49	minimum elong	576 Feb 01 j 19:31	14° 3 55'45	0°40'55
max. Earth dist.	568 Jan 01 j 19:42	12° 3 38'19	20.71881 AU	max. Earth dist.	576 Feb 02 j 20:51	14° 3 59'23	21.01259 AU
retrograde	568 Apr 18 j 15:36	16° 3 38'55			576 Feb 03 j 01:05	15° 3	
min. Earth dist.	568 Jul 04 j 11:20	14° 3 41'53	18.74392 AU	retrograde	576 May 21 j 17:17	18° 3 57'27	
opposition	568 Jul 05 j 08:30	14° 3 39'46	0°-29'-56	opposition	576 Aug 07 j 21:20	16° 3 58'32	0°-45'-48
direct	568 Sep 19 j 21:55	12° 3 41'54		min. Earth dist.	576 Aug 06 j 22:01	17° 3 00'51	19.02145 AU
				direct	576 Oct 22 j 15:45	15° 3 02'12	
conjunction	569 Jan 04 j 04:10	16° 3 40'28	0°-28'-16	conjunction	577 Feb 05 j 00:41	18° 3 55'22	0°-41'-56
minimum elong	569 Jan 04 j 04:10	16° 3 40'28	0°28'17	minimum elong	577 Feb 05 j 00:41	18° 3 55'22	0°41'58
max. Earth dist.	569 Jan 05 j 02:42	16° 3 43'46	20.76806 AU	max. Earth dist.	577 Feb 06 j 01:20	18° 3 58'54	21.02824 AU
retrograde	569 Apr 23 j 02:38	20° 3 43'51		retrograde	577 May 26 j 02:38	22° 3 56'59	
opposition	569 Jul 09 j 20:42	18° 3 44'46	0°-32'-35	min. Earth dist.	577 Aug 11 j 06:07	21° 3 00'20	19.03470 AU
min. Earth dist.	569 Jul 08 j 21:33	18° 3 47'05	18.79198 AU	opposition	577 Aug 12 j 05:55	20° 3 57'57	0°-46'-50
direct	569 Sep 24 j 08:31	16° 3 47'11		direct	577 Oct 26 j 22:16	19° 3 01'38	
conjunction	570 Jan 08 j 10:13	20° 3 44'49	0°-30'-35	conjunction	578 Feb 09 j 05:57	22° 3 54'25	0°-42'-46
minimum elong	570 Jan 08 j 10:13	20° 3 44'49	0°30'37	minimum elong	578 Feb 09 j 05:57	22° 3 54'25	0°42'47
max. Earth dist.	570 Jan 09 j 10:04	20° 3 48'19	20.81474 AU	max. Earth dist.	578 Feb 10 j 07:02	22° 3 58'01	21.03916 AU
retrograde	570 Apr 27 j 11:33	24° 3 47'51		retrograde	578 May 30 j 09:37	26° 3 56'00	
min. Earth dist.	570 Jul 13 j 09:39	22° 3 51'09	18.83732 AU	opposition	578 Aug 16 j 14:10	24° 3 56'51	0°-47'-38
opposition	570 Jul 14 j 08:35	22° 3 48'51	0°-35'-3	min. Earth dist.	578 Aug 15 j 15:17	24° 3 59'08	19.04352 AU
direct	570 Sep 28 j 17:28	20° 3 51'34		direct	578 Oct 31 j 04:07	23° 3 00'31	
conjunction	571 Jan 12 j 15:57	24° 3 48'20	0°-32'-45	conjunction	579 Feb 13 j 11:14	26° 3 53'03	0°-43'-24
minimum elong	571 Jan 12 j 15:57	24° 3 48'20	0°32'46	minimum elong	579 Feb 13 j 11:14	26° 3 53'03	0°43'26
max. Earth dist.	571 Jan 13 j 16:10	24° 3 51'52	20.85856 AU				

max. Earth dist.	579 Feb 14 j 11:34	26° \approx 56'32	21.04602 AU	max. Earth dist.	587 Mar 18 j 09:56	28° \times 49'19	20.96172 AU
	579 Apr 16 j 14:02	0° \times			587 Apr 08 j 07:38	0° \vee	
retrograde	579 Jun 03 j 18:55	0° \times 54'38		retrograde	587 Jul 06 j 19:17	2° \vee 50'41	
	579 Jul 23 j 12:11	30° \approx		opposition	587 Sep 22 j 07:28	0° \vee 50'52	0°-44'-28
opposition	579 Aug 20 j 21:59	28° \approx 55'22	0°-48'-12	min. Earth dist.	587 Sep 21 j 15:10	0° \vee 52'32	18.94725 AU
min. Earth dist.	579 Aug 19 j 22:44	28° \approx 57'42	19.04843 AU		587 Oct 13 j 20:00	30° \approx	
direct	579 Nov 04 j 10:01	26° \approx 59'01		direct	587 Dec 06 j 02:00	28° \times 54'07	
	580 Feb 02 j 15:21	0° \times			588 Jan 26 j 13:04	0° \vee	
conjunction	580 Feb 17 j 16:41	0° \times 51'22	0°-43'-49	conjunction	588 Mar 21 j 00:22	2° \vee 48'43	0°-39'-35
minimum elong	580 Feb 17 j 16:41	0° \times 51'22	0°43'49	minimum elong	588 Mar 21 j 00:22	2° \vee 48'43	0°39'36
max. Earth dist.	580 Feb 18 j 17:19	0° \times 54'54	21.04889 AU	max. Earth dist.	588 Mar 21 j 17:51	2° \vee 51'13	20.93085 AU
retrograde	580 Jun 07 j 01:53	4° \times 53'02		retrograde	588 Jul 10 j 05:03	6° \vee 53'12	
min. Earth dist.	580 Aug 23 j 07:09	2° \times 55'55	19.04946 AU	opposition	588 Sep 25 j 14:47	4° \vee 53'16	0°-42'-57
opposition	580 Aug 24 j 05:28	2° \times 53'40	0°-48'-33	min. Earth dist.	588 Sep 25 j 00:14	4° \vee 54'45	18.91372 AU
direct	580 Nov 07 j 14:56	0° \times 57'18		direct	588 Dec 09 j 08:18	2° \vee 56'20	
conjunction	581 Feb 20 j 22:14	4° \times 49'36	0°-44'-1	conjunction	589 Mar 25 j 09:36	6° \vee 51'34	0°-38'-7
minimum elong	581 Feb 20 j 22:14	4° \times 49'36	0°44'02	minimum elong	589 Mar 25 j 09:36	6° \vee 51'34	0°38'08
max. Earth dist.	581 Feb 21 j 21:56	4° \times 52'59	21.04823 AU	max. Earth dist.	589 Mar 26 j 00:37	6° \vee 53'43	20.89500 AU
retrograde	581 Jun 11 j 11:28	8° \times 51'25		retrograde	589 Jul 14 j 16:05	10° \vee 56'35	
opposition	581 Aug 28 j 12:49	6° \times 51'57	0°-48'-39	opposition	589 Sep 29 j 22:12	8° \vee 56'28	0°-41'-14
min. Earth dist.	581 Aug 27 j 14:18	6° \times 54'13	19.04700 AU	min. Earth dist.	589 Sep 29 j 08:56	8° \vee 57'50	18.87543 AU
direct	581 Nov 11 j 20:31	4° \times 55'34		direct	589 Dec 13 j 14:06	6° \vee 59'17	
conjunction	582 Feb 25 j 04:01	8° \times 47'54	0°-44'-1	conjunction	590 Mar 29 j 19:27	10° \vee 55'14	0°-36'-27
minimum elong	582 Feb 25 j 04:01	8° \times 47'54	0°44'01	minimum elong	590 Mar 29 j 19:27	10° \vee 55'14	0°36'28
max. Earth dist.	582 Feb 26 j 03:56	8° \times 51'19	21.04388 AU	max. Earth dist.	590 Mar 30 j 09:39	10° \vee 57'16	20.85442 AU
retrograde	582 Jun 15 j 18:57	12° \times 49'56		retrograde	590 Jul 19 j 02:11	15° \vee 00'47	
opposition	582 Sep 01 j 20:03	10° \times 50'25	0°-48'-32	opposition	590 Oct 04 j 05:43	13° \vee 00'31	0°-39'-17
min. Earth dist.	582 Aug 31 j 22:38	10° \times 52'34	19.04078 AU	min. Earth dist.	590 Oct 03 j 18:06	13° \vee 01'42	18.83264 AU
direct	582 Nov 16 j 00:45	8° \times 54'01		direct	590 Dec 17 j 21:01	11° \vee 03'03	
conjunction	583 Mar 01 j 10:12	12° \times 46'29	0°-43'-48	conjunction	591 Apr 03 j 05:51	14° \vee 59'47	0°-34'-36
minimum elong	583 Mar 01 j 10:12	12° \times 46'29	0°43'49	minimum elong	591 Apr 03 j 05:51	14° \vee 59'47	0°34'37
max. Earth dist.	583 Mar 02 j 08:53	12° \times 49'43	21.03592 AU	max. Earth dist.	591 Apr 03 j 17:31	15° \vee 01'27	20.80985 AU
retrograde	583 Jun 20 j 04:45	16° \times 48'47		retrograde	591 Jul 23 j 13:39	19° \vee 05'55	
min. Earth dist.	583 Sep 05 j 05:50	14° \times 51'21	19.03087 AU	opposition	591 Oct 08 j 13:14	17° \vee 05'25	0°-37'-8
opposition	583 Sep 06 j 02:59	14° \times 49'13	0°-48'-11	min. Earth dist.	591 Oct 08 j 03:01	17° \vee 06'29	18.78630 AU
direct	583 Nov 20 j 06:11	12° \times 52'46		direct	591 Dec 22 j 03:58	15° \vee 07'39	
conjunction	584 Mar 04 j 16:51	16° \times 45'30	0°-43'-23	conjunction	592 Apr 06 j 16:54	19° \vee 05'15	0°-32'-33
minimum elong	584 Mar 04 j 16:51	16° \times 45'30	0°43'24	minimum elong	592 Apr 06 j 16:54	19° \vee 05'15	0°32'34
max. Earth dist.	584 Mar 05 j 15:25	16° \times 48'44	21.02396 AU	max. Earth dist.	592 Apr 07 j 03:56	19° \vee 06'50	20.76186 AU
retrograde	584 Jun 23 j 13:05	20° \times 48'09		retrograde	592 Jul 26 j 23:58	23° \vee 11'59	
opposition	584 Sep 09 j 10:03	18° \times 48'32	0°-47'-36	opposition	592 Oct 11 j 21:04	21° \vee 11'19	0°-34'-48
min. Earth dist.	584 Sep 08 j 14:16	18° \times 50'33	19.01682 AU	min. Earth dist.	592 Oct 11 j 12:16	21° \vee 12'14	18.73683 AU
direct	584 Nov 23 j 10:26	16° \times 52'05		direct	592 Dec 25 j 10:55	19° \vee 13'14	
conjunction	585 Mar 08 j 23:43	20° \times 45'08	0°-42'-45	conjunction	593 Apr 11 j 04:20	23° \vee 11'46	0°-30'-21
minimum elong	585 Mar 08 j 23:43	20° \times 45'08	0°42'45	minimum elong	593 Apr 11 j 04:20	23° \vee 11'46	0°30'22
max. Earth dist.	585 Mar 09 j 20:44	20° \times 48'08	21.00792 AU	max. Earth dist.	593 Apr 11 j 12:56	23° \vee 13'00	20.71126 AU
retrograde	585 Jun 27 j 23:15	24° \times 48'12		retrograde	593 Jul 31 j 12:23	27° \vee 19'10	
opposition	585 Sep 13 j 17:09	22° \times 48'32	0°-46'-47	opposition	593 Oct 16 j 05:12	25° \vee 18'18	0°-32'-16
min. Earth dist.	585 Sep 12 j 22:02	22° \times 50'28	18.99853 AU	min. Earth dist.	593 Oct 15 j 21:45	25° \vee 19'04	18.68507 AU
direct	585 Nov 27 j 15:44	20° \times 52'01		direct	593 Dec 29 j 19:07	23° \vee 19'53	
conjunction	586 Mar 13 j 07:24	24° \times 45'31	0°-41'-54	conjunction	594 Apr 15 j 16:47	27° \vee 19'26	0°-27'-58
minimum elong	586 Mar 13 j 07:24	24° \times 45'31	0°41'55	minimum elong	594 Apr 15 j 16:47	27° \vee 19'26	0°27'59
max. Earth dist.	586 Mar 14 j 03:57	24° \times 48'27	20.98724 AU	max. Earth dist.	594 Apr 16 j 00:50	27° \vee 20'36	20.65839 AU
retrograde	586 Jul 02 j 08:36	28° \times 49'01			594 Jun 04 j 21:24	0° \times	
min. Earth dist.	586 Sep 17 j 06:49	26° \times 51'04	18.97540 AU	retrograde	594 Aug 04 j 23:12	1° \times 27'31	
opposition	586 Sep 18 j 00:15	26° \times 49'18	0°-45'-44		594 Oct 06 j 23:28	30° \approx	
direct	586 Dec 01 j 20:48	24° \times 52'41		opposition	594 Oct 20 j 13:29	29° \vee 26'29	0°-29'-33
conjunction	587 Mar 17 j 15:36	28° \times 46'42	0°-40'-51	min. Earth dist.	594 Oct 20 j 07:23	29° \vee 27'07	18.63123 AU
minimum elong	587 Mar 17 j 15:36	28° \times 46'42	0°40'51	direct	595 Jan 03 j 02:44	27° \vee 27'45	
					595 Mar 25 j 06:11	0° \times	

conjunction	595 Apr 20 j 05:51	1°♃28'24	0°-25'-26
minimum elong	595 Apr 20 j 05:51	1°♃28'24	0°25'28
max. Earth dist.	595 Apr 20 j 11:14	1°♃29'11	20.60382 AU
retrograde	595 Aug 09 j 12:22	5°♃37'13	
opposition	595 Oct 24 j 22:17	3°♃36'02	0°-26'-40
min. Earth dist.	595 Oct 24 j 17:43	3°♃36'30	18.57589 AU
direct	596 Jan 07 j 11:44	1°♃36'59	
conjunction	596 Apr 23 j 19:42	5°♃38'49	0°-22'-46
minimum elong	596 Apr 23 j 19:42	5°♃38'49	0°22'47
max. Earth dist.	596 Apr 24 j 00:33	5°♃39'31	20.54772 AU
retrograde	596 Aug 13 j 00:38	9°♃48'22	
opposition	596 Oct 28 j 07:29	7°♃47'05	0°-23'-39
min. Earth dist.	596 Oct 28 j 04:07	7°♃47'26	18.51908 AU
direct	597 Jan 10 j 20:43	5°♃47'44	
conjunction	597 Apr 28 j 10:19	9°♃50'48	0°-19'-57
minimum elong	597 Apr 28 j 10:19	9°♃50'48	0°19'58
max. Earth dist.	597 Apr 28 j 12:22	9°♃51'05	20.49043 AU
retrograde	597 Aug 17 j 14:28	14°♃01'10	
opposition	597 Nov 01 j 17:08	11°♃59'46	0°-20'-28
min. Earth dist.	597 Nov 01 j 15:35	11°♃59'56	18.46119 AU
direct	598 Jan 15 j 06:19	10°♃00'06	
conjunction	598 May 03 j 02:03	14°♃04'31	0°-17'-1
minimum elong	598 May 03 j 02:03	14°♃04'31	0°17'03
max. Earth dist.	598 May 03 j 03:22	14°♃04'42	20.43185 AU
	598 May 19 j 00:35	15°♃	
retrograde	598 Aug 22 j 04:53	18°♃15'41	
opposition	598 Nov 06 j 03:19	16°♃14'13	0°-17'-9
min. Earth dist.	598 Nov 06 j 03:09	16°♃14'14	18.40181 AU
	598 Dec 07 j 17:51	15°♃	
direct	599 Jan 19 j 16:53	14°♃14'16	
	599 Mar 02 j 20:42	15°♃	
conjunction	599 May 07 j 18:34	18°♃20'02	0°-13'-58
minimum elong	599 May 07 j 18:34	18°♃20'02	0°13'58
behind sun begin	599 May 07 j 15:19	18°♃19'34	
behind sun end	599 May 07 j 21:49	18°♃20'30	
max. Earth dist.	599 May 07 j 16:40	18°♃19'46	20.37175 AU
retrograde	599 Aug 26 j 19:39	22°♃32'02	
opposition	599 Nov 10 j 14:02	20°♃30'30	0°-13'-43
min. Earth dist.	599 Nov 10 j 16:08	20°♃30'17	18.34093 AU
direct	600 Jan 24 j 03:36	18°♃30'12	
conjunction	600 May 11 j 12:10	22°♃37'25	0°-10'-50
minimum elong	600 May 11 j 12:10	22°♃37'25	0°10'51
behind sun begin	600 May 11 j 07:05	22°♃36'41	
behind sun end	600 May 11 j 17:14	22°♃38'09	
max. Earth dist.	600 May 11 j 09:15	22°♃37'00	20.30996 AU
retrograde	600 Aug 30 j 11:45	26°♃50'14	
opposition	600 Nov 14 j 01:25	24°♃48'37	0°-10'-10
min. Earth dist.	600 Nov 14 j 04:52	24°♃48'15	18.27822 AU